

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, 2019





March 29, 2020

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. This information was checked for internal consistency, but it was not audited.

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, 2017 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.

To the best of our knowledge, the information contained with this report is accurate and fairly represents the actuarial position of the Wyoming Paid Firemen's Retirement Fund Plan B. 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.
The signing individuals are independent of the plan sponsor.

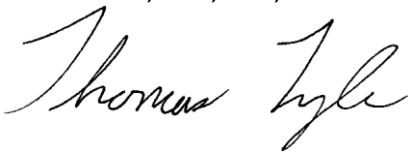
Thomas A. Lyle and Thomas A. Lyle are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,

Gabriel, Roeder, Smith & Company



By _____
Paul T. Wood, ASA, FCA, MAAA



By _____
Thomas A. Lyle, ASA, EA, MAAA



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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of December 31, 2019

	2019
Actuarial Valuation Date	January 1, 2019
Measurement Date of the Net Pension Liability	December 31, 2019
Employer's Fiscal Year Ending Date (Reporting Date)	December 31, 2019

Membership

Number of	
- Retirees and Beneficiaries	137
- Inactive, Nonretired Members	79
- Active Members	365
- Total	581
Covered Payroll	\$ 28,028,382

Net Pension Liability

Total Pension Liability	\$ 174,734,808
Plan Fiduciary Net Position	167,627,352
Net Pension Liability	\$ 7,107,456
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	95.93 %
Net Pension Liability as a Percentage of Covered Payroll	25.36 %

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*	2.75 %
Last year ending December 31 in the 2019 to 2118 projection period for which projected benefit payments are fully funded	2118

Total Pension Expense \$ 4,923,575

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	\$ 408,167	\$ 6,115,424
Changes in assumptions	18,457,685	22,499,204
Net difference between projected and actual earnings on pension plan investments	9,397,721	16,525,738
Total	\$ 28,263,573	\$ 45,140,366

*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, 2019. 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, 2019.

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 2118. 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, 2019 and a measurement date of December 31, 2019.

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 2.75% (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, 2019

A. Expense

1. Service Cost	\$	6,563,232
2. Interest on the Total Pension Liability		11,411,054
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(2,787,467)
5. Projected Earnings on Plan Investments (made negative for addition here)		(9,898,929)
6. Pension Plan Administrative Expense		138,634
7. Other Changes in Plan Fiduciary Net Position		6,402
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		(762,310)
9. Recognition of Outflow (Inflow) of Resources due to Assets		252,959
10. Total Pension Expense	\$	4,923,575 *

* 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, 2019

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$	419,684
2. Assumption Changes (gains) or losses	\$	0
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		6.9999
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	\$	59,956
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	\$	59,956
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	\$	359,728
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	\$	359,728

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$	(16,212,170)
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	\$	(3,242,434)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$	(12,969,736)



History of Deferred Outflows and Inflows of Resources by Source

Fiscal Year Ended December 31, 2019

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		Deferred Net (Inflows)/Outflows at Measurement Date
	2014	2015	2016	2017	2018	2019	Total	
Total	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684		
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	(1,091,418)	\$ (5,707,257)
2021	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(1,091,418)	-
2022	-	14,325	(11,641)	(279,835)	(874,223)	59,956	(1,091,418)	-
2023	-	5,464	(11,641)	(279,835)	(874,223)	59,956	(1,100,279)	-
2024	-	-	(575)	(231,200)	(874,223)	59,956	(1,046,042)	-
Thereafter	-	-	-	-	(346,630)	59,948	(286,682)	-
	\$ -	\$ 120,064	\$ (93,703)	\$ (2,190,045)	\$ (6,466,191)	\$ 419,684	\$ (8,210,191)	

Assumption changes - Net (inflows)/outflows of resources

Recognition Period	8.7186	8.3813	8.0494	7.8262	7.3965	6.9999		
	2014	2015	2016	2017	2018	2019	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	\$ (4,041,519)
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	-
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)	-
Thereafter	-	-	-	-	(1,597,722)	-	(1,597,722)	-
	\$ -	\$ 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		
	2014	2015	2016	2017	2018	2019	Total	
Total	\$ 3,185,937	\$ 10,250,451	\$ 680,474	\$ (8,890,008)	\$ 15,436,045	\$ (16,212,170)		
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)	(1,797,133)	\$ (7,128,017)
2021	-	-	-	(1,778,000)	3,087,209	(3,242,434)	(1,933,225)	-
2022	-	-	-	-	3,087,209	(3,242,434)	(155,225)	-
2023	-	-	-	-	-	(3,242,434)	(3,242,434)	-
2024	-	-	-	-	-	-	-	-
Thereafter	-	-	-	-	-	-	-	-
	\$ 3,185,937	\$ 10,250,451	\$ 680,474	\$ (8,890,008)	\$ 15,436,045	\$ (16,212,170)	\$ 4,450,729	

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

	2014	2015	2016	2017	2018	2019	Total	
Total	\$ 3,185,937	\$ 30,535,553	\$ (911,288)	\$ 5,658,867	\$ (20,834,865)	\$ (15,792,486)		
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)	(2,559,443)	\$ (16,876,793)
2021	-	2,420,281	(197,749)	80,996	(1,816,585)	(3,182,478)	(2,695,535)	-
2022	-	2,420,281	(197,749)	1,858,996	(1,816,585)	(3,182,478)	(917,535)	-
2023	-	922,854	(197,749)	1,858,996	(4,903,794)	(3,182,478)	(5,502,171)	-
2024	-	-	(9,770)	1,535,903	(4,903,794)	59,956	(3,317,705)	-
Thereafter	-	-	-	-	(1,944,352)	59,948	(1,884,404)	-
	\$ 3,185,937	\$ 30,535,553	\$ (911,288)	\$ 5,658,867	\$ (20,834,865)	\$ (15,792,486)	\$ 1,841,718	



Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Fiscal Year Ended December 31, 2019

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	\$ 5,381,378	\$ (762,310)
2. Due to Assets	5,273,395	5,020,436	252,959
3. Total	\$ 9,892,463	\$ 10,401,814	\$ (509,351)

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	\$ 1,165,699	\$ (1,091,418)
2. Assumption Changes	4,544,787	4,215,679	329,108
3. Net Difference between projected and actual earnings on pension plan investments	5,273,395	5,020,436	252,959
4. Total	\$ 9,892,463	\$ 10,401,814	\$ (509,351)

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	\$ 408,167	\$ 6,115,424	\$ (5,707,257)
2. Assumption Changes	18,457,685	22,499,204	(4,041,519)
3. Net Difference between projected and actual earnings on pension plan investments	9,397,721	16,525,738	(7,128,017)
4. Total	\$ 28,263,573	\$ 45,140,366	\$ (16,876,793)

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
2020	\$ (2,559,443)
2021	(2,695,535)
2022	(917,535)
2023	(5,502,171)
2024	(3,317,705)
Thereafter	(1,884,404)
Total	\$ (16,876,793)



Statement of Fiduciary Net Position as of December 31, 2019

	2019
Assets	
Cash and Deposits	\$ 6,880,730
Receivables	
Accounts Receivable - Sale of Investments	\$ 604,394
Accrued Interest and Other Dividends	364,797
Contributions	560,018
Accounts Receivable - Other	3,755,749
Total Receivables	\$ 5,284,958
Investments	
Fixed Income	\$ 28,178,259
Equities	77,634,763
Private Markets	26,882,097
Marketable Alternatives	27,868,775
Other	7,537,106
Total Investments	\$ 168,101,000
Total Assets	\$ 180,266,688
Liabilities	
Payables	
Accounts Payable - Purchase of Investments	\$ 12,076,761
Accrued Expenses	562,575
Accounts Payable - Other	0
Total Liabilities	\$ 12,639,336
Net Position Restricted for Pensions	\$ 167,627,352

Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2019

	2019
Additions	
Contributions	
Employer	\$ 3,515,953
Employee	2,707,081
Other Employer Contributions	245
Other Employee Contributions	80,386
Total Contributions	\$ 6,303,665
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 24,804,132
Interest and Dividends	2,556,135
Less Investment Expense	(1,249,168)
Net Investment Income	\$ 26,111,099
Other	\$ 0
Total Additions	\$ 32,414,764
 Deductions	
Benefit Payments, including Refunds of Employee Contributions	\$ 5,956,099
Pension Plan Administrative Expense	138,634
Other	6,402
Total Deductions	\$ 6,101,135
Net Increase in Net Position	\$ 26,313,629
 Net Position Restricted for Pensions	
Beginning of Year	\$ 141,313,723
End of Year	\$ 167,627,352

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, 2019

A. Total pension liability	
1. Service cost	\$ 6,563,232
2. Interest on the total pension liability	11,411,054
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the total pension liability	419,684
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(5,956,099)
7. Net change in total pension liability	<u>12,437,871</u>
8. Total pension liability – beginning	<u>162,296,937</u>
9. Total pension liability – ending	<u><u>\$ 174,734,808</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 3,516,198
2. Contributions – employee	2,787,467
3. Net investment income	26,111,099
4. Benefit payments	(5,921,008)
5. Refunds	(35,091)
6. Pension plan administrative expense	(138,634)
7. Other	(6,402)
8. Net change in plan fiduciary net position	<u>26,313,629</u>
9. Plan fiduciary net position – beginning	<u>141,313,723</u>
10. Plan fiduciary net position – ending	<u><u>\$ 167,627,352</u></u>
C. Net pension liability	<u><u>\$ 7,107,456</u></u>
D. Plan fiduciary net position as a percentage of the total pension liability	95.93 %
E. Covered-employee payroll	\$ 28,028,382
F. Net pension liability as a percentage of covered-employee payroll	25.36 %



