

# Wyoming Retirement System Law Enforcement Retirement Fund

GASB Statement Nos. 67 and 68 Accounting and Financial  
Reporting for Pensions  
For Measurement Date as of December 31, 2022





March 25, 2023

Board of Trustees  
Wyoming Law Enforcement Retirement Fund

Dear Board Members:

This report provides information required by the Wyoming Law Enforcement Retirement Fund (WRS) in connection with the Governmental Accounting Standards Board (GASB) Statement No. 67 and 68 for the Wyoming Retirement System ("WRS"). These calculations have been made on a basis that is consistent with our understanding of these Statements.

GASB Statement No. 67 is the accounting standard that applies to the stand-alone financial reports issued by retirement systems. GASB Statement No. 68 establishes accounting and financial reporting for state and local government employers who provide their employees (including former employees) pension benefits through a trust.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of providing reporting and disclosure information that satisfies the requirements of GASB Statement Nos. 67 and 68. The Net Pension Liability is not an appropriate measure for measuring the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligation. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. This report may be provided to parties other than the Wyoming Law Enforcement Retirement Fund only in its entirety and only with the permission of WRS. GRS is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by WRS, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by WRS.

This report complements the actuarial valuation report that was provided to WRS and should be considered in conjunction with that report. Please see the actuarial valuation report as of January 1, 2022 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. Furthermore, this report again includes the assumptions adopted by the Board at the November 17, 2021 and the February 17, 2022 meetings. 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.

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.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge, the information contained in this report is accurate and fairly presents the actuarial position of the Wyoming Law Enforcement Retirement Fund as of the valuation date.

All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

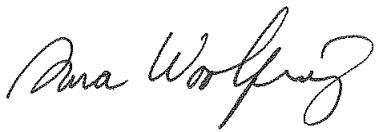
Paul T. Wood, Thomas A. Lyle, and Dana Woolfrey are members of the American Academy of Actuaries (MAAA) and are experienced in performing valuations for public retirement systems. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor.

Respectfully submitted,

**Gabriel, Roeder, Smith & Company**

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# SECTION A

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## EXECUTIVE SUMMARY

# Executive Summary as of December 31, 2022

	<b>2022</b>
Actuarial Valuation Date	January 1, 2022
Measurement Date of the Net Pension Liability	December 31, 2022
Employer's Fiscal Year Ending Date (Reporting Date)	December 31, 2022

## Membership

Number of	
- Retirees and Beneficiaries	1,522
- Inactive, Nonretired Members	1,720
- Active Members	2,579
- Total	5,821
Covered Payroll	\$ 161,405,371

## Net Pension Liability

Total Pension Liability	\$ 1,146,871,863
Plan Fiduciary Net Position	806,217,227
Net Pension Liability	\$ 340,654,636
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	70.30 %
Net Pension Liability as a Percentage of Covered Payroll	211.06 %

## Development of the Single Discount Rate

Single Discount Rate	5.53 %
Long-Term Expected Rate of Investment Return	6.80 %
Long-Term Municipal Bond Rate*	4.05 %
Last year ending December 31 in the 2022 to 2121 projection period for which projected benefit payments are fully funded	2051

**Total Pension Expense** \$ 65,498,553

## Deferred Outflows and Deferred Inflows of Resources by Source to be recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ 8,043,582	\$ 10,742,659
Changes in assumptions	141,078,453	52,682,869
Net difference between projected and actual earnings on pension plan investments	96,094,042	72,185,727
Total	\$ 245,216,077	\$ 135,611,255

\*Source: Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of December 31, 2022. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax exempt securities.



# Discussion

## Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the net pension liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

## Financial Statements

GASB Statement No. 68 requires state or local governments to recognize the net pension liability and the pension expense on their financial statements. The net pension liability is the difference between the total pension liability and the plan's fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 34 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to WRS subsequent to the measurement date of December 31, 2022.

The pension expense recognized each fiscal year is equal to the change in the net pension liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience.

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The *statement of fiduciary net position* presents the assets and liabilities of the pension plan at the end of the pension plan's reporting period. The *statement of changes in fiduciary net position* presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expenses, and net increase or decrease in the fiduciary net position.



## Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans to include certain additional information. The list of disclosure items should include:

- a description of benefits provided by the plan;
- the type of employees and number of members covered by the pension plan;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- the pension plan's fiduciary net position and the net pension liability;
- the net pension liability using a discount rate that is 1% higher and 1% lower than used to calculate the total pension liability and net pension liability for financial reporting purposes;
- significant assumptions and methods used to calculate the total pension liability;
- inputs to the discount rates; and
- certain information about mortality assumptions and the dates of experience studies.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- the composition of the pension plan's Board and the authority under which benefit terms may be amended;
- a description of how fair value is determined;
- information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets;
- annual money-weighted rate of return.

## Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- sources of changes in the net pension liability;
- information about the components of the net pension liability and related ratios, including the pension plan's fiduciary net position as a percentage of the total pension liability, and the net pension liability as a percent of covered-employee payroll; and
- a comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.



## **General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status**

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 6.80% on the actuarial value of assets), then the following outcomes are expected:

1. The employer normal cost as a percentage of pay is expected to remain level as a percentage of payroll.
2. The unfunded liability is expected to increase as a percentage of payroll each year in the future.
3. The unfunded liability is not expected to be fully amortized during the lifetimes of current members.
4. The funded status of the plan is expected to decrease over time.

This funding policy results in the expectation that the plan's assets will not be able to fully pay for the promised benefit payments through at least 2120 and, therefore, results in an expected crossover date in 2051 and a GASB single discount rate of 5.53%. The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

### **Timing of the Valuation**

An actuarial valuation to determine the total pension liability is required to be performed at least every two years. The net pension liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the total pension liability is not calculated as of the measurement date, the total pension liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total pension liability shown in this report is based on an actuarial valuation performed as of January 1, 2022 and a measurement date of December 31, 2022.

## Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on pension plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating (which is published by the Federal Reserve) as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.80%; the municipal bond rate is 4.05% (based on the daily rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 5.53%.

## Effective Date and Transition

GASB Statement Nos. 67 and 68 are effective for fiscal years beginning after June 15, 2013, and June 15, 2014 respectively, earlier application is encouraged by the GASB.



## SECTION B

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### FINANCIAL STATEMENTS

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Wyoming Law Enforcement Retirement Fund. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

# Statement of Pension Expense under GASB Statement No. 68

## Fiscal Year Ended December 31, 2022

### A. Expense

1. Service Cost	\$	39,080,968
2. Interest on the Total Pension Liability		59,391,957
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(16,904,076)
5. Projected Earnings on Plan Investments (made negative for addition here)		(59,481,649)
6. Pension Plan Administrative Expense		813,046
7. Other Changes in Plan Fiduciary Net Position		51,149
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		40,331,002
9. Recognition of Outflow (Inflow) of Resources due to Assets		2,216,156
<b>10. Total Pension Expense</b>	<b>\$</b>	<b>65,498,553</b> *

\*In accordance with GASB 71, employers may need to illustrate contributions made after the measurement date

# Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended December 31, 2022

## A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ (14,432,899)
2. Assumption Changes (gains) or losses	\$ (57,529,503)
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	3.9111
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability	\$ (3,690,240)
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for assumption changes	\$ (14,709,290)
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	\$ (18,399,530)
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	\$ (10,742,659)
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for assumption changes	\$ (42,820,213)
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	\$ (53,562,872)

## B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ 120,117,552
2. Recognition period for Assets {in years}	5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	\$ 24,023,510
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ 96,094,042

