

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, 2021





June 2, 2022

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

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

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

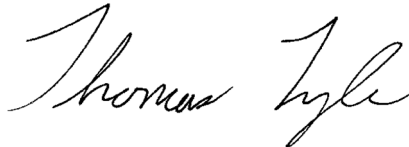
Paul T. Wood, Thomas A. Lyle, and Dana Woolfrey are Members of the American Academy of Actuaries (MAAA) and are experienced in performing valuations for public retirement systems. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein. The signing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

Respectfully submitted,

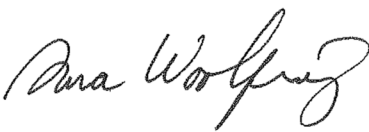
Gabriel, Roeder, Smith & Company



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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of December 31, 2021

	2021
Actuarial Valuation Date	January 1, 2021
Measurement Date of the Net Pension Liability	December 31, 2021
Employer's Fiscal Year Ending Date (Reporting Date)	December 31, 2021

Membership

Number of	
- Retirees and Beneficiaries	159
- Inactive, Nonretired Members	85
- Active Members	376
- Total	620
Covered Payroll	\$ 29,973,443

Net Pension Liability

Total Pension Liability	\$ 203,579,504
Plan Fiduciary Net Position	218,710,006
Net Pension Liability	\$ (15,130,502)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	107.43 %
Net Pension Liability as a Percentage of Covered Payroll	(50.48)%

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*	1.84 %
Last year ending December 31 in the 2021 to 2120 projection period for which projected benefit payments are fully funded	2120

Total Pension Expense	\$ (2,930,806)
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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	\$ 259,605	\$ 6,337,055
Changes in assumptions	15,297,123	14,067,846
Net difference between projected and actual earnings on pension plan investments	3,087,209	25,702,811
Total	\$ 18,643,937	\$ 46,107,712

*Source: Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of December 31, 2021. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax exempt securities.



Discussion

Accounting Standard

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

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

Financial Statements

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

Paragraph 34 of GASB Statement No. 68 states, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to WRS subsequent to the measurement date of December 31, 2021.

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

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



Notes to Financial Statements

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

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

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

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

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

Required Supplementary Information

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

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



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

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

1. The employer normal cost as a percentage of pay is expected to 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 2120. The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan.

Timing of the Valuation

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

The total pension liability shown in this report is based on an actuarial valuation performed as of January 1, 2021 and a measurement date of December 31, 2021.



Single Discount Rate

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

For the purpose of this valuation, the expected rate of return on pension plan investments is 6.80%; the municipal bond rate is 1.84% (based on the daily rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 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, 2021

A. Expense

1. Service Cost	\$	7,168,972
2. Interest on the Total Pension Liability		12,955,679
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(3,261,693)
5. Projected Earnings on Plan Investments (made negative for addition here)		(12,675,626)
6. Pension Plan Administrative Expense		176,943
7. Other Changes in Plan Fiduciary Net Position		6,688
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		(250,350)
9. Recognition of Outflow (Inflow) of Resources due to Assets		(7,051,419)
10. Total Pension Expense	\$	(2,930,806) *

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

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

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$	(310,679)
2. Assumption Changes (gains) or losses	\$	6,964,448
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		6.7261
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	\$	(46,190)
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for assumption changes	\$	1,035,436
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	\$	989,246
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	\$	(264,489)
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for assumption changes	\$	5,929,012
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	\$	5,664,523

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$	(19,316,800)
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	\$	(3,863,360)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$	(15,453,440)



History of Deferred Outflows and Inflows of Resources by Source

Fiscal Year Ended December 31, 2021

History of Deferred Outflows and Deferred Inflows of Resources by Source

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		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	2021	Total	
Total	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684	\$ (3,243,112)	\$ (310,679)		
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)	(1,091,418)
2019	-	14,325	(11,641)	(279,835)	(874,223)	59,956	-	-	(1,568,704)	(1,568,704)
2020	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(477,286)	-	(1,614,894)	(1,614,894)
2021	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(46,190)	(1,569,518)	(1,569,518)
2022	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(46,190)	(1,623,755)	(1,623,755)
2023	-	5,464	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(46,190)	(1,569,518)	(1,569,518)
2024	-	-	(575)	(231,200)	(874,223)	59,956	(477,286)	(46,190)	(810,158)	(810,158)
2025	-	-	-	-	(346,630)	59,948	(477,286)	(46,190)	(425,586)	(425,586)
2026	-	-	-	-	-	-	(379,396)	(46,190)	(33,539)	(33,539)
Thereafter	-	-	-	-	-	-	-	(33,539)	(11,763,982)	(11,763,982)
Total	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684	\$ (3,243,112)	\$ (310,679)	\$ (11,763,982)	\$ (6,077,450)

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		
	2014	2015	2016	2017	2018	2019	2020	2021	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
Thereafter	-	-	-	-	-	-	-	751,832	751,832	751,832
Total	\$ -	\$ 20,165,038	\$ (1,498,059)	\$ 16,738,920	\$ (29,804,719)	\$ -	\$ -	\$ 6,964,448	\$ 12,565,628	\$ 12,565,628

