

Wyoming Retirement System Paid Firemen's Retirement Fund Plan B

GASB Statement Nos. 67 and 68 Accounting and Financial
Reporting for Pensions
For Measurement Date as of December 31, 2023





March 27, 2024

Board of Trustees
Wyoming Paid Firemen's Retirement Fund Plan B

Dear Board Members:

This report provides information required by the Wyoming Paid Firemen's Retirement Fund Plan B (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 Paid Firemen's Retirement Fund Plan B ("WRS") 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, 2023 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 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 Paid Firemen's Retirement Fund Plan B as of the valuation date.

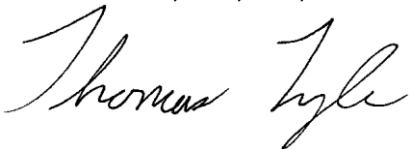
All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

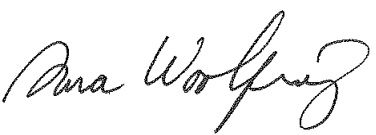
Paul T. Wood, Thomas A. Lyle, Dana Woolfrey, and Karli Fehrman are Members of the American Academy of Actuaries (MAAA) and are experienced in performing valuations for public retirement systems. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein.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

Respectfully submitted,

Gabriel, Roeder, Smith & Company

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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of December 31, 2023

2023

Actuarial Valuation Date	January 1, 2023
Measurement Date of the Net Pension Liability	December 31, 2023
Employer's Fiscal Year Ending Date (Reporting Date)	December 31, 2023

Membership

Number of	
- Retirees and Beneficiaries	189
- Inactive, Nonretired Members	95
- Active Members	388
- Total	672
Covered Payroll	\$ 33,464,571

Net Pension Liability

Total Pension Liability	\$ 232,922,337
Plan Fiduciary Net Position	233,845,019
Net Pension Liability	\$ (922,682)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	100.40 %
Net Pension Liability as a Percentage of Covered Payroll	(2.76)%

Development of the Single Discount Rate

Single Discount Rate	6.80 %
Long-Term Expected Rate of Investment Return	6.80 %
Long-Term Municipal Bond Rate*	3.77 %
Last year ending December 31 in the 2023 to 2122 projection period for which projected benefit payments are fully funded	2122

Total Pension Expense	\$ (1,685,269)
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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	\$ 2,222,795	\$ 3,819,163
Changes in assumptions	5,625,243	5,636,488
Net difference between projected and actual earnings on pension plan investments	17,867,462	19,734,412
Total	\$ 25,715,500	\$ 29,190,063

**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, 2023. 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, 2023.

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 decrease as a percentage of payroll as employee contributions increase.
2. The unfunded liability is expected to decrease as a percentage of payroll each year in the future.
3. The unfunded liability is expected to be fully amortized during the lifetimes of current members.
4. The funded status of the plan is expected to increase gradually towards a 100% funded ratio.

This funding policy results in no expected crossover date and a GASB single discount rate of 6.80%. This funding policy results in the expectation that the plan's assets will be able to fully pay for promised benefits through at least 2122. 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, 2023 and rolled forward to a measurement date of December 31, 2023.

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 3.77% (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 6.80%.

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 Paid Firemen's Retirement Fund Plan B. 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, 2023

A. Expense

1. Service Cost	\$	8,015,475
2. Interest on the Total Pension Liability		14,839,390
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(4,149,048)
5. Projected Earnings on Plan Investments (made negative for addition here)		(13,984,177)
6. Pension Plan Administrative Expense		214,075
7. Other Changes in Plan Fiduciary Net Position		15,930
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		(1,543,892)
9. Recognition of Outflow (Inflow) of Resources due to Assets		(5,093,022)
10. Total Pension Expense	\$	(1,685,269) *

* 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, 2023

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ 2,490,564
2. Assumption Changes (gains) or losses	\$ 0
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	6.4244
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	\$ 387,673
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for assumption changes	\$ 0
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	<u>\$ 387,673</u>
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	\$ 2,102,891
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for assumption changes	\$ 0
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	<u>\$ 2,102,891</u>

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ (13,441,071)
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	\$ (2,688,214)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ (10,752,857)



History of Deferred Outflows and Inflows of Resources by Source Fiscal Year Ended December 31, 2023

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

Recognition Period	8.7186	8.3813	8.0494	7.8262	7.3965	6.9999	6.7949	6.7261	6.6818	6.4244		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total	
Total	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684	\$ (3,243,112)	\$ (310,679)	\$ (1,228,034)	\$ 2,490,564		
2014	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	14,325	-	-	-	-	-	-	-	-	14,325	14,325
2016	-	14,325	(11,641)	-	-	-	-	-	-	-	2,684	2,684
2017	-	14,325	(11,641)	(279,835)	-	-	-	-	-	-	(277,151)	(277,151)
2018	-	14,325	(11,641)	(279,835)	(874,223)	-	-	-	-	-	(1,151,374)	(1,151,374)
2019	-	14,325	(11,641)	(279,835)	(874,223)	59,956	-	-	-	-	(1,091,418)	(1,091,418)
2020	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(477,286)	-	-	-	(1,568,704)	(1,568,704)
2021	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(46,190)	-	-	(1,614,894)	(1,614,894)
2022	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(46,190)	(183,788)	-	(1,798,682)	(1,798,682)
2023	-	5,464	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(46,190)	(183,788)	387,673	(1,419,870)	(1,419,870)
2024	-	-	(575)	(231,200)	(874,223)	59,956	(477,286)	(46,190)	(183,788)	387,673	(1,365,633)	\$ (1,596,368)
2025	-	-	-	-	(346,630)	59,948	(477,286)	(46,190)	(183,788)	387,673	(606,273)	(606,273)
2026	-	-	-	-	-	-	(379,396)	(46,190)	(183,788)	387,673	(221,701)	(221,701)
2027	-	-	-	-	-	-	-	(33,539)	(183,788)	387,673	170,346	170,346
2028	-	-	-	-	-	-	-	-	(125,306)	387,673	262,367	262,367
Thereafter	-	-	-	-	-	-	-	-	-	164,526	164,526	164,526
	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684	\$ (3,243,112)	\$ (310,679)	\$ (1,228,034)	\$ 2,490,564	\$ (10,501,452)	

