



RETIREMENT SYSTEM

A Fiduciary Fund of the State of Wyoming

COMPREHENSIVE ANNUAL FINANCIAL REPORT For the Fiscal Year Ended December 31, 2018



Partnering to Build Financial Security For Members and their Families



VISION STATEMENT

Partnering to build financial security for members and their families

MISSION STATEMENT

Provide expert administration and responsible investment of Wyoming's public retirement and supplemental savings programs

VALUES

- Integrity
- Accountability
- Commitment
- Excellence

PHILOSOPHY

The Wyoming Retirement System Board and the Wyoming Retirement System staff are committed to:

- Carrying out all statutorily mandated and other responsibilities in a timely, courteous, professional and ethical manner.
- Safeguarding the financial integrity of the System through prudent management
- Providing adequate member benefits for all plans within the parameters of actuarial funding.

Wyoming Retirement System

A Fiduciary Fund of the State of Wyoming

Comprehensive Annual Financial Report For the Fiscal Year Ended December 31, 2018

6101 Yellowstone Road, Suite 500
Cheyenne, Wyoming 82002
(307) 777-7691
retirement.wyo.gov

Ruth Ryerson, Executive Director
David Swindell, Deputy Director
Jack Riley, Finance Supervisor

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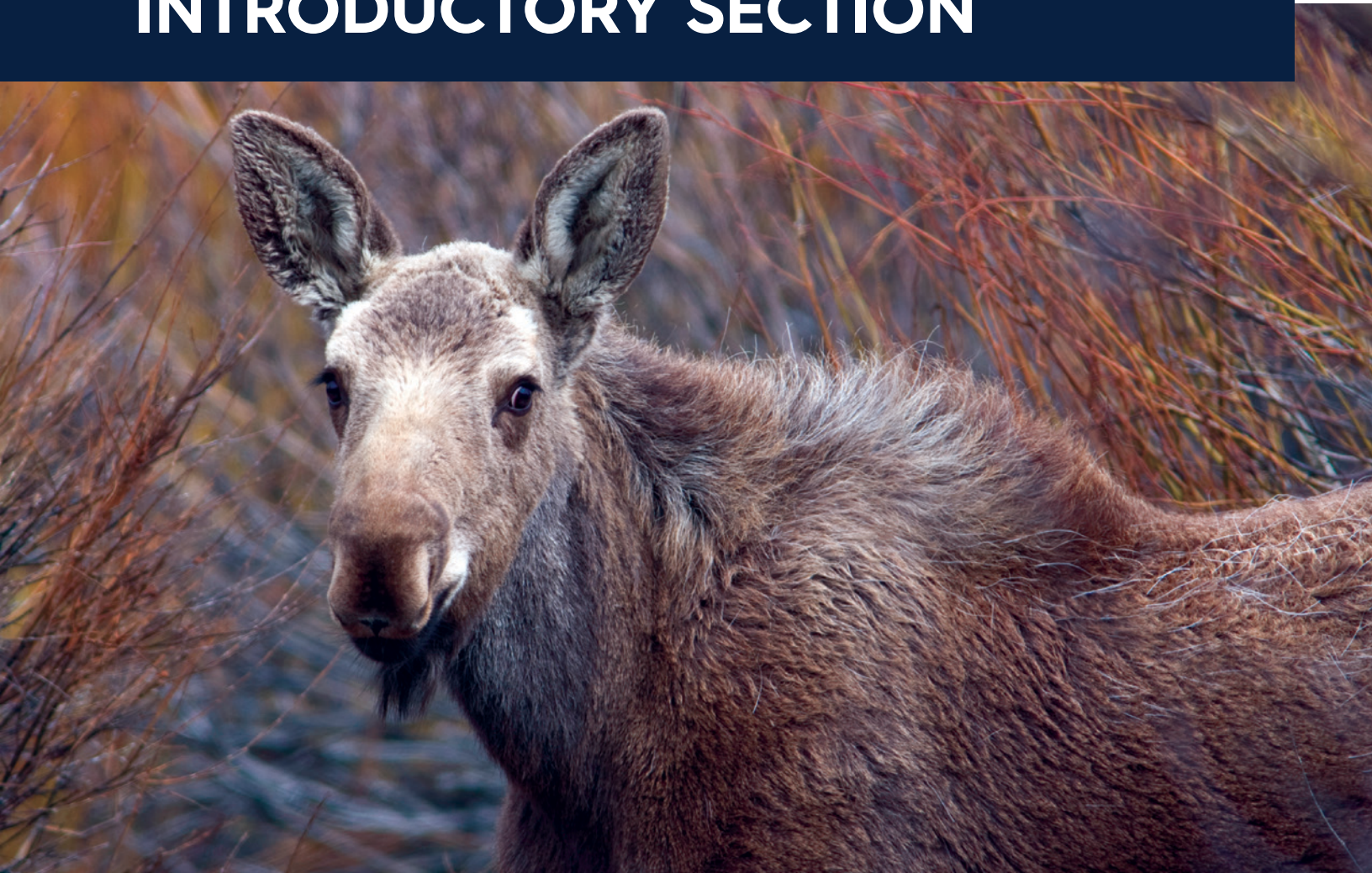
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Comprehensive Annual Financial Report 2018

INTRODUCTORY SECTION



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Wyoming Retirement System

Partnering to Build Financial Security for Members and their Families

June 26, 2019

Wyoming Retirement Board
6101 Yellowstone Road, Suite 500
Cheyenne, Wyoming 82001

Dear Board Members:

We are pleased to present the Comprehensive Annual Financial Report (CAFR) of the Wyoming Retirement System (WRS) including the Wyoming Deferred Compensation Program (457 Plan) for the year ended December 31, 2018. The financial reporting entities of the WRS include the Public Employees Pension Plan; State Patrol, Game & Fish Warden, and Criminal Investigator Pension Plan; Paid Firemen's Pension Plans A and B; Judicial Pension Plan; Law Enforcement Pension Plan; Volunteer Firefighter & EMT Pension Plan; Air Guard Firefighter Pension Plan and the 457 Deferred Compensation Plan.

Responsibility for both the accuracy of the data and the completeness and fairness of the presentation, including all disclosures, rests with the WRS Management. To the best of our knowledge and belief, the enclosed data is accurate in all material respects and has been reported in a manner designed to present fairly the net position of each plan and the combined changes in the net position of the WRS for the year ended December 31, 2018. All disclosures necessary to enable the reader to gain an understanding of the WRS's financial activities have been included.

The Wyoming Retirement System and Wyoming Deferred Compensation Program were established by legislation and authorized as indicated in the notes to the financial statements. The purpose of the Wyoming Retirement System is to provide administration of eight defined benefit retirement plans and act as Plan Sponsor to the Wyoming Deferred Compensation Program.

The financial statements have been prepared in accordance with generally accepted accounting principles applied on a consistent basis as agreed upon by the Governmental Accounting Standards Board (GASB). Financial information presented throughout this Annual Report is consistent with the financial statements.

Financial Information

The Wyoming Retirement System's transactions are reported on the accrual basis of accounting. Contributions are recognized as revenue when due pursuant to formal commitments as well as statutory and contractual requirements. Expenses are recognized when the corresponding liabilities are incurred.

WRS Management is responsible for establishing and maintaining the system of internal controls. This system of internal controls provides management with reasonable, but not absolute, assurance regarding the safeguarding of assets against loss or unauthorized disposition and the reliability of the financial records from which the financial reports are prepared. The concept of reasonable assurance recognizes that: (1) the cost of a control should not exceed the benefits likely to be derived; and (2) the valuation of costs and benefits requires estimates and judgments by management. Discussion and analysis of net position and related additions and deductions is presented in the Management's Discussion and Analysis (MD&A) in the Financial Section of this report.

Plan Financial Condition

The funding objective of the WRS pension funds is to meet long-term benefit requirements through contributions, which remain relatively level as a percent of member payroll over time, and through investment earnings. Historical information concerning funding progress is presented as a schedule in the Actuarial section of the CAFR.

Letter of Transmittal

Net Pension Liability

The Wyoming Retirement System has an actuarial evaluation annually that calculates the funded status of each of the eight defined benefit plans administered by the system. The 2018 Evaluation was performed by Gabriel Roeder Smith & Company (GRS). They performed two evaluations for each plan. The actuarial funding reports provide information useful for making long-term funding and contribution decisions. The GASB 67 reports provide information for accounting purposes. As of January 1, 2019, the Actuarial Funded Ratio for eight plans administered by WRS was as follows:

	Actuarial Funding Ratio	GASB 67 Accounting Ratio
Public Employee Pension Plan	74.15%	69.17%
State Patrol, Game & Fish Warden and Criminal Investigator Plan	76.52%	66.53%
Volunteer Firefighter & EMT Pension Plan	72.85%	68.18%
Paid Fireman's Pension Plan A	46.09%	29.99%
Paid Fireman's Pension Plan B	92.94%	87.07%
Judicial Pension Plan	97.66%	90.92%
Law Enforcement Pension Plan	85.57%	71.22%
Air Guard Firefighters Pension Plan	85.55%	79.98%

A Schedule of Funding Progress is included within the Actuarial Section. The net pension liability of each plan is reviewed annually. The statutes governing the Wyoming Retirement System's plan requires that the unfunded liabilities be financed systematically over future years.

Investments

The defined benefit plan assets of the WRS are held at Northern Trust, which acts as custodian of all investment, except for those assets held by the treasurer of the State of Wyoming and the 457 Plan. Northern Trust also administers a securities lending program on behalf of the WRS. Daily, Northern Trust provides WRS with detailed accounting reports, which include all trades, receipt of income and accrual information. On December 31, 2018, the net position for all eight defined benefit plans totaled \$7.9 billion, which represents a 7.03% decrease from the \$8.5 billion held on December 31, 2017.

Management retains a professional investment consultant who reports quarterly the investment returns by manager and provides recommendations regarding the managers and portfolio holdings. The investment consultant, Meketa Investment Group, Inc. (Meketa), provides the Board with a measure of how well each of the investment managers perform relative to their benchmarks and peers. WRS's internal investment team includes a Chief Investment Officer, three Senior Investment Officers, three Investment Analysts and two Investment Interns. Investment activities are monitored by both internal and external auditors for compliance with WRS's Investment Policy Statement (IPS).

An integral part of any investment policy is strategic asset allocation. This asset mix is designed to maximize investment returns while minimizing risk through optimum portfolio diversification. The Board's approved target allocation is outlined in Note 3 to the Basic Financial Statements. The annual return of funds for calendar year 2018 was -3.5%, net of fees.

The Financial Section and Investment Section contain more detailed analysis and information.

Professional Services

Professional consultants are retained to perform services essential to the efficient operation of the WRS. State statutes require an annual audit be performed by either the State Audit Department or by an independent auditor. The accounting firm of Eide Bailly, performed the annual audit. The auditor's report on the basic financial statements is included in the Financial Section of this report.

The actuarial valuations provide a means by which to measure at a point in time for each retirement plan assets, as well as liabilities and the impact on those liabilities proposed plan modifications may have. Reports from the WRS's actuary, Gabriel Roeder Smith & Company (GRS) are included in this report.

Operations and Activities

During 2018, WRS continued to refine its pension administration software system (Retirement Administration and Investment Network or RAIN) which went live in May, 2014. Calendar year 2018 enhancements included improvements to the internal reports. RAIN will continue to be enhanced during the next few years.

Pension operations continued to provide a high level of service to members and posted the following statistical indicators:

- *Processed 1,746 retirement applications*
- *Processed 1,861 refund applications*
- *Answered approximately 21,055 phone calls*
- *Deposited \$345.5 million dollars in employee, employer and other contributions*
- *Issued \$619.4 million dollars in retirement benefits to approximately 29,816 pensioners across eight retirement plans*

Awards and Acknowledgments

The WRS submitted its 2017 report to the Government Finance Officers Association (GFOA) to be considered for a Certificate of Achievement for Excellence in Financial Reporting. We are pleased to announce that the WRS was notified of its selection for the certificate of achievement award for 2017. This represents the twenty-fifth (25) consecutive years that WRS has been recognized in this manner. The Certificate of Achievement for Excellence in Financial Reporting is the highest form of recognition in the area of public employee retirement system accounting and financial reporting.

We express our thanks and appreciation to all stakeholders including our members, affiliated employers and to the various employee organizations and associations for their continued cooperation and support.

We also wish to express our special thanks and appreciation to WRS staff, members of the pension plans, the WRS Board of Trustees, Volunteer Firefighter & EMT Board of Trustees, our consultants and other associates whose diligence and commitment have contributed significantly to another year of accomplishment for the WRS.

Finally, we wish to thank the Governor and the Legislature for their commitment to the financial integrity of Wyoming's public employee retirement systems. The foresight and support exhibited consistently by the Governor and members of the Legislature are both critically important and commendable.

Sincerely,



Jack Riley
Finance Supervisor



David Swindell
Deputy Director



Ruth Ryerson
Executive Director



Wyoming Retirement System

Partnering to Build Financial Security for Members and their Families

June 30, 2019



Laura Ladd
WRS Board Chair

Dear Members, Benefit Recipients, and Employers:

On behalf of the Board of Trustees, I am pleased to present the Wyoming Retirement System (WRS) Comprehensive Annual Financial Report (CAFR) for the fiscal year ended December 31, 2018. This report provides a detailed view of the financial and actuarial status of your retirement system. The Financial Section of the report is prepared in accordance with generally accepted accounting principles and includes financial statements that are appropriately attested to by WRS's independent auditors.

Additionally, I want to comment on some of the other objectives and accomplishments of WRS, which are integral to the successful operation of the system.

2018 was a difficult year in the investment markets. As the report shows, markets became volatile in the fourth quarter, with the S&P 500 dropping 14% from the end of September to the end of December. Markets recovered all of those losses by April 2019. However, at the end of the calendar year, the portfolio measured a loss of -3.52%.

Our long-term goal is to achieve a 7.00% investment return, although we know there will be variability year to year. The last two years are instructive. 2017 had a 14.2% return, and just one year later we have a loss of -3.52%. WRS is invested for the long run, and our investment return goal reflects that. It's important not to get too excited about great years, nor be too pessimistic when markets reverse course.

It is also instructive to note the importance of professional management in both up and down markets. While it is always good to make strong returns in up markets, it is also important to minimize losses in down markets. In that regard, I'm pleased to report that although we did have an investment loss, the WRS investment team exceeded the portfolio benchmark. In a down market, that means they lost less money than the benchmark did (and less money than many peer investment funds did). Our recovery will be faster and stronger as a result.

One of the outcomes of the past legislative session was the passage of House Bill 0222, relating to performance compensation for the investment team. The bill provides for the possibility of paying additional compensation to the team if the team can produce exceptional investment results above their benchmark. The additional compensation is limited to no more than 2% of the excess returns and no more than a percentage of base pay. Payouts are laddered over three years to promote longevity and discourage excessive short-term risk-taking. This structure is common in this industry and will allow WRS to attract and retain quality investment professionals and provide an alignment of interests.

The bill is additive to WRS' mission to build financial security for members and their families. We know that successful programs of this kind are fair, transparent, and relatively simple; they provide an alignment of incentives for the investment management team and the system beneficiaries over the long term. Our Board takes our fiduciary responsibility very seriously and spent considerable time on the design, implementation, and oversight of the program. We are pleased to be taking this step forward and grateful for the legislative support.

Last year, we informed readers that contribution rates would be impacted by the Board's 2017 decision adopting more conservative actuarial assumptions. This included reducing our assumed rate of investment return from 7.75% to 7.00%, as well as more conservative mortality tables and other factors. In 2018 we began the first part of a four-year series of contribution rate increases in the Public Employee plan, raising the total contribution rate from 16.62% to 18.62% by July 2021.

In the 2019 legislative session, contributions rates for the Fire B plan were also increased, and further non-core benefit adjustments were enacted. The adjustments included future limitations on death benefits for non-vested inactive members, as well as eliminating future interest accrual for non-vested inactive member account balances. In light of our 2018 investment experience, we expect that actuarial review will show the need for rate increases in both the Law Enforcement Plan and the Warden & Patrol Plan. These relatively strong plans had previously avoided rate increases, but the funding trajectory over the long-term requires a modest change. This increase is important for the security of the plans and our ability to pay full benefits over the long-term.

The value of a defined benefit pension plan in recruiting and retention was highlighted by House Bill 0246 in the past 2019 legislative session. County sheriffs throughout Wyoming cited growing difficulty in attracting qualified volunteers to serve in county search & rescue organizations. Such volunteers are essential public safety partners, often working in difficult conditions to locate and extract people who become injured or trapped in Wyoming's vast spaces. The bill allows search and rescue volunteers to participate in the Volunteer Firefighter and EMT pension plan beginning July 1, 2019. We are pleased to see them become a part of the system.

Board Chair's Letter

The Board continues to advocate for a Cost of Living Allowance (COLA) in the plans that have not paid a COLA since 2008. While COLA suspension was necessary in the wake of the 2008 financial crisis, the ongoing lack of a COLA imposes increasing hardship on many retirees. The Board remains committed on this issue.

From an actuarial standpoint, in 2018, all eight plans realized lower than assumed investment returns and lower than assumed salary increases. Actuarial funding ratios decreased as a result. The large Public Employee Plan funding ratio is 74.15% compared to 76.28% last year. The funding ratios for the other open plans (Warden, Patrol & DCI Plan, Law Enforcement Plan, Judicial Plan, Paid Firefighter B Plan, and Volunteer Firefighter & EMT Plan) also all declined, for similar reasons. Only the Guard Fire plan shows an actuarial increase (from 85.03% to 85.55%), due to its relative strength of contribution rates compared to the plan's normal cost. While the current actuarial position is important, the actuarial direction is even more important. Our overall direction remains positive over the long run, despite the 2018 setback.

The closed Paid Firefighter A Plan continues to present a significant funding need. There is a known funding problem due to the ongoing lack of a dedicated revenue stream. The plan needed \$16.9 million in contributions for 2018 and received none. The funding ratio decreased to 46.09%. Assets are projected to last for 7 years, compared to last year's projection of 10 years. This shows how rapidly market performance can alter that timeframe. WRS continues to inform decision-making parties about this situation and hopes a solution can be reached soon.

Exceptional customer service remains a high priority at the Wyoming Retirement System. We continue to refine and improve, RAIN, our pension administration system. WRS will continue to make investments in the RAIN system to enhance our ability to deliver top-tier customer service for years to come.

From a governance standpoint, our eleven-person Board saw the loss of Mark Gordon, as he was elected to be Wyoming's 33rd Governor. Mark was the former State Treasurer and a member of the WRS Board. In his new position, he will remain an important partner and friend to the Wyoming Retirement System. We also welcome the new State Treasurer, Curt Meier to the Board. Treasurer Meier has been active with the Board as a legislative liaison since 2009, and we're pleased to have him join the Board.

It is a privilege to lead a Board that seeks to represent the interests of the system as a whole in its deliberations and decision making. The Board is a dedicated, knowledgeable group of trustees, each of whom takes their fiduciary duty seriously and demonstrate the highest level of professionalism in their efforts to support members and beneficiaries of the system. As in all healthy organizations, there will be turnover within the Board in the coming years. Succession planning remains a top priority to ensure that strong governance practice continues.

This summer will see the departure of Executive Director Ruth Ryerson. Ruth has had a long and distinguished career in the pension industry and has served as Executive Director of WRS since 2013. Ruth has steered WRS on a sustainable course, building the leadership team across all functions of the organization, advocating for conservative planning assumptions, working closely with the legislature and the Board and demonstrating professionalism in all of her work. On behalf of everyone at WRS, we wish her the very best in retirement and express heartfelt gratitude for her many contributions to the system and the people of Wyoming.

The Board has been actively engaged in a nationwide professional search for a new Executive Director with Ruth's assistance. Members can be assured that we are committed to finding a strong and qualified professional to take the helm at WRS for the benefit of all members.

Since 1953, we have endeavored to provide excellence in administration of the public retirement plans entrusted to us. We've provided retirement security to generations of public servants. Our members' dedication and commitment as public servants to the people of Wyoming is an important part of what makes Wyoming an extraordinary place to call home. We remain committed to ensuring that we can deliver on the retirement promises made to you as a part of your public service. Please consider joining us in the coming year at one of our organized Town Hall meetings. We would love to hear from you and share with you our continued efforts on your behalf.

If you have any questions or suggestions regarding this report or any other aspect of WRS, please contact us at the Wyoming Retirement System, 6101 Yellowstone Road, Suite 500, Cheyenne Wyoming 82002 or call us at (307) 777-7691. Our website is retirement.wyo.gov.

Sincerely,



Laura Ladd, Chair
Board of Trustees

Wyoming Retirement System Board

The responsibility for the administration and operation of the Wyoming Retirement System, including all pension plans (except the Volunteer Firefighter & EMT Plan) and the Deferred Compensation (457) Plan is vested in the Wyoming Retirement Board. The Board is composed of eleven members, ten appointed by the Governor and the eleventh being the State Treasurer. The representation consists of the following:

- The State Treasurer
- A retired recipient of the Retirement System
- Two public employees
- Two public employees of the public school system, the University of Wyoming or Community College System
- Five qualified electors from Wyoming known for their public spirit and business or professional ability, and at least one of whom has professional expertise in investments and finance



Laura Ladd (Board Chair)
Wilson, WY
At Large
First Appointed: 2009
Current Term Expires: 2021



Eric Nelson (Vice Chair)
Casper, WY
At Large
First Appointed: 2015
Current Term Expires: 2023



Mark Gordon (State Treasurer)
Cheyenne/Bufalo, WY
Elected Official
Elected as the thirty third Governor,
of the State of Wyoming.



Tom Chapman
Jackson, WY
At Large
First Appointed: 2010
Current Term Expires: 2021



Brian Foster
Cheyenne, WY
State Employees
First Appointed: 2017
Current Term Expires: 2023



Tim Sullivan
Laramie, WY
Counties/Municipalities
First Appointed: 2013
Current Term Expires: 2019



Keith Hay
Rock Springs, WY
At Large
First Appointed: 2013
Current Term Expires: 2021



Vicci Colgan
Cheyenne, WY
Retiree
First Appointed: 2015
Current Term Expires: 2021



Garth Shanklin
Cheyenne, WY
Higher Education
First Appointed: 2009
Current Term Expires: 2023



Kay Watson
Shoshoni, WY
School Employees
First Appointed: 2017
Current Term Expires: 2019



Mike Ceballos
Cheyenne, WY
At Large
First Appointed: 2017
Current Term Expires: 2023



Curt Meier
(Board Member Elect - State Treasurer)
Cheyenne/La Grange, WY
Elected Official

Volunteer Firefighter & EMT Pension Board

The Volunteer Firefighter & EMT Pension Plan is controlled by a separate board and administered by the Executive Director of the Wyoming Retirement System. The Board consists of six volunteer firefighters and one volunteer EMT who shall be appointed by the Governor for staggered terms of three years. Each member is a volunteer firefighter or EMT with a minimum of five years as a member of a volunteer fire or EMT department service in the State of Wyoming.



Gene Diedtrich (Chairman)
Newcastle, WY



Lanny Applegate (Vice Chair)
Cheyenne, WY



Tracy Brown
Lingle, WY



Kim Lee
Riverton, WY



Jerry Munger
Wheatland, WY



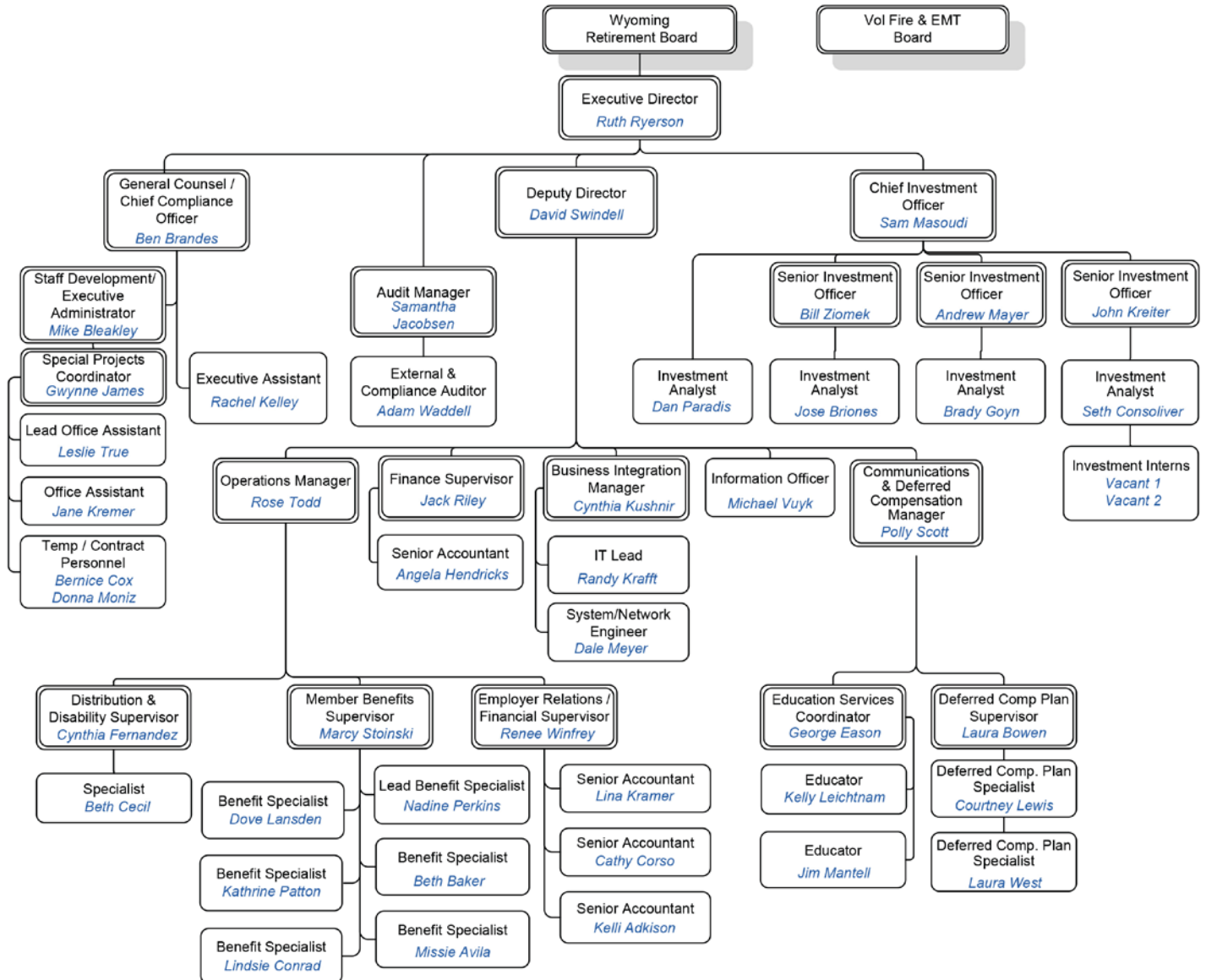
Eric Quinney
Evanston, WY



Alan Sessions
Afton, WY

Organizational Chart

Wyoming Retirement System Organization Chart



Actuary:

Gabriel Roeder Smith & Company
Irving, TX

Auditor:

Eide Bailly, LLP
Boise, ID

Master Custodian:

The Northern Trust Company
Chicago, IL

Investment Consultant:

Meketa Investment Group
Boston, MA

Alternative Investment Consultant:

Albourne America
San Francisco, CA

Deferred Compensation Plan Investment and Performance Consultant:

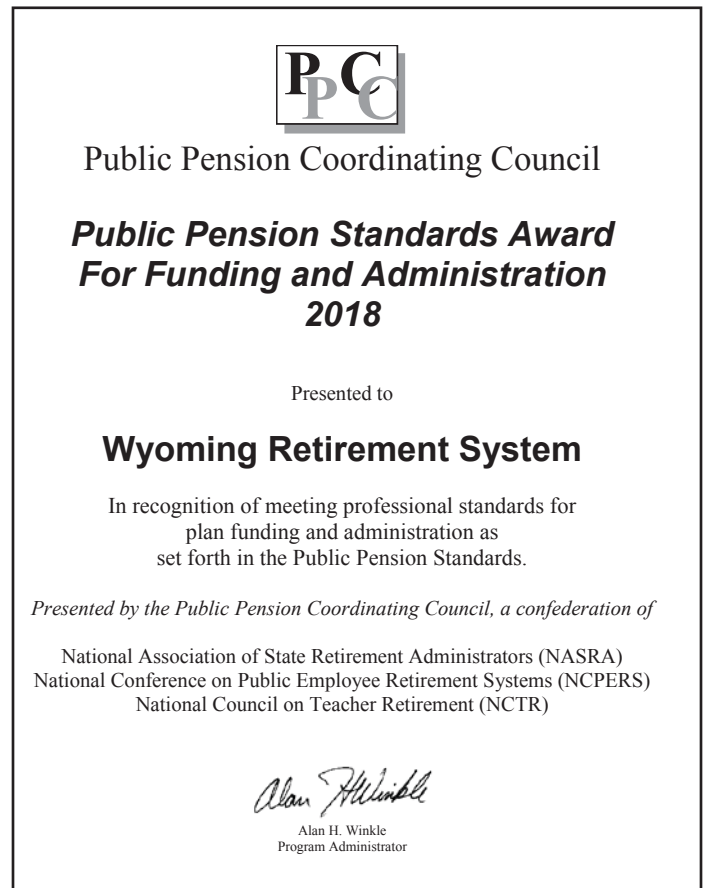
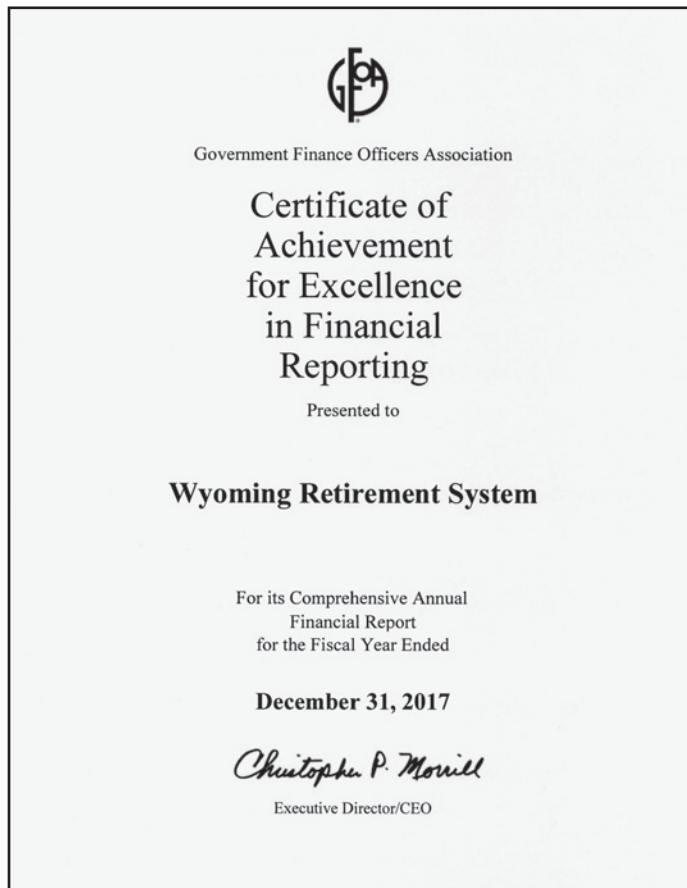
RVK, Inc.
Portland, OR

Deferred Compensation Plan Record Keeper:

Empower Retirement
Greenwood Village, CO

A complete listing of investment managers employed by the Wyoming Retirement System is available in the Investment Section.

