

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, 2020





March 26, 2021

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, 2020 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 effective August 23, 2017. 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. Our experience study report was dated January 10, 2018 and it covered the five-year investigation period ending December 31, 2016.

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.

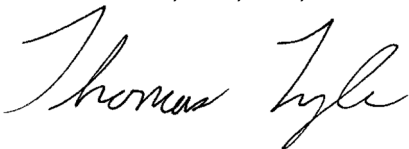
Paul T. Wood, Thomas A. Lyle, and Dana Woolfrey are Members of the American Academy of Actuaries (MAAA) and are experienced in performing valuations for public retirement systems. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein. The signing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

Respectfully submitted,

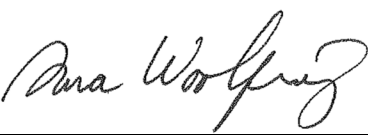
Gabriel, Roeder, Smith & Company

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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of December 31, 2020

	2020	
Actuarial Valuation Date	January 1, 2020	
Measurement Date of the Net Pension Liability	December 31, 2020	
Employer's Fiscal Year Ending Date (Reporting Date)	December 31, 2020	
 Membership		
Number of		
- Retirees and Beneficiaries	151	
- Inactive, Nonretired Members	81	
- Active Members	374	
- Total	606	
Covered Payroll	\$	28,557,976
 Net Pension Liability		
Total Pension Liability	\$	183,774,982
Plan Fiduciary Net Position	186,105,011	
Net Pension Liability	\$	(2,330,029)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	101.27 %	
Net Pension Liability as a Percentage of Covered Payroll	(8.16)%	
 Development of the Single Discount Rate		
Single Discount Rate	7.00 %	
Long-Term Expected Rate of Investment Return	7.00 %	
Long-Term Municipal Bond Rate*	2.00 %	
Last year ending December 31 in the 2020 to 2119 projection period for which projected benefit payments are fully funded	2119	
 Total Pension Expense	 \$	 (177,631)
 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	\$ 333,886	\$ 7,715,551
Changes in assumptions	13,912,898	18,283,525
Net difference between projected and actual earnings on pension plan investments	6,174,418	16,524,639
Total	\$ 20,421,202	\$ 42,523,715

*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, 2020. 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, 2020.

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 7.00% 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 7.00%. This funding policy results in the expectation that the plan's assets will be able to fully pay for promised benefits through at least 2119. 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, 2020 and a measurement date of December 31, 2020.

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 7.00%; the municipal bond rate is 2.00% (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 7.00%.

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, 2020

A. Expense

1. Service Cost	\$	6,738,176
2. Interest on the Total Pension Liability		12,013,695
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(3,053,576)
5. Projected Earnings on Plan Investments (made negative for addition here)		(11,749,534)
6. Pension Plan Administrative Expense		158,826
7. Other Changes in Plan Fiduciary Net Position		6,345
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		(1,239,596)
9. Recognition of Outflow (Inflow) of Resources due to Assets		(3,051,967)
10. Total Pension Expense	\$	(177,631) *

* 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, 2020

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$	(3,243,112)
2. Assumption Changes (gains) or losses	\$	0
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		6.7949
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	\$	(477,286)
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	\$	(477,286)
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	\$	(2,765,826)
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	\$	(2,765,826)

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$	(6,274,171)
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	\$	(1,254,834)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$	(5,019,337)

History of Deferred Outflows and Inflows of Resources by Source

Fiscal Year Ended December 31, 2020

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		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	Total	
Total	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684	\$ (3,243,112)		
2014	-	-	-	-	-	-	-	-	-
2015	-	14,325	-	-	-	-	-	14,325	-
2016	-	14,325	(11,641)	-	-	-	-	2,684	-
2017	-	14,325	(11,641)	(279,835)	-	-	-	(277,151)	-
2018	-	14,325	(11,641)	(279,835)	(874,223)	-	-	(1,151,374)	-
2019	-	14,325	(11,641)	(279,835)	(874,223)	59,956	-	(1,091,418)	-
2020	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(1,568,704)	-
2021	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(1,568,704)	\$ (7,381,665)
2022	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(1,568,704)	-
2023	-	5,464	(11,641)	(279,835)	(874,223)	59,956	(477,286)	(1,577,565)	-
2024	-	-	(575)	(231,200)	(874,223)	59,956	(477,286)	(1,523,328)	-
2025	-	-	-	-	(346,630)	59,948	(477,286)	(763,968)	-
Thereafter	-	-	-	-	-	-	(379,396)	(379,396)	-
	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684	\$ (3,243,112)	\$ (11,453,303)	

Assumption changes - Net (inflows)/outflows of resources

Recognition Period	8.7186	8.3813	8.0494	7.8262	7.3965	6.9999	6.7949		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	Total	
Total	\$ -	\$ 20,165,038	\$ (1,498,059)	\$ 16,738,920	\$ (29,804,719)	\$ -	\$ -		
2014	-	-	-	-	-	-	-	-	-
2015	-	2,405,956	-	-	-	-	-	2,405,956	-
2016	-	2,405,956	(186,108)	-	-	-	-	2,219,848	-
2017	-	2,405,956	(186,108)	2,138,831	-	-	-	4,358,679	-
2018	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	329,108	-
2019	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	329,108	-
2020	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	329,108	-
2021	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	329,108	\$ (4,370,627)
2022	-	2,405,956	(186,108)	2,138,831	(4,029,571)	-	-	329,108	-
2023	-	917,390	(186,108)	2,138,831	(4,029,571)	-	-	(1,159,458)	-
2024	-	-	(9,195)	1,767,103	(4,029,571)	-	-	(2,271,663)	-
2025	-	-	-	-	(1,597,722)	-	-	(1,597,722)	-
Thereafter	-	-	-	-	-	-	-	-	-
	\$ -	\$ 20,165,038	\$ (1,498,059)	\$ 16,738,920	\$ (29,804,719)	\$ -	\$ -	\$ 5,601,180	