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

Recognition Period	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000	5.0000		
	2014	2015	2016	2017	2018	2019	2020	2021	Total	
Total	\$ 3,185,937	\$ 10,250,451	\$ 680,474	\$ (8,890,008)	\$ 15,436,045	\$ (16,212,170)	\$ (6,274,171)	\$ (19,316,800)		
2014	637,187	-	-	-	-	-	-	-	637,187	637,187
2015	637,187	2,050,090	-	-	-	-	-	-	2,687,277	2,687,277
2016	637,187	2,050,090	136,095	-	-	-	-	-	2,823,372	2,823,372
2017	637,187	2,050,090	136,095	(1,778,002)	-	-	-	-	1,045,370	1,045,370
2018	637,189	2,050,090	136,095	(1,778,002)	3,087,209	-	-	-	4,132,581	4,132,581
2019	-	2,050,091	136,095	(1,778,002)	3,087,209	(3,242,434)	-	-	252,959	252,959
2020	-	-	136,094	(1,778,002)	3,087,209	(3,242,434)	(1,254,834)	-	(3,051,967)	(3,051,967)
2021	-	-	-	(1,778,000)	3,087,209	(3,242,434)	(1,254,834)	(3,863,360)	(7,051,419)	(7,051,419)
2022	-	-	-	-	3,087,209	(3,242,434)	(1,254,834)	(3,863,360)	(5,273,419)	(5,273,419)
2023	-	-	-	-	-	(3,242,434)	(1,254,834)	(3,863,360)	(8,360,628)	(8,360,628)
2024	-	-	-	-	-	-	(1,254,835)	(3,863,360)	(5,118,195)	(5,118,195)
2025	-	-	-	-	-	-	-	(3,863,360)	(3,863,360)	(3,863,360)
2026	-	-	-	-	-	-	-	-	-	-
Thereafter	-	-	-	-	-	-	-	-	-	-
Total	\$ 3,185,937	\$ 10,250,451	\$ 680,474	\$ (8,890,008)	\$ 15,436,045	\$ (16,212,170)	\$ (6,274,171)	\$ (19,316,800)	\$ (21,140,242)	\$ (21,140,242)

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

	2014	2015	2016	2017	2018	2019	2020	2021	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)		
2014	637,187	-	-	-	-	-	-	-	637,187	637,187
2015	637,187	4,470,371	-	-	-	-	-	-	5,107,558	5,107,558
2016	637,187	4,470,371	(61,654)	-	-	-	-	-	5,045,904	5,045,904
2017	637,187	4,470,371	(61,654)	80,994	-	-	-	-	5,126,898	5,126,898
2018	637,189	4,470,371	(61,654)	80,994	(1,816,585)	-	-	-	3,310,315	3,310,315
2019	-	4,470,372	(61,654)	80,994	(1,816,585)	(3,182,478)	-	-	(509,351)	(509,351)
2020	-	2,420,281	(61,655)	80,994	(1,816,585)	(3,182,478)	(1,732,120)	-	(4,291,563)	(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)	(7,301,769)
2022	-	2,420,281	(197,749)	1,858,996	(1,816,585)	(3,182,478)	(1,732,120)	(2,874,114)	(5,523,769)	(5,523,769)
2023	-	922,854	(197,749)	1,858,996	(4,903,794)	(3,182,478)	(1,732,120)	(2,874,114)	(10,108,405)	(10,108,405)
2024	-	-	(9,770)	1,535,903	(4,903,794)	59,956	(1,732,121)	(2,874,114)	(7,923,940)	(7,923,940)
2025	-	-	-	-	(1,944,352)	59,948	(477,286)	(2,874,114)	(5,235,804)	(5,235,804)
2026	-	-	-	-	-	-	(379,396)	989,246	609,850	609,850
Thereafter	-	-	-	-	-	-	-	718,293	718,293	718,293
Total	\$ 3,185,937	\$ 30,535,553	\$ (911,288)	\$ 5,658,867	\$ (20,834,865)	\$ (15,792,486)	\$ (9,517,283)	\$ (12,663,031)	\$ (20,338,596)	\$ (27,463,775)



Statement of Outflows and Inflows

Arising from Current and Prior Reporting Periods

Fiscal Year Ended December 31, 2021

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 5,654,504	\$ 5,904,854	\$ (250,350)
2. Due to Assets	3,087,209	10,138,628	(7,051,419)
3. Total	\$ 8,741,713	\$ 16,043,482	\$ (7,301,769)

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	\$ 1,689,175	\$ (1,614,894)
2. Assumption Changes	5,580,223	4,215,679	1,364,544
3. Net Difference between projected and actual earnings on pension plan investments	3,087,209	10,138,628	(7,051,419)
4. Total	\$ 8,741,713	\$ 16,043,482	\$ (7,301,769)

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	\$ 259,605	\$ 6,337,055	\$ (6,077,450)
2. Assumption Changes	15,297,123	14,067,846	1,229,277
3. Net Difference between projected and actual earnings on pension plan investments	3,087,209	25,702,811	(22,615,602)
4. Total	\$ 18,643,937	\$ 46,107,712	\$ (27,463,775)

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

Year Ending December 31	Net Deferred Outflows of Resources
2022	\$ (5,523,769)
2023	(10,108,405)
2024	(7,923,940)
2025	(5,235,804)
2026	609,850
Thereafter	718,293
Total	\$ (27,463,775)



Statement of Fiduciary Net Position as of December 31, 2021

	2021
Assets	
Cash and Deposits	\$ 12,924,743
Receivables	
Accounts Receivable - Sale of Investments	\$ 210,292
Accrued Interest and Other Dividends	505,032
Contributions	642,393
Accounts Receivable - Other	17,440,029
Total Receivables	\$ 18,797,746
Investments	
Fixed Income	\$ 39,837,245
Equities	104,809,055
Private Markets	22,712,486
Marketable Alternatives	37,965,659
Security Lending Collateral	11,513,405
Capital Assets, at Cost, Net of Accumulated Depreciation	30,834
Total Investments	\$ 216,868,684
Total Assets	\$ 248,591,173
Liabilities	
Payables	
Accounts Payable - Purchase of Investments	\$ 29,596,657
Accrued Expenses	280,934
Accounts Payable - Other	3,576
Total Liabilities	\$ 29,881,167
Net Position Restricted for Pensions	\$ 218,710,006