Professional Awards



Plan Overview

The Wyoming Retirement System administers eight defined benefit pension plans and one 457 deferred compensation plan:

Pension Plan	Contributions	Vesting Service	Eligibility for Full Retirement	Multiplier	Highest Avg Salary
Public Employees Tier 1 (First contribution before 9/1/2012)	17.12% of salary Employee = 8.50% Employer = 8.62%	48 months	<ul style="list-style-type: none"> ■ Age 60 with 4 yrs service, or ■ Upon meeting requirements of the "Rule of 85" (age + years of service equal or exceed 85) 	2.125% for first 15 yrs of service, plus 2.25% for remaining yrs	36 continuous months
Public Employees Tier 2 (First contribution on or after 9/1/2012)	17.12% of salary Employee = 8.50% Employer = 8.62%	48 months	<ul style="list-style-type: none"> ■ Age 65 with 4 yrs service, or ■ Upon meeting requirements of the "Rule of 85" (age + years of service equal or exceed 85) 	2% for all yrs of service	60 continuous months
Warden, Patrol, and DCI	29.44% of salary Employee = 14.56% Employer = 14.88%	72 months	<ul style="list-style-type: none"> ■ Age 50 with 6 yrs service 	2.5% for all yrs of service 75% ceiling	36 continuous months
Volunteer Firefighter & EMT	\$15 per month	60 months	<ul style="list-style-type: none"> ■ Age 60 with 5 yrs service 	\$16/mo per year of service for the first 10 years of service, plus \$19/mo per year of service over 10 yrs	n/a
Paid Firemen's Pension Plan A	None	120 months	<ul style="list-style-type: none"> ■ 20th anniversary of date of employment 	75% of Firemen 1st Class's salary for first 20 yrs + 1.5% of salary for 21+ yrs	n/a
Paid Firemen's Pension Plan B	21.245% of salary: Employee = 9.245% Employer = 12%	48 months	<ul style="list-style-type: none"> ■ Age 50 with 4 yrs service 	2.8% for first 25 yrs of service. 70% ceiling	36 continuous months
Judicial	23.72% of salary: Employee = 9.22% Employer = 14.5%	48 months	<ul style="list-style-type: none"> ■ Age 60 with at least 20 yrs service, or ■ Age 65 with 4 yrs service, or ■ Age 70 with continuous service 	4% for first 5 yrs of service + 3% for yrs 6-15 + 2% for yrs 16-20 + 1% for yrs 21 or more	36 continuous months
Law Enforcement	17.20% of salary: Employee = 8.60% Employer = 8.60%	48 months	<ul style="list-style-type: none"> ■ Age 60 with 4 yrs service, or ■ Any age with 20 yrs service 	2.5% for all yrs of service. 75% ceiling	60 continuous months
Guard Firefighter	23.77% of salary: Employee = 16.65% Employer = 7.12%	48 months	<ul style="list-style-type: none"> ■ Age 60 with 4 yrs service, or ■ Age 50 with 25 yrs service, or ■ At least age 55 & meeting requirements of "Rule of 75" (age + years of service equal or exceed 75) 	2.5% for all yrs of service	36 continuous months

Note: The employer contribution for Park Rangers in Public Employee Plan Tier 1 or 2 is 1% greater than the amount shown.

Further plan details are available in the Notes to the Financial Statements in this report. Plan details, a history of contribution rates and major changes to plans, and governing statutes, rules and policies that apply to WRS retirement plans are also available at retirement.wyo.gov.

- Wyoming Retirement Act: W.S. 9-3-401 - W.S. 9-3-432
- Uniform Management of Public Employees Retirement Act: W.S. 9-3-433 - W.S. 9-3-454
- Deferred Compensation Program: W.S. 9-3-501 - W.S. 9-3-509
- State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement: W.S. 9-3-601 - W.S. 9-3-620
- Judicial Retirement: W.S. 9-3-701 - W.S. 9-3-713
- Firemen's Pensions and Death Benefits (Plan A): W.S. 15-5-201 - W.S. 15-5-210
- Firemen's Pension Account Reform Act of 1981 (Plan B): W.S. 15-5-401 - W.S. 15-5-422
- Volunteer Firefighter and EMT Pension Plan: 35-9-616 - 35-9-628
- Policemen Pensions and Death Benefits: W.S. 15-5-301 - W.S. 15-5-314
- Higher Education Retirement: W.S. 21-19-101 - W.S. 21-19-106
- Public Meetings Act W.S. 16-4-401 - W.S. 16-4-408
- Wyoming Retirement Board Rules
- Volunteer Firefighter and EMT Pension Account Board Rules
- Wyoming Retirement System Board Policy Manual
- Deferred Compensation 457(b) Plan Document



Comprehensive Annual Financial Report 2018

FINANCIAL SECTION



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Independent Auditor's Report

To the Board of Trustees
Wyoming Retirement System
Cheyenne, Wyoming

Report on the Financial Statements

We have audited the accompanying financial statements of the Wyoming Retirement System (WRS), which comprise the statement of fiduciary net position as of December 31, 2018, and the related statement of changes in fiduciary net position, for the year then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Independent Auditor's Report

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective statement of the fiduciary net position of the Wyoming Retirement System, as of December 31, 2018, and the respective statement of changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matters

As discussed in Note 3, the financial statements include investments valued at \$2,626,508,252 (33.19 % of net position) as of December 31, 2018, whose carrying values have been estimated by management in the absence of readily determinable fair values. Management's estimates are based on information provided by the fund managers or the general partners. Our opinion is not modified with respect to this matter.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, schedule of changes in net pension liability and related ratios – multiyear, schedule of investment returns, and schedule of contributions multiyear (collectively the required supplementary information) on pages 19-33 and 60-72 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the WRS's basic financial statements as a whole. The introductory, other supplementary information, investment, actuarial and statistical sections are presented for purposes of additional analysis and are not a required part of the financial statements.

The other supplementary information accompanying the financial statements listed in the table of contents is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

The introductory, investment, actuarial and statistical sections have not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated May 22, 2019, on our consideration of the WRS's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the WRS's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering WRS's internal control over financial reporting and compliance.

The image shows a handwritten signature in black ink that reads "Eide Bailly LLP". The signature is written in a cursive, flowing style.

May 22, 2019
Boise, Idaho

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Management's Discussion and Analysis

Management's Discussion and Analysis

This section presents management's discussion and analysis of the Wyoming Retirement System's (WRS) financial status and performance for the year ended December 31, 2018.

WRS is responsible for administering retirement benefits for eight defined benefit pension plans and one defined contribution plan. The eight defined benefit plans are the Public Employee Pension Plan, State Patrol, Game and Fish Warden and Criminal Investigator Pension Plan, Volunteer Firefighter & EMT Pension Plan, Paid Firemen's Pension Plan A, Paid Firemen's Pension Plan B, Judicial Pension Plan, Law Enforcement Pension Plan and the Air Guard Firefighters Pension Plan. The defined contribution plan is also known as the Wyoming Deferred Compensation Program (457 Plan).

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the WRS financial reporting, which is comprised of the following components:

1. Basic Financial Statements, including Notes to the Basic Financial Statements
2. Required Supplementary Information
3. Other Supplementary Information

Collectively, this information presents the combined net position held in trust for pension benefits for each of the funds administered by WRS and the 457 Plan sponsored by WRS as of December 31, 2018. This financial information also summarizes the combined changes in net position held in trust for pension and defined contribution benefits for the year then ended. The information in each of these components is briefly summarized as follows:

1. Basic Financial Statements. For the calendar year ended December 31, 2018, basic financial statements are presented for the retirement funds administered and sponsored by WRS. Fiduciary funds are used to account for resources held for the benefit of parties outside WRS. These fiduciary funds are comprised of eight defined benefit systems and one 457 Plan.
 - The Statement of Fiduciary Net Position – Pension (and Other Employee Benefit) Trust Funds is presented for the pension and defined contribution funds at December 31, 2018. This financial statement reflects the resources available to pay benefits to members, including retirees and beneficiaries.
 - The Statement of Changes in Fiduciary Net Position – Pension (and Other Employee Benefit) Trust Funds is presented for the pension and the Defined Contribution Trust Funds for the year ended December 31, 2018. This financial statement reflects the changes in the resources available to pay benefits to members, including retirees and beneficiaries for the calendar year 2018.
 - Notes to the Basic Financial Statements. The Notes to the Basic Financial Statements provide additional information that is essential to a full understanding of the data provided in the basic financial statements.
1. Required Supplementary Information. The required supplementary information consists of schedules concerning the net pension liability and changes therein, schedule of investment returns and actuarially determined contribution requirements.
2. Other Supplementary Information. This section includes the Schedule of Administrative Expenses and Investment Advisory Fees for all of the retirement plans, and for the 457 Plan, the Combining Schedule of Participant and Administrative Net Position, and the Combining Schedule of Changes in Participant and Administrative Net Position.

Financial Analysis of Defined Benefit Plans

Investments of the WRS Defined Benefit Plans are combined in a commingled investment pool. Each plan owns an equity position in the pool and receives proportionate investment income from the pool in accordance with respective ownership percentages. Each plan's allocated share of each type of investment in the pool is shown in the Statement of Fiduciary Net Position of each respective plan. Investment gains or losses are reported in the Statement of Changes in Fiduciary Net Position of each retirement plan. The rate of return on investment is therefore approximately the same for each of the plans.

Management's Discussion and Analysis

System's Total Investments

At December 31, 2018, WRS held total investments of \$7.9 billion. The combined investment portfolio experienced a return of -3.5% (net of fees) compared with the WRS Benchmark of -4.1%. The benchmark represents what would have occurred if WRS had invested in the corresponding weights derived from the Board's approved strategic asset allocation:

Investment results over time compared with WRS benchmarks are presented in the Investment Section of the CAFR. The figures are the net exposures in each asset class after accounting for the notional exposure differences through the Russell Overlay account. Physical exposures could be quite different depending on the notional exposure held through the overlay account.

Tactical Cash

On December 31, 2018, WRS held \$140 million in Tactical Cash, which was an increase from the \$127 million in Tactical Cash at the end of December 31, 2017. The change in cash is a function of decisions made by WRS Investment managers at year end and is monitored by the Cash Overlay Program.

Equities

On December 31, 2018, WRS held \$3.9 billion in Domestic, International Developed, and Emerging Market equity securities, which was a decrease from the \$4.0 billion held at year end 2017. Equity had a return of -9.9% for the year 2018 compared to -9.2% for the benchmark. As of December 31, 2018, the equity blended benchmarks consists of 48.2% Russell 3000 Total Return Index, 32.2% MSCI EAFE IMI, Net Dividend (70% Hedged to USD), and 19.6% MSCI EM IMI.

Fixed Income Securities

On December 31, 2018, WRS held \$1.3 billion in fixed income securities, which was a decrease from \$2.0 billion in fixed income securities held at year end 2017. Fixed income includes securities such as U.S. Treasury Bonds and Notes, Mortgage-Backed Securities, and Corporate Bonds. In total, fixed income had a return of no income for the year 2018 compared to the customized benchmark's return of 0.7%. As of December 31, 2018, blended benchmark for fixed income consists of 37.5% Barclays Aggregate, 50% Barclays Government, and 12.5% is a 50/50 blend of CS Leveraged Loan index and Bloomberg Barclays High Yield index.

Marketable Alternatives

On December 31, 2018, WRS held \$1.4 billion within the Marketable Alternatives asset class, compared to the \$1.4 billion held at year end 2017. This asset class returned -1.4% for the year, compared to a return of -3.9% for the benchmark, which consists of the HFRI Fund of Funds Composite Index.

Private Markets

On December 31, 2018, WRS held \$1.2 billion in managers considered to employ private market strategies, an increase from \$1.0 billion on December 31, 2017. Private Markets include such categories as real estate, infrastructure, natural resources, and private equity. In total, this asset class returned 9.9% for the year, compared to a vintage year blended benchmark return of 9.2%.

Management's Discussion and Analysis

Asset Allocation By Sector	2017		2018	
	Physical Securities	With Overlay	Physical Securities	With Overlay
Tactical Cash	5.60%	1.50%	1.80%	1.76%
Equities	49.70%	46.90%	48.40%	48.40%
Fixed Income	16.50%	23.30%	16.80%	16.82%
Marketable Alternatives (formerly "GTAA")	16.50%	16.50%	17.80%	17.78%
Private Markets (formerly "Alternatives")	11.80%	11.80%	15.20%	15.24%

Note: Positions with overlay are included to provide a more realistic disclosure of exposures

Investment allocation at Fair Value, as of December 31, 2018 and 2017

Security Lending

WRS earns additional investment income by lending investment securities to brokers. Northern Trust, WRS's custodial bank, does this on a pooled basis. The brokers provide collateral to the custodial bank and generally use the borrowed securities to cover short sales and failed trades. The custodial bank invests the cash collateral received from the brokers in order to earn interest. On December 31, 2018, the plans had \$499.4 million on loan secured by \$509.8 million in collateral. In addition the securities collateralized by cash, securities valued at \$90.7 million were on loan collateralized by non-cash collateral in the amount of \$92.9 million. For the year 2018, net securities lending income for all plans totaled \$1.9 million as compared to net securities lending income for all plans totaled \$2.1 million for the year ending 2017.

Actuarial Valuation and Funding Progress

An actuarial valuation of each WRS defined benefit plan is performed annually. The funded status of each of the Plans is shown in the Schedules of Funding Progress, which is located in the Actuarial section of this report. It is important to note that in 2013, and also in 2017, the Board changed the assumptions used by the actuary to value the plans. The new assumptions are reflected in these valuation results. In general, the new assumptions reflect increasing life expectancy and lower long-term investment returns. Funding ratios according to GASB 67 standards range from a high of 90.92% to a low of 29.99%. This schedule shows the January 1, 2019 funding ratios compared with the ratios at January 1 of the prior 6 years. The section also shows the amount by which actuarial assets fell short of actuarial liabilities. At January 1, 2019, the actuarial value of liabilities exceeded the fair value of assets by \$2.9 billion.

For all but Paid Firemen's Pension Plan A, beginning July 1, 2012 all future COLA's must be granted by the State Legislators. In addition, the COLA cannot be recommended by the board unless the plan is considered actuarially sound and the unfunded liability must not drop below 100% after the award of the COLA.

Management's Discussion and Analysis - Analysis of Individual Plans

Public Employee Pension Plan

The Public Employee Pension Plan provides retirement benefits to covered State of Wyoming, local government and public education employees. Employee and employer contributions and earnings on investments fund benefits of the Plan.

The Plan's net position held in trust for benefits on December 31, 2018 totaled \$6.8 billion, a decrease of \$527.2 million from 2017. Additions to the Plan net position held in trust for benefits include employer and employee contributions and investment gains/losses. For the calendar year 2018, employee and employer contributions totaled \$292.2 million, an increase from 2017 of approximately \$122 thousand. The Plan recognized a net investment loss of \$252.6 million for the year 2018 compared with a net investment gain of \$923.9 million a year earlier. This is due to the equity market.

Deductions from the Plan net position held in trust for benefits resulted from retirement and beneficiary benefits, administrative expenses and refunds to members terminating service. For 2018, benefits totaled \$547.9 million, an increase of \$31.1 million from a year earlier. The increase in benefits is due to the number of members retiring was greater than the number of those who became deceased. For 2018, the costs of administering the Plan's benefits totaled \$7 million, an increase from \$6.5 million a year earlier.

Refunds are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be refunded. Refunds to members terminating service totaled \$18.1 million in 2018, a decrease from \$18.7 million a year ago.

An actuarial valuation of the Plan's assets and net pension liability is performed annually. At the date of the most recent actuarial valuation, January 1, 2019, the fiduciary net position as a percentage of total pension liability decreased from 76.35% on January 1, 2018 to 69.17% on January 1, 2019. The net pension liability as a percentage of covered employee payroll increased from 128.31% to 174.88% as of January 1, 2018 and 2019, respectively. The net pension liability was \$3.05 billion as of January 1, 2019 compared to \$2.28 billion as of January 1, 2018. This is an increase from the prior year.

Public Employee Pension Plan		
Net Position		
December 31, (Dollars in Thousands)		
Assets:	2018	2017
Cash & Receivables	\$2,096,212	\$2,168,516
Investments: Fair Value	6,360,466	6,942,859
Securities Lending Collateral	431,367	474,432
Capital Assets/Net Depr.	3,214	3,502
Total Assets	8,891,259	9,589,309
Liabilities:		
Securities Lending Payable	431,367	474,432
Benefits & Refunds Payable	382	859
Securities Purchased	107,338	43,500
Other Payables	1,520,803	1,711,992
Total Liabilities	2,059,890	2,230,783
Total Net Position	\$6,831,369	\$7,358,526

Public Employee Pension Plan		
Change in Net Position		
December 31, (Dollars in Thousands)		
Additions:	2018	2017
Employee Contributions	\$146,255	\$145,008
Employer Contributions	145,912	147,037
Investment Income	(252,571)	923,878
Other Income	6,596	6,454
Total Additions	46,192	1,222,377
Deductions:		
Benefits	547,913	516,837
Refunds	18,114	18,655
Admin. Expenses	7,034	6,551
Depreciation Expense	288	313
Total Deductions	573,349	542,356
Change in Net Position	(527,157)	680,021
Total Beginning Net Position	7,358,526	6,678,505
Total Ending Net Position	\$6,831,369	\$7,358,526

Management's Discussion and Analysis - Analysis of Individual Plans

State Patrol, Game & Fish Warden, and Criminal Investigator Pension Plan

The Wyoming State Patrol, Game & Fish Warden, and Criminal Investigator Pension Plan provides retirement benefits to covered sworn officers of the Wyoming State Highway Patrol, law enforcement officers employed by the Wyoming State Game and Fish Department and sworn peace officers of the Division of Criminal Investigation. Employee and employer contributions and earnings on investments fund benefits of the Plan.

The Plan's net position held in trust for benefits at December 31, 2018 totaled \$133.3 million, a decrease of \$8.3 million from 2017. Additions to the Plan net position held in trust for benefits include employer and employee contributions and investment gains/losses. For the calendar year 2018, employee and employer contributions totaled \$6.9 million, a decrease from 2017 of \$23 thousand. The Plan recognized a net investment loss of \$4.9 million for the year 2018 compared with net investment gain of \$17.6 million a year earlier. This is due to the equity market.

Deductions from the Plan net position held in trust for benefits resulted primarily from retirement and beneficiary benefits, administrative expenses and refunds to members terminating service. For 2018, benefits totaled \$10.3 million, an increase from \$9.8 million. For 2018, the costs of administering the Plan's benefits totaled \$139 thousand compared to \$128 thousand a year ago.

Refunds are the results of employees leaving public service and requesting the money they contributed plus interest into the system to be refunded. Refunds to members terminating service totaled \$351 thousand in 2017, a decrease from \$509 thousand a year ago.

An actuarial valuation of the Plan's assets and net pension liability is performed annually. At the date of the most recent actuarial valuation, January 1, 2019, the fiduciary net position as a percentage of total pension liability decreased from 77.54% on January 1, 2018 to 66.53% on January 1, 2019. The net pension liability as a percentage of covered employee payroll increased from 173.53% to 290.66% as of January 1, 2018 and 2019, respectively. The net pension liability was \$67.0 million as of January 1, 2019 compared to \$41.0 million as of January 1, 2018. This is an increase from the prior year.

State Patrol, Game & Fish Warden, and Criminal Investigator Pension Plan		
Net Position		
December 31, (Dollars in Thousands)		
Assets:	2018	2017
Cash & Receivables	\$41,099	\$42,194
Investments: Fair Value	123,817	132,986
Securities Lending Collateral	8,397	9,087
Capital Assets/Net Depr.	59	65
Total Assets	173,372	184,332
Liabilities:		
Securities Lending Payable	8,397	9,087
Securities Purchased	2,090	833
Other Payables	29,616	32,803
Total Liabilities	40,103	42,723
Total Net Position	\$133,269	\$141,609

State Patrol, Game & Fish Warden, and Criminal Investigator Pension Plan		
Change in Net Position		
December 31, (Dollars in Thousands)		
Additions:	2018	2017
Employee Contributions	\$3,416	\$3,429
Employer Contributions	3,492	3,503
Investment Income	(4,908)	17,623
Other Income	418	107
Total Additions	2,418	24,662
Deductions:		
Benefits	10,261	9,795
Refunds	351	509
Admin. Expenses	139	129
Depreciation Expense	6	6
Total Deductions	10,757	10,439
Change in Net Position	(8,339)	14,223
Total Beginning Net Position	141,608	127,385
Total Ending Net Position	\$133,269	\$141,608

Management's Discussion and Analysis - Analysis of Individual Plans

Volunteer Firefighter & EMT Pension Plan

On July 1, 2015, the Volunteer Firefighter's and Emergency Medical Technicians Pension Plans were consolidated into the Volunteer Firefighter & EMT Pension Plan which provides retirement benefits to volunteer Firefighter and emergency medical technicians who elect to participate in the Plan. Benefits of the Plan are funded by employee contributions (\$15.00 per month), the fire insurance tax collected, and earnings on investments.

The Plan net position held in trust for benefits at December 31, 2018 totaled \$76.3 million, a decrease of \$5.6 million from 2017. For the calendar year 2018, employee contributions totaled \$421,771, an increase from 2017 of \$3,939. The Plan recognized a net investment loss of \$2.8 million for the year 2018 compared with net investment gain of \$10.0 million a year earlier.

The tax collected on fire insurance premiums totaled \$3.0 million in 2018 compared to \$3.3 million received in 2017. Deductions from the Plan net position held in trust for benefits resulted primarily from retirement and beneficiary benefits, administrative expenses and refunds to employees terminating service. For 2018, benefits totaled \$6.1 million, an increase from \$5.8 million a year earlier. The increase in benefits is due to the fact that there were more retirees being paid than in 2017. For 2018, the cost of administering the Plan's benefits totaled \$91,195 compared to \$88,835 a year earlier.

Refunds are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be refunded. Refunds to members terminating service totaled \$44,163 in 2018, an increase from \$33,242 a year ago.

An actuarial valuation of the Plan's assets and net pension liability is performed annually. At the date of the most recent actuarial valuation, January 1, 2019, the fiduciary net position as a percentage of total pension liability decreased from 74.11% on January 1, 2018 to 68.18% on January 1, 2019. The net pension liability was \$35.6 million as of January 1, 2019 compared to \$28.6 million as of January 1, 2018. This is an increase from the prior year.

Volunteer Firefighter & EMT Pension Plan		
Net Position		
December 31, (Dollars in Thousands)		
Assets:	2018	2017
Cash & Receivables	\$24,440	\$25,327
Investments: Fair Value	69,640	75,689
Securities Lending Collateral	4,723	5,172
Capital Assets/Net Depr.	36	39
Total Assets	98,839	106,227
Liabilities:		
Securities Lending Payable	4,723	5,172
Benefits & Refunds Payable	-	-
Securities Purchased	1,175	474
Other Payables	16,685	18,697
Total Liabilities	22,583	24,343
Total Net Position	\$76,256	\$81,884

Volunteer Firefighter & EMT Pension Plan		
Change in Net Position		
December 31, (Dollars in Thousands)		
Additions:	2018	2017
Employee Contributions	\$422	\$418
Investment Income	(2,783)	10,036
Other Income	2,973	3,298
Total Additions	612	13,752
Deductions:		
Benefits	6,102	5,781
Refunds	44	33
Admin. Expenses	91	89
Depreciation Expense	3	3
Total Deductions	6,240	5,906
Change in Net Position	(5,628)	7,846
Total Beginning Net Position	81,884	74,038
Total Ending Net Position	\$76,256	\$81,884

Management's Discussion and Analysis - Analysis of Individual Plans

Paid Firemen's Pension Plan A

The Paid Firemen's Pension Plan A provides retirement benefits to paid firemen who were employed prior to July 1, 1981. The plan is funded solely by earnings on investments.

The Plan net position held in trust for benefits on December 31, 2018 totaled \$97.2 million, a decrease of \$20 million from 2017. Additions to the Plan net position held in trust for benefits include investment income. This Plan is a closed plan and the Board suspended contributions in April 1997. The Plan recognized a net investment loss of \$3.6 million for the year 2018 compared with a net investment gain of \$15.4 million a year earlier. This is due to the equity market.

Deductions from the Plan net position held in trust for benefits resulted primarily from retirement and beneficiary benefits and administrative expenses. For 2018, benefits totaled \$15.8 million, an increase from \$377,186 a year earlier. The benefits continue to increase due to a 3% COLA in the current year. For 2018, the costs of administering the Plan's benefits totaled \$98,669 compared to \$108,772 a year ago.

Refunds are the result of employees leaving public service and requesting the money they contributed into the system to be refunded. There were no refunds paid to employees terminating service for 2018 or 2017.

An actuarial valuation of the Plan's assets and net pension liability is performed annually. At the date of the most recent actuarial valuation, January 1, 2019, the fiduciary net position as a percentage of total pension liability decreased from 34.28% on January 1, 2018 to 29.99% on January 1, 2019. The net pension liability as a percentage of covered employee payroll increased from 102,602.87% to 169,207.64% as of January 1, 2018 and 2019, respectively. The net pension liability was \$227.0 million as of January 1, 2019 compared to \$223.7 million as of January 1, 2018. This is an increase from the prior year.

Paid Firemen's Pension Plan A		
Net Position		
December 31, (Dollars in Thousands)		
Assets:	2018	2017
Cash & Receivables	\$30,017	\$35,427
Investments: Fair Value	90,228	108,665
Securities Lending Collateral	6,119	7,425
Capital Assets/Net Depr.	81	85
Total Assets	126,445	151,602
Liabilities:		
Securities Lending Payable	6,119	7,425
Securities Purchased	1,523	681
Other Payables	21,582	26,804
Total Liabilities	29,224	34,910
Total Net Position	\$97,221	\$116,692

Paid Firemen's Pension Plan A		
Change in Net Position		
December 31, (Dollars in Thousands)		
Additions:	2018	2017
Investment Income	\$(3,580)	\$15,352
Total Additions	(3,580)	15,352
Deductions:		
Benefits	15,788	15,411
Admin. Expenses	99	109
Depreciation Expense	4	6
Total Deductions	15,891	15,526
Change in Net Position	(19,471)	(174)
Total Beginning Net Position	116,692	116,866
Total Ending Net Position	\$97,221	\$116,692

Management's Discussion and Analysis - Analysis of Individual Plans

Paid Firemen's Pension Plan B

The Paid Firemen's Pension Plan B provides retirement benefits to paid firemen who were employed on or after July 1, 1981. Benefits of the Plan are funded by employee and employer contributions and investments income.

The Plan net position held in trust for benefits on December 31, 2018 totaled \$141.3 million, a decrease of \$4.7 million from 2017. Additions to the Plan net position held in trust for benefits include employer and employee contributions and investment income. For the calendar year 2018, member and employer contributions totaled \$5.9 million, an increase from 2017 of \$226,607. The Plan recognized a net investment loss of \$5.2 million for the year 2018 compared with a net investment gain of \$17.8 million a year earlier. This is due to the equity market.

Deductions from the Plan net position held in trust for benefits resulted primarily from retirement and beneficiary benefits, administrative expenses and refunds to employees terminating service. For 2018, benefits totaled \$5.5 million, an increase from \$5.1 million a year earlier. For 2018, the costs of administering the Plan's benefits totaled \$140,922 compared to \$130,930 a year ago.

Refunds are the result of employees leaving public service and requesting the money they contributed into the system to be refunded. Refunds to members terminating service totaled \$64,091 in 2018, a decrease from \$120,137 a year ago.

An actuarial valuation of the Plan's assets and net pension liability is performed annually. At the date of the most recent actuarial valuation, January 1, 2019, the fiduciary net position as a percentage of total pension liability increased from 77.98% on January 1, 2018 to 87.07% on January 1, 2019. The net pension liability as a percentage of covered employee payroll decreased from 146.17% to 78.26% as of January 1, 2018 and 2019, respectively. The net pension liability was \$21.0 million as of January 1, 2019 compared to \$41.2 million as of January 1, 2018. This is a decrease from the prior year.

