

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, 2021





June 2, 2022

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, 2021 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 incorporates 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.

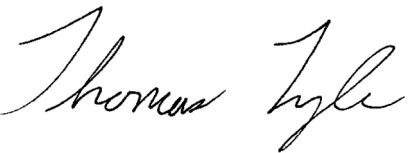
All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

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

By 
Paul T. Wood, ASA, FCA, MAAA

By 
Thomas A. Lyle, FSA, EA, FCA, MAAA

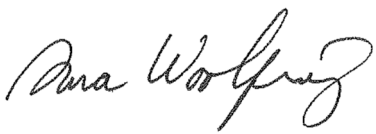
By 
Dana Woolfrey, FSA, EA, FCA, MAAA



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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of December 31, 2021

	2021	
Actuarial Valuation Date	January 1, 2021	
Measurement Date of the Net Pension Liability	December 31, 2021	
Employer's Fiscal Year Ending Date (Reporting Date)	December 31, 2021	
Membership		
Number of		
- Retirees and Beneficiaries	1,442	
- Inactive, Nonretired Members	1,562	
- Active Members	2,646	
- Total	5,650	
Covered Payroll	\$	166,131,243
Net Pension Liability		
Total Pension Liability	\$	1,166,890,833
Plan Fiduciary Net Position	882,352,248	
Net Pension Liability	\$	284,538,585
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	75.62 %	
Net Pension Liability as a Percentage of Covered Payroll	171.27 %	
Development of the Single Discount Rate		
Single Discount Rate	5.17 %	
Long-Term Expected Rate of Investment Return	6.80 %	
Long-Term Municipal Bond Rate*	1.84 %	
Last year ending December 31 in the 2021 to 2120 projection period for which projected benefit payments are fully funded	2063	
Total Pension Expense	\$	76,309,871
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	\$ 16,272,522	\$ 894,375
Changes in assumptions	217,874,003	35,262,239
Net difference between projected and actual earnings on pension plan investments	13,195,139	107,188,220
Total	\$ 247,341,664	\$ 143,344,834

*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, 2021. 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, 2021.

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 2063 and a GASB single discount rate of 5.17%. 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, 2021 and a measurement date of December 31, 2021.

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 1.84% (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 5.17%.

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

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, 2021

A. Expense

1. Service Cost	\$	40,282,611
2. Interest on the Total Pension Liability		57,437,879
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(15,246,586)
5. Projected Earnings on Plan Investments (made negative for addition here)		(51,543,424)
6. Pension Plan Administrative Expense		753,782
7. Other Changes in Plan Fiduciary Net Position		27,492
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		74,213,747
9. Recognition of Outflow (Inflow) of Resources due to Assets		(29,615,630)
10. Total Pension Expense	\$	76,309,871 *

*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, 2021

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ 7,679,619
2. Assumption Changes (gains) or losses	\$ 271,664,329
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	4.1607
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	\$ 1,845,752
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for assumption changes	\$ 65,292,938
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	\$ 67,138,690
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	\$ 5,833,867
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for assumption changes	\$ 206,371,391
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	\$ 212,205,258

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ (80,071,509)
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	\$ (16,014,302)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ (64,057,207)



History of Deferred Outflows and Inflows of Resources by Source

Fiscal Year Ended December 31, 2021

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		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	Total	
Total	\$ -	\$ 1,710,375	\$ (3,501,453)	\$ (6,691,047)	\$ (7,328,715)	\$ 19,861,777	\$ 7,869,329	\$ 7,679,619	\$ 19,599,885	
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	7,334,565	\$ 15,378,147
2023	-	-	-	-	-	1,757,477	1,857,113	1,845,752	5,460,342	
2024	-	-	-	-	-	-	440,877	1,845,752	2,286,629	
2025	-	-	-	-	-	-	-	296,611	296,611	
2026	-	-	-	-	-	-	-	-	-	
Thereafter	-	-	-	-	-	-	-	-	-	
Total	\$ -	\$ 1,710,375	\$ (3,501,453)	\$ (6,691,047)	\$ (7,328,715)	\$ 19,861,777	\$ 7,869,329	\$ 7,679,619	\$ 19,599,885	

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		
	2014	2015	2016	2017	2018	2019	2020	2021	Total	
Total	\$ -	\$ -	\$ -	\$ 51,421,521	\$ 94,255,216	\$ (111,460,988)	\$ -	\$ 271,664,329	\$ 305,880,078	
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	51,395,967	\$ 182,611,764
2023	-	-	-	-	-	(9,862,656)	-	65,292,938	55,430,282	
2024	-	-	-	-	-	-	-	65,292,938	65,292,938	
2025	-	-	-	-	-	-	-	10,492,577	10,492,577	
2026	-	-	-	-	-	-	-	-	-	
Thereafter	-	-	-	-	-	-	-	-	-	
Total	\$ -	\$ -	\$ -	\$ 51,421,521	\$ 94,255,216	\$ (111,460,988)	\$ -	\$ 271,664,329	\$ 305,880,078	

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		
	2014	2015	2016	2017	2018	2019	2020	2021	Total	
Total	\$ 14,545,212	\$ 46,589,301	\$ 2,778,485	\$ (39,041,366)	\$ 65,975,687	\$ (69,167,783)	\$ (25,773,169)	\$ (80,071,509)	\$ (84,165,142)	
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)	(21,807,354)	\$ (93,993,081)
2023	-	-	-	-	-	(13,833,555)	(5,154,634)	(16,014,302)	(35,002,491)	
2024	-	-	-	-	-	-	(5,154,633)	(16,014,302)	(21,168,935)	
2025	-	-	-	-	-	-	-	(16,014,301)	(16,014,301)	
2026	-	-	-	-	-	-	-	-	-	
Thereafter	-	-	-	-	-	-	-	-	-	
Total	\$ 14,545,212	\$ 46,589,301	\$ 2,778,485	\$ (39,041,366)	\$ 65,975,687	\$ (69,167,783)	\$ (25,773,169)	\$ (80,071,509)	\$ (84,165,142)	