Assumption changes - Net (inflows)/outflows of resources

Recognition Period	8.7186	8.3813	8.0494	7.8262	7.3965	6.9999	6.7949	6.7261	6.6818	6.4244		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total	
Total	\$ -	\$ 20,165,038	\$ (1,498,059)	\$ 16,738,920	\$ (29,804,719)	\$ -	\$ -	\$ 6,964,448	\$ -	\$ -		
2014	-	-	-	-	-	-	-	-	-	-	-	-
2015	-	2,405,956	-	-	-	-	-	-	-	-	2,405,956	2,405,956
2016	-	2,405,956	(186,108)	-	-	-	-	-	-	-	2,219,848	2,219,848
2017	-	2,405,956	(186,108)	2,138,831	-	-	-	-	-	-	4,358,679	4,358,679
2018	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	-	-	-	329,108	329,108
2019	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	-	-	-	329,108	329,108
2020	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	-	-	-	329,108	329,108
2021	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	1,035,436	-	-	1,364,544	1,364,544
2022	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	1,035,436	-	-	1,364,544	1,364,544
2023	-	917,390	(186,108)	2,138,831	(4,029,571)	-	-	1,035,436	-	-	(124,022)	(124,022)
2024	-	-	(9,195)	1,767,103	(4,029,571)	-	-	1,035,436	-	-	(1,236,227)	\$ (1,236,227)
2025	-	-	-	-	(1,597,722)	-	-	1,035,436	-	-	(562,286)	(562,286)
2026	-	-	-	-	-	-	-	1,035,436	-	-	1,035,436	1,035,436
2027	-	-	-	-	-	-	-	751,832	-	-	751,832	751,832
2028	-	-	-	-	-	-	-	-	-	-	-	-
Thereafter	-	-	-	-	-	-	-	-	-	-	-	-
	\$ -	\$ 20,165,038	\$ (1,498,059)	\$ 16,738,920	\$ (29,804,719)	\$ -	\$ -	\$ 6,964,448	\$ -	\$ -	\$ 12,565,628	



History of Deferred Outflows and Inflows of Resources by Source Fiscal Year Ended December 31, 2023 (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	5.0000	Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total	
Total	\$ 3,185,937	\$ 10,250,451	\$ 680,474	\$ (8,890,008)	\$ 15,436,045	\$ (16,212,170)	\$ (6,274,171)	\$ (19,316,800)	\$ 29,779,102	\$ (13,441,071)		
2014	637,187										637,187	
2015	637,187	2,050,090									2,687,277	
2016	637,187	2,050,090	136,095								2,823,372	
2017	637,187	2,050,090	136,095	(1,778,002)							1,045,370	
2018	637,189	2,050,090	136,095	(1,778,002)	3,087,209						4,132,581	
2019	-	2,050,091	136,095	(1,778,002)	3,087,209	(3,242,434)					252,959	
2020	-	-	136,094	(1,778,002)	3,087,209	(3,242,434)	(1,254,834)				(3,051,967)	
2021	-	-	-	(1,778,000)	3,087,209	(3,242,434)	(1,254,834)	(3,863,360)			(7,051,419)	
2022	-	-	-	-	3,087,209	(3,242,434)	(1,254,834)	(3,863,360)	5,955,820		682,401	
2023	-	-	-	-	-	(3,242,434)	(1,254,834)	(3,863,360)	5,955,820	(2,688,214)	(5,093,022)	
2024	-	-	-	-	-	-	(1,254,835)	(3,863,360)	5,955,820	(2,688,214)	(1,850,589)	\$ (1,866,950)
2025	-	-	-	-	-	-	-	(3,863,360)	5,955,820	(2,688,214)	(595,754)	
2026	-	-	-	-	-	-	-	-	5,955,822	(2,688,214)	3,267,608	
2027	-	-	-	-	-	-	-	-	-	(2,688,215)	(2,688,215)	
2028	-	-	-	-	-	-	-	-	-	-	-	
Thereafter	-	-	-	-	-	-	-	-	-	-	-	
	\$ 3,185,937	\$ 10,250,451	\$ 680,474	\$ (8,890,008)	\$ 15,436,045	\$ (16,212,170)	\$ (6,274,171)	\$ (19,316,800)	\$ 29,779,102	\$ (13,441,071)	\$ (4,802,211)	

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

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Total	
Total	\$ 3,185,937	\$ 30,535,553	\$ (911,288)	\$ 5,658,867	\$ (20,834,865)	\$ (15,792,486)	\$ (9,517,283)	\$ (12,663,031)	\$ 28,551,068	\$ (10,950,507)		
2014	637,187										637,187	
2015	637,187	4,470,371									5,107,558	
2016	637,187	4,470,371	(61,654)								5,045,904	
2017	637,187	4,470,371	(61,654)	80,994							5,126,898	
2018	637,189	4,470,371	(61,654)	80,994	(1,816,585)						3,310,315	
2019	-	4,470,372	(61,654)	80,994	(1,816,585)	(3,182,478)					(509,351)	
2020	-	2,420,281	(61,655)	80,994	(1,816,585)	(3,182,478)	(1,732,120)				(4,291,563)	
2021	-	2,420,281	(197,749)	80,996	(1,816,585)	(3,182,478)	(1,732,120)	(2,874,114)			(7,301,769)	
2022	-	2,420,281	(197,749)	1,858,996	(1,816,585)	(3,182,478)	(1,732,120)	(2,874,114)	5,772,032		248,263	
2023	-	922,854	(197,749)	1,858,996	(4,903,794)	(3,182,478)	(1,732,120)	(2,874,114)	5,772,032	(2,300,541)	(6,636,914)	
2024	-	-	(9,770)	1,535,903	(4,903,794)	59,956	(1,732,121)	(2,874,114)	5,772,032	(2,300,541)	(4,452,449)	\$ (3,474,563)
2025	-	-	-	-	(1,944,352)	59,948	(477,286)	(2,874,114)	5,772,032	(2,300,541)	(1,764,313)	
2026	-	-	-	-	-	-	(379,396)	989,246	5,772,034	(2,300,541)	4,081,343	
2027	-	-	-	-	-	-	-	718,293	(183,788)	(2,300,542)	(1,766,037)	
2028	-	-	-	-	-	-	-	-	(125,306)	387,673	262,367	
Thereafter	-	-	-	-	-	-	-	-	-	164,526	164,526	
	\$ 3,185,937	\$ 30,535,553	\$ (911,288)	\$ 5,658,867	\$ (20,834,865)	\$ (15,792,486)	\$ (9,517,283)	\$ (12,663,031)	\$ 28,551,068	\$ (10,950,507)	\$ (2,738,035)	



Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended December 31, 2023

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	\$ 4,544,750	\$ 6,088,642	\$ (1,543,892)
2. Due to Assets	5,955,820	11,048,842	(5,093,022)
3. Total	\$ 10,500,570	\$ 17,137,484	\$ (6,636,914)

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	\$ 453,093	\$ 1,872,963	\$ (1,419,870)
2. Assumption Changes	4,091,657	4,215,679	(124,022)
3. Net Difference between projected and actual earnings on pension plan investments	5,955,820	11,048,842	(5,093,022)
4. Total	\$ 10,500,570	\$ 17,137,484	\$ (6,636,914)

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	\$ 2,222,795	\$ 3,819,163	\$ (1,596,368)
2. Assumption Changes	5,625,243	5,636,488	(11,245)
3. Net Difference between projected and actual earnings on pension plan investments	17,867,462	19,734,412	(1,866,950)
4. Total	\$ 25,715,500	\$ 29,190,063	\$ (3,474,563)

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
2024	\$ (4,452,449)
2025	(1,764,313)
2026	4,081,343
2027	(1,766,037)
2028	262,367
Thereafter	164,526
Total	\$ (3,474,563)