Paid Firemen's Pension Plan B		
Net Position		
December 31, (Dollars in Thousands)		
Assets:	2018	2017
Cash & Receivables	\$44,177	\$44,001
Investments: Fair Value	130,550	136,490
Securities Lending Collateral	8,854	9,327
Capital Assets/Net Depr.	49	55
Total Assets	183,630	189,873
Liabilities:		
Securities Lending Payable	8,854	9,327
Benefits & Refunds Payable	33	4
Securities Purchased	2,203	855
Other Payables	31,226	33,669
Total Liabilities	42,316	43,855
Total Net Position	\$141,314	\$146,018

Paid Firemen's Pension Plan B		
Change in Net Position		
December 31, (Dollars in Thousands)		
Additions:	2018	2017
Employee Contributions	\$2,585	\$2,490
Employer Contributions	3,356	3,225
Investment Income	(5,198)	17,838
Other Income	237	289
Total Additions	980	23,842
Deductions:		
Benefits	5,474	5,055
Refunds	64	120
Admin. Expenses	141	131
Depreciation Expense	5	5
Total Deductions	5,684	5,311
Change in Net Position	(4,704)	18,531
Total Beginning Net Position	146,018	127,487
Total Ending Net Position	\$141,314	\$146,018

Management's Discussion and Analysis - Analysis of Individual Plans

Judicial Pension Plan

The Wyoming Judicial Pension Plan provides retirement benefits to any Justice of the Supreme Court, District Judge or County Court Judge appointed to any of these offices on or after July 1, 1999, with no prior service as a Justice of the Supreme Court or District Judge at the time of the appointment. Benefits of the plan are funded by employee and employer contributions and earnings on investments.

The Plan net position held in trust for benefits on December 31, 2018 totaled \$28.3 million, a decrease of \$951,851 from 2017. Additions to the Plan net position held in trust for benefits include employer and employee contributions and investment income. For the calendar year 2018, employee and employer contributions totaled \$1.6 million, a slight increase from 2017 of \$19,964. The Plan recognized a net investment loss of \$1.0 million for the year ending 2018 compared to an investment gain of \$3.5 million a year earlier. This is due to the equity market.

Deductions from the Plan net position held in trust for benefits resulted primarily from retirement and beneficiary benefits, administrative expenses and refunds to employees terminating service. For 2018, benefits totaled \$1,454,953 compared to \$1,166,424 in 2017. For 2018, the costs of administering the Plan's benefits totaled \$28,405 compared to \$25,315 a year ago.

Refunds are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be refunded. There were no refunds to members terminating service in 2018 or 2017.

An actuarial valuation of the Plan's assets and net pension liability is performed annually. At the date of the most recent actuarial valuation, January 1, 2019, the fiduciary net position as a percentage of total pension liability decreased from 101.37% on January 1, 2018 to 90.92% on January 1, 2019. The net pension liability as a percentage of covered employee payroll decreased from (6.21) % to 43.18% as of January 1, 2018 and 2019, respectively. The net pension liability was \$2.8 million as of January 1, 2019 compared to (\$396,770) as of January 1, 2018. This is an increase from the prior year.

Judicial Pension Plan		
Net Position		
December 31, (Dollars in Thousands)		
Assets:	2018	2017
Cash & Receivables	\$8,875	\$9,022
Investments: Fair Value	26,165	27,130
Securities Lending Collateral	1,775	1,854
Capital Assets/Net Depr.	8	10
Total Assets	36,823	38,016
Liabilities:		
Securities Lending Payable	1,775	1,854
Securities Purchased	442	170
Other Payables	6,258	6,692
Total Liabilities	8,475	8,716
Total Net Position	\$28,348	\$29,300

Judicial Pension Plan		
Change in Net Position		
December 31, (Dollars in Thousands)		
Additions:	2018	2017
Employee Contributions	\$611	\$604
Employer Contributions	960	949
Investment Income	(1,039)	3,549
Total Additions	532	5,102
Deductions:		
Benefits	1,455	1,167
Admin. Expenses	28	25
Depreciation Expense	1	2
Total Deductions	1,484	1,194
Change in Net Position	(952)	3,908
Total Beginning Net Position	29,300	25,392
Total Ending Net Position	\$28,348	\$29,300

Management's Discussion and Analysis - Analysis of Individual Plans

Law Enforcement Pension Plan

The Wyoming Law Enforcement Pension Plan became effective July 1, 2002 and provides retirement benefits to any member who is a county sheriff, deputy county sheriff, and municipal police officer, duly authorized investigators of the Wyoming livestock board, Wyoming correctional officer, Wyoming law enforcement academy instructor, UW campus police officer, detention officer or dispatcher of law enforcement agencies. Benefits of the Plan are funded by employee and employer contributions and investment income.

The Plan net position held in trust for benefits on December 31, 2018 totaled \$599.1 million, a decrease of \$31.2 million from 2017. Additions to the Plan net position held in trust for benefits include employer and employee contributions and investment income. For the calendar year 2018, employee and employer contributions totaled \$27.0 million, an increase from 2017 of \$0.3 million. The Plan recognized a net investment loss of \$22.2 million for the year 2018 compared to an investment gain of \$77.9 million in 2017. This is due to the equity market.

Deductions from the Plan net position held in trust for benefits resulted primarily from retirement and beneficiary benefits, administrative expenses and refunds to employees terminating service. For 2018, benefits totaled \$32.0 million, an increase from \$29.6 million a year earlier. For 2018, the costs of administering the Plan's benefits totaled \$639,428 compared to \$580,221 during 2017.

Refunds are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be refunded. Refunds to members terminating service totaled \$3,970,912 in 2018, a decrease from \$4,041,082 during 2017.

Actuarial valuation of the Plan's assets and net pension liability is performed annually. At the date of the most recent actuarial valuation, January 1, 2019, the fiduciary net position as a percentage of total pension liability decreased from 87.99% on January 1, 2018 to 71.22% on January 1, 2019. The net pension liability as a percentage of covered employee payroll increased from 56.04% to 159.36% as of January 1, 2018 and 2019, respectively. The net pension liability was \$242.1 million as of January 1, 2019 compared to \$86.0 million as of January 1, 2018. This is an increase from the prior year.

Law Enforcement Pension Plan		
Net Position		
December 31, (Dollars in Thousands)		
Assets:	2018	2017
Cash & Receivables	\$184,716	\$187,148
Investments: Fair Value	556,748	592,920
Securities Lending Collateral	37,759	40,516
Capital Assets/Net Depr.	215	240
Total Assets	779,438	820,824
Liabilities:		
Securities Lending Payable	37,759	40,516
Benefits & Refunds Payable	59	94
Securities Purchased	9,396	3,715
Other Payables	133,172	146,257
Total Liabilities	180,386	190,582
Total Net Position	\$599,052	\$630,242

Law Enforcement Pension Plan		
Change in Net Position		
December 31, (Dollars in Thousands)		
Additions:	2018	2017
Employee Contributions	\$13,482	\$13,285
Employer Contributions	13,471	13,320
Investment Income	(22,169)	77,947
Other Income	674	701
Total Additions	5,458	105,253
Deductions:		
Benefits	32,014	29,622
Refunds	3,971	4,041
Admin. Expenses	639	580
Depreciation Expense	24	52
Total Deductions	36,648	34,295
Change in Net Position	(31,190)	70,958
Total Beginning Net Position	630,242	559,284
Total Ending Net Position	\$599,052	\$630,242

Management's Discussion and Analysis - Analysis of Individual Plans

Air Guard Firefighters Pension Plan

The Air Guard Firefighters Pension Plan provides retirement benefits to covered Air Guard Firefighters. Benefits are funded by employee and employer contributions and earnings on investments. The Air Guard Firefighters Pension Plan was separated from the Public Employee Pension Plan on January 1, 2011.

The Plans net position held in trust for benefit on December 31, 2018 was \$7.2 million, a decrease of \$255,487 from 2017. Additions to the Plan net position held in trust for benefits include employer and employee contributions and investment income/losses. For the calendar year 2018, employee and employer contributions totaled \$532,745, an increase from 2017 of \$523,743. The Plan recognized a net investment loss of \$253,859 for the year 2018 compared to an investment gain of \$902,109 in 2017.

Deductions from the Plan's net position held in trust for benefits included retirement, beneficiary benefits and administrative expenses. For 2018, benefits totaled \$385,232, an increase from \$351,120 for the prior year. For 2018, the costs of administering the Plan's benefits totaled \$7,141 compared to \$6,431 during 2017.

Refunds are the result of employees leaving public service and requesting the money they contributed plus interest into the system to be refunded. The refunds paid to members terminating service for 2018 was \$213,647 compared to \$39,723 a year earlier.

An actuarial valuation of the Plan's assets and net pension liability is performed annually. At the date of the most recent actuarial valuation, January 1, 2019, the fiduciary net position as a percentage of total pension liability decreased from 87.23% on January 1, 2018 to 79.98% on January 1, 2019. The net pension liability as a percentage of covered employee payroll increased from 55.27% to 83.73% as of January 1, 2018 and 2019, respectively. The net pension liability was \$1.8 million as of January 1, 2019 compared to \$1.1 million as of January 1, 2018. This is an increase from the prior year.

Air Guard Firefighter Pension Plan		
Net Position		
December 31, (Dollars in Thousands)		
Assets:	2018	2017
Cash & Receivables	\$2,289	\$2,309
Investments: Fair Value	6,609	6,895
Securities Lending Collateral	448	471
Capital Assets/Net Depr.	2	2
Total Assets	9,348	9,677
Liabilities:		
Securities Lending Payable	448	471
Benefits & Refunds Payable	-	-
Securities Purchased	112	43
Other Payables	1,581	1,701
Total Liabilities	2,141	2,215
Total Net Position	\$7,207	\$7,462

Air Guard Firefighter Pension Plan		
Change in Net Position		
December 31, (Dollars in Thousands)		
Additions:	2018	2017
Employee Contributions	\$373	\$367
Employer Contributions	160	156
Investment Income	(254)	902
Other Income	72	-
Total Additions	351	1,425
Deductions:		
Benefits	385	351
Refunds	214	40
Admin. Expenses	7	6
Depreciation Expense	-	1
Total Deductions	606	398
Change in Net Position	(255)	1,027
Total Beginning Net Position	7,462	6,435
Total Ending Net Position	\$7,207	\$7,462

Management's Discussion and Analysis - Analysis of Total Defined Benefit Pension Plans

Total Defined Benefit Pension Plans

Below is the listing of the Total Defined Benefit Pension Plans reflecting the 2018 and 2017 Net Position and Changes in Net Position with the percentage of change.

Total Defined Benefit Pension Plans				
Net Position				
December 31, (Dollars in Thousands)				
Assets:	2018	2017	Change	% Change
Cash & Receivables	\$2,431,823	\$2,513,944	\$(82,121)	-3.3%
Investments: Fair Value	7,364,223	8,023,634	(659,411)	-8.2%
Securities Lending Collateral	499,442	548,286	(48,844)	-8.9%
Capital Assets/Net Depr.	3,665	3,998	(333)	-8.3%
Total Assets	10,299,153	11,089,862	(790,709)	-7.1%
Liabilities:				
Securities Lending Payable	499,442	548,286	(48,844)	-8.9%
Benefits & Refunds Payable	475	957	(482)	-50.4%
Securities Purchased	124,277	50,271	74,006	147.2%
Other Payables	1,760,924	1,978,614	(217,690)	-11.0%
Total Liabilities	2,385,118	2,578,128	(193,010)	-7.5%
Total Net Position	\$7,914,035	\$8,511,734	\$(597,699)	-7.0%

Total Defined Benefit Pension Plans				
Change in Net Position				
December 31, (Dollars in Thousands)				
Additions:	2018	2017	Change	% Change
Employee Contributions	\$167,145	\$165,600	\$1,545	0.9%
Employer Contributions	167,351	168,191	(840)	-0.5%
Investment Income	(292,502)	1,067,126	(1,359,628)	-127.4%
Other Income	10,969	10,849	120	1.1%
Total Additions	52,963	1,411,766	(1,358,803)	-96.2%
Deductions:				
Benefits	619,392	584,017	35,375	6.1%
Refunds	22,758	23,399	(641)	-2.7%
Admin. Expenses	8,179	7,620	559	7.3%
Depreciation Expense	333	388	(55)	-14.2%
Total Deductions	650,662	615,424	35,238	5.7%
Change in Net Position	(597,699)	796,342	(1,394,041)	-175.1%
Total Beginning Net Position	8,511,734	7,715,392	796,342	10.3%
Total Ending Net Position	\$7,914,035	\$8,511,734	\$(597,699)	-7.0%

Deferred Compensation Plan

The Deferred Compensation (457) Plan is established under Section 457 of the Internal Revenue Code. This Plan provides supplemental retirement benefits for Plan participants. The Plan is funded by participant contributions, investment earnings and, in some cases, employer contributions. Participants direct their own investments among a menu of investment options determined by the Board.

The Plan's net position held in trust for Plan participants at December 31, 2018 amounted to \$660.9 million compared to \$693.4 million a year earlier. Changes to the Plan net position held in trust for Plan participants include contributions and investment income or loss. The Plan experienced a net decrease of \$22,522,582 for the year 2018 compared to a net increase of \$79,415,924 for 2017. For the year 2017, employee contributions and rollovers received totaled \$45.4 million compared to \$45.9 million for 2018. Deductions from the Plan's net position are distributions to participants, and administrative expenses. A participant may request a distribution upon severance of employment, retirement, or an unforeseeable emergency as defined by the IRS Code. For 2018, distributions totaled \$39.8 million compared to \$34.4 million in distributions paid out in 2017.

The cost of the Plan is paid for primarily with administrative fees. In years when there is a surplus of participant fees, it is held in trust by WRS for future Plan expenses in periods of down markets. WRS receives a minimal amount of rebates from investment companies, which are returned to participants invested in the fund associated with the rebate.

In addition to administrative fees, participants also pay fund operating expenses to the fund managers depending on the funds selected. These expenses are deducted daily before share prices are valued. The Plan's record keeper maintains an individual account for each participant to which deferrals and other changes in value are credited.

Direct administrative expense amounted to \$814,473 compared to \$871,361 in the prior year. In addition to direct administrative expense, WRS incurs indirect administrative expenses for record keeping and portfolio management which have the effect of reducing what would otherwise be administrative revenue. Revenue reductions for indirect administrative activity totaled \$595,035 in 2018, compared to \$1,039,304 in 2017.

Management's Discussion and Analysis - Analysis of Deferred Compensation Plan

Disclosure of Subsequent Events: Legislative Changes

Subsequent to the December 31, 2018 measurement date for this financial report, the Wyoming Legislature convened for their scheduled 2019 session. During this session the Legislature passed several bills that modestly impacted the Wyoming Retirement System (WRS).

Senate File 0088 (Senate Enrolled Act 59) provides for a 30 year amortization policy and increases future employee contribution rates in the Firemen's Pension Plan B. WRS actuaries estimate that increased contributions are necessary to maintain the health of this currently healthy plan; the employee contribution increases will complement previous retirement board enacted increases in the employer contributions in this plan.

Senate File 0089 (Senate Enrolled Act 24) provides that for new hires after 1 July, 2019, the death benefit for inactive and non-vested members would be the member account balance and not double the member account balance. This action modestly improves funding status, although the effect is much delayed due to applying only to new hires. The retirement board and legislature felt it was not a core function of WRS to provide a life insurance like benefit for those that were not employed in the plan and did not have service history sufficient to be vested.

Senate File 0090 (Senate Enrolled Act 25) provides that effective 1 July, 2019 interest will no longer accrue to member accounts who are not actively employed and not vested in their plan. WRS actuaries estimated that this would modestly improve funding status and would encourage inactive, non-vested members to more carefully consider their account balance options, since the balances would no longer grow at guaranteed interest rate.

House Bill 0222 (House Enrolled Act 32) provides for certain performance based compensation for both Treasury and Retirement System investment professionals. The retirement board and legislature believe that such programs are becoming common in the investment industry and may serve to improve recruiting and retention of skilled investment professionals, thereby improving risk-adjusted investment returns.

House Bill 0246 (House Enrolled Act 55) provides for the inclusion of volunteer search and rescue volunteers in the existing Volunteer Firefighters and EMT pension plan. The action provides for a larger state financial contribution to the plan and provides county sheriffs with a method to recruit and retain search and rescue volunteers. WRS actuaries estimate that the proposal is well enough funded to modestly improve the funding status of the existing plan.

House Bill 0301 (House Enrolled Act 36) provides that two WRS board members have financial expertise, versus the current minimum requirement of one. The act has no immediate effect because the current board has at least three members with such expertise. It does serve to modestly increase the minimum amount of financial experience required within the retirement board membership.

Management's Discussion and Analysis - Analysis of Deferred Compensation Plan

Deferred Compensation Plan				
Net Position				
December 31, (Dollars in Thousands)				
Assets:	2018	2017	Change	% Change
Cash & Receivables	\$7,933	\$16,313	\$(8,380)	-51.4%
Investments: Fair Value	652,861	667,133	(14,272)	-2.1%
Total Assets	660,794	683,446	(22,652)	-3.3%
Liabilities:				
Other Payables	(94)	35	(129)	-368.6%
Total Liabilities	(94)	35	(129)	-368.6%
Total Net Position	\$660,888	\$683,411	\$(22,523)	-3.3%

Deferred Compensation Plan				
Change in Net Position				
December 31, (Dollars in Thousands)				
Additions:	2018	2017	Change	% Change
Contributions & Rollovers	\$45,945	\$45,366	\$579	1.3%
Investment Income	(27,870)	78,394	(106,264)	-135.6%
Total Additions	18,075	123,760	(105,681)	-85.4%
Deductions:				
Benefits	39,783	34,399	5,384	15.7%
Admin. Expenses	815	875	(56)	-6.4%
Total Deductions	40,598	35,274	5,328	15.1%
Change in Net Position	(22,523)	88,486	(111,009)	-125.5%
Total Beginning Net Position	683,411	594,925	88,486	14.9%
Total Ending Net Position	\$660,888	\$683,411	\$(22,523)	-3.3%

Basic Financial Statements

WYOMING RETIREMENT SYSTEM

STATEMENT OF FIDUCIARY NET POSITION - PENSION (AND OTHER EMPLOYEE BENEFIT) FUNDS

December 31, 2018

	Public Employees Pension Plan	State Highway Patrol Game & Fish Warden and Criminal Investigator Pension Plan	Volunteer Firefighter & EMT Pension Plan	Paid Firemen's Pension Plan A
Assets				
Cash and cash equivalents:				
Cash with State Treasurer	\$4,288,513	\$702,092	\$589,538	\$581,846
Domestic liquidity - outside banks	509,797,776	9,924,069	5,581,756	7,231,830
	514,086,289	10,626,161	6,171,294	7,813,676
Receivables:				
Insurance premium tax	-	-	1,100,000	-
Employee contributions	8,372,198	-	30,199	-
Employer contributions	8,495,602	-	-	-
Securities sold	50,124,358	978,950	548,810	711,048
Accrued interest and dividends	17,961,224	350,447	197,848	255,204
Currency contract receivable	1,497,075,482	29,143,085	16,391,422	21,237,039
Other	96,924	-	-	-
Rebate and fee income receivable	-	-	-	-
	1,582,125,788	30,472,482	18,268,279	22,203,291
Investments, at fair value:				
Fixed Income	1,197,054,640	23,302,676	13,106,506	16,981,038
Equities	2,894,901,076	56,354,104	31,696,162	41,066,152
Private Markets	1,047,263,218	20,386,735	11,466,445	14,856,145
Marketable Alternatives	1,221,247,138	23,773,624	13,371,388	17,324,226
Security lending collateral	431,367,002	8,397,282	4,723,021	6,119,236
Investment contracts	-	-	-	-
Self Directed Brokerage Investments	-	-	-	-
	6,791,833,074	132,214,421	74,363,522	96,346,797
Capital assets, at cost, net of accumulated depreciation	3,214,610	59,127	35,517	80,817
Total Assets:	8,891,259,761	173,372,191	98,838,612	126,444,581
Liabilities				
Payables:				
Benefits and refunds payable	382,503	-	-	-
Securities purchased	107,338,085	2,089,516	1,175,239	1,522,664
Administrative and consulting fees payable	18,656,054	374,113	237,682	272,713
Currency contract payable	1,502,147,520	29,241,821	16,446,956	21,308,990
Securities lending collateral	431,367,002	8,397,282	4,723,021	6,119,236
Total Liabilities:	2,059,891,164	40,102,732	22,582,898	29,223,603
Net Position held in trust for pension benefits	\$6,831,368,597	\$133,269,459	\$76,255,714	\$97,220,978

Basic Financial Statements

WYOMING RETIREMENT SYSTEM (Cont)

STATEMENT OF FIDUCIARY NET POSITION - PENSION (AND OTHER EMPLOYEE BENEFIT) FUNDS

December 31, 2018

Paid Firemen's Pension Plan B	Judicial Pension Plan	Law Enforcement Pension Plan	Air Guard Firefighters Pension Plan	Total	Defined Contribution Plan 457 Plan	Total Pension Trust Plans
Assets (Cont)						
Cash and cash equivalents: (Cont)						
\$1,066,449	\$338,034	\$1,321,676	\$132,216	\$9,020,364	\$79,098	\$9,099,462
10,463,693	2,097,170	44,623,938	529,692	590,249,924	5,875,857	596,125,781
11,530,142	2,435,204	45,945,614	661,908	599,270,288	5,954,955	605,225,243
Receivables: (Cont)						
-	-	-	-	1,100,000	-	1,100,000
226,357	110	871,911	-	9,500,775	365,926	9,866,701
293,810	38	872,025	6	9,661,481	-	9,661,481
1,028,811	206,198	4,387,517	52,080	58,037,772	-	58,037,772
370,037	74,398	1,573,466	19,067	20,801,691	-	20,801,691
30,727,749	6,158,564	131,042,949	1,555,496	1,733,331,786	-	1,733,331,786
-	-	22,863	-	119,787	-	119,787
-	-	-	-	-	1,612,076	1,612,076
32,646,764	6,439,308	138,770,731	1,626,649	1,832,553,292	1,978,002	1,834,531,294
Investments, at fair value:(Cont)						
24,569,766	4,924,359	104,781,337	1,243,767	1,385,964,089	258,297,570	1,644,261,659
59,418,375	11,908,840	253,398,295	3,007,869	3,351,750,873	369,441,411	3,721,192,284
21,495,270	4,308,158	91,669,700	1,088,131	1,212,533,802	22,789,699	1,235,323,501
25,066,321	5,023,880	106,898,970	1,268,904	1,413,974,451	-	1,413,974,451
8,853,887	1,774,527	37,758,687	448,200	499,441,842	-	499,441,842
-	-	-	-	-	21,590	21,590
-	-	-	-	-	2,310,662	2,310,662
139,403,619	27,939,764	594,506,989	7,056,871	7,863,665,057	652,860,932	8,516,525,989
49,581	8,379	214,992	1,943	3,664,966	-	3,664,966
183,630,106	36,822,655	779,438,326	9,347,371	10,299,153,603	660,793,889	10,959,947,492
Liabilities(Cont)						
Payables:(Cont)						
33,050	-	59,470	-	475,023	-	475,023
2,203,134	441,560	9,395,584	111,527	124,277,309	-	124,277,309
394,459	79,067	1,685,830	19,968	21,719,886	(94,478)	21,625,408
30,831,853	6,179,429	131,486,917	1,560,766	1,739,204,252	-	1,739,204,252
8,853,887	1,774,527	37,758,687	448,200	499,441,842	-	499,441,842
42,316,383	8,474,583	180,386,488	2,140,461	2,385,118,312	(94,478)	2,385,023,834
\$141,313,723	\$28,348,072	\$599,051,838	\$7,206,910	\$7,914,035,291	\$660,888,367	\$8,574,923,658

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WYOMING RETIREMENT SYSTEM

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION - PENSION (AND OTHER EMPLOYEE BENEFIT) FUNDS

Year Ended December 31, 2018

	Public Employee Pension Plan	State Highway Patrol, Game & Fish, and Criminal Investigation Pension Plan	Volunteer Firefighter Pension Plan	Paid Firemens Pension Plan A
Additions				
Contributions:				
Employee	\$146,255,015	\$3,416,437	\$421,771	\$-
Employer	\$145,911,796	\$3,491,524	\$-	\$-
Other	\$6,596,214	\$418,075	\$2,972,694	\$-
	\$298,763,025	\$7,326,036	\$3,394,465	\$-
Investment Income:				
From Investing Activities:				
Net appreciation(depreciation) in fair value of investments	\$(327,282,467)	\$(6,360,098)	\$(3,609,403)	\$(4,732,383)
Interest and dividends	\$125,205,471	\$2,429,841	\$1,375,217	\$1,889,579
Total investing activity:	\$(202,076,996)	\$(3,930,257)	\$(2,234,186)	\$(2,842,804)
Investing activity expenses:				
Investment advisor or contractor fees	\$(52,099,148)	\$(1,009,032)	\$(565,908)	\$(761,453)
Net income/(loss) from investing activities:	\$(254,176,144)	\$(4,939,289)	\$(2,800,094)	\$(3,604,257)
Securities lending activities:				
Securities lending gross income	\$11,256,456	\$217,299	\$122,207	\$167,388
Securities lending expenses:				
Broker rebates	\$(9,368,690)	\$(180,884)	\$(101,727)	\$(139,186)
Agent fees	\$(282,775)	\$(5,455)	\$(3,068)	\$(4,224)
Total securities lending expenses:	\$(9,651,465)	\$(186,339)	\$(104,795)	\$(143,410)
Net income from securities lending activities:	\$1,604,991	\$30,960	\$17,412	\$23,978
Total investment income/(loss)	\$(252,571,153)	\$(4,908,329)	\$(2,782,682)	\$(3,580,279)
Total additions(deletions)	\$46,191,872	\$2,417,707	\$611,783	\$(3,580,279)
Deductions				
Benefits paid / Distributions	\$547,913,244	\$10,260,821	\$6,101,659	\$15,788,064
Refunds	\$18,114,423	\$351,230	\$44,163	\$-
Administrative expenses	\$7,010,561	\$135,782	\$77,192	\$98,458
Administrative expenses: Fund Specific	\$23,390	\$3,595	\$14,003	\$211
Depreciation Expense	\$287,669	\$5,536	\$3,201	\$4,562
Total deductions:	\$573,349,287	\$10,756,964	\$6,240,218	\$15,891,295
Net increase/(decrease) in Net Position	\$(527,157,415)	\$(8,339,257)	\$(5,628,435)	\$(19,471,574)
Net position held in trust for pension benefits:				
Beginning of year	\$7,358,526,012	\$141,608,716	\$81,884,149	\$116,692,552
End of year	\$6,831,368,597	\$133,269,459	\$76,255,714	\$97,220,978

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WYOMING RETIREMENT SYSTEM (Cont)

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION - PENSION (AND OTHER EMPLOYEE BENEFIT) FUNDS

Year Ended December 31, 2018 (Cont)

Paid Firemen's Pension Plan B	Judicial Pension Plan	Law Enforcement Pension Plan	Air Guard Firefighter Pension Plan	Total	Defined Contribution Plan 457 Plan	Total Pension Trust Plans
Additions						
Contributions:						
\$2,585,185	\$610,818	\$13,482,246	\$373,168	\$167,144,640	\$45,944,898	\$213,089,538
\$3,356,417	\$960,440	\$13,471,498	\$159,577	\$167,351,252	\$-	\$167,351,252
\$236,817	\$38	\$673,644	\$71,939	\$10,969,421	\$-	\$10,969,421
\$6,178,419	\$1,571,296	\$27,627,388	\$604,684	\$345,465,313	\$45,944,898	\$391,410,211
Investment Income:(Cont)						
From Investing Activities: (Cont)						
\$(6,706,176)	\$(1,343,427)	\$(28,621,534)	\$(332,069)	\$(378,987,557)	\$(28,867,476)	\$(407,855,033)
\$2,534,995	\$509,757	\$10,850,973	\$128,856	\$144,924,689	\$1,592,605	\$146,517,294
\$(4,171,181)	\$(833,670)	\$(17,770,561)	\$(203,213)	\$(234,062,868)	\$(27,274,871)	\$(261,337,739)
Investing activity expenses: (Cont)						
\$(1,058,912)	\$(211,405)	\$(4,537,522)	\$(52,244)	\$(60,295,624)	\$(595,035)	\$(60,890,659)
\$(5,230,093)	\$(1,045,075)	\$(22,308,083)	\$(255,457)	\$(294,358,492)	\$(27,869,906)	\$(322,228,398)
Securities lending activities: (Cont)						
\$226,861	\$45,210	\$975,475	\$11,229	\$13,022,125	\$-	\$13,022,125
\$(188,889)	\$(37,646)	\$(812,051)	\$(9,350)	\$(10,838,423)	\$-	\$-
\$(5,688)	\$(1,133)	\$(24,480)	\$(281)	\$(327,104)	\$-	\$(327,104)
\$(194,577)	\$(38,779)	\$(836,531)	\$(9,631)	\$(11,165,527)	\$-	\$(327,104)
\$32,284	\$6,431	\$138,944	\$1,598	\$1,856,598	\$-	\$1,856,598
\$(5,197,809)	\$(1,038,644)	\$(22,169,139)	\$(253,859)	\$(292,501,894)	\$(27,869,906)	\$(320,371,800)
\$980,610	\$532,652	\$5,458,249	\$350,825	\$52,963,419	\$18,074,992	\$71,038,411
Deductions						
\$5,474,014	\$1,454,953	\$32,013,552	\$385,232	\$619,391,539	\$39,783,101	\$659,174,640
\$64,091	\$-	\$3,970,912	\$213,647	\$22,758,466	\$-	\$22,758,466
\$140,827	\$28,405	\$606,178	\$7,141	\$8,104,544	\$814,473	\$8,919,017
\$95	\$-	\$33,250	\$-	\$74,544	\$-	\$74,544
\$5,708	\$1,145	\$24,638	\$292	\$332,751	\$-	\$332,751
\$5,684,735	\$1,484,503	\$36,648,530	\$606,312	\$650,661,844	\$40,597,574	\$691,259,418
\$(4,704,125)	\$(951,851)	\$(31,190,281)	\$(255,487)	\$(597,698,425)	\$(22,522,582)	\$(620,221,007)
Net position held in trust for pension benefits:						
\$146,017,848	\$29,299,923	\$630,242,119	\$7,462,397	\$8,511,733,716	\$683,410,949	\$9,195,144,665
\$141,313,723	\$28,348,072	\$599,051,838	\$7,206,910	\$7,914,035,291	\$660,888,367	\$8,574,923,658

Notes to the Basic Financial Statements

Note 1. Reporting Entity and Summary of Significant Accounting Policies

Reporting Entity

The Wyoming Retirement System (WRS) is a Fiduciary Fund of the State of Wyoming charged by State Statutes to provide retirement benefits for retired and disabled public employees. The decision that WRS is a Fiduciary Fund of the State of Wyoming was made by applying the criteria set forth in accounting principles generally accepted in the United States of America (GAAP). The basic criterion for this decision is that the State of Wyoming and its elected officials are accountable for WRS. The State's financial accountability was primarily determined by the fact that the Governor appoints the voting majority of the board members of WRS can thus impose the will of the State on WRS.