# History of Deferred Outflows and Inflows of Resources by Source

## Fiscal Year Ended December 31, 2022

**Differences between expected and actual experience - Net (inflows)/outflows of resources**

Recognition Period	5.2360	4.9669	4.8650	4.7436	4.5560	4.3883	4.2374	4.1607	3.9111		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	
<b>Total</b>	\$ -	\$ 1,710,375	\$ (3,501,453)	\$ (6,691,047)	\$ (7,328,715)	\$ 19,861,777	\$ 7,869,329	\$ 7,679,619	\$ (14,432,899)	\$ -	
2014	-	-	-	-	-	-	-	-	-	-	-
2015	-	344,355	-	-	-	-	-	-	-	344,355	
2016	-	344,355	(719,723)	-	-	-	-	-	-	(375,368)	
2017	-	344,355	(719,723)	(1,410,542)	-	-	-	-	-	(1,785,910)	
2018	-	344,355	(719,723)	(1,410,542)	(1,608,585)	-	-	-	-	(3,394,495)	
2019	-	332,955	(719,723)	(1,410,542)	(1,608,585)	4,526,075	-	-	-	1,120,180	
2020	-	-	(622,561)	(1,410,542)	(1,608,585)	4,526,075	1,857,113	-	-	2,741,500	
2021	-	-	-	(1,048,879)	(1,608,585)	4,526,075	1,857,113	1,845,752	-	5,571,476	
2022	-	-	-	-	(894,375)	4,526,075	1,857,113	1,845,752	(3,690,240)	3,644,325	
2023	-	-	-	-	-	1,757,477	1,857,113	1,845,752	(3,690,240)	1,770,102	\$ (2,699,077)
2024	-	-	-	-	-	-	440,877	1,845,752	(3,690,240)	(1,403,611)	
2025	-	-	-	-	-	-	-	296,611	(3,362,179)	(3,065,568)	
2026	-	-	-	-	-	-	-	-	-	-	
2027	-	-	-	-	-	-	-	-	-	-	
Thereafter	-	-	-	-	-	-	-	-	-	-	
	\$ -	\$ 1,710,375	\$ (3,501,453)	\$ (6,691,047)	\$ (7,328,715)	\$ 19,861,777	\$ 7,869,329	\$ 7,679,619	\$ (14,432,899)	\$ 5,166,986	

**Assumption changes - Net (inflows)/outflows of resources**

Recognition Period	5.2360	4.9669	4.8650	4.7436	4.5560	4.3883	4.2374	4.1607	3.9111		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	
<b>Total</b>	\$ -	\$ -	\$ -	\$ 51,421,521	\$ 94,255,216	\$ (111,460,988)	\$ -	\$ 271,664,329	\$ (57,529,503)	\$ -	
2014	-	-	-	-	-	-	-	-	-	-	-
2015	-	-	-	-	-	-	-	-	-	-	-
2016	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	10,840,189	-	-	-	-	-	10,840,189	
2018	-	-	-	10,840,189	20,688,151	-	-	-	-	31,528,340	
2019	-	-	-	10,840,189	20,688,151	(25,399,583)	-	-	-	6,128,757	
2020	-	-	-	10,840,189	20,688,151	(25,399,583)	-	-	-	6,128,757	
2021	-	-	-	8,060,765	20,688,151	(25,399,583)	-	65,292,938	-	68,642,271	
2022	-	-	-	-	11,502,612	(25,399,583)	-	65,292,938	(14,709,290)	36,686,677	
2023	-	-	-	-	-	(9,862,656)	-	65,292,938	(14,709,290)	40,720,992	\$ 88,395,584
2024	-	-	-	-	-	-	-	65,292,938	(14,709,290)	50,583,648	
2025	-	-	-	-	-	-	-	10,492,577	(13,401,633)	(2,909,056)	
2026	-	-	-	-	-	-	-	-	-	-	
2027	-	-	-	-	-	-	-	-	-	-	
Thereafter	-	-	-	-	-	-	-	-	-	-	
	\$ -	\$ -	\$ -	\$ 51,421,521	\$ 94,255,216	\$ (111,460,988)	\$ -	\$ 271,664,329	\$ (57,529,503)	\$ 248,350,575	



## History of Deferred Outflows and Inflows of Resources by Source Fiscal Year Ended December 31, 2022 (continued)

**Net Difference between projected and actual earnings on pension plan investments - Net (inflows)/outflows of resources**

Recognition Period	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	
<b>Total</b>	\$ 14,545,212	\$ 46,589,301	\$ 2,778,485	\$ (39,041,366)	\$ 65,975,687	\$ (69,167,783)	\$ (25,773,169)	\$ (80,071,509)	\$ 120,117,552	\$ 35,952,410	
2014	2,909,042									2,909,042	
2015	2,909,042	9,317,860								12,226,902	
2016	2,909,042	9,317,860	555,697							12,782,599	
2017	2,909,042	9,317,860	555,697	(7,808,273)						4,974,326	
2018	2,909,044	9,317,860	555,697	(7,808,273)	13,195,137					18,169,465	
2019	-	9,317,861	555,697	(7,808,273)	13,195,137	(13,833,557)				1,426,865	
2020	-	-	555,697	(7,808,273)	13,195,137	(13,833,557)	(5,154,634)			(13,045,630)	
2021	-	-	-	(7,808,274)	13,195,137	(13,833,557)	(5,154,634)	(16,014,302)		(29,615,630)	
2022	-	-	-	-	13,195,139	(13,833,557)	(5,154,634)	(16,014,302)	24,023,510	2,216,156	\$ 23,908,315
2023	-	-	-	-	-	(13,833,555)	(5,154,634)	(16,014,302)	24,023,510	(10,978,981)	
2024	-	-	-	-	-	-	(5,154,633)	(16,014,302)	24,023,510	2,854,575	
2025	-	-	-	-	-	-	-	(16,014,301)	24,023,510	8,009,209	
2026	-	-	-	-	-	-	-	-	24,023,512	24,023,512	
2027	-	-	-	-	-	-	-	-	-	-	
Thereafter	-	-	-	-	-	-	-	-	-	-	
	\$ 14,545,212	\$ 46,589,301	\$ 2,778,485	\$ (39,041,366)	\$ 65,975,687	\$ (69,167,783)	\$ (25,773,169)	\$ (80,071,509)	\$ 120,117,552	\$ 35,952,410	

**Total net differences from all sources - Net (inflows)/outflows of resources**

	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	
<b>Total</b>	\$ 14,545,212	\$ 48,299,676	\$ (722,968)	\$ 5,689,108	\$ 152,902,188	\$ (160,766,994)	\$ (17,903,840)	\$ 199,272,439	\$ 48,155,150	\$ 289,469,971	
2014	2,909,042									2,909,042	
2015	2,909,042	9,662,215								12,571,257	
2016	2,909,042	9,662,215	(164,026)							12,407,231	
2017	2,909,042	9,662,215	(164,026)	1,621,374						14,028,605	
2018	2,909,044	9,662,215	(164,026)	1,621,374	32,274,703					46,303,310	
2019	-	9,650,816	(164,026)	1,621,374	32,274,703	(34,707,065)				8,675,802	
2020	-	-	(66,864)	1,621,374	32,274,703	(34,707,065)	(3,297,521)			(4,175,373)	
2021	-	-	-	(796,388)	32,274,703	(34,707,065)	(3,297,521)	51,124,388		44,598,117	
2022	-	-	-	-	23,803,376	(34,707,065)	(3,297,521)	51,124,388	5,623,980	42,547,158	
2023	-	-	-	-	-	(21,938,734)	(3,297,521)	51,124,388	5,623,980	31,512,113	\$ 109,604,822
2024	-	-	-	-	-	-	(4,713,756)	51,124,388	5,623,980	52,034,612	
2025	-	-	-	-	-	-	-	(5,225,113)	7,259,698	2,034,585	
2026	-	-	-	-	-	-	-	-	24,023,512	24,023,512	
2027	-	-	-	-	-	-	-	-	-	-	
Thereafter	-	-	-	-	-	-	-	-	-	-	
	\$ 14,545,212	\$ 48,299,676	\$ (722,968)	\$ 5,689,108	\$ 152,902,188	\$ (160,766,994)	\$ (17,903,840)	\$ 199,272,439	\$ 48,155,150	\$ 289,469,971	



# Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended December 31, 2022

## A. Outflows and Inflows of Resources due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 85,024,490	\$ 44,693,488	\$ 40,331,002
2. Due to Assets	37,218,649	35,002,493	2,216,156
<b>3. Total</b>	<b>\$ 122,243,139</b>	<b>\$ 79,695,981</b>	<b>\$ 42,547,158</b>

## B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 8,228,940	\$ 4,584,615	\$ 3,644,325
2. Assumption Changes	76,795,550	40,108,873	36,686,677
3. Net Difference between projected and actual earnings on pension plan investments	37,218,649	35,002,493	2,216,156
<b>4. Total</b>	<b>\$ 122,243,139</b>	<b>\$ 79,695,981</b>	<b>\$ 42,547,158</b>