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

	2014	2015	2016	2017	2018	2019	2020	2021	Total	
Total	\$ 14,545,212	\$ 48,299,676	\$ (722,968)	\$ 5,689,108	\$ 152,902,188	\$ (160,766,994)	\$ (17,903,840)	\$ 199,272,439	\$ 241,314,821	
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	36,923,178	\$ 103,996,830
2023	-	-	-	-	-	(21,938,734)	(3,297,521)	51,124,388	25,888,133	
2024	-	-	-	-	-	-	(4,713,756)	51,124,388	46,410,632	
2025	-	-	-	-	-	-	-	(5,225,113)	(5,225,113)	
2026	-	-	-	-	-	-	-	-	-	
Thereafter	-	-	-	-	-	-	-	-	-	
Total	\$ 14,545,212	\$ 48,299,676	\$ (722,968)	\$ 5,689,108	\$ 152,902,188	\$ (160,766,994)	\$ (17,903,840)	\$ 199,272,439	\$ 241,314,821	



Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended December 31, 2021

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	\$ 102,270,794	\$ 28,057,047	\$ 74,213,747
2. Due to Assets	13,195,137	42,810,767	(29,615,630)
3. Total	\$ 115,465,931	\$ 70,867,814	\$ 44,598,117

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	\$ 2,657,464	\$ 5,571,476
2. Assumption Changes	94,041,854	25,399,583	68,642,271
3. Net Difference between projected and actual earnings on pension plan investments	13,195,137	42,810,767	(29,615,630)
4. Total	\$ 115,465,931	\$ 70,867,814	\$ 44,598,117

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	\$ 16,272,522	\$ 894,375	\$ 15,378,147
2. Assumption Changes	217,874,003	35,262,239	182,611,764
3. Net Difference between projected and actual earnings on pension plan investments	13,195,139	107,188,220	(93,993,081)
4. Total	\$ 247,341,664	\$ 143,344,834	\$ 103,996,830

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
2022	\$ 36,923,178
2023	25,888,133
2024	46,410,632
2025	(5,225,113)
2026	0
Thereafter	0
Total	\$ 103,996,830



Statement of Fiduciary Net Position as of December 31, 2021

	2021
Assets	
Cash and Deposits	\$ 43,454,200
Receivables	
Accounts Receivable - Sale of Investments	\$ 857,999
Accrued Interest and Other Dividends	2,057,313
Contributions	1,932,945
Accounts Receivable - Other	71,190,001
Total Receivables	\$ 76,038,258
Investments	
Fixed Income	\$ 162,537,342
Domestic Equities	427,624,577
International Equities	92,667,730
Real Estate	154,901,206
Security Lending Collateral	46,975,093
Capital Assets, at Cost, Net of Accumulated Depreciation	136,707
Total Investments	\$ 884,842,655
Total Assets	\$ 1,004,335,113
 Liabilities	
Payables	
Accounts Payable - Purchase of Investments	\$ 120,755,388
Accrued Expenses	1,146,873
Accounts Payable - Other	80,604
Total Liabilities	\$ 121,982,865
 Net Position Restricted for Pensions	\$ 882,352,248

Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2021

	2021
Additions	
Contributions	
Employer	\$ 14,113,663
Employee	14,160,550
Other Employer Contributions	454,150
Other Employee Contributions	1,086,036
Total Contributions	\$ 29,814,399
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 122,031,188
Interest and Dividends	14,562,372
Less Investment Expense	(4,978,627)
Net Investment Income	\$ 131,614,933
Other	\$ 0
Total Additions	\$ 161,429,332
 Deductions	
Benefit Payments, including Refunds of Employee Contributions	\$ 43,306,822
Pension Plan Administrative Expense	753,782
Other	27,492
Total Deductions	\$ 44,088,096
Net Increase in Net Position	\$ 117,341,236
 Net Position Restricted for Pensions	
Beginning of Year	\$ 765,011,012
End of Year	\$ 882,352,248

SECTION C

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, 2021

A. Total pension liability	
1. Service cost	\$ 40,282,611
2. Interest on the total pension liability	57,437,879
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the total pension liability	7,679,619
5. Changes of assumptions	271,664,329
6. Benefit payments, including refunds of employee contributions	(43,306,822)
7. Net change in total pension liability	<u>333,757,616</u>
8. Total pension liability – beginning	<u>833,133,217</u>
9. Total pension liability – ending	<u><u>\$ 1,166,890,833</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 14,567,813
2. Contributions – employee	15,246,586
3. Net investment income	131,614,933
4. Benefit payments	(40,189,329)
5. Refunds	(3,117,493)
6. Pension plan administrative expense	(753,782)
7. Other	(27,492)
8. Net change in plan fiduciary net position	<u>117,341,236</u>
9. Plan fiduciary net position – beginning	<u>765,011,012</u>
10. Plan fiduciary net position – ending	<u><u>\$ 882,352,248</u></u>
C. Net pension liability	<u><u>\$ 284,538,585</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	75.62 %
E. Covered-employee payroll	\$ 166,131,243
F. Net pension liability as a percentage of covered-employee payroll	171.27 %