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		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	2020	Total	
Total	\$ 3,185,937	\$ 10,250,451	\$ 680,474	\$ (8,890,008)	\$ 15,436,045	\$ (16,212,170)	\$ (6,274,171)		
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)	(3,188,059)	\$ (10,350,221)
2022	-	-	-	-	3,087,209	(3,242,434)	(1,254,834)	(1,410,059)	-
2023	-	-	-	-	-	(3,242,434)	(1,254,834)	(4,497,268)	-
2024	-	-	-	-	-	-	(1,254,835)	(1,254,835)	-
2025	-	-	-	-	-	-	-	-	-
Thereafter	-	-	-	-	-	-	-	-	-
	\$ 3,185,937	\$ 10,250,451	\$ 680,474	\$ (8,890,008)	\$ 15,436,045	\$ (16,212,170)	\$ (6,274,171)	\$ (1,823,442)	

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

	2014	2015	2016	2017	2018	2019	2020	Total	Deferred Net (Inflows)/Outflows at Measurement Date
Total	\$ 3,185,937	\$ 30,535,553	\$ (911,288)	\$ 5,658,867	\$ (20,834,865)	\$ (15,792,486)	\$ (9,517,283)		
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)	(4,427,655)	\$ (22,102,513)
2022	-	2,420,281	(197,749)	1,858,996	(1,816,585)	(3,182,478)	(1,732,120)	(2,649,655)	-
2023	-	922,854	(197,749)	1,858,996	(4,903,794)	(3,182,478)	(1,732,120)	(7,234,291)	-
2024	-	-	(9,770)	1,535,903	(4,903,794)	59,956	(1,732,121)	(5,049,826)	-
2025	-	-	-	-	(1,944,352)	59,948	(477,286)	(2,361,690)	-
Thereafter	-	-	-	-	-	-	(379,396)	(379,396)	-
	\$ 3,185,937	\$ 30,535,553	\$ (911,288)	\$ 5,658,867	\$ (20,834,865)	\$ (15,792,486)	\$ (9,517,283)	\$ (7,675,565)	



Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended December 31, 2020

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

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 4,619,068	\$ 5,858,664	\$ (1,239,596)
2. Due to Assets	3,223,303	6,275,270	(3,051,967)
3. Total	\$ 7,842,371	\$ 12,133,934	\$ (4,291,563)

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	\$ 1,642,985	\$ (1,568,704)
2. Assumption Changes	4,544,787	4,215,679	329,108
3. Net Difference between projected and actual earnings on pension plan investments	3,223,303	6,275,270	(3,051,967)
4. Total	\$ 7,842,371	\$ 12,133,934	\$ (4,291,563)

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	\$ 333,886	\$ 7,715,551	\$ (7,381,665)
2. Assumption Changes	13,912,898	18,283,525	(4,370,627)
3. Net Difference between projected and actual earnings on pension plan investments	6,174,418	16,524,639	(10,350,221)
4. Total	\$ 20,421,202	\$ 42,523,715	\$ (22,102,513)

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
2021	\$ (4,427,655)
2022	(2,649,655)
2023	(7,234,291)
2024	(5,049,826)
2025	(2,361,690)
Thereafter	(379,396)
Total	\$ (22,102,513)



Statement of Fiduciary Net Position as of December 31, 2020

	2020
Assets	
Cash and Deposits	\$ 5,139,766
Receivables	
Accounts Receivable - Sale of Investments	\$ 367,657
Accrued Interest and Other Dividends	346,934
Contributions	565,272
Accounts Receivable - Other	19,049,192
Total Receivables	\$ 20,329,055
Investments	
Fixed Income	\$ 39,267,227
Equities	91,774,854
Private Markets	16,880,607
Marketable Alternatives	33,400,402
Other	7,048,347
Total Investments	\$ 188,371,437
Total Assets	\$ 213,840,258
Liabilities	
Payables	
Accounts Payable - Purchase of Investments	\$ 27,442,879
Accrued Expenses	292,368
Accounts Payable - Other	0
Total Liabilities	\$ 27,735,247
Net Position Restricted for Pensions	\$ 186,105,011

Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2020

	2020
Additions	
Contributions	
Employer	\$ 4,033,871
Employee	3,053,576
Other Employer Contributions	263
Other Employee Contributions	0
Total Contributions	\$ 7,087,710
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 16,750,085
Interest and Dividends	2,321,445
Less Investment Expense	(1,047,825)
Net Investment Income	\$ 18,023,705
Other	\$ 0
Total Additions	\$ 25,111,415
 Deductions	
Benefit Payments, including Refunds of Employee Contributions	\$ 6,468,585
Pension Plan Administrative Expense	158,826
Other	6,345
Total Deductions	\$ 6,633,756
Net Increase in Net Position	\$ 18,477,659
 Net Position Restricted for Pensions	
Beginning of Year	\$ 167,627,352
End of Year	\$ 186,105,011

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, 2020

A. Total pension liability	
1. Service cost	\$ 6,738,176
2. Interest on the total pension liability	12,013,695
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the total pension liability	(3,243,112)
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(6,468,585)
7. Net change in total pension liability	9,040,174
8. Total pension liability – beginning	174,734,808
9. Total pension liability – ending	\$ 183,774,982
B. Plan fiduciary net position	
1. Contributions – employer	\$ 4,034,134
2. Contributions – employee	3,053,576
3. Net investment income	18,023,705
4. Benefit payments	(6,383,271)
5. Refunds	(85,314)
6. Pension plan administrative expense	(158,826)
7. Other	(6,345)
8. Net change in plan fiduciary net position	18,477,659
9. Plan fiduciary net position – beginning	167,627,352
10. Plan fiduciary net position – ending	\$ 186,105,011
C. Net pension liability	\$ (2,330,029)
D. Plan fiduciary net position as a percentage of the total pension liability	101.27 %
E. Covered-employee payroll	\$ 28,557,976
F. Net pension liability as a percentage of covered-employee payroll	(8.16)%