## C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 8,043,582	\$ 10,742,659	\$ (2,699,077)
2. Assumption Changes	141,078,453	52,682,869	88,395,584
3. Net Difference between projected and actual earnings on pension plan investments	96,094,042	72,185,727	23,908,315
<b>4. Total</b>	<b>\$ 245,216,077</b>	<b>\$ 135,611,255</b>	<b>\$ 109,604,822</b>

## D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

Year Ending December 31	Net Deferred Outflows of Resources
2023	\$ 31,512,113
2024	52,034,612
2025	2,034,585
2026	24,023,512
2027	0
Thereafter	0
<b>Total</b>	<b>\$ 109,604,822</b>





## Statement of Fiduciary Net Position as of December 31, 2022

	<b>2022</b>
<b>Assets</b>	
Cash and Deposits	\$ 34,464,676
Receivables	
Accounts Receivable - Sale of Investments	\$ 353,810
Accrued Interest and Other Dividends	1,482,236
Contributions	1,916,065
Accounts Receivable - Other	49,171,028
Total Receivables	\$ 52,923,139
Investments	
Fixed Income	\$ 131,523,212
Domestic Equities	386,582,372
International Equities	105,679,643
Real Estate	147,888,064
Security Lending Collateral	38,421,711
Capital Assets, at Cost, Net of Accumulated Depreciation	189,692
Total Investments	\$ 810,284,694
<b>Total Assets</b>	<b>\$ 897,672,509</b>
<b>Liabilities</b>	
Payables	
Accounts Payable - Purchase of Investments	\$ 90,034,365
Accrued Expenses	1,199,759
Accounts Payable - Other	221,158
Total Liabilities	\$ 91,455,282
<b>Net Position Restricted for Pensions</b>	<b>\$ 806,217,227</b>

## Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2022

	2022
<b>Additions</b>	
Contributions	
Employer	\$ 14,548,971
Employee	14,548,477
Other Employer Contributions	441,523
Other Employee Contributions	2,355,599
<b>Total Contributions</b>	<b>\$ 31,894,570</b>
Investment Income	
Net Appreciation in Fair Value of Investments	\$ (71,282,684)
Interest and Dividends	15,883,203
Less Investment Expense	(5,236,422)
<b>Net Investment Income</b>	<b>\$ (60,635,903)</b>
Other	\$ 0
<b>Total Additions</b>	<b>\$ (28,741,333)</b>
<b>Deductions</b>	
Benefit Payments, including Refunds of Employee Contributions	\$ 46,529,493
Pension Plan Administrative Expense	813,046
Other	51,149
<b>Total Deductions</b>	<b>\$ 47,393,688</b>
<b>Net Increase in Net Position</b>	<b>\$ (76,135,021)</b>
<b>Net Position Restricted for Pensions</b>	
Beginning of Year	\$ 882,352,248
End of Year	<b>\$ 806,217,227</b>

## SECTION C

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### **REQUIRED SUPPLEMENTARY INFORMATION**

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Wyoming Law Enforcement Retirement Fund. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

# Schedule of Changes in Net Pension Liability and Related Ratios

## Current Reporting Period

### Fiscal Year Ended December 31, 2022

<b>A. Total pension liability</b>	
1. Service cost	\$ 39,080,968
2. Interest on the total pension liability	59,391,957
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the total pension liability	(14,432,899)
5. Changes of assumptions	(57,529,503)
6. Benefit payments, including refunds of employee contributions	(46,529,493)
<b>7. Net change in total pension liability</b>	<u>(20,018,970)</u>
<b>8. Total pension liability – beginning</b>	<u>1,166,890,833</u>
<b>9. Total pension liability – ending</b>	<u><u>\$ 1,146,871,863</u></u>
<b>B. Plan fiduciary net position</b>	
1. Contributions – employer	\$ 14,990,494
2. Contributions – employee	16,904,076
3. Net investment income	(60,635,903)
4. Benefit payments	(42,739,295)
5. Refunds	(3,790,198)
6. Pension plan administrative expense	(813,046)
7. Other	(51,149)
<b>8. Net change in plan fiduciary net position</b>	<u>(76,135,021)</u>
<b>9. Plan fiduciary net position – beginning</b>	<u>882,352,248</u>
<b>10. Plan fiduciary net position – ending</b>	<u><u>\$ 806,217,227</u></u>
<b>C. Net pension liability</b>	<u><u>\$ 340,654,636</u></u>
<b>D. Plan fiduciary net position as a percentage of the total pension liability</b>	70.30 %
<b>E. Covered-employee payroll</b>	\$ 161,405,371
<b>F. Net pension liability as a percentage of covered-employee payroll</b>	211.06 %

# Schedules of Required Supplementary Information

## Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

### Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending December 31,	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Total pension liability</b>									
Service cost	\$ 39,080,968	\$ 40,282,611	\$ 23,499,547	\$ 22,866,557	\$ 26,657,347	\$ 23,241,982	\$ 23,339,214	\$ 22,790,835	\$ 22,432,708
Interest on the total pension liability	59,391,957	57,437,879	55,065,772	51,970,908	47,238,165	47,200,725	45,945,359	43,444,727	40,636,242
Changes of benefit terms	0	0	0	0	0	0	0	0	0
Difference between expected and actual experience	(14,432,899)	7,679,619	7,869,329	19,861,777	(7,328,715)	(6,691,047)	(3,501,453)	1,710,375	0
Changes of assumptions	(57,529,503)	271,664,329	0	(111,460,988)	94,255,216	51,421,521	0	0	0
Benefit payments, including refunds of employee contributions	(46,529,493)	(43,306,822)	(40,386,827)	(37,276,954)	(35,984,464)	(33,662,493)	(31,364,891)	(30,119,285)	(27,320,442)
<b>Net change in total pension liability</b>	<b>(20,018,970)</b>	<b>333,757,616</b>	<b>46,047,821</b>	<b>(54,038,700)</b>	<b>124,837,549</b>	<b>81,510,688</b>	<b>34,418,229</b>	<b>37,826,652</b>	<b>35,748,508</b>
<b>Total pension liability - beginning</b>	<b>1,166,890,833</b>	<b>833,133,217</b>	<b>787,085,396</b>	<b>841,124,096</b>	<b>716,286,547</b>	<b>634,775,859</b>	<b>600,357,630</b>	<b>562,530,978</b>	<b>526,782,470</b>
<b>Total pension liability - ending (a)</b>	<b>\$ 1,146,871,863</b>	<b>\$ 1,166,890,833</b>	<b>\$ 833,133,217</b>	<b>\$ 787,085,396</b>	<b>\$ 841,124,096</b>	<b>\$ 716,286,547</b>	<b>\$ 634,775,859</b>	<b>\$ 600,357,630</b>	<b>\$ 562,530,978</b>
<b>Plan fiduciary net position</b>									
Employer contributions	\$ 14,990,494	\$ 14,567,813	\$ 14,893,512	\$ 14,270,844	\$ 13,781,011	\$ 13,614,406	\$ 13,730,305	\$ 12,706,883	\$ 13,308,281
Employee contributions	16,904,076	15,246,586	15,860,480	14,671,686	13,846,377	13,691,494	14,442,190	15,397,475	13,314,132
Pension plan net investment income	(60,635,903)	131,614,933	74,478,954	110,793,173	(22,169,139)	77,946,645	37,782,650	(5,371,824)	24,853,352
Benefit payments	(42,739,295)	(40,189,329)	(37,604,942)	(34,850,971)	(32,013,552)	(29,621,411)	(27,873,802)	(25,459,574)	(23,209,837)
Refunds	(3,790,198)	(3,117,493)	(2,781,885)	(2,425,983)	(3,970,912)	(4,041,082)	(3,491,089)	(4,659,711)	(4,110,605)
Pension plan administrative expense	(813,046)	(753,782)	(695,251)	(596,769)	(639,428)	(580,221)	(518,486)	(417,893)	(408,470)
Other	(51,149)	(27,492)	(26,531)	(27,143)	(24,638)	(51,644)	(25,522)	(24,983)	797,291
<b>Net change in plan fiduciary net position</b>	<b>(76,135,021)</b>	<b>117,341,236</b>	<b>64,124,337</b>	<b>101,834,837</b>	<b>(31,190,281)</b>	<b>70,958,187</b>	<b>34,046,246</b>	<b>(7,829,627)</b>	<b>24,544,144</b>
<b>Plan fiduciary net position - beginning</b>	<b>882,352,248</b>	<b>765,011,012</b>	<b>700,886,675</b>	<b>599,051,838</b>	<b>630,242,119</b>	<b>559,283,932</b>	<b>525,237,686</b>	<b>533,067,313</b>	<b>508,523,169</b>
<b>Plan fiduciary net position - ending (b)</b>	<b>\$ 806,217,227</b>	<b>\$ 882,352,248</b>	<b>\$ 765,011,012</b>	<b>\$ 700,886,675</b>	<b>\$ 599,051,838</b>	<b>\$ 630,242,119</b>	<b>\$ 559,283,932</b>	<b>\$ 525,237,686</b>	<b>\$ 533,067,313</b>
<b>Net pension liability - ending (a) - (b)</b>	<b>\$ 340,654,636</b>	<b>\$ 284,538,585</b>	<b>\$ 68,122,205</b>	<b>\$ 86,198,721</b>	<b>\$ 242,072,258</b>	<b>\$ 86,044,428</b>	<b>\$ 75,491,927</b>	<b>\$ 75,119,944</b>	<b>\$ 29,463,665</b>
<b>Plan fiduciary net position as a percentage of total pension liability</b>	70.30 %	75.62 %	91.82 %	89.05 %	71.22 %	87.99 %	88.11 %	87.49 %	94.76 %
<b>Covered-employee payroll</b>	\$ 161,405,371	\$ 166,131,243	\$ 160,739,444	\$ 155,851,473	\$ 151,898,695	\$ 153,547,078	\$ 154,779,198	\$ 150,399,739	\$ 147,790,833
<b>Projected valuation payroll</b>	\$ 165,440,506	\$ 170,284,524	\$ 164,757,930	\$ 159,747,760	\$ 155,696,162	\$ 160,072,828	\$ 161,357,314	\$ 156,791,728	\$ 154,071,943
<b>Net pension liability as a percentage of covered-employee payroll</b>	211.06 %	171.27 %	42.38 %	55.31 %	159.36 %	56.04 %	48.77 %	49.95 %	19.94 %

