

Wyoming Retirement System Paid Firemen's Retirement Fund Plan A

GASB Statement Nos. 67 and 68 Accounting and Financial
Reporting for Pensions
For the Measurement Date as of December 31, 2020





March 26, 2021

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

Dear Board Members:

This report provides information required by the Wyoming Paid Firemen's Retirement Fund Plan A (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 A 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. Furthermore, this report incorporates a long-term expected rate of return of 1.00% based on the Fire A asset allocation approved by the Board on November 18, 2020.

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

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

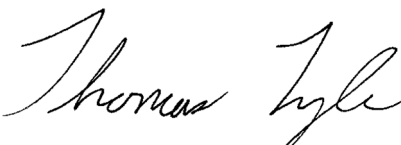
All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board.

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

By 
Paul T. Wood, ASA, FCA, MAAA

By 
Thomas A. Lyle, FSA, EA, FCA, MAAA

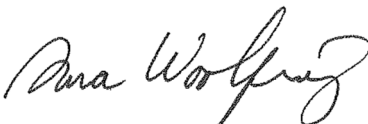
By 
Dana Woolfrey, FSA, EA, FCA, MAAA



Table of Contents

| | <u>Page</u> |
|--|-------------|
| Section A Executive Summary | |
| Executive Summary | 1 |
| Discussion | 2-5 |
| Section B Financial Statements | |
| Statement of Pension Expense under GASB Statement No. 68 | 7 |
| Statement of Outflows and Inflows Arising from Current Reporting Period | 8 |
| History of Deferred Outflows and Inflows of Resources by Source | 9 |
| Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods..... | 10 |
| Statement of Fiduciary Net Position | 11 |
| Statement of Changes in Fiduciary Net Position | 12 |
| Section C Required Supplementary Information | |
| Schedule of Changes in Net Pension Liability and Related Ratios Current Reporting Period . | 14 |
| Schedule of Changes in Net Pension Liability and Related Ratios Multiyear | 15 |
| Schedule of Net Pension Liability Multiyear | 16 |
| Schedule of Contributions Multiyear | 17 |
| Notes to Schedule of Contributions | 18 |
| Schedule of Investment Returns Multiyear..... | 19 |
| Section D Notes to Financial Statements | |
| Sensitivity of Net Pension Liability to the Single Discount Rate Assumption | 21 |
| Summary of Population Statistics | 22 |
| Section E Summary of Benefits | 24-25 |
| Section F Actuarial Cost Method and Actuarial Assumptions | |
| Actuarial Assumptions and Cost Method | 27-31 |
| Experience Analysis | 32 |
| Section G Calculation of the Single Discount Rate | |
| Calculation of the Single Discount Rate | 34 |
| Projection of Contributions | 35-36 |
| Projection of Plan Net Position | 37-38 |
| Present Values of Projected Benefits | 39-40 |
| Section H Glossary of Terms | 42-45 |

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 | 273 |
| - Inactive, Nonretired Members | 1 |
| - Active Members | 1 |
| - Total | 275 |
| Covered Payroll | \$ 65,621 |

Net Pension Liability

| | |
|---|----------------|
| Total Pension Liability | \$ 413,871,169 |
| Plan Fiduciary Net Position | 90,082,951 |
| Net Pension Liability | \$ 323,788,218 |
| Plan Fiduciary Net Position as a Percentage of Total Pension Liability | 21.77 % |
| Net Pension Liability as a Percentage of Covered Payroll | 493,424.95 % |

Development of the Single Discount Rate

| | |
|---|--------|
| Single Discount Rate | 1.95 % |
| Long-Term Expected Rate of Investment Return | 1.00 % |
| 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 | 2025 |

Total Pension Expense \$ 63,758,617

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 | \$ 0 | \$ 0 |
| Changes in assumptions | 0 | 0 |
| Net difference between projected and actual earnings on pension plan investments | 4,480,787 | 9,760,595 |
| Total | \$ 4,480,787 | \$ 9,760,595 |

**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

Assuming the suspension of contributions to the Fund, investments are the only funding source for this plan.

This funding policy results in the expectation that the plan's assets will not be able to fully pay for the promised benefits through at least 2119 and, therefore, results in an expected crossover date in 2025 and a GASB single discount rate of 1.95%. 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.

The single discount rate decreased from 3.09% to 1.95% since the last valuation. This change in discount rate is measured as a change in assumptions.

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 1.00% based on the Fire A asset allocation approved by the Board on November 18, 2020; 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 1.95%.

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 A. 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 | \$ | 65,959 | |
| 2. Interest on the Total Pension Liability | | 8,068,467 | |
| 3. Current-Period Benefit Changes | | 0 | |
| 4. Employee Contributions (made negative for addition here) | | 0 | |
| 5. Projected Earnings on Plan Investments (made negative for addition here) | | (6,291,698) | |
| 6. Pension Plan Administrative Expense | | 88,626 | |
| 7. Other Changes in Plan Fiduciary Net Position | | 3,708 | |
| 8. Recognition of Outflow (Inflow) of Resources due to Liabilities | | 63,543,608 | * |
| 9. Recognition of Outflow (Inflow) of Resources due to Assets | | (1,720,053) | |
| 10. Total Pension Expense | \$ | 63,758,617 | ** |

* Includes change in the blended single discount rate from 3.09% to 1.95%

** 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 | \$ (378,431) |
| 2. Assumption Changes (gains) or losses | \$ 63,922,039 |
| 3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years} | 1.0000 |
| 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 | \$ (378,431) |
| 5. Outflow (Inflow) of Resources to be recognized in the current pension expense for assumption changes | \$ 63,922,039 |
| 6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities | \$ 63,543,608 |
| 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 | \$ 0 |
| 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 | \$ 0 |

B. Outflows (Inflows) of Resources due to Assets

| | |
|---|----------------|
| 1. Net difference between projected and actual earnings on pension plan investments (gains) or losses | \$ (2,265,845) |
| 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 | \$ (453,169) |
| 4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets | \$ (1,812,676) |