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,	2020	2019	2018	2017	2016	2015	2014
Total pension liability							
Service cost	\$ 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	12,013,695	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
Difference between expected and actual experience	(3,243,112)	419,684	(6,466,191)	(2,190,045)	(93,703)	120,064	0
Changes of assumptions	0	0	(29,804,719)	16,738,920	(1,498,059)	20,165,038	0
Benefit payments, including refunds of employee contributions	(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	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	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)	\$ 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	\$ 4,034,134	\$ 3,516,198	\$ 3,356,547	\$ 3,230,196	\$ 3,370,961	\$ 3,273,668	\$ 3,184,045
Employee contributions	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	18,023,705	26,111,099	(5,197,809)	17,838,337	8,477,077	(1,158,548)	5,303,618
Benefit payments	(6,383,271)	(5,921,008)	(5,474,014)	(5,054,595)	(4,343,944)	(3,712,240)	(3,090,522)
Refunds	(85,314)	(35,091)	(64,091)	(120,137)	(71,599)	(75,062)	(62,762)
Pension plan administrative expense	(158,826)	(138,634)	(140,922)	(130,931)	(112,132)	(90,438)	(87,431)
Other	(6,345)	(6,402)	(5,708)	(5,700)	(5,700)	(5,444)	264,234
Net change in plan fiduciary net position	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	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)	\$ 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)	\$ (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							
	101.27 %	95.93 %	87.07 %	77.98 %	80.16 %	79.33 %	100.98 %
Covered-employee payroll	\$ 28,557,976	\$ 28,028,382	\$ 26,811,084	\$ 28,209,686	\$ 26,390,481	\$ 25,986,443	\$ 24,552,559
Projected valuation payroll	\$ 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	(8.16)%	25.36 %	78.26 %	146.17 %	119.59 %	117.66 %	(4.58)%

Notes to Schedule:

For 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)%

* 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 %

* 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, 2020
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 14.00% of salary and will increase contributions by 1.00% per year over the next two years to an ultimate rate of 16.00% of salary.
Employees are currently contributing at the rate of 10.245% of salary and will increase contributions by 0.50% per year over the next two years 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 %

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 7.00% 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 7.00%. 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 7.00% 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
	6.00%	7.00%	8.00%
	\$ 22,954,701	\$ (2,330,029)	\$ (23,312,442)



Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	151
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	81
Active Plan Members	<u>374</u>
Total Plan Members	606

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	10.245% of salary. Effective July 1, 2021 the rate will increase to 10.745% and continue to increase by 0.50% on July 1 each subsequent year until it reaches the ultimate rate of 11.245% on July 1, 2022. The employer may subsidize all or part of the employee contributions.
Employer	14.00% of salary. Effective July 1, 2021 the rate will increase to 15.00% and continue to increase by 1.00% on July 1 each subsequent year until it reaches the 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, 2020 actuarial valuation report.

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 7.00%), 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

7.00% per year, compounded annually, composed of an assumed 2.25% inflation rate and a 4.75% net real rate of return. This rate represents the assumed return, net of investment expenses.

b. Salary increase rate

Age	Rate
20	7.50%
25	7.00%
30	7.00%
35	6.50%
40	5.50%
45	5.00%
50	5.00%
55	4.75%
60	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:

RP-2014 Mortality Table for Healthy Employees, 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%

Healthy Post-Retirement Mortality:

RP-2014 Mortality Table for Healthy Annuitants, 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%

Disabled Mortality

RP-2014 Disabled 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%

Age	Pre-Retirement		Post-Retirement		Disabled	
	Projected to 2020 using Scale MP-2017					
	Male	Female	Male	Female	Male	Female
20	0.04%	0.02%	0.04%	0.01%	0.04%	0.02%
25	0.05%	0.02%	0.06%	0.03%	0.20%	0.09%
30	0.05%	0.02%	0.09%	0.06%	0.50%	0.24%
35	0.06%	0.03%	0.13%	0.10%	0.92%	0.45%
40	0.07%	0.04%	0.19%	0.14%	1.32%	0.68%
45	0.09%	0.06%	0.27%	0.18%	1.63%	0.90%
50	0.16%	0.11%	0.38%	0.23%	1.90%	1.14%
55	0.27%	0.17%	0.55%	0.32%	2.24%	1.44%
60	0.47%	0.25%	0.78%	0.47%	2.65%	1.73%
65	0.83%	0.36%	1.10%	0.70%	3.17%	2.05%
70	1.34%	0.60%	1.62%	1.07%	3.91%	2.67%
75			2.54%	1.74%	5.14%	3.87%
80			4.23%	2.93%	7.24%	5.83%
85			7.37%	5.14%	10.78%	8.73%
90			13.01%	9.14%	16.56%	12.86%
95			20.87%	15.23%	23.60%	18.94%
100			30.32%	23.24%	31.55%	27.12%

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%	12.00%	12.00%
25	0.02%	0.02%	9.00%	9.00%
30	0.02%	0.02%	4.00%	4.00%
35	0.15%	0.15%	3.00%	3.00%
40	0.34%	0.34%	2.50%	2.50%
45	0.52%	0.52%	2.00%	2.00%
50	0.66%	0.66%	2.00%	2.00%
55	1.45%	1.45%	0.50%	0.50%
60	1.60%	1.60%	0.50%	0.50%

c. Retirement Rates

Age	Rate
50	20.0%
51	10.0%
52	10.0%
53	10.0%
54	10.0%
55	20.0%
56	25.0%
57	25.0%
58	15.0%
59	15.0%
60	25.0%
61	50.0%
62	100.0%

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, 2016. 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, 2016 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 7.00%; the municipal bond rate is 2.00%; and the resulting Single Discount Rate is 7.00%.