Statement of Fiduciary Net Position as of December 31, 2023

	2023
Assets	
Cash and Deposits	\$ 13,870,844
Receivables	
Accounts Receivable - Sale of Investments	\$ 5,246,686
Accrued Interest and Other Dividends	465,323
Contributions	625,708
Accounts Receivable - Other	13,589,208
Total Receivables	\$ 19,926,925
Investments	
Fixed Income	\$ 35,914,602
Equities	106,770,847
Private Markets	29,354,142
Marketable Alternatives	42,671,786
Security Lending Collateral	6,408,559
Capital Assets, at Cost, Net of Accumulated Depreciation	57,504
Total Investments	\$ 221,177,440
Total Assets	\$ 254,975,209
Liabilities	
Payables	
Accounts Payable - Purchase of Investments	\$ 20,757,034
Accrued Expenses	373,156
Accounts Payable - Other	0
Total Liabilities	\$ 21,130,190
Net Position Restricted for Pensions	\$ 233,845,019



Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2023

	2023
Additions	
Contributions	
Employer	\$ 5,892,505
Employee	4,139,669
Other Employer Contributions	1,359
Other Employee Contributions	9,379
Total Contributions	\$ 10,042,912
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 24,046,350
Interest and Dividends	5,041,413
Less Investment Expense	(1,662,515)
Net Investment Income	\$ 27,425,248
Other	\$ 0
Total Additions	\$ 37,468,160
 Deductions	
Benefit Payments, including Refunds of Employee Contributions	\$ 8,297,594
Pension Plan Administrative Expense	214,075
Other	15,930
Total Deductions	\$ 8,527,599
Net Increase in Net Position	\$ 28,940,561
 Net Position Restricted for Pensions	
Beginning of Year	\$ 204,904,458
End of Year	\$ 233,845,019

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Wyoming Paid Firemen's Retirement Fund Plan B. 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, 2023

A. Total pension liability	
1. Service cost	\$ 8,015,475
2. Interest on the total pension liability	14,839,390
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the total pension liability	2,490,564
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(8,297,594)
7. Net change in total pension liability	<u>17,047,835</u>
8. Total pension liability – beginning	<u>215,874,502</u>
9. Total pension liability – ending	<u><u>\$ 232,922,337</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 5,893,864
2. Contributions – employee	4,149,048
3. Net investment income	27,425,248
4. Benefit payments	(8,157,492)
5. Refunds	(140,102)
6. Pension plan administrative expense	(214,075)
7. Other	(15,930)
8. Net change in plan fiduciary net position	<u>28,940,561</u>
9. Plan fiduciary net position – beginning	<u>204,904,458</u>
10. Plan fiduciary net position – ending	<u><u>\$ 233,845,019</u></u>
C. Net pension liability	<u><u>\$ (922,682)</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	100.40 %
E. Covered-employee payroll	\$ 33,464,571
F. Net pension liability as a percentage of covered-employee payroll	(2.76)%



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,	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability										
Service cost	\$ 8,015,475	\$ 7,471,374	\$ 7,168,972	\$ 6,738,176	\$ 6,563,232	\$ 6,259,734	\$ 8,912,364	\$ 7,422,919	\$ 7,421,040	\$ 5,367,034
Interest on the total pension liability	14,839,390	13,752,235	12,955,679	12,013,695	11,411,054	10,593,553	9,917,806	9,744,190	8,937,063	8,194,197
Changes of benefit terms	0	0	0	0	0	0	0	0	0	0
Difference between expected and actual experience	2,490,564	(1,228,034)	(310,679)	(3,243,112)	419,684	(6,466,191)	(2,190,045)	(93,703)	120,064	0
Changes of assumptions	0	0	6,964,448	0	0	(29,804,719)	16,738,920	(1,498,059)	20,165,038	0
Benefit payments, including refunds of employee contributions	(8,297,594)	(7,700,577)	(6,973,898)	(6,468,585)	(5,956,099)	(5,538,105)	(5,174,732)	(4,415,543)	(3,787,302)	(3,153,284)
Net change in total pension liability	17,047,835	12,294,998	19,804,522	9,040,174	12,437,871	(24,955,728)	28,204,313	11,159,804	32,855,903	10,407,947
Total pension liability - beginning	215,874,502	203,579,504	183,774,982	174,734,808	162,296,937	187,252,665	159,048,352	147,888,548	115,032,645	104,624,698
Total pension liability - ending (a)	\$ 232,922,337	\$ 215,874,502	\$ 203,579,504	\$ 183,774,982	\$ 174,734,808	\$ 162,296,937	\$ 187,252,665	\$ 159,048,352	\$ 147,888,548	\$ 115,032,645
Plan fiduciary net position										
Employer contributions	\$ 5,893,864	\$ 5,171,246	\$ 4,508,405	\$ 4,034,134	\$ 3,516,198	\$ 3,356,547	\$ 3,230,196	\$ 3,370,961	\$ 3,273,668	\$ 3,184,045
Employee contributions	4,149,048	3,799,401	3,261,693	3,053,576	2,787,467	2,821,872	2,773,651	2,858,418	2,924,752	2,414,435
Pension plan net investment income	27,425,248	(14,871,186)	31,992,426	18,023,705	26,111,099	(5,197,809)	17,838,337	8,477,077	(1,158,548)	5,303,618
Benefit payments	(8,157,492)	(7,559,981)	(6,902,972)	(6,383,271)	(5,921,008)	(5,474,014)	(5,054,595)	(4,343,944)	(3,712,240)	(3,090,522)
Refunds	(140,102)	(140,596)	(70,926)	(85,314)	(35,091)	(64,091)	(120,137)	(71,599)	(75,062)	(62,762)
Pension plan administrative expense	(214,075)	(191,754)	(176,943)	(158,826)	(138,634)	(140,922)	(130,931)	(112,132)	(90,438)	(87,431)
Other	(15,930)	(12,678)	(6,688)	(6,345)	(6,402)	(5,708)	(5,700)	(5,700)	(5,444)	264,234
Net change in plan fiduciary net position	28,940,561	(13,805,548)	32,604,995	18,477,659	26,313,629	(4,704,125)	18,530,821	10,173,081	1,156,688	7,925,617
Plan fiduciary net position - beginning	204,904,458	218,710,006	186,105,011	167,627,352	141,313,723	146,017,848	127,487,027	117,313,946	116,157,258	108,231,641
Plan fiduciary net position - ending (b)	\$ 233,845,019	\$ 204,904,458	\$ 218,710,006	\$ 186,105,011	\$ 167,627,352	\$ 141,313,723	\$ 146,017,848	\$ 127,487,027	\$ 117,313,946	\$ 116,157,258
Net pension liability - ending (a) - (b)	\$ (922,682)	\$ 10,970,044	\$ (15,130,502)	\$ (2,330,029)	\$ 7,107,456	\$ 20,983,214	\$ 41,234,817	\$ 31,561,325	\$ 30,574,602	\$ (1,124,613)
Plan fiduciary net position as a percentage of total pension liability	100.40 %	94.92 %	107.43 %	101.27 %	95.93 %	87.07 %	77.98 %	80.16 %	79.33 %	100.98 %
Covered-employee payroll	\$ 33,464,571	\$ 31,251,620	\$ 29,973,443	\$ 28,557,976	\$ 28,028,382	\$ 26,811,084	\$ 28,209,686	\$ 26,390,481	\$ 25,986,443	\$ 24,552,559
Projected valuation payroll	\$ 34,301,185	\$ 32,032,911	\$ 30,722,779	\$ 29,271,925	\$ 28,729,092	\$ 28,168,395	\$ 29,408,598	\$ 27,512,076	\$ 27,090,867	\$ 25,596,043
Net pension liability as a percentage of covered-employee payroll	(2.76)%	35.10 %	(50.48)%	(8.16)%	25.36 %	78.26 %	146.17 %	119.59 %	117.66 %	(4.58)%