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 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | Deferred Net (Inflows)/Outflows at Measurement Date |
|--------------------|--------|----------------|----------------|--------------|----------------|----------------|--------------|---|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Total |
| Total | \$ - | \$ (2,479,196) | \$ (1,825,288) | \$ 1,188,594 | \$ (1,673,790) | \$ (3,107,578) | \$ (378,431) | |
| 2014 | - | - | - | - | - | - | - | - |
| 2015 | - | (2,479,196) | - | - | - | - | - | (2,479,196) |
| 2016 | - | - | (1,825,288) | - | - | - | - | (1,825,288) |
| 2017 | - | - | - | 1,188,594 | - | - | - | 1,188,594 |
| 2018 | - | - | - | - | (1,673,790) | - | - | (1,673,790) |
| 2019 | - | - | - | - | - | (3,107,578) | - | (3,107,578) |
| 2020 | - | - | - | - | - | - | (378,431) | (378,431) |
| 2021 | - | - | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - | - | - |
| 2023 | - | - | - | - | - | - | - | - |
| 2024 | - | - | - | - | - | - | - | - |
| 2025 | - | - | - | - | - | - | - | - |
| Thereafter | - | - | - | - | - | - | - | - |
| | \$ - | \$ (2,479,196) | \$ (1,825,288) | \$ 1,188,594 | \$ (1,673,790) | \$ (3,107,578) | \$ (378,431) | \$ (8,275,689) |

Assumption changes - Net (inflows)/outflows of resources

| Recognition Period | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | 1.0000 | Total |
|--------------------|---------------|--------------|----------------|---------------|-----------------|---------------|---------------|----------------|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | |
| Total | \$ 99,327,064 | \$ 9,056,601 | \$ (5,166,271) | \$ 41,599,453 | \$ (11,600,861) | \$ 42,477,504 | \$ 63,922,039 | |
| 2014 | 99,327,064 | - | - | - | - | - | - | 99,327,064 |
| 2015 | - | 9,056,601 | - | - | - | - | - | 9,056,601 |
| 2016 | - | - | (5,166,271) | - | - | - | - | (5,166,271) |
| 2017 | - | - | - | 41,599,453 | - | - | - | 41,599,453 |
| 2018 | - | - | - | - | (11,600,861) | - | - | (11,600,861) |
| 2019 | - | - | - | - | - | 42,477,504 | - | 42,477,504 |
| 2020 | - | - | - | - | - | - | 63,922,039 | 63,922,039 |
| 2021 | - | - | - | - | - | - | - | - |
| 2022 | - | - | - | - | - | - | - | - |
| 2023 | - | - | - | - | - | - | - | - |
| 2024 | - | - | - | - | - | - | - | - |
| 2025 | - | - | - | - | - | - | - | - |
| Thereafter | - | - | - | - | - | - | - | - |
| | \$ 99,327,064 | \$ 9,056,601 | \$ (5,166,271) | \$ 41,599,453 | \$ (11,600,861) | \$ 42,477,504 | \$ 63,922,039 | \$ 239,615,529 |

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 | Total |
|--------------------|--------------|---------------|------------|----------------|---------------|-----------------|----------------|--------------|
| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | |
| Total | \$ 3,803,304 | \$ 11,373,619 | \$ 853,305 | \$ (7,714,751) | \$ 11,201,969 | \$ (10,674,946) | \$ (2,265,845) | |
| 2014 | 760,661 | - | - | - | - | - | - | 760,661 |
| 2015 | 760,661 | 2,274,724 | - | - | - | - | - | 3,035,385 |
| 2016 | 760,661 | 2,274,724 | 170,661 | - | - | - | - | 3,206,046 |
| 2017 | 760,661 | 2,274,724 | 170,661 | (1,542,950) | - | - | - | 1,663,096 |
| 2018 | 760,660 | 2,274,724 | 170,661 | (1,542,950) | 2,240,394 | - | - | 3,903,489 |
| 2019 | - | 2,274,723 | 170,661 | (1,542,950) | 2,240,394 | (2,134,989) | - | 1,007,839 |
| 2020 | - | - | 170,661 | (1,542,950) | 2,240,394 | (2,134,989) | (453,169) | (1,720,053) |
| 2021 | - | - | - | (1,542,951) | 2,240,394 | (2,134,989) | (453,169) | (1,890,715) |
| 2022 | - | - | - | - | 2,240,393 | (2,134,989) | (453,169) | (347,765) |
| 2023 | - | - | - | - | - | (2,134,990) | (453,169) | (2,588,159) |
| 2024 | - | - | - | - | - | - | (453,169) | (453,169) |
| 2025 | - | - | - | - | - | - | - | - |
| Thereafter | - | - | - | - | - | - | - | - |
| | \$ 3,803,304 | \$ 11,373,619 | \$ 853,305 | \$ (7,714,751) | \$ 11,201,969 | \$ (10,674,946) | \$ (2,265,845) | \$ 6,576,655 |

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

| | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | Total |
|------------|----------------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|
| Total | \$ 103,130,368 | \$ 17,951,024 | \$ (6,138,254) | \$ 35,073,296 | \$ (2,072,682) | \$ 28,694,980 | \$ 61,277,763 | |
| 2014 | 100,087,725 | - | - | - | - | - | - | 100,087,725 |
| 2015 | 760,661 | 8,852,129 | - | - | - | - | - | 9,612,790 |
| 2016 | 760,661 | 2,274,724 | (6,820,898) | - | - | - | - | (3,785,513) |
| 2017 | 760,661 | 2,274,724 | 170,661 | 41,245,097 | - | - | - | 44,451,143 |
| 2018 | 760,660 | 2,274,724 | 170,661 | (1,542,950) | (11,034,257) | - | - | (9,371,162) |
| 2019 | - | 2,274,723 | 170,661 | (1,542,950) | 2,240,394 | 37,234,937 | - | 40,377,765 |
| 2020 | - | - | 170,661 | (1,542,950) | 2,240,394 | (2,134,989) | 63,090,439 | 61,823,555 |
| 2021 | - | - | - | (1,542,951) | 2,240,394 | (2,134,989) | (453,169) | (1,890,715) |
| 2022 | - | - | - | - | 2,240,393 | (2,134,989) | (453,169) | (347,765) |
| 2023 | - | - | - | - | - | (2,134,990) | (453,169) | (2,588,159) |
| 2024 | - | - | - | - | - | - | (453,169) | (453,169) |
| 2025 | - | - | - | - | - | - | - | - |
| Thereafter | - | - | - | - | - | - | - | - |
| | \$ 103,130,368 | \$ 17,951,024 | \$ (6,138,254) | \$ 35,073,296 | \$ (2,072,682) | \$ 28,694,980 | \$ 61,277,763 | \$ 237,916,495 |