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,	2019	2018	2017	2016	2015	2014
Total pension liability						
Service cost	\$ 6,563,232	\$ 6,259,734	\$ 8,912,364	\$ 7,422,919	\$ 7,421,040	\$ 5,367,034
Interest on the total pension liability	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
Difference between expected and actual experience	419,684	(6,466,191)	(2,190,045)	(93,703)	120,064	0
Changes of assumptions	0	(29,804,719)	16,738,920	(1,498,059)	20,165,038	0
Benefit payments, including refunds of employee contributions	(5,956,099)	(5,538,105)	(5,174,732)	(4,415,543)	(3,787,302)	(3,153,284)
Net change in total pension liability	12,437,871	(24,955,728)	28,204,313	11,159,804	32,855,903	10,407,947
Total pension liability - beginning	162,296,937	187,252,665	159,048,352	147,888,548	115,032,645	104,624,698
Total pension liability - ending (a)	\$ 174,734,808	\$ 162,296,937	\$ 187,252,665	\$ 159,048,352	\$ 147,888,548	\$ 115,032,645
Plan fiduciary net position						
Employer contributions	\$ 3,516,198	\$ 3,356,547	\$ 3,230,196	\$ 3,370,961	\$ 3,273,668	\$ 3,184,045
Employee contributions	2,787,467	2,821,872	2,773,651	2,858,418	2,924,752	2,414,435
Pension plan net investment income	26,111,099	(5,197,809)	17,838,337	8,477,077	(1,158,548)	5,303,618
Benefit payments	(5,921,008)	(5,474,014)	(5,054,595)	(4,343,944)	(3,712,240)	(3,090,522)
Refunds	(35,091)	(64,091)	(120,137)	(71,599)	(75,062)	(62,762)
Pension plan administrative expense	(138,634)	(140,922)	(130,931)	(112,132)	(90,438)	(87,431)
Other	(6,402)	(5,708)	(5,700)	(5,700)	(5,444)	264,234
Net change in plan fiduciary net position	26,313,629	(4,704,125)	18,530,821	10,173,081	1,156,688	7,925,617
Plan fiduciary net position - beginning	141,313,723	146,017,848	127,487,027	117,313,946	116,157,258	108,231,641
Plan fiduciary net position - ending (b)	\$ 167,627,352	\$ 141,313,723	\$ 146,017,848	\$ 127,487,027	\$ 117,313,946	\$ 116,157,258
Net pension liability - ending (a) - (b)	\$ 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	95.93 %	87.07 %	77.98 %	80.16 %	79.33 %	100.98 %
Covered-employee payroll	\$ 28,028,382	\$ 26,811,084	\$ 28,209,686	\$ 26,390,481	\$ 25,986,443	\$ 24,552,559
Projected valuation payroll	\$ 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	25.36 %	78.26 %	146.17 %	119.59 %	117.66 %	(4.58)%

Notes to Schedule:

For 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 %

* 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 %

* 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, 2019
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	29 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 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 13.00% of salary and will increase contributions by 1.00% per year over the next three years to an ultimate rate of 16.00% of salary.
Employees are currently contributing at the rate of 9.745% of salary and will increase contributions by 0.50% per year over the next three 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 %

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

1% Decrease	Current Single Discount Rate Assumption	1% Increase
6.00%	7.00%	8.00%
\$ 31,459,950	\$ 7,107,456	\$ (13,089,140)

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	137
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	79
Active Plan Members	<u>365</u>
Total Plan Members	581

SECTION E

SUMMARY OF BENEFITS

Summary of Plan Provisions

Covered Members	Any person who is employed by the Wyoming Paid Firemen Retirement Fund Plan B for members hired on or after July 1, 1981.
Final Average Salary	Employee's average annual salary for the highest paid three continuous years of service.
Service Retirement	
Eligibility	Age 50 with four or more years of service.
Monthly Benefit	2.80% of employee's highest three-year average salary for each year of credited service, with a max of 25 years or 70%.
Vesting	Any employee who has left employment with four or more years of service, and who has not withdrawn accumulated contributions, is eligible to receive the above benefit or can elect to receive a lump-sum refund of contributions without interest. An employee who terminates with less than four years of service is only eligible for the lump-sum benefit.
Disability Retirement	
Eligibility	No age or service eligibility requirements. Partial or total disability resulting from an individual and specific act, the type of which would normally occur only while employed as an employee, or as otherwise defined under W.S. 15-5-405.
Monthly Benefit	50.0% of Final Average Salary.



Pre-retirement Death Benefit

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

Post-retirement Death Benefit

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

Employee	9.245% of salary. The employer may subsidize all or part of the employee contributions. The contribution will increase by 0.50% for the next four years to an ultimate rate of 11.245%.
Employer	12.00% of salary. The contribution will increase by 1.00% for the next four years to an ultimate rate of 16.00%.
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, 2019 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 2019 using Scale MP-2017					
	Male	Female	Male	Female	Male	Female
20	0.04%	0.02%	0.04%	0.01%	0.05%	0.02%
25	0.05%	0.02%	0.06%	0.03%	0.20%	0.09%
30	0.05%	0.02%	0.09%	0.06%	0.51%	0.24%
35	0.06%	0.03%	0.13%	0.09%	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%	0.24%	1.92%	1.15%
55	0.27%	0.17%	0.55%	0.32%	2.26%	1.45%
60	0.47%	0.25%	0.78%	0.47%	2.67%	1.74%
65	0.83%	0.36%	1.11%	0.70%	3.18%	2.05%
70	1.35%	0.60%	1.63%	1.08%	3.92%	2.69%
75			2.56%	1.76%	5.18%	3.91%
80			4.27%	2.96%	7.31%	5.88%
85			7.44%	5.18%	10.87%	8.80%
90			13.11%	9.20%	16.69%	12.94%
95			21.02%	15.32%	23.77%	19.05%
100			30.49%	23.34%	31.73%	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%	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 2.5% 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 2.75%; 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 2019 to 2068