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,	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability								
Service cost	\$ 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	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
Difference between expected and actual experience	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	271,664,329	0	(111,460,988)	94,255,216	51,421,521	0	0	0
Benefit payments, including refunds of employee contributions	(43,306,822)	(40,386,827)	(37,276,954)	(35,984,464)	(33,662,493)	(31,364,891)	(30,119,285)	(27,320,442)
Net change in total pension liability	333,757,616	46,047,821	(54,038,700)	124,837,549	81,510,688	34,418,229	37,826,652	35,748,508
Total pension liability - beginning	833,133,217	787,085,396	841,124,096	716,286,547	634,775,859	600,357,630	562,530,978	526,782,470
Total pension liability - ending (a)	<u>\$ 1,166,890,833</u>	<u>\$ 833,133,217</u>	<u>\$ 787,085,396</u>	<u>\$ 841,124,096</u>	<u>\$ 716,286,547</u>	<u>\$ 634,775,859</u>	<u>\$ 600,357,630</u>	<u>\$ 562,530,978</u>
Plan fiduciary net position								
Employer contributions	\$ 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	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	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	(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	(3,117,493)	(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	(753,782)	(695,251)	(596,769)	(639,428)	(580,221)	(518,486)	(417,893)	(408,470)
Other	(27,492)	(26,531)	(27,143)	(24,638)	(51,644)	(25,522)	(24,983)	797,291
Net change in plan fiduciary net position	117,341,236	64,124,337	101,834,837	(31,190,281)	70,958,187	34,046,246	(7,829,627)	24,544,144
Plan fiduciary net position - beginning	765,011,012	700,886,675	599,051,838	630,242,119	559,283,932	525,237,686	533,067,313	508,523,169
Plan fiduciary net position - ending (b)	<u>\$ 882,352,248</u>	<u>\$ 765,011,012</u>	<u>\$ 700,886,675</u>	<u>\$ 599,051,838</u>	<u>\$ 630,242,119</u>	<u>\$ 559,283,932</u>	<u>\$ 525,237,686</u>	<u>\$ 533,067,313</u>
Net pension liability - ending (a) - (b)	<u>\$ 284,538,585</u>	<u>\$ 68,122,205</u>	<u>\$ 86,198,721</u>	<u>\$ 242,072,258</u>	<u>\$ 86,044,428</u>	<u>\$ 75,491,927</u>	<u>\$ 75,119,944</u>	<u>\$ 29,463,665</u>
Plan fiduciary net position as a percentage of total pension liability	75.62 %	91.82 %	89.05 %	71.22 %	87.99 %	88.11 %	87.49 %	94.76 %
Covered-employee payroll	\$ 166,131,243	\$ 160,739,444	\$ 155,851,473	\$ 151,898,695	\$ 153,547,078	\$ 154,779,198	\$ 150,399,739	\$ 147,790,833
Projected valuation payroll	\$ 170,284,524	\$ 164,757,930	\$ 159,747,760	\$ 155,696,162	\$ 160,072,828	\$ 161,357,314	\$ 156,791,728	\$ 154,071,943
Net pension liability as a percentage of covered-employee payroll	171.27 %	42.38 %	55.31 %	159.36 %	56.04 %	48.77 %	49.95 %	19.94 %

Notes to Schedule:

For 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 %

* 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 %

* 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, 2021
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	24 years
Asset Valuation Method	5-Year smoothed market
Inflation	2.25%
Salary Increases	4.75% to 8.75% including inflation
Payroll Growth Rate	2.50%
Cost-of-Living Increase	0.00%
Investment Rate of Return	7.00%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2018 valuation pursuant to an experience study of the period 2012 - 2016.
Post-Retirement Mortality	RP-2014 Healthy Annuitant Mortality Table, fully generational, projected with Scale MP-2017 Males: No set back with a multiplier of 100% Females: No set back with a multiplier of 88%
Pre-Retirement Mortality	RP-2014 Employee Mortality Table, fully generational, projected with Scale MP-2017 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 Return¹</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 %

¹ Annual money-weighted rate of return, net of investment expenses.

SECTION D

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 5.17% 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 1.84%. 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 2063. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2063, 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 5.17%, 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
4.17%	5.17%	6.17%
\$ 466,884,822	\$ 284,538,585	\$ 138,486,867

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	1,442
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	1,562
Active Plan Members	<u>2,646</u>
Total Plan Members	5,650

SECTION E

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

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Summary of Actuarial Assumptions and Methods

The following methods and assumptions were used in preparing the January 1, 2021 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 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 a 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 1.84%; and the resulting Single Discount Rate is 5.17%.

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 2021 using the MP-2020 Ultimate Scale					
	Male	Female	Male	Female	Male	Female
20	0.04%	0.01%	0.04%	0.01%	0.10%	0.05%
25	0.03%	0.02%	0.03%	0.02%	0.09%	0.06%
30	0.04%	0.02%	0.04%	0.02%	0.11%	0.08%
35	0.04%	0.03%	0.04%	0.03%	0.12%	0.10%
40	0.05%	0.04%	0.06%	0.04%	0.15%	0.14%
45	0.07%	0.06%	0.11%	0.07%	0.21%	0.19%
50	0.10%	0.08%	0.17%	0.13%	0.30%	0.26%
55	0.15%	0.11%	0.26%	0.22%	0.41%	0.40%
60	0.23%	0.14%	0.44%	0.38%	0.63%	0.60%
65	0.35%	0.20%	0.76%	0.67%	1.03%	0.92%
70	0.67%	0.40%	1.37%	1.16%	1.66%	1.40%
75			2.48%	2.02%	2.85%	2.15%
80			4.52%	3.51%	4.96%	3.51%
85			8.30%	6.22%	8.37%	6.22%
90			14.79%	11.02%	14.79%	11.02%
95			22.82%	18.14%	22.82%	18.14%
100			31.55%	27.24%	31.55%	27.24%

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

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 1.84%; and the resulting Single Discount Rate is 5.17%.