**Notes to Schedule:**

For 2022, 2021, 2020, 2019, 2018, 2017, 2016 and 2015, "Other" changes to Plan Fiduciary Net Position includes other funding sources and depreciation expenses.

For 2014, "Other" changes also may include member redeposits and member service purchase contributions.



## Schedules of Required Supplementary Information

### Schedule of Net Pension Liability Multiyear

FY Ending December 31,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll*	Net Pension Liability as a % of Covered Payroll
2014	\$ 562,530,978	\$ 533,067,313	\$ 29,463,665	94.76 %	\$ 147,790,833	19.94 %
2015	600,357,630	525,237,686	75,119,944	87.49 %	150,399,739	49.95 %
2016	634,775,859	559,283,932	75,491,927	88.11 %	154,779,198	48.77 %
2017	716,286,547	630,242,119	86,044,428	87.99 %	153,547,078	56.04 %
2018	841,124,096	599,051,838	242,072,258	71.22 %	151,898,695	159.36 %
2019	787,085,396	700,886,675	86,198,721	89.05 %	155,851,473	55.31 %
2020	833,133,217	765,011,012	68,122,205	91.82 %	160,739,444	42.38 %
2021	1,166,890,833	882,352,248	284,538,585	75.62 %	166,131,243	171.27 %
2022	1,146,871,863	806,217,227	340,654,636	70.30 %	161,405,371	211.06 %

\* Covered payroll is the amount in force as of the valuation date and likely differs from the actual payroll paid during the year.

## Schedule of Contributions Multiyear Last 10 Fiscal Years

FY Ending December 31,	Actuarially Determined Contribution	Actual Contribution*	Contribution Deficiency (Excess)	Covered Payroll**	Actual Contribution as a % of Covered Payroll
2014	\$ 11,812,078	\$ 13,308,281	\$ (1,496,203)	\$ 147,790,833	9.00 %
2015	11,708,248	12,706,883	(998,635)	150,399,739	8.45 %
2016	12,063,684	13,730,305	(1,666,621)	154,779,198	8.87 %
2017	11,623,441	13,614,406	(1,990,965)	153,547,078	8.87 %
2018	14,493,422	13,781,011	712,411	151,898,695	9.07 %
2019	16,754,321	14,270,844	2,483,477	155,851,473	9.16 %
2020	18,231,644	14,893,512	3,338,132	160,739,444	9.27 %
2021	18,309,732	14,567,813	3,741,919	166,131,243	8.77 %
2022	23,603,760	14,990,494	8,613,266	161,405,371	9.29 %

\* Includes other funding sources but excludes member redeposits and member service purchase contributions.

\*\* Covered payroll is the amount in force as of the valuation date and likely differs from the actual payroll paid during the year.



## Notes to Schedule of Contributions

**Valuation Date:** January 1, 2022  
**Notes** Actuarially determined contribution rates are calculated as of July 1 each year for implementation the following fiscal year.

### Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	23 years
Asset Valuation Method	5-Year smoothed market
Inflation	2.25%
Salary Increases	5.25% to 9.25% including inflation
Payroll Growth Rate	2.50%
Cost-of-Living Increase	0.00%
Investment Rate of Return	6.80%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2022 valuation pursuant to an experience study of the period 2016 - 2020.
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%
Pre-Retirement Mortality	Pub-2010 Safety Employee 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%

### Other Information:

**Notes** There were no benefit changes during the year.  
The employer is currently contributing at the rate of 8.60% of salary.  
Employees are currently contributing at the rate of 8.60% of salary.  
The roll-forward methodology employed for purposes of the GASB disclosures is based on generally accepted actuarial methods.



## Schedule of Investment Returns Multiyear Last 10 Fiscal Years

<u>FY Ending December 31,</u>	<u>Annual Return<sup>1</sup></u>
2014	4.70 %
2015	(0.26)%
2016	7.60 %
2017	14.20 %
2018	(3.52)%
2019	18.72 %
2020	11.03 %
2021	17.19 %
2022	(6.99)%

<sup>1</sup> Annual money-weighted rate of return, net of investment expenses.

## SECTION D

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### NOTES TO FINANCIAL STATEMENTS

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Wyoming Law Enforcement Retirement Fund. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

## Single Discount Rate

A Single Discount Rate of 5.53% was used to measure the total pension liability. This Single Discount Rate was based on an expected rate of return on pension plan investments of 6.80% and a municipal bond rate of 4.05%. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the statutory required contribution rate. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to finance the benefit payments through the year 2051. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2051, and the municipal bond rate was applied to all benefit payments after that date.

## Sensitivity of Results

Regarding the sensitivity of the net pension liability to changes in the Single Discount Rate, the following presents the plan's net pension liability, calculated using a Single Discount Rate of 5.53%, as well as what the plan's net pension liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

### Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

1% Decrease	Current Single Discount Rate Assumption	1% Increase
4.53%	5.53%	6.53%
\$ 512,704,650	\$ 340,654,636	\$ 202,362,202

## Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	1,522
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1,720
Active Plan Members	<u>2,579</u>
Total Plan Members	5,821

# SECTION E

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## SUMMARY OF BENEFITS

## Summary of Benefits

### 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	62.5% of member's final actual salary, payable to the surviving spouse plus 6% of the member's final actual salary for each unmarried child under 18. Payment shall not exceed the member's final actual salary.

### **Pre-retirement Non-duty Death Benefit**

Eligibility	No age or service requirements.
Monthly Benefit	50% of the member's final actual salary 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 member's final actual salary.

### **Contributions**

Employee	8.60% of salary. The employer may subsidize all or part of the employee contributions.
Employer	8.60% of salary.
Interest	3.00% annually effective January 1, 2016.

### **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.



## **SECTION F**

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### **ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS**

# Summary of Actuarial Assumptions and Methods

The following methods and assumptions were used in preparing the January 1, 2022 actuarial valuation for GASB reporting purposes and are based on assumptions adopted by the Board at the November 17, 2021 and the February 17, 2022 meetings.

