

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, 2022





March 22, 2023

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, 2022 for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions. Furthermore, this report again includes the assumptions adopted by the Board at the November 17, 2021 and the February 17, 2022 meetings. For a detailed description of the experience related to these assumptions, as well as the rationale for any changes, please see our latest Wyoming Retirement System Actuarial Experience Study Report that covered the five-year investigation period ending December 31, 2020.

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

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

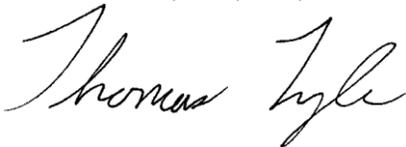
All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

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

Respectfully submitted,

Gabriel, Roeder, Smith & Company

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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of December 31, 2022

2022

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

Membership

Number of	
- Retirees and Beneficiaries	171
- Inactive, Nonretired Members	87
- Active Members	386
- Total	644
Covered Payroll	\$ 31,251,620

Net Pension Liability

Total Pension Liability	\$ 215,874,502
Plan Fiduciary Net Position	204,904,458
Net Pension Liability	\$ 10,970,044
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	94.92 %
Net Pension Liability as a Percentage of Covered Payroll	35.10 %

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*	4.05 %
Last year ending December 31 in the 2022 to 2121 projection period for which projected benefit payments are fully funded	2121

Total Pension Expense \$ 2,968,987

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	\$ 185,324	\$ 5,692,126
Changes in assumptions	9,716,900	9,852,167
Net difference between projected and actual earnings on pension plan investments	23,823,282	17,342,183
Total	\$ 33,725,506	\$ 32,886,476

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



Discussion

Accounting Standard

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

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

Financial Statements

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

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

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

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



Notes to Financial Statements

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

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

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

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

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

Required Supplementary Information

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

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



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

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

1. The employer normal cost as a percentage of pay is expected to 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 2121. The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Timing of the Valuation

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

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

Single Discount Rate

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

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.80%; the municipal bond rate is 4.05% (based on the daily rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 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, 2022

A. Expense

1. Service Cost	\$	7,471,374
2. Interest on the Total Pension Liability		13,752,235
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(3,799,401)
5. Projected Earnings on Plan Investments (made negative for addition here)		(14,907,916)
6. Pension Plan Administrative Expense		191,754
7. Other Changes in Plan Fiduciary Net Position		12,678
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		(434,138)
9. Recognition of Outflow (Inflow) of Resources due to Assets		682,401
10. Total Pension Expense	\$	2,968,987 *

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

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

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ (1,228,034)
2. Assumption Changes (gains) or losses	\$ 0
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	6.6818
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	\$ (183,788)
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>\$ (183,788)</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	\$ (1,044,246)
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>\$ (1,044,246)</u>

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ 29,779,102
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	\$ 5,955,820
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ 23,823,282



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

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

Recognition Period	8.7186	8.3813	8.0494	7.8262	7.3965	6.9999	6.7949	6.7261	6.6818		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	
Total	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684	\$ (3,243,112)	\$ (310,679)	\$ (1,228,034)	\$ -	
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)	(1,807,543)	\$ (1,807,543)
2024	-	-	(575)	(231,200)	(874,223)	59,956	(477,286)	(46,190)	(183,788)	(1,753,306)	\$ (1,753,306)
2025	-	-	-	-	(346,630)	59,948	(477,286)	(46,190)	(183,788)	(993,946)	(993,946)
2026	-	-	-	-	-	-	(379,396)	(46,190)	(183,788)	(609,374)	(609,374)
2027	-	-	-	-	-	-	-	(33,539)	(183,788)	(217,327)	(217,327)
Thereafter	-	-	-	-	-	-	-	-	(125,306)	(125,306)	(125,306)
	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684	\$ (3,243,112)	\$ (310,679)	\$ (1,228,034)	\$ (12,992,016)	

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		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	2022	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
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, 2022 (continued)

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

Recognition Period	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	
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		
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	(2,404,808)	\$ 6,481,099
2024	-	-	-	-	-	-	(1,254,835)	(3,863,360)	5,955,820	837,625	
2025	-	-	-	-	-	-	-	(3,863,360)	5,955,820	2,092,460	
2026	-	-	-	-	-	-	-	-	5,955,822	5,955,822	
2027	-	-	-	-	-	-	-	-	-	-	
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	\$ 8,638,860	

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

	2014	2015	2016	2017	2018	2019	2020	2021	2022	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		
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	(4,336,373)	\$ 839,030
2024	-	-	(9,770)	1,535,903	(4,903,794)	59,956	(1,732,121)	(2,874,114)	5,772,032	(2,151,908)	
2025	-	-	-	-	(1,944,352)	59,948	(477,286)	(2,874,114)	5,772,032	536,228	
2026	-	-	-	-	-	-	(379,396)	989,246	5,772,034	6,381,884	
2027	-	-	-	-	-	-	-	718,293	(183,788)	534,505	
Thereafter	-	-	-	-	-	-	-	-	(125,306)	(125,306)	
	\$ 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	\$ 8,212,472	