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

	2021
Additions	
Contributions	
Employer	\$ 4,508,157
Employee	3,261,693
Other Employer Contributions	248
Other Employee Contributions	0
Total Contributions	\$ 7,770,098
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 29,638,731
Interest and Dividends	3,567,846
Less Investment Expense	(1,214,151)
Net Investment Income	\$ 31,992,426
Other	\$ 0
Total Additions	\$ 39,762,524
 Deductions	
Benefit Payments, including Refunds of Employee Contributions	\$ 6,973,898
Pension Plan Administrative Expense	176,943
Other	6,688
Total Deductions	\$ 7,157,529
Net Increase in Net Position	\$ 32,604,995
 Net Position Restricted for Pensions	
Beginning of Year	\$ 186,105,011
End of Year	\$ 218,710,006

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, 2021

A. Total pension liability	
1. Service cost	\$ 7,168,972
2. Interest on the total pension liability	12,955,679
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the total pension liability	(310,679)
5. Changes of assumptions	6,964,448
6. Benefit payments, including refunds of employee contributions	(6,973,898)
7. Net change in total pension liability	19,804,522
8. Total pension liability – beginning	183,774,982
9. Total pension liability – ending	\$ 203,579,504
B. Plan fiduciary net position	
1. Contributions – employer	\$ 4,508,405
2. Contributions – employee	3,261,693
3. Net investment income	31,992,426
4. Benefit payments	(6,902,972)
5. Refunds	(70,926)
6. Pension plan administrative expense	(176,943)
7. Other	(6,688)
8. Net change in plan fiduciary net position	32,604,995
9. Plan fiduciary net position – beginning	186,105,011
10. Plan fiduciary net position – ending	\$ 218,710,006
C. Net pension liability	\$ (15,130,502)
D. Plan fiduciary net position as a percentage of the total pension liability	107.43 %
E. Covered-employee payroll	\$ 29,973,443
F. Net pension liability as a percentage of covered-employee payroll	(50.48)%



Schedules of Required Supplementary Information

Schedule of Changes in Net Pension Liability and Related Ratios Multiyear

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending December 31,	2021	2020	2019	2018	2017	2016	2015	2014
Total pension liability								
Service cost	\$ 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	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
Difference between expected and actual experience	(310,679)	(3,243,112)	419,684	(6,466,191)	(2,190,045)	(93,703)	120,064	0
Changes of assumptions	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	(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	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	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)	\$ 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	\$ 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	3,261,693	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	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	(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	(70,926)	(85,314)	(35,091)	(64,091)	(120,137)	(71,599)	(75,062)	(62,762)
Pension plan administrative expense	(176,943)	(158,826)	(138,634)	(140,922)	(130,931)	(112,132)	(90,438)	(87,431)
Other	(6,688)	(6,345)	(6,402)	(5,708)	(5,700)	(5,700)	(5,444)	264,234
Net change in plan fiduciary net position	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	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)	\$ 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)	\$ (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	107.43 %	101.27 %	95.93 %	87.07 %	77.98 %	80.16 %	79.33 %	100.98 %
Covered-employee payroll	\$ 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	\$ 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	(50.48)%	(8.16)%	25.36 %	78.26 %	146.17 %	119.59 %	117.66 %	(4.58)%

Notes to Schedule:

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

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



Schedules of Required Supplementary Information

Schedule of Net Pension Liability Multiyear

FY Ending December 31,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll*	Net Pension Liability as a % of Covered Payroll
2014	\$ 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)%

* 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 %

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

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



Notes to Schedule of Contributions

Valuation Date: January 1, 2021
Notes Actuarially determined contribution rates are calculated as of July 1 each year for implementation the following fiscal year.

Methods and Assumptions Used to Determine Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	24 years
Asset Valuation Method	5-Year smoothed market
Inflation	2.25%
Salary Increases	4.50% to 7.50% including inflation
Payroll Growth Rate	2.50%
Cost-of-Living Increase	0.00%
Investment Rate of Return	7.00%
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition. Last updated for the 2018 valuation pursuant to an experience study of the period 2012 - 2016.
Post-Retirement Mortality	RP-2014 Healthy Annuitant Mortality Table, fully generational, projected with Scale MP-2017 Males: No set back with a multiplier of 100% Females: No set back with a multiplier of 88%
Pre-Retirement Mortality	RP-2014 Employee Mortality Table, fully generational, projected with Scale MP-2017 Males: No set back with a multiplier of 100% Females: No set back with a multiplier of 100%

Other Information:

Notes There were no benefit changes during the year.
The employer is currently contributing at the rate of 15.00% of salary and will increase contributions by 1.00% next year to an ultimate rate of 16.00% of salary.
Employees are currently contributing at the rate of 10.745% of salary and will increase contributions by 0.50% next year to an ultimate 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 %

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%
\$ 13,032,131	\$ (15,130,502)	\$ (38,478,152)

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	159
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	85
Active Plan Members	<u>376</u>
Total Plan Members	620

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.
-----------------	--

Contributions

Employee	10.745% of salary. Effective July 1, 2022 the rate will increase to an ultimate rate of 11.245%. The employer may subsidize all or part of the employee contributions.
Employer	15.00% of salary. Effective July 1, 2021 the rate will increase to an ultimate rate of 16.00% on July 1, 2022.
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, 2021 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 2021 using the MP-2020 Ultimate Scale					
	Male	Female	Male	Female	Male	Female
20	0.04%	0.01%	0.04%	0.01%	0.10%	0.05%
25	0.03%	0.02%	0.03%	0.02%	0.09%	0.06%
30	0.04%	0.02%	0.04%	0.02%	0.11%	0.08%
35	0.04%	0.03%	0.04%	0.03%	0.12%	0.10%
40	0.05%	0.04%	0.06%	0.04%	0.15%	0.14%
45	0.07%	0.06%	0.11%	0.07%	0.21%	0.19%
50	0.10%	0.08%	0.17%	0.13%	0.30%	0.26%
55	0.15%	0.11%	0.26%	0.22%	0.41%	0.40%
60	0.23%	0.14%	0.44%	0.38%	0.63%	0.60%
65	0.35%	0.20%	0.76%	0.67%	1.03%	0.92%
70	0.67%	0.40%	1.37%	1.16%	1.66%	1.40%
75			2.48%	2.02%	2.85%	2.15%
80			4.52%	3.51%	4.96%	3.51%
85			8.30%	6.22%	8.37%	6.22%
90			14.79%	11.02%	14.79%	11.02%
95			22.82%	18.14%	22.82%	18.14%
100			31.55%	27.24%	31.55%	27.24%