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 2020 to 2069

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)
2020	\$ 29,155,132	\$ 116,793	\$ 29,271,925	\$ 3,053,576	\$ 4,034,134	\$ 0	\$ 7,087,710
2021	28,730,492	1,273,231	30,003,723	2,941,686	4,165,921	7,476	7,115,083
2022	28,303,046	2,450,770	30,753,816	3,035,982	4,386,972	49,759	7,472,713
2023	27,781,105	3,741,556	31,522,661	3,047,753	4,444,977	102,276	7,595,006
2024	27,271,817	5,038,911	32,310,728	2,991,881	4,363,491	137,657	7,493,029
2025	26,737,415	6,381,081	33,118,496	2,933,254	4,277,986	176,657	7,387,897
2026	26,194,035	7,752,423	33,946,458	2,873,642	4,191,046	217,902	7,282,590
2027	25,658,793	9,136,326	34,795,119	2,814,923	4,105,407	260,686	7,181,016
2028	25,028,780	10,636,217	35,664,997	2,745,807	4,004,605	308,282	7,058,694
2029	24,227,109	12,329,513	36,556,622	2,657,859	3,876,337	363,419	6,897,615
2030	23,280,533	14,190,005	37,470,538	2,554,014	3,724,885	425,161	6,704,060
2031	22,252,468	16,154,833	38,407,301	2,441,229	3,560,395	491,377	6,493,001
2032	21,212,352	18,155,132	39,367,484	2,327,122	3,393,976	560,014	6,281,112
2033	20,169,472	20,182,199	40,351,671	2,212,712	3,227,115	631,431	6,071,258
2034	19,072,067	22,288,396	41,360,463	2,092,320	3,051,531	707,495	5,851,346
2035	17,855,557	24,538,918	42,394,475	1,958,861	2,856,889	790,606	5,606,356
2036	16,540,276	26,914,061	43,454,337	1,814,567	2,646,444	879,928	5,340,939
2037	15,235,319	29,305,376	44,540,695	1,671,406	2,437,651	971,883	5,080,940
2038	14,002,724	31,651,488	45,654,212	1,536,183	2,240,436	1,064,823	4,841,442
2039	12,763,619	34,031,948	46,795,567	1,400,245	2,042,179	1,161,959	4,604,383
2040	11,438,182	36,527,274	47,965,456	1,254,837	1,830,109	1,265,704	4,350,650
2041	10,142,008	39,022,584	49,164,592	1,112,639	1,622,721	1,372,198	4,107,558
2042	8,907,850	41,485,857	50,393,707	977,244	1,425,256	1,479,951	3,882,451
2043	7,752,430	43,901,120	51,653,550	850,488	1,240,389	1,588,100	3,678,977
2044	6,681,795	46,263,094	52,944,889	733,033	1,069,087	1,696,349	3,498,469
2045	5,695,511	48,573,000	54,268,511	624,832	911,282	1,804,201	3,340,315
2046	4,768,652	50,856,572	55,625,224	523,150	762,984	1,912,298	3,198,432
2047	3,911,306	53,104,549	57,015,855	429,094	625,809	2,019,719	3,074,622
2048	3,181,234	55,260,017	58,441,251	349,000	508,997	2,123,658	2,981,655
2049	2,555,784	57,346,498	59,902,282	280,385	408,925	2,224,303	2,913,613
2050	2,010,736	59,389,103	61,399,839	220,590	321,718	2,322,555	2,864,863
2051	1,517,945	61,416,890	62,934,835	166,528	242,871	2,419,245	2,828,644
2052	1,103,905	63,404,301	64,508,206	121,105	176,625	2,512,968	2,810,698
2053	800,051	65,320,860	66,120,911	87,770	128,008	2,602,696	2,818,474
2054	561,344	67,212,590	67,773,934	61,583	89,815	2,689,828	2,841,226
2055	366,214	69,102,068	69,468,282	40,176	58,594	2,775,170	2,873,940
2056	219,991	70,984,998	71,204,989	24,134	35,199	2,858,539	2,917,872
2057	128,875	72,856,239	72,985,114	14,138	20,620	2,939,927	2,974,685
2058	67,591	74,742,151	74,809,742	7,415	10,815	3,020,570	3,038,800
2059	30,911	76,649,075	76,679,986	3,391	4,946	3,100,723	3,109,060
2060	17,338	78,579,648	78,596,986	1,902	2,774	3,180,690	3,185,366
2061	9,153	80,552,758	80,561,911	1,004	1,465	3,261,555	3,264,024
2062	3,209	82,572,750	82,575,959	352	513	3,343,866	3,344,731
2063	0	84,640,358	84,640,358	0	0	3,427,646	3,427,646
2064	0	86,756,367	86,756,367	0	0	3,513,015	3,513,015
2065	0	88,925,276	88,925,276	0	0	3,600,276	3,600,276
2066	0	91,148,408	91,148,408	0	0	3,689,575	3,689,575
2067	0	93,427,118	93,427,118	0	0	3,780,989	3,780,989
2068	0	95,762,796	95,762,796	0	0	3,874,560	3,874,560
2069	0	98,156,866	98,156,866	0	0	3,970,399	3,970,399