Notes to Schedule:

For 2023, 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

Last 10 Fiscal Years (which may be built prospectively)

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	\$ 115,032,645	\$ 116,157,258	\$ (1,124,613)	100.98 %	\$ 24,552,559	(4.58)%
2015	147,888,548	117,313,946	30,574,602	79.33 %	25,986,443	117.66 %
2016	159,048,352	127,487,027	31,561,325	80.16 %	26,390,481	119.59 %
2017	187,252,665	146,017,848	41,234,817	77.98 %	28,209,686	146.17 %
2018	162,296,937	141,313,723	20,983,214	87.07 %	26,811,084	78.26 %
2019	174,734,808	167,627,352	7,107,456	95.93 %	28,028,382	25.36 %
2020	183,774,982	186,105,011	(2,330,029)	101.27 %	28,557,976	(8.16)%
2021	203,579,504	218,710,006	(15,130,502)	107.43 %	29,973,443	(50.48)%
2022	215,874,502	204,904,458	10,970,044	94.92 %	31,251,620	35.10 %
2023	232,922,337	233,845,019	(922,682)	100.40 %	33,464,571	(2.76)%

* 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	\$ 3,273,329	\$ 3,184,045	\$ 89,284	\$ 24,552,559	12.97 %
2015	3,275,448	3,273,668	1,780	25,986,443	12.60 %
2016	3,420,716	3,370,961	49,755	26,390,481	12.77 %
2017	3,496,053	3,230,196	265,857	28,209,686	11.45 %
2018	4,221,146	3,356,547	864,599	26,811,084	12.52 %
2019	4,760,014	3,516,198	1,243,816	28,028,382	12.55 %
2020	4,694,424	4,034,134	660,290	28,557,976	14.13 %
2021	4,547,521	4,508,405	39,116	29,973,443	15.04 %
2022	4,535,192	5,171,246	(636,054)	31,251,620	16.55 %
2023	4,834,727	5,893,864	(1,059,137)	33,464,571	17.61 %

* 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, 2023
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	22 years
Asset Valuation Method	5-Year smoothed market
Inflation	2.25%
Salary Increases	4.50% to 7.50% 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 16.00% of salary.
Employees are currently contributing at the rate of 11.245% 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 %
2022	(6.99)%
2023	13.84 %

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 Paid Firemen's Retirement Fund Plan B. 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 6.80% was used to measure the total pension liability. This Single Discount Rate was based on the expected rate of return on pension plan investments of 6.80%. 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 rates. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

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 6.80% 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
5.80%	6.80%	7.80%
\$ 30,834,543	\$ (922,682)	\$ (27,284,750)

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	189
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	95
Active Plan Members	<u>388</u>
Total Plan Members	672

SECTION E

SUMMARY OF BENEFITS

Summary of Plan Provisions

Covered Members	Any person who is employed by the Wyoming Paid Firemen Retirement Fund Plan B for members hired on or after July 1, 1981.
Final Average Salary	Employee's average annual salary for the highest paid three continuous years of service.
Service Retirement	
Eligibility	Age 50 with four or more years of service.
Monthly Benefit	2.80% of employee's highest three-year average salary for each year of credited service, with a max of 25 years or 70%.
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 without interest. An employee who terminates with less than four years of service is only eligible for the lump-sum benefit.
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. 15-5-405.
Monthly Benefit	50.0% of Final Average Salary.



Pre-retirement Death Benefit

Eligibility	No age or service requirements.
Monthly Benefit	50% of member's final actual salary, payable to the surviving spouse or eligible dependent child.

Post-retirement Death Benefit

Monthly Benefit	On the death of a member, inactive member, retired member, or survivor the excess of the accumulated member contributions over all pension payments made are payable as a death benefit.
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Contributions

Employee	11.245% of salary. The employer may subsidize all or part of the employee contributions.
Employer	16.00% of salary.
Interest	None.

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 (normal form)	Monthly benefit for life with a lump-sum death benefit equal to the excess (if any) of the employee contributions 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 3	Monthly benefit for life. Upon death, 50% of the benefit continues to be paid to the beneficiary.
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.



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, 2023 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) or the surplus amount.

- 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. 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.

b. Salary increase rate

Age	Rate
< 20	7.50%
20-25	7.50%
25-29	7.00%
30-35	5.50%
35 +	4.50%

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

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 100%

Healthy Post-Retirement Mortality:

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

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 100%

Disabled Mortality:

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

Males: No set back with a multiplier of 100%

Females: No set back with a multiplier of 100%

Age	Pre-Retirement		Post-Retirement		Disabled	
	Projected to 2023 using the MP-2020 Ultimate Scale					
	Male	Female	Male	Female	Male	Female
20	0.03%	0.01%	0.03%	0.01%	0.10%	0.04%
25	0.03%	0.02%	0.03%	0.02%	0.09%	0.05%
30	0.03%	0.02%	0.03%	0.02%	0.10%	0.07%
35	0.04%	0.03%	0.04%	0.03%	0.12%	0.10%
40	0.05%	0.04%	0.05%	0.04%	0.15%	0.14%
45	0.07%	0.06%	0.10%	0.07%	0.20%	0.19%
50	0.10%	0.08%	0.16%	0.12%	0.30%	0.25%
55	0.15%	0.10%	0.26%	0.22%	0.40%	0.39%
60	0.22%	0.14%	0.43%	0.37%	0.62%	0.59%
65	0.35%	0.19%	0.74%	0.65%	1.00%	0.89%
70	0.65%	0.39%	1.33%	1.13%	1.62%	1.37%
75			2.43%	1.97%	2.78%	2.10%
80			4.42%	3.43%	4.85%	3.43%
85			8.15%	6.11%	8.22%	6.11%
90			14.61%	10.88%	14.61%	10.88%
95			22.64%	17.99%	22.64%	17.99%
100			31.36%	27.08%	31.36%	27.08%

100% of active deaths and disabilities are assumed to be duty-related.

b. Disability and Withdrawal

Age	Disability		Withdrawal	
	Male	Female	Ultimate	
			Male	Female
20	0.02%	0.02%	10.00%	10.00%
25	0.02%	0.02%	6.00%	6.00%
30	0.02%	0.02%	4.00%	4.00%
35	0.15%	0.15%	2.50%	2.50%
40	0.34%	0.34%	2.00%	2.00%
45	0.52%	0.52%	1.50%	1.50%
50	0.66%	0.66%	1.50%	1.50%
55	1.45%	1.45%	0.50%	0.50%
60	1.60%	1.60%	0.50%	0.50%

c. Retirement Rates

Age	Rate
50	25.00%
51	10.00%
52	10.00%
53	10.00%
54	10.00%
55	25.00%
56	25.00%
57	25.00%
58	15.00%
59	15.00%
60	25.00%
61	50.00%
62	100.00%

6. Other Assumptions

- a. Percent married: 100.00% 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: Vested terminating members are assumed to elect a refund or a deferred benefit, whichever is more valuable at the time of termination.
- 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 20 years after hire date.
- f. No benefit amount 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. We assume all members are totally disabled.
- h. Administrative expenses: Assumed to be the average of the prior two years, with each year projected at 2.50% to the valuation date.
- i. 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.
- j. Decrement timing: Decrements of all types are assumed to occur mid-year.
- k. 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.
- l. 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.
- m. 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 3.77%; and the resulting Single Discount Rate is 6.80%.