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 1.84%; 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 2021 to 2070

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)
2021	\$ 30,269,446	\$ 453,332	\$ 30,722,779	\$ 3,261,693	\$ 4,504,529	\$ 3,876	\$ 7,770,098
2022	29,461,505	2,029,343	31,490,848	3,163,925	4,566,533	32,570	7,763,028
2023	28,767,757	3,510,362	32,278,119	3,159,668	4,602,841	81,697	7,844,206
2024	28,064,554	5,020,518	33,085,072	3,082,433	4,490,329	115,695	7,688,457
2025	27,331,522	6,580,677	33,912,199	3,001,921	4,373,044	154,334	7,529,299
2026	26,613,961	8,146,043	34,760,004	2,923,109	4,258,234	198,390	7,379,733
2027	25,958,769	9,670,235	35,629,004	2,851,147	4,153,403	243,669	7,248,219
2028	25,243,410	11,276,319	36,519,729	2,772,576	4,038,946	292,500	7,104,022
2029	24,347,413	13,085,309	37,432,722	2,674,166	3,895,586	348,569	6,918,321
2030	23,298,665	15,069,875	38,368,540	2,558,978	3,727,786	411,425	6,698,189
2031	22,179,565	17,148,189	39,327,754	2,436,063	3,548,730	478,351	6,463,144
2032	21,069,129	19,241,819	40,310,948	2,314,100	3,371,061	546,549	6,231,710
2033	19,981,922	21,336,800	41,318,722	2,194,688	3,197,108	616,424	6,008,220
2034	18,859,239	23,492,451	42,351,690	2,071,379	3,017,478	690,355	5,779,212
2035	17,634,731	25,775,751	43,410,482	1,936,887	2,821,557	770,538	5,528,982
2036	16,306,908	28,188,836	44,495,744	1,791,048	2,609,105	856,794	5,256,947
2037	14,990,948	30,617,190	45,608,138	1,646,511	2,398,552	945,632	4,990,695
2038	13,789,121	32,959,220	46,748,341	1,514,510	2,206,259	1,034,135	4,754,904
2039	12,597,861	35,319,189	47,917,050	1,383,669	2,015,658	1,126,532	4,525,859
2040	11,323,659	37,791,317	49,114,976	1,243,719	1,811,786	1,224,953	4,280,458
2041	10,076,992	40,265,858	50,342,850	1,106,793	1,612,319	1,326,726	4,045,838
2042	8,862,040	42,739,381	51,601,421	973,350	1,417,926	1,430,869	3,822,145
2043	7,718,281	45,173,176	52,891,457	847,727	1,234,925	1,535,905	3,618,557
2044	6,662,531	47,551,212	54,213,743	731,770	1,066,005	1,641,403	3,439,178
2045	5,711,211	49,857,876	55,569,087	627,283	913,794	1,746,261	3,287,338
2046	4,826,911	52,131,403	56,958,314	530,157	772,306	1,851,026	3,153,489
2047	3,969,632	54,412,640	58,382,272	435,999	635,141	1,955,784	3,026,924
2048	3,215,359	56,626,470	59,841,829	353,155	514,457	2,058,742	2,926,354
2049	2,585,276	58,752,599	61,337,875	283,950	413,644	2,158,266	2,855,860
2050	2,064,981	60,806,341	62,871,322	226,804	330,397	2,253,795	2,810,996
2051	1,602,906	62,840,199	64,443,105	176,053	256,465	2,347,537	2,780,055
2052	1,191,532	64,862,651	66,054,183	130,870	190,645	2,439,068	2,760,583
2053	861,078	66,844,460	67,705,538	94,575	137,773	2,527,640	2,759,988
2054	594,676	68,803,500	69,398,176	65,315	95,148	2,613,789	2,774,252
2055	393,749	70,739,381	71,133,130	43,247	63,000	2,697,454	2,803,701
2056	255,803	72,655,655	72,911,458	28,096	40,928	2,778,770	2,847,794
2057	164,213	74,570,031	74,734,244	18,036	26,274	2,858,347	2,902,657
2058	87,564	76,515,036	76,602,600	9,617	14,010	2,937,402	2,961,029
2059	28,690	78,488,975	78,517,665	3,151	4,590	3,016,179	3,023,920
2060	4,229	80,476,378	80,480,607	465	677	3,094,548	3,095,690
2061	0	82,492,622	82,492,622	0	0	3,173,099	3,173,099
2062	0	84,554,938	84,554,938	0	0	3,252,721	3,252,721
2063	0	86,668,811	86,668,811	0	0	3,334,008	3,334,008
2064	0	88,835,531	88,835,531	0	0	3,416,925	3,416,925
2065	0	91,056,419	91,056,419	0	0	3,501,582	3,501,582
2066	0	93,332,829	93,332,829	0	0	3,588,351	3,588,351
2067	0	95,666,150	95,666,150	0	0	3,677,340	3,677,340
2068	0	98,057,804	98,057,804	0	0	3,768,525	3,768,525
2069	0	100,509,249	100,509,249	0	0	3,861,963	3,861,963
2070	0	103,021,980	103,021,980	0	0	3,957,744	3,957,744



Single Discount Rate Development Projection of Contributions Ending December 31 for 2071 to 2120 (concluded)