Year	Payroll for Current Employees		Payroll for Future Employees		Total Employee Payroll	Employer Contributions		Total Contributions
	(a)	(b)=max(0,(c)-(a))	(c)	(d)		(e)=(a)*ER%	(f) = (b)*netER%	
2019	\$ 28,662,790	\$ 66,302	\$ 28,729,092	\$ 2,787,467	\$ 3,516,198	\$ 0	\$ 6,303,665	
2020	28,324,077	1,123,242	29,447,319	3,055,628	3,823,750	0	6,879,378	
2021	28,016,858	2,166,644	30,183,502	3,327,069	4,062,444	17,122	7,406,635	
2022	27,590,277	3,347,813	30,938,090	3,589,593	4,276,493	75,102	7,941,188	
2023	27,114,512	4,597,030	31,711,542	3,767,589	4,338,322	136,782	8,242,693	
2024	26,642,501	5,861,830	32,504,331	3,623,313	4,262,800	175,080	8,061,193	
2025	26,094,503	7,222,436	33,316,939	3,547,909	4,175,121	217,560	7,940,590	
2026	25,526,715	8,623,147	34,149,862	3,471,221	4,084,274	262,357	7,817,852	
2027	24,970,504	10,033,105	35,003,609	3,395,239	3,995,281	308,650	7,699,170	
2028	24,316,873	11,561,826	35,878,699	3,304,521	3,890,700	360,315	7,555,536	
2029	23,470,098	13,305,568	36,775,666	3,186,869	3,755,216	420,357	7,362,442	
2030	22,451,613	15,243,445	37,695,058	3,046,955	3,592,258	487,914	7,127,127	
2031	21,345,311	17,292,123	38,637,434	2,895,726	3,415,250	560,339	6,871,315	
2032	20,259,031	19,344,339	39,603,370	2,748,903	3,241,445	634,396	6,624,744	
2033	19,189,564	21,403,890	40,593,454	2,602,448	3,070,330	710,632	6,383,410	
2034	18,047,239	23,561,051	41,608,290	2,446,083	2,887,558	792,523	6,126,164	
2035	16,786,620	25,861,877	42,648,497	2,272,619	2,685,859	881,726	5,840,204	
2036	15,441,921	28,272,788	43,714,709	2,089,446	2,470,707	976,755	5,536,908	
2037	14,110,314	30,697,263	44,807,577	1,908,319	2,257,650	1,074,555	5,240,524	
2038	12,884,766	33,043,000	45,927,766	1,743,470	2,061,563	1,172,179	4,977,212	
2039	11,666,254	35,409,706	47,075,960	1,575,333	1,866,601	1,273,667	4,715,601	
2040	10,356,953	37,895,906	48,252,859	1,397,220	1,657,113	1,382,065	4,436,398	
2041	9,080,603	40,378,577	49,459,180	1,223,776	1,452,897	1,492,862	4,169,535	
2042	7,868,403	42,827,257	50,695,660	1,059,562	1,258,945	1,604,312	3,922,819	
2043	6,758,132	45,204,920	51,963,052	909,530	1,081,301	1,714,852	3,705,683	
2044	5,756,858	47,505,270	53,262,128	774,204	921,097	1,824,144	3,519,445	
2045	4,845,852	49,747,829	54,593,681	650,927	775,336	1,932,565	3,358,828	
2046	3,997,652	51,960,871	55,958,523	535,840	639,624	2,040,662	3,216,126	
2047	3,228,477	54,129,009	57,357,486	432,282	516,556	2,146,769	3,095,607	
2048	2,574,696	56,216,727	58,791,423	344,443	411,951	2,249,081	3,005,475	
2049	2,022,230	58,238,979	60,261,209	270,100	323,557	2,348,323	2,941,980	
2050	1,561,809	60,205,930	61,767,739	208,413	249,889	2,444,642	2,902,944	
2051	1,153,614	62,158,318	63,311,932	152,821	184,578	2,539,335	2,876,734	
2052	810,304	64,084,426	64,894,730	107,461	129,649	2,631,378	2,868,488	
2053	561,999	65,955,099	66,517,098	74,220	89,920	2,719,597	2,883,737	
2054	366,326	67,813,699	68,180,025	48,093	58,612	2,805,682	2,912,387	
2055	215,291	69,669,235	69,884,526	27,927	34,447	2,890,234	2,952,608	
2056	112,303	71,519,336	71,631,639	14,520	17,969	2,973,171	3,005,660	
2057	55,527	73,366,903	73,422,430	7,142	8,884	3,054,629	3,070,655	
2058	21,520	75,236,471	75,257,991	2,629	3,443	3,135,650	3,141,722	
2059	3,585	77,135,856	77,139,441	414	574	3,216,755	3,217,743	
2060	0	79,067,927	79,067,927	0	0	3,298,542	3,298,542	
2061	0	81,044,625	81,044,625	0	0	3,381,808	3,381,808	
2062	0	83,070,741	83,070,741	0	0	3,466,686	3,466,686	
2063	0	85,147,510	85,147,510	0	0	3,553,252	3,553,252	
2064	0	87,276,198	87,276,198	0	0	3,641,677	3,641,677	
2065	0	89,458,103	89,458,103	0	0	3,732,083	3,732,083	
2066	0	91,694,556	91,694,556	0	0	3,824,633	3,824,633	
2067	0	93,986,920	93,986,920	0	0	3,919,402	3,919,402	
2068	0	96,336,593	96,336,593	0	0	4,016,414	4,016,414	