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 | \$ 63,922,039 | \$ 378,431 | \$ 63,543,608 |
| 2. Due to Assets | 2,411,055 | 4,131,108 | (1,720,053) |
| 3. Total | \$ 66,333,094 | \$ 4,509,539 | \$ 61,823,555 |

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 | \$ 0 | \$ 378,431 | \$ (378,431) |
| 2. Assumption Changes | 63,922,039 | 0 | 63,922,039 |
| 3. Net Difference between projected and actual earnings on pension plan investments | 2,411,055 | 4,131,108 | (1,720,053) |
| 4. Total | \$ 66,333,094 | \$ 4,509,539 | \$ 61,823,555 |

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 | \$ 0 | \$ 0 | \$ 0 |
| 2. Assumption Changes | 0 | 0 | 0 |
| 3. Net Difference between projected and actual earnings on pension plan investments | 4,480,787 | 9,760,595 | (5,279,808) |
| 4. Total | \$ 4,480,787 | \$ 9,760,595 | \$ (5,279,808) |

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 | \$ (1,890,715) |
| 2022 | (347,765) |
| 2023 | (2,588,159) |
| 2024 | (453,169) |
| 2025 | 0 |
| Thereafter | 0 |
| Total | \$ (5,279,808) |



Statement of Fiduciary Net Position as of December 31, 2020

| | 2020 |
|---|-----------------------|
| Assets | |
| Cash and Deposits | \$ 2,062,488 |
| Receivables | |
| Accounts Receivable - Sale of Investments | \$ 179,277 |
| Accrued Interest and Other Dividends | 168,347 |
| Contributions | 0 |
| Accounts Receivable - Other | 9,288,775 |
| Total Receivables | \$ 9,636,399 |
| Investments | |
| Fixed Income | \$ 19,147,503 |
| Equities | 44,751,295 |
| Private Markets | 8,231,329 |
| Marketable Alternatives | 16,286,719 |
| Other | 3,491,727 |
| Total Investments | \$ 91,908,573 |
| Total Assets | \$ 103,607,460 |
| Liabilities | |
| Payables | |
| Accounts Payable - Purchase of Investments | \$ 13,381,708 |
| Accrued Expenses | 142,801 |
| Accounts Payable - Other | 0 |
| Total Liabilities | \$ 13,524,509 |
| Net Position Restricted for Pensions | \$ 90,082,951 |

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

| | 2020 |
|---|-----------------------|
| Additions | |
| Contributions | |
| Employer | \$ 0 |
| Employee | 0 |
| Other | 0 |
| Total Contributions | \$ 0 |
| Investment Income | |
| Net Appreciation in Fair Value of Investments | \$ 7,859,423 |
| Interest and Dividends | 1,233,475 |
| Less Investment Expense | (535,355) |
| Net Investment Income | \$ 8,557,543 |
| Other | \$ 0 |
| Total Additions | \$ 8,557,543 |
| Deductions | |
| Benefit Payments, including Refunds of Employee Contributions | \$ 16,341,689 |
| Pension Plan Administrative Expense | 88,626 |
| Other | 3,708 |
| Total Deductions | \$ 16,434,023 |
| Net Increase in Net Position | \$ (7,876,480) |
| Net Position Restricted for Pensions | |
| Beginning of Year | \$ 97,959,431 |
| End of Year | \$ 90,082,951 |

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 A. 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 | \$ 65,959 |
| 2. Interest on the total pension liability | 8,068,467 |
| 3. Changes of benefit terms | 0 |
| 4. Difference between expected and actual experience of the total pension liability | (378,431) |
| 5. Changes of assumptions | 63,922,039 |
| 6. Benefit payments, including refunds of employee contributions | (16,341,689) |
| 7. Net change in total pension liability | 55,336,345 |
| 8. Total pension liability – beginning | 358,534,824 |
| 9. Total pension liability – ending | \$ 413,871,169 |
| B. Plan fiduciary net position | |
| 1. Contributions – employer | \$ 0 |
| 2. Contributions – employee | 0 |
| 3. Net investment income | 8,557,543 |
| 4. Benefit payments, including refunds of employee contributions | (16,341,689) |
| 5. Pension plan administrative expense | (88,626) |
| 6. Other | (3,708) |
| 7. Net change in plan fiduciary net position | (7,876,480) |
| 8. Plan fiduciary net position – beginning | 97,959,431 |
| 9. Plan fiduciary net position – ending | \$ 90,082,951 |
| C. Net pension liability | \$ 323,788,218 |
| D. Plan fiduciary net position as a percentage of the total pension liability | 21.77 % |
| E. Covered-employee payroll | \$ 65,621 |
| F. Net pension liability as a percentage of covered-employee payroll | 493,424.95 % |