Although WRS is a Fiduciary Fund of the State of Wyoming, it serves as the nucleus for the reporting entity under the provisions of Government Accounting Standards Board (GASB) Statement No. 14 for its separately issued financial statements. Using this premise, WRS is not financially accountable for any other organizations and thus, includes only the financial activity of the various plans of WRS.

Basis of Accounting

The accompanying financial statements are prepared using the accrual basis of accounting and include the accounts of eight defined benefit pension plans and one defined contribution plan, all of which are administered by the System:

- Public Employee Pension Plan
- State Patrol, Game & Fish Warden, and Criminal Investigator Pension Plan
- Volunteer Firefighter & EMT Pension Plan
- Paid Firemen's Pension Plan A
- Paid Firemen's Pension Plan B
- Judicial Pension Plan
- Law Enforcement Pension Plan
- Air Guard Firefighters Pension Plan
- Deferred Compensation Plan (457 Plan)

The financial activities of these pension plans are included in the fiduciary funds of the Wyoming On-Line Financial System as established by the Wyoming Funds Consolidation Act and are defined as pension (and other employee benefit) trust funds by accounting principles generally accepted in the United States of America.

Each pension plan maintains separate accounts and all actuarial determinations are made using separate fund-based information. All plans own a percentage of the combined investment fund. Although the assets of the pension plans are co-mingled for investment purposes, each pension plan's assets may be used only for the payment of benefits to the members of that plan, in accordance with the terms of the plan.

Employee and employer contributions are recognized as revenue in the period in which employee services are performed. Benefits, refunds and contribution returns are recognized when due and payable in accordance with the terms of the plan.

Refunds represent withdrawals of participant contributions by participants in the form of a total or partial rollover or direct distribution from the plan. Return of contributions consists of the withdrawal of both participant and employer contributions returned to the employer as allowed in limited circumstances by state statute.

Method used to value investments

Investments are reported at fair value. The fair value of the investments, other than those described below, was determined by the latest bid price or by the closing exchange price at the balance sheet date. The fair value of investments that are organized as limited partnerships and have no readily ascertainable fair values (such as private equity, real estate, and real assets) has been determined by management based on the individual investment's capital account balance, reported at fair value by each respective general partner, at the closest available reporting period. The fair value is then adjusted for subsequent contributions, distributions, management fees, and changes in values of foreign currency.

Notes to the Basic Financial Statements

Capital Assets

Capital assets, which include property, plant and equipment, and infrastructure assets are reported in the financial statements (Statement of Net Position). Capital assets are stated at cost.

The Wyoming Retirement System capitalized all building, land, and other capital assets that have a value or cost equal to or greater than the capitalization threshold for its asset type at the date of acquisition and has a useful life that extends beyond a single reporting period. The Wyoming Retirement System's capital assets are depreciated over their useful lives using the straight-line method. Capital asset thresholds and estimated useful lives are as follows:

Administrative Expenses

Asset Type	Estimated Life	Capitalization Threshold
Buildings	5-40 years	\$50,000
Improvements	5-25 years	50,000
Land	n/a	Capitalize all
Equipment	3-17 years	15,000
Intangible-Purchased Software	3-15 years	50,000
Intangible-Internally Generated Software	3-15 years	2,000,000

Administrative expenses of WRS are paid proportionately based on total proportionate share of the total fiduciary net position per prior month.

Note 2. Description of the Retirement Plans

WRS is the administrator of a multiple employer, cost sharing public employee retirement system (PERS) and its designated purpose is to provide retirement allowances and other benefits to members. The authority for establishing and amending the benefits and contribution rates rests with the Legislature of the State of Wyoming. The obligation to collect and remit the contribution rests with the employers of each plan. Administrative costs are deducted from the plan assets of each plan. The costs of administering the plan are financed by both the investment income and contributions. WRS is also the administrator of a deferred compensation (457(b)) plan.

At December 31, 2018, WRS's Employer membership consisted of the following:

Employer Membership	
State Agencies	98
Public Schools	51
Universities & Community Colleges	8
Counties	22
Municipalities	82
Other Special Districts	216
Volunteer Firefighter & EMT	122
Judicial	1
Law Enforcement	81
Paid Firefighter	18
Air Guard Firefighters	1
Totals:	700

Notes to the Basic Financial Statements

Following are descriptions of the terms of each of the cost sharing multiple employer public employee retirement system pension plans administered by WRS:

	Public Employee Pension Plan	State Patrol, Game & Fish Warden and Criminal Investigator Pension Plan	Volunteer Firefighter & EMT Pension Plan	Paid Firemen's Pension Plan A	Paid Firemen's Pension Plan B	Judicial Pension Plan	Law Enforcement Pension Plan	Air Guard Firefighter Pension Plan
Current Employees:								
Vested	23,886	192	1,494	1	285	37	1,793	23
Non-vested	10,987	112	853	-	80	10	869	18
Total Current Employees:	34,873	304	2,347	1	365	47	2,662	41
Inactive employees entitled to benefits but not yet receiving them								
	6,826	23	375	-	49	-	375	2
Total active or vested	41,699	327	2,722	1	414	47	3,037	43
Inactive nonvested non retired/non vested members								
	24,198	49	1,521	1	30	-	996	3
Total Active/Inactive Members	65,897	364	4,243	2	444	47	4,033	46
Retirees and beneficiaries of deceased retirees currently receiving benefits								
	27,782	340	1,495	276	137	26	1,274	11
Total all members	93,679	704	5,738	278	581	73	5,307	57

Public Employee Pension Plan

The Public Employee Pension Plan is a cost sharing multiple employer defined benefit, contributory retirement plan covering substantially all employees of the State and of the Public School Systems of Wyoming. The Plan also covers employees of those political subdivisions and other statutorily allowed entities, which have elected to participate in the Plan.

The Plan statutorily requires 17.12% of the participant's salary to be contributed to the Plan. Contributions consist of 8.50% of the participant's salary as employee contributions and 8.62% as employer contributions. The amount of contributions designated as employee contributions represent the portion of total contributions that a participant retains ownership of and can elect to receive as a refund upon termination of employment. Employers can elect to cover all or a portion of the employee's contribution at their discretion. Through legislation passed during the 2014 legislative session, two tiers of benefits were established for participants of this plan.

Tier 1, the Plan allows for normal retirement after four years of service and attainment of age 60. Early retirement is allowed provided the employee has completed four years of service and attained age 50 or 25 years of service but will result in a reduction of benefits based on the length of time remaining to age 60.

Tier 2, the Plan allows for normal retirement after four years of service and attainment of age 65. Early retirement is allowed provided the employee has completed four years of service and attained age 55, or 25 or more years of service but will result in a reduction of benefits based on the length of time remaining to age 65. All employees may also retire upon normal retirement on the bases that the sum of the member's age and service is at least 85.

The Public Employees Plan provides retirement, disability and death benefits according to predetermined formulas and allows retirees to select one of seven optional methods for receiving benefits, including two joint and survivor forms of benefits: a 100% joint and survivor annuity, and a 50% joint and survivor annuity. The benefit amounts under these options are determined on an actuarially equivalent basis. Any cost of living adjustment provided to retirees must be granted by the State Legislature. In addition a cost of living adjustment will not be approved by the legislature unless the plan is 100% funded after the COLA is awarded.

Employees terminating prior to normal retirement can elect to withdraw all employee contributions plus accumulated interest through date of termination or, if they are vested, they may elect to remain in the Plan and be eligible for unreduced retirement benefits at age 60 (Tier 1 employee) or 65 (Tier 2 employee).

Notes to the Basic Financial Statements

State Patrol, Game & Fish Warden, and Criminal Investigator Pension Plan

The Wyoming State Patrol, Game and Fish Warden and Criminal Investigator Pension Plan is a cost sharing multiple employer defined benefit, contributory retirement plan covering sworn officers of the Wyoming State Highway Patrol and law enforcement officers employed by the Wyoming State Game and Fish Department and sworn peace officers of the Division of Criminal Investigation.

The Plan statutorily requires participants to contribute 14.56% of their salary to the Plan and the State is required to contribute 14.88% of each participant's salary for a total contribution of 29.44%.

The Plan allows for normal retirement at age 50. The Plan provides retirement, disability and death benefits according to predetermined formulas. Terminating employees are entitled to a refund of employee contributions plus accumulated interest. If they are vested, they may elect to remain in the Plan and be eligible for retirement benefits at age 50. The cost of living adjustment provided to retirees is determined by the Board and must be approved by the State Legislature. In addition a cost of living adjustment will not be approved by the legislature unless the plan is 100% funded after the COLA is awarded.

The maximum service pension is 75% of the three-year highest average salary. The minimum years of service requirement for a monthly benefit are six years.

Volunteer Firefighter & EMT Pension Plan

The Volunteer Firefighter & EMT Pension Plan is a cost sharing multiple employer defined benefit, contributory retirement plan covering volunteer firefighters and volunteer emergency medical technicians who elect to participate in the Plan. Participants are statutorily required to contribute \$15.00 monthly to the Plan, although such contributions may be fully or partially paid by political subdivisions on behalf of participants, if approved by the governing board. In addition, the State pays into the Plan 70% of the gross annual tax collected on fire insurance premiums. The Plan provides retirement and death benefits according to predetermined amounts primarily determined by entry age and years of service of the participant. Participants may withdraw from the Plan at any time and receive refunds of participant contributions plus accumulated interest. The Volunteer Firefighter and EMT plan was created on July 1, 2015, combining the assets and liabilities of two predecessor plans (Volunteer Fireman's Plan and Volunteer EMT Plan). The new plan features revised contribution and benefit provisions and governance by one board instead of two. It provides a modest benefit increase to retired volunteers whose benefit structure had remained static for some time. It also provided a long-term funding source to stabilize the finances of Volunteer EMT plan, while establishing consistent provisions for both firefighter and EMT volunteers.

Paid Firemen's Pension Plan A

The Paid Firemen's Pension Plan A is a cost sharing multiple employer defined benefit, contributory retirement plan covering paid Firemen who were employed prior to July 1, 1981 and who elected to participate.

The Plan statutorily required participants to contribute 8% of their salary to a maximum not to exceed the salary of a Firemen First Class. Employers were required to contribute 21% of the salary. Effective April 1, 1997, required contributions have been suspended as the Plan had been determined to be actuarially over-funded. This plan is being reviewed to determine the appropriate measures to take to ensure this plan is adequately funded, as it is a closed plan.

The Plan statutorily provides retirement, disability and death benefits according to a percentage of a fireman first class salary. The Plan also statutorily provides for an annual percentage increase in the benefit amounts beginning in the year following twelve (12) months of payments, by at least 3%. In the event the current actuarial valuation indicates the fair value of assets is greater than one hundred fifteen percent (115%) of the actuarial value of liabilities, the Board may increase the benefit by an amount determined affordable by the actuary but not greater than five percent (5%) of the benefit. Participants may withdraw from the Plan at any time and receive refunds of participant contributions without interest.

Paid Firemen's Pension Plan B

The Paid Firemen's Pension Plan B is a cost sharing multiple employer defined benefit, contributory retirement plan covering paid Firemen who were employed after July 1, 1981.

The Plan statutorily requires participants to contribute 9.245% of their salary to the Plan and the employer is required to contribute 12% of each participant's salary.

The Plan provides retirement, disability and death benefits according to predetermined formulas. Any cost of living adjustment provided to retirees is granted by the State Legislature. In addition a cost of living adjustment will not be approved by the legislature unless the plan is 100% funded after the COLA is awarded. Participants may withdraw from the Plan at any time and receive refunds of participant contributions without interest.

Notes to the Basic Financial Statements

Wyoming Judicial Pension Plan

The Wyoming Judicial Pension Plan is a single employer defined benefit, contributory plan covering any Justice of the Supreme Court, District Judge or County Court Judge appointed to any of these offices on or after July 1, 1998, and with no prior service as a justice of the Supreme Court or district judge at the time of the appointment. The Plan also covers any justice or judge who elects to participate.

The Plan statutorily requires participants to contribute 9.22% of their salary to the Plan and the employer is required to contribute 14.5% of each participant's salary.

The Plan statutorily provides retirement and death benefits according to predetermined amounts primarily determined by age and years of service of the participant. Any cost of living adjustment provided to retirees is determined by the Board and must be approved by the State Legislature. In addition a cost of living adjustment will not be approved by the legislature unless the plan is 100% funded after the COLA is awarded. Participants may withdraw from the Plan at any time and receive refunds of participant contributions plus accumulated interest.

Law Enforcement Pension Plan

The Wyoming Law Enforcement Pension Plan is a cost sharing multiple employer defined benefit, contributory plan covering any county sheriff, deputy county sheriff, municipal police officer, Wyoming correctional officer, Wyoming law enforcement academy instructor, University of Wyoming campus police officer, detention officer or dispatcher for law enforcement agencies and certain investigators of the Wyoming Livestock Board.

The Plan statutorily requires participants to contribute 8.6% of their salary to the Plan and the employer is required to contribute 8.6% of each participant's salary.

The Plan statutorily provides retirement, disability and death benefits according to predetermined amounts determined by salary, age and years of service of the participant. Any cost of living adjustment provided to retirees must be granted by the State Legislature. In addition a cost of living adjustment will not be approved by the legislature unless the plan is 100% funded after the COLA is awarded. Participants may withdraw from the Plan at any time and receive refunds of participant contributions plus accumulated interest.

Air Guard Firefighters Pension Plan

The Air Guard Pension Plan is a single employer defined benefit, contributory retirement plan covering the Air Guard Firefighters.

The Air Guard Firefighters Pension Plan statutorily required 23.77% of the participant's salary to be contributed to the Plan. Contributions consist of 16.65% of the participant's salary as employer contributions and 7.12% as employee contributions. The amount of contributions designated as employee contributions represent the portion of total contributions that a participant retains ownership of and can elect to receive as a refund upon termination of employment. Any cost of living adjustment provided to retirees must be granted by the State Legislature. In addition a cost of living adjustment will not be approved by the legislature unless the plan is 100% funded after the COLA is awarded. Employers can elect to cover all or a portion of the employee's contribution at their discretion.

Wyoming Deferred Compensation Plan

The Plan administered by WRS is an IRS Section 457 Deferred Compensation Plan. This Plan is intended as a supplemental plan to the defined benefit retirement benefits of WRS for employees of public employers which have adopted the Plan. Non-state employers may offer competing 457 plans offered through vendors, however in some cases, the 457 Deferred Compensation Plan is the only plan offered by the employee. Contributions may be made into the Plan, subject to Plan and Internal Revenue Code limitations, by employees of participating employers sponsoring the Plan. There are 23,210 open and 14,763 active participants in the Plan from 287 different employers.

Upon qualifying for distributions, benefits are paid out in lump sums, or as periodic benefit payments, at the option of the participant based on individual account balances and Plan provisions. The Plan's account balances are fully vested to the participants at the time of deposit.

Investments in the Plan are individually directed by Plan participants among Board approved investment options of varying degrees of risk and earnings potential. Participants may transfer their funds between these options daily. Investments of the Plan are valued daily.

In addition to employee contributions, the 457 Plan also accepts employer contributions on behalf of their employees, provided such contribution when added to the employees' deferred contribution does not exceed the maximum deferral permitted by the IRS.

Notes to the Basic Financial Statements

Note 3. Cash, Cash Equivalents and Investments

WRS's Board has been authorized by the Wyoming Legislature, pursuant to State Statutes including W.S. 9-3-408 (b), to act on behalf of the plan membership in investing and managing monies in the retirement account. In doing so, per the language in W.S. 9-3-408 (b), it "shall exercise the judgment and care that a prudent investor would, in light of the purposes, terms, distribution requirements and all other circumstances surrounding the monies in the retirement account, including risk and return objectives established by the Board which are reasonably suitable to the purpose of the Wyoming Retirement System." The Board shall evaluate and select target asset classes to enhance returns or reduce risk in the total portfolio and has delegated to staff the responsibility to select strategic asset classes and investment managers.

The following table shows the System's defined benefit plan investments by type as of December 31, 2018:

Target Asset Class	Target	Max	Min	2018	W/ Overlay	Physical Securities
Tactical Cash	0.00%	5.00%	0.00%	1.80%	\$140,254,107	\$590,249,924
Fixed Income	20.00%	27.50%	15.00%	16.80%	1,338,093,637	1,385,964,089
Corporate Bonds/Credit					220,568,570	220,568,569
Emerging Markets Debt					18,103,617	18,103,617
Mortgages/ABS					78,095,642	78,095,642
TIPS					142,880,947	142,880,948
Treasury/Agencies/Governments					878,444,861	926,315,313
Equity	42.50%	47.50%	37.50%	48.40%	3,849,617,142	3,351,750,873
Domestic					2,036,598,648	1,723,653,908
Emerging Markets					695,630,158	394,907,018
International Developed					1,117,388,336	1,233,189,947
Marketable Alternatives	19.00%	24.00%	14.00%	17.80%	1,413,974,451	1,413,974,451
Absolute Return					667,322,370	667,322,370
Directional Funds					388,056,003	388,056,003
GAA					358,596,078	358,596,078
Private Markets	18.50%	25.00%	13.50%	15.20%	1,212,533,801	1,212,533,801
Other Real Assets					529,130,610	529,130,610
Private Debt					242,296,242	242,296,242
Private Equity					294,905,033	294,905,033
Real Estate					146,201,916	146,201,916
Total Investments					7,954,473,138	7,954,473,138
Net Receivables/Payables					-60,867,545	-60,867,545
Total Assets					\$7,893,605,593	\$7,893,605,593

Note: Numbers may not total exactly due to rounding

Notes to the Basic Financial Statements

The System does not have a formal deposit or investment policy for custodial credit risk.

Overlay Program

WRS employs a manager to provide an overlay program to ensure the system's major asset classes remain within a certain percentage of their targeted weights. Market movements can lead to significant implicit tilts within the portfolio. For example, a sharp decline in equities will many times be accompanied by stability within fixed income. Consequently, the equity position will decrease as a percentage of assets while fixed income will increase. This causes an "implicit" tilt towards fixed income. The overlay program brings these implicit tilts back within an acceptable band and is a cost effective way to daily rebalance assets.

	<u>Financial Report</u>	<u>Overlay Program</u>	<u>Combined</u>	<u>% Assets Under Management</u>	<u>% Category</u>
Tactical Cash					
Total Tactical Cash	590,249,924	-449,995,817	140,254,107	1.76%	100.00%
Fixed Income					
Corporate Bonds/Credit	220,568,569	-	220,568,569	2.77%	16.48%
Emerging Markets Debt	18,103,617	-	18,103,617	0.23%	1.35%
Mortgages/ABS	78,095,642	-	78,095,642	0.98%	5.84%
TIPS	142,880,948	-	142,880,948	1.80%	10.68%
Treasury/Agencies/Governments	926,315,313	-47,870,452	878,444,861	11.04%	65.65%
Total Fixed Income	1,385,964,089	-47,870,452	1,338,093,637	16.82%	100.00%
Equity					
Domestic	1,723,653,908	312,944,740	2,036,598,648	25.60%	52.90%
Emerging Markets	394,907,018	300,723,140	695,630,158	8.75%	18.07%
International Developed	1,233,189,947	-115,801,611	1,117,388,336	14.05%	29.03%
Total Equity	3,351,750,873	497,866,269	3,849,617,142	48.40%	100.00%
Marketable Alternatives					
Absolute Return	667,322,370	-	667,322,370	8.39%	47.19%
Directional Funds	388,056,003	-	388,056,003	4.88%	27.44%
GAA	358,596,078	-	358,596,078	4.51%	25.36%
Total Marketable Alternatives	1,413,974,451	-	1,413,974,451	17.78%	100.00%
Private Markets					
Other Real Assets	529,130,610	-	529,130,610	6.65%	43.64%
Private Debt	242,296,242	-	242,296,242	3.05%	19.98%
Private Equity	294,905,033	-	294,905,033	3.71%	24.32%
Real Estate	146,201,916	-	146,201,916	1.84%	12.06%
Total Private Markets	1,212,533,801	-	1,212,533,801	15.24%	100.00%
Total Securities & Cash	7,954,473,138	-	7,954,473,138	100.00%	100.00%
Net Receivables/Payables					
Total Net Receivables/Payables	-60,867,545	-	-60,867,545		
Total Assets	7,893,605,593	-	7,893,605,593		

Notes to the Basic Financial Statements

Custodial Credit Risk

Custodial credit risk for deposits of the defined benefit plans is the risk that in the event of a bank failure, the Systems' and Plans' deposits may not be returned to them. Deposits subject to this risk are those other than the \$9,020,364 of deposits held by the State Treasurer. These deposits totaling \$590,249,924 are held by the System's primary custodian and are collateralized by commercial paper, repurchase agreements and money market mutual funds held by the primary custodian or its agents in accounts in the name of the Wyoming Retirement System.

Deposits are presented in the basic financial statements at cost plus accrued interest which is also the market or fair value. At December 31, 2018, the carrying amount of all deposits and the corresponding bank balance totaled approximately \$599.3 million.

Investment securities within the defined benefit plans are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System and are held by either the counterparty or the counterparty's trust department or agent, but not in the System's name. Consistent with the System's investment policy, all investments are held by the System's primary custodian and registered in the System's name except for approximately \$3,501.5 million held in commingled vehicles outside of Northern Trust's custody.

Concentration of Credit Risk

The System expects the domestic investment managers to maintain diversified portfolios by sector and by issuer using the following guidelines in accordance with the System's investment policies.

The policy of the Board is to discourage equity investment managers from holding positions in a single issue whose fair value exceeds 5% of the portfolio. However, exceptions can be made if this percentage of the overall portfolio is exceeded as a consequence of long held positions whose value has grown due to their strong returns. At December 31, 2018, the System did not have any securities that breached this threshold. The board does not have any formal policy relating to any specific investment related risk.

The Board authorizes the use of derivative instruments to control portfolio risk, implement asset allocation changes in a cost – effective manner and reduce transaction costs or taxes. When appropriate, investment managers may be given permission to use derivatives for hedging, including cross-hedging of currency exposures creation of market exposures, and management of country and asset allocation exposure. Investment managers are prohibited from using derivative or synthetic securities that expose WRS to potentially high price volatility or are either speculative or leveraged, or whose marketability may be severely limited.

The purpose of real estate investments is to provide counter cyclical returns, current income and inflation protection. Funds considered will be comprised primarily of highly-leased properties with reasonable income components. The real estate portfolio, in aggregate, shall be diversified by property type, property size, geographic region, and economic sector exposure. Leverage shall be used sparingly.

Credit risk – Debt Securities

Fixed income investment grade credits carry an equivalent of a Standard & Poor's rating of B or better. Managers of accounts holding publicly traded non-Government debt should select and manage them so as to assure an appropriate balance in maturity, quality, marketability and adequate diversification with respect to industry and issues.

High yield investments are defined by the System as those debt securities, which carry a Standard & Poor's quality rating of BB or lower. Fund managers who manage these investments should structure a well-diversified portfolio with respect to rating, maturity, duration, yield, industry and issuer with the intent of minimizing the risk of losses in any single security.

The distribution of quality rating of debt securities in the System's investment portfolio at fair value as of December 31, 2018 is as follows:

Rating	\$ Amount
AAA	\$1,036,292,438
AA	123,343,569
A	25,518,142
BBB	84,603,888
BB	52,126,651
B	54,343,393
Below B	10,601,107
N/A	100,681,996
STIF	112,038,018
Total	\$1,599,549,202

Notes to the Basic Financial Statements

Interest Rate Risk

The System is also exposed to investment fair value loss arising from increased interest rates. Duration is a measure of the sensitivity of a debt security's value to rate changes. It is calculated using the present value of cash flows, weighted for those cash flows as a percentage of the investment's full price. More specifically, it is the approximate percentage change in value for a 1% change in rates. The System's investment policy guidelines require that the investment grade debt securities portfolio be maintained with weighted-average portfolio duration of no longer than ten years. No specific investment guidelines exist for other debt securities subject to interest rate risk not included in the investment grade portfolio. At December 31, 2018 the following table shows investments by investment type, amount, and the effective weighted duration.

Category	\$ Amount	% Amount	Contribution to Duration
Asset Backed Securities	24,271,337	1.68%	0.029
Bank Deposits	1,809,953	0.13%	0.000
Collateralized Bonds	623,291	0.04%	-0.001
Commercial Mortgage-Backed	34,928,808	2.42%	0.090
Commercial Paper	1,532,744	0.11%	0.000
Corporate Bonds	199,676,702	13.81%	0.736
Corporate Convertible Bonds	1,557,260	0.11%	0.003
Government Agencies	123,752,624	8.56%	0.642
Government Bonds	597,380,336	41.32%	3.700
Government Mortgage Backed Securities	213,106,674	14.74%	1.050
Gov't-issued Commercial Mortgage-Backed	2,582,321	0.18%	0.020
Index Linked Government Bonds	141,962,875	9.82%	0.328
Municipal/Provincial Bonds	725,630	0.05%	0.005
Non-Government Backed C.M.O.s	17,375,722	1.20%	0.016
Short Term Bills and Notes	84,445,503	5.84%	0.016
Total	1,445,731,780	100.00%	6.634

Notes to the Basic Financial Statements

Deferred Compensation (457) Plan Cash and Investments

The cash and investments held within the 457 Plan are comprised of the aggregate holdings of the participant's accounts that are invested in different mutual fund type investment options and cash held on deposit with the State collected from participants as fees for the purposes of plan administration. Plan participants determine the holdings of their individual participant accounts; therefore, the exposure of each participant to the investment risks discussed above is determined by that individual's risk tolerance. Additionally, the risks of the investment portfolios associated with each of the investment options are determined by the mutual fund manager and may vary depending on their risk tolerances and performance objectives.

Limited Partnerships

The system has invested in limited partnerships. As of December 31, 2018 the fair value of these investments was \$2,628,900,781. The limited partnerships invest in a variety of investments.

Securities Lending

Under the authority of the governing statutes and in accordance with policies set by the Board of Trustees, the System lends its securities to broker-dealers with a simultaneous agreement to return the collateral for the securities in the future. The System's custodian is authorized to lend available securities to authorized broker-dealers subject to the receipt of acceptable collateral. The System lends securities such as common stock, U.S. Treasury and corporate bonds and receives collateral in the form of either cash or other securities similar to the type on loan. Borrowers are required to provide collateral amounts of 102% of the market value of loaned U.S. securities plus accrued interest and 105% of the market value of loaned non-U.S. securities plus accrued interest. The System cannot pledge or sell collateral securities received until and unless a borrower defaults. Securities held as collateral at year-end are not subject to the preceding disclosures of custodial credit risk as they are held in a collateral investment pool. At year-end, the System has no credit risk exposure to borrowers because the amounts the System owes the borrowers exceed the amounts the borrowers owe the System. Contracts with the lending agents require them to indemnify the System if the borrowers fail to return the securities (and if the collateral is inadequate to replace the securities lent) or fail to pay the System for income distributions by the securities' issuers while the securities are on loan. Net securities lending income during the year ended December 31, 2018 was \$1,856,598.

Cash and U.S. Government securities were provided as collateral for the securities lent. At December 31, 2018, the carrying amount and fair value of the securities on loan was approximately \$499,441,842. The underlying collateral for these securities had a market value of approximately \$509,798,151. The Market Value of Loaned Securities Collateralized by Non-Cash Collateral of approximately \$90,658,659 and Market Value of Non Cash Collateral of approximately \$92,891,243 of the total collateral. Because these securities cannot be sold or pledged unless the borrower defaults, this collateral and related liability is not presented on the statement of net position. The remaining collateral represents cash collateral that is invested and is classified according custodial credit risk. It is included as an asset on the statement of net position with an offsetting liability for the return of collateral.

Notes to the Basic Financial Statements

Foreign Currency Risk

The System also expects its International Security Investment Managers to maintain diversified portfolios by currency denomination; however, no formal policy limits have been established. At December 31, 2018, the System's exposure to foreign currency risk for its short-term and equity securities is as follows:

Exposures by Currency* as of December 31, 2018				
Currency	Cash	Investments	Derivatives & Payables/Receivables	Total
Argentine peso	46,886	253,877	222,044	522,806
Australian dollar	392,071	28,943,104	(31,967,796)	(2,632,621)
Brazilian real	166,466	5,957,534	(5,712,991)	411,009
British pound sterling	1,175,942	106,013,718	(102,671,636)	4,518,025
Canadian dollar	42,676	842,366	(1,988,965)	(1,103,923)
Chilean peso	-	2,224,961	5,212	2,230,173
Chinese yuan renminbi	-	-	(18,696,595)	(18,696,595)
Colombian peso	-	-	(31,108)	(31,108)
Czech koruna	-	248,904	1,827	250,731
Danish krone	20,785	7,810,535	(5,305,440)	2,525,879
Egyptian pound	-	-	-	-
Euro	4,207,123	188,789,640	(148,224,665)	44,772,098
HK offshore Chinese Yuan Renminbi	21,680	671,741	(628,060)	65,361
Hong Kong dollar	328,639	29,350,084	(110,625,077)	(80,946,355)
Indian rupee	-	-	(9,033,187)	(9,033,187)
Indonesian rupiah	128,515	6,148,319	2,801,066	9,077,899
Japanese yen	22,247,300	216,460,467	(168,013,950)	70,693,817
Malaysian ringgit	-	225,230	-	225,230
Mexican peso	167,476	4,699,473	(812,976)	4,053,973
New Israeli shekel	7,596	2,556,698	(1,325,128)	1,239,166
New Taiwan dollar	-	-	(56,080,203)	(56,080,203)
New Zealand dollar	118,252	2,170,405	972,556	3,261,213
Norwegian krone	21,367	2,507,670	(3,423,424)	(894,388)
Peruvian nuevo sol	-	-	-	-
Philippine peso	-	271,969	-	271,969
Polish zloty	-	-	(4,275,824)	(4,275,824)
Russian ruble	72,439	1,280,334	(6,137,462)	(4,784,689)
Singapore dollar	52,598	7,786,654	(13,035,967)	(5,196,715)
South African rand	-	9,376	(6,927,725)	(6,918,350)
South Korean won	-	9,171,890	(67,080,314)	(57,908,424)
Swedish krona	242,586	9,966,306	8,066,571	18,275,463
Swiss franc	59,861	70,033,533	(42,303,575)	27,789,819
Thai baht	-	444,127	(11,018,650)	(10,574,523)
Turkish lira	-	-	(2,522,589)	(2,522,589)
TOTAL	29,520,257	704,838,913	-805,774,030	-71,414,859

Notes to the Basic Financial Statements

Derivatives

The System permits the use of derivatives by its international equity and external fixed income managers. Examples of derivative instruments permitted, but not limited to, are foreign exchange contracts, financial futures, forwards, options, swaps and swaptions. All derivative instruments utilized are considered "Investment derivative instruments" as defined in GASB 53 "Accounting and Financial Reporting for Derivative Instruments".