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

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 5,654,504	\$ 6,088,642	\$ (434,138)
2. Due to Assets	9,043,029	8,360,628	682,401
3. Total	\$ 14,697,533	\$ 14,449,270	\$ 248,263

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	\$ 74,281	\$ 1,872,963	\$ (1,798,682)
2. Assumption Changes	5,580,223	4,215,679	1,364,544
3. Net Difference between projected and actual earnings on pension plan investments	9,043,029	8,360,628	682,401
4. Total	\$ 14,697,533	\$ 14,449,270	\$ 248,263

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	\$ 185,324	\$ 5,692,126	\$ (5,506,802)
2. Assumption Changes	9,716,900	9,852,167	(135,267)
3. Net Difference between projected and actual earnings on pension plan investments	23,823,282	17,342,183	6,481,099
4. Total	\$ 33,725,506	\$ 32,886,476	\$ 839,030

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

Year Ending December 31	Net Deferred Outflows of Resources
2023	\$ (4,336,373)
2024	(2,151,908)
2025	536,228
2026	6,381,884
2027	534,505
Thereafter	(125,306)
Total	\$ 839,030



Statement of Fiduciary Net Position as of December 31, 2022

	2022
Assets	
Cash and Deposits	\$ 11,810,849
Receivables	
Accounts Receivable - Sale of Investments	\$ 88,440
Accrued Interest and Other Dividends	375,003
Contributions	614,417
Accounts Receivable - Other	12,283,112
Total Receivables	\$ 13,360,972
Investments	
Fixed Income	\$ 32,876,161
Equities	96,631,948
Private Markets	26,416,181
Marketable Alternatives	36,966,796
Security Lending Collateral	9,604,072
Capital Assets, at Cost, Net of Accumulated Depreciation	43,967
Total Investments	\$ 202,539,125
Total Assets	\$ 227,710,946
 Liabilities	
Payables	
Accounts Payable - Purchase of Investments	\$ 22,505,414
Accrued Expenses	294,456
Accounts Payable - Other	6,618
Total Liabilities	\$ 22,806,488
Net Position Restricted for Pensions	\$ 204,904,458



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

	2022
Additions	
Contributions	
Employer	\$ 5,170,239
Employee	3,672,260
Other Employer Contributions	1,007
Other Employee Contributions	127,141
Total Contributions	\$ 8,970,647
Investment Income	
Net Appreciation in Fair Value of Investments	\$ (17,533,289)
Interest and Dividends	3,963,648
Less Investment Expense	(1,301,545)
Net Investment Income	\$ (14,871,186)
Other	\$ 0
Total Additions	\$ (5,900,539)
 Deductions	
Benefit Payments, including Refunds of Employee Contributions	\$ 7,700,577
Pension Plan Administrative Expense	191,754
Other	12,678
Total Deductions	\$ 7,905,009
Net Increase in Net Position	\$ (13,805,548)
 Net Position Restricted for Pensions	
Beginning of Year	\$ 218,710,006
End of Year	\$ 204,904,458

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, 2022

A. Total pension liability	
1. Service cost	\$ 7,471,374
2. Interest on the total pension liability	13,752,235
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the total pension liability	(1,228,034)
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(7,700,577)
7. Net change in total pension liability	<u>12,294,998</u>
8. Total pension liability – beginning	<u>203,579,504</u>
9. Total pension liability – ending	<u><u>\$ 215,874,502</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 5,171,246
2. Contributions – employee	3,799,401
3. Net investment income	(14,871,186)
4. Benefit payments	(7,559,981)
5. Refunds	(140,596)
6. Pension plan administrative expense	(191,754)
7. Other	(12,678)
8. Net change in plan fiduciary net position	<u>(13,805,548)</u>
9. Plan fiduciary net position – beginning	<u>218,710,006</u>
10. Plan fiduciary net position – ending	<u><u>\$ 204,904,458</u></u>
C. Net pension liability	<u><u>\$ 10,970,044</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	94.92 %
E. Covered-employee payroll	\$ 31,251,620
F. Net pension liability as a percentage of covered-employee payroll	35.10 %



Schedules of Required Supplementary Information

Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending December 31,	2022	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability									
Service cost	\$ 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	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
Difference between expected and actual experience	(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	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	(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	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	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)	\$ 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	\$ 5,171,246	\$ 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	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	(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	(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	(140,596)	(70,926)	(85,314)	(35,091)	(64,091)	(120,137)	(71,599)	(75,062)	(62,762)
Pension plan administrative expense	(191,754)	(176,943)	(158,826)	(138,634)	(140,922)	(130,931)	(112,132)	(90,438)	(87,431)
Other	(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	(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	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)	\$ 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)	\$ 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	94.92 %	107.43 %	101.27 %	95.93 %	87.07 %	77.98 %	80.16 %	79.33 %	100.98 %
Covered-employee payroll	\$ 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	\$ 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	35.10 %	(50.48)%	(8.16)%	25.36 %	78.26 %	146.17 %	119.59 %	117.66 %	(4.58)%