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 | \$ 65,959 | \$ 40,886 | \$ 61,278 | \$ 122,812 | \$ 147,314 | \$ 162,541 | \$ 188,951 |
| Interest on the total pension liability | 8,068,467 | 10,996,219 | 12,801,237 | 12,582,433 | 12,906,407 | 12,910,372 | 13,337,846 |
| Changes of benefit terms | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Difference between expected and actual experience | (378,431) | (3,107,578) | (1,673,790) | 1,188,594 | (1,825,288) | (2,479,196) | 0 |
| Changes of assumptions | 63,922,039 | 42,477,504 | (11,600,861) | 41,599,453 | (5,166,271) | 9,056,601 | 99,327,064 |
| Benefit payments, including refunds of employee contributions | (16,341,689) | (16,093,422) | (15,788,064) | (15,410,878) | (15,075,912) | (14,824,715) | (14,581,980) |
| Net change in total pension liability | 55,336,345 | 34,313,609 | (16,200,200) | 40,082,414 | (9,013,750) | 4,825,603 | 98,271,881 |
| Total pension liability - beginning | 358,534,824 | 324,221,215 | 340,421,415 | 300,339,001 | 309,352,751 | 304,527,148 | 206,255,267 |
| Total pension liability - ending (a) | \$ 413,871,169 | \$ 358,534,824 | \$ 324,221,215 | \$ 340,421,415 | \$ 300,339,001 | \$ 309,352,751 | \$ 304,527,148 |
| Plan fiduciary net position | | | | | | | |
| Employer contributions | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 |
| Employee contributions | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pension plan net investment income | 8,557,543 | 16,923,518 | (3,580,279) | 15,351,989 | 8,160,117 | (1,107,007) | 7,064,066 |
| Benefit payments, including refunds of employee contributions | (16,341,689) | (16,093,422) | (15,788,064) | (15,410,878) | (15,075,912) | (14,824,715) | (14,581,980) |
| Pension plan administrative expense | (88,626) | (87,238) | (98,669) | (108,773) | (110,274) | (102,903) | (113,705) |
| Other | (3,708) | (4,405) | (4,562) | (6,020) | (6,019) | (6,559) | (1,701) |
| Net change in plan fiduciary net position | (7,876,480) | 738,453 | (19,471,574) | (173,682) | (7,032,088) | (16,041,184) | (7,633,320) |
| Plan fiduciary net position - beginning | 97,959,431 | 97,220,978 | 116,692,552 | 116,866,234 | 123,898,322 | 139,939,506 | 147,572,826 |
| Plan fiduciary net position - ending (b) | \$ 90,082,951 | \$ 97,959,431 | \$ 97,220,978 | \$ 116,692,552 | \$ 116,866,234 | \$ 123,898,322 | \$ 139,939,506 |
| Net pension liability - ending (a) - (b) | \$ 323,788,218 | \$ 260,575,393 | \$ 227,000,237 | \$ 223,728,863 | \$ 183,472,767 | \$ 185,454,429 | \$ 164,587,642 |
| Plan fiduciary net position as a percentage of total pension liability | 21.77 % | 27.32 % | 29.99 % | 34.28 % | 38.91 % | 40.05 % | 45.95 % |
| Covered-employee payroll | \$ 65,621 | \$ 65,621 | \$ 134,155 | \$ 195,221 | \$ 195,221 | \$ 179,486 | \$ 198,404 |
| Projected Valuation Payroll | \$ 65,621 | \$ 65,621 | \$ 134,155 | \$ 195,221 | \$ 195,221 | \$ 179,486 | \$ 198,404 |
| Net pension liability as a percentage of covered-employee payroll | 493,424.95 % | 397,094.13 % | 169,207.64 % | 114,602.87 % | 93,982.30 % | 103,325.47 % | 82,955.64 % |

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 | \$ 304,527,148 | \$ 139,939,506 | \$ 164,587,642 | 45.95 % | \$ 198,404 | 82,955.64 % |
| 2015 | 309,352,751 | 123,898,322 | 185,454,429 | 40.05 % | 179,486 | 103,325.47 % |
| 2016 | 300,339,001 | 116,866,234 | 183,472,767 | 38.91 % | 195,221 | 93,982.30 % |
| 2017 | 340,421,415 | 116,692,552 | 223,728,863 | 34.28 % | 195,221 | 114,602.87 % |
| 2018 | 324,221,215 | 97,220,978 | 227,000,237 | 29.99 % | 134,155 | 169,207.64 % |
| 2019 | 358,534,824 | 97,959,431 | 260,575,393 | 27.32 % | 65,621 | 397,094.13 % |
| 2020 | 413,871,169 | 90,082,951 | 323,788,218 | 21.77 % | 65,621 | 493,424.95 % |

* Covered payroll is the total of first class firefighter salaries in force as of the valuation date and may differ 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 | \$ 9,458,093 | \$ 0 | \$ 9,458,093 | \$ 198,404 | 0.00 % |
| 2015 | 9,714,697 | 0 | 9,714,697 | 179,486 | 0.00 % |
| 2016 | 10,663,740 | 0 | 10,663,740 | 195,221 | 0.00 % |
| 2017 | 11,734,389 | 0 | 11,734,389 | 195,221 | 0.00 % |
| 2018 | 15,597,369 | 0 | 15,597,369 | 134,155 | 0.00 % |
| 2019 | 16,974,397 | 0 | 16,974,397 | 65,621 | 0.00 % |
| 2020 | 18,379,604 | 0 | 18,379,604 | 65,621 | 0.00 % |

* Covered payroll is the total of first class firefighter salaries in force as of the valuation date and may differ 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 Dollar, Open |
| Remaining Amortization Period | 10 years |
| Asset Valuation Method | 5-Year smoothed market |
| Inflation | 2.25% |
| Salary Increases | 4.50% including inflation |
| Cost-of-Living Increase | 3.00% |
| 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 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 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 A. 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 1.95% was used to measure the total pension liability. This Single Discount Rate was based on an expected rate of return on pension plan investments of 1.00% (based on the Fire A asset allocation approved by the Board on November 18, 2020) and a municipal bond rate of 2.00%. The projection of cash flows used to determine this Single Discount Rate assumed no future contributions. Based on these assumptions, the pension plan's fiduciary net position and future contributions were sufficient to finance the benefit payments through the year 2025. As a result, the long-term expected rate of return on pension plan investments was applied to projected benefit payments through the year 2025, and the municipal bond rate was applied to all benefit payments after that date.

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 1.95%, 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 |
|----------------|--|----------------|
| 0.95% | 1.95% | 2.95% |
| \$ 392,370,922 | \$ 323,788,218 | \$ 269,386,379 |

Summary of Population Statistics

| | |
|---|----------|
| Inactive Plan Members or Beneficiaries Currently Receiving Benefits | 273 |
| Inactive Plan Members Entitled to But Not Yet Receiving Benefits | 1 |
| Active Plan Members | <u>1</u> |
| Total Plan Members | 275 |