Single Discount Rate Development Projection of Contributions Ending December 31 for 2070 to 2119 (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)		
2070	\$ 0	\$ 100,610,788	\$ 100,610,788	\$ 0	\$ 0	\$ 4,068,637	\$ 4,068,637			
2071	0	103,126,058	103,126,058	0	0	4,169,400	4,169,400			
2072	0	105,704,209	105,704,209	0	0	4,272,812	4,272,812			
2073	0	108,346,814	108,346,814	0	0	4,378,958	4,378,958			
2074	0	111,055,484	111,055,484	0	0	4,487,888	4,487,888			
2075	0	113,831,871	113,831,871	0	0	4,599,675	4,599,675			
2076	0	116,677,668	116,677,668	0	0	4,714,420	4,714,420			
2077	0	119,594,610	119,594,610	0	0	4,832,216	4,832,216			
2078	0	122,584,475	122,584,475	0	0	4,953,115	4,953,115			
2079	0	125,649,087	125,649,087	0	0	5,077,145	5,077,145			
2080	0	128,790,314	128,790,314	0	0	5,204,367	5,204,367			
2081	0	132,010,072	132,010,072	0	0	5,334,864	5,334,864			
2082	0	135,310,324	135,310,324	0	0	5,468,688	5,468,688			
2083	0	138,693,082	138,693,082	0	0	5,605,881	5,605,881			
2084	0	142,160,409	142,160,409	0	0	5,746,505	5,746,505			
2085	0	145,714,419	145,714,419	0	0	5,890,621	5,890,621			
2086	0	149,357,279	149,357,279	0	0	6,038,296	6,038,296			
2087	0	153,091,211	153,091,211	0	0	6,189,613	6,189,613			
2088	0	156,918,491	156,918,491	0	0	6,344,654	6,344,654			
2089	0	160,841,453	160,841,453	0	0	6,503,497	6,503,497			
2090	0	164,862,489	164,862,489	0	0	6,666,230	6,666,230			
2091	0	168,984,051	168,984,051	0	0	6,832,957	6,832,957			
2092	0	173,208,652	173,208,652	0	0	7,003,790	7,003,790			
2093	0	177,538,868	177,538,868	0	0	7,178,835	7,178,835			
2094	0	181,977,340	181,977,340	0	0	7,358,200	7,358,200			
2095	0	186,526,774	186,526,774	0	0	7,542,004	7,542,004			
2096	0	191,189,943	191,189,943	0	0	7,730,371	7,730,371			
2097	0	195,969,692	195,969,692	0	0	7,923,429	7,923,429			
2098	0	200,868,934	200,868,934	0	0	8,121,303	8,121,303			
2099	0	205,890,657	205,890,657	0	0	8,324,124	8,324,124			
2100	0	211,037,923	211,037,923	0	0	8,532,025	8,532,025			
2101	0	216,313,871	216,313,871	0	0	8,745,142	8,745,142			
2102	0	221,721,718	221,721,718	0	0	8,963,611	8,963,611			
2103	0	227,264,761	227,264,761	0	0	9,187,572	9,187,572			
2104	0	232,946,380	232,946,380	0	0	9,417,164	9,417,164			
2105	0	238,770,040	238,770,040	0	0	9,652,529	9,652,529			
2106	0	244,739,291	244,739,291	0	0	9,893,812	9,893,812			
2107	0	250,857,773	250,857,773	0	0	10,141,158	10,141,158			
2108	0	257,129,217	257,129,217	0	0	10,394,717	10,394,717			
2109	0	263,557,447	263,557,447	0	0	10,654,638	10,654,638			
2110	0	270,146,383	270,146,383	0	0	10,921,077	10,921,077			
2111	0	276,900,043	276,900,043	0	0	11,194,191	11,194,191			
2112	0	283,822,544	283,822,544	0	0	11,474,142	11,474,142			
2113	0	290,918,108	290,918,108	0	0	11,761,095	11,761,095			
2114	0	298,191,061	298,191,061	0	0	12,055,221	12,055,221			
2115	0	305,645,838	305,645,838	0	0	12,356,693	12,356,693			
2116	0	313,286,984	313,286,984	0	0	12,665,694	12,665,694			
2117	0	321,119,159	321,119,159	0	0	12,982,407	12,982,407			
2118	0	329,147,138	329,147,138	0	0	13,307,023	13,307,023			
2119	0	337,375,816	337,375,816	0	0	13,639,740	13,639,740			



Single Discount Rate Development Projection of Plan Net Position Ending December 31 for 2020 to 2069