## 1. Valuation Date

The valuation date for any given year is January 1<sup>st</sup>, 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. For the purpose of this valuation, the expected rate of return on pension plan investments is 6.80% the municipal bond rate is 4.05%; and the resulting Single Discount Rate is 5.53%.

b. 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%

c. 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.

d. 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

a. Rates Before Retirement

Healthy Pre-Retirement Mortality:

Pub-2010 Safety 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 2022 using the MP-2020 Ultimate Scale					
	Male	Female	Male	Female	Male	Female
20	0.03%	0.01%	0.03%	0.01%	0.10%	0.05%
25	0.03%	0.02%	0.03%	0.02%	0.09%	0.06%
30	0.03%	0.02%	0.03%	0.02%	0.10%	0.08%
35	0.04%	0.03%	0.04%	0.03%	0.12%	0.10%
40	0.05%	0.04%	0.05%	0.04%	0.15%	0.14%
45	0.07%	0.06%	0.10%	0.07%	0.21%	0.19%
50	0.10%	0.08%	0.16%	0.13%	0.30%	0.26%
55	0.15%	0.10%	0.26%	0.22%	0.41%	0.39%
60	0.22%	0.14%	0.43%	0.38%	0.62%	0.59%
65	0.35%	0.19%	0.75%	0.66%	1.01%	0.91%
70	0.66%	0.39%	1.35%	1.14%	1.64%	1.39%
75			2.45%	1.99%	2.81%	2.12%
80			4.47%	3.47%	4.90%	3.47%
85			8.23%	6.16%	8.30%	6.16%
90			14.70%	10.95%	14.70%	10.95%
95			22.73%	18.07%	22.73%	18.07%
100			31.45%	27.16%	31.45%	27.16%

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

b. 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

c. 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%

d. 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%	2.00%
63-64	20.00%	2.00%
65-69	50.00%	2.00%
70+	100.00%	100.00%

10% is assumed for members with at least 20 years of service before age 50

6. Other Assumptions



- a. Percent married: 85.00% 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 surviving spouse will remarry.
- i. No children are assumed for purposes of valuing the ordinary death benefit.
- j. Administrative expenses: Assumed to be the average of the prior two years, with each year projected at 2.50% to the valuation date.
- k. 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.
- l. Decrement timing: Decrements of all types are assumed to occur mid-year.
- m. 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.
- n. Decrement relativity: Decrement rates are converted to probabilities in order to account for multiple decrements.
- o. 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.
- p. Benefit Service: All members are assumed to accrue one year of service each year.

## Experience Analysis

An experience study was conducted on behalf of all WRS' plans covering the five year period ending December 31, 2020. That study provided a detailed analysis concerning the development of the long term inflation rate, real rate of return and discount rate. The study also analyzed each major actuarial assumption (e.g. mortality, salary increases, retirement, termination and disability) and proposed assumptions consistent with the findings. For further information on the experience study and related assumption recommendation, the reader is directed to request the December 31, 2020 Wyoming Retirement System Experience Study.

## **SECTION G**

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### **CALCULATION OF THE SINGLE DISCOUNT RATE**



## Calculation of the Single Discount Rate

GASB Statement No. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension Liability. This rate considers the ability of the Fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on pension plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating (which is published by the Federal Reserve) as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.80%; the municipal bond rate is 4.05%; and the resulting Single Discount Rate is 5.53%.

The tables in this section provide background for the development of the Single Discount Rate.

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Net Position** table shows the development of expected asset levels in future years.

The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

# Single Discount Rate Development Projection of Contributions Ending December 31 for 2022 to 2071

Year	Payroll for Current Employees		Payroll for Future Employees		Total Employee Payroll	Employer Contributions from Current Employees		Employer Contributions Related to Payroll of Future Employees		Total Contributions
	(a)	(b)=max(0,(c)-(a))	(c)	(d)		(e)=(a)*ER%	(f) = (b)*netER%	(g)=(d)+(e)+(f)		
2022	\$ 161,405,371	\$ 4,035,134	\$ 165,440,506	\$ 16,904,076	\$ 14,990,494	\$ 0	\$ 31,894,570			
2023	150,397,458	19,179,060	169,576,518	12,934,181	12,934,181	224,662	26,093,024			
2024	141,794,976	32,020,955	173,815,931	12,194,368	12,194,368	375,904	24,764,640			
2025	134,057,993	44,103,336	178,161,329	11,528,987	11,528,987	518,879	23,576,853			
2026	127,005,758	55,609,604	182,615,362	10,922,495	10,922,495	654,046	22,499,036			
2027	120,290,330	66,890,416	187,180,746	10,344,968	10,344,968	784,398	21,474,334			
2028	113,703,477	78,156,788	191,860,265	9,778,499	9,778,499	913,724	20,470,722			
2029	107,166,992	89,489,780	196,656,772	9,216,361	9,216,361	1,043,441	19,476,163			
2030	100,780,545	100,792,646	201,573,191	8,667,127	8,667,127	1,172,909	18,507,163			
2031	94,579,476	112,033,045	206,612,521	8,133,835	8,133,835	1,302,943	17,570,613			
2032	88,460,078	123,317,756	211,777,834	7,607,567	7,607,567	1,435,498	16,650,632			
2033	82,477,217	134,595,063	217,072,280	7,093,041	7,093,041	1,571,075	15,757,157			
2034	76,605,277	145,893,810	222,499,087	6,588,054	6,588,054	1,710,528	14,886,636			
2035	70,652,713	157,408,851	228,061,564	6,076,133	6,076,133	1,856,255	14,008,521			
2036	64,636,957	169,126,146	233,763,103	5,558,778	5,558,778	2,008,878	13,126,434			
2037	58,699,070	180,908,111	239,607,181	5,048,120	5,048,120	2,167,417	12,263,657			
2038	52,682,541	192,914,820	245,597,361	4,530,699	4,530,699	2,334,343	11,395,741			
2039	46,533,231	205,204,064	251,737,295	4,001,858	4,001,858	2,510,293	10,514,009			
2040	40,423,406	217,607,321	258,030,727	3,476,413	3,476,413	2,693,006	9,645,832			
2041	34,381,655	230,099,840	264,481,495	2,956,822	2,956,822	2,882,410	8,796,054			
2042	28,752,672	242,340,860	271,093,532	2,472,730	2,472,730	3,070,246	8,015,706			
2043	23,921,658	253,949,212	277,870,870	2,057,263	2,057,263	3,247,695	7,362,221			
2044	19,787,500	265,030,142	284,817,642	1,701,725	1,701,725	3,416,242	6,819,692			
2045	16,269,586	275,668,497	291,938,083	1,399,184	1,399,184	3,576,955	6,375,323			
2046	13,285,744	285,950,791	299,236,535	1,142,574	1,142,574	3,731,085	6,016,233			
2047	10,779,182	295,938,266	306,717,448	927,010	927,010	3,879,394	5,733,414			
2048	8,712,451	305,672,933	314,385,384	749,271	749,271	4,022,380	5,520,922			
2049	7,003,036	315,241,983	322,245,019	602,261	602,261	4,161,198	5,365,720			
2050	5,591,111	324,710,033	330,301,144	480,836	480,836	4,296,747	5,258,419			
2051	4,437,357	334,121,316	338,558,673	381,613	381,613	4,429,848	5,193,074			
2052	3,498,489	343,524,151	347,022,640	300,870	300,870	4,561,330	5,163,070			
2053	2,735,552	352,962,654	355,698,206	235,257	235,257	4,691,967	5,162,481			
2054	2,108,664	362,481,997	364,590,661	181,345	181,345	4,822,503	5,185,193			
2055	1,602,941	372,102,487	373,705,428	137,853	137,853	4,953,330	5,229,036			
2056	1,208,873	381,839,191	383,048,064	103,963	103,963	5,084,779	5,292,705			
2057	902,592	391,721,674	392,624,266	77,623	77,623	5,217,416	5,372,662			
2058	664,958	401,774,915	402,439,873	57,186	57,186	5,351,725	5,466,097			
2059	483,696	412,017,174	412,500,870	41,598	41,598	5,488,044	5,571,240			
2060	348,347	422,465,045	422,813,392	29,958	29,958	5,626,767	5,686,683			
2061	245,639	433,138,088	433,383,727	21,125	21,125	5,768,312	5,810,562			
2062	167,091	444,051,229	444,218,320	14,370	14,370	5,912,982	5,941,722			
2063	108,776	455,215,002	455,323,778	9,355	9,355	6,060,988	6,079,698			
2064	66,945	466,639,927	466,706,872	5,757	5,757	6,212,507	6,224,021			
2065	38,646	478,335,898	478,374,544	3,324	3,324	6,367,728	6,374,376			
2066	20,687	490,313,221	490,333,908	1,779	1,779	6,526,815	6,530,373			
2067	10,192	502,582,064	502,592,256	877	877	6,689,926	6,691,680			
2068	4,589	515,152,473	515,157,062	395	395	6,857,209	6,857,999			
2069	1,896	528,034,093	528,035,989	163	163	7,028,763	7,029,089			
2070	706	541,236,183	541,236,889	61	61	7,204,688	7,204,810			
2071	224	554,767,587	554,767,811	19	19	7,385,085	7,385,123			