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 2023 to 2072

Year	Payroll for Current Employees	Payroll for Future Employees	Total Employee Payroll	Contributions from Current Employees	Employer Contributions		Total Contributions
					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)
2023	\$ 33,837,580	\$ 463,605	\$ 34,301,185	\$ 4,149,048	\$ 5,882,781	\$ 11,083	\$ 10,042,912
2024	33,001,319	2,157,395	35,158,714	3,710,998	5,280,211	51,574	9,042,783
2025	32,222,750	3,814,932	36,037,682	3,623,448	5,155,640	90,232	8,869,320
2026	31,418,889	5,519,735	36,938,624	3,533,054	5,027,022	129,457	8,689,533
2027	30,671,008	7,191,082	37,862,090	3,448,955	4,907,361	169,588	8,525,904
2028	29,862,956	8,945,686	38,808,642	3,358,089	4,778,073	215,608	8,351,770
2029	28,910,878	10,867,980	39,778,858	3,251,028	4,625,740	269,018	8,145,786
2030	27,829,314	12,944,015	40,773,329	3,129,406	4,452,690	328,524	7,910,620
2031	26,686,243	15,106,419	41,792,662	3,000,868	4,269,799	392,402	7,663,069
2032	25,555,000	17,282,479	42,837,479	2,873,660	4,088,800	459,463	7,421,923
2033	24,428,121	19,480,295	43,908,416	2,746,942	3,908,499	529,851	7,185,292
2034	23,256,250	21,749,876	45,006,126	2,615,165	3,721,000	604,104	6,940,269
2035	22,013,438	24,117,841	46,131,279	2,475,411	3,522,150	682,733	6,680,294
2036	20,688,409	26,596,152	47,284,561	2,326,412	3,310,145	766,296	6,402,853
2037	19,343,521	29,123,154	48,466,675	2,175,179	3,094,963	853,316	6,123,458
2038	18,077,639	31,600,703	49,678,342	2,032,831	2,892,422	941,568	5,866,821
2039	16,781,439	34,138,862	50,920,301	1,887,073	2,685,030	1,034,657	5,606,760
2040	15,359,728	36,833,581	52,193,309	1,727,201	2,457,556	1,134,471	5,319,228
2041	13,957,275	39,540,867	53,498,142	1,569,496	2,233,164	1,237,141	5,039,801
2042	12,608,430	42,227,166	54,835,596	1,417,818	2,017,349	1,342,342	4,777,509
2043	11,310,464	44,896,022	56,206,486	1,271,862	1,809,674	1,450,315	4,531,851
2044	10,084,838	47,526,810	57,611,648	1,134,040	1,613,574	1,560,376	4,307,990
2045	8,913,529	50,138,410	59,051,939	1,002,326	1,426,165	1,672,792	4,101,283
2046	7,780,350	52,747,887	60,528,237	874,900	1,244,856	1,787,206	3,906,962
2047	6,653,478	55,387,965	62,041,443	748,184	1,064,556	1,904,287	3,717,027
2048	5,601,380	57,991,099	63,592,479	629,875	896,221	2,020,221	3,546,317
2049	4,685,186	60,497,105	65,182,291	526,849	749,630	2,134,053	3,410,532
2050	3,874,475	62,937,373	66,811,848	435,685	619,916	2,245,708	3,301,309
2051	3,151,424	65,330,720	68,482,144	354,378	504,228	2,354,837	3,213,443
2052	2,473,958	67,720,240	70,194,198	278,197	395,833	2,462,019	3,136,049
2053	1,897,629	70,051,424	71,949,053	213,388	303,621	2,565,424	3,082,433
2054	1,424,020	72,323,759	73,747,779	160,131	227,843	2,665,491	3,053,465
2055	1,043,474	74,547,999	75,591,473	117,339	166,956	2,762,217	3,046,512
2056	764,754	76,716,506	77,481,260	85,997	122,361	2,855,265	3,063,623
2057	546,657	78,871,635	79,418,292	61,472	87,465	2,945,788	3,094,725
2058	355,591	81,048,158	81,403,749	39,986	56,895	3,034,863	3,131,744
2059	189,841	83,249,002	83,438,843	21,348	30,375	3,122,769	3,174,492
2060	79,190	85,445,624	85,524,814	8,905	12,670	3,208,922	3,230,497
2061	22,444	87,640,490	87,662,934	2,524	3,591	3,294,092	3,300,207
2062	0	89,854,507	89,854,507	0	0	3,378,869	3,378,869
2063	0	92,100,870	92,100,870	0	0	3,463,867	3,463,867
2064	0	94,403,392	94,403,392	0	0	3,550,260	3,550,260
2065	0	96,763,477	96,763,477	0	0	3,638,599	3,638,599
2066	0	99,182,564	99,182,564	0	0	3,729,211	3,729,211
2067	0	101,662,128	101,662,128	0	0	3,822,137	3,822,137
2068	0	104,203,681	104,203,681	0	0	3,917,366	3,917,366
2069	0	106,808,773	106,808,773	0	0	4,014,965	4,014,965
2070	0	109,478,992	109,478,992	0	0	4,115,045	4,115,045
2071	0	112,215,967	112,215,967	0	0	4,217,757	4,217,757
2072	0	115,021,366	115,021,366	0	0	4,323,185	4,323,185



Single Discount Rate Development

Projection of Contributions

Ending December 31 for 2073 to 2122 (concluded)