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.000%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2020	\$ 167,627,352	\$ 7,087,710	\$ 6,468,585	\$ 165,171	\$ 18,023,705	\$ 186,105,011
2021	186,105,011	7,115,083	7,268,147	159,920	13,016,582	198,808,609
2022	198,808,609	7,472,713	7,872,063	163,918	13,897,222	212,142,562
2023	212,142,562	7,595,006	8,526,729	168,016	14,812,140	225,854,963
2024	225,854,963	7,493,029	9,304,888	172,216	15,741,579	239,612,467
2025	239,612,467	7,387,897	10,063,426	176,522	16,674,739	253,435,156
2026	253,435,156	7,282,590	10,844,498	180,935	17,611,677	267,303,990
2027	267,303,990	7,181,016	11,640,758	185,458	18,551,447	281,210,238
2028	281,210,238	7,058,694	12,564,613	190,094	19,488,728	295,002,953
2029	295,002,953	6,897,615	13,655,682	194,847	20,410,971	308,461,009
2030	308,461,009	6,704,060	14,846,835	199,718	21,305,222	321,423,737
2031	321,423,737	6,493,001	16,007,763	204,711	22,165,234	333,869,498
2032	333,869,498	6,281,112	17,123,603	209,829	22,990,576	345,807,754
2033	345,807,754	6,071,258	18,212,782	215,074	23,781,376	357,232,532
2034	357,232,532	5,851,346	19,319,844	220,451	24,535,267	368,078,849
2035	368,078,849	5,606,356	20,500,765	225,963	25,245,257	378,203,735
2036	378,203,735	5,340,939	21,705,483	231,612	25,903,220	387,510,800
2037	387,510,800	5,080,940	22,880,411	237,402	26,505,142	395,979,069
2038	395,979,069	4,841,442	23,901,326	243,337	27,054,349	403,730,196
2039	403,730,196	4,604,383	24,912,090	249,420	27,553,783	410,726,853
2040	410,726,853	4,350,650	25,968,329	255,656	27,998,261	416,851,779
2041	416,851,779	4,107,558	26,912,438	262,047	28,385,937	422,170,788
2042	422,170,788	3,882,451	27,745,757	268,598	28,721,624	426,760,508
2043	426,760,508	3,678,977	28,479,791	275,313	29,010,415	430,694,797
2044	430,694,797	3,498,469	29,116,668	282,196	29,257,454	434,051,855
2045	434,051,855	3,340,315	29,592,272	289,251	29,470,399	436,981,045
2046	436,981,045	3,198,432	29,960,618	296,482	29,657,637	439,580,015
2047	439,580,015	3,074,622	30,221,086	303,895	29,826,088	441,955,743
2048	441,955,743	2,981,655	30,308,276	311,492	29,985,929	444,303,559
2049	444,303,559	2,913,613	30,268,092	319,279	30,149,049	446,778,851
2050	446,778,851	2,864,863	30,127,905	327,261	30,325,191	449,513,739
2051	449,513,739	2,828,644	29,908,906	335,443	30,522,641	452,620,674
2052	452,620,674	2,810,698	29,585,268	343,829	30,750,356	456,252,631
2053	456,252,631	2,818,474	29,150,649	352,424	31,019,519	460,587,552
2054	460,587,552	2,841,226	28,637,753	361,235	31,341,091	465,770,881
2055	465,770,881	2,873,940	28,063,087	370,266	31,724,512	471,935,981
2056	471,935,981	2,917,872	27,424,956	379,523	32,179,219	479,228,593
2057	479,228,593	2,974,685	26,722,394	389,011	32,715,504	487,807,378
2058	487,807,378	3,038,800	25,974,691	398,736	33,343,618	497,816,369
2059	497,816,369	3,109,060	25,186,508	408,704	34,073,441	509,403,658
2060	509,403,658	3,185,366	24,361,715	418,922	34,915,205	522,723,593
2061	522,723,593	3,264,024	23,513,521	429,395	35,879,131	537,923,832
2062	537,923,832	3,344,731	22,645,859	440,130	36,975,410	555,157,985
2063	555,157,985	3,427,646	21,760,182	451,133	38,214,750	574,589,065
2064	574,589,065	3,513,015	20,858,343	462,411	39,608,505	596,389,831
2065	596,389,831	3,600,276	19,944,358	473,972	41,168,612	620,740,389
2066	620,740,389	3,689,575	19,020,325	485,821	42,907,610	647,831,428
2067	647,831,428	3,780,989	18,088,562	497,967	44,838,770	677,864,658
2068	677,864,658	3,874,560	17,151,684	510,416	46,976,124	711,053,243
2069	711,053,243	3,970,399	16,212,561	523,176	49,334,497	747,622,401



Single Discount Rate Development

Projection of Plan Net Position

Ending December 31 for 2070 to 2119 (concluded)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.000%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2070	\$ 747,622,401	\$ 4,068,637	\$ 15,274,232	\$ 536,256	\$ 51,929,554	\$ 787,810,104
2071	787,810,104	4,169,400	14,339,924	549,662	54,777,847	831,867,765
2072	831,867,765	4,272,812	13,413,130	563,403	57,896,857	880,060,901
2073	880,060,901	4,378,958	12,497,545	577,489	61,305,048	932,669,873
2074	932,669,873	4,487,888	11,596,859	591,926	65,021,918	989,990,894
2075	989,990,894	4,599,675	10,714,598	606,724	69,068,084	1,052,337,331
2076	1,052,337,331	4,714,420	9,854,051	621,892	73,465,370	1,120,041,179
2077	1,120,041,179	4,832,216	9,018,457	637,439	78,236,909	1,193,454,407
2078	1,193,454,407	4,953,115	8,211,145	653,375	83,407,225	1,272,950,227
2079	1,272,950,227	5,077,145	7,435,365	669,710	89,002,331	1,358,924,628
2080	1,358,924,628	5,204,367	6,694,127	686,452	95,049,845	1,451,798,261
2081	1,451,798,261	5,334,864	5,990,120	703,614	101,579,122	1,552,018,513
2082	1,552,018,513	5,468,688	5,325,704	721,204	108,621,401	1,660,061,694
2083	1,660,061,694	5,605,881	4,702,827	739,234	116,209,955	1,776,435,469
2084	1,776,435,469	5,746,505	4,123,093	757,715	124,380,270	1,901,681,436
2085	1,901,681,436	5,890,621	3,587,631	776,658	133,170,219	2,036,377,986
2086	2,036,377,986	6,038,296	3,096,877	796,074	142,620,276	2,181,143,608
2087	2,181,143,608	6,189,613	2,650,719	815,976	152,773,743	2,336,640,269
2088	2,336,640,269	6,344,654	2,248,575	836,376	163,676,979	2,503,576,951
2089	2,503,576,951	6,503,497	1,889,388	857,285	175,379,652	2,682,713,427
2090	2,682,713,427	6,666,230	1,571,604	878,717	187,935,001	2,874,864,337
2091	2,874,864,337	6,832,957	1,293,230	900,685	201,400,124	3,080,903,504
2092	3,080,903,504	7,003,790	1,051,937	923,202	215,836,271	3,301,768,425
2093	3,301,768,425	7,178,835	845,155	946,282	231,309,160	3,538,464,983
2094	3,538,464,983	7,358,200	670,166	969,939	247,889,297	3,792,072,376
2095	3,792,072,376	7,542,004	524,052	994,188	265,652,332	4,063,748,472
2096	4,063,748,472	7,730,371	403,773	1,019,042	284,679,424	4,354,735,452
2097	4,354,735,452	7,923,429	306,268	1,044,518	305,057,633	4,666,365,729
2098	4,666,365,729	8,121,303	228,518	1,070,631	326,880,338	5,000,068,221
2099	5,000,068,221	8,324,124	167,575	1,097,397	350,247,667	5,357,375,040
2100	5,357,375,040	8,532,025	120,657	1,124,832	375,266,968	5,739,928,544
2101	5,739,928,544	8,745,142	85,248	1,152,953	402,053,297	6,149,488,782
2102	6,149,488,782	8,963,611	59,059	1,181,777	430,729,940	6,587,941,497
2103	6,587,941,497	9,187,572	40,086	1,211,321	461,428,973	7,057,306,635
2104	7,057,306,635	9,417,164	26,643	1,241,604	494,291,853	7,559,747,404
2105	7,559,747,404	9,652,529	17,333	1,272,644	529,470,057	8,097,580,014
2106	8,097,580,014	9,893,812	11,033	1,304,460	567,125,764	8,673,284,097
2107	8,673,284,097	10,141,158	6,869	1,337,072	607,432,582	9,289,513,896
2108	9,289,513,896	10,394,717	4,185	1,370,499	650,576,334	9,949,110,264
2109	9,949,110,264	10,654,638	2,494	1,404,761	696,755,903	10,655,113,550
2110	10,655,113,550	10,921,077	1,452	1,439,880	746,184,128	11,410,777,423
2111	11,410,777,423	11,194,191	827	1,475,877	799,088,779	12,219,583,690
2112	12,219,583,690	11,474,142	460	1,512,774	855,713,594	13,085,258,192
2113	13,085,258,192	11,761,095	249	1,550,594	916,319,388	14,011,787,832
2114	14,011,787,832	12,055,221	131	1,589,358	981,185,254	15,003,438,817
2115	15,003,438,817	12,356,693	68	1,629,092	1,050,609,831	16,064,776,181
2116	16,064,776,181	12,665,694	34	1,669,820	1,124,912,678	17,200,684,699
2117	17,200,684,699	12,982,407	16	1,711,565	1,204,435,736	18,416,391,262
2118	18,416,391,262	13,307,023	7	1,754,354	1,289,544,893	19,717,488,816
2119	19,717,488,816	13,639,740	5	1,798,213	1,380,631,661	21,109,961,999