# Single Discount Rate Development Projection of Contributions Ending December 31 for 2072 to 2121 (concluded)

Year	Payroll for Current	Payroll for Future	Total Employee	Contributions from	Employer	Employer Contributions	Total Contributions
	Employees	Employees	Payroll	Current Employees	Contributions for Current Employees	Related to Payroll of Future Employees	
	(a)	(b)=max(0,(c)-(a))	(c)	(d)	(e)=(a)*ER%	(f) = (b)*netER%	(g)=(d)+(e)+(f)
2072	54	568,636,952	568,637,006	5	5	7,570,045	7,570,055
2073	5	582,852,926	582,852,931	0	0	7,759,666	7,759,666
2074	0	597,424,254	597,424,254	0	0	7,954,038	7,954,038
2075	0	612,359,860	612,359,860	0	0	8,153,260	8,153,260
2076	0	627,668,857	627,668,857	0	0	8,357,436	8,357,436
2077	0	643,360,578	643,360,578	0	0	8,566,677	8,566,677
2078	0	659,444,592	659,444,592	0	0	8,781,097	8,781,097
2079	0	675,930,707	675,930,707	0	0	9,000,817	9,000,817
2080	0	692,828,975	692,828,975	0	0	9,225,966	9,225,966
2081	0	710,149,699	710,149,699	0	0	9,456,681	9,456,681
2082	0	727,903,441	727,903,441	0	0	9,693,108	9,693,108
2083	0	746,101,027	746,101,027	0	0	9,935,396	9,935,396
2084	0	764,753,553	764,753,553	0	0	10,183,700	10,183,700
2085	0	783,872,392	783,872,392	0	0	10,438,179	10,438,179
2086	0	803,469,202	803,469,202	0	0	10,698,997	10,698,997
2087	0	823,555,932	823,555,932	0	0	10,966,324	10,966,324
2088	0	844,144,830	844,144,830	0	0	11,240,332	11,240,332
2089	0	865,248,451	865,248,451	0	0	11,521,198	11,521,198
2090	0	886,879,662	886,879,662	0	0	11,809,098	11,809,098
2091	0	909,051,654	909,051,654	0	0	12,104,215	12,104,215
2092	0	931,777,945	931,777,945	0	0	12,406,732	12,406,732
2093	0	955,072,394	955,072,394	0	0	12,716,836	12,716,836
2094	0	978,949,204	978,949,204	0	0	13,034,717	13,034,717
2095	0	1,003,422,934	1,003,422,934	0	0	13,360,568	13,360,568
2096	0	1,028,508,507	1,028,508,507	0	0	13,694,587	13,694,587
2097	0	1,054,221,220	1,054,221,220	0	0	14,036,974	14,036,974
2098	0	1,080,576,751	1,080,576,751	0	0	14,387,936	14,387,936
2099	0	1,107,591,170	1,107,591,170	0	0	14,747,683	14,747,683
2100	0	1,135,280,949	1,135,280,949	0	0	15,116,430	15,116,430
2101	0	1,163,662,973	1,163,662,973	0	0	15,494,399	15,494,399
2102	0	1,192,754,547	1,192,754,547	0	0	15,881,817	15,881,817
2103	0	1,222,573,411	1,222,573,411	0	0	16,278,916	16,278,916
2104	0	1,253,137,746	1,253,137,746	0	0	16,685,937	16,685,937
2105	0	1,284,466,190	1,284,466,190	0	0	17,103,125	17,103,125
2106	0	1,316,577,845	1,316,577,845	0	0	17,530,734	17,530,734
2107	0	1,349,492,291	1,349,492,291	0	0	17,969,024	17,969,024
2108	0	1,383,229,598	1,383,229,598	0	0	18,418,262	18,418,262
2109	0	1,417,810,338	1,417,810,338	0	0	18,878,721	18,878,721
2110	0	1,453,255,596	1,453,255,596	0	0	19,350,684	19,350,684
2111	0	1,489,586,986	1,489,586,986	0	0	19,834,440	19,834,440
2112	0	1,526,826,661	1,526,826,661	0	0	20,330,284	20,330,284
2113	0	1,564,997,328	1,564,997,328	0	0	20,838,521	20,838,521
2114	0	1,604,122,261	1,604,122,261	0	0	21,359,462	21,359,462
2115	0	1,644,225,318	1,644,225,318	0	0	21,893,426	21,893,426
2116	0	1,685,330,951	1,685,330,951	0	0	22,440,739	22,440,739
2117	0	1,727,464,225	1,727,464,225	0	0	23,001,738	23,001,738
2118	0	1,770,650,831	1,770,650,831	0	0	23,576,764	23,576,764
2119	0	1,814,917,102	1,814,917,102	0	0	24,166,168	24,166,168
2120	0	1,860,290,030	1,860,290,030	0	0	24,770,312	24,770,312
2121	0	1,906,797,281	1,906,797,281	0	0	25,389,563	25,389,563



# Single Discount Rate Development Projection of Plan Net Position Ending December 31 for 2022 to 2071

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.800%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2022	\$ 882,352,248	\$ 31,894,570	\$ 46,529,493	\$ 864,195	\$ (60,635,903)	\$ 806,217,227
2023	806,217,227	26,093,024	48,680,658	797,010	54,040,769	836,873,353
2024	836,873,353	24,764,640	51,192,838	816,935	55,996,287	865,624,507
2025	865,624,507	23,576,853	53,628,776	837,358	57,829,503	892,564,728
2026	892,564,728	22,499,036	56,373,035	858,292	59,532,924	917,365,361
2027	917,365,361	21,474,334	59,281,922	879,750	61,087,107	939,765,131
2028	939,765,131	20,470,722	62,490,881	901,743	62,468,684	959,311,913
2029	959,311,913	19,476,163	65,830,379	924,287	63,652,177	975,685,587
2030	975,685,587	18,507,163	69,293,728	947,394	64,616,592	988,568,220
2031	988,568,220	17,570,613	72,783,943	971,079	65,343,784	997,727,596
2032	997,727,596	16,650,632	76,319,617	995,356	65,816,809	1,002,880,064
2033	1,002,880,064	15,757,157	79,799,162	1,020,240	66,020,107	1,003,837,925
2034	1,003,837,925	14,886,636	83,215,789	1,045,746	65,941,023	1,000,404,049
2035	1,000,404,049	14,008,521	86,623,630	1,071,889	65,563,319	992,280,371
2036	992,280,371	13,126,434	90,098,753	1,098,687	64,864,304	979,073,669
2037	979,073,669	12,263,657	93,484,412	1,126,154	63,823,259	960,550,019
2038	960,550,019	11,395,741	96,771,829	1,154,308	62,423,751	936,443,374
2039	936,443,374	10,514,009	99,961,346	1,183,165	60,647,388	906,460,259
2040	906,460,259	9,645,832	103,026,731	1,212,744	58,476,005	870,342,621
2041	870,342,621	8,796,054	105,899,967	1,243,063	55,894,491	827,890,137
2042	827,890,137	8,015,706	108,485,967	1,274,140	52,894,110	779,039,845
2043	779,039,845	7,362,221	110,493,355	1,305,993	49,482,243	724,084,960
2044	724,084,960	6,819,692	111,977,662	1,338,643	45,676,440	663,264,787
2045	663,264,787	6,375,323	112,988,392	1,372,109	41,490,889	596,770,498
2046	596,770,498	6,016,233	113,553,053	1,406,412	36,937,239	524,764,506
2047	524,764,506	5,733,414	113,732,913	1,441,572	32,024,183	447,347,618
2048	447,347,618	5,520,922	113,527,018	1,477,611	26,758,409	364,622,320
2049	364,622,320	5,365,720	112,997,855	1,514,552	21,144,359	276,619,992
2050	276,619,992	5,258,419	112,066,502	1,552,415	15,186,492	183,445,986
2051	183,445,986	5,193,074	110,774,363	1,591,226	8,890,387	85,163,857
2052	85,163,857	5,163,070	109,244,065	1,631,006	2,256,043	0
2053	0	5,162,481	107,484,064	1,671,782	0	0
2054	0	5,185,193	105,481,934	1,713,576	0	0
2055	0	5,229,036	103,271,089	1,756,416	0	0
2056	0	5,292,705	100,892,323	1,800,326	0	0
2057	0	5,372,662	98,369,238	1,845,334	0	0
2058	0	5,466,097	95,708,565	1,891,467	0	0
2059	0	5,571,240	92,919,247	1,938,754	0	0
2060	0	5,686,683	89,992,221	1,987,223	0	0
2061	0	5,810,562	86,954,721	2,036,904	0	0
2062	0	5,941,722	83,827,019	2,087,826	0	0
2063	0	6,079,698	80,631,940	2,140,022	0	0
2064	0	6,224,021	77,387,987	2,193,522	0	0
2065	0	6,374,376	74,108,834	2,248,360	0	0
2066	0	6,530,373	70,803,623	2,304,569	0	0
2067	0	6,691,680	67,480,019	2,362,184	0	0
2068	0	6,857,999	64,145,507	2,421,238	0	0
2069	0	7,029,089	60,807,022	2,481,769	0	0
2070	0	7,204,810	57,471,553	2,543,813	0	0
2071	0	7,385,123	54,146,285	2,607,409	0	0