The fair value balances and notional amounts of derivative instruments outstanding at December 31, 2018, classified by instrument in fair value are as follows:

The Wyoming Retirement System Derivative Instruments - Summary Disclosure					
As of 31 December 2018					
Category	Sub-Category	Currency	Bought/ Sold	Fair Market Value	Notional Value
Futures	Commodity Contracts			-	300,336,720
	Equity Contracts			-	500,598,703
	Interest Rate Contracts			-	(156,185,835)
Options	Options			(213,485)	5,236
Rights/Warrants	Equity Contracts			7,063	N/A
Swaps	Exchange Cleared Swaps			221,946	N/A
	Swaps			(1,839,483)	N/A
Forwards	Other Contracts			3,052	N/A
	Foreign Exchange Contracts	Argentine peso	Bought	9,368	222,044
	Foreign Exchange Contracts	Australian dollar	Bought	(227,371)	29,234,634
	Foreign Exchange Contracts	Australian dollar	Sold	1,594,390	(61,178,666)
	Foreign Exchange Contracts	Brazilian real	Bought	(67,392)	3,796,078
	Foreign Exchange Contracts	Brazilian real	Sold	(47,172)	(9,571,144)
	Foreign Exchange Contracts	British pound sterling	Bought	62,159	61,712,712
	Foreign Exchange Contracts	British pound sterling	Sold	(139,986)	(164,642,834)
	Foreign Exchange Contracts	Canadian dollar	Bought	(265,295)	7,547,339
	Foreign Exchange Contracts	Canadian dollar	Sold	235,091	(9,576,108)
	Foreign Exchange Contracts	Chinese offshore Yuan	Sold	(9,241)	(629,961)
	Foreign Exchange Contracts	Chinese yuan renminbi	Bought	679	436,757
	Foreign Exchange Contracts	Chinese yuan renminbi	Sold	(80,193)	(19,133,352)
	Foreign Exchange Contracts	Colombian Peso	Sold	6,202	(360,796)
	Foreign Exchange Contracts	Columbian Peso	Bought	(15,882)	329,688
	Foreign Exchange Contracts	Danish krone	Bought	4,831	8,550,603
	Foreign Exchange Contracts	Danish krone	Sold	(47,429)	(14,458,567)
	Foreign Exchange Contracts	Euro	Bought	212,360	133,228,882
	Foreign Exchange Contracts	Euro	Sold	(717,254)	(283,591,803)
	Foreign Exchange Contracts	Hong Kong dollar	Bought	(16,895)	17,443,387
	Foreign Exchange Contracts	Hong Kong dollar	Sold	162,118	(128,040,508)
	Foreign Exchange Contracts	Indian rupee	Bought	111,833	2,955,599
	Foreign Exchange Contracts	Indian Rupee	Sold	(387,327)	(11,988,787)
	Foreign Exchange Contracts	Indonesian Rupiah	Bought	126,198	2,801,066
	Foreign Exchange Contracts	Japanese yen	Bought	447,974	16,152,929
	Foreign Exchange Contracts	Japanese yen	Sold	(5,645,680)	(260,712,847)
	Foreign Exchange Contracts	Mexican peso	Bought	(76,177)	3,082,378
	Foreign Exchange Contracts	Mexican peso	Sold	(125,610)	(3,884,906)
	Foreign Exchange Contracts	New Israeli shekel	Bought	(2,187)	1,819,269

Notes to the Basic Financial Statements

Category	Sub-Category	Currency	Bought/ Sold	Fair Market Value	Notional Value
	Foreign Exchange Contracts	New Israeli shekel	Sold	6,093	(3,144,398)
	Foreign Exchange Contracts	New Taiwan dollar	Bought	14,447	2,327,009
	Foreign Exchange Contracts	New Taiwan dollar	Sold	(451,353)	(58,407,211)
	Foreign Exchange Contracts	New Zealand dollar	Bought	(94,667)	5,971,118
	Foreign Exchange Contracts	New Zealand dollar	Sold	89,750	(4,998,369)
	Foreign Exchange Contracts	Norwegian krone	Bought	(11,717)	4,654,922
	Foreign Exchange Contracts	Norwegian krone	Sold	45,824	(8,202,930)
	Foreign Exchange Contracts	Polish zloty	Bought	3,644	705,801
	Foreign Exchange Contracts	Polish zloty	Sold	(14,630)	(4,986,353)
	Foreign Exchange Contracts	Russian ruble	Bought	(33,813)	637,216
	Foreign Exchange Contracts	Russian ruble	Sold	320,715	(6,814,537)
	Foreign Exchange Contracts	Singapore dollar	Bought	11,782	8,443,395
	Foreign Exchange Contracts	Singapore dollar	Sold	(98,318)	(21,485,295)
	Foreign Exchange Contracts	South African rand	Sold	98,867	(6,927,725)
	Foreign Exchange Contracts	South Korean won	Bought	4,279	1,165,843
	Foreign Exchange Contracts	South Korean won	Sold	(529,221)	(68,399,506)
	Foreign Exchange Contracts	Swedish krona	Bought	484,046	35,698,146
	Foreign Exchange Contracts	Swedish krona	Sold	(347,532)	(27,634,687)
	Foreign Exchange Contracts	Swiss franc	Bought	19,217	36,665,555
	Foreign Exchange Contracts	Swiss franc	Sold	(418,856)	(81,050,354)
	Foreign Exchange Contracts	Thai Baht	Sold	(54,774)	(11,018,650)
	Foreign Exchange Contracts	Turkish lira	Sold	(39,727)	(2,522,589)
	Foreign Exchange Contracts	United States dollar	Bought	-	1,266,767,629
	Foreign Exchange Contracts	United States dollar	Sold	-	(384,880,951)
Total				(7,714,739)	638,860,991

Derivative Risks

Credit, interest rate and foreign currency risks affecting derivatives and other applicable investments are addressed in previous sections of Note 3. These risks, applicable to other fixed income and foreign investments, are not substantially different from the same risks affecting applicable derivative instruments.

In addition to the principal risks noted above, Forward Foreign Currencies, Credit Default Swaps and Interest Rate Swaps are also subject to counterparty risk. In general, counterparty risk is the risk of loss of an amount expected to be delivered under an agreement in the event of the default or bankruptcy of the counterparty. Generally, counterparty risk is controlled through dealing with a number of different counterparties reasonably deemed to be creditworthy by the investment manager.

Derivative – Contingency

Derivative instruments often contain credit-risk-related contingent features that could result in an immediate payment to the counterparty. For example, a material adverse change clause could provide the counterparty with the right to early terminate the derivative agreement. Alternatively, it could provide a basis for renegotiating the agreement if specific events occur, such as a downgrade of the entity's credit rating below investment grade. These provisions may include an obligation to post additional collateral in instances where the credit-risk contingent feature is triggered or the counterparty is provided the right to terminate the agreement early.

Contingent features that could result in an immediate payment from the counterparty include the event of a downgrade of the counterparty below a specified rating, commonly A-/A3. Additionally, the counterparty can request immediate payment in the event assets under management of the portfolio falls by more than 30% in a year or 15% in a month. It is important to note that these contingent features are not compulsory, rather they are voluntary.

Notes to the Basic Financial Statements

Note 4. Fair Value Reporting (GASB 72)

Investment valuation

The Wyoming Retirement System categorizes the fair value measurements of its investments based on the hierarchy established by generally accepted accounting principles. The fair value hierarchy, which has three levels, is based on the valuation inputs used to measure an asset's fair value: Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs. In addition, The Wyoming Retirement System has an internal valuation process which is available upon request.

Investments

Investments, including derivative instruments that are not hedging derivatives, are measured at fair value on a recurring basis. Recurring fair value measurements are those that Governmental Accounting Standards Board (GASB) Statements require or permit in the statement of net position at the end of each reporting period. Fair value measurements are categorized based on the valuation inputs used to measure an asset's fair value: Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs. Investments' fair value measurements are as indicated in chart on December 31, 2018 (in millions).

Debt and equity securities categorized as Level 1 are valued based on prices quoted in active markets for those securities. Debt securities categorized as Level 2 are valued using a matrix pricing technique that values securities based on their relationship to benchmark quoted prices. Mortgage-backed securities categorized as Level 3 are valued using discounted cash flow techniques. Collateralized debt obligations categorized as Level 3 are valued using consensus pricing. Investment derivative instruments categorized as Level 2 are valued using market approaches that consider, as applicable, benchmark interest rates or foreign exchange rates.

Opportunistic/Directional: This sub-asset class provides exposure to investment opportunities that will not typically be targeted by traditional managers. These funds will typically have a higher risk/return profile than more heavily hedged funds such as market neutral funds. Fund strategies in this subclass may include: Long/Short (net exposure > 50%), Multistrategy, Distressed Equity, Activist Equity and Convertible Arbitrage.

Enhanced Fixed Income: This sub-asset class provides exposure to fixed income investments that will not typically be targeted by traditional managers, such as marketable distressed fixed income securities. Fund strategies in this subclass may include: Distressed Credit and Fixed Income Arbitrage.

Investments	Fair Value Measurements in Millions			
	As of 31 December 2018	Total Fair Value	Level 1 Inputs	Level 2 Inputs
Fixed Income				
Corporate Bonds/Credit	\$222	\$-	\$220	\$2
Emerging Markets Debt	18	-	18	-
Mortgages/ABS	78	-	78	-
TIPS	143	-	139	4
Treasury/Agencies/ Governments	927	-	927	-
Total Fixed Income	1,387	-	1,382	6
Equity				
Domestic	1,506	1,506	-	-
Emerging Markets	42	42	-	-
International Developed	630	630	-	-
Total Equity	2,178	2,178	-	-
Marketable Alternatives				
Absolute Return	-	-	-	-
Directional Funds	98	95	3	-
GAA	-	-	-	-
Total Marketable Alternatives	98	95	3	-
Private Markets				
Other Real Assets	-	-	-	-
Private Debt	-	-	-	-
Private Equity	-	-	-	-
Real Estate	-	-	-	-
Total Private Markets	-	-	-	-
Derivatives				
Forwards	-	-	-	-
Futures	-	-	-	-
FX	(6)	-	(6)	-
Options	-	-	-	-
Rights/Warrants	-	-	-	-
Swaps	2	-	2	-
Swap Liabilities	(3)	-	(3)	-
Total Derivatives	(8)	-	(7)	-
Total	\$3,656	\$2,273	\$1,377	\$6

Note: Numbers may not total 100.0% due to rounding.

Notes to the Basic Financial Statements

Absolute Return: This sub-asset class provides diversification to the total portfolio and strives to reduce total fund volatility. This area will include investments in a group of skill-based managers using a variety of strategies such as: Global Macro, Long/Short Equity (net exposure < 50%), Managed Futures, Event Driven Risk Arbitrage, Market Neutral. And Dedicated Short Bias. Please see Appendix IV in the IPS for detailed descriptions of the strategies. At any given point in time, the number of managers and types of investments and strategies being utilized may include the entire universe of available investment options. In addition, a variety of marketable alternative strategies may be utilized within this sub-asset class including, but not limited to hedged equity, convertible arbitrage, event driven, relative value, global fixed income/currencies, managed futures, and commodities.

Investments in Entities That Calculate Net Asset Value Per Share

The fair values of investments in certain equity, fixed income, and marketable alternatives funds are based on the investments' net asset value (NAV) per share (or its equivalent) provided by the investee. The fair values of investments in certain private equity funds have been determined using recent observable transaction information for similar investments and nonbinding bids received from potential buyers of the investments. Such fair value measurements are as follows at December 31, 2018 (in millions):

Investments	Total NAV-Driven
As of 31 December 2018	Value in Millions
Fixed Income	
Corporate Bonds/Credit	\$105
Emerging Markets Debt	
Mortgages/ABS	
TIPS	
Treasury/Agencies/Governments	
Total Fixed Income	105
Equity:	
Domestic	155
Emerging Markets	353
International Developed	666
Total Equity	1,173
Marketable Alternatives:	
Absolute Return	667
Directional Funds	649
Total Marketable Alternatives	1,316
Private Markets:	
Other Real Assets	513
Private Debt	242
Private Equity	311
Real Estate	146
Total Private Market	1,213
Total	\$3,807

Note: Numbers may not total 100.0% due to rounding.

Notes to the Basic Financial Statements

NAV - Redemption Frequency & Redemption Schedule		
Equities	Redemption Frequency	Notice Period
Acadian Non-US SC	Daily	30 Days
Acadian Em Small Cap	Daily	30 Days
Cevian European	3 Years (On Anniversary)	90 Days
Harding Loevner	Daily	7 Days
Highclere	Monthly	10 Business Days
Kiltearn	Monthly	6 Business Days
Polunin	Monthly	7 Days
Sanderson	Monthly	10 Business Days
ValueAct	5 Years (On Anniversary)	90 Days
Fixed Income		
Altum	3 Years (On Anniversary)	90 Days
Marketable Alternatives		
AQR	Monthly	15 Days
Bridgewater Optimal Portfolio	Quarterly	90 Days
Bridgewater Pure Alpha	Monthly	5 Business Days
Dorsal	Quarterly	45 Days
GMO GAAR	Monthly	14 Days
GMO SGM	Monthly	3 Days
Naya	3 Years (On Anniversary)	65 Days
TCI Fund	Quarterly	120 Days

Notes to the Basic Financial Statements

NAV - Redemption Frequency & Redemption Schedule (Continued)		
Private Markets		
Adams Street III	10 Years	N/A
Alinda Fund II	10 Years	N/A
Blackstone REP VIII	8 Years	N/A
Carl Marks Strategic Opportunities Fund II	Annual	90 Days
Centerbridge Partners	2 Years	90 Days
Kayne Anderson Mezzanine	10 Years	N/A
KAREP II	8 Years	N/A
KAREP III	8 Years	N/A
KSL	10 Years	N/A
Macquarie Infra Fund II	10 Years	N/A
MS Prime Property Fund	Quarterly	90 Days
Oaktree Real Estate Debt	6 Years	N/A
Orion Fund I	7 Years	N/A
Ridgewood Energy Oil & Gas Fund II	10 Years	N/A
Ridgewood Energy Oil & Gas Fund III	10 Years	N/A
Summit	10 Years	N/A
TCI Real Estate Fund III	7 Years	N/A
Tennenbaum Ops Fund VI	12 Years	N/A
Tennenbaum Sr. Loan Fund III	10 Years	N/A
Torchlight	10 Years	N/A
Abbott (WRS Opportunities Fund)	15 Years	N/A
Grove Street (Cloudveil Capital)	12 Years	N/A
Hamilton Lane (Moran funds I and II)	10 Years	N/A
Other		
ESLJ- Popo Agie	Daily	15 Business Days

Note 5. Contributions Required and Contributions Made – Defined Benefit (Pension) Plans

Funding policies for most plans provide for monthly employer and employee contributions at statutorily determined rates that, expressed as percentages of annual covered payroll, are sufficient to accumulate assets to pay benefits when due. The Volunteer Firefighter & EMT Pension Plan is based upon a fixed monthly member contribution of \$15.00 per month plus an appropriation of a portion of state fire insurance premium taxes.

Actuarial valuations are prepared annually for all systems. In the event, based upon the results of the actuarial valuation, present statutory contribution requirements are insufficient to accumulate assets to pay benefits when due, the Wyoming Retirement Board, Volunteer Firefighter & EMT Board, after approval by the Legislature, would revise statutory contribution requirements to maintain the actuarial integrity of the applicable System. For the year ended December 31, 2018, contributions were made in accordance with statutorily determined contribution requirements.

Notes to the Basic Financial Statements

Note 6. Commitments

At December 31, 2018, WRS was committed to the future purchase of investments at an aggregate cost of \$1,569,297,646. As of December 31, 2018, WRS has funded \$1,924,107,089 in commitments, cumulatively.

Sub-Asset Class	Unfunded Commitments
Other Real Assets	662,168,557
Private Debt	160,686,235
Private Equity	732,118,878
Real Estate	14,323,977
Total	1,569,297,646

Note 7. Master Trust

The System has entered into a master trust agreement with Northern Trust. In accordance with the terms of the agreement, in addition to holding System investments in custodial accounts, Northern Trust, as trustee, is authorized at the direction of the System or its investment managers to receive proceeds from investment sales and dividend and interest payments, to disburse funds for purchase of investments, to retire obligations upon maturity or redemption and to execute in the System's name whatever certification is necessary for other investment transactions. In March 2015, a master trust agreement transferred trustee responsibility to Northern Trust.

Note 8. Risk Management and Contingencies

The nature of the System's operations makes it susceptible to lawsuits, legal actions, and other judgments. The System mitigates its risk of material loss from these situations through participation in the State of Wyoming self-insurance program. Wyoming Statute 1-41-103 created the State self-insurance fund to handle liability insurance claims brought against the State. The range of losses financed includes general liability, automobile liability, policy liability, medical malpractice liability and civil rights. The System had no significant changes in coverage from the prior year.

The State generally does not maintain reserves; losses are covered by a combination of appropriations from the State's general fund in the year in which the payment occurs and by assessing State agencies a pro rata share of anticipated claims expenditures for the fiscal year. The Department of Administration and Information estimates a liability for claims against the State as a whole including incurred but not reported claims (IBNR's) but does not make the estimate for each individual department of the State including the System. Consequently, no liability for these claims is reflected in the financial statements of the System. Management believes that any claims that may exist would be immaterial to the System.

At various times, claims and lawsuits are pending against the System. The System is of the opinion that the liability, if any, arising from such claims will not have a materially adverse effect on its financial statements.

Notes to the Basic Financial Statements

Note 9. Capital Assets

The following is a summary of changed in capital assets:

	Balance 31-Dec-17	Additions	Deletions	Transfers	Balance 31-Dec-18
Leasehold Improvements	\$106,205	\$ -	\$ -	\$ -	\$106,205
Software	5,086,740	-	-	-	5,086,740
	5,192,945	-	-	-	5,192,945
Less accumulated depreciation	1,195,228	-	332,751	-	1,527,979
Capital asset, net	\$4,385,680	\$ -	\$332,751	\$ -	\$3,664,966

* See Statement of Fiduciary Net Position page 35; and Statement of Change in Fiduciary Net Position page 37

All disposals of Government Operations is completed at the state level. WRS is a division of the State.

Note 10. Net Pension Liability

Actuarial valuation of the ongoing Systems involved estimates of the reported amounts and assumptions about probability of occurrence of events far into the future. Examples include the single discount rate, schedule of contributions, changes in net pension liability, net pension liability multiyear, contributions multiyear, investment returns multiyear and schedule of agency contributions and percentage. The schedule of Employers Net Pension Liability presents multi-year trend information about whether the plan fiduciary net positions are increasing or decreasing over time relative to the total pension liability. These schedules are presented in the Required Supplementary information section. The Total Pension Liability as of December 31, 2018, is based on the results of an actuarial valuation date of January 1, 2019, and rolled-forward using generally accepted actuarial procedures.

The net pension liability (i.e., the retirement system's liability determined in accordance with GASB 67 less the fiduciary net position) as of December 31, 2018, is as shown below.

Total Pension Liability (\$)	Plan Fiduciary Net Position (\$)	Net Pension Liability (\$)	Plan Fiduciary Net Position as a % of Total Pension Liability	Covered Payroll (\$)	Net Pension Liability as a % of Covered Payroll
Public Employee Pension Plan:					
9,876,659,480	6,831,368,597	3,045,290,883	69.17%	1,741,354,609	174.88%
State Patrol, Game and Fish Warden and Criminal Investigator Pension Plan:					
200,304,268	133,269,459	67,034,809	66.53%	23,063,176	290.66%
Volunteer Firefighter & EMT Pension Plan:					
111,846,319	76,255,714	35,590,605	68.18%	n/a	n/a
Paid Firemen's Pension Plan A:					
324,221,215	97,220,978	227,000,237	29.99%	134,155	169207.64%
Paid Firemen's Pension Plan B:					
162,296,937	141,313,723	20,983,214	87.07%	26,811,084	78.26%
Judicial Pension Plan:					
31,180,091	28,348,072	2,832,019	90.92%	6,558,029	43.18%
Law Enforcement Pension Plan:					
841,124,096	599,051,838	242,072,258	71.22%	151,898,695	159.36%
Air Guard Firefighters Pension Plan:					
9,010,891	7,206,910	1,803,981	79.98%	2,154,544	83.73%

n/a - not applicable

Notes to the Basic Financial Statements

The table on this page is presented to show the actuarial methods and assumptions.

GASB 67 - Actuarial Methods and Assumptions

January 1, 2019

Assumptions and Methods	Public Employees Pension Plan	State Patrol Game & Fish Warden and Criminal Investigators Pension Plan	Volunteer Firefighter and EMT Pension Plan	Paid Firemen's Pension Plan A	Paid Firemen's Pension Plan B	Judicial Pension Plan	Law Enforcement Pension Plan	Air Guard Firefighter Pension Plan
Valuation date	1/1/2018	1/1/2018	1/1/2018	1/1/2018	1/1/2018	1/1/2018	1/1/2018	1/1/2018
Actuarial cost method	Individual Entry Age Normal	Individual Entry Age Normal	Individual Entry Age Normal	Individual Entry Age Normal	Individual Entry Age Normal	Individual Entry Age Normal	Individual Entry Age Normal	Individual Entry Age Normal
Amortization method	Level percent Closed	Level percent Closed	Level Dollar Closed	Level Dollar Closed	Level percent of Payroll Closed	Level percent of Payroll Closed	Level percent of Payroll Closed	Level percent of Payroll Closed
Remaining amortization period	30	30	30	10	30	15	30	30
Asset valuation method	5-year	5-year	5-year	5-year	5-year	5-year	5-year	5-year
Actual assumptions:								
Investment net rate of return	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
Projected salary increases includes inflation	4.75% to 8.75%	2.50% to 8.50%	n/a	4.50%	4.50% to 7.50%	4.75% to 8.75%	4.75% to 8.75%	4.75% to 8.75%
Assumed inflation rate	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
Mortality	*	*	*	*	*	*	*	*

* Mortality:

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%

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%

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%

Note: Significant assumptions are based on an experience study that covered a five-year period ending December 31, 2016.

Notes to the Basic Financial Statements

Discount Rate

The discount rate used to measure the total pension liability for all plans was 7.00%. The projection of cash flows used to determine the discount rate assumed contributions from participating employers will be made based on the actuarially determined rates based on the Board's funding policy, which establishes the contractually required rates under Wyoming State Statutes. Based on those assumptions, the Systems' fiduciary net position was projected to be available to make all the 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 payment to determine the total pension liability.

	Single Discount Rate	Long-Term Expected Rate of Return	Long-Term Municipal Bond Rate*	Last year ending December 31 in the 2017 to 2060 projection period for which projected benefit payments are fully funded
Public Employee Pension Plan:	7.00%	7.00%	3.71%	2117
State Patrol, Game and Fish Warden and Criminal Investigator Pension Plan:	6.33%	7.00%	3.71%	2060
Volunteer Firefighter & EMT Pension Plan:	7.00%	7.00%	3.71%	2117
Paid Firemen's Pension Plan A:	4.01%	7.00%	3.71%	2026
Paid Firemen's Pension Plan B:	7.00%	7.00%	3.71%	2117
Judicial Pension Plan:	7.00%	7.00%	3.71%	2117
Law Enforcement Pension Plan:	5.92%	7.00%	3.71%	2054
Air Guard Firefighters Pension Plan:	7.00%	7.00%	3.71%	2017

*Source: "State & local bonds" rate from Federal Reserve statistical release (H.15) as of December 31, 2018. The statistical release describes the rate as "Bond Buyer Index, general obligation, 20 years to maturity, mixed quality." In describing this index, the Bond Buyer notes that the bonds' average credit quality is roughly equivalent to Moody's Investor's Aa2 rating and Standard & Poor's Corp.'s AA.

Notes to the Basic Financial Statements

In accordance with GASB 67 regarding the disclosure of the sensitivity of the net pension liability to changes in the discount rate, the table below presents the net pension liability calculated using the discount rate as stated, as well as what the net pension liability would be if it were calculated using a discount rate that is 1.00% lower or 1.00% higher than the current rate.

Current Single Discount Rate

	1% Decrease	Assumption	1% Increase
	6.00%	7.00%	8.00%
Public Employee Pension Plan:	\$4,223,408,002	\$3,045,290,883	\$2,062,163,186
Volunteer Firefighter & EMT Pension Plan:	49,373,777	35,590,605	24,200,609
Paid Firemen's Pension Plan B:	43,713,158	20,983,214	2,128,993
Judicial Pension Plan:	6,121,619	2,832,019	(3,092)
Air Guard Firefighter Pension Plan:	3,063,362	1,803,981	343,296
	1% Decrease	Assumption	1% Increase
	5.33%	6.33%	7.33%
State Patrol, Game & Gish Warden and Criminal Investigator Pension Plan:	93,174,639	67,034,809	45,419,967
	1% Decrease	Assumption	1% Increase
	3.01%	4.01%	5.01%
Paid Firemen's Pension Plan A:	274,487,972	227,000,237	188,720,601
	1% Decrease	Assumption	1% Increase
	4.92%	5.92%	6.92%
Law Enforcement Pension Plan:	364,461,782	242,072,258	142,850,545

The following table represents the investment return for the year ended December 31, 2018. The plans assume a long term investment rate of return of 7.00%. The long term rate of return is determined through a 4.75% net real rate of return and an inflation rate of 2.25%. The following table represents a comparison of the annual money-weighted rate of return, net of investment expenses compared to the expected net real rate of return.

	Annual money-weighted rate of return, net of expenses for the fiscal year ended December 31, 2018	Expected Rate of Return net of investment expenses
Public Employee Pension Plan:	-3.52%	7.00%
State Patrol, Game and Fish Warden and Criminal Investigator Pension Plan:	-3.52%	7.00%
Volunteer Firefighter & EMT Pension Plan:	-3.52%	7.00%
Paid Firemen's Pension Plan A:	-3.52%	7.00%
Paid Firemen's Pension Plan B:	-3.52%	7.00%
Judicial Pension Plan:	-3.52%	7.00%
Law Enforcement Pension Plan:	-3.52%	7.00%
Air Guard Firefighters Pension Plan:	-3.52%	7.00%

Notes to the Basic Financial Statements

The assumed asset allocation of the plan's portfolio, the long term expected rate of return for each asset class and the expected rate of return is presented arithmetically and geometrically below over a 20 year time frame.

Schedule of Investment Returns

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected arithmetic returns, net of pension plan investment expense and inflation) are developed for each major asset class. These real rates of return are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. For each major asset class that is included in the pension plans target asset allocation as of January 1, 2018, these best estimates are summarized in the following table:

Core Plus	Target Allocation	Arithmetic Real Return	Arithmetic Nominal Return	Geometric Real Return	Geometric Nominal Return
Tactical Cash	0.00%	0.30%	2.90%	30.00%	2.90%
Fixed Income	20.00%	2.00%	4.60%	1.50%	4.10%
Core Plus	7.50%	1.40%	4.00%	1.30%	3.90%
US Government	10.00%	1.80%	4.40%	1.10%	3.70%
Opportunistic Credit	2.50%	4.20%	6.80%	3.70%	6.30%
Equity	49.00%	7.40%	10.00%	6.00%	8.60%
US Equity	23.60%	6.90%	9.50%	5.50%	8.10%
Developed International	15.80%	7.70%	10.30%	5.90%	8.90%
Emerging Markets	9.60%	10.70%	13.30%	7.80%	10.40%
Marketable Alternatives	19.00%	3.50%	6.10%	3.10%	5.70%
Opportunistic/Directional	0.0-10.0%	4.00%	6.60%	3.70%	6.30%
Absolute Return	5.0-15.0%	3.10%	5.70%	2.80%	5.40%
Enhanced Fixed Income	0.0-10.0%	2.70%	5.30%	2.30%	4.90%
Global Asset Allocation	2.5-12.0%	3.00%	5.60%	2.50%	5.10%
Private Markets	12.00%	7.00%	9.60%	5.20%	7.80%
Private Real Assets	3.0-10.5%	7.00%	9.60%	5.40%	8.00%
Real Estate	2.5-7.5%	3.80%	6.40%	3.20%	5.80%
Private Debt	2.5-7.5%	6.20%	8.80%	4.70%	7.30%
Private Equity	2.5-12.5%	10.90%	13.50%	7.50%	10.10%
Total	100.00%	5.50%	8.10%	4.40%	7.00%

The figures in the above table were supplied by Meketa Investment Group, the investment consulting firm for the Wyoming Retirement System.