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2020 to 2069

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
2020	\$ 167,627,352	\$ 6,468,585	\$ 6,468,585	\$ 0	\$ 6,253,417	\$ 0	\$ 6,253,417
2021	186,105,011	7,268,147	7,268,147	0	6,566,713	0	6,566,713
2022	198,808,609	7,872,063	7,872,063	0	6,647,053	0	6,647,053
2023	212,142,562	8,526,729	8,526,729	0	6,728,825	0	6,728,825
2024	225,854,963	9,304,888	9,304,888	0	6,862,529	0	6,862,529
2025	239,612,467	10,063,426	10,063,426	0	6,936,415	0	6,936,415
2026	253,435,156	10,844,498	10,844,498	0	6,985,780	0	6,985,780
2027	267,303,990	11,640,758	11,640,758	0	7,008,142	0	7,008,142
2028	281,210,238	12,564,613	12,564,613	0	7,069,472	0	7,069,472
2029	295,002,953	13,655,682	13,655,682	0	7,180,712	0	7,180,712
2030	308,461,009	14,846,835	14,846,835	0	7,296,326	0	7,296,326
2031	321,423,737	16,007,763	16,007,763	0	7,352,198	0	7,352,198
2032	333,869,498	17,123,603	17,123,603	0	7,350,179	0	7,350,179
2033	345,807,754	18,212,782	18,212,782	0	7,306,263	0	7,306,263
2034	357,232,532	19,319,844	19,319,844	0	7,243,340	0	7,243,340
2035	368,078,849	20,500,765	20,500,765	0	7,183,259	0	7,183,259
2036	378,203,735	21,705,483	21,705,483	0	7,107,831	0	7,107,831
2037	387,510,800	22,880,411	22,880,411	0	7,002,413	0	7,002,413
2038	395,979,069	23,901,326	23,901,326	0	6,836,316	0	6,836,316
2039	403,730,196	24,912,090	24,912,090	0	6,659,268	0	6,659,268
2040	410,726,853	25,968,329	25,968,329	0	6,487,488	0	6,487,488
2041	416,851,779	26,912,438	26,912,438	0	6,283,503	0	6,283,503
2042	422,170,788	27,745,757	27,745,757	0	6,054,267	0	6,054,267
2043	426,760,508	28,479,791	28,479,791	0	5,807,885	0	5,807,885
2044	430,694,797	29,116,668	29,116,668	0	5,549,312	0	5,549,312
2045	434,051,855	29,592,272	29,592,272	0	5,270,987	0	5,270,987
2046	436,981,045	29,960,618	29,960,618	0	4,987,474	0	4,987,474
2047	439,580,015	30,221,086	30,221,086	0	4,701,714	0	4,701,714
2048	441,955,743	30,308,276	30,308,276	0	4,406,802	0	4,406,802
2049	444,303,559	30,268,092	30,268,092	0	4,113,046	0	4,113,046
2050	446,778,851	30,127,905	30,127,905	0	3,826,165	0	3,826,165
2051	449,513,739	29,908,906	29,908,906	0	3,549,863	0	3,549,863
2052	452,620,674	29,585,268	29,585,268	0	3,281,729	0	3,281,729
2053	456,252,631	29,150,649	29,150,649	0	3,021,981	0	3,021,981
2054	460,587,552	28,637,753	28,637,753	0	2,774,589	0	2,774,589
2055	465,770,881	28,063,087	28,063,087	0	2,541,039	0	2,541,039
2056	471,935,981	27,424,956	27,424,956	0	2,320,802	0	2,320,802
2057	479,228,593	26,722,394	26,722,394	0	2,113,410	0	2,113,410
2058	487,807,378	25,974,691	25,974,691	0	1,919,884	0	1,919,884
2059	497,816,369	25,186,508	25,186,508	0	1,739,838	0	1,739,838
2060	509,403,658	24,361,715	24,361,715	0	1,572,769	0	1,572,769
2061	522,723,593	23,513,521	23,513,521	0	1,418,701	0	1,418,701
2062	537,923,832	22,645,859	22,645,859	0	1,276,963	0	1,276,963
2063	555,157,985	21,760,182	21,760,182	0	1,146,749	0	1,146,749
2064	574,589,065	20,858,343	20,858,343	0	1,027,310	0	1,027,310
2065	596,389,831	19,944,358	19,944,358	0	918,033	0	918,033
2066	620,740,389	19,020,325	19,020,325	0	818,224	0	818,224
2067	647,831,428	18,088,562	18,088,562	0	727,235	0	727,235
2068	677,864,658	17,151,684	17,151,684	0	644,456	0	644,456
2069	711,053,243	16,212,561	16,212,561	0	569,318	0	569,318