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 2021 to 2070

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)		
2021	\$ 166,131,243	\$ 4,153,281	\$ 170,284,524	\$ 15,246,586	\$ 14,567,813	\$ 0	\$ 29,814,399			
2022	155,201,407	19,340,230	174,541,637	13,347,321	13,347,321	199,206	26,893,848			
2023	146,520,140	32,385,038	178,905,178	12,600,732	12,600,732	335,121	25,536,585			
2024	138,632,141	44,745,666	183,377,807	11,922,364	11,922,364	465,168	24,309,896			
2025	131,458,096	56,504,156	187,962,252	11,305,396	11,305,396	587,660	23,198,452			
2026	124,784,517	67,876,791	192,661,308	10,731,468	10,731,468	703,409	22,166,345			
2027	118,246,860	79,230,981	197,477,841	10,169,230	10,169,230	817,917	21,156,377			
2028	111,700,323	90,714,464	202,414,787	9,606,228	9,606,228	933,335	20,145,791			
2029	105,080,368	102,394,789	207,475,157	9,036,912	9,036,912	1,051,094	19,124,918			
2030	98,521,374	114,140,662	212,662,036	8,472,838	8,472,838	1,171,339	18,117,015			
2031	92,147,972	125,830,615	217,978,587	7,924,726	7,924,726	1,293,750	17,143,202			
2032	85,872,092	137,555,960	223,428,052	7,385,000	7,385,000	1,420,424	16,190,424			
2033	79,731,371	149,282,382	229,013,753	6,856,898	6,856,898	1,551,680	15,265,476			
2034	73,679,286	161,059,811	234,739,097	6,336,419	6,336,419	1,688,222	14,361,060			
2035	67,521,554	173,086,020	240,607,574	5,806,854	5,806,854	1,833,153	13,446,861			
2036	61,263,697	185,359,066	246,622,763	5,268,678	5,268,678	1,986,898	12,524,254			
2037	55,075,837	197,712,495	252,788,332	4,736,522	4,736,522	2,147,901	11,620,945			
2038	48,816,848	210,291,192	259,108,040	4,198,249	4,198,249	2,317,900	10,714,398			
2039	42,417,836	223,167,905	265,585,741	3,647,934	3,647,934	2,497,363	9,793,231			
2040	36,049,919	236,175,466	272,225,385	3,100,293	3,100,293	2,684,572	8,885,158			
2041	30,167,024	248,863,996	279,031,020	2,594,364	2,594,364	2,869,979	8,058,707			
2042	25,125,027	260,881,769	286,006,796	2,160,752	2,160,752	3,044,724	7,366,228			
2043	20,829,624	272,327,342	293,156,966	1,791,348	1,791,348	3,210,164	6,792,860			
2044	17,168,618	283,317,272	300,485,890	1,476,501	1,476,501	3,367,791	6,320,793			
2045	14,056,426	293,941,611	307,998,037	1,208,853	1,208,853	3,518,635	5,936,341			
2046	11,433,017	304,264,971	315,697,988	983,239	983,239	3,663,593	5,630,071			
2047	9,237,711	314,352,727	323,590,438	794,443	794,443	3,803,412	5,392,298			
2048	7,428,442	324,251,757	331,680,199	638,846	638,846	3,938,691	5,216,383			
2049	5,951,474	334,020,730	339,972,204	511,827	511,827	4,070,236	5,093,890			
2050	4,743,683	343,727,826	348,471,509	407,957	407,957	4,199,014	5,014,928			
2051	3,750,322	353,432,975	357,183,297	322,528	322,528	4,325,967	4,971,023			
2052	2,936,548	363,176,331	366,112,879	252,543	252,543	4,451,773	4,956,859			
2053	2,275,691	372,990,010	375,265,701	195,709	195,709	4,577,034	4,968,452			
2054	1,736,968	382,910,376	384,647,344	149,379	149,379	4,702,427	5,001,185			
2055	1,307,905	392,955,623	394,263,528	112,480	112,480	4,828,275	5,053,235			
2056	978,223	403,141,893	404,120,116	84,127	84,127	4,954,936	5,123,190			
2057	723,359	413,499,760	414,223,119	62,209	62,209	5,082,989	5,207,407			
2058	527,171	424,051,526	424,578,697	45,337	45,337	5,212,849	5,303,523			
2059	377,834	434,815,330	435,193,164	32,494	32,494	5,344,861	5,409,849			
2060	265,688	445,807,305	446,072,993	22,849	22,849	5,479,392	5,525,090			
2061	181,744	457,043,074	457,224,818	15,630	15,630	5,616,776	5,648,036			
2062	119,411	468,536,027	468,655,438	10,269	10,269	5,757,264	5,777,802			
2063	74,376	480,297,448	480,371,824	6,396	6,396	5,901,067	5,913,859			
2064	43,875	492,337,245	492,381,120	3,773	3,773	6,048,361	6,055,907			
2065	24,810	504,665,838	504,690,648	2,134	2,134	6,199,327	6,203,595			
2066	12,949	517,294,965	517,307,914	1,114	1,114	6,354,132	6,356,360			
2067	6,045	530,234,567	530,240,612	520	520	6,512,901	6,513,941			
2068	2,577	543,494,050	543,496,627	222	222	6,675,749	6,676,193			
2069	1,031	557,083,012	557,084,043	89	89	6,842,785	6,842,963			
2070	391	571,010,753	571,011,144	34	34	7,014,098	7,014,166			