Notes to Schedule:

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

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



Schedules of Required Supplementary Information

Schedule of Net Pension Liability Multiyear

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 %

* 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 %

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

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



Notes to Schedule of Contributions

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

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	24 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)%

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

	Current Single Discount	
1% Decrease	Rate Assumption	1% Increase
5.80%	6.80%	7.80%
\$ 40,572,706	\$ 10,970,044	\$ (13,586,742)

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	171
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	87
Active Plan Members	<u>386</u>
Total Plan Members	644

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

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 present value of benefits expected to be paid to vested inactive non-retired members is approximated using the data provided.
- g. There will be no recoveries once disabled. We assume all members are totally disabled.
- h. No surviving spouse will remarry.
- i. Administrative expenses: Assumed to be the average of the prior two years, with each year projected at 2.50% to the valuation date.
- j. Pay increase timing: Beginning of (fiscal) year. This is equivalent to assuming that reported pay represents amount paid to members during the year ended on the valuation date.
- k. Decrement timing: Decrements of all types are assumed to occur mid-year.
- l. Eligibility testing: Eligibility for benefits is determined based upon the age nearest birthday and service nearest whole year on the date the decrement is assumed to occur.
- m. Decrement relativity: Decrement rates are converted to probabilities in order to account for multiple decrements.
- n. 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.
- o. 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 4.05%; 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 2022 to 2071

Year	Payroll for Current Employees		Payroll for Future Employees		Total Employee Payroll		Employer Contributions from Current Employees		Employer Contributions for Future Employees		Total Contributions	
	(a)	(b)=max(0,(c)-(a))	(c)	(d)	(e)=(a)*ER%	(f) = (b)*netER%	(g)=(d)+(e)+(f)					
2022	\$ 31,467,220	\$ 565,691	\$ 32,032,911	\$ 3,799,401	\$ 5,156,886	\$ 14,360	\$ 8,970,647					
2023	30,629,344	2,204,389	32,833,733	3,367,696	4,900,695	55,957	8,324,348					
2024	30,054,864	3,599,712	33,654,576	3,304,532	4,808,778	90,367	8,203,677					
2025	29,309,884	5,186,056	34,495,940	3,222,622	4,689,581	129,139	8,041,342					
2026	28,559,936	6,798,403	35,358,339	3,140,165	4,569,590	171,766	7,881,521					
2027	27,893,741	8,348,556	36,242,297	3,066,917	4,462,999	217,570	7,747,486					
2028	27,171,980	9,976,374	37,148,354	2,987,559	4,347,517	267,574	7,602,650					
2029	26,266,913	11,810,150	38,077,063	2,888,047	4,202,706	324,810	7,415,563					
2030	25,207,952	13,821,038	39,028,990	2,771,614	4,033,272	388,592	7,193,478					
2031	24,097,144	15,907,571	40,004,715	2,649,481	3,855,543	456,581	6,961,605					
2032	23,013,797	17,991,036	41,004,833	2,530,367	3,682,207	526,214	6,738,788					
2033	21,964,475	20,065,479	42,029,954	2,414,994	3,514,316	597,460	6,526,770					
2034	20,875,661	22,205,042	43,080,703	2,295,279	3,340,106	672,453	6,307,838					
2035	19,681,819	24,475,902	44,157,721	2,164,016	3,149,091	753,688	6,066,795					
2036	18,390,625	26,871,039	45,261,664	2,022,049	2,942,500	840,584	5,805,133					
2037	17,090,214	29,302,992	46,393,206	1,879,069	2,734,434	931,089	5,544,592					
2038	15,868,410	31,684,626	47,553,036	1,744,732	2,538,946	1,022,404	5,306,082					
2039	14,659,625	34,082,237	48,741,862	1,611,826	2,345,540	1,117,095	5,074,461					
2040	13,349,012	36,611,397	49,960,409	1,467,724	2,135,842	1,218,460	4,822,026					
2041	12,035,326	39,174,093	51,209,419	1,323,284	1,925,652	1,323,545	4,572,481					
2042	10,768,053	41,721,601	52,489,654	1,183,947	1,722,888	1,431,238	4,338,073					
2043	9,525,025	44,276,870	53,801,895	1,047,277	1,524,004	1,542,077	4,113,358					
2044	8,355,544	46,791,398	55,146,942	918,692	1,336,887	1,653,880	3,909,459					
2045	7,297,694	49,227,922	56,525,616	802,381	1,167,631	1,765,727	3,735,739					
2046	6,301,336	51,637,420	57,938,756	692,832	1,008,214	1,877,951	3,578,997					
2047	5,349,449	54,037,776	59,387,225	588,172	855,912	1,990,311	3,434,395					
2048	4,454,124	56,417,782	60,871,906	489,731	712,660	2,102,165	3,304,556					
2049	3,650,769	58,742,935	62,393,704	401,402	584,123	2,212,292	3,197,817					
2050	2,961,194	60,992,353	63,953,547	325,583	473,791	2,318,715	3,118,089					
2051	2,363,857	63,188,529	65,552,386	259,906	378,217	2,421,715	3,059,838					
2052	1,841,830	65,349,366	67,191,196	202,509	294,693	2,521,938	3,019,140					
2053	1,405,122	67,465,854	68,870,976	154,493	224,819	2,619,023	2,998,335					
2054	1,033,634	69,559,116	70,592,750	113,648	165,381	2,713,773	2,992,802					
2055	721,351	71,636,218	72,357,569	79,313	115,416	2,806,175	3,000,904					
2056	497,674	73,668,834	74,166,508	54,719	79,628	2,895,067	3,029,414					
2057	351,030	75,669,641	76,020,671	38,596	56,165	2,981,147	3,075,908					
2058	235,890	77,685,298	77,921,188	25,936	37,742	3,065,999	3,129,677					
2059	139,750	79,729,468	79,869,218	15,366	22,360	3,150,362	3,188,088					
2060	67,379	81,798,569	81,865,948	7,408	10,781	3,234,494	3,252,683					
2061	23,375	83,889,222	83,912,597	2,570	3,740	3,318,530	3,324,840					
2062	3,856	86,006,556	86,010,412	424	617	3,402,769	3,403,810					
2063	0	88,160,672	88,160,672	0	0	3,488,008	3,488,008					
2064	0	90,364,689	90,364,689	0	0	3,574,985	3,574,985					
2065	0	92,623,806	92,623,806	0	0	3,663,914	3,663,914					
2066	0	94,939,401	94,939,401	0	0	3,755,012	3,755,012					
2067	0	97,312,886	97,312,886	0	0	3,848,454	3,848,454					
2068	0	99,745,708	99,745,708	0	0	3,944,256	3,944,256					
2069	0	102,239,351	102,239,351	0	0	4,042,466	4,042,466					
2070	0	104,795,335	104,795,335	0	0	4,143,165	4,143,165					
2071	0	107,415,218	107,415,218	0	0	4,246,428	4,246,428					