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2070 to 2119 (concluded)

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}
2070	\$ 747,622,401	\$ 15,274,232	\$ 15,274,232	\$ 0	\$ 501,278	\$ 0	\$ 501,278
2071	787,810,104	14,339,924	14,339,924	0	439,827	0	439,827
2072	831,867,765	13,413,130	13,413,130	0	384,487	0	384,487
2073	880,060,901	12,497,545	12,497,545	0	334,806	0	334,806
2074	932,669,873	11,596,859	11,596,859	0	290,352	0	290,352
2075	989,990,894	10,714,598	10,714,598	0	250,713	0	250,713
2076	1,052,337,331	9,854,051	9,854,051	0	215,492	0	215,492
2077	1,120,041,179	9,018,457	9,018,457	0	184,317	0	184,317
2078	1,193,454,407	8,211,145	8,211,145	0	156,839	0	156,839
2079	1,272,950,227	7,435,365	7,435,365	0	132,730	0	132,730
2080	1,358,924,628	6,694,127	6,694,127	0	111,680	0	111,680
2081	1,451,798,261	5,990,120	5,990,120	0	93,397	0	93,397
2082	1,552,018,513	5,325,704	5,325,704	0	77,605	0	77,605
2083	1,660,061,694	4,702,827	4,702,827	0	64,046	0	64,046
2084	1,776,435,469	4,123,093	4,123,093	0	52,477	0	52,477
2085	1,901,681,436	3,587,631	3,587,631	0	42,675	0	42,675
2086	2,036,377,986	3,096,877	3,096,877	0	34,427	0	34,427
2087	2,181,143,608	2,650,719	2,650,719	0	27,540	0	27,540
2088	2,336,640,269	2,248,575	2,248,575	0	21,833	0	21,833
2089	2,503,576,951	1,889,388	1,889,388	0	17,145	0	17,145
2090	2,682,713,427	1,571,604	1,571,604	0	13,329	0	13,329
2091	2,874,864,337	1,293,230	1,293,230	0	10,250	0	10,250
2092	3,080,903,504	1,051,937	1,051,937	0	7,792	0	7,792
2093	3,301,768,425	845,155	845,155	0	5,851	0	5,851
2094	3,538,464,983	670,166	670,166	0	4,336	0	4,336
2095	3,792,072,376	524,052	524,052	0	3,169	0	3,169
2096	4,063,748,472	403,773	403,773	0	2,282	0	2,282
2097	4,354,735,452	306,268	306,268	0	1,618	0	1,618
2098	4,666,365,729	228,518	228,518	0	1,128	0	1,128
2099	5,000,068,221	167,575	167,575	0	773	0	773
2100	5,357,375,040	120,657	120,657	0	520	0	520
2101	5,739,928,544	85,248	85,248	0	343	0	343
2102	6,149,488,782	59,059	59,059	0	222	0	222
2103	6,587,941,497	40,086	40,086	0	141	0	141
2104	7,057,306,635	26,643	26,643	0	88	0	88
2105	7,559,747,404	17,333	17,333	0	53	0	53
2106	8,097,580,014	11,033	11,033	0	32	0	32
2107	8,673,284,097	6,869	6,869	0	18	0	18
2108	9,289,513,896	4,185	4,185	0	11	0	11
2109	9,949,110,264	2,494	2,494	0	6	0	6
2110	10,655,113,550	1,452	1,452	0	3	0	3
2111	11,410,777,423	827	827	0	2	0	2
2112	12,219,583,690	460	460	0	1	0	1
2113	13,085,258,192	249	249	0	0	0	0
2114	14,011,787,832	131	131	0	0	0	0
2115	15,003,438,817	68	68	0	0	0	0
2116	16,064,776,181	34	34	0	0	0	0
2117	17,200,684,699	16	16	0	0	0	0
2118	18,416,391,262	7	7	0	0	0	0
2119	19,717,488,816	5	5	0	0	0	0
Totals	\$ 233,933,618	\$ 233,933,618	\$ 233,933,618	\$ 0	\$ 233,933,618	\$ 0	\$ 233,933,618



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	<p>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:</p> <ol style="list-style-type: none">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; and2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.
Entry Age Actuarial Cost Method (EAN)	<p>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.</p>
Fiduciary Net Position	<p>The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.</p>
GASB	<p>The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.</p>
Money-Weighted Rate of Return	<p>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.</p>
Multiple-Employer Defined Benefit Pension Plan	<p>A multiple-employer plan is a defined benefit pension plan that is used to provide pensions to the employees of more than one employer.</p>
Municipal Bond Rate	<p>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.</p>
Net Pension Liability (NPL)	<p>The NPL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit pension plan.</p>



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.