Notes to the Basic Financial Statements

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Required Supplementary Information - Changes In Net Pension Liability

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS - Multiyear

Public Employee Pension Plan					
Fiscal year ending December 31,	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	\$195,575,014	\$201,824,345	\$219,893,113	\$217,488,957	\$213,059,299
Interest on the Total Pension Liability	658,459,157	641,429,003	664,368,366	638,943,600	614,848,444
Benefit Changes	-	-	-	-	-
Difference between Expected and Actual Experience	(49,213,548)	(56,701,091)	(43,790,701)	(66,191,620)	-
Assumption Changes	-	290,801,601.00	-	-	-
Benefit Payments	(547,913,244)	(516,837,260)	(483,482,106)	(450,589,769)	(418,274,815)
Refunds	(18,114,423)	(18,654,997)	(18,127,974)	(19,365,045)	(17,821,799)
Net Change in Total Pension Liability	\$238,792,956	\$541,861,601	\$338,860,698	\$320,286,123	\$391,811,129
Total Pension Liability - Beginning	\$9,637,866,524	\$9,096,004,923	\$8,757,144,225	\$8,436,858,102	\$8,045,046,973
Total Pension Liability - Ending (a)	\$9,876,659,480	\$9,637,866,524	\$9,096,004,923	\$8,757,144,225	\$8,436,858,102
Plan Fiduciary Net Position					
Employer Contributions	\$147,632,510	\$148,746,669	\$151,488,715	\$144,622,373	\$127,929,930
Employee Contributions	151,130,515	149,752,251	152,422,538	153,529,134	137,144,565
Pension Plan Net Investment Income	(252,571,153)	923,878,089	454,712,993	(67,155,642)	318,184,952
Benefit Payments	(547,913,244)	(516,837,260)	(483,482,106)	(450,589,769)	(418,274,815)
Refunds	(18,114,423)	(18,654,997)	(18,127,974)	(19,365,045)	(17,821,799)
Pension Plan Administrative Expense	(7,033,951)	(6,551,109)	(5,993,529)	(5,097,818)	(5,182,863)
Other	(287,669)	(312,336)	(312,336)	(312,704)	5,539,339
Net Change in Plan Fiduciary Net Position	(\$527,157,415)	\$680,021,307	\$250,708,301	(\$244,369,471)	\$147,519,309
Plan Fiduciary Net Position - Beginning	\$7,358,526,012	\$6,678,504,705	\$6,427,796,404	\$6,672,165,875	\$6,524,646,566
Plan Fiduciary Net Position - Ending (b)	\$6,831,368,597	\$7,358,526,012	\$6,678,504,705	\$6,427,796,404	\$6,672,165,875
Net Pension Liability - Ending (a) - (b)	\$3,045,290,883	\$2,279,340,512	\$2,417,500,218	\$2,329,347,821	\$1,764,692,227
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	69.17%	76.35%	73.42%	73.40%	79.08%
Covered Payroll	\$1,741,354,609	\$1,776,377,586	\$1,782,905,215	\$1,744,073,882	\$1,709,412,443
Projected Valuation Payroll	\$1,784,888,475	\$1,820,787,026	\$1,858,678,687	\$1,818,197,022	\$1,782,062,471
Net Pension Liability as a Percentage of Covered Payroll	174.88%	128.31%	135.59%	133.56%	103.23%

Note: Information not available prior to 2014

Required Supplementary Information - Changes In Net Pension Liability

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS - Multiyear

State Patrol, Game & Fish, Warden & Criminal Investigator Pension Plan

Fiscal year ending December 31,	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	\$5,078,748	\$4,764,423	\$7,631,559	\$7,511,738	\$5,276,236
Interest on the Total Pension Liability	12,084,646	12,129,167	12,213,078	11,513,094	11,490,234
Benefit Changes	-	-	-	-	-
Difference between Expected and Actual Experience	(2,017,522)	(4,722,830)	62,315	(1,821,706)	-
Assumption Changes	13,137,489.00	(22,946,444.00)	(5,188,326.00)	32,535,213.00	-
Benefit Payments	(10,260,821)	(9,795,108)	(9,396,540)	(8,926,088)	(8,364,762)
Refunds	(351,230)	(509,361)	(323,328)	(120,906)	(368,093)
Net Change in Total Pension Liability	\$17,671,310	(\$21,080,153)	\$4,998,758	\$40,691,345	\$8,033,615
Total Pension Liability - Beginning	\$182,632,958	\$203,713,111	\$198,714,353	\$158,023,008	\$149,989,393
Total Pension Liability - Ending (a)	\$200,304,268	\$182,632,958	\$203,713,111	\$198,714,353	\$158,023,008
Plan Fiduciary Net Position					
Employer Contributions	\$3,529,976	\$3,552,582	\$3,574,065	\$3,355,688	\$3,006,277
Employee Contributions	3,796,060	3,485,756	3,678,081	3,524,286	3,150,559
Pension Plan Net Investment Income	(4,908,329)	17,623,232	8,622,074	(1,199,475)	5,900,708
Benefit Payments	(10,260,821)	(9,795,108)	(9,396,540)	(8,926,088)	(8,364,762)
Refunds	(351,230)	(509,361)	(323,328)	(120,906)	(368,093)
Pension Plan Administrative Expense	(139,377)	(128,991)	(114,832)	(95,918)	(96,479)
Other	(5,536)	(5,897)	(5,897)	(5,850)	229,589
Net Change in Plan Fiduciary Net Position	(\$8,339,257)	\$14,222,213	\$6,033,623	(\$3,468,263)	\$3,457,799
Plan Fiduciary Net Position - Beginning	\$141,608,716	\$127,386,503	\$121,352,880	\$124,821,143	\$121,363,344
Plan Fiduciary Net Position - Ending (b)	\$133,269,459	\$141,608,716	\$127,386,503	\$121,352,880	\$124,821,143
Net Pension Liability - Ending (a) - (b)	\$67,034,809	\$41,024,242	\$76,326,608	\$77,361,473	\$33,201,865
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	66.53%	77.54%	62.53%	61.07%	78.99%
Covered Payroll	\$23,063,176	\$23,641,495	\$23,636,482	\$22,196,930	\$21,817,686
Projected Valuation Payroll	\$23,639,756	\$24,646,258	\$24,641,033	\$23,140,300	\$22,744,938
Net Pension Liability as a Percentage of Covered Payroll	290.66%	173.53%	322.92%	348.52%	152.18%

Note: Information not available prior to 2014

Required Supplementary Information - Changes In Net Pension Liability

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS - Multiyear

Volunteer Firefighter & EMT Pension Plan				
Fiscal year ending December 31,	2018	2017	2016	2015
Total Pension Liability				
Service Cost	\$1,426,154	\$1,412,440	\$1,285,552	\$1,253,883
Interest on the Total Pension Liability	7,474,042	7,372,254	7,761,646	7,520,888
Benefit Changes	-	-	-	21,809,884
Difference between Expected and Actual Experience	(1,397,503)	(3,538,907)	(479,308)	211,035
Assumption Changes	-	5,273,789.00	-	(472,252.00)
Benefit Payments	(6,101,659)	(5,780,647)	(5,506,699)	(4,832,911)
Refunds	(44,163)	(33,242)	(35,162)	(34,719)
Net Change in Total Pension Liability	\$1,356,871	\$4,705,687	\$3,026,029	\$25,455,808
Total Pension Liability - Beginning	\$110,489,447	\$105,783,760	\$102,757,731	\$77,723,993
Total Pension Liability - Ending (a)	\$111,846,318	\$110,489,447	\$105,783,760	\$102,757,731
Plan Fiduciary Net Position				
Employer Contributions	\$2,959,943	\$3,290,994	\$3,198,930	\$2,238,612
Employee Contributions	434,522	425,592	459,363	417,406
Pension Plan Net Investment Income	(2,782,682)	10,035,753	4,939,925	(675,297)
Benefit Payments	(6,101,659)	(5,780,647)	(5,506,699)	(4,832,911)
Refunds	(44,163)	(33,242)	(35,162)	(34,719)
Pension Plan Administrative Expense	(91,195)	(88,835)	(80,904)	(73,412)
Other	(3,201)	(3,453)	(3,453)	(3,470)
Net Change in Plan Fiduciary Net Position	(\$5,628,435)	\$7,846,162	\$2,972,000	(\$2,963,791)
Plan Fiduciary Net Position - Beginning	\$81,884,148	\$74,037,986	\$71,065,986	\$74,029,777
Plan Fiduciary Net Position - Ending (b)	\$76,255,713	\$81,884,148	\$74,037,986	\$71,065,986
Net Pension Liability - Ending (a) - (b)	\$35,590,605	\$28,605,299	\$31,745,774	\$31,691,745
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	68.18%	74.11%	69.99%	69.16%
Covered Payroll	N/A See Note 2	N/A See Note 2	N/A See Note 2	N/A See Note 2
Net Pension Liability as a Percentage of Covered Payroll	N/A See Note 2	N/A See Note 2	N/A See Note 2	N/A See Note 2

Note 1: "Other" changes to Plan Fiduciary Net Position includes other funding sources and depreciation expenses.

Note 2: This plan is for volunteers and payroll is not applicable.

Note: Information not available prior to 2015

Required Supplementary Information - Changes In Net Pension Liability

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS - Multiyear

Paid Firemen's Pension Plan A

Fiscal year ending December 31,	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	\$61,278	\$122,812	\$147,314	\$162,541	\$188,951
Interest on the Total Pension Liability	12,801,237	12,582,433	12,906,407	12,910,372	13,337,846
Benefit Changes	-	-	-	-	-
Difference between Expected and Actual Experience	(1,673,790)	1,188,594	(1,825,288)	(2,479,196)	-
Assumption Changes	(11,600,861.00)	41,599,453.00	(5,166,271.00)	9,056,601.00	99,327,064.00
Benefit Payments	(15,788,064)	(15,410,878)	(15,075,912)	(14,824,715)	(14,581,980)
Refunds	-	-	-	-	-
Net Change in Total Pension Liability	(\$16,200,200)	\$40,082,414	(\$9,013,750)	\$4,825,603	\$98,271,881
Total Pension Liability - Beginning	\$340,421,415	\$300,339,001	\$309,352,751	\$304,527,148	\$206,255,267
Total Pension Liability - Ending (a)	\$324,221,215	\$340,421,415	\$300,339,001	\$309,352,751	\$304,527,148
Plan Fiduciary Net Position					
Employer Contributions	\$ -	\$ -	\$ -	\$ -	\$ -
Employee Contributions	-	-	-	-	-
Pension Plan Net Investment Income	(3,580,279)	15,351,989	8,160,117	(1,107,007)	7,064,066
Benefit Payments	(15,788,064)	(15,410,878)	(15,075,912)	(14,824,715)	(14,581,980)
Refunds	-	-	-	-	-
Pension Plan Administrative Expense	(98,669)	(108,773)	(110,274)	(102,903)	(113,705)
Other	(4,562)	(6,020)	(6,019)	(6,559)	(1,701)
Net Change in Plan Fiduciary Net Position	(\$19,471,574)	(\$173,682)	(\$7,032,088)	(\$16,041,184)	(\$7,633,320)
Plan Fiduciary Net Position - Beginning	\$116,692,552	\$116,866,234	\$123,898,322	\$139,939,506	\$147,572,826
Plan Fiduciary Net Position - Ending (b)	\$97,220,978	\$116,692,552	\$116,866,234	\$123,898,322	\$139,939,506
Net Pension Liability - Ending (a) - (b)	\$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	29.99%	34.28%	38.91%	40.05%	45.95%
Covered Payroll	\$134,155	\$195,221	\$195,221	\$179,486	\$198,404
Projected Valuation Payroll	\$134,155	\$195,221	\$195,221	\$179,486	\$198,404
Net Pension Liability as a Percentage of Covered Payroll	169,207.64%	102,602.87%	93,982.30%	103,325.47%	82,955.64%

Note: Information not available prior to 2014

Required Supplementary Information - Changes In Net Pension Liability

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS - Multiyear

Paid Firemen's Pension Plan B					
Fiscal year ending December 31,	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	\$6,259,734	\$8,912,364	\$7,422,919	\$7,421,040	\$5,367,034
Interest on the Total Pension Liability	10,593,553	9,917,806	9,744,190	8,937,063	8,194,197
Benefit Changes	-	-	-	-	-
Difference between Expected and Actual Experience	(6,466,191)	(2,190,045)	(93,703)	120,064	-
Assumption Changes	(29,804,719.00)	16,738,920.00	(1,498,059.00)	20,165,038.00	-
Benefit Payments	(5,474,014)	(5,054,595)	(4,343,944)	(3,712,240)	(3,090,522)
Refunds	(64,091)	(120,137)	(71,599)	(75,062)	(62,762)
Net Change in Total Pension Liability	(\$24,955,728)	\$28,204,313	\$11,159,804	\$32,855,903	\$10,407,947
Total Pension Liability - Beginning	\$187,252,665	\$159,048,352	\$147,888,548	\$115,032,645	\$104,624,698
Total Pension Liability - Ending (a)	\$162,296,937	\$187,252,665	\$159,048,352	\$147,888,548	\$115,032,645
Plan Fiduciary Net Position					
Employer Contributions	\$3,356,547	\$3,230,196	\$3,370,961	\$3,273,668	\$3,184,045
Employee Contributions	2,821,872	2,773,651	2,858,418	2,924,752	2,414,435
Pension Plan Net Investment Income	(5,197,809)	17,838,337	8,477,077	(1,158,548)	5,303,618
Benefit Payments	(5,474,014)	(5,054,595)	(4,343,944)	(3,712,240)	(3,090,522)
Refunds	(64,091)	(120,137)	(71,599)	(75,062)	(62,762)
Pension Plan Administrative Expense	(140,922)	(130,931)	(112,132)	(90,438)	(87,431)
Other	(5,708)	(5,700)	(5,700)	(5,444)	264,234
Net Change in Plan Fiduciary Net Position	(\$4,704,125)	\$18,530,821	\$10,173,081	\$1,156,688	\$7,925,617
Plan Fiduciary Net Position - Beginning	\$146,017,848	\$127,487,027	\$117,313,946	\$116,157,258	\$108,231,641
Plan Fiduciary Net Position - Ending (b)	\$141,313,723	\$146,017,848	\$127,487,027	\$117,313,946	\$116,157,258
Net Pension Liability - Ending (a) - (b)	\$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	87.07%	77.98%	80.16%	79.33%	100.98%
Covered Payroll	\$26,811,084	\$28,209,686	\$26,390,481	\$25,986,443	\$24,552,559
Projected Valuation Payroll	\$28,168,395	\$29,408,598	\$27,512,076	\$27,090,867	\$25,596,043
Net Pension Liability as a Percentage of Covered Payroll	78.26%	146.17%	119.59%	117.66%	-4.58%

Note: Information not available prior to 2014

Required Supplementary Information - Changes In Net Pension Liability

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS - Multiyear

Judicial Pension Plan					
Fiscal year ending December 31,	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	\$1,509,964	\$1,470,668	\$1,263,270	\$1,263,278	\$1,186,595
Interest on the Total Pension Liability	2,037,989	1,880,909	1,793,779	1,659,184	1,539,910
Benefit Changes	-	-	-	-	-
Difference between Expected and Actual Experience	183,937	(620,955)	(229,282)	(372,108)	-
Assumption Changes	-	2,258,668.00	-	-	-
Benefit Payments	(1,454,953)	(1,166,423)	(981,321)	(931,621)	(775,805)
Refunds	-	-	-	-	-
Net Change in Total Pension Liability	\$2,276,937	\$3,822,867	\$1,846,446	\$1,618,733	\$1,950,700
Total Pension Liability - Beginning	\$28,903,154	\$25,080,287	\$23,233,841	\$21,615,108	\$19,664,408
Total Pension Liability - Ending (a)	\$31,180,091	\$28,903,154	\$25,080,287	\$23,233,841	\$21,615,108
Plan Fiduciary Net Position					
Employer Contributions	\$960,478	\$949,300	\$925,971	\$920,867	\$916,598
Employee Contributions	610,818	603,602	588,791	585,545	582,831
Pension Plan Net Investment Income	(1,038,644)	3,549,526	1,679,033	(228,304)	1,038,134
Benefit Payments	(1,454,953)	(1,166,423)	(981,321)	(931,621)	(775,805)
Refunds	-	-	-	-	-
Pension Plan Administrative Expense	(28,405)	(25,315)	(22,090)	(17,833)	(17,177)
Other	(1,146)	(2,313)	(1,128)	(1,072)	(244)
Net Change in Plan Fiduciary Net Position	(\$951,852)	\$3,908,377	\$2,189,256	\$327,582	\$1,744,337
Plan Fiduciary Net Position - Beginning	\$29,299,924	\$25,391,547	\$23,202,291	\$22,874,709	\$21,130,312
Plan Fiduciary Net Position - Ending (b)	\$28,348,072	\$29,299,924	\$25,391,547	\$23,202,291	\$22,874,709
Net Pension Liability - Ending (a) - (b)	\$2,832,019	(\$396,770)	(\$311,260)	\$31,550	(\$1,259,601)
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	90.92%	101.37%	101.24%	99.86%	105.83%
Covered Payroll	\$6,558,029	\$6,386,001	\$6,384,628	\$6,363,028	\$5,989,181
Projected Valuation Payroll	\$6,820,351	\$6,641,441	\$6,624,052	\$6,601,641	\$6,213,775
Net Pension Liability as a Percentage of Covered Payroll	43.18%	-6.21%	-4.88%	0.50%	-21.03%

Note: Information not available prior to 2014

Required Supplementary Information - Changes In Net Pension Liability

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS - Multiyear

Law Enforcement Pension Plan					
Fiscal year ending December 31,	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	\$26,657,347	\$23,241,982	\$23,339,214	\$22,790,835	\$22,432,708
Interest on the Total Pension Liability	47,238,165	47,200,725	45,945,359	43,444,727	40,636,242
Benefit Changes	-	-	-	-	-
Difference between Expected and Actual Experience	(7,328,715)	(6,691,047)	(3,501,453)	1,710,375	-
Assumption Changes	94,255,216	51,421,521	-	-	-
Benefit Payments	(32,013,552)	(29,621,411)	(27,873,802)	(25,459,574)	(23,209,837)
Refunds	(3,970,912)	(4,041,082)	(3,491,089)	(4,659,711)	(4,110,605)
Net Change in Total Pension Liability	\$124,837,549	\$81,510,688	\$34,418,229	\$37,826,652	\$35,748,508
Total Pension Liability - Beginning	\$716,286,547	\$634,775,859	\$600,357,630	\$562,530,978	\$526,782,470
Total Pension Liability - Ending (a)	\$841,124,096	\$716,286,547	\$634,775,859	\$600,357,630	\$562,530,978
Plan Fiduciary Net Position					
Employer Contributions	\$13,781,011	\$13,614,406	\$13,730,305	\$12,706,883	\$13,308,281
Employee Contributions	13,846,377	13,691,494	14,442,190	15,397,475	13,314,132
Pension Plan Net Investment Income	(22,169,139)	77,946,645	37,782,650	(5,371,824)	24,853,352
Benefit Payments	(32,013,552)	(29,621,411)	(27,873,802)	(25,459,574)	(23,209,837)
Refunds	(3,970,912)	(4,041,082)	(3,491,089)	(4,659,711)	(4,110,605)
Pension Plan Administrative Expense	(639,428)	(580,221)	(518,486)	(417,893)	(408,470)
Other	(24,638)	(51,644)	(25,522)	(24,983)	797,291
Net Change in Plan Fiduciary Net Position	(\$31,190,281)	\$70,958,187	\$34,046,246	(\$7,829,627)	\$24,544,144
Plan Fiduciary Net Position - Beginning	\$630,242,119	\$559,283,932	\$525,237,686	\$533,067,313	\$508,523,169
Plan Fiduciary Net Position - Ending (b)	\$599,051,838	\$630,242,119	\$559,283,932	\$525,237,686	\$533,067,313
Net Pension Liability - Ending (a) - (b)	\$242,072,258	\$86,044,428	\$75,491,927	\$75,119,944	\$29,463,665
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	71.22%	87.99%	88.11%	87.49%	94.76%
Covered Payroll	\$151,898,695	\$153,547,078	\$154,779,198	\$150,399,739	\$147,790,833
Projected Valuation Payroll	\$155,696,162	\$160,072,828	\$161,357,314	\$156,791,728	\$154,071,943
Net Pension Liability as a Percentage of Covered Payroll	159.36%	56.04%	48.77%	49.95%	19.94%

Note: Information not available prior to 2014

Required Supplementary Information - Changes In Net Pension Liability

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS - Multiyear

Air Guard Firefighter Pension Plan

Fiscal year ending December 31,	2018	2017	2016	2015	2014
Total Pension Liability					
Service Cost	\$294,146	\$272,169	\$337,474	\$331,123	\$276,305
Interest on the Total Pension Liability	599,634	563,514	554,448	517,889	455,677
Benefit Changes	-	-	-	-	-
Difference between Expected and Actual Experience	161,615	272,060	65,370	201,096	-
Assumption Changes	-	311,427.00	-	-	-
Benefit Payments	(385,232)	(351,120)	(290,609)	(168,220)	(119,541)
Refunds	(213,647)	(39,723)	(411,989)	(20,849)	(6,886)
Net Change in Total Pension Liability	\$456,516	\$1,028,327	\$254,694	\$861,039	\$605,555
Total Pension Liability - Beginning	\$8,554,376	\$7,526,049	\$7,271,355	\$6,410,316	\$5,804,761
Total Pension Liability - Ending (a)	\$9,010,892	\$8,554,376	\$7,526,049	\$7,271,355	\$6,410,316
Plan Fiduciary Net Position					
Employer Contributions	\$159,583	\$156,263	\$136,768	\$158,319	\$142,437
Employee Contributions	445,101	367,485	376,685	405,026	335,763
Pension Plan Net Investment Income	(253,859)	902,109	431,043	(55,411)	260,772
Benefit Payments	(385,232)	(351,120)	(290,609)	(168,220)	(119,541)
Refunds	(213,647)	(39,723)	(411,989)	(20,849)	(6,886)
Pension Plan Administrative Expense	(7,141)	(6,431)	(5,731)	(4,637)	(4,312)
Other	(292)	(602)	(301)	(276)	1,085
Net Change in Plan Fiduciary Net Position	(\$255,487)	\$1,027,981	\$235,866	\$313,952	\$609,318
Plan Fiduciary Net Position - Beginning	\$7,462,397	\$6,434,416	\$6,198,550	\$5,884,598	\$5,275,280
Plan Fiduciary Net Position - Ending (b)	\$7,206,910	\$7,462,397	\$6,434,416	\$6,198,550	\$5,884,598
Net Pension Liability - Ending (a) - (b)	\$1,803,982	\$1,091,979	\$1,091,633	\$1,072,805	\$525,718
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	79.98%	87.23%	85.50%	85.25%	91.80%
Covered Payroll	\$2,154,544	\$1,975,631	\$2,151,997	\$2,124,296	\$1,731,731
Net Pension Liability as a Percentage of Covered Payroll	83.73%	55.27%	50.73%	50.50%	30.36%

Note: Information not available prior to 2014

Required Supplementary Information - Investment Returns, Contributions

WRS's success in achieving the 7.00% assumed investment return objective is evaluated on an ongoing basis over reasonably long periods of time (5 to 7 years). The reason for the long-term focus on the return objective is to preclude the temptation towards overreaction to short-term market events that have little to no bearing on long-term asset/liability management. The Board must reconcile its need to evaluate investment policy implementation decisions over shorter time frames while maintaining longer-term focus on managing and measuring the portfolio's overall performance relative to the long-term return objective.

Asset Class	Target Allocation	Long-Term Expected Geometric Real Rate of Return	Long-Term Expected Arithmetic Real Rate of Return
Cash	0.00%	0.30%	0.31%
Fixed Income	20.00%	1.50%	1.95%
Equity	49.00%	5.99%	7.43%
Marketable Alternatives	19.00%	3.09%	3.45%
Private Markets	12.00%	5.19%	6.97%
Total	100.00%	4.44%	5.52%

Schedule of Investment Returns

Last 10 Fiscal (Calendar) Years

	2018	2017	2016	2015	2014
Annual Money-Weighted Rate of Return, Net of Investment Expenses	-3.5%	14%	7%	-1%	5%

*This schedule is presented to illustrate the requirement of show information for 10 years. However, until a full 10-year trend is compiled, WRS will present information for those years for which information is available.

Changes in Actuarial Assumptions and Methods

The current assumptions used in the actuarial valuation were adopted by the Board effective August 23, 2017 and were first utilized with the January 1, 2018 valuation report. There have been no changes to the assumptions or methods since the prior actuarial valuation for all plans.

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Required Supplementary Information - Schedule of Contributions

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
Public Employee Pension Plan					
2018	\$191,677,662	\$147,632,510	\$44,045,152	\$1,741,354,609	8.48%
2017	167,125,230	148,746,669	18,378,561	1,776,377,586	8.37%
2016	174,211,753	151,488,715	22,723,038	1,782,905,215	8.50%
2015	168,411,742	144,622,373	53,789,369	1,744,073,882	8.29%
2014	183,086,430	129,627,747	53,458,683	1,709,412,443	7.58%
State Patrol, Game & Fish, Warden & Criminal Investigator Pension Plan					
2018	\$3,607,303	\$3,529,976	\$77,327	\$23,063,176	15.31%
2017	4,041,445	3,552,582	488,863	23,641,495	15.03%
2016	4,097,473	3,574,065	523,408	23,636,482	15.12%
2015	3,784,380	3,355,688	428,692	22,196,930	15.12%
2014	4,037,681	3,077,515	960,166	21,817,686	14.11%
Volunteer Firefighter's Pension Plan					
2018	\$3,275,465	\$2,959,943	\$315,522	N/A	N/A
2017	2,923,585	3,290,994	(367,409)	N/A	N/A
2016	3,128,272	3,198,930	(70,658)	N/A	N/A
2015	1,139,454	2,238,612	(1,099,158)	N/A	N/A
Paid Firemen's Pension Plan A					
2018	\$15,597,369	\$-	\$15,597,369	\$134,155	0.00%
2017	11,734,389	-	11,734,389	195,221	0.00%
2016	10,663,740	-	10,663,740	195,221	0.00%
2015	9,714,697	-	9,714,697	179,486	0.00%
2014	9,458,093	-	9,458,093	198,404	0.00%

Required Supplementary Information - Schedule of Contributions

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
Paid Firemen's Pension Plan B					
2018	\$4,221,146	\$3,356,547	\$864,599	\$26,811,084	12.52%
2017	3,496,053	3,230,196	265,857	28,209,686	11.45%
2016	3,420,716	3,370,961	19,755	26,390,481	12.77%
2015	3,275,448	3,273,668	1,780	25,986,443	12.60%
2014	3,273,329	3,184,045	89,284	24,552,559	12.97%
Judicial Pension Plan					
2018	\$909,557	\$960,478	\$(50,921)	\$6,558,029	14.65%
2017	543,468	949,263	(405,795)	6,386,001	14.86%
2016	579,926	925,971	(346,045)	6,384,628	14.50%
2015	589,177	920,867	(331,690)	6,363,028	14.47%
2014	596,723	916,598	(319,875)	5,989,181	15.30%
Law Enforcement Pension Plan					
2018	\$14,493,422	\$13,781,011	\$712,411	\$151,898,695	9.07%
2017	11,623,441	13,614,406	(1,990,965)	153,547,078	8.87%
2016	12,063,684	13,730,305	(1,666,621)	154,779,198	8.87%
2015	11,708,248	12,706,883	(998,635)	150,399,739	8.45%
2014	11,812,078	13,308,281	(1,496,203)	147,790,833	9.00%
Air Guard Firefighter Pension Plan					
2018	\$11,590	\$159,583	\$(147,993)	\$2,154,544	7.41%
2017	6,011	156,263	(150,252)	1,975,631	7.91%
2016	7,634	136,768	(129,134)	2,151,997	6.36%
2015	3,987	158,319	(154,332)	2,124,296	7.45%
2014	13,694	143,582	(129,888)	1,731,731	8.29%

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

In addition, the actual contribution equals the contractually required contribution.

Note: Information is not available before 2014.

Other Supplementary Information - Administrative & Investment Expense

OTHER SUPPLEMENTARY INFORMATION

SCHEDULE OF ADMINISTRATIVE EXPENSES AND INVESTMENT ADVISORY FEES

Year Ending December 31, 2018

	Defined		
	Benefit Plan	457 Plan	Total
Personnel Services:			
Staff Salaries	\$2,945,864	\$321,422	\$3,267,286
Board & Other Salaries	113,187	2,536	115,723
Retirement	354,385	40,059	394,444
Social Security	177,352	20,979	198,331
Insurance	510,806	75,115	585,921
Deferred Compensation	6,538	1,100	7,638
Post Employment Benefits	8,230	934	9,164
Total Personnel Services	4,116,362	462,145	4,578,507
Miscellaneous:			
Utilities	6,502	490	6,992
Postage	46,325	7,205	53,530
Dues and Licenses	255,886	14,664	270,550
Advertising-Promotional	16,289	4,705	20,994
Travel	135,449	35,105	170,554
Board Travel	31,537	2,818	34,355
State Car	-	6,550	6,550
Office Supplies	74,725	7,057	81,782
Food Service & Supplies	18,783	1,210	19,993
Real Property Rental	7,586	513	8,099
Equipment Rental	21,555	271	21,826
Total Miscellaneous	614,637	80,588	695,225
Communication:			
Data Services	292,881	-	292,881
Telecommunications	41,344	6,933	48,277
Total Communication	334,225	6,933	341,158

Other Supplementary Information - Administrative & Investment Expense

OTHER SUPPLEMENTARY INFORMATION (Cont)

SCHEDULE OF ADMINISTRATIVE EXPENSES AND INVESTMENT ADVISORY FEES

Year Ending December 31, 2018

	Defined		
	Benefit Plan	457 Plan	Total
Professional Services:			
Auditing Services	74,984	3,516	78,500
Actuarial Services	227,450	-	227,450
Computer Services	39,068	2,768	41,836
Death Verification Services	2,885	-	2,885
Disability Claims Services	59,320	-	59,320
Investment Consulting Services	285,000	119,225	404,225
IT Project Services	721,233	500	721,733
Legal Services	117,230	3,696	120,926
Printing Services	48,689	8,650	57,339
Temporary Employment Services	29,445	15,052	44,497
Other Contracted Services	86,662	4,376	91,038
Space Rental	233,767	17,595	251,362
St of WY - Allocation Expenses	1,188,131	89,429	1,277,560
Total Professional Services	3,113,864	264,807	3,378,671
Total Administration Expenses	8,179,088	814,473	8,993,561
Depreciation Expense	332,751	-	332,751
Investment Fees:*			
Investment Advisor Fees	400,000	48,784	448,784
Custodial Service Fees	810,302	-	810,302
Record Keeping Fees	-	546,251	546,251
Security Lending Agent Fees	11,165,527	-	11,165,527
Total Investment Fees	12,708,580	595,035	13,303,615
Total Administrative expenses & Investment Fees	\$20,887,668	\$1,409,508	\$22,297,176

* Investment Manager Fees not included in this schedule, see Schedule of Fees by Investment Type located within the Investment Section page 93.