# Single Discount Rate Development

## Projection of Plan Net Position

### Ending December 31 for 2072 to 2121 (concluded)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.800%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2072	0	7,570,055	50,899,981	2,672,594	0	0
2073	0	7,759,666	47,616,011	2,739,409	0	0
2074	0	7,954,038	44,369,017	2,807,894	0	0
2075	0	8,153,260	41,169,538	2,878,091	0	0
2076	0	8,357,436	38,029,179	2,950,044	0	0
2077	0	8,566,677	34,960,312	3,023,795	0	0
2078	0	8,781,097	31,975,646	3,099,390	0	0
2079	0	9,000,817	29,087,673	3,176,874	0	0
2080	0	9,225,966	26,308,760	3,256,296	0	0
2081	0	9,456,681	23,651,278	3,337,704	0	0
2082	0	9,693,108	21,126,705	3,421,146	0	0
2083	0	9,935,396	18,745,124	3,506,675	0	0
2084	0	10,183,700	16,514,894	3,594,342	0	0
2085	0	10,438,179	14,442,367	3,684,200	0	0
2086	0	10,698,997	12,531,638	3,776,305	0	0
2087	0	10,966,324	10,784,240	3,870,713	0	0
2088	0	11,240,332	9,199,536	3,967,481	0	0
2089	0	11,521,198	7,775,093	4,066,668	0	0
2090	0	11,809,098	6,506,777	4,168,334	37,922	0
2091	0	12,104,215	5,388,775	4,272,543	81,693	0
2092	0	12,406,732	4,413,772	4,379,356	120,842	0
2093	0	12,716,836	3,573,249	4,488,840	155,659	0
2094	0	13,034,717	2,857,508	4,601,061	186,471	0
2095	0	13,360,568	2,255,827	4,716,088	213,642	0
2096	0	13,694,587	1,756,790	4,833,990	237,557	0
2097	0	14,036,974	1,348,622	4,954,840	258,615	0
2098	0	14,387,936	1,019,586	5,078,711	277,213	0
2099	0	14,747,683	758,360	5,205,678	293,733	0
2100	0	15,116,430	554,322	5,335,820	308,535	0
2101	0	15,494,399	397,718	5,469,216	321,951	0
2102	0	15,881,817	279,764	5,605,946	334,278	0
2103	0	16,278,916	192,711	5,746,095	345,782	0
2104	0	16,685,937	129,850	5,889,747	356,692	0
2105	0	17,103,125	85,495	6,036,991	367,202	0
2106	0	17,530,734	54,953	6,187,916	377,476	0
2107	0	17,969,024	34,452	6,342,614	387,645	0
2108	0	18,418,262	21,053	6,501,179	397,813	0
2109	0	18,878,721	12,534	6,663,709	408,061	0
2110	0	19,350,684	7,270	6,830,301	418,449	0
2111	0	19,834,440	4,110	7,001,059	429,022	0
2112	0	20,330,284	2,267	7,176,085	439,812	0
2113	0	20,838,521	1,222	7,355,487	450,843	0
2114	0	21,359,462	645	7,539,375	462,134	0
2115	0	21,893,426	333	7,727,859	473,698	0
2116	0	22,440,739	168	7,921,055	485,545	0
2117	0	23,001,738	82	8,119,082	497,686	0
2118	0	23,576,764	39	8,322,059	510,129	0
2119	0	24,166,168	17	8,530,110	522,883	0
2120	0	24,770,312	7	8,743,363	535,955	0
2121	0	25,389,563	3	8,961,947	549,353	0

# Single Discount Rate Development

## Present Values of Projected Benefits

### Ending December 31 for 2022 to 2071

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of All Benefit Payments using Single Discount Rate (SDR)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v <sup>a</sup> ((a)-.5)	(g)=(e)*vf <sup>a</sup> ((a)-.5)	(h)=(c)/(1+SDR) <sup>a</sup> ((a)-.5)
2022	\$ 882,352,248	\$ 46,529,493	\$ 46,529,493	\$ 0	\$ 45,023,857	\$ 0	\$ 45,293,929
2023	806,217,227	48,680,658	48,680,658	0	44,106,191	0	44,904,666
2024	836,873,353	51,192,838	51,192,838	0	43,429,125	0	44,747,378
2025	865,624,507	53,628,776	53,628,776	0	42,598,912	0	44,420,109
2026	892,564,728	56,373,035	56,373,035	0	41,927,675	0	44,246,254
2027	917,365,361	59,281,922	59,281,922	0	41,283,868	0	44,091,078
2028	939,765,131	62,490,881	62,490,881	0	40,747,738	0	44,042,143
2029	959,311,913	65,830,379	65,830,379	0	40,192,217	0	43,964,436
2030	975,685,587	69,293,728	69,293,728	0	39,613,050	0	43,852,305
2031	988,568,220	72,783,943	72,783,943	0	38,959,079	0	43,647,305
2032	997,727,596	76,319,617	76,319,617	0	38,250,580	0	43,369,198
2033	1,002,880,064	79,799,162	79,799,162	0	37,448,026	0	42,970,152
2034	1,003,837,925	83,215,789	83,215,789	0	36,564,958	0	42,461,726
2035	1,000,404,049	86,623,630	86,623,630	0	35,638,914	0	41,884,337
2036	992,280,371	90,098,753	90,098,753	0	34,708,482	0	41,281,683
2037	979,073,669	93,484,412	93,484,412	0	33,719,784	0	40,588,329
2038	960,550,019	96,771,829	96,771,829	0	32,683,103	0	39,813,859
2039	936,443,374	99,961,346	99,961,346	0	31,610,777	0	38,970,930
2040	906,460,259	103,026,731	103,026,731	0	30,505,753	0	38,061,154
2041	870,342,621	105,899,967	105,899,967	0	29,360,023	0	37,072,443
2042	827,890,137	108,485,967	108,485,967	0	28,161,960	0	35,987,552
2043	779,039,845	110,493,355	110,493,355	0	26,856,798	0	34,732,676
2044	724,084,960	111,977,662	111,977,662	0	25,484,623	0	33,354,685
2045	663,264,787	112,988,392	112,988,392	0	24,077,389	0	31,892,064
2046	596,770,498	113,553,053	113,553,053	0	22,657,038	0	30,371,830
2047	524,764,506	113,732,913	113,732,913	0	21,248,057	0	28,825,820
2048	447,347,618	113,527,018	113,527,018	0	19,859,167	0	27,265,790
2049	364,622,320	112,997,855	112,997,855	0	18,508,054	0	25,716,532
2050	276,619,992	112,066,502	112,066,502	0	17,186,804	0	24,168,037
2051	183,445,986	110,774,363	110,774,363	0	15,906,964	0	22,637,485
2052	85,163,857	109,244,065	88,011,809	21,232,256	11,833,623	6,325,758	21,154,858
2053	0	107,484,064	0	107,484,064	0	30,776,442	19,723,305
2054	0	105,481,934	0	105,481,934	0	29,027,547	18,341,593
2055	0	103,271,089	0	103,271,089	0	27,312,970	17,016,141
2056	0	100,892,323	0	100,892,323	0	25,645,207	15,753,019
2057	0	98,369,238	0	98,369,238	0	24,030,638	14,554,200
2058	0	95,708,565	0	95,708,565	0	22,470,603	13,418,476
2059	0	92,919,247	0	92,919,247	0	20,966,576	12,344,725
2060	0	89,992,221	0	89,992,221	0	19,515,726	11,329,326
2061	0	86,954,721	0	86,954,721	0	18,123,031	10,373,268
2062	0	83,827,019	0	83,827,019	0	16,791,117	9,476,104
2063	0	80,631,940	0	80,631,940	0	15,522,462	8,637,265
2064	0	77,387,987	0	77,387,987	0	14,318,086	7,855,359
2065	0	74,108,834	0	74,108,834	0	13,177,691	7,128,298
2066	0	70,803,623	0	70,803,623	0	12,099,926	6,453,491
2067	0	67,480,019	0	67,480,019	0	11,083,077	5,828,244
2068	0	64,145,507	0	64,145,507	0	10,125,333	5,249,914
2069	0	60,807,022	0	60,807,022	0	9,224,752	4,715,883
2070	0	57,471,553	0	57,471,553	0	8,379,379	4,223,627
2071	0	54,146,285	0	54,146,285	0	7,587,269	3,770,723