Single Discount Rate Development Projection of Contributions Ending December 31 for 2071 to 2120 (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)
2071	113	585,286,310	585,286,423	10	10	7,189,779	7,189,799
2072	15	599,918,569	599,918,584	1	1	7,369,907	7,369,909
2073	0	614,916,549	614,916,549	0	0	7,554,567	7,554,567
2074	0	630,289,463	630,289,463	0	0	7,743,849	7,743,849
2075	0	646,046,700	646,046,700	0	0	7,937,845	7,937,845
2076	0	662,197,868	662,197,868	0	0	8,136,656	8,136,656
2077	0	678,752,815	678,752,815	0	0	8,340,389	8,340,389
2078	0	695,721,635	695,721,635	0	0	8,549,156	8,549,156
2079	0	713,114,676	713,114,676	0	0	8,763,075	8,763,075
2080	0	730,942,543	730,942,543	0	0	8,982,274	8,982,274
2081	0	749,216,107	749,216,107	0	0	9,206,888	9,206,888
2082	0	767,946,510	767,946,510	0	0	9,437,058	9,437,058
2083	0	787,145,173	787,145,173	0	0	9,672,931	9,672,931
2084	0	806,823,802	806,823,802	0	0	9,914,657	9,914,657
2085	0	826,994,397	826,994,397	0	0	10,162,394	10,162,394
2086	0	847,669,257	847,669,257	0	0	10,416,304	10,416,304
2087	0	868,860,988	868,860,988	0	0	10,676,551	10,676,551
2088	0	890,582,513	890,582,513	0	0	10,943,305	10,943,305
2089	0	912,847,076	912,847,076	0	0	11,216,737	11,216,737
2090	0	935,668,253	935,668,253	0	0	11,497,020	11,497,020
2091	0	959,059,959	959,059,959	0	0	11,784,333	11,784,333
2092	0	983,036,458	983,036,458	0	0	12,078,853	12,078,853
2093	0	1,007,612,369	1,007,612,369	0	0	12,380,762	12,380,762
2094	0	1,032,802,678	1,032,802,678	0	0	12,690,244	12,690,244
2095	0	1,058,622,745	1,058,622,745	0	0	13,007,488	13,007,488
2096	0	1,085,088,314	1,085,088,314	0	0	13,332,685	13,332,685
2097	0	1,112,215,522	1,112,215,522	0	0	13,666,030	13,666,030
2098	0	1,140,020,910	1,140,020,910	0	0	14,007,723	14,007,723
2099	0	1,168,521,433	1,168,521,433	0	0	14,357,969	14,357,969
2100	0	1,197,734,469	1,197,734,469	0	0	14,716,977	14,716,977
2101	0	1,227,677,831	1,227,677,831	0	0	15,084,963	15,084,963
2102	0	1,258,369,777	1,258,369,777	0	0	15,462,147	15,462,147
2103	0	1,289,829,021	1,289,829,021	0	0	15,848,756	15,848,756
2104	0	1,322,074,747	1,322,074,747	0	0	16,245,023	16,245,023
2105	0	1,355,126,616	1,355,126,616	0	0	16,651,189	16,651,189
2106	0	1,389,004,781	1,389,004,781	0	0	17,067,499	17,067,499
2107	0	1,423,729,901	1,423,729,901	0	0	17,494,207	17,494,207
2108	0	1,459,323,149	1,459,323,149	0	0	17,931,572	17,931,572
2109	0	1,495,806,228	1,495,806,228	0	0	18,379,863	18,379,863
2110	0	1,533,201,384	1,533,201,384	0	0	18,839,353	18,839,353
2111	0	1,571,531,419	1,571,531,419	0	0	19,310,324	19,310,324
2112	0	1,610,819,704	1,610,819,704	0	0	19,793,064	19,793,064
2113	0	1,651,090,197	1,651,090,197	0	0	20,287,869	20,287,869
2114	0	1,692,367,452	1,692,367,452	0	0	20,795,042	20,795,042
2115	0	1,734,676,638	1,734,676,638	0	0	21,314,895	21,314,895
2116	0	1,778,043,554	1,778,043,554	0	0	21,847,745	21,847,745
2117	0	1,822,494,643	1,822,494,643	0	0	22,393,918	22,393,918
2118	0	1,868,057,009	1,868,057,009	0	0	22,953,749	22,953,749
2119	0	1,914,758,434	1,914,758,434	0	0	23,527,579	23,527,579
2120	0	1,962,627,395	1,962,627,395	0	0	24,115,758	24,115,758



Single Discount Rate Development Projection of Plan Net Position Ending December 31 for 2021 to 2070