Single Discount Rate Development Projection of Contributions Ending December 31 for 2069 to 2118 (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)		
2069	\$ 0	\$ 98,745,008	\$ 98,745,008	\$ 0	\$ 0	\$ 4,115,800	\$ 4,115,800			
2070	0	101,213,633	101,213,633	0	0	4,217,715	4,217,715			
2071	0	103,743,974	103,743,974	0	0	4,322,295	4,322,295			
2072	0	106,337,573	106,337,573	0	0	4,429,641	4,429,641			
2073	0	108,996,012	108,996,012	0	0	4,539,813	4,539,813			
2074	0	111,720,912	111,720,912	0	0	4,652,860	4,652,860			
2075	0	114,513,935	114,513,935	0	0	4,768,873	4,768,873			
2076	0	117,376,783	117,376,783	0	0	4,887,960	4,887,960			
2077	0	120,311,203	120,311,203	0	0	5,010,187	5,010,187			
2078	0	123,318,983	123,318,983	0	0	5,135,603	5,135,603			
2079	0	126,401,958	126,401,958	0	0	5,264,247	5,264,247			
2080	0	129,562,007	129,562,007	0	0	5,396,177	5,396,177			
2081	0	132,801,057	132,801,057	0	0	5,531,479	5,531,479			
2082	0	136,121,083	136,121,083	0	0	5,670,207	5,670,207			
2083	0	139,524,110	139,524,110	0	0	5,812,416	5,812,416			
2084	0	143,012,213	143,012,213	0	0	5,958,169	5,958,169			
2085	0	146,587,518	146,587,518	0	0	6,107,534	6,107,534			
2086	0	150,252,206	150,252,206	0	0	6,260,585	6,260,585			
2087	0	154,008,511	154,008,511	0	0	6,417,405	6,417,405			
2088	0	157,858,724	157,858,724	0	0	6,578,084	6,578,084			
2089	0	161,805,192	161,805,192	0	0	6,742,707	6,742,707			
2090	0	165,850,322	165,850,322	0	0	6,911,375	6,911,375			
2091	0	169,996,580	169,996,580	0	0	7,084,192	7,084,192			
2092	0	174,246,495	174,246,495	0	0	7,261,271	7,261,271			
2093	0	178,602,657	178,602,657	0	0	7,442,725	7,442,725			
2094	0	183,067,723	183,067,723	0	0	7,628,669	7,628,669			
2095	0	187,644,416	187,644,416	0	0	7,819,228	7,819,228			
2096	0	192,335,526	192,335,526	0	0	8,014,527	8,014,527			
2097	0	197,143,914	197,143,914	0	0	8,214,695	8,214,695			
2098	0	202,072,512	202,072,512	0	0	8,419,862	8,419,862			
2099	0	207,124,325	207,124,325	0	0	8,630,162	8,630,162			
2100	0	212,302,433	212,302,433	0	0	8,845,733	8,845,733			
2101	0	217,609,994	217,609,994	0	0	9,066,713	9,066,713			
2102	0	223,050,244	223,050,244	0	0	9,293,242	9,293,242			
2103	0	228,626,500	228,626,500	0	0	9,525,465	9,525,465			
2104	0	234,342,163	234,342,163	0	0	9,763,525	9,763,525			
2105	0	240,200,717	240,200,717	0	0	10,007,570	10,007,570			
2106	0	246,205,735	246,205,735	0	0	10,257,746	10,257,746			
2107	0	252,360,878	252,360,878	0	0	10,514,207	10,514,207			
2108	0	258,669,900	258,669,900	0	0	10,777,104	10,777,104			
2109	0	265,136,648	265,136,648	0	0	11,046,594	11,046,594			
2110	0	271,765,064	271,765,064	0	0	11,322,838	11,322,838			
2111	0	278,559,191	278,559,191	0	0	11,605,998	11,605,998			
2112	0	285,523,171	285,523,171	0	0	11,896,243	11,896,243			
2113	0	292,661,250	292,661,250	0	0	12,193,744	12,193,744			
2114	0	299,977,781	299,977,781	0	0	12,498,679	12,498,679			
2115	0	307,477,226	307,477,226	0	0	12,811,230	12,811,230			
2116	0	315,164,157	315,164,157	0	0	13,131,584	13,131,584			
2117	0	323,043,261	323,043,261	0	0	13,459,934	13,459,934			
2118	0	331,119,343	331,119,343	0	0	13,796,477	13,796,477			
2119	0	339,397,327	339,397,327	0	0	14,141,389	14,141,389			



Single Discount Rate Development Projection of Plan Net Position Ending December 31 for 2019 to 2068