Year	Payroll for Current Employees		Payroll for Future Employees		Total Employee Payroll	Employer Contributions		Total Contributions
	(a)	(b)=max(0,(c)-(a))	(c)	(d)		(e)=(a)*ER%	(f) = (b)*netER%	
2073	\$ 0	\$ 117,896,900	\$ 117,896,900	\$ 0	\$ 0	\$ 4,431,376	\$ 4,431,376	
2074	0	120,844,323	120,844,323	0	0	4,542,348	4,542,348	
2075	0	123,865,431	123,865,431	0	0	4,656,089	4,656,089	
2076	0	126,962,067	126,962,067	0	0	4,772,689	4,772,689	
2077	0	130,136,119	130,136,119	0	0	4,892,267	4,892,267	
2078	0	133,389,522	133,389,522	0	0	5,014,899	5,014,899	
2079	0	136,724,260	136,724,260	0	0	5,140,579	5,140,579	
2080	0	140,142,367	140,142,367	0	0	5,269,361	5,269,361	
2081	0	143,645,926	143,645,926	0	0	5,401,340	5,401,340	
2082	0	147,237,074	147,237,074	0	0	5,536,577	5,536,577	
2083	0	150,918,001	150,918,001	0	0	5,675,155	5,675,155	
2084	0	154,690,951	154,690,951	0	0	5,817,153	5,817,153	
2085	0	158,558,225	158,558,225	0	0	5,962,653	5,962,653	
2086	0	162,522,181	162,522,181	0	0	6,111,717	6,111,717	
2087	0	166,585,236	166,585,236	0	0	6,264,434	6,264,434	
2088	0	170,749,867	170,749,867	0	0	6,420,934	6,420,934	
2089	0	175,018,614	175,018,614	0	0	6,581,339	6,581,339	
2090	0	179,394,079	179,394,079	0	0	6,745,751	6,745,751	
2091	0	183,878,931	183,878,931	0	0	6,914,256	6,914,256	
2092	0	188,475,904	188,475,904	0	0	7,086,959	7,086,959	
2093	0	193,187,802	193,187,802	0	0	7,263,979	7,263,979	
2094	0	198,017,497	198,017,497	0	0	7,445,436	7,445,436	
2095	0	202,967,934	202,967,934	0	0	7,631,451	7,631,451	
2096	0	208,042,132	208,042,132	0	0	7,822,142	7,822,142	
2097	0	213,243,185	213,243,185	0	0	8,017,617	8,017,617	
2098	0	218,574,265	218,574,265	0	0	8,217,996	8,217,996	
2099	0	224,038,622	224,038,622	0	0	8,423,408	8,423,408	
2100	0	229,639,588	229,639,588	0	0	8,633,987	8,633,987	
2101	0	235,380,578	235,380,578	0	0	8,849,859	8,849,859	
2102	0	241,265,092	241,265,092	0	0	9,071,148	9,071,148	
2103	0	247,296,719	247,296,719	0	0	9,297,982	9,297,982	
2104	0	253,479,137	253,479,137	0	0	9,530,495	9,530,495	
2105	0	259,816,115	259,816,115	0	0	9,768,830	9,768,830	
2106	0	266,311,518	266,311,518	0	0	10,013,127	10,013,127	
2107	0	272,969,306	272,969,306	0	0	10,263,532	10,263,532	
2108	0	279,793,539	279,793,539	0	0	10,520,194	10,520,194	
2109	0	286,788,377	286,788,377	0	0	10,783,266	10,783,266	
2110	0	293,958,086	293,958,086	0	0	11,052,905	11,052,905	
2111	0	301,307,038	301,307,038	0	0	11,329,274	11,329,274	
2112	0	308,839,714	308,839,714	0	0	11,612,540	11,612,540	
2113	0	316,560,707	316,560,707	0	0	11,902,874	11,902,874	
2114	0	324,474,725	324,474,725	0	0	12,200,453	12,200,453	
2115	0	332,586,593	332,586,593	0	0	12,505,459	12,505,459	
2116	0	340,901,258	340,901,258	0	0	12,818,078	12,818,078	
2117	0	349,423,789	349,423,789	0	0	13,138,505	13,138,505	
2118	0	358,159,384	358,159,384	0	0	13,466,934	13,466,934	
2119	0	367,113,369	367,113,369	0	0	13,803,570	13,803,570	
2120	0	376,291,203	376,291,203	0	0	14,148,618	14,148,618	
2121	0	385,698,483	385,698,483	0	0	14,502,292	14,502,292	
2122	0	395,340,945	395,340,945	0	0	14,864,809	14,864,809	



Single Discount Rate Development Projection of Plan Net Position Ending December 31 for 2023 to 2072

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)
2023	\$ 204,904,458	\$ 10,042,912	\$ 8,297,594	\$ 230,005	\$ 27,425,248	\$ 233,845,019
2024	233,845,019	9,042,783	9,284,663	212,622	15,886,262	249,276,780
2025	249,276,780	8,869,320	10,128,165	217,938	16,901,436	264,701,434
2026	264,701,434	8,689,533	10,950,548	223,386	17,916,617	280,133,650
2027	280,133,650	8,525,904	11,816,910	228,971	18,931,377	295,545,050
2028	295,545,050	8,351,770	12,856,632	234,695	19,938,569	310,744,062
2029	310,744,062	8,145,786	14,005,860	240,563	20,926,586	325,570,011
2030	325,570,011	7,910,620	15,250,000	246,577	21,885,080	339,869,134
2031	339,869,134	7,663,069	16,454,770	252,741	22,808,647	353,633,339
2032	353,633,339	7,421,923	17,621,322	259,060	23,697,327	366,872,207
2033	366,872,207	7,185,292	18,753,458	265,536	24,551,581	379,590,086
2034	379,590,086	6,940,269	19,906,568	272,175	25,369,420	391,721,032
2035	391,721,032	6,680,294	21,149,711	278,979	26,143,831	403,116,468
2036	403,116,468	6,402,853	22,385,912	285,953	26,867,870	413,715,326
2037	413,715,326	6,123,458	23,611,544	293,102	27,538,024	423,472,162
2038	423,472,162	5,866,821	24,731,882	300,430	28,155,197	432,461,867
2039	432,461,867	5,606,760	25,852,362	307,941	28,720,079	440,628,402
2040	440,628,402	5,319,228	27,030,063	315,639	29,226,147	447,828,076
2041	447,828,076	5,039,801	28,141,934	323,530	29,668,935	454,071,348
2042	454,071,348	4,777,509	29,158,797	331,618	30,050,431	459,408,873
2043	459,408,873	4,531,851	30,097,329	339,909	30,373,505	463,876,991
2044	463,876,991	4,307,990	30,930,021	348,406	30,641,721	467,548,274
2045	467,548,274	4,101,283	31,646,242	357,117	30,860,213	470,506,412
2046	470,506,412	3,906,962	32,289,330	366,045	31,033,065	472,791,064
2047	472,791,064	3,717,027	32,919,649	375,196	31,160,685	474,373,931
2048	474,373,931	3,546,317	33,412,363	384,576	31,245,821	475,369,130
2049	475,369,130	3,410,532	33,714,403	394,190	31,298,531	475,969,601
2050	475,969,601	3,301,309	33,860,559	404,045	31,330,494	476,336,799
2051	476,336,799	3,213,443	33,849,897	414,146	31,352,544	476,638,743
2052	476,638,743	3,136,049	33,751,473	424,499	31,373,433	476,972,252
2053	476,972,252	3,082,433	33,531,199	435,112	31,401,330	477,489,704
2054	477,489,704	3,053,465	33,192,995	445,990	31,446,494	478,350,678
2055	478,350,678	3,046,512	32,745,071	457,139	31,519,414	479,714,393
2056	479,714,393	3,063,623	32,185,848	468,568	31,631,037	481,754,637
2057	481,754,637	3,094,725	31,545,224	480,282	31,791,845	484,615,701
2058	484,615,701	3,131,744	30,846,489	492,289	32,010,600	488,419,267
2059	488,419,267	3,174,492	30,091,614	504,596	32,295,504	493,293,054
2060	493,293,054	3,230,497	29,262,528	517,211	32,656,098	499,399,910
2061	499,399,910	3,300,207	28,363,946	530,142	33,103,313	506,909,341
2062	506,909,341	3,378,869	27,410,585	543,395	33,648,023	515,982,253
2063	515,982,253	3,463,867	26,413,762	556,980	34,300,703	526,776,081
2064	526,776,081	3,550,260	25,390,294	570,905	35,071,333	539,436,475
2065	539,436,475	3,638,599	24,342,986	585,177	35,969,739	554,116,650
2066	554,116,650	3,729,211	23,275,129	599,807	37,006,242	570,977,168
2067	570,977,168	3,822,137	22,190,286	614,802	38,191,641	590,185,858
2068	590,185,858	3,917,366	21,092,193	630,172	39,537,224	611,918,084
2069	611,918,084	4,014,965	19,984,902	645,926	41,054,781	636,357,002
2070	636,357,002	4,115,045	18,872,817	662,074	42,756,623	663,693,779
2071	663,693,779	4,217,757	17,760,543	678,626	44,655,601	694,127,967
2072	694,127,967	4,323,185	16,652,875	695,592	46,765,125	727,867,810