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

Year	Payroll for Current Employees		Payroll for Future Employees		Total Employee Payroll		Employer Contributions from Current Employees		Employer Contributions for Future Employees		Employer Contributions Related to Payroll of Total Contributions	
	(a)	(b)=max(0,(c)-(a))	(c)	(d)	(e)=(a)*ER%	(f) = (b)*netER%	(g)=(d)+(e)+(f)					
2072	\$	0	\$ 110,100,598	\$ 110,100,598	\$ 0	\$ 4,352,395	\$ 4,352,395					
2073		0	112,853,113	112,853,113	0	4,461,167	4,461,167					
2074		0	115,674,441	115,674,441	0	4,572,774	4,572,774					
2075		0	118,566,302	118,566,302	0	4,687,216	4,687,216					
2076		0	121,530,460	121,530,460	0	4,804,536	4,804,536					
2077		0	124,568,722	124,568,722	0	4,924,837	4,924,837					
2078		0	127,682,940	127,682,940	0	5,048,221	5,048,221					
2079		0	130,875,014	130,875,014	0	5,174,733	5,174,733					
2080		0	134,146,889	134,146,889	0	5,304,416	5,304,416					
2081		0	137,500,561	137,500,561	0	5,437,342	5,437,342					
2082		0	140,938,075	140,938,075	0	5,573,566	5,573,566					
2083		0	144,461,527	144,461,527	0	5,713,139	5,713,139					
2084		0	148,073,065	148,073,065	0	5,856,164	5,856,164					
2085		0	151,774,892	151,774,892	0	6,002,733	6,002,733					
2086		0	155,569,264	155,569,264	0	6,152,911	6,152,911					
2087		0	159,458,496	159,458,496	0	6,306,772	6,306,772					
2088		0	163,444,958	163,444,958	0	6,464,416	6,464,416					
2089		0	167,531,082	167,531,082	0	6,625,959	6,625,959					
2090		0	171,719,359	171,719,359	0	6,791,513	6,791,513					
2091		0	176,012,343	176,012,343	0	6,961,184	6,961,184					
2092		0	180,412,652	180,412,652	0	7,135,078	7,135,078					
2093		0	184,922,968	184,922,968	0	7,313,303	7,313,303					
2094		0	189,546,042	189,546,042	0	7,495,974	7,495,974					
2095		0	194,284,693	194,284,693	0	7,683,213	7,683,213					
2096		0	199,141,810	199,141,810	0	7,875,148	7,875,148					
2097		0	204,120,355	204,120,355	0	8,071,902	8,071,902					
2098		0	209,223,364	209,223,364	0	8,273,592	8,273,592					
2099		0	214,453,948	214,453,948	0	8,480,346	8,480,346					
2100		0	219,815,297	219,815,297	0	8,692,295	8,692,295					
2101		0	225,310,679	225,310,679	0	8,909,572	8,909,572					
2102		0	230,943,446	230,943,446	0	9,132,309	9,132,309					
2103		0	236,717,032	236,717,032	0	9,360,638	9,360,638					
2104		0	242,634,958	242,634,958	0	9,594,694	9,594,694					
2105		0	248,700,832	248,700,832	0	9,834,618	9,834,618					
2106		0	254,918,353	254,918,353	0	10,080,553	10,080,553					
2107		0	261,291,312	261,291,312	0	10,332,645	10,332,645					
2108		0	267,823,595	267,823,595	0	10,591,044	10,591,044					
2109		0	274,519,185	274,519,185	0	10,855,902	10,855,902					
2110		0	281,382,165	281,382,165	0	11,127,378	11,127,378					
2111		0	288,416,719	288,416,719	0	11,405,634	11,405,634					
2112		0	295,627,137	295,627,137	0	11,690,835	11,690,835					
2113		0	303,017,815	303,017,815	0	11,983,155	11,983,155					
2114		0	310,593,260	310,593,260	0	12,282,769	12,282,769					
2115		0	318,358,092	318,358,092	0	12,589,859	12,589,859					
2116		0	326,317,044	326,317,044	0	12,904,613	12,904,613					
2117		0	334,474,970	334,474,970	0	13,227,223	13,227,223					
2118		0	342,836,844	342,836,844	0	13,557,886	13,557,886					
2119		0	351,407,765	351,407,765	0	13,896,806	13,896,806					
2120		0	360,192,959	360,192,959	0	14,244,191	14,244,191					
2121		0	369,197,783	369,197,783	0	14,600,256	14,600,256					