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)
2019	\$ 141,313,723	\$ 6,303,665	\$ 5,956,099	\$ 145,036	\$ 26,111,099	\$ 167,627,352
2020	167,627,352	6,879,378	6,568,842	153,936	11,739,303	179,523,255
2021	179,523,255	7,406,635	7,170,317	157,784	12,569,330	192,171,119
2022	192,171,119	7,941,188	7,787,229	161,729	13,451,711	205,615,060
2023	205,615,060	8,242,693	8,469,363	165,772	14,379,551	219,602,169
2024	219,602,169	8,061,193	9,270,202	169,916	15,324,706	233,547,949
2025	233,547,949	7,940,590	10,062,893	174,164	16,269,340	247,520,822
2026	247,520,822	7,817,852	10,869,725	178,518	17,215,306	261,505,737
2027	261,505,737	7,699,170	11,685,608	182,981	18,161,940	275,498,257
2028	275,498,257	7,555,536	12,636,748	187,556	19,103,590	289,333,080
2029	289,333,080	7,362,442	13,750,415	192,245	20,026,903	302,779,765
2030	302,779,765	7,127,127	14,967,242	197,051	20,918,040	315,660,639
2031	315,660,639	6,871,315	16,171,312	201,977	21,769,300	327,927,965
2032	327,927,965	6,624,744	17,302,757	207,027	22,580,425	339,623,349
2033	339,623,349	6,383,410	18,400,383	212,202	23,352,852	350,747,026
2034	350,747,026	6,126,164	19,533,464	217,507	24,083,489	361,205,708
2035	361,205,708	5,840,204	20,707,783	222,945	24,765,164	370,880,348
2036	370,880,348	5,536,908	21,908,383	228,519	25,390,451	379,670,805
2037	379,670,805	5,240,524	23,077,316	234,232	25,955,168	387,554,949
2038	387,554,949	4,977,212	24,063,573	240,087	26,463,861	394,692,362
2039	394,692,362	4,715,601	25,030,700	246,090	26,920,995	401,052,168
2040	401,052,168	4,436,398	26,038,829	252,242	27,321,675	406,519,170
2041	406,519,170	4,169,535	26,926,946	258,548	27,664,408	411,167,619
2042	411,167,619	3,922,819	27,711,717	265,012	27,954,085	415,067,794
2043	415,067,794	3,705,683	28,376,150	271,637	28,196,537	418,322,226
2044	418,322,226	3,519,445	28,916,411	278,428	28,399,116	421,045,948
2045	421,045,948	3,358,828	29,296,059	285,388	28,570,947	423,394,277
2046	423,394,277	3,216,126	29,560,843	292,523	28,721,064	425,478,100
2047	425,478,100	3,095,607	29,713,551	299,836	28,857,279	427,417,599
2048	427,417,599	3,005,475	29,716,367	307,332	28,989,588	429,388,962
2049	429,388,962	2,941,980	29,597,630	315,015	29,129,220	431,547,516
2050	431,547,516	2,902,944	29,373,766	322,891	29,286,407	434,040,210
2051	434,040,210	2,876,734	29,074,499	330,963	29,470,013	436,981,495
2052	436,981,495	2,868,488	28,690,919	339,237	29,688,533	440,508,360
2053	440,508,360	2,883,737	28,209,225	347,718	29,952,220	444,787,375
2054	444,787,375	2,912,387	27,659,220	356,411	30,271,363	449,955,493
2055	449,955,493	2,952,608	27,048,696	365,321	30,655,215	456,149,299
2056	456,149,299	3,005,660	26,377,328	374,454	31,113,393	463,516,569
2057	463,516,569	3,070,655	25,649,360	383,816	31,656,064	472,210,113
2058	472,210,113	3,141,722	24,882,332	393,411	32,293,120	482,369,211
2059	482,369,211	3,217,743	24,082,196	403,246	33,034,065	494,135,577
2060	494,135,577	3,298,542	23,252,441	413,328	33,888,694	507,657,044
2061	507,657,044	3,381,808	22,402,021	423,661	34,866,967	523,080,137
2062	523,080,137	3,466,686	21,535,160	434,252	35,978,967	540,556,378
2063	540,556,378	3,553,252	20,653,895	445,109	37,235,231	560,245,857
2064	560,245,857	3,641,677	19,760,270	456,236	38,646,903	582,317,930
2065	582,317,930	3,732,083	18,856,293	467,642	40,225,770	606,951,848
2066	606,951,848	3,824,633	17,944,091	479,333	41,984,314	634,337,370
2067	634,337,370	3,919,402	17,026,022	491,317	43,935,738	664,675,171
2068	664,675,171	4,016,414	16,104,717	503,600	46,093,999	698,177,267



Single Discount Rate Development

Projection of Plan Net Position

Ending December 31 for 2069 to 2118 (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)
2069	\$ 698,177,267	\$ 4,115,800	\$ 15,183,047	\$ 516,190	\$ 48,473,845	\$ 735,067,675
2070	735,067,675	4,217,715	14,264,021	529,094	51,090,858	775,583,134
2071	775,583,134	4,322,295	13,350,820	542,322	53,961,505	819,973,791
2072	819,973,791	4,429,641	12,446,933	555,880	57,103,179	868,503,798
2073	868,503,798	4,539,813	11,556,080	569,777	60,534,245	921,452,000
2074	921,452,000	4,652,860	10,681,988	584,021	64,274,094	979,112,945
2075	979,112,945	4,768,873	9,828,219	598,622	68,343,227	1,041,798,203
2076	1,041,798,203	4,887,960	8,998,093	613,587	72,763,340	1,109,837,823
2077	1,109,837,823	5,010,187	8,194,869	628,927	77,557,429	1,183,581,643
2078	1,183,581,643	5,135,603	7,421,884	644,650	82,749,867	1,263,400,579
2079	1,263,400,579	5,264,247	6,682,380	660,766	88,366,510	1,349,688,190
2080	1,349,688,190	5,396,177	5,979,277	677,285	94,434,806	1,442,862,611
2081	1,442,862,611	5,531,479	5,315,114	694,218	100,983,941	1,543,368,699
2082	1,543,368,699	5,670,207	4,692,053	711,573	108,044,981	1,651,680,262
2083	1,651,680,262	5,812,416	4,111,763	729,362	115,651,039	1,768,302,591
2084	1,768,302,591	5,958,169	3,575,523	747,596	123,837,440	1,893,775,081
2085	1,893,775,081	6,107,534	3,084,084	766,286	132,641,920	2,028,674,165
2086	2,028,674,165	6,260,585	2,637,456	785,443	142,104,831	2,173,616,681
2087	2,173,616,681	6,417,405	2,235,084	805,079	152,269,372	2,329,263,296
2088	2,329,263,296	6,578,084	1,875,876	825,206	163,181,831	2,496,322,128
2089	2,496,322,128	6,742,707	1,558,252	845,837	174,891,832	2,675,552,578
2090	2,675,552,578	6,911,375	1,280,208	866,983	187,452,607	2,867,769,369
2091	2,867,769,369	7,084,192	1,039,380	888,657	200,921,269	3,073,846,793
2092	3,073,846,793	7,261,271	833,143	910,874	215,359,113	3,294,723,161
2093	3,294,723,161	7,442,725	658,707	933,645	230,831,921	3,531,405,455
2094	3,531,405,455	7,628,669	513,184	956,987	247,410,284	3,784,974,237
2095	3,784,974,237	7,819,228	393,559	980,911	265,169,948	4,056,588,943
2096	4,056,588,943	8,014,527	296,774	1,005,434	284,192,184	4,347,493,446
2097	4,347,493,446	8,214,695	219,810	1,030,570	304,564,170	4,659,021,931
2098	4,659,021,931	8,419,862	159,746	1,056,334	326,379,403	4,992,605,116
2099	4,992,605,116	8,630,162	113,779	1,082,742	349,738,135	5,349,776,892
2100	5,349,776,892	8,845,733	79,320	1,109,811	374,747,831	5,732,181,325
2101	5,732,181,325	9,066,713	54,076	1,137,556	401,523,659	6,141,580,065
2102	6,141,580,065	9,293,242	36,016	1,165,995	430,189,008	6,579,860,304
2103	6,579,860,304	9,525,465	23,412	1,195,145	460,876,046	7,049,043,257
2104	7,049,043,257	9,763,525	14,846	1,225,024	493,726,310	7,551,293,223
2105	7,551,293,223	10,007,570	9,178	1,255,649	528,891,346	8,088,927,312
2106	8,088,927,312	10,257,746	5,532	1,287,040	566,533,386	8,664,425,872
2107	8,664,425,872	10,514,207	3,252	1,319,216	606,826,081	9,280,443,692
2108	9,280,443,692	10,777,104	1,867	1,352,197	649,955,287	9,939,822,018
2109	9,939,822,018	11,046,594	1,048	1,386,002	696,119,907	10,645,601,470
2110	10,645,601,470	11,322,838	573	1,420,652	745,532,798	11,401,035,880
2111	11,401,035,880	11,605,998	308	1,456,168	798,421,737	12,209,607,140
2112	12,209,607,140	11,896,243	161	1,492,572	855,030,464	13,075,041,114
2113	13,075,041,114	12,193,744	81	1,529,887	915,619,798	14,001,324,688
2114	14,001,324,688	12,498,679	39	1,568,134	980,468,825	14,992,724,020
2115	14,992,724,020	12,811,230	18	1,607,337	1,049,876,185	16,053,804,079
2116	16,053,804,079	13,131,584	8	1,647,521	1,124,161,429	17,189,449,564
2117	17,189,449,564	13,459,934	3	1,688,709	1,203,666,494	18,404,887,280
2118	18,404,887,280	13,796,477	1	1,730,926	1,288,757,262	19,705,710,091