Single Discount Rate Development

Projection of Plan Net Position

Ending December 31 for 2073 to 2122 (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)
2073	\$ 727,867,810	\$ 4,431,376	\$ 15,554,611	\$ 712,982	\$ 49,099,198	\$ 765,130,791
2074	765,130,791	4,542,348	14,470,566	730,806	51,672,447	806,144,214
2075	806,144,214	4,656,089	13,405,552	749,076	54,500,167	851,145,843
2076	851,145,843	4,772,689	12,364,043	767,803	57,598,380	900,385,065
2077	900,385,065	4,892,267	11,350,128	786,998	60,983,910	954,124,116
2078	954,124,116	5,014,899	10,367,584	806,673	64,674,466	1,012,639,224
2079	1,012,639,224	5,140,579	9,419,758	826,840	68,688,718	1,076,221,923
2080	1,076,221,923	5,269,361	8,509,687	847,511	73,046,390	1,145,180,475
2081	1,145,180,475	5,401,340	7,640,431	868,699	77,768,345	1,219,841,031
2082	1,219,841,031	5,536,577	6,814,967	890,416	82,876,663	1,300,548,889
2083	1,300,548,889	5,675,155	6,036,006	912,677	88,394,737	1,387,670,097
2084	1,387,670,097	5,817,153	5,305,859	935,494	94,347,381	1,481,593,278
2085	1,481,593,278	5,962,653	4,626,323	958,881	100,760,965	1,582,731,692
2086	1,582,731,692	6,111,717	3,998,749	982,853	107,663,547	1,691,525,354
2087	1,691,525,354	6,264,434	3,423,952	1,007,424	115,085,023	1,808,443,435
2088	1,808,443,435	6,420,934	2,902,132	1,032,610	123,057,294	1,933,986,921
2089	1,933,986,921	6,581,339	2,432,977	1,058,425	131,614,441	2,068,691,299
2090	2,068,691,299	6,745,751	2,015,702	1,084,886	140,792,906	2,213,129,368
2091	2,213,129,368	6,914,256	1,649,030	1,112,008	150,631,684	2,367,914,270
2092	2,367,914,270	7,086,959	1,331,038	1,139,808	161,172,537	2,533,702,919
2093	2,533,702,919	7,263,979	1,059,229	1,168,303	172,460,222	2,711,199,588
2094	2,711,199,588	7,445,436	830,561	1,197,511	184,542,733	2,901,159,685
2095	2,901,159,685	7,631,451	641,264	1,227,449	197,471,569	3,104,393,993
2096	3,104,393,993	7,822,142	487,089	1,258,135	211,302,009	3,321,772,919
2097	3,321,772,919	8,017,617	363,589	1,289,588	226,093,391	3,554,230,750
2098	3,554,230,750	8,217,996	266,332	1,321,828	241,909,398	3,802,769,984
2099	3,802,769,984	8,423,408	191,164	1,354,874	258,818,344	4,068,465,698
2100	4,068,465,698	8,633,987	134,262	1,388,745	276,893,465	4,352,470,143
2101	4,352,470,143	8,849,859	92,152	1,423,464	296,213,233	4,656,017,619
2102	4,656,017,619	9,071,148	61,738	1,459,051	316,861,689	4,980,429,667
2103	4,980,429,667	9,297,982	40,331	1,495,527	338,928,789	5,327,120,580
2104	5,327,120,580	9,530,495	25,665	1,532,915	362,510,787	5,697,603,282
2105	5,697,603,282	9,768,830	15,897	1,571,238	387,710,626	6,093,495,603
2106	6,093,495,603	10,013,127	9,577	1,610,519	414,638,371	6,516,527,006
2107	6,516,527,006	10,263,532	5,610	1,650,782	443,411,667	6,968,545,813
2108	6,968,545,813	10,520,194	3,198	1,692,051	474,156,229	7,451,526,987
2109	7,451,526,987	10,783,266	1,777	1,734,353	507,006,379	7,967,580,502
2110	7,967,580,502	11,052,905	965	1,777,712	542,105,612	8,518,960,342
2111	8,518,960,342	11,329,274	514	1,822,154	579,607,212	9,108,074,160
2112	9,108,074,160	11,612,540	269	1,867,708	619,674,909	9,737,493,632
2113	9,737,493,632	11,902,874	138	1,914,401	662,483,585	10,409,965,553
2114	10,409,965,553	12,200,453	69	1,962,261	708,220,029	11,128,423,704
2115	11,128,423,704	12,505,459	34	2,011,317	757,083,744	11,896,001,556
2116	11,896,001,556	12,818,078	16	2,061,600	809,287,811	12,716,045,829
2117	12,716,045,829	13,138,505	7	2,113,140	865,059,814	13,592,131,000
2118	13,592,131,000	13,466,934	3	2,165,969	924,642,822	14,528,074,785
2119	14,528,074,785	13,803,570	1	2,220,118	988,296,446	15,527,954,682
2120	15,527,954,682	14,148,618	0	2,275,621	1,056,297,962	16,596,125,640
2121	16,596,125,640	14,502,292	0	2,332,512	1,128,943,511	17,737,238,931
2122	17,737,238,931	14,864,809	0	2,390,824	1,206,549,388	18,956,262,304