Year	Payroll for Current Employees		Payroll for Future Employees		Total Employee Payroll	Employer Contributions for Current Employees		Employer Contributions Related to Payroll of Future Employees		Total Contributions
	(a)	(b)=max(0,(c)-(a))	(c)	(d)		(e)=(a)*ER%	(f) = (b)*netER%	(g)=(d)+(e)+(f)		
2071	\$ 0	\$ 105,597,530	\$ 105,597,530	\$ 0	\$ 0	\$ 4,055,993	\$ 4,055,993			
2072	0	108,237,468	108,237,468	0	0	4,156,851	4,156,851			
2073	0	110,943,405	110,943,405	0	0	4,260,442	4,260,442			
2074	0	113,716,990	113,716,990	0	0	4,366,787	4,366,787			
2075	0	116,559,915	116,559,915	0	0	4,475,856	4,475,856			
2076	0	119,473,913	119,473,913	0	0	4,587,727	4,587,727			
2077	0	122,460,761	122,460,761	0	0	4,702,526	4,702,526			
2078	0	125,522,280	125,522,280	0	0	4,820,346	4,820,346			
2079	0	128,660,337	128,660,337	0	0	4,941,195	4,941,195			
2080	0	131,876,845	131,876,845	0	0	5,065,087	5,065,087			
2081	0	135,173,766	135,173,766	0	0	5,192,103	5,192,103			
2082	0	138,553,110	138,553,110	0	0	5,322,299	5,322,299			
2083	0	142,016,938	142,016,938	0	0	5,455,735	5,455,735			
2084	0	145,567,361	145,567,361	0	0	5,592,498	5,592,498			
2085	0	149,206,545	149,206,545	0	0	5,732,654	5,732,654			
2086	0	152,936,709	152,936,709	0	0	5,876,243	5,876,243			
2087	0	156,760,127	156,760,127	0	0	6,023,337	6,023,337			
2088	0	160,679,130	160,679,130	0	0	6,174,049	6,174,049			
2089	0	164,696,108	164,696,108	0	0	6,328,474	6,328,474			
2090	0	168,813,511	168,813,511	0	0	6,486,698	6,486,698			
2091	0	173,033,849	173,033,849	0	0	6,648,816	6,648,816			
2092	0	177,359,695	177,359,695	0	0	6,814,933	6,814,933			
2093	0	181,793,687	181,793,687	0	0	6,985,162	6,985,162			
2094	0	186,338,529	186,338,529	0	0	7,159,616	7,159,616			
2095	0	190,996,992	190,996,992	0	0	7,338,413	7,338,413			
2096	0	195,771,917	195,771,917	0	0	7,521,673	7,521,673			
2097	0	200,666,215	200,666,215	0	0	7,709,517	7,709,517			
2098	0	205,682,870	205,682,870	0	0	7,902,064	7,902,064			
2099	0	210,824,942	210,824,942	0	0	8,099,443	8,099,443			
2100	0	216,095,566	216,095,566	0	0	8,301,784	8,301,784			
2101	0	221,497,955	221,497,955	0	0	8,509,213	8,509,213			
2102	0	227,035,404	227,035,404	0	0	8,721,861	8,721,861			
2103	0	232,711,289	232,711,289	0	0	8,939,859	8,939,859			
2104	0	238,529,071	238,529,071	0	0	9,163,340	9,163,340			
2105	0	244,492,298	244,492,298	0	0	9,392,438	9,392,438			
2106	0	250,604,605	250,604,605	0	0	9,627,292	9,627,292			
2107	0	256,869,720	256,869,720	0	0	9,868,040	9,868,040			
2108	0	263,291,463	263,291,463	0	0	10,114,826	10,114,826			
2109	0	269,873,750	269,873,750	0	0	10,367,794	10,367,794			
2110	0	276,620,594	276,620,594	0	0	10,627,092	10,627,092			
2111	0	283,536,109	283,536,109	0	0	10,892,873	10,892,873			
2112	0	290,624,512	290,624,512	0	0	11,165,295	11,165,295			
2113	0	297,890,125	297,890,125	0	0	11,444,518	11,444,518			
2114	0	305,337,378	305,337,378	0	0	11,730,711	11,730,711			
2115	0	312,970,812	312,970,812	0	0	12,024,043	12,024,043			
2116	0	320,795,082	320,795,082	0	0	12,324,691	12,324,691			
2117	0	328,814,959	328,814,959	0	0	12,632,838	12,632,838			
2118	0	337,035,333	337,035,333	0	0	12,948,672	12,948,672			
2119	0	345,461,216	345,461,216	0	0	13,272,385	13,272,385			
2120	0	354,097,746	354,097,746	0	0	13,604,177	13,604,177			