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2019 to 2068

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 ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=((c)/(1+SDR)) ^a (a-.5)
2019	\$ 141,313,723	\$ 5,956,099	\$ 5,956,099	\$ 0	\$ 5,757,978	\$ 0	\$ 5,757,978
2020	167,627,352	6,568,842	6,568,842	0	5,934,896	0	5,934,896
2021	179,523,255	7,170,317	7,170,317	0	6,054,509	0	6,054,509
2022	192,171,119	7,787,229	7,787,229	0	6,145,252	0	6,145,252
2023	205,615,060	8,469,363	8,469,363	0	6,246,313	0	6,246,313
2024	219,602,169	9,270,202	9,270,202	0	6,389,670	0	6,389,670
2025	233,547,949	10,062,893	10,062,893	0	6,482,287	0	6,482,287
2026	247,520,822	10,869,725	10,869,725	0	6,543,954	0	6,543,954
2027	261,505,737	11,685,608	11,685,608	0	6,574,901	0	6,574,901
2028	275,498,257	12,636,748	12,636,748	0	6,644,915	0	6,644,915
2029	289,333,080	13,750,415	13,750,415	0	6,757,501	0	6,757,501
2030	302,779,765	14,967,242	14,967,242	0	6,874,298	0	6,874,298
2031	315,660,639	16,171,312	16,171,312	0	6,941,415	0	6,941,415
2032	327,927,965	17,302,757	17,302,757	0	6,941,196	0	6,941,196
2033	339,623,349	18,400,383	18,400,383	0	6,898,618	0	6,898,618
2034	350,747,026	19,533,464	19,533,464	0	6,844,326	0	6,844,326
2035	361,205,708	20,707,783	20,707,783	0	6,781,118	0	6,781,118
2036	370,880,348	21,908,383	21,908,383	0	6,704,929	0	6,704,929
2037	379,670,805	23,077,316	23,077,316	0	6,600,630	0	6,600,630
2038	387,554,949	24,063,573	24,063,573	0	6,432,450	0	6,432,450
2039	394,692,362	25,030,700	25,030,700	0	6,253,247	0	6,253,247
2040	401,052,168	26,038,829	26,038,829	0	6,079,533	0	6,079,533
2041	406,519,170	26,926,946	26,926,946	0	5,875,598	0	5,875,598
2042	411,167,619	27,711,717	27,711,717	0	5,651,252	0	5,651,252
2043	415,067,794	28,376,150	28,376,150	0	5,408,177	0	5,408,177
2044	418,322,226	28,916,411	28,916,411	0	5,150,603	0	5,150,603
2045	421,045,948	29,296,059	29,296,059	0	4,876,846	0	4,876,846
2046	423,394,277	29,560,843	29,560,843	0	4,598,995	0	4,598,995
2047	425,478,100	29,713,551	29,713,551	0	4,320,330	0	4,320,330
2048	427,417,599	29,716,367	29,716,367	0	4,038,074	0	4,038,074
2049	429,388,962	29,597,630	29,597,630	0	3,758,822	0	3,758,822
2050	431,547,516	29,373,766	29,373,766	0	3,486,347	0	3,486,347
2051	434,040,210	29,074,499	29,074,499	0	3,225,072	0	3,225,072
2052	436,981,495	28,690,919	28,690,919	0	2,974,321	0	2,974,321
2053	440,508,360	28,209,225	28,209,225	0	2,733,070	0	2,733,070
2054	444,787,375	27,659,220	27,659,220	0	2,504,470	0	2,504,470
2055	449,955,493	27,048,696	27,048,696	0	2,288,961	0	2,288,961
2056	456,149,299	26,377,328	26,377,328	0	2,086,119	0	2,086,119
2057	463,516,569	25,649,360	25,649,360	0	1,895,837	0	1,895,837
2058	472,210,113	24,882,332	24,882,332	0	1,718,826	0	1,718,826
2059	482,369,211	24,082,196	24,082,196	0	1,554,723	0	1,554,723
2060	494,135,577	23,252,441	23,252,441	0	1,402,949	0	1,402,949
2061	507,657,044	22,402,021	22,402,021	0	1,263,213	0	1,263,213
2062	523,080,137	21,535,160	21,535,160	0	1,134,890	0	1,134,890
2063	540,556,378	20,653,895	20,653,895	0	1,017,241	0	1,017,241
2064	560,245,857	19,760,270	19,760,270	0	909,559	0	909,559
2065	582,317,930	18,856,293	18,856,293	0	811,168	0	811,168
2066	606,951,848	17,944,091	17,944,091	0	721,426	0	721,426
2067	634,337,370	17,026,022	17,026,022	0	639,735	0	639,735
2068	664,675,171	16,104,717	16,104,717	0	565,531	0	565,531