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2023 to 2072

Year	Projected 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}
2023	\$ 204,904,458	\$ 8,297,594	\$ 8,297,594	\$ 0	\$ 8,029,094	\$ 0	\$ 8,029,094
2024	233,845,019	9,284,663	9,284,663	0	8,412,193	0	8,412,193
2025	249,276,780	10,128,165	10,128,165	0	8,592,165	0	8,592,165
2026	264,701,434	10,950,548	10,950,548	0	8,698,342	0	8,698,342
2027	280,133,650	11,816,910	11,816,910	0	8,788,875	0	8,788,875
2028	295,545,050	12,856,632	12,856,632	0	8,953,345	0	8,953,345
2029	310,744,062	14,005,860	14,005,860	0	9,132,646	0	9,132,646
2030	325,570,011	15,250,000	15,250,000	0	9,310,767	0	9,310,767
2031	339,869,134	16,454,770	16,454,770	0	9,406,676	0	9,406,676
2032	353,633,339	17,621,322	17,621,322	0	9,432,169	0	9,432,169
2033	366,872,207	18,753,458	18,753,458	0	9,399,034	0	9,399,034
2034	379,590,086	19,906,568	19,906,568	0	9,341,723	0	9,341,723
2035	391,721,032	21,149,711	21,149,711	0	9,293,168	0	9,293,168
2036	403,116,468	22,385,912	22,385,912	0	9,210,069	0	9,210,069
2037	413,715,326	23,611,544	23,611,544	0	9,095,807	0	9,095,807
2038	423,472,162	24,731,882	24,731,882	0	8,920,778	0	8,920,778
2039	432,461,867	25,852,362	25,852,362	0	8,731,213	0	8,731,213
2040	440,628,402	27,030,063	27,030,063	0	8,547,717	0	8,547,717
2041	447,828,076	28,141,934	28,141,934	0	8,332,700	0	8,332,700
2042	454,071,348	29,158,797	29,158,797	0	8,084,072	0	8,084,072
2043	459,408,873	30,097,329	30,097,329	0	7,812,990	0	7,812,990
2044	463,876,991	30,930,021	30,930,021	0	7,517,930	0	7,517,930
2045	467,548,274	31,646,242	31,646,242	0	7,202,263	0	7,202,263
2046	470,506,412	32,289,330	32,289,330	0	6,880,731	0	6,880,731
2047	472,791,064	32,919,649	32,919,649	0	6,568,399	0	6,568,399
2048	474,373,931	33,412,363	33,412,363	0	6,242,237	0	6,242,237
2049	475,369,130	33,714,403	33,714,403	0	5,897,627	0	5,897,627
2050	475,969,601	33,860,559	33,860,559	0	5,546,061	0	5,546,061
2051	476,336,799	33,849,897	33,849,897	0	5,191,306	0	5,191,306
2052	476,638,743	33,751,473	33,751,473	0	4,846,640	0	4,846,640
2053	476,972,252	33,531,199	33,531,199	0	4,508,436	0	4,508,436
2054	477,489,704	33,192,995	33,192,995	0	4,178,804	0	4,178,804
2055	478,350,678	32,745,071	32,745,071	0	3,859,937	0	3,859,937
2056	479,714,393	32,185,848	32,185,848	0	3,552,450	0	3,552,450
2057	481,754,637	31,545,224	31,545,224	0	3,260,059	0	3,260,059
2058	484,615,701	30,846,489	30,846,489	0	2,984,876	0	2,984,876
2059	488,419,267	30,091,614	30,091,614	0	2,726,433	0	2,726,433
2060	493,293,054	29,262,528	29,262,528	0	2,482,503	0	2,482,503
2061	499,399,910	28,363,946	28,363,946	0	2,253,063	0	2,253,063
2062	506,909,341	27,410,585	27,410,585	0	2,038,702	0	2,038,702
2063	515,982,253	26,413,762	26,413,762	0	1,839,478	0	1,839,478
2064	526,776,081	25,390,294	25,390,294	0	1,655,620	0	1,655,620
2065	539,436,475	24,342,986	24,342,986	0	1,486,263	0	1,486,263
2066	554,116,650	23,275,129	23,275,129	0	1,330,585	0	1,330,585
2067	570,977,168	22,190,286	22,190,286	0	1,187,797	0	1,187,797
2068	590,185,858	21,092,193	21,092,193	0	1,057,133	0	1,057,133
2069	611,918,084	19,984,902	19,984,902	0	937,862	0	937,862
2070	636,357,002	18,872,817	18,872,817	0	829,282	0	829,282
2071	663,693,779	17,760,543	17,760,543	0	730,719	0	730,719
2072	694,127,967	16,652,875	16,652,875	0	641,523	0	641,523



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2073 to 2122 (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}	
2073	\$ 727,867,810	\$ 15,554,611	\$ 15,554,611	\$ 0	\$ 561,062	\$ 0	\$ 561,062	
2074	765,130,791	14,470,566	14,470,566	0	488,727	0	488,727	
2075	806,144,214	13,405,552	13,405,552	0	423,930	0	423,930	
2076	851,145,843	12,364,043	12,364,043	0	366,099	0	366,099	
2077	900,385,065	11,350,128	11,350,128	0	314,679	0	314,679	
2078	954,124,116	10,367,584	10,367,584	0	269,137	0	269,137	
2079	1,012,639,224	9,419,758	9,419,758	0	228,962	0	228,962	
2080	1,076,221,923	8,509,687	8,509,687	0	193,672	0	193,672	
2081	1,145,180,475	7,640,431	7,640,431	0	162,817	0	162,817	
2082	1,219,841,031	6,814,967	6,814,967	0	135,980	0	135,980	
2083	1,300,548,889	6,036,006	6,036,006	0	112,769	0	112,769	
2084	1,387,670,097	5,305,859	5,305,859	0	92,816	0	92,816	
2085	1,481,593,278	4,626,323	4,626,323	0	75,776	0	75,776	
2086	1,582,731,692	3,998,749	3,998,749	0	61,327	0	61,327	
2087	1,691,525,354	3,423,952	3,423,952	0	49,168	0	49,168	
2088	1,808,443,435	2,902,132	2,902,132	0	39,021	0	39,021	
2089	1,933,986,921	2,432,977	2,432,977	0	30,630	0	30,630	
2090	2,068,691,299	2,015,702	2,015,702	0	23,761	0	23,761	
2091	2,213,129,368	1,649,030	1,649,030	0	18,201	0	18,201	
2092	2,367,914,270	1,331,038	1,331,038	0	13,756	0	13,756	
2093	2,533,702,919	1,059,229	1,059,229	0	10,250	0	10,250	
2094	2,711,199,588	830,561	830,561	0	7,525	0	7,525	
2095	2,901,159,685	641,264	641,264	0	5,440	0	5,440	
2096	3,104,393,993	487,089	487,089	0	3,869	0	3,869	
2097	3,321,772,919	363,589	363,589	0	2,704	0	2,704	
2098	3,554,230,750	266,332	266,332	0	1,855	0	1,855	
2099	3,802,769,984	191,164	191,164	0	1,247	0	1,247	
2100	4,068,465,698	134,262	134,262	0	820	0	820	
2101	4,352,470,143	92,152	92,152	0	527	0	527	
2102	4,656,017,619	61,738	61,738	0	330	0	330	
2103	4,980,429,667	40,331	40,331	0	202	0	202	
2104	5,327,120,580	25,665	25,665	0	120	0	120	
2105	5,697,603,282	15,897	15,897	0	70	0	70	
2106	6,093,495,603	9,577	9,577	0	39	0	39	
2107	6,516,527,006	5,610	5,610	0	22	0	22	
2108	6,968,545,813	3,198	3,198	0	12	0	12	
2109	7,451,526,987	1,777	1,777	0	6	0	6	
2110	7,967,580,502	965	965	0	3	0	3	
2111	8,518,960,342	514	514	0	2	0	2	
2112	9,108,074,160	269	269	0	1	0	1	
2113	9,737,493,632	138	138	0	0	0	0	
2114	10,409,965,553	69	69	0	0	0	0	
2115	11,128,423,704	34	34	0	0	0	0	
2116	11,896,001,556	16	16	0	0	0	0	
2117	12,716,045,829	7	7	0	0	0	0	
2118	13,592,131,000	3	3	0	0	0	0	
2119	14,528,074,785	1	1	0	0	0	0	
2120	15,527,954,682	0	0	0	0	0	0	
2121	16,596,125,640	0	0	0	0	0	0	
2122	17,737,238,931	0	0	0	0	0	0	
Totals	\$	288,657,595	\$	0	\$	288,657,595	\$	288,657,595



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.