SECTION E

SUMMARY OF BENEFITS

Summary of Benefits

| | |
|------------------------------|--|
| Covered Members | Any person who is a member of Wyoming Paid Firemen's Retirement Fund Plan A. This plan only covers members hired prior to July 1, 1981. |
| Fireman First Class | The highest salary grade which a fireman can obtain within his department without any promotion in rank. The term specifically excludes chiefs, officers, engineers, fire equipment operators, secretaries, mechanics, inspectors and all other specialized grades, ratings and ranks. |
| Form of Payment | Monthly benefit for life. Upon death, 100% of the benefit continues to be paid to the beneficiary. |
| Service Retirement | |
| Eligibility | 20 or more years of service. |
| Monthly Benefit | 75.0% of the maximum salary for a fireman first class for 20 years of service plus 1.5% of the maximum salary for a fireman first class for each year of service in excess of 20 years. |
| Vesting | Any employee who has left the service with at least 10 years of service can elect to receive a lump-sum refund of 99.5% of contributions. An employee who terminates with less than ten 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. 15-5-204. |
| Monthly Benefit | 75.0% of the maximum salary for a fireman first class for 20 years of service plus 1.5% of the maximum salary for a fireman first class for each year of service in excess of 20 years. |



Pre-retirement Death Benefit

| | |
|-----------------|---|
| Eligibility | No age or service requirements. |
| Monthly Benefit | 75.0% of the maximum salary for a fireman first class for 20 years of service plus 1.5% of the maximum salary for a fireman first class for each year of service in excess of 20 years. |

Contributions

| | |
|----------|------|
| Employee | None |
| Employer | None |
| Interest | None |

Cost-of-Living Improvements

3.0% per year, applied annually following the one-year anniversary of retirement. In the event the most current actuarial valuation indicates the market value of assets is greater than 115% of the actuarial value of liabilities, the Board may elect to grant up to a 5.0% increase if the System’s actuary determines such an increase to be actuarially sound.

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).

- 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 1.00%), 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 an 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 actuarial accrued liability contributions are determined by subtracting the actuarial value of assets from the actuarial accrued liability and amortizing the result over 10 years from the valuation date.



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, with interest, dividends, and other income recognized immediately. 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

1.00% per year (based on the Fire A asset allocation approved by the Board on November 18, 2020), compounded annually This rate represents the assumed return, net of investment expenses.

b. Inflation

2.25% per year

c. Salary increase rate

4.50% per year

d. Payroll growth rate

In the amortization of the unfunded actuarial accrued liability, payroll is not assumed to increase. The assumed payroll growth in a closed plan is 0%.

5. Demographic Assumptions

a. Mortality

Healthy Pre-Retirement Mortality:

RP-2014 Mortality Table for Healthy Employees 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%

Healthy Post-Retirement Mortality:

RP-2014 Mortality Table for Healthy Annuitants 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%

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% |

b. Disability and Withdrawal

| Age | Disability | | Withdrawal | |
|-----|------------|--------|------------|--------|
| | Male | Female | Ultimate | |
| | | | Male | Female |
| 20 | 0.03% | 0.03% | 12.00% | 12.00% |
| 25 | 0.03% | 0.03% | 8.00% | 8.00% |
| 30 | 0.03% | 0.03% | 5.00% | 5.00% |
| 35 | 0.19% | 0.19% | 3.00% | 3.00% |
| 40 | 0.42% | 0.42% | 1.00% | 1.00% |
| 45 | 0.65% | 0.65% | 1.00% | 1.00% |
| 50 | 0.82% | 0.82% | 1.00% | 1.00% |
| 55 | 1.81% | 1.81% | 0.50% | 0.50% |
| 60 | 2.00% | 2.00% | 0.50% | 0.50% |

c. Retirement Rates

| Age | Rate | Age | Rate |
|-----|------|-----|------|
| 50 | 20% | 57 | 25% |
| 51 | 25% | 58 | 25% |
| 52 | 25% | 59 | 25% |
| 53 | 25% | 60 | 100% |
| 54 | 25% | 61 | 100% |
| 55 | 25% | 62 | 100% |
| 56 | 25% | | |

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.

On November 18, 2020, the Board approved the more conservative asset allocation for Fire A. This resulted in lower the expected rate of return to 1.00%.

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 1.00%; the municipal bond rate is 2.00%; and the resulting Single Discount Rate is 1.95%.

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 | Payroll for Future | Total Employee | Contributions from | Employer | Employer Contributions | Total Contributions |
|------|---------------------|--------------------|----------------|--------------------|--|---|---------------------|
| | Employees | Employees | Payroll | Current Employees | 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 | \$ 65,621 | \$ 0 | \$ 65,621 | \$ 0 | \$ 0 | \$ 0 | \$ 0 |
| 2021 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2022 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2023 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2024 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2025 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2026 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2027 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2028 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2029 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2030 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2031 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2032 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2033 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2034 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2035 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2036 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2037 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2038 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2039 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2040 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2041 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2042 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2043 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2044 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2045 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2046 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2047 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2048 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2049 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2050 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2051 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2052 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2053 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2054 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2055 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2056 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2057 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2058 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2059 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2060 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2061 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2062 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2063 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2064 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2065 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2066 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2067 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2068 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2069 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



Single Discount Rate Development Projection of Contributions Ending December 31 for 2070 to 2119 (concluded)

| Year | Payroll for Current | Payroll for Future | Total Employee | Contributions from | Employer | Employer Contributions | Total Contributions |
|------|---------------------|--------------------|----------------|--------------------|-------------------------------------|--|---------------------|
| | Employees | Employees | Payroll | Current Employees | 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) |
| 2070 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 | \$ 0 |
| 2071 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2072 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2073 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2074 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2075 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2076 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2077 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2078 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2079 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2080 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2081 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2082 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2083 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2084 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2085 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2086 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2087 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2088 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2089 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2090 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2091 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2092 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2093 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2094 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2095 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2096 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2097 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2098 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2099 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2101 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2102 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2103 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2105 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2106 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2108 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2109 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2110 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2116 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2119 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