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

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.800%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2021	\$ 186,105,011	\$ 7,770,098	\$ 6,973,898	\$ 183,631	\$ 31,992,426	\$ 218,710,006
2022	218,710,006	7,763,028	7,905,320	167,846	14,861,909	233,261,777
2023	233,261,777	7,844,206	8,600,182	172,042	15,830,767	248,164,526
2024	248,164,526	7,688,457	9,387,865	176,343	16,812,461	263,101,236
2025	263,101,236	7,529,299	10,173,161	180,752	17,796,427	278,073,050
2026	278,073,050	7,379,733	10,975,069	185,271	18,782,541	293,074,983
2027	293,074,983	7,248,219	11,789,707	189,903	19,770,877	308,114,469
2028	308,114,469	7,104,022	12,770,877	194,650	20,755,770	323,008,735
2029	323,008,735	6,918,321	13,878,562	199,516	21,725,166	337,574,143
2030	337,574,143	6,698,189	15,063,770	204,504	22,668,451	351,672,509
2031	351,672,509	6,463,144	16,215,869	209,617	23,580,581	365,290,748
2032	365,290,748	6,231,710	17,329,846	214,857	24,461,455	378,439,209
2033	378,439,209	6,008,220	18,399,410	220,229	25,312,130	391,139,920
2034	391,139,920	5,779,212	19,482,025	225,735	26,131,732	403,343,105
2035	403,343,105	5,528,982	20,628,229	231,378	26,914,662	414,927,141
2036	414,927,141	5,256,947	21,805,874	237,162	27,653,704	425,794,756
2037	425,794,756	4,990,695	22,957,466	243,091	28,345,090	435,929,983
2038	435,929,983	4,754,904	23,950,634	249,169	28,992,985	445,478,069
2039	445,478,069	4,525,859	24,922,974	255,398	29,601,871	454,427,427
2040	454,427,427	4,280,458	25,931,964	261,783	30,168,266	462,682,405
2041	462,682,405	4,045,838	26,854,460	268,327	30,690,691	470,296,146
2042	470,296,146	3,822,145	27,706,562	275,036	31,172,225	477,308,919
2043	477,308,919	3,618,557	28,464,623	281,911	31,616,705	483,797,648
2044	483,797,648	3,439,178	29,110,555	288,959	32,030,104	489,867,417
2045	489,867,417	3,287,338	29,587,393	296,183	32,421,583	495,692,762
2046	495,692,762	3,153,489	29,963,614	303,588	32,800,402	501,379,452
2047	501,379,452	3,026,924	30,286,286	311,178	33,171,820	506,980,732
2048	506,980,732	2,926,354	30,448,925	318,957	33,543,645	512,682,850
2049	512,682,850	2,855,860	30,444,829	326,931	33,928,902	518,695,852
2050	518,695,852	2,810,996	30,308,820	335,104	34,340,561	525,203,486
2051	525,203,486	2,780,055	30,087,397	343,482	34,789,170	532,341,831
2052	532,341,831	2,760,583	29,784,996	352,069	35,283,752	540,249,102
2053	540,249,102	2,759,988	29,386,026	360,871	35,834,474	549,096,667
2054	549,096,667	2,774,252	28,903,810	369,892	36,452,409	559,049,627
2055	559,049,627	2,803,701	28,340,119	379,140	37,148,736	570,282,805
2056	570,282,805	2,847,794	27,699,024	388,618	37,935,189	582,978,146
2057	582,978,146	2,902,657	26,994,009	398,334	38,823,558	597,312,017
2058	597,312,017	2,961,029	26,247,184	408,292	39,824,855	613,442,425
2059	613,442,425	3,023,920	25,457,085	418,499	40,949,906	631,540,666
2060	631,540,666	3,095,690	24,615,132	428,962	42,210,792	651,803,053
2061	651,803,053	3,173,099	23,732,953	439,686	43,620,365	674,423,878
2062	674,423,878	3,252,721	22,822,865	450,678	45,191,310	699,594,367
2063	699,594,367	3,334,008	21,889,695	461,945	46,936,451	727,513,185
2064	727,513,185	3,416,925	20,935,818	473,493	48,869,216	758,390,016
2065	758,390,016	3,501,582	19,964,007	485,331	51,003,774	792,446,033
2066	792,446,033	3,588,351	18,977,412	497,464	53,355,071	829,914,579
2067	829,914,579	3,677,340	17,979,377	509,901	55,938,868	871,041,509
2068	871,041,509	3,768,525	16,973,462	522,648	58,771,760	916,085,684
2069	916,085,684	3,861,963	15,963,542	535,714	61,871,225	965,319,616
2070	965,319,616	3,957,744	14,953,890	549,107	65,255,651	1,019,030,014