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

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.800%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2022	\$ 218,710,006	\$ 8,970,647	\$ 7,700,577	\$ 204,432	\$ (14,871,186)	\$ 204,904,458
2023	204,904,458	8,324,348	8,641,450	188,466	13,916,597	218,315,487
2024	218,315,487	8,203,677	9,381,086	193,177	14,799,620	231,744,521
2025	231,744,521	8,041,342	10,183,859	198,007	15,680,358	245,084,356
2026	245,084,356	7,881,521	10,970,823	202,957	16,555,640	258,347,737
2027	258,347,737	7,747,486	11,765,104	208,031	17,426,337	271,548,425
2028	271,548,425	7,602,650	12,730,590	213,232	18,286,680	284,493,933
2029	284,493,933	7,415,563	13,827,843	218,562	19,123,846	296,986,938
2030	296,986,938	7,193,478	15,008,973	224,026	19,926,263	308,873,680
2031	308,873,680	6,961,605	16,158,353	229,627	20,688,184	320,135,489
2032	320,135,489	6,738,788	17,267,956	235,368	21,409,238	330,780,190
2033	330,780,190	6,526,770	18,327,965	241,252	22,090,343	340,828,087
2034	340,828,087	6,307,838	19,406,912	247,283	22,729,996	350,211,726
2035	350,211,726	6,066,795	20,572,576	253,465	23,320,836	358,773,316
2036	358,773,316	5,805,133	21,760,421	259,802	23,854,339	366,412,565
2037	366,412,565	5,544,592	22,935,002	266,297	24,325,599	373,081,457
2038	373,081,457	5,306,082	23,976,054	272,954	24,736,071	378,874,602
2039	378,874,602	5,074,461	24,996,409	279,778	25,087,910	383,760,786
2040	383,760,786	4,822,026	26,074,582	286,773	25,375,440	387,596,897
2041	387,596,897	4,572,481	27,090,394	293,942	25,593,741	390,378,783
2042	390,378,783	4,338,073	28,018,372	301,291	25,743,792	392,140,985
2043	392,140,985	4,113,358	28,898,573	308,823	25,826,421	392,873,368
2044	392,873,368	3,909,459	29,676,653	316,543	25,843,127	392,632,758
2045	392,632,758	3,735,739	30,280,184	324,457	25,800,508	391,564,365
2046	391,564,365	3,578,997	30,781,343	332,568	25,705,586	389,735,037
2047	389,735,037	3,434,395	31,211,351	340,883	25,561,698	387,178,895
2048	387,178,895	3,304,556	31,534,959	349,405	25,372,432	383,971,519
2049	383,971,519	3,197,817	31,722,716	358,140	25,144,190	380,232,669
2050	380,232,669	3,118,089	31,759,302	367,093	24,885,759	376,110,122
2051	376,110,122	3,059,838	31,658,782	376,271	24,606,532	371,741,439
2052	371,741,439	3,019,140	31,449,261	385,677	24,314,793	367,240,435
2053	367,240,435	2,998,335	31,135,797	395,319	24,018,189	362,725,843
2054	362,725,843	2,992,802	30,734,591	405,202	23,724,098	358,302,950
2055	358,302,950	3,000,904	30,251,392	415,332	23,439,432	354,076,562
2056	354,076,562	3,029,414	29,669,276	425,716	23,172,110	350,183,094
2057	350,183,094	3,075,908	29,000,107	436,359	22,930,931	346,753,467
2058	346,753,467	3,129,677	28,275,295	447,268	22,723,388	343,883,969
2059	343,883,969	3,188,088	27,504,188	458,449	22,555,628	341,665,047
2060	341,665,047	3,252,683	26,684,942	469,911	22,433,914	340,196,791
2061	340,196,791	3,324,840	25,816,758	481,658	22,365,126	339,588,341
2062	339,588,341	3,403,810	24,904,470	493,700	22,356,497	339,950,478
2063	339,950,478	3,488,008	23,956,577	506,042	22,415,224	341,391,091
2064	341,391,091	3,574,985	22,983,280	518,693	22,548,219	344,012,322
2065	344,012,322	3,663,914	21,989,738	531,661	22,762,227	347,917,064
2066	347,917,064	3,755,012	20,979,007	544,952	23,064,152	353,212,269
2067	353,212,269	3,848,454	19,954,354	558,576	23,461,160	360,008,953
2068	360,008,953	3,944,256	18,919,192	572,540	23,960,688	368,422,164
2069	368,422,164	4,042,466	17,877,251	586,854	24,570,435	378,570,961
2070	378,570,961	4,143,165	16,832,640	601,525	25,298,363	390,578,324
2071	390,578,324	4,246,428	15,789,732	616,563	26,152,690	404,571,147