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)
2021	\$ 765,011,012	\$ 29,814,399	\$ 43,306,822	\$ 781,274	\$ 131,614,933	\$ 882,352,248
2022	882,352,248	26,893,848	45,858,167	715,621	59,341,839	922,014,147
2023	922,014,147	25,536,585	48,251,368	733,511	61,912,831	960,478,683
2024	960,478,683	24,309,896	50,708,375	751,849	64,404,620	997,732,976
2025	997,732,976	23,198,452	53,425,986	770,645	66,809,237	1,033,544,034
2026	1,033,544,034	22,166,345	56,292,951	789,911	69,113,356	1,067,740,874
2027	1,067,740,874	21,156,377	59,386,615	809,659	71,300,852	1,100,001,829
2028	1,100,001,829	20,145,791	62,817,451	829,901	73,345,395	1,129,845,663
2029	1,129,845,663	19,124,918	66,384,585	850,648	75,220,655	1,156,956,002
2030	1,156,956,002	18,117,015	70,085,734	871,914	76,905,972	1,181,021,341
2031	1,181,021,341	17,143,202	73,769,928	893,712	78,385,919	1,201,886,822
2032	1,201,886,822	16,190,424	77,447,797	916,055	79,649,171	1,219,362,566
2033	1,219,362,566	15,265,476	81,083,853	938,956	80,684,232	1,233,289,464
2034	1,233,289,464	14,361,060	84,657,994	962,430	81,480,710	1,243,510,809
2035	1,243,510,809	13,446,861	88,231,273	986,491	82,024,891	1,249,764,798
2036	1,249,764,798	12,524,254	91,828,525	1,011,153	82,298,190	1,251,747,564
2037	1,251,747,564	11,620,945	95,346,191	1,036,432	82,284,331	1,249,270,217
2038	1,249,270,217	10,714,398	98,726,158	1,062,343	81,971,661	1,242,167,775
2039	1,242,167,775	9,793,231	102,001,072	1,088,902	81,347,486	1,230,218,518
2040	1,230,218,518	8,885,158	105,145,480	1,116,124	80,398,508	1,213,240,580
2041	1,213,240,580	8,058,707	107,879,892	1,144,027	79,123,996	1,191,399,364
2042	1,191,399,364	7,366,228	110,104,780	1,172,628	77,540,278	1,165,028,463
2043	1,165,028,463	6,792,860	111,760,894	1,201,944	75,671,521	1,134,530,005
2044	1,134,530,005	6,320,793	112,895,080	1,231,992	73,542,906	1,100,266,633
2045	1,100,266,633	5,936,341	113,619,789	1,262,792	71,174,876	1,062,495,268
2046	1,062,495,268	5,630,071	113,920,162	1,294,362	68,585,080	1,021,495,896
2047	1,021,495,896	5,392,298	113,846,344	1,326,721	65,790,558	977,505,687
2048	977,505,687	5,216,383	113,403,361	1,359,889	62,807,046	930,765,867
2049	930,765,867	5,093,890	112,627,903	1,393,886	59,649,437	881,487,405
2050	881,487,405	5,014,928	111,464,176	1,428,733	56,333,612	829,943,035
2051	829,943,035	4,971,023	109,981,764	1,464,452	52,875,505	776,343,347
2052	776,343,347	4,956,859	108,276,747	1,501,063	49,286,045	720,808,441
2053	720,808,441	4,968,452	106,345,851	1,538,589	45,573,375	663,465,829
2054	663,465,829	5,001,185	104,212,131	1,577,054	41,745,240	604,423,068
2055	604,423,068	5,053,235	101,882,039	1,616,480	37,808,674	543,786,458
2056	543,786,458	5,123,190	99,389,116	1,656,892	33,769,738	481,633,379
2057	481,633,379	5,207,407	96,755,488	1,698,315	29,632,831	418,019,813
2058	418,019,813	5,303,523	93,995,443	1,740,773	25,401,201	352,988,321
2059	352,988,321	5,409,849	91,093,394	1,784,292	21,078,207	286,598,690
2060	286,598,690	5,525,090	88,065,215	1,828,899	16,667,339	218,897,005
2061	218,897,005	5,648,036	84,959,696	1,874,622	12,170,058	149,880,781
2062	149,880,781	5,777,802	81,782,649	1,921,487	7,585,970	79,540,417
2063	79,540,417	5,913,859	78,546,401	1,969,524	2,913,992	7,852,343
2064	7,852,343	6,055,907	75,271,686	2,018,763	0	0
2065	0	6,203,595	71,969,681	2,069,232	0	0
2066	0	6,356,360	68,649,205	2,120,962	0	0
2067	0	6,513,941	65,317,625	2,173,987	0	0
2068	0	6,676,193	61,981,857	2,228,336	0	0
2069	0	6,842,963	58,648,518	2,284,045	0	0
2070	0	7,014,166	55,324,239	2,341,146	0	0



Single Discount Rate Development

Projection of Plan Net Position

Ending December 31 for 2071 to 2120 (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)
2071	0	7,189,799	52,055,958	2,399,674	0	0
2072	0	7,369,909	48,768,842	2,459,666	0	0
2073	0	7,554,567	45,514,339	2,521,158	0	0
2074	0	7,743,849	42,302,215	2,584,187	0	0
2075	0	7,937,845	39,142,934	2,648,791	0	0
2076	0	8,136,656	36,047,968	2,715,011	0	0
2077	0	8,340,389	33,029,611	2,782,887	0	0
2078	0	8,549,156	30,100,624	2,852,459	0	0
2079	0	8,763,075	27,273,770	2,923,770	0	0
2080	0	8,982,274	24,561,746	2,996,864	0	0
2081	0	9,206,888	21,977,033	3,071,786	0	0
2082	0	9,437,058	19,531,042	3,148,581	0	0
2083	0	9,672,931	17,233,652	3,227,295	0	0
2084	0	9,914,657	15,092,749	3,307,978	0	0
2085	0	10,162,394	13,113,935	3,390,677	0	0
2086	0	10,416,304	11,300,418	3,475,444	0	0
2087	0	10,676,551	9,652,729	3,562,330	0	0
2088	0	10,943,305	8,169,155	3,651,388	0	0
2089	0	11,216,737	6,846,199	3,742,673	20,996	0
2090	0	11,497,020	5,678,525	3,836,240	66,288	0
2091	0	11,784,333	4,658,988	3,932,146	106,783	0
2092	0	12,078,853	3,778,918	4,030,449	142,775	0
2093	0	12,380,762	3,028,388	4,131,211	174,600	0
2094	0	12,690,244	2,396,414	4,234,491	202,629	0
2095	0	13,007,488	1,871,295	4,340,353	227,259	0
2096	0	13,332,685	1,440,886	4,448,862	248,898	0
2097	0	13,666,030	1,093,073	4,560,084	267,957	0
2098	0	14,007,723	816,214	4,674,086	284,830	0
2099	0	14,357,969	599,321	4,790,938	299,888	0
2100	0	14,716,977	432,264	4,910,711	313,475	0
2101	0	15,084,963	305,909	5,033,479	325,900	0
2102	0	15,462,147	212,176	5,159,316	337,440	0
2103	0	15,848,756	144,075	5,288,299	348,333	0
2104	0	16,245,023	95,680	5,420,506	358,781	0
2105	0	16,651,189	62,083	5,556,019	368,956	0
2106	0	17,067,499	39,326	5,694,920	378,994	0
2107	0	17,494,207	24,300	5,837,293	389,005	0
2108	0	17,931,572	14,640	5,983,225	399,073	0
2109	0	18,379,863	8,596	6,132,806	409,265	0
2110	0	18,839,353	4,921	6,286,126	419,626	0
2111	0	19,310,324	2,748	6,443,279	430,193	0
2112	0	19,793,064	1,499	6,604,361	440,991	0
2113	0	20,287,869	799	6,769,470	452,040	0
2114	0	20,795,042	417	6,938,707	463,354	0
2115	0	21,314,895	213	7,112,174	474,944	0
2116	0	21,847,745	106	7,289,979	486,821	0
2117	0	22,393,918	51	7,472,228	498,992	0
2118	0	22,953,749	23	7,659,034	511,468	0
2119	0	23,527,579	10	7,850,510	524,254	0
2120	0	24,115,758	5	8,046,772	537,360	0