Single Discount Rate Development

Projection of Plan Net Position

Ending December 31 for 2071 to 2120 (concluded)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.800%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2071	\$ 1,019,030,014	\$ 4,055,993	\$ 13,949,103	\$ 562,835	\$ 68,944,385	\$ 1,077,518,454
2072	1,077,518,454	4,156,851	12,954,054	576,906	72,957,777	1,141,102,122
2073	1,141,102,122	4,260,442	11,973,639	591,328	77,317,234	1,210,114,830
2074	1,210,114,830	4,366,787	11,012,773	606,112	82,045,292	1,284,908,025
2075	1,284,908,025	4,475,856	10,076,384	621,264	87,165,684	1,365,851,916
2076	1,365,851,916	4,587,727	9,169,129	636,796	92,703,429	1,453,337,147
2077	1,453,337,147	4,702,526	8,295,345	652,716	98,684,952	1,547,776,564
2078	1,547,776,564	4,820,346	7,458,970	669,034	105,138,195	1,649,607,102
2079	1,649,607,102	4,941,195	6,663,375	685,760	112,092,759	1,759,291,922
2080	1,759,291,922	5,065,087	5,911,414	702,904	119,580,043	1,877,322,733
2081	1,877,322,733	5,192,103	5,205,651	720,476	127,633,399	2,004,222,109
2082	2,004,222,109	5,322,299	4,548,195	738,488	136,288,294	2,140,546,019
2083	2,140,546,019	5,455,735	3,940,581	756,950	145,582,484	2,286,886,707
2084	2,286,886,707	5,592,498	3,383,737	775,874	155,556,213	2,443,875,807
2085	2,443,875,807	5,732,654	2,877,958	795,271	166,252,424	2,612,187,656
2086	2,612,187,656	5,876,243	2,423,024	815,153	177,716,980	2,792,542,702
2087	2,792,542,702	6,023,337	2,018,078	835,531	189,998,902	2,985,711,332
2088	2,985,711,332	6,174,049	1,661,615	856,420	203,150,631	3,192,517,978
2089	3,192,517,978	6,328,474	1,351,566	877,830	217,228,299	3,413,845,355
2090	3,413,845,355	6,486,698	1,085,327	899,776	232,292,021	3,650,638,972
2091	3,650,638,972	6,648,816	859,796	922,270	248,406,198	3,903,911,920
2092	3,903,911,920	6,814,933	671,405	945,327	265,639,843	4,174,749,964
2093	4,174,749,964	6,985,162	516,400	968,960	284,066,916	4,464,316,681
2094	4,464,316,681	7,159,616	390,934	993,184	303,766,672	4,773,858,851
2095	4,773,858,851	7,338,413	291,045	1,018,014	324,824,029	5,104,712,234
2096	5,104,712,234	7,521,673	212,847	1,043,464	347,329,951	5,458,307,547
2097	5,458,307,547	7,709,517	152,713	1,069,551	371,381,852	5,836,176,652
2098	5,836,176,652	7,902,064	107,352	1,096,290	397,084,013	6,239,959,087
2099	6,239,959,087	8,099,443	73,844	1,123,697	424,548,023	6,671,409,013
2100	6,671,409,013	8,301,784	49,647	1,151,789	453,893,255	7,132,402,616
2101	7,132,402,616	8,509,213	32,591	1,180,584	485,247,364	7,624,946,017
2102	7,624,946,017	8,721,861	20,870	1,210,099	518,746,831	8,151,183,740
2103	8,151,183,740	8,939,859	13,026	1,240,351	554,537,537	8,713,407,758
2104	8,713,407,758	9,163,340	7,920	1,271,360	592,775,377	9,314,067,196
2105	9,314,067,196	9,392,438	4,688	1,303,144	633,626,925	9,955,778,727
2106	9,955,778,727	9,627,292	2,702	1,335,723	677,270,140	10,641,337,734
2107	10,641,337,734	9,868,040	1,517	1,369,116	723,895,127	11,373,730,268
2108	11,373,730,268	10,114,826	831	1,403,344	773,704,950	12,156,145,869
2109	12,156,145,869	10,367,794	447	1,438,427	826,916,510	12,991,991,299
2110	12,991,991,299	10,627,092	235	1,474,388	883,761,475	13,884,905,242
2111	13,884,905,242	10,892,873	122	1,511,247	944,487,282	14,838,774,028
2112	14,838,774,028	11,165,295	62	1,549,029	1,009,358,208	15,857,748,440
2113	15,857,748,440	11,444,518	30	1,587,754	1,078,656,512	16,946,261,685
2114	16,946,261,685	11,730,711	14	1,627,448	1,152,683,656	18,109,048,590
2115	18,109,048,590	12,024,043	7	1,668,134	1,231,761,614	19,351,166,106
2116	19,351,166,106	12,324,691	3	1,709,838	1,316,234,265	20,678,015,221
2117	20,678,015,221	12,632,838	1	1,752,584	1,406,468,880	22,095,364,354
2118	22,095,364,354	12,948,672	0	1,796,398	1,502,857,718	23,609,374,345
2119	23,609,374,345	13,272,385	0	1,841,308	1,605,819,720	25,226,625,143
2120	25,226,625,143	13,604,177	0	1,887,341	1,715,802,331	26,954,144,309



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2021 to 2070

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of All Benefit Payments using Single Discount Rate (SDR)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^a ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=[(c)/(1+SDR) ^a](a-.5)
2021	\$ 186,105,011	\$ 6,973,898	\$ 6,973,898	\$ 0	\$ 6,748,231	\$ 0	\$ 6,748,231
2022	218,710,006	7,905,320	7,905,320	0	7,162,466	0	7,162,466
2023	233,261,777	8,600,182	8,600,182	0	7,295,911	0	7,295,911
2024	248,164,526	9,387,865	9,387,865	0	7,457,057	0	7,457,057
2025	263,101,236	10,173,161	10,173,161	0	7,566,330	0	7,566,330
2026	278,073,050	10,975,069	10,975,069	0	7,643,027	0	7,643,027
2027	293,074,983	11,789,707	11,789,707	0	7,687,584	0	7,687,584
2028	308,114,469	12,770,877	12,770,877	0	7,797,158	0	7,797,158
2029	323,008,735	13,878,562	13,878,562	0	7,933,938	0	7,933,938
2030	337,574,143	15,063,770	15,063,770	0	8,063,188	0	8,063,188
2031	351,672,509	16,215,869	16,215,869	0	8,127,221	0	8,127,221
2032	365,290,748	17,329,846	17,329,846	0	8,132,523	0	8,132,523
2033	378,439,209	18,399,410	18,399,410	0	8,084,687	0	8,084,687
2034	391,139,920	19,482,025	19,482,025	0	8,015,344	0	8,015,344
2035	403,343,105	20,628,229	20,628,229	0	7,946,553	0	7,946,553
2036	414,927,141	21,805,874	21,805,874	0	7,865,369	0	7,865,369
2037	425,794,756	22,957,466	22,957,466	0	7,753,509	0	7,753,509
2038	435,929,983	23,950,634	23,950,634	0	7,573,909	0	7,573,909
2039	445,478,069	24,922,974	24,922,974	0	7,379,581	0	7,379,581
2040	454,427,427	25,931,964	25,931,964	0	7,189,455	0	7,189,455
2041	462,682,405	26,854,460	26,854,460	0	6,971,171	0	6,971,171
2042	470,296,146	27,706,562	27,706,562	0	6,734,428	0	6,734,428
2043	477,308,919	28,464,623	28,464,623	0	6,478,169	0	6,478,169
2044	483,797,648	29,110,555	29,110,555	0	6,203,347	0	6,203,347
2045	489,867,417	29,587,393	29,587,393	0	5,903,520	0	5,903,520
2046	495,692,762	29,963,614	29,963,614	0	5,597,927	0	5,597,927
2047	501,379,452	30,286,286	30,286,286	0	5,297,950	0	5,297,950
2048	506,980,732	30,448,925	30,448,925	0	4,987,266	0	4,987,266
2049	512,682,850	30,444,829	30,444,829	0	4,669,096	0	4,669,096
2050	518,695,852	30,308,820	30,308,820	0	4,352,282	0	4,352,282
2051	525,203,486	30,087,397	30,087,397	0	4,045,399	0	4,045,399
2052	532,341,831	29,784,996	29,784,996	0	3,749,757	0	3,749,757
2053	540,249,102	29,386,026	29,386,026	0	3,463,978	0	3,463,978
2054	549,096,667	28,903,810	28,903,810	0	3,190,202	0	3,190,202
2055	559,049,627	28,340,119	28,340,119	0	2,928,825	0	2,928,825
2056	570,282,805	27,699,024	27,699,024	0	2,680,310	0	2,680,310
2057	582,978,146	26,994,009	26,994,009	0	2,445,776	0	2,445,776
2058	597,312,017	26,247,184	26,247,184	0	2,226,695	0	2,226,695
2059	613,442,425	25,457,085	25,457,085	0	2,022,160	0	2,022,160
2060	631,540,666	24,615,132	24,615,132	0	1,830,786	0	1,830,786
2061	651,803,053	23,732,953	23,732,953	0	1,652,784	0	1,652,784
2062	674,423,878	22,822,865	22,822,865	0	1,488,206	0	1,488,206
2063	699,594,367	21,889,695	21,889,695	0	1,336,477	0	1,336,477
2064	727,513,185	20,935,818	20,935,818	0	1,196,852	0	1,196,852
2065	758,390,016	19,964,007	19,964,007	0	1,068,629	0	1,068,629
2066	792,446,033	18,977,412	18,977,412	0	951,141	0	951,141
2067	829,914,579	17,979,377	17,979,377	0	843,745	0	843,745
2068	871,041,509	16,973,462	16,973,462	0	745,823	0	745,823
2069	916,085,684	15,963,542	15,963,542	0	656,785	0	656,785
2070	965,319,616	14,953,890	14,953,890	0	576,073	0	576,073