Single Discount Rate Development

Projection of Plan Net Position

Ending December 31 for 2072 to 2121 (concluded)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.800%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2072	\$ 404,571,147	\$ 4,352,395	\$ 14,753,132	\$ 631,977	\$ 27,141,895	\$ 420,680,327
2073	420,680,327	4,461,167	13,727,497	647,777	28,274,726	439,040,946
2074	439,040,946	4,572,774	12,717,512	663,971	29,560,214	459,792,450
2075	459,792,450	4,687,216	11,727,832	680,571	31,007,684	483,078,947
2076	483,078,947	4,804,536	10,762,894	697,585	32,626,788	509,049,792
2077	509,049,792	4,924,837	9,826,837	715,024	34,427,548	537,860,316
2078	537,860,316	5,048,221	8,923,530	732,900	36,420,399	569,672,505
2079	569,672,505	5,174,733	8,056,469	751,223	38,616,241	604,655,787
2080	604,655,787	5,304,416	7,228,689	770,003	41,026,495	642,988,006
2081	642,988,006	5,437,342	6,443,118	789,253	43,663,157	684,856,134
2082	684,856,134	5,573,566	5,702,506	808,985	46,538,852	730,457,062
2083	730,457,062	5,713,139	5,009,153	829,209	49,666,893	779,998,731
2084	779,998,731	5,856,164	4,364,919	849,939	53,061,360	833,701,397
2085	833,701,397	6,002,733	3,771,122	871,188	56,737,189	891,799,008
2086	891,799,008	6,152,911	3,228,542	892,968	60,710,264	954,540,674
2087	954,540,674	6,306,772	2,737,391	915,292	64,997,521	1,022,192,283
2088	1,022,192,283	6,464,416	2,297,142	938,174	69,617,059	1,095,038,442
2089	1,095,038,442	6,625,959	1,906,607	961,628	74,588,276	1,173,384,442
2090	1,173,384,442	6,791,513	1,564,116	985,669	79,931,989	1,257,558,159
2091	1,257,558,159	6,961,184	1,267,402	1,010,311	85,670,574	1,347,912,204
2092	1,347,912,204	7,135,078	1,013,588	1,035,569	91,828,107	1,444,826,233
2093	1,444,826,233	7,313,303	799,432	1,061,458	98,430,517	1,548,709,163
2094	1,548,709,163	7,495,974	621,413	1,087,994	105,505,731	1,660,001,460
2095	1,660,001,460	7,683,213	475,750	1,115,194	113,083,830	1,779,177,560
2096	1,779,177,560	7,875,148	358,492	1,143,074	121,197,212	1,906,748,354
2097	1,906,748,354	8,071,902	265,656	1,171,651	129,880,755	2,043,263,704
2098	2,043,263,704	8,273,592	193,387	1,200,942	139,171,980	2,189,314,947
2099	2,189,314,947	8,480,346	138,123	1,230,966	149,111,223	2,345,537,427
2100	2,345,537,427	8,692,295	96,671	1,261,740	159,741,796	2,512,613,108
2101	2,512,613,108	8,909,572	66,223	1,293,283	171,110,172	2,691,273,346
2102	2,691,273,346	9,132,309	44,354	1,325,615	183,266,167	2,882,301,854
2103	2,882,301,854	9,360,638	29,015	1,358,756	196,263,146	3,086,537,866
2104	3,086,537,866	9,594,694	18,523	1,392,725	210,158,236	3,304,879,548
2105	3,304,879,548	9,834,618	11,531	1,427,543	225,012,563	3,538,287,655
2106	3,538,287,655	10,080,553	6,995	1,463,231	240,891,497	3,787,789,480
2107	3,787,789,480	10,332,645	4,133	1,499,812	257,864,924	4,054,483,104
2108	4,054,483,104	10,591,044	2,379	1,537,307	276,007,536	4,339,541,999
2109	4,339,541,999	10,855,902	1,335	1,575,740	295,399,148	4,644,219,974
2110	4,644,219,974	11,127,378	732	1,615,134	316,125,031	4,969,856,518
2111	4,969,856,518	11,405,634	393	1,655,512	338,276,282	5,317,882,529
2112	5,317,882,529	11,690,835	207	1,696,900	361,950,211	5,689,826,468
2113	5,689,826,468	11,983,155	107	1,739,322	387,250,759	6,087,320,953
2114	6,087,320,953	12,282,769	54	1,782,805	414,288,951	6,512,109,814
2115	6,512,109,814	12,589,859	27	1,827,375	443,183,373	6,966,055,644
2116	6,966,055,644	12,904,613	13	1,873,060	474,060,688	7,451,147,872
2117	7,451,147,872	13,227,223	6	1,919,886	507,056,182	7,969,511,385
2118	7,969,511,385	13,557,886	2	1,967,883	542,314,354	8,523,415,740
2119	8,523,415,740	13,896,806	1	2,017,081	579,989,538	9,115,285,002
2120	9,115,285,002	14,244,191	0	2,067,508	620,246,579	9,747,708,264
2121	9,747,708,264	14,600,256	0	2,119,195	663,261,539	10,423,450,864