# Single Discount Rate Development

## Present Values of Projected Benefits

### Ending December 31 for 2072 to 2121 (concluded)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of All Benefit Payments using Single Discount Rate (SDR)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v^(a)-.5	(g)=(e)*vf^(a)-.5	(h)=(c)/(1+SDR)^(a-.5)
2072	\$ 0	\$ 50,839,092	\$ 0	\$ 50,839,092	\$ 0	\$ 6,846,562	\$ 3,354,881
2073	0	47,559,050	0	47,559,050	0	6,155,535	2,973,965
2074	0	44,315,941	0	44,315,941	0	5,512,525	2,625,947
2075	0	41,120,289	0	41,120,289	0	4,915,918	2,308,902
2076	0	37,983,686	0	37,983,686	0	4,364,189	2,021,016
2077	0	34,918,491	0	34,918,491	0	3,855,847	1,760,563
2078	0	31,937,395	0	31,937,395	0	3,389,391	1,525,875
2079	0	29,052,877	0	29,052,877	0	2,963,257	1,315,322
2080	0	26,277,288	0	26,277,288	0	2,575,838	1,127,319
2081	0	23,622,985	0	23,622,985	0	2,225,516	960,338
2082	0	21,101,432	0	21,101,432	0	1,910,583	812,877
2083	0	18,722,700	0	18,722,700	0	1,629,222	683,447
2084	0	16,495,138	0	16,495,138	0	1,379,513	570,579
2085	0	14,425,090	0	14,425,090	0	1,159,434	472,826
2086	0	12,516,647	0	12,516,647	0	966,882	388,771
2087	0	10,771,339	0	10,771,339	0	799,674	317,029
2088	0	9,188,531	0	9,188,531	0	655,613	256,271
2089	0	7,765,792	0	7,765,792	0	532,531	205,240
2090	0	6,498,993	0	6,498,993	0	428,315	162,759
2091	0	5,382,329	0	5,382,329	0	340,914	127,730
2092	0	4,408,492	0	4,408,492	0	268,363	99,137
2093	0	3,568,975	0	3,568,975	0	208,802	76,052
2094	0	2,854,089	0	2,854,089	0	160,478	57,632
2095	0	2,253,128	0	2,253,128	0	121,757	43,112
2096	0	1,754,689	0	1,754,689	0	91,131	31,816
2097	0	1,347,009	0	1,347,009	0	67,235	23,144
2098	0	1,018,366	0	1,018,366	0	48,852	16,580
2099	0	757,453	0	757,453	0	34,922	11,686
2100	0	553,659	0	553,659	0	24,532	8,094
2101	0	397,242	0	397,242	0	16,916	5,503
2102	0	279,429	0	279,429	0	11,436	3,668
2103	0	192,481	0	192,481	0	7,571	2,394
2104	0	129,694	0	129,694	0	4,903	1,529
2105	0	85,393	0	85,393	0	3,102	954
2106	0	54,887	0	54,887	0	1,917	581
2107	0	34,411	0	34,411	0	1,155	345
2108	0	21,028	0	21,028	0	678	200
2109	0	12,519	0	12,519	0	388	113
2110	0	7,261	0	7,261	0	216	62
2111	0	4,105	0	4,105	0	118	33
2112	0	2,265	0	2,265	0	62	17
2113	0	1,221	0	1,221	0	32	9
2114	0	644	0	644	0	16	4
2115	0	333	0	333	0	8	2
2116	0	168	0	168	0	4	1
2117	0	82	0	82	0	2	0
2118	0	39	0	39	0	1	0
2119	0	17	0	17	0	0	0
2120	0	7	0	7	0	0	0
2121	0	3	0	3	0	0	0
<b>Totals</b>					\$ 990,152,587	\$ 396,185,446	\$ 1,386,338,033



# SECTION H

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## GLOSSARY OF TERMS



# Glossary of Terms

<b>Accrued Service</b>	Service credited under the system that was rendered before the date of the actuarial valuation.
<b>Actuarial Accrued Liability (AAL)</b>	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
<b>Actuarial Assumptions</b>	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
<b>Actuarial Cost Method</b>	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
<b>Actuarial Equivalent</b>	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
<b>Actuarial Gain (Loss)</b>	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
<b>Actuarial Present Value (APV)</b>	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
<b>Actuarial Valuation</b>	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total pension liability, and related actuarial present value of projected benefit payments for pensions.
<b>Actuarial Valuation Date</b>	The date as of which an actuarial valuation is performed.
<b>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</b>	A calculated contribution into a defined benefit pension plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.

## Glossary of Terms

<b>Amortization Method</b>	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
<b>Amortization Payment</b>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<b>Cost-of-Living Adjustments</b>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<b>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</b>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<b>Covered-Employee Payroll</b>	The payroll of employees that are provided with pensions through the pension plan.
<b>Deferred Inflows and Outflows</b>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
<b>Deferred Retirement Option Program (DROP)</b>	A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.

# Glossary of Terms

## Discount Rate

For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically:

1. The benefit payments to be made while the pension plans' fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and
2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

## Entry Age Actuarial Cost Method (EAN)

The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.

## Fiduciary Net Position

The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.

## GASB

The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.

## Money-Weighted Rate of Return

The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.

## Multiple-Employer Defined Benefit Pension Plan

A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.

## Municipal Bond Rate

The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.

## Net Pension Liability (NPL)

The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.



## Glossary of Terms

<b>Other Postemployment Benefits (OPEB)</b>	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.
<b>Real Rate of Return</b>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<b>Service Cost</b>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
<b>Total Pension Expense</b>	<p>The total pension expense is the sum of the following items that are recognized at the end of the employer’s fiscal year:</p> <ol style="list-style-type: none"><li>1. Service Cost</li><li>2. Interest on the Total Pension Liability</li><li>3. Current-Period Benefit Changes</li><li>4. Employee Contributions (made negative for addition here)</li><li>5. Projected Earnings on Plan Investments (made negative for addition here)</li><li>6. Pension Plan Administrative Expense</li><li>7. Other Changes in Plan Fiduciary Net Position</li><li>8. Recognition of Outflow (Inflow) of Resources due to Liabilities</li><li>9. Recognition of Outflow (Inflow) of Resources due to Assets</li></ol>
<b>Total Pension Liability (TPL)</b>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<b>Unfunded Actuarial Accrued Liability (UAAL)</b>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<b>Valuation Assets</b>	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.