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 1.00% | Projected Ending Plan Net Position |
|------|---|-------------------------------------|-------------------------------|---|---|--|
| | (a) | (b) | (c) | (d) | (e) | (f)=(a)+(b)-(c)-(d)+(e) |
| 2020 | \$ 97,959,431 | \$ 0 | \$ 16,341,689 | \$ 92,334 | \$ 8,557,543 | \$ 90,082,951 |
| 2021 | 90,082,951 | 0 | 16,758,806 | 101,200 | 816,739 | 74,039,684 |
| 2022 | 74,039,684 | 0 | 17,047,203 | 101,200 | 654,868 | 57,546,149 |
| 2023 | 57,546,149 | 0 | 17,298,810 | 101,200 | 488,678 | 40,634,817 |
| 2024 | 40,634,817 | 0 | 17,514,946 | 101,200 | 318,487 | 23,337,157 |
| 2025 | 23,337,157 | 0 | 17,697,016 | 101,200 | 144,602 | 5,683,543 |
| 2026 | 5,683,543 | 0 | 17,846,306 | 101,200 | 0 | 0 |
| 2027 | 0 | 0 | 17,963,818 | 101,200 | 0 | 0 |
| 2028 | 0 | 0 | 18,050,174 | 101,200 | 0 | 0 |
| 2029 | 0 | 0 | 18,105,522 | 101,200 | 0 | 0 |
| 2030 | 0 | 0 | 18,129,493 | 101,200 | 0 | 0 |
| 2031 | 0 | 0 | 18,121,307 | 101,200 | 0 | 0 |
| 2032 | 0 | 0 | 18,079,801 | 101,200 | 0 | 0 |
| 2033 | 0 | 0 | 18,003,471 | 101,200 | 0 | 0 |
| 2034 | 0 | 0 | 17,890,554 | 101,200 | 0 | 0 |
| 2035 | 0 | 0 | 17,739,071 | 101,200 | 0 | 0 |
| 2036 | 0 | 0 | 17,546,960 | 101,200 | 0 | 0 |
| 2037 | 0 | 0 | 17,312,209 | 101,200 | 0 | 0 |
| 2038 | 0 | 0 | 17,032,855 | 101,200 | 0 | 0 |
| 2039 | 0 | 0 | 16,707,203 | 101,200 | 0 | 0 |
| 2040 | 0 | 0 | 16,333,989 | 101,200 | 0 | 0 |
| 2041 | 0 | 0 | 15,912,453 | 101,200 | 0 | 0 |
| 2042 | 0 | 0 | 15,442,456 | 101,200 | 0 | 0 |
| 2043 | 0 | 0 | 14,924,430 | 101,200 | 0 | 0 |
| 2044 | 0 | 0 | 14,359,346 | 101,200 | 0 | 0 |
| 2045 | 0 | 0 | 13,748,859 | 101,200 | 0 | 0 |
| 2046 | 0 | 0 | 13,095,713 | 101,200 | 0 | 0 |
| 2047 | 0 | 0 | 12,403,743 | 101,200 | 0 | 0 |
| 2048 | 0 | 0 | 11,677,957 | 101,200 | 0 | 0 |
| 2049 | 0 | 0 | 10,924,709 | 101,200 | 0 | 0 |
| 2050 | 0 | 0 | 10,151,435 | 101,200 | 0 | 0 |
| 2051 | 0 | 0 | 9,366,612 | 101,200 | 0 | 0 |
| 2052 | 0 | 0 | 8,579,447 | 101,200 | 0 | 0 |
| 2053 | 0 | 0 | 7,799,252 | 101,200 | 0 | 0 |
| 2054 | 0 | 0 | 7,035,138 | 101,200 | 0 | 0 |
| 2055 | 0 | 0 | 6,295,832 | 101,200 | 0 | 0 |
| 2056 | 0 | 0 | 5,589,638 | 101,200 | 0 | 0 |
| 2057 | 0 | 0 | 4,924,138 | 101,200 | 0 | 0 |
| 2058 | 0 | 0 | 4,305,808 | 101,200 | 0 | 0 |
| 2059 | 0 | 0 | 3,739,562 | 101,200 | 0 | 0 |
| 2060 | 0 | 0 | 3,228,503 | 101,200 | 0 | 0 |
| 2061 | 0 | 0 | 2,773,911 | 101,200 | 0 | 0 |
| 2062 | 0 | 0 | 2,375,317 | 101,200 | 0 | 0 |
| 2063 | 0 | 0 | 2,030,691 | 101,200 | 0 | 0 |
| 2064 | 0 | 0 | 1,736,658 | 101,200 | 0 | 0 |
| 2065 | 0 | 0 | 1,488,903 | 101,200 | 0 | 0 |
| 2066 | 0 | 0 | 1,282,391 | 101,200 | 0 | 0 |
| 2067 | 0 | 0 | 1,111,687 | 101,200 | 0 | 0 |
| 2068 | 0 | 0 | 971,429 | 101,200 | 0 | 0 |
| 2069 | 0 | 0 | 856,473 | 101,200 | 0 | 0 |



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 1.00% | Projected Ending Plan Net Position |
|------|---|-------------------------------------|-------------------------------|---|---|--|
| | (a) | (b) | (c) | (d) | (e) | (f)=(a)+(b)-(c)-(d)+(e) |
| 2070 | \$ 0 | \$ 0 | \$ 762,091 | \$ 101,200 | \$ 0 | \$ 0 |
| 2071 | 0 | 0 | 683,906 | 101,200 | 0 | 0 |
| 2072 | 0 | 0 | 618,236 | 101,200 | 0 | 0 |
| 2073 | 0 | 0 | 561,953 | 101,200 | 0 | 0 |
| 2074 | 0 | 0 | 512,519 | 101,200 | 0 | 0 |
| 2075 | 0 | 0 | 467,953 | 101,200 | 0 | 0 |
| 2076 | 0 | 0 | 426,739 | 101,200 | 0 | 0 |
| 2077 | 0 | 0 | 387,801 | 101,200 | 0 | 0 |
| 2078 | 0 | 0 | 350,592 | 101,200 | 0 | 0 |
| 2079 | 0 | 0 | 314,663 | 101,200 | 0 | 0 |
| 2080 | 0 | 0 | 279,767 | 101,200 | 0 | 0 |
| 2081 | 0 | 0 | 245,839 | 101,200 | 0 | 0 |
| 2082 | 0 | 0 | 213,057 | 101,200 | 0 | 0 |
| 2083 | 0 | 0 | 181,907 | 101,200 | 0 | 0 |
| 2084 | 0 | 0 | 152,757 | 101,200 | 0 | 0 |
| 2085 | 0 | 0 | 125,978 | 101,200 | 0 | 0 |
| 2086 | 0 | 0 | 101,828 | 101,200 | 0 | 0 |
| 2087 | 0 | 0 | 80,624 | 101,200 | 0 | 0 |
| 2088 | 0 | 0 | 62,456 | 101,200 | 0 | 0 |
| 2089 | 0 | 0 | 47,258 | 101,200 | 0 | 0 |
| 2090 | 0 | 0 | 34,837 | 101,200 | 0 | 0 |
| 2091 | 0 | 0 | 25,030 | 101,200 | 0 | 0 |
| 2092 | 0 | 0 | 17,506 | 101,200 | 0 | 0 |
| 2093 | 0 | 0 | 11,903 | 101,200 | 0 | 0 |
| 2094 | 0 | 0 | 7,852 | 101,200 | 0 | 0 |
| 2095 | 0 | 0 | 5,024 | 101,200 | 0 | 0 |
| 2096 | 0 | 0 | 3,121 | 101,200 | 0 | 0 |
| 2097 | 0 | 0 | 1,885 | 101,200 | 0 | 0 |
| 2098 | 0 | 0 | 1,110 | 101,200 | 0 | 0 |
| 2099 | 0 | 0 | 635 | 101,200 | 0 | 0 |
| 2100 | 0 | 0 | 345 | 101,200 | 0 | 0 |
| 2101 | 0 | 0 | 197 | 101,200 | 0 | 0 |
| 2102 | 0 | 0 | 113 | 101,200 | 0 | 0 |
| 2103 | 0 | 0 | 59 | 101,200 | 0 | 0 |
| 2104 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2105 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2106 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2107 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2108 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2109 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2110 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2111 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2112 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2113 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2114 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2115 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2116 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2117 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2118 | 0 | 0 | 0 | 101,200 | 0 | 0 |
| 2119 | 0 | 0 | 0 | 101,200 | 0 | 0 |