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2022 to 2071

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} }
2022	\$ 218,710,006	\$ 7,700,577	\$ 7,700,577	\$ 0	\$ 7,451,396	\$ 0	\$ 7,451,396
2023	204,904,458	8,641,450	8,641,450	0	7,829,422	0	7,829,422
2024	218,315,487	9,381,086	9,381,086	0	7,958,385	0	7,958,385
2025	231,744,521	10,183,859	10,183,859	0	8,089,338	0	8,089,338
2026	245,084,356	10,970,823	10,970,823	0	8,159,594	0	8,159,594
2027	258,347,737	11,765,104	11,765,104	0	8,193,206	0	8,193,206
2028	271,548,425	12,730,590	12,730,590	0	8,301,095	0	8,301,095
2029	284,493,933	13,827,843	13,827,843	0	8,442,480	0	8,442,480
2030	296,986,938	15,008,973	15,008,973	0	8,580,159	0	8,580,159
2031	308,873,680	16,158,353	16,158,353	0	8,649,086	0	8,649,086
2032	320,135,489	17,267,956	17,267,956	0	8,654,516	0	8,654,516
2033	330,780,190	18,327,965	18,327,965	0	8,600,919	0	8,600,919
2034	340,828,087	19,406,912	19,406,912	0	8,527,383	0	8,527,383
2035	350,211,726	20,572,576	20,572,576	0	8,464,022	0	8,464,022
2036	358,773,316	21,760,421	21,760,421	0	8,382,704	0	8,382,704
2037	366,412,565	22,935,002	22,935,002	0	8,272,644	0	8,272,644
2038	373,081,457	23,976,054	23,976,054	0	8,097,520	0	8,097,520
2039	378,874,602	24,996,409	24,996,409	0	7,904,615	0	7,904,615
2040	383,760,786	26,074,582	26,074,582	0	7,720,567	0	7,720,567
2041	387,596,897	27,090,394	27,090,394	0	7,510,622	0	7,510,622
2042	390,378,783	28,018,372	28,018,372	0	7,273,312	0	7,273,312
2043	392,140,985	28,898,573	28,898,573	0	7,024,161	0	7,024,161
2044	392,873,368	29,676,653	29,676,653	0	6,754,011	0	6,754,011
2045	392,632,758	30,280,184	30,280,184	0	6,452,590	0	6,452,590
2046	391,564,365	30,781,343	30,781,343	0	6,141,746	0	6,141,746
2047	389,735,037	31,211,351	31,211,351	0	5,831,035	0	5,831,035
2048	387,178,895	31,534,959	31,534,959	0	5,516,379	0	5,516,379
2049	383,971,519	31,722,716	31,722,716	0	5,195,902	0	5,195,902
2050	380,232,669	31,759,302	31,759,302	0	4,870,687	0	4,870,687
2051	376,110,122	31,658,782	31,658,782	0	4,546,134	0	4,546,134
2052	371,741,439	31,449,261	31,449,261	0	4,228,509	0	4,228,509
2053	367,240,435	31,135,797	31,135,797	0	3,919,815	0	3,919,815
2054	362,725,843	30,734,591	30,734,591	0	3,622,945	0	3,622,945
2055	358,302,950	30,251,392	30,251,392	0	3,338,938	0	3,338,938
2056	354,076,562	29,669,276	29,669,276	0	3,066,188	0	3,066,188
2057	350,183,094	29,000,107	29,000,107	0	2,806,210	0	2,806,210
2058	346,753,467	28,275,295	28,275,295	0	2,561,866	0	2,561,866
2059	343,883,969	27,504,188	27,504,188	0	2,333,334	0	2,333,334
2060	341,665,047	26,684,942	26,684,942	0	2,119,693	0	2,119,693
2061	340,196,791	25,816,758	25,816,758	0	1,920,159	0	1,920,159
2062	339,588,341	24,904,470	24,904,470	0	1,734,369	0	1,734,369
2063	339,950,478	23,956,577	23,956,577	0	1,562,132	0	1,562,132
2064	341,391,091	22,983,280	22,983,280	0	1,403,246	0	1,403,246
2065	344,012,322	21,989,738	21,989,738	0	1,257,102	0	1,257,102
2066	347,917,064	20,979,007	20,979,007	0	1,122,960	0	1,122,960
2067	353,212,269	19,954,354	19,954,354	0	1,000,105	0	1,000,105
2068	360,008,953	18,919,192	18,919,192	0	887,849	0	887,849
2069	368,422,164	17,877,251	17,877,251	0	785,536	0	785,536
2070	378,570,961	16,832,640	16,832,640	0	692,543	0	692,543
2071	390,578,324	15,789,732	15,789,732	0	608,272	0	608,272