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2071 to 2120 (concluded)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of 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}))
2071	\$ 1,019,030,014	\$ 13,949,103	\$ 13,949,103	\$ 0	\$ 503,151	\$ 0	\$ 503,151
2072	1,077,518,454	12,954,054	12,954,054	0	437,508	0	437,508
2073	1,141,102,122	11,973,639	11,973,639	0	378,648	0	378,648
2074	1,210,114,830	11,012,773	11,012,773	0	326,088	0	326,088
2075	1,284,908,025	10,076,384	10,076,384	0	279,365	0	279,365
2076	1,365,851,916	9,169,129	9,169,129	0	238,026	0	238,026
2077	1,453,337,147	8,295,345	8,295,345	0	201,632	0	201,632
2078	1,547,776,564	7,458,970	7,458,970	0	169,759	0	169,759
2079	1,649,607,102	6,663,375	6,663,375	0	141,996	0	141,996
2080	1,759,291,922	5,911,414	5,911,414	0	117,951	0	117,951
2081	1,877,322,733	5,205,651	5,205,651	0	97,256	0	97,256
2082	2,004,222,109	4,548,195	4,548,195	0	79,562	0	79,562
2083	2,140,546,019	3,940,581	3,940,581	0	64,544	0	64,544
2084	2,286,886,707	3,383,737	3,383,737	0	51,895	0	51,895
2085	2,443,875,807	2,877,958	2,877,958	0	41,327	0	41,327
2086	2,612,187,656	2,423,024	2,423,024	0	32,579	0	32,579
2087	2,792,542,702	2,018,078	2,018,078	0	25,407	0	25,407
2088	2,985,711,332	1,661,615	1,661,615	0	19,587	0	19,587
2089	3,192,517,978	1,351,566	1,351,566	0	14,918	0	14,918
2090	3,413,845,355	1,085,327	1,085,327	0	11,217	0	11,217
2091	3,650,638,972	859,796	859,796	0	8,320	0	8,320
2092	3,903,911,920	671,405	671,405	0	6,083	0	6,083
2093	4,174,749,964	516,400	516,400	0	4,381	0	4,381
2094	4,464,316,681	390,934	390,934	0	3,105	0	3,105
2095	4,773,858,851	291,045	291,045	0	2,165	0	2,165
2096	5,104,712,234	212,847	212,847	0	1,482	0	1,482
2097	5,458,307,547	152,713	152,713	0	996	0	996
2098	5,836,176,652	107,352	107,352	0	655	0	655
2099	6,239,959,087	73,844	73,844	0	422	0	422
2100	6,671,409,013	49,647	49,647	0	266	0	266
2101	7,132,402,616	32,591	32,591	0	163	0	163
2102	7,624,946,017	20,870	20,870	0	98	0	98
2103	8,151,183,740	13,026	13,026	0	57	0	57
2104	8,713,407,758	7,920	7,920	0	33	0	33
2105	9,314,067,196	4,688	4,688	0	18	0	18
2106	9,955,778,727	2,702	2,702	0	10	0	10
2107	10,641,337,734	1,517	1,517	0	5	0	5
2108	11,373,730,268	831	831	0	3	0	3
2109	12,156,145,869	447	447	0	1	0	1
2110	12,991,991,299	235	235	0	1	0	1
2111	13,884,905,242	122	122	0	0	0	0
2112	14,838,774,028	62	62	0	0	0	0
2113	15,857,748,440	30	30	0	0	0	0
2114	16,946,261,685	14	14	0	0	0	0
2115	18,109,048,590	7	7	0	0	0	0
2116	19,351,166,106	3	3	0	0	0	0
2117	20,678,015,221	1	1	0	0	0	0
2118	22,095,364,354	0	0	0	0	0	0
2119	23,609,374,345	0	0	0	0	0	0
2120	25,226,625,143	0	0	0	0	0	0
Totals					\$ 252,979,278	\$ 0	\$ 252,979,278



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.