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2069 to 2118 (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}
2069	\$ 698,177,267	\$ 15,183,047	\$ 15,183,047	\$ 0	\$ 498,285	\$ 0	\$ 498,285
2070	735,067,675	14,264,021	14,264,021	0	437,499	0	437,499
2071	775,583,134	13,350,820	13,350,820	0	382,701	0	382,701
2072	819,973,791	12,446,933	12,446,933	0	333,450	0	333,450
2073	868,503,798	11,556,080	11,556,080	0	289,331	0	289,331
2074	921,452,000	10,681,988	10,681,988	0	249,950	0	249,950
2075	979,112,945	9,828,219	9,828,219	0	214,927	0	214,927
2076	1,041,798,203	8,998,093	8,998,093	0	183,901	0	183,901
2077	1,109,837,823	8,194,869	8,194,869	0	156,528	0	156,528
2078	1,183,581,643	7,421,884	7,421,884	0	132,489	0	132,489
2079	1,263,400,579	6,682,380	6,682,380	0	111,484	0	111,484
2080	1,349,688,190	5,979,277	5,979,277	0	93,228	0	93,228
2081	1,442,862,611	5,315,114	5,315,114	0	77,451	0	77,451
2082	1,543,368,699	4,692,053	4,692,053	0	63,899	0	63,899
2083	1,651,680,262	4,111,763	4,111,763	0	52,333	0	52,333
2084	1,768,302,591	3,575,523	3,575,523	0	42,531	0	42,531
2085	1,893,775,081	3,084,084	3,084,084	0	34,285	0	34,285
2086	2,028,674,165	2,637,456	2,637,456	0	27,402	0	27,402
2087	2,173,616,681	2,235,084	2,235,084	0	21,702	0	21,702
2088	2,329,263,296	1,875,876	1,875,876	0	17,023	0	17,023
2089	2,496,322,128	1,558,252	1,558,252	0	13,215	0	13,215
2090	2,675,552,578	1,280,208	1,280,208	0	10,147	0	10,147
2091	2,867,769,369	1,039,380	1,039,380	0	7,699	0	7,699
2092	3,073,846,793	833,143	833,143	0	5,768	0	5,768
2093	3,294,723,161	658,707	658,707	0	4,262	0	4,262
2094	3,531,405,455	513,184	513,184	0	3,103	0	3,103
2095	3,784,974,237	393,559	393,559	0	2,224	0	2,224
2096	4,056,588,943	296,774	296,774	0	1,567	0	1,567
2097	4,347,493,446	219,810	219,810	0	1,085	0	1,085
2098	4,659,021,931	159,746	159,746	0	737	0	737
2099	4,992,605,116	113,779	113,779	0	491	0	491
2100	5,349,776,892	79,320	79,320	0	320	0	320
2101	5,732,181,325	54,076	54,076	0	204	0	204
2102	6,141,580,065	36,016	36,016	0	127	0	127
2103	6,579,860,304	23,412	23,412	0	77	0	77
2104	7,049,043,257	14,846	14,846	0	46	0	46
2105	7,551,293,223	9,178	9,178	0	26	0	26
2106	8,088,927,312	5,532	5,532	0	15	0	15
2107	8,664,425,872	3,252	3,252	0	8	0	8
2108	9,280,443,692	1,867	1,867	0	4	0	4
2109	9,939,822,018	1,048	1,048	0	2	0	2
2110	10,645,601,470	573	573	0	1	0	1
2111	11,401,035,880	308	308	0	1	0	1
2112	12,209,607,140	161	161	0	0	0	0
2113	13,075,041,114	81	81	0	0	0	0
2114	14,001,324,688	39	39	0	0	0	0
2115	14,992,724,020	18	18	0	0	0	0
2116	16,053,804,079	8	8	0	0	0	0
2117	17,189,449,564	3	3	0	0	0	0
2118	18,404,887,280	1	1	0	0	0	0
Totals	\$ 222,967,623	\$ 0	\$ 0	\$ 0	\$ 222,967,623	\$ 0	\$ 222,967,623



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.