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2021 to 2070

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}]
2021	\$ 765,011,012	\$ 43,306,822	\$ 43,306,822	\$ 0	\$ 41,905,467	\$ 0	\$ 42,229,711
2022	882,352,248	45,858,167	45,858,167	0	41,548,927	0	42,520,863
2023	922,014,147	48,251,368	48,251,368	0	40,933,747	0	42,542,068
2024	960,478,683	50,708,375	50,708,375	0	40,279,151	0	42,512,068
2025	997,732,976	53,425,986	53,425,986	0	39,735,795	0	42,590,101
2026	1,033,544,034	56,292,951	56,292,951	0	39,202,352	0	42,671,089
2027	1,067,740,874	59,386,615	59,386,615	0	38,723,573	0	42,804,740
2028	1,100,001,829	62,817,451	62,817,451	0	38,352,697	0	43,053,374
2029	1,129,845,663	66,384,585	66,384,585	0	37,949,984	0	43,263,108
2030	1,156,956,002	70,085,734	70,085,734	0	37,514,808	0	43,431,385
2031	1,181,021,341	73,769,928	73,769,928	0	36,972,703	0	43,468,734
2032	1,201,886,822	77,447,797	77,447,797	0	36,344,581	0	43,394,060
2033	1,219,362,566	81,083,853	81,083,853	0	35,628,187	0	43,199,546
2034	1,233,289,464	84,657,994	84,657,994	0	34,830,207	0	42,888,056
2035	1,243,510,809	88,231,273	88,231,273	0	33,989,078	0	42,502,504
2036	1,249,764,798	91,828,525	91,828,525	0	33,122,506	0	42,062,314
2037	1,251,747,564	95,346,191	95,346,191	0	32,201,617	0	41,528,141
2038	1,249,270,217	98,726,158	98,726,158	0	31,220,174	0	40,887,914
2039	1,242,167,775	102,001,072	102,001,072	0	30,202,060	0	40,169,002
2040	1,230,218,518	105,145,480	105,145,480	0	29,150,847	0	39,373,180
2041	1,213,240,580	107,879,892	107,879,892	0	28,004,629	0	38,412,624
2042	1,191,399,364	110,104,780	110,104,780	0	26,762,350	0	37,278,912
2043	1,165,028,463	111,760,894	111,760,894	0	25,435,289	0	35,980,775
2044	1,134,530,005	112,895,080	112,895,080	0	24,057,505	0	34,560,438
2045	1,100,266,633	113,619,789	113,619,789	0	22,670,353	0	33,073,624
2046	1,062,495,268	113,920,162	113,920,162	0	21,283,040	0	31,532,034
2047	1,021,495,896	113,846,344	113,846,344	0	19,915,027	0	29,963,605
2048	977,505,687	113,403,361	113,403,361	0	18,574,472	0	28,380,790
2049	930,765,867	112,627,903	112,627,903	0	17,272,901	0	26,802,058
2050	881,487,405	111,464,176	111,464,176	0	16,006,020	0	25,222,088
2051	829,943,035	109,981,764	109,981,764	0	14,787,592	0	23,664,100
2052	776,343,347	108,276,747	108,276,747	0	13,631,409	0	22,152,773
2053	720,808,441	106,345,851	106,345,851	0	12,535,880	0	20,688,883
2054	663,465,829	104,212,131	104,212,131	0	11,502,211	0	19,277,839
2055	604,423,068	101,882,039	101,882,039	0	10,529,055	0	17,920,960
2056	543,786,458	99,389,116	99,389,116	0	9,617,437	0	16,623,638
2057	481,633,379	96,755,488	96,755,488	0	8,766,473	0	15,388,151
2058	418,019,813	93,995,443	93,995,443	0	7,974,158	0	14,214,815
2059	352,988,321	91,093,394	91,093,394	0	7,235,918	0	13,099,203
2060	286,598,690	88,065,215	88,065,215	0	6,549,979	0	12,041,649
2061	218,897,005	84,959,696	84,959,696	0	5,916,668	0	11,046,332
2062	149,880,781	81,782,649	81,782,649	0	5,332,786	0	10,110,902
2063	79,540,417	78,546,401	78,546,401	0	4,795,656	0	9,233,761
2064	7,852,343	75,271,686	8,114,932	67,156,754	463,912	30,383,633	8,414,098
2065	0	71,969,681	0	71,969,681	0	31,972,839	7,649,782
2066	0	68,649,205	0	68,649,205	0	29,946,684	6,938,388
2067	0	65,317,625	0	65,317,625	0	27,978,551	6,277,360
2068	0	61,981,857	0	61,981,857	0	26,070,000	5,664,151
2069	0	58,648,518	0	58,648,518	0	24,222,284	5,096,252
2070	0	55,324,239	0	55,324,239	0	22,436,500	4,571,228