Other Supplementary Information - Deferred Compensation Net Position

OTHER SUPPLEMENTARY INFORMATION (Continued)

DEFINED CONTRIBUTION PLAN

COMBINING SCHEDULE OF PARTICIPANT AND ADMINISTRATIVE NET POSITION

December 31, 2018

	Administrative Account	Plan Participant Balances	Eliminations	Total
Assets				
Cash and Short-Term Investments:				
Cash with State Treasurer	\$79,098	\$-	\$-	\$79,098
Domestic Liquidity - Outside Banks	2,223,199	3,652,658	-	5,875,857
	2,302,297	3,652,658	-	5,954,955
Receivables:				
Employee Contributions	-	365,926	-	365,926
Securities Sold	-	-	-	-
Accrued Interest and Dividends	-	-	-	-
Participant Fee Receivable	388,125	-	388,125	-
Rebate and Fee Income Receivable	1,612,076	-	-	1,612,076
Admin Receivable	-	-	-	-
	2,000,201	365,926	388,125	1,978,002
Investments, at Fair Value:				
Fixed Income	-	258,297,570	-	258,297,570
Equities	-	369,441,411	-	369,441,411
Alternatives	-	22,789,699	-	22,789,699
Investment Contracts	-	21,590	-	21,590
Self Directed Brokerage Investments	-	2,310,662	-	2,310,662
Other	-	-	-	-
	-	652,860,932	-	652,860,932
Total Assets	4,302,498	656,879,516	388,125	660,793,889
Liabilities				
Participant Fee Payable	-	388,125	388,125	-
Administrative & Consulting Fees Payable	(94,478)	-	-	(94,478)
Total Liabilities	(94,478)	388,125	388,125	(94,478)
Net Position Held in Trust for Pension Benefits	\$4,396,976	\$656,491,391	\$-	\$660,888,367

Other Supplementary Information - Deferred Compensation Change in Net Position

OTHER SUPPLEMENTARY INFORMATION (Continued)

DEFINED CONTRIBUTION PLAN

COMBINING SCHEDULE OF CHANGES IN PARTICIPANT AND ADMINISTRATIVE NET POSITION

Year Ended December 31, 2018

	Administrative Account	Plan Participant Balances	Eliminations	Total
Additions				
Member Contributions	\$-	\$45,944,898	\$-	\$45,944,898
Administrative Revenue	1,620,578	-	1,620,578	0
Investment Income:				
Net Appreciation (Depreciation) in Fair Value of Investments	-	(28,867,476)	-	(28,867,476)
Interest and Dividends	177,156	1,415,449	-	1,592,605
Total Investment Income(loss)	1,797,734	18,492,871	1,620,578	18,670,027
Deductions				
Benefits Paid/Distributions	-	39,783,101	-	39,783,101
Administrative Expenses	814,473	-	-	814,473
Record Keeping	546,252	-	-	546,252
SVF Portfolio Management	48,783	-	-	48,783
Participant Fees Assessed	-	1,620,578	1,620,578	-
Total Expenditures	1,409,508	41,403,679	1,620,578	41,192,609
Net Increase(Decrease)	388,226	(22,910,808)	-	(22,522,582)
Net Position Held in Trust for Pension Benefits				
Beginning of Year	4,008,750	679,402,199	-	683,410,949
End of Year	\$4,396,976	\$656,491,391	-	\$660,888,367

Independent Auditor's Report on Internal Control and Compliance



Independent Auditor's Report on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

To the Board of Trustees
Wyoming Retirement System
Cheyenne, Wyoming

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the Wyoming Retirement System (WRS), a fiduciary fund of the State of Wyoming as of and for the year ended December 31, 2018, and the related notes to the financial statements, which collectively comprise WRS's basic financial statements, and have issued our report thereon dated May 22, 2019.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered WRS's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of WRS's internal control. Accordingly, we do not express an opinion on the effectiveness of WRS's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. *A material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. *A significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over financial reporting was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Independent Auditor's Report on Internal Control and Compliance

Compliance and Other Matters

As part of obtaining reasonable assurance about whether WRS's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the WRS's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

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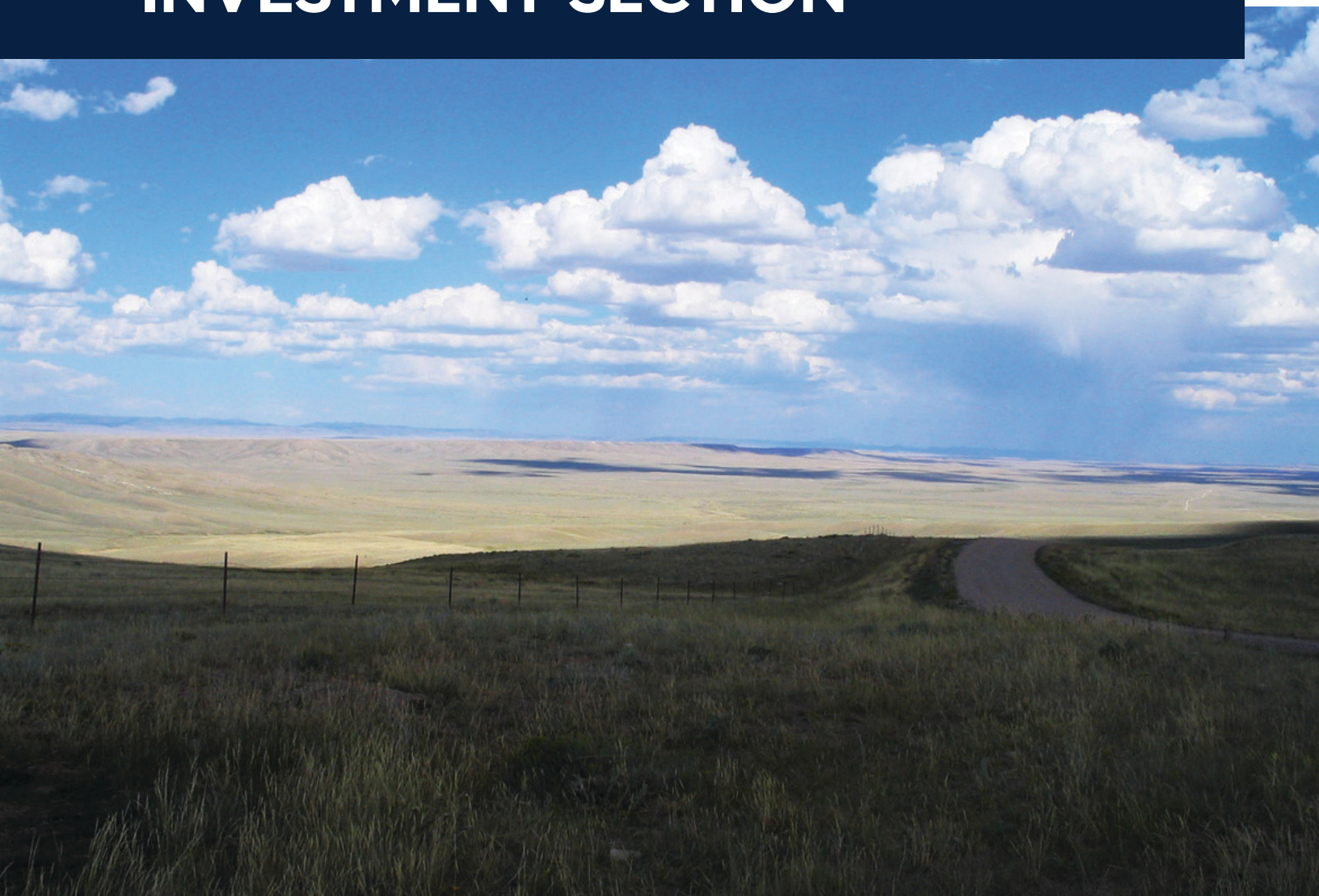
Boise, Idaho
May 22, 2019

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Comprehensive Annual Financial Report 2018

INVESTMENT SECTION

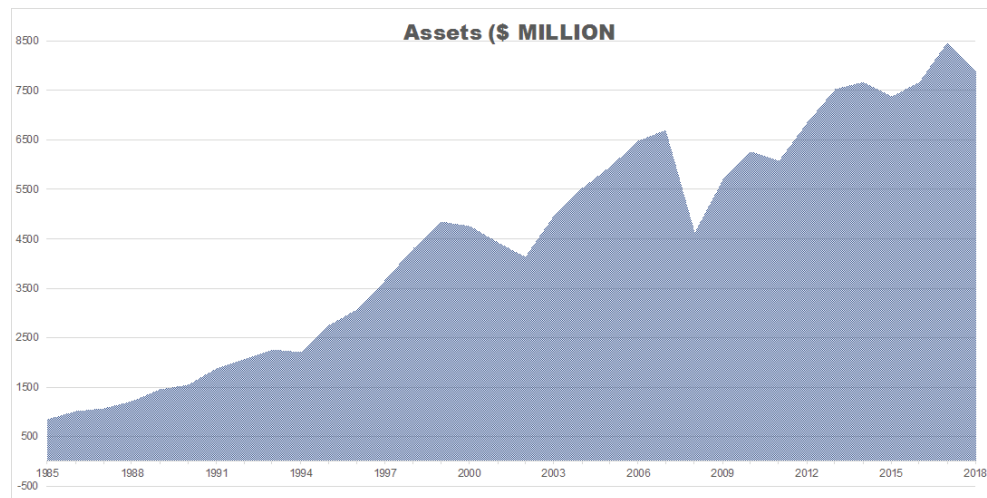


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Total Plan Investments

The following section has been compiled by staff using reports supplied by Northern Trust, Meketa Investment Group, and internally generated documents for investment activities through December 31, 2018. The investment activity is a time-weighted rate of return methodology based upon fair value.

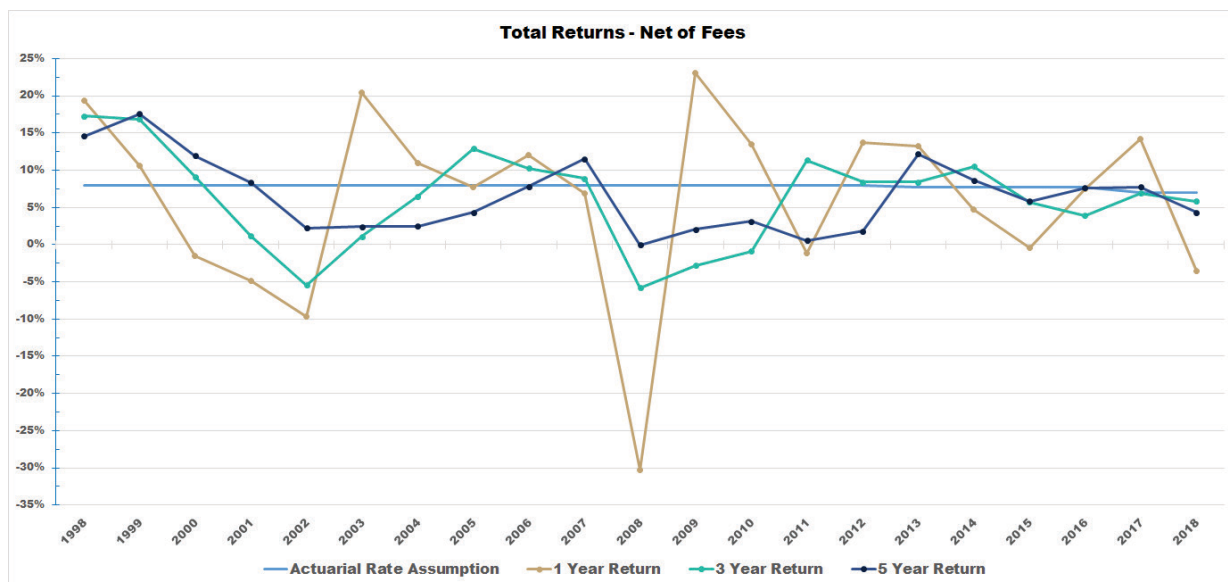
Total Plan investments as of December 31, 2018 were \$7,893,605,594 down \$597 million for the calendar year.



Investment Performance

The WRS investment portfolio generated a one-year return for the year ended December 31, 2018 of -3.5% (net of fees). This compares to a return of -4.1% for the blended benchmark (described in the Management Discussion and Analysis section) and -6.1% for a 60% MSCI ACWI Net Equity/40% Barclays Multiverse Index. The WRS portfolio ranked in the 30th percentile for 2018 as measured against its peer group. WRS's assumed investment rate of return has been 7.00% since January 1, 2018.

For the three-year period ending December 31, 2018, the portfolio generated an annualized net return of 5.8%. Over that same period, the investment return of the benchmark was 5.7% and the peer group median return was 6.0%. For the five-year period ending December 31, 2018, WRS generated an annualized return of 4.3%, compared to a benchmark return of 4.4% and a peer group median return of 4.6%.



Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Actuarial Rate Assumption (%)	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	7.75	7.75	7.75	7.75	7.00	7.00	
1 Year Return(%)	19.40	10.55	-1.48	-4.91	-9.70	20.41	11.00	7.71	12.09	6.94	-30.30	23.10	13.43	-1.17	13.73	13.30	4.74	-0.44	7.53	14.20	-3.52
3 Year Return (%)	17.28	16.87	9.15	1.17	-5.42	1.12	6.47	12.91	10.25	8.89	-5.82	-2.83	-0.90	11.33	8.43	8.39	10.51	5.72	3.89	6.93	5.81
5 Year Return (%)	14.57	17.56	11.93	8.38	2.23	2.40	2.49	4.33	7.82	11.53	-0.02	2.07	3.13	0.57	1.81	12.20	8.63	5.84	7.64	7.73	4.32

Asset allocation represents the selection of a course of action for the investment portfolio based on an estimate of future returns and risks associated with investment objectives.

Asset Allocation

Strategic Asset Allocation

The asset allocation of the WRS investment portfolio begins with the Strategic Asset Allocation decisions made by the Wyoming Retirement Board of Trustees (Board). The Board analyzes, selects, and reviews the Strategic Allocation annually. Although establishing the Strategic Allocation is a continuous process, at least once per year – normally early in the calendar – the Board reviews asset class return and volatility assumptions with the goal of adjusting expectations for both the upcoming 12-month period and a longer-term 5- to 7-year view. The Strategic Asset Allocation reflects the Board's view of the asset classes that will position the portfolio to best meet the Board's long-term return objectives within a reasonable degree of risk.

The Board's Strategic Asset Allocation decisions are considered one of the primary drivers – perhaps the single most important driver – of portfolio investment performance. There is a preponderance of evidence suggesting that a portfolio's investment policy, or long-term asset allocation, is the primary determinant of return variability over time. The Strategic Allocation is designed to provide the portfolio with a broadly diversified mix of assets that together creates return streams and risk patterns consistent with the Board's unique risk tolerance and investment objectives. In determining the optimum mix of assets, the Board considers several variables, including:

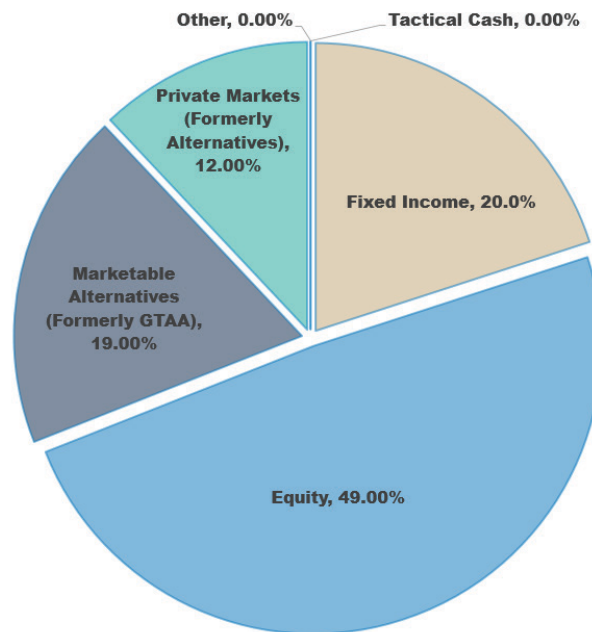
- The expected rate of return for each asset class;
- The expected risk (standard deviation) of each asset class;
- The correlation between the various rates of return of the asset classes;
- The underlying factors considered to be the primary drivers of asset class performance; and
- The investment objectives and risk constraints of the portfolio.

In addition, the Board considers WRS's ability to practically implement meaningful investment dollars in an asset class in a cost-effective manner. The Board assigns relevant benchmarks to each asset class, thereby creating an atmosphere in which staff can implement Tactical Asset Allocation decisions regarding active and passive implementation. The custom benchmarks for the Board's Strategic Asset Allocation decisions, effective 3/1/2018, are as follows:

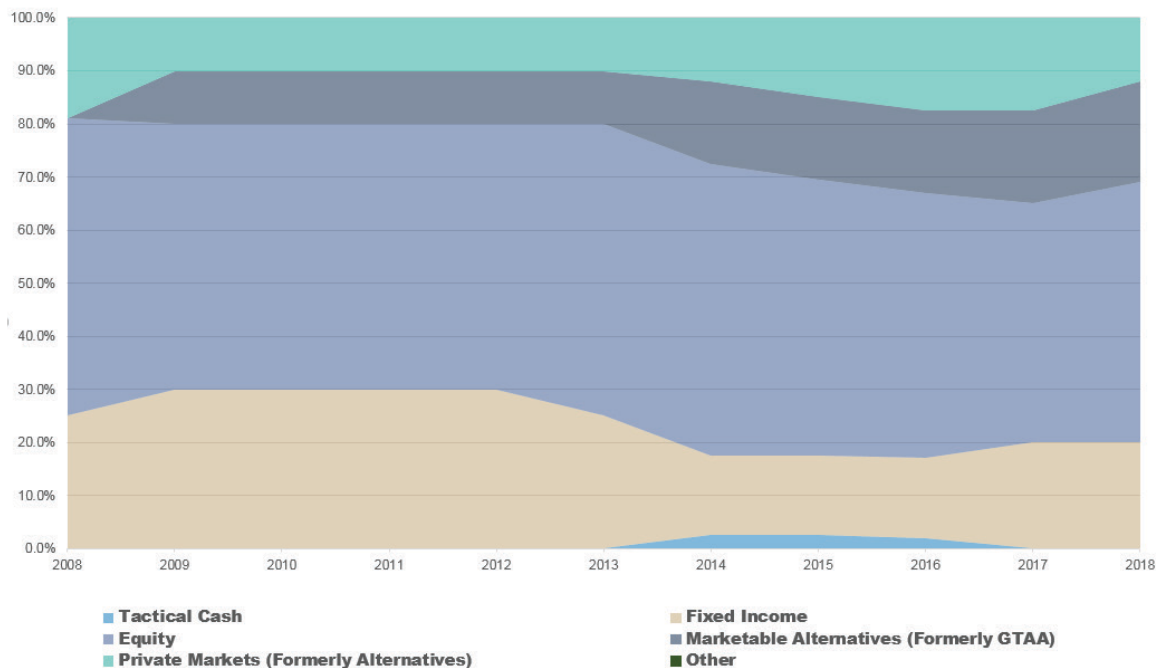
Strategic Asset Allocation Weight	Custom Benchmarks	Weights	Blended composition
20.0%	Custom Total Fixed Income Benchmark	37.5%	Barclays US Aggregate
		50.0%	Barclays Government
		12.5%	50% Barclays Capital HY Index and 50% Credit Suisse Leveraged Loan Index
49.0%	Total Return of Custom Blended Equity Index	48.2%	Russell 3000
		32.2%	MSCI EAFE IMI, Net Dividend (70% hedged)
		19.6%	MSCI EM IMI, Net Dividend
19.0%	HFRI Fund of Funds Composite Index		
12.0%	* Vintage Year Blended Benchmark		
100.0%	Target Asset Allocation Return		

Asset allocation is neither simple nor static. It exists in an evolving marketplace. But, to a significant degree, the decisions made by the Board dictate the amount of risk assumed by the portfolio and the associated investment return expected over the long-term. The Board must understand the basis for its decisions to invest in certain asset classes and disinvest from others. Systematic approaches to asset allocation can be useful, but in the final analysis, asset allocation decisions reflect the institutional beliefs of the Board. The Board must understand that asset allocation decisions are long-term in nature and therefore give WRS the ability to hold a higher level of risk bearing assets. By assuming more risk, it is expected that long-term returns will be considerably higher than if the focus is strictly on short-term capital preservation. Generating higher long-term returns enables WRS to reduce the amount of money needed from participant contributions to properly fund the system. The accompanying pie chart illustrates the Strategic Asset Allocation of the WRS investment portfolio through December 31, 2018.

Current Strategic Asset Allocation



Historical Strategic Asset Allocation



Strategic Asset Class	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tactical Cash	0.0%	0.0%	0.0%	0.0%	0.0%	2.5%	2.5%	2.0%	0.0%	0.00%
Fixed Income	30.0%	30.0%	30.0%	30.0%	25.0%	15.0%	15.0%	15.0%	20.0%	20.0%
Equity	50.0%	50.0%	50.0%	50.0%	55.0%	55.0%	52.0%	50.0%	45.0%	49.0%
Marketable Alternatives (Formerly GTAA)	10.0%	10.0%	10.0%	10.0%	10.0%	15.5%	15.5%	15.5%	17.5%	19.0%
Private Markets (Formerly Alternatives)	10.0%	10.0%	10.0%	10.0%	10.0%	12.0%	15.0%	17.5%	17.5%	12.0%
Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.00%

Asset Allocation

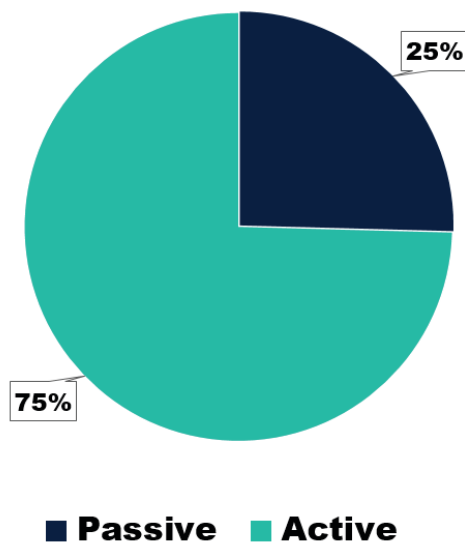
Tactical Asset Allocation

Short-term decisions determine the most efficient way to implement portfolio investments within the construct of the long-term Strategic Asset Allocation determined by the Board. The Tactical Allocation is necessary given that we are unable to immediately allocate to private markets to meet our long-term strategic goals. Private markets rely on capital being drawn over multiple years, which makes it impractical to reach out long-term goals immediately. It forces us to have realistic short-term targets as we build towards our long-term goals.

The Board has delegated to WRS staff the authority for making tactical, short-term asset allocation decisions on behalf of the portfolio within broad ranges approved by the Board. The Board has established these ranges to maintain appropriate risk controls. The delegation includes the authority for staff to hire and fire investment managers and to adjust the portfolio for the purpose of taking advantage of market opportunities as they emerge. In compliance with the Board's Investment Policy Statement (IPS), the Chief Investment Officer makes Tactical Allocation decisions away from the long-term Strategic Allocation in consultation with the external investment consultant (Meketa) and upon approval of the Executive Director. These decisions involve two distinct steps:

1. Tactical Decisions – decisions made to alter an asset allocation of the portfolio away from the passive benchmark of the long-term Strategic Asset Allocation class adopted by the Board within pre-approved ranges. For example, if staff had a favorable view on Fixed Income, staff may decide to overweight the targeted 20% of assets, which would by default underweight one of the other asset classes.
2. Implementation Decisions – decisions involving active vs. passive management and, in the case of active management, the selection of specific managers whose performance is then measured relative to appropriate benchmarks. For example, staff may elect to implement Fixed Income investments through active management instead of passive management. Staff is authorized to then select the appropriate active manager(s). WRS has traditionally relied heavily on active management. Over the past year, WRS has transitioned to holding more active allocations in both the equity and fixed income asset classes. The pie chart below highlights WRS's exposure to active and passive management within the portfolio through December 31, 2018.

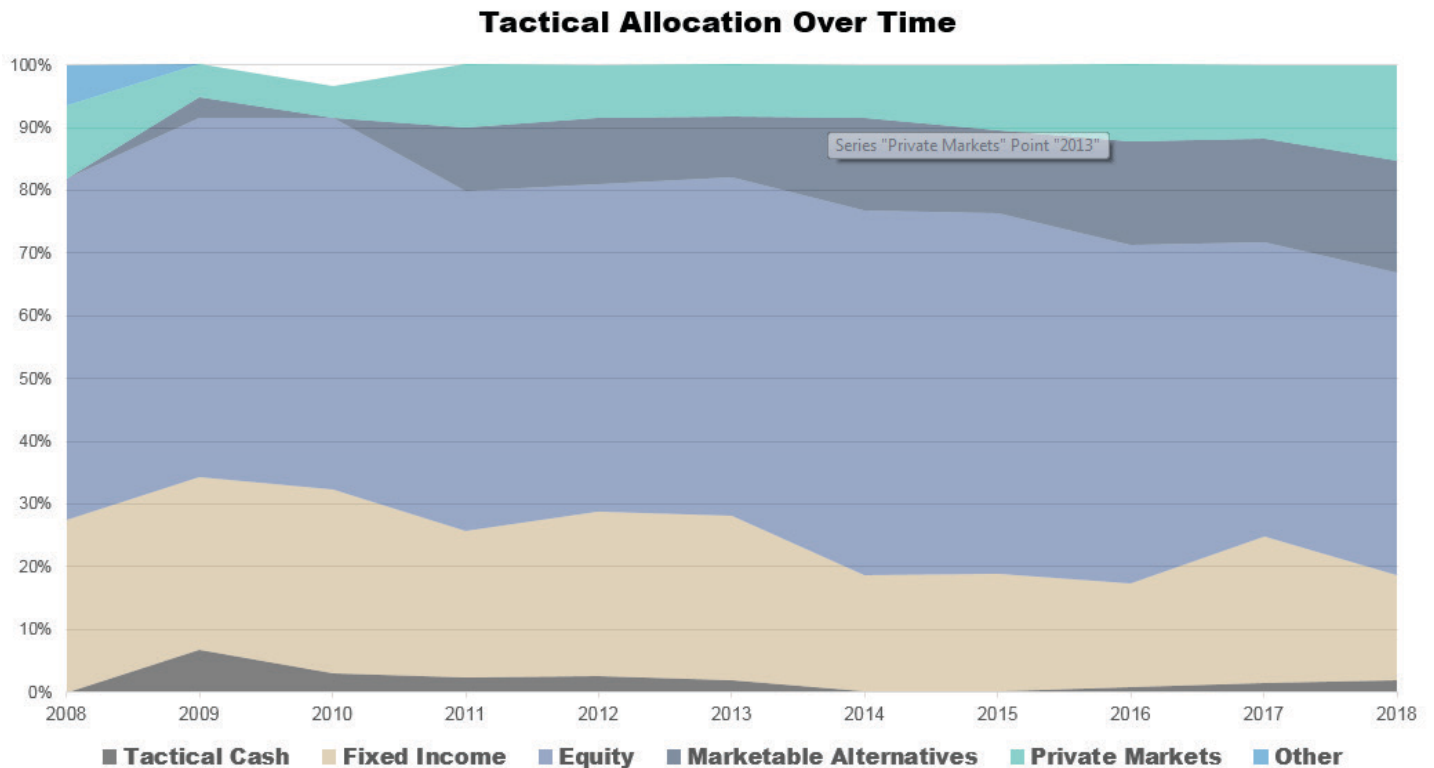
Active vs. Passive Management



Tactical Asset Allocation

Tactical Allocation decisions are sub-asset class allocation choices made by the Chief Investment Officer with the approval of the Executive Director to deviate from the Strategic Allocation weight. The value added by staff decisions to overweight or underweight these sub-asset classes is measured by the difference between the relative returns of the benchmarks for the Strategic Allocation and the Tactical Allocation. Tactical Allocation returns that exceed the returns associated with the Strategic Allocation reflect value added through tactical decisions. Tactical Allocation returns less than the Strategic Allocation returns reflect losses to the portfolio's performance based upon tactical decisions. Tactical decisions should be measured over all periods of time, with majority weight placed on outcomes that have occurred over a full market cycle (5 to 7 years).

Tactical Allocations as of December 31, 2018, are included in the graph below:



Implementation Decisions / Manager Selection

Implementation Decisions are investment manager selection choices made by the Chief Investment Officer with the approval of the Executive Director. The value added through these manager selection decisions is measured by the difference between the actual manager portfolio returns and the Strategic Asset Allocation return. This difference captures the value added through manager selection decisions. Portfolio returns that exceed the benchmarks associated with the Strategic Asset Allocation reflect value added through manager selection decisions. Actual portfolio returns that underperform the Strategic Asset Allocation benchmarks reflect losses to the portfolio's performance based upon implementation decisions. Implementation decisions should be measured over all periods of time, with a majority weight placed on outcomes that have occurred over a full market cycle (5 to 7 years).

The Board receives performance data and other information on a quarterly basis to help ensure adequate monitoring of the portfolio's overall performance objectives.