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 | \$ 97,959,431 | \$ 16,341,689 | \$ 16,341,689 | \$ 0 | \$ 16,260,588 | \$ 0 | \$ 16,184,727 |
| 2021 | 90,082,951 | 16,758,806 | 16,758,806 | 0 | 16,510,530 | 0 | 16,280,524 |
| 2022 | 74,039,684 | 17,047,203 | 17,047,203 | 0 | 16,628,371 | 0 | 16,244,087 |
| 2023 | 57,546,149 | 17,298,810 | 17,298,810 | 0 | 16,706,729 | 0 | 16,168,706 |
| 2024 | 40,634,817 | 17,514,946 | 17,514,946 | 0 | 16,747,987 | 0 | 16,057,751 |
| 2025 | 23,337,157 | 17,697,016 | 17,697,016 | 0 | 16,754,539 | 0 | 15,914,494 |
| 2026 | 5,683,543 | 17,846,306 | 5,711,890 | 12,134,416 | 5,354,155 | 10,668,854 | 15,741,931 |
| 2027 | 0 | 17,963,818 | 0 | 17,963,818 | 0 | 15,484,506 | 15,542,653 |
| 2028 | 0 | 18,050,174 | 0 | 18,050,174 | 0 | 15,253,867 | 15,318,802 |
| 2029 | 0 | 18,105,522 | 0 | 18,105,522 | 0 | 15,000,628 | 15,072,015 |
| 2030 | 0 | 18,129,493 | 0 | 18,129,493 | 0 | 14,725,969 | 14,803,445 |
| 2031 | 0 | 18,121,307 | 0 | 18,121,307 | 0 | 14,430,705 | 14,513,880 |
| 2032 | 0 | 18,079,801 | 0 | 18,079,801 | 0 | 14,115,345 | 14,203,799 |
| 2033 | 0 | 18,003,471 | 0 | 18,003,471 | 0 | 13,780,149 | 13,873,434 |
| 2034 | 0 | 17,890,554 | 0 | 17,890,554 | 0 | 13,425,217 | 13,522,855 |
| 2035 | 0 | 17,739,071 | 0 | 17,739,071 | 0 | 13,050,532 | 13,152,017 |
| 2036 | 0 | 17,546,960 | 0 | 17,546,960 | 0 | 12,656,075 | 12,760,869 |
| 2037 | 0 | 17,312,209 | 0 | 17,312,209 | 0 | 12,241,918 | 12,349,452 |
| 2038 | 0 | 17,032,855 | 0 | 17,032,855 | 0 | 11,808,216 | 11,917,895 |
| 2039 | 0 | 16,707,203 | 0 | 16,707,203 | 0 | 11,355,347 | 11,466,548 |
| 2040 | 0 | 16,333,989 | 0 | 16,333,989 | 0 | 10,884,005 | 10,996,085 |
| 2041 | 0 | 15,912,453 | 0 | 15,912,453 | 0 | 10,395,214 | 10,507,511 |
| 2042 | 0 | 15,442,456 | 0 | 15,442,456 | 0 | 9,890,369 | 10,002,209 |
| 2043 | 0 | 14,924,430 | 0 | 14,924,430 | 0 | 9,371,168 | 9,481,874 |
| 2044 | 0 | 14,359,346 | 0 | 14,359,346 | 0 | 8,839,556 | 8,948,453 |
| 2045 | 0 | 13,748,859 | 0 | 13,748,859 | 0 | 8,297,787 | 8,404,209 |
| 2046 | 0 | 13,095,713 | 0 | 13,095,713 | 0 | 7,748,624 | 7,851,926 |
| 2047 | 0 | 12,403,743 | 0 | 12,403,743 | 0 | 7,195,286 | 7,294,855 |
| 2048 | 0 | 11,677,957 | 0 | 11,677,957 | 0 | 6,641,436 | 6,736,707 |
| 2049 | 0 | 10,924,709 | 0 | 10,924,709 | 0 | 6,091,228 | 6,181,695 |
| 2050 | 0 | 10,151,435 | 0 | 10,151,435 | 0 | 5,549,096 | 5,634,326 |
| 2051 | 0 | 9,366,612 | 0 | 9,366,612 | 0 | 5,019,693 | 5,099,340 |
| 2052 | 0 | 8,579,447 | 0 | 8,579,447 | 0 | 4,507,686 | 4,581,498 |
| 2053 | 0 | 7,799,252 | 0 | 7,799,252 | 0 | 4,017,420 | 4,085,245 |
| 2054 | 0 | 7,035,138 | 0 | 7,035,138 | 0 | 3,552,767 | 3,614,553 |
| 2055 | 0 | 6,295,832 | 0 | 6,295,832 | 0 | 3,117,074 | 3,172,868 |
| 2056 | 0 | 5,589,638 | 0 | 5,589,638 | 0 | 2,713,173 | 2,763,118 |
| 2057 | 0 | 4,924,138 | 0 | 4,924,138 | 0 | 2,343,278 | 2,387,607 |
| 2058 | 0 | 4,305,808 | 0 | 4,305,808 | 0 | 2,008,852 | 2,047,878 |
| 2059 | 0 | 3,739,562 | 0 | 3,739,562 | 0 | 1,710,464 | 1,744,565 |
| 2060 | 0 | 3,228,503 | 0 | 3,228,503 | 0 | 1,447,752 | 1,477,353 |
| 2061 | 0 | 2,773,911 | 0 | 2,773,911 | 0 | 1,219,510 | 1,245,067 |
| 2062 | 0 | 2,375,317 | 0 | 2,375,317 | 0 | 1,023,798 | 1,045,776 |
| 2063 | 0 | 2,030,691 | 0 | 2,030,691 | 0 | 858,097 | 876,956 |
| 2064 | 0 | 1,736,658 | 0 | 1,736,658 | 0 | 719,460 | 735,640 |
| 2065 | 0 | 1,488,903 | 0 | 1,488,903 | 0 | 604,726 | 618,634 |
| 2066 | 0 | 1,282,391 | 0 | 1,282,391 | 0 | 510,637 | 522,643 |
| 2067 | 0 | 1,111,687 | 0 | 1,111,687 | 0 | 433,985 | 444,410 |
| 2068 | 0 | 971,429 | 0 | 971,429 | 0 | 371,794 | 380,916 |
| 2069 | 0 | 856,473 | 0 | 856,473 | 0 | 321,370 | 329,419 |