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2071 to 2120 (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	Present Value of	Present Value of
					Funded Benefit Payments using Expected Return Rate (v)	Unfunded Benefit Payments using Municipal Bond Rate (vf)	All Benefit Payments using Single Discount Rate (SDR)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^a ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=((c)/(1+SDR) ^a ((a)-.5)
2071	\$ 0	\$ 52,015,982	\$ 0	\$ 52,015,982	\$ 0	\$ 20,713,719	\$ 4,086,747
2072	0	48,731,390	0	48,731,390	0	19,055,120	3,640,603
2073	0	45,479,387	0	45,479,387	0	17,462,205	3,230,746
2074	0	42,269,729	0	42,269,729	0	15,936,596	2,855,231
2075	0	39,112,874	0	39,112,874	0	14,479,963	2,512,205
2076	0	36,020,285	0	36,020,285	0	13,094,124	2,199,916
2077	0	33,004,246	0	33,004,246	0	11,780,962	1,916,692
2078	0	30,077,508	0	30,077,508	0	10,542,276	1,660,917
2079	0	27,252,825	0	27,252,825	0	9,379,629	1,431,005
2080	0	24,542,884	0	24,542,884	0	8,294,331	1,225,403
2081	0	21,960,155	0	21,960,155	0	7,287,403	1,042,587
2082	0	19,516,043	0	19,516,043	0	6,359,321	881,033
2083	0	17,220,417	0	17,220,417	0	5,509,907	739,210
2084	0	15,081,158	0	15,081,158	0	4,738,238	615,577
2085	0	13,103,864	0	13,103,864	0	4,042,622	508,593
2086	0	11,291,740	0	11,291,740	0	3,420,632	416,731
2087	0	9,645,317	0	9,645,317	0	2,869,086	338,481
2088	0	8,162,882	0	8,162,882	0	2,384,252	272,386
2089	0	6,840,942	0	6,840,942	0	1,962,032	217,061
2090	0	5,674,164	0	5,674,164	0	1,597,989	171,195
2091	0	4,655,410	0	4,655,410	0	1,287,394	133,558
2092	0	3,776,016	0	3,776,016	0	1,025,342	103,008
2093	0	3,026,062	0	3,026,062	0	806,853	78,494
2094	0	2,394,574	0	2,394,574	0	626,941	59,062
2095	0	1,869,858	0	1,869,858	0	480,716	43,855
2096	0	1,439,779	0	1,439,779	0	363,461	32,109
2097	0	1,092,233	0	1,092,233	0	270,744	23,162
2098	0	815,587	0	815,587	0	198,516	16,446
2099	0	598,861	0	598,861	0	143,131	11,482
2100	0	431,932	0	431,932	0	101,369	7,875
2101	0	305,674	0	305,674	0	70,441	5,299
2102	0	212,013	0	212,013	0	47,975	3,495
2103	0	143,964	0	143,964	0	31,988	2,257
2104	0	95,606	0	95,606	0	20,859	1,425
2105	0	62,036	0	62,036	0	13,290	879
2106	0	39,296	0	39,296	0	8,267	530
2107	0	24,282	0	24,282	0	5,016	311
2108	0	14,628	0	14,628	0	2,967	178
2109	0	8,590	0	8,590	0	1,711	100
2110	0	4,917	0	4,917	0	962	54
2111	0	2,746	0	2,746	0	527	29
2112	0	1,498	0	1,498	0	282	15
2113	0	799	0	799	0	148	8
2114	0	417	0	417	0	76	4
2115	0	213	0	213	0	38	2
2116	0	106	0	106	0	19	1
2117	0	51	0	51	0	9	0
2118	0	23	0	23	0	4	0
2119	0	10	0	10	0	2	0
2120	0	5	0	5	0	1	0
Totals					\$ 1,069,429,182	\$ 379,429,943	\$ 1,448,859,125



SECTION H

GLOSSARY OF TERMS

Glossary of Terms

Accrued Service	Service credited under the system that was rendered before the date of the actuarial valuation.
Actuarial Accrued Liability (AAL)	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."
Actuarial Assumptions	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.
Actuarial Cost Method	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.
Actuarial Equivalent	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.
Actuarial Gain (Loss)	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.
Actuarial Present Value (APV)	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.
Actuarial Valuation	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.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.
Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)	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

Amortization Method	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).
Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)	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.
Covered-Employee Payroll	The payroll of employees that are provided with pensions through the pension plan.
Deferred Inflows and Outflows	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.
Deferred Retirement Option Program (DROP)	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

Other Postemployment Benefits (OPEB)	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.
Real Rate of Return	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
Service Cost	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
Total Pension Expense	<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">1. Service Cost2. Interest on the Total Pension Liability3. Current-Period Benefit Changes4. Employee Contributions (made negative for addition here)5. Projected Earnings on Plan Investments (made negative for addition here)6. Pension Plan Administrative Expense7. Other Changes in Plan Fiduciary Net Position8. Recognition of Outflow (Inflow) of Resources due to Liabilities9. Recognition of Outflow (Inflow) of Resources due to Assets
Total Pension Liability (TPL)	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
Unfunded Actuarial Accrued Liability (UAAL)	The UAAL is the difference between actuarial accrued liability and valuation assets.
Valuation Assets	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.