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2072 to 2121 (concluded)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of All Benefit Payments using Single Discount Rate (SDR)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^{(a)-.5}	(g)=(e)*vf ^{(a)-.5}	(h)={(c)/(1+SDR) ^{(a)-.5} }
2072	\$ 404,571,147	\$ 14,753,132	\$ 14,753,132	\$ 0	\$ 532,152	\$ 0	\$ 532,152
2073	420,680,327	13,727,497	13,727,497	0	463,630	0	463,630
2074	439,040,946	12,717,512	12,717,512	0	402,172	0	402,172
2075	459,792,450	11,727,832	11,727,832	0	347,261	0	347,261
2076	483,078,947	10,762,894	10,762,894	0	298,398	0	298,398
2077	509,049,792	9,826,837	9,826,837	0	255,099	0	255,099
2078	537,860,316	8,923,530	8,923,530	0	216,901	0	216,901
2079	569,672,505	8,056,469	8,056,469	0	183,357	0	183,357
2080	604,655,787	7,228,689	7,228,689	0	154,043	0	154,043
2081	642,988,006	6,443,118	6,443,118	0	128,560	0	128,560
2082	684,856,134	5,702,506	5,702,506	0	106,538	0	106,538
2083	730,457,062	5,009,153	5,009,153	0	87,626	0	87,626
2084	779,998,731	4,364,919	4,364,919	0	71,495	0	71,495
2085	833,701,397	3,771,122	3,771,122	0	57,836	0	57,836
2086	891,799,008	3,228,542	3,228,542	0	46,362	0	46,362
2087	954,540,674	2,737,391	2,737,391	0	36,806	0	36,806
2088	1,022,192,283	2,297,142	2,297,142	0	28,920	0	28,920
2089	1,095,038,442	1,906,607	1,906,607	0	22,475	0	22,475
2090	1,173,384,442	1,564,116	1,564,116	0	17,264	0	17,264
2091	1,257,558,159	1,267,402	1,267,402	0	13,098	0	13,098
2092	1,347,912,204	1,013,588	1,013,588	0	9,808	0	9,808
2093	1,444,826,233	799,432	799,432	0	7,243	0	7,243
2094	1,548,709,163	621,413	621,413	0	5,272	0	5,272
2095	1,660,001,460	475,750	475,750	0	3,779	0	3,779
2096	1,779,177,560	358,492	358,492	0	2,666	0	2,666
2097	1,906,748,354	265,656	265,656	0	1,850	0	1,850
2098	2,043,263,704	193,387	193,387	0	1,261	0	1,261
2099	2,189,314,947	138,123	138,123	0	843	0	843
2100	2,345,537,427	96,671	96,671	0	553	0	553
2101	2,512,613,108	66,223	66,223	0	354	0	354
2102	2,691,273,346	44,354	44,354	0	222	0	222
2103	2,882,301,854	29,015	29,015	0	136	0	136
2104	3,086,537,866	18,523	18,523	0	81	0	81
2105	3,304,879,548	11,531	11,531	0	47	0	47
2106	3,538,287,655	6,995	6,995	0	27	0	27
2107	3,787,789,480	4,133	4,133	0	15	0	15
2108	4,054,483,104	2,379	2,379	0	8	0	8
2109	4,339,541,999	1,335	1,335	0	4	0	4
2110	4,644,219,974	732	732	0	2	0	2
2111	4,969,856,518	393	393	0	1	0	1
2112	5,317,882,529	207	207	0	1	0	1
2113	5,689,826,468	107	107	0	0	0	0
2114	6,087,320,953	54	54	0	0	0	0
2115	6,512,109,814	27	27	0	0	0	0
2116	6,966,055,644	13	13	0	0	0	0
2117	7,451,147,872	6	6	0	0	0	0
2118	7,969,511,385	2	2	0	0	0	0
2119	8,523,415,740	1	1	0	0	0	0
2120	9,115,285,002	0	0	0	0	0	0
2121	9,747,708,264	0	0	0	0	0	0
Totals	\$ 267,871,569	\$ 0	\$ 267,871,569	\$ 0	\$ 267,871,569	\$ 0	\$ 267,871,569



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.