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2070 to 2119 (concluded)

| Year | Projected Beginning Plan Net Position | Projected Benefit Payments | Funded Portion of Projected Benefit Payments | Unfunded Portion of Projected Benefit Payments | Present Value of Funded Benefit Payments using Expected Return Rate (v) | Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf) | Present Value of All Benefit Payments using Single Discount Rate (SDR) |
|---------------|---|-------------------------------|--|--|---|---|--|
| (a) | (b) | (c) | (d) | (e) | (f)=(d)*v ^{(a)-5} | (g)=(e)*vf ^{(a)-5} | (h)=(c)/(1+SDR) ^{(a)-5} |
| 2070 | \$ 0 | \$ 762,091 | \$ 0 | \$ 762,091 | \$ 0 | \$ 280,348 | \$ 287,514 |
| 2071 | 0 | 683,906 | 0 | 683,906 | 0 | 246,654 | 253,084 |
| 2072 | 0 | 618,236 | 0 | 618,236 | 0 | 218,597 | 224,409 |
| 2073 | 0 | 561,953 | 0 | 561,953 | 0 | 194,801 | 200,080 |
| 2074 | 0 | 512,519 | 0 | 512,519 | 0 | 174,181 | 178,990 |
| 2075 | 0 | 467,953 | 0 | 467,953 | 0 | 155,917 | 160,302 |
| 2076 | 0 | 426,739 | 0 | 426,739 | 0 | 139,397 | 143,389 |
| 2077 | 0 | 387,801 | 0 | 387,801 | 0 | 124,194 | 127,814 |
| 2078 | 0 | 350,592 | 0 | 350,592 | 0 | 110,076 | 113,341 |
| 2079 | 0 | 314,663 | 0 | 314,663 | 0 | 96,858 | 99,781 |
| 2080 | 0 | 279,767 | 0 | 279,767 | 0 | 84,428 | 87,020 |
| 2081 | 0 | 245,839 | 0 | 245,839 | 0 | 72,734 | 75,005 |
| 2082 | 0 | 213,057 | 0 | 213,057 | 0 | 61,799 | 63,760 |
| 2083 | 0 | 181,907 | 0 | 181,907 | 0 | 51,729 | 53,397 |
| 2084 | 0 | 152,757 | 0 | 152,757 | 0 | 42,588 | 43,984 |
| 2085 | 0 | 125,978 | 0 | 125,978 | 0 | 34,434 | 35,580 |
| 2086 | 0 | 101,828 | 0 | 101,828 | 0 | 27,287 | 28,209 |
| 2087 | 0 | 80,624 | 0 | 80,624 | 0 | 21,181 | 21,908 |
| 2088 | 0 | 62,456 | 0 | 62,456 | 0 | 16,087 | 16,647 |
| 2089 | 0 | 47,258 | 0 | 47,258 | 0 | 11,933 | 12,355 |
| 2090 | 0 | 34,837 | 0 | 34,837 | 0 | 8,624 | 8,934 |
| 2091 | 0 | 25,030 | 0 | 25,030 | 0 | 6,075 | 6,296 |
| 2092 | 0 | 17,506 | 0 | 17,506 | 0 | 4,166 | 4,319 |
| 2093 | 0 | 11,903 | 0 | 11,903 | 0 | 2,777 | 2,881 |
| 2094 | 0 | 7,852 | 0 | 7,852 | 0 | 1,796 | 1,864 |
| 2095 | 0 | 5,024 | 0 | 5,024 | 0 | 1,126 | 1,170 |
| 2096 | 0 | 3,121 | 0 | 3,121 | 0 | 686 | 713 |
| 2097 | 0 | 1,885 | 0 | 1,885 | 0 | 406 | 422 |
| 2098 | 0 | 1,110 | 0 | 1,110 | 0 | 235 | 244 |
| 2099 | 0 | 635 | 0 | 635 | 0 | 131 | 137 |
| 2100 | 0 | 345 | 0 | 345 | 0 | 70 | 73 |
| 2101 | 0 | 197 | 0 | 197 | 0 | 39 | 41 |
| 2102 | 0 | 113 | 0 | 113 | 0 | 22 | 23 |
| 2103 | 0 | 59 | 0 | 59 | 0 | 11 | 12 |
| 2104 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2105 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2106 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2108 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2109 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2110 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2111 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2113 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2114 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2115 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2116 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2117 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2118 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2119 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | \$ | 104,962,899 | \$ | 317,594,018 | \$ | 422,556,917 | |



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. |