Investment Policy Summary

APPENDIX I – Adopted December 4, 2009, Revised: April 22, 2011; May 25, 2012; February 22, 2013, February 28, 2014, May 22, 2014, February 25, 2015, February 25, 2016, February 16, 2017, February 15, 2018

Strategic Asset			
Asset Class	Allocation Weight(2)	Tactical Asset Allocation Range (1)	Asset Class Benchmark Index
Tactical Cash	0.0%	0.0% - 5.0%	Barclays Short Treasury - Unhedged
Fixed Income	20.0%	15.0% - 27.5%	Blended Benchmark
Core Plus	7.5%	37.5% + / - 7.0%	Barclays US Aggregate
US Government Debt	10.0%	50.0% + / - 7.0%	Barclays Government
			50% Barclays Capital HY Index and 50% Credit Suisse
Opportunistic Credit	2.5%	12.5% 2.5% - 9.0%	Leveraged Loan Index
Equity	42.5%	37.5%-47.5%	Blended Benchmark
Domestic Equity	20.5%	48.2% + / - 10.0%	Russell 3000
International Developed Equity	13.7%	32.2% + / - 10.0%	MSCI EAFE IMI, Net Dividend (70% hedged)
Emerging Markets Equity	8.3%	19.5% + / - 10.0%	MSCI EM IMI, Net Dividend
Marketable Alternatives	19.0%	14.0% - 24.0%	HFRI FoF Index
Opportunistic/Directional		0.0%-10.0%	
Absolute Return		5%-15.0%	
Enhanced Fixed Income		0.0%-10.0%	
Global Asset Alloc. (GAA)		2.5%-12.0%	
Private Markets	18.5%	13.5% - 25.0%	Vintage Year Blend
Private Real Assets (Natural Resources, Infrastructure)		3.0%-10.5%	
Real Estate		2.5%-7.5%	
Private Debt		2.5%-7.5%	
Private Equity (buyout, venture, distressed)		2.5%-12.5%	

(1) Tactical Asset Allocation Range is based on percentage of total assets.

(2) Represents long-term target for Private Markets and the subcategories. The short-term target for Private Markets is 12.0% with a short term range of 7.0%-19.5%. The 6.5% excess exposure between the long-term and short-term target for Private Markets will be invested in Equity which is the most comparable asset class. The Private Markets and Equity Tactical Asset Allocation ranges will be adjusted proportionally (e.g. the short term Equity Strategic Asset Allocation Target will be 49.0% with a Tactical Asset Allocation range of 44.0%-54.0%). There are no short term targets for Private Markets' subcategories.

The Board adopted a revised Investment Policy Statement (IPS) on February 15, 2018 that amended the policy originally approved December 4, 2009. The IPS defines the desired investment outcomes of the portfolio. The Board's responsibilities under the IPS are as follows:

Develop a Return Objective designed to:

1. Keep contribution rates reasonably level over long periods of time, subject to and recognizing that changes made to the law, actuarial assumptions and benefit levels will impact contribution rates; and
2. Adequately fund aggregate liabilities of the system.

Establish a Strategic Asset Allocation that is expected to meet the Return Objective while minimizing the potential impact that volatility in the portfolio will have on the contribution rate.

The statutory requirements for WRS's investments are outlined in W. S. 9-3-408.

W. S. 9-3-408(b) states in part "... In investing and managing the monies in the retirement account, the board, or its designee, shall exercise the judgment and care that a prudent investor would, in light of the purposes, terms, distribution requirements and all other circumstances surrounding the monies in the retirement account, including risk and return objectives established by the board"



The Board's investment policies are outlined in detail in Note 3 to the Basic Financial Statements section of this CAFR.

WRS's success in achieving the 7.0% assumed investment return objective is evaluated on an ongoing basis over reasonably long periods of time (5 to 7 years). The reason for the long-term focus on the return objective is to preclude the temptation towards overreaction to short-term market events that have little to no bearing on long-term asset/liability management. The Board must reconcile its need to evaluate investment policy implementation decisions over shorter time frames while maintaining longer-term focus on managing and measuring the portfolio's overall performance relative to the long-term return objective.

To address this issue, the Board evaluates performance relative to Strategic Asset Allocation and Tactical Asset Allocation benchmarks which help to evaluate the Board's broad Strategic Asset Allocation decisions and the staff's Tactical Asset Allocation and implementation decisions.

Actual Asset Class Exposure	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tactical Cash	0.00%	6.70%	3.00%	2.40%	2.50%	1.80%	0.20%	0.10%	0.90%	1.50%	1.8%
Fixed Income	27.40%	27.60%	29.40%	23.20%	26.20%	26.30%	18.50%	18.70%	16.40%	23.30%	16.8%
Equity	54.50%	57.30%	59.20%	54.30%	52.30%	54.00%	58.20%	57.60%	54.00%	46.90%	48.4%
Marketable Alternatives	0.00%	3.30%	0.00%	10.10%	10.50%	9.60%	14.60%	13.10%	16.60%	16.50%	17.8%
Private Markets	11.60%	5.20%	5.10%	10.10%	8.50%	8.40%	8.50%	10.40%	12.20%	11.80%	15.2%
Other	6.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.0%

Asset Class Summaries

Cash

The Board has provided a target of 0.0% for this asset class with a strategic range of 0.0% to 5.0%, recognizing a cash allocation for liquidity purposes can provide needed flexibility during times of market stress. In addition, WRS typically holds between 3 to 6 months of estimated benefit payments in cash and cash equivalents. Investments in this category will be focused primarily on preservation of capital with a secondary focus on yield.

As of December 31, 2018, the Cash allocation was \$140,254,107, or 1.8% of the total portfolio after accounting for the overlay program. Cash includes Short Term Investment Funds (STIF). WRS had contracts with two external investment managers who manage portfolios related to cash including the overlay. The current tactical cash managers are listed below:

Organization	Style	Percent of WRS/Cash Overlay Portfolio
Northern Trust	Money Market	60.00%
Russell	Overlay	40.00%

Fixed Income

The Board has provided a target of 20.0% for this asset class with a strategic range of 15.0%-27.5%. The blended benchmark for fixed income consists of 37.5% Barclays U.S. Aggregate, 50% Barclays Government, and 12.5% is a 50/50 blend of Barclays Capital High Yield Index and Credit Suisse Leveraged Loan Index.

The top 10 holdings within the Fixed Income portfolio as of December 31, 2018, are illustrated in the table below:

Holdings	Percent of WRS Fixed Income Portfolio	Fair Value
UNITED STATES TREAS NTS DTD 04/15/2017 04-15-2022	2.31%	34,418,592
UNITED STATES TREAS BDS 3.75 DUE 11-15-2043 REG	1.98%	29,590,646
UNITED STATES TREAS BDS DTD 3.125% 05-15-2048	1.65%	24,618,653
UNITED STATES TREAS BDS 00245 2.875% DUE 08-15-2045 REG	1.52%	22,666,555
UNITED STATES TREAS INFL INDEXED NTS 0.125C 04-15-2019	1.51%	22,551,252
UNITED STATES TREAS BDS DTD 00247 2.5% DUE 02-15-2046 REG	1.31%	19,591,042
UNITED STATES TREAS BDS 0 DEB 15/02/2040USD1000 4.625 DUE 02-15-2040REG	1.26%	18,756,691
UNITED STATES TREAS INFL NTS 0.375% DTD 07/15/2015 07-15-2025	1.22%	18,245,464
UNITED STATES OF AMER TREAS NOTES 0.125% INFL IDX 04-15-2020	1.21%	18,006,312
US OF AMER TREAS NOTES IDX LKD NT 1.375 NTS TIPS 1/15/2020	1.17%	17,427,058

As of December 31, 2018, the Fixed Income allocation was \$1,338,093,637, or 16.8% of the total portfolio, after accounting for the overlay program. WRS had contracts with 8 external investment managers. In addition, WRS employs Russell Investments as an overlay manager. During calendar 2018, WRS added Altum as an Opportunistic Credit manager, and U.S. PIMCO to manage a TIPS strategy.

Organization	Style	Percent of WRS Fixed Income Portfolio
Alliance Bernstein	Core Plus	21.09%
Altum	Credit	7.47%
Beach Point	Opportunistic Credit	7.37%
Dimensional	U.S. Government Debt	11.10%
Doubleline	U.S. Government Debt	17.61%
PIMCO	TIPS	9.38%
Russell Overlay	Overlay	-3.54%
State Street Global Advisors	U.S. Government Debt	23.54%
Western Asset Management	Core Plus	5.94%

Equity

The Board has provided a target of 42.5% for this asset class with a strategic range of 37.5% to 47.5%. The WRS Equity asset class is, in aggregate, benchmarked against a blend of indices that reflect strategic regional weightings. The equity blended benchmarks consists of 48.2% Russell 3000 Total Return Index, 32.2 % MSCI EAFE IMI, Net Dividend (70% Hedged to USD), and 19.6% MSCI EM IMI, Net Dividend. The Board has given staff the flexibility to invest in all sectors and geographies.

The top 10 holdings within the Equity portfolio as of December 31, 2018, are illustrated in the table below:

Equity		
Holdings	Percent of WRS Equity Portfolio	Market Value
MICROSOFT CORP COM	1.14%	\$36,857,315
APPLE INC COM STK	1.10%	\$35,670,850
AMAZON COM INC COM	0.74%	\$24,048,042
ALPHABET INC CAPITAL STOCK USD0.001 CL A	0.67%	\$21,773,832
VISA INC COM CL A STK	0.67%	\$21,765,746
FACEBOOK INC COM USD0.000006 CL 'A'	0.59%	\$19,055,636
JOHNSON & JOHNSON COM USD1	0.58%	\$18,691,860
ALPHABET INC CAP STK USD0.001 CL C	0.54%	\$17,433,459
NESTLE SA CHF0.10(REGD)	0.51%	\$16,434,202
NOVARTIS AG CHF0.50 (REGD)	0.45%	\$14,687,051

As of December 31, 2018, the Equity allocation was \$3,849,617,142, or 48.4% of the total portfolio, after accounting for the overlay program. WRS has contracts with 18 external investment managers who manage 19 portfolio strategies. Four managers, Alliance Bernstein, Acadian, Highclere, NIKKO were hired and two managers, Acadian EM Managed, Copper Rock International Small Cap, were terminated during the year. The styles for new manager, Alliance Bernstein, consist of EAFE 100% USD Hedged, International Developed Market, MSCI U.S. Large Cap, and U.S. Equity. The styles for new manager Acadian are Emerging Market Small Cap and International Developed Market Small Cap. The styles for both Highclere and NIKKO are Developed Market.

Organization	Amount	Style	Percent of WRS Private Market Portfolio
Alliance Bernstein -EAFE 100% USD Hedged	Developed Market	0.8%	1.34%
Alliance Bernstein -International Developed Market	Developed Market	6.8%	15.96%
Alliance Bernstein -MSCI US Large Cap	US Equity	8.6%	2.71%
Alliance Bernstein -US Equity	US Equity	9.5%	2.42%
Acadian EM Small Cap	Emerging Market	1.0%	1.88%
Acadian International Developed Market Small Cap	Developed Market	2.0%	3.27%
Alliance Bernstein -MSCI US	US Equity	8.1%	4.17%
AQR International Equity	Developed Market	1.0%	5.65%
Burgundy Equity	Developed Market	6.8%	1.15%
Cantillon Equity	Developed Market	6.2%	0.03%
Centersquare REIT Fund	REIT	2.6%	0.34%
Cevian Cap II	Developed Market	3.9%	3.45%
ESLJ	Foreign Currency	1.9%	1.86%
Harding Loevner EM	Emerging Market	4.1%	24.39%
Highclere	Developed Market	1.6%	9.03%
Kiltearn	Developed Market	2.1%	2.25%
NIKKO International Equity	Developed Market	1.5%	5.03%
Pershing Square	Developed Market	2.5%	0.79%
Polunin EM	Emerging Market	4.0%	4.32%
RS Small Cap Growth	US Equity	2.2%	0.04%
Russell Overlay	Futures	12.9%	0.54%
Sanderson International Equity Value	Developed Market	5.8%	2.12%
ValueAct Capital	US Equity	4.0%	7.27%
Total			100.00%

Marketable Alternatives

The Board has provided a target of 19.0% for this asset class with a strategic range of 14.0% to 24.0%. The WRS Marketable Alternatives asset class is, in aggregate, benchmarked against HFRI FoF Index.

As of December 31, 2018, the Marketable Alternatives allocation was \$1,413,974,451, or 17.8% of the total portfolio. In the calendar year 2018, WRS had contracts with 8 external investment managers who manage 10 unique portfolios. Four managers, Dorsal Capital Partners, NAYA Fund, IVA and LFL Advisers, were hired during the year.

Organization	Style	Percent of WRS Marketable Alternatives Portfolio
AQR	Global Asset Allocation	15.33%
Bridgewater Optimal	Global Asset Allocation	16.54%
Bridgewater Pure Alpha	Global Macro	20.84%
Dorsal Capital Partners	Equity Market Neutral	3.39%
GMO GAAR	Global Asset Allocation	10.03%
GMO Systematic GM	Global Macro	6.42%
NAYA Fund	Equity L/S	5.66%
IVA	Equity L/S	5.44%
LFL Advisers	Equity L/S	1.50%
TCI - Children Investment Fund	Equity L/S	14.85%

Private Markets

The Board has provided a target of 18.5% for this asset class with a strategic range of 13.5% to 25.0%. The Private Market asset class within the WRS portfolio is broken into four categories:

1. Private Debt: This can include Sr. lending, Mezzanine Finance, Distressed debt, Real Estate debt among others.
2. Private Equity: Investments in buyout and venture equity not traded in public markets.
3. Real Estate: Private real estate funds (not publicly traded); can be core, value-add or opportunistic
4. Other Real Assets: Private funds where pricing and value is derived from holding Real assets other than real estate. Some holdings in this category would include metals and mining funds, energy funds, or infrastructure investments.

The WRS Private Markets asset class is, in aggregate, benchmarked against a blend of vintage year funds matching our internal holdings. The Board has given staff the flexibility to invest in these strategies within the ranges indicated in the chart to the right. During 2015, the portfolio began committing to Private Equity funds, so the current exposure is low but growing as capital continues to be called.

As of December 31, 2018, the allocation to Private Markets was \$1,212,533,801, or 15.2% of the total portfolio. WRS had contracts with 18 external investment managers who manage 23 portfolios. Four managers, Abbott II , KSL, Moran II, and TCI Real Estate Debt, were funded during the year. No managers were terminated.

Organization	Style	Percent of WRS Private Market Portfolio
Abbott II	Private Equity	1.34%
Abbott	Private Equity	15.96%
Adams Street	Private Equity	2.71%
Alinda	Real Estate	2.42%
BlackStone VIII	Real Estate	1.88%
Carl Marks	Private Debt	3.27%
Centerbridge	Private Debt	4.17%
Grove Street	Private Equity	5.65%
Kayne Anderson Karep	Real Estate	1.15%
Kayne Anderson Messani	Private Debt	0.03%
KSL COF II	Private Debt	0.34%
Macquarie	Infrastructure	3.45%
Moran II	Real Assets	1.86%
Moran Real Asset	Real Assets	24.39%
Morgan Stanley Prime Property	Real Estate	9.03%
Oaktree Real Estate	Private Debt	2.25%
Orion	Real Assets	5.03%
Ridgewood III	Real Assets	0.79%
Ridgewood II	Real Assets	4.32%
Summit	Real Assets	0.04%
TCI REP III	Private Debt	0.54%
Tennenbaum Debt Opportunity fund	Private Debt	2.12%
Tennenbaum Senior Loan III	Private Debt	7.27%
Total		100.00%

Asset Class Summaries

Overlay

WRS employs Russell Investments to provide an overlay program to ensure the portfolio's major asset classes remain within a certain percentage of their targeted weights. Market movements can lead to significant implicit tilts within the portfolio. For example, a sharp decline in equities will many times be accompanied by stability within fixed income. Consequently, the equity position will decrease as a percentage of assets while fixed income will increase. This causes an "implicit" tilt towards fixed income. The overlay program brings these implicit tilts back within an acceptable band.

As of December 31, 2018 (Due to rounding, numbers may not total exactly).

Asset Class	Fair Value (in USD)	Percentage of Investments at Fair Value
Tactical Cash		
Cash & Cash Equivalents	\$590,249,924	7.4%
Russell Overlay Program	\$(449,995,817)	-5.7%
Total Tactical Cash	\$140,254,107	1.8%
Fixed Income		
Corporate Bonds/Credit	\$220,568,569	2.8%
Emerging Markets Debt	\$18,103,617	0.2%
Mortgages/ABS	\$78,095,642	1.0%
TIPS	\$142,880,948	1.8%
Treasury/Agencies/Governments	\$926,315,313	11.6%
Russell Overlay Program	\$(47,870,452)	-0.6%
Total Fixed Income	\$1,338,093,637	16.8%
Equity		
Domestic	\$1,723,653,908	21.7%
Emerging Markets	\$394,907,018	5.0%
International Developed	\$1,233,189,947	15.5%
Russell Overlay (MSCI US)	\$312,944,740	3.9%
Russell Overlay (MSCI EM)	\$300,723,140	3.8%
Russell Overlay (MSCI World ex-US)	\$(115,801,611)	-1.5%
Total Equity	\$3,849,617,142	48.4%
Marketable Alternatives		
Total Marketable Alternatives	\$1,413,974,451	17.8%
Private Markets		
Private Debt	\$242,296,242	3.0%
Private Equity	\$294,905,033	3.7%
Real Estate	\$146,201,916	1.8%
Other Real Assets	\$529,130,610	6.7%
Total Private Markets	\$1,212,533,801	15.2%
Total Securities & Cash	\$7,954,473,139	100.0%

Schedule of Fees and Commissions & Schedule of Investment Results

Total of Defined Benefit Pension Plans			
Investment Managers	Assets Under Management	Total Management Fees	Basis Points
Tactical Cash Manager	140,254,107	12,600	1bp
Fixed Income Manager	1,338,093,637	4,019,029	30bp
Equity Manager	3,849,617,141	19,550,851	51bp
Marketable Alternatives Manager	1,413,974,451	15,880,723	112bp
Private Markets Manager	1,212,533,801	13,282,358	110bp
Total Net Receivables/Payables	(60,867,544)	N/A	N/A
Total Investment Manager Fees	7,893,605,593	52,745,561	67bp

Other Investment Service Fees			
Overlay Manager	1,045,702		N/A
Security Lending Fees	327,104.00		N/A
Custodian Services	810,302		N/A
Investment Consultant Fees	685,000		N/A
Total Other Service Fees	2,868,108		N/A

Note 1: Incentive fees, estimated at \$3,286,931 for the year, are not included above.

Schedule of Investment Results

The following tables compare the actual, based on market value return, for investment categories to the corresponding benchmark time weighted returns.

	2018	3 Year	5 Year	10 Year
Fixed Income Returns				
Total Fixed Income Portfolio (Net of fees)	0.45%	2.75%	2.89%	6.51%
Custom Total Fixed Income Benchmark*	0.68%	2.20%	3.10%	3.94%

Equity Returns				
Total Equity Portfolio (Net of fees)	-10.53%	5.34%	3.21%	8.84%
Custom Regionally Weighted Benchmark*	-9.23%	6.74%	4.44%	9.56%

Marketable Alternatives Returns				
Total MA Portfolio (Net of fees)	-1.36%	7.28%	n/a	n/a
HFRI FOF Composite	-3.92%	1.34%	n/a	n/a

Private Market Returns				
Total Private Portfolio (Net of fees)	9.86%	8.96%	9.34%	6.93%
Vintage Year Blend Benchmark	9.20%	11.00%	10.09%	6.98%

TOTAL PORTFOLIO Returns				
Total Portfolio (Net of fees)	-3.52%	5.81%	4.32%	8.19%
Strategic Asset Benchmark*	-4.05%	5.65%	4.37%	7.65%

*See WRS Investment Policy Statement Appendix 1 for benchmark composition.

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Comprehensive Annual Financial Report 2018

ACTUARIAL SECTION



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April 24, 2019

Board of Trustees
State of Wyoming Retirement System
 6101 Yellowstone Road
 Suite 500
 Cheyenne, WY 82002

Subject: Wyoming Retirement System – Actuarial Valuation Certificate

Dear Board of Trustees:

The Governmental Accounting Standards Board (GASB) has issued statement No. 67 which sets forth the requirements for plan reporting for each of the Wyoming Retirement System's Retirement Plans. For reporting purposes, the valuation date used is one year prior to the measurement date of December 31, 2018, and roll-forward procedures are used to update the actuarial liabilities and costs from the valuation date to the measurement date.

For purposes of reporting the financial information under GASB 68, the dates of the valuations are:

Retirement Plan	GASB 67 Actuarial Valuation Date
State of Wyoming Retirement System	January 1, 2018
Wyoming Law Enforcement Retirement Fund	January 1, 2018
Wyoming Paid Firemen's Retirement Fund Plan A	January 1, 2018
Wyoming Paid Firemen's Retirement Fund Plan B	January 1, 2018
Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund	January 1, 2018
Wyoming Judicial Retirement System	January 1, 2018
Wyoming Air Guard Firefighters Retirement System	January 1, 2018
Wyoming Volunteer Firefighter and Emergency Medical Technician Pension Fund	January 1, 2018

Wyoming Retirement System
April 24, 2019

Roll-forward procedures were then applied to each set of valuation results in order to provide the actuarial information as of the December 31, 2018 measurement date. Assets for the GASB 67 calculations were based on the market value of assets as of the measurement date. Separate actuarial valuations are performed for each of the plans as the assets of each plan are only available to pay the benefits for that plan. Actuarial assumptions and methods for each plan are set by the Board of Trustees, based upon recommendations made by the plan's actuary. The current actuarial assumptions and methods were adopted on August 23, 2017 by the Board based on an experience study performed as of December 31, 2016.

Financing Objectives of the WRS Plans

GASB reporting is separate and distinct from the financing of the plans. The basic financing objective in determining the funding requirements of the Wyoming Retirement System is to establish contribution requirements which will remain approximately level with any unfunded actuarial accrued liability paid off over a finite number of years. For plans whose benefits are based on each employee's compensation, these contribution requirements are expressed as a level percent of covered payroll. Otherwise, these contribution requirements are expressed as a level dollar amount.

Progress toward this financing objective is measured by actuarial valuations which determine the present financial position and test the adequacy of established contribution rates. The actuarial valuations are performed annually for all plans. The most recent funding valuations were performed as of January 1, 2019.

Differences between assumptions and actual experience since the prior valuation are identified as actuarial gains and losses. These gains and losses impact the unfunded actuarial accrued liability and future funding requirements determined in subsequent valuations.

Member data for retired, active and inactive members was supplied as of January 1, 2018 by the System's staff. We did not audit this data, but we did apply a number of tests to the data, and we concluded that it was reasonable and consistent with the prior year's data. Asset and financial information as of January 1, 2019 was supplied to us by Eide Bailly LLP. The staff of the Wyoming Retirement System prepared the other supporting schedules in this section and the trend tables in the financial section based on information supplied in our reports.

All of our work conforms with generally accepted actuarial principles and practices, and with the Actuarial Standards of Practice issued by the Actuarial Standards Board. In our opinion, our calculations also comply with the requirements of state law and, where applicable, the Internal Revenue Code, ERISA, and the Statements of the Governmental Accounting Standards Board. Furthermore, the assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice



Wyoming Retirement System
April 24, 2019

The undersigned are independent actuaries and consultants.

Leslie Thompson and Thomas Lyle are Enrolled Actuaries and Leslie Thompson, Paul Wood, and Thomas Lyle are Members of the American Academy of Actuaries and meet their Qualification Standards. All signing actuaries are experienced in performing valuations for large public retirement systems.

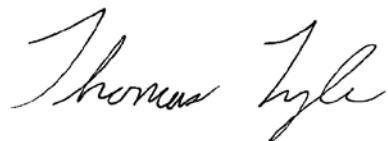
Respectfully submitted,
Gabriel, Roeder, Smith & Company



Leslie Thompson, FSA, FCA, EA, MAAA
Senior Consultant



Paul T. Wood, ASA, FCA, MAAA
Consultant



Thomas A. Lyle, ASA, EA, MAAA
Senior Analysis



Actuarial Assumptions and Methods - Public Employee Plan

Exhibit I

State of Wyoming Retirement System

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).

- 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

Actuarial Assumptions and Methods - Public Employee Plan

Exhibit I

State of Wyoming Retirement System

Actuarial Assumptions and Methods

liability less the outstanding amounts of prior year bases. 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 30 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

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

Service	Rate	Service	Rate
1	6.50%	14	3.50%
2	6.50%	15	3.25%
3	6.50%	16	3.25%
4	6.00%	17	3.25%
5	5.25%	18	3.25%
6	4.75%	19	3.00%
7	4.25%	20	3.00%
8	4.00%	21	2.75%
9	4.00%	22	2.75%
10	4.00%	23	2.75%
11	3.75%	24	2.75%
12	3.50%	25	2.50%
13	3.50%	25+	2.50%

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.

Actuarial Assumptions and Methods - Public Employee Plan

Exhibit I

State of Wyoming Retirement System

Actuarial Assumptions and Methods

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. Mortality

Healthy 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%

Healthy 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%

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%

Actuarial Assumptions and Methods - Public Employee Plan

Exhibit I

State of Wyoming Retirement System

Actuarial Assumptions and Methods

b. Disability and Withdrawal

Age	Disability		Withdrawal		Withdrawal		
	Male	Female	Ultimate		Service	First five years	
			Male	Female		Male	Female
20	0.01%	0.01%	11.00%	10.00%	1	22%	25%
25	0.01%	0.01%	11.00%	10.00%	2	18%	21%
30	0.01%	0.01%	6.00%	6.00%	3	14%	15%
35	0.01%	0.01%	5.00%	5.00%	4	13%	15%
40	0.01%	0.01%	4.00%	5.00%	5	13%	14%
45	0.02%	0.02%	4.00%	5.00%			
50	0.12%	0.05%	3.00%	4.00%			
55	0.24%	0.12%	3.00%	4.00%			
60	0.24%	0.24%	3.00%	4.00%			

c. Retirement Rates

Age	Retirement	
	Unreduced	Reduced
<50	15.0%	1.0%
50	15.0%	0.5%
51	15.0%	0.5%
52	15.0%	0.5%
53	15.0%	0.5%
54	15.0%	0.5%
55	17.0%	1.0%
56	17.0%	1.0%
57	15.0%	1.0%
58	15.0%	1.0%
59	15.0%	2.5%
60	13.0%	2.5%
61	13.0%	2.5%
62	18.0%	2.5%
63	15.0%	2.5%
64	15.0%	2.5%
65	25.0%	
66	30.0%	
67	28.0%	
68	25.0%	
69	25.0%	
70	15.0%	
71	15.0%	
72	15.0%	
73	15.0%	
74	15.0%	
75	15.0%	
76	15.0%	
77	15.0%	
78	15.0%	
79	15.0%	
80+	100.0%	

Actuarial Assumptions and Methods - Public Employee Plan

Exhibit I State of Wyoming Retirement System Actuarial Assumptions and Methods

6. Other Assumptions

- a. Percent married: 85.00% 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. It is assumed that 25% of active members who terminate with a deferred vested benefit will elect to have their contributions refunded.
- 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 age 60 (65 for Tier 2).
- f. No benefit amount data is available for members entitled to deferred benefits. The benefit is estimated using the final average compensation and service provided by WRS.
- g. There will be no recoveries once disabled. We assume all disabled 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.

Actuarial Assumptions and Methods - Public Employee Plan

Exhibit I

State of Wyoming Retirement System

Actuarial Assumptions and Methods

- 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. Exact fractional service is used to determine the amount of benefit payable.

Actuarial Assumptions and Methods - Public Employee Plan

Exhibit I

State of Wyoming Retirement System

Changes in Plan Provisions, Actuarial Assumptions and Methods

Changes in Plan Provisions

Pursuant to Enrolled Act No. 10, for a non-vested member hired on or after July 1, 2018, the refund of contributions is based solely on contributions paid by a reduction in cash salary of the employee. Any employer pickup contribution is not eligible for a refund.

Pursuant to Enrolled Act No. 25, interest crediting for non-vested members on a prospective basis is eliminated beginning July 1, 2019.

There have been no other changes to the Plan Provisions since the prior valuation.

Changes in Actuarial Assumptions and Methods

There have been no changes to the assumptions or methods since the prior valuation.

Actuarial Assumptions and Methods - Law Enforcement

Exhibit II

Wyoming Law Enforcement Retirement Fund

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).

- 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.

Actuarial Assumptions and Methods - Law Enforcement

Exhibit II

Wyoming Law Enforcement Retirement Fund

Actuarial Assumptions and Methods

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, 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

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	7.00%
25	6.50%
30	5.00%
35	4.25%
40	4.25%
45	4.00%
50	3.50%
55	3.25%
60	3.00%

Actuarial Assumptions and Methods - Law Enforcement

Exhibit II

Wyoming Law Enforcement Retirement Fund

Actuarial Assumptions and Methods

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%

Actuarial Assumptions and Methods - Law Enforcement

Exhibit II Wyoming Law Enforcement Retirement Fund Actuarial Assumptions and Methods

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%

30% of active deaths are assumed to be duty-related

b. Disability and Withdrawal

Age	Disability		Withdrawal		Withdrawal		
			Ultimate		Service	First five years	
	Male	Female	Male	Female		Male	Female
20	0.07%	0.07%	15.00%	15.00%	1	24%	25%
25	0.07%	0.07%	11.00%	11.00%	2	20%	22%
30	0.07%	0.07%	8.50%	8.50%	3	15%	19%
35	0.08%	0.08%	6.50%	6.50%	4	13%	18%
40	0.18%	0.18%	5.50%	5.50%	5	12%	15%
45	0.38%	0.38%	5.00%	5.00%			
50	0.67%	0.67%	3.00%	3.00%			
55	1.14%	1.14%	3.00%	3.00%			
60	2.22%	2.22%	3.00%	3.00%			

30% of active disabilities are assumed to be duty-related

Actuarial Assumptions and Methods - Law Enforcement

Exhibit II

Wyoming Law Enforcement Retirement Fund

Actuarial Assumptions and Methods

c. Retirement Rates

Age	Reduced Rate	Unreduced Rate	Age	Reduced Rate	Unreduced Rate
50	2.0%	20.0%	61	NA	17.0%
51	2.0%	13.0%	62	NA	17.0%
52	2.0%	13.0%	63	NA	20.0%
53	2.0%	13.0%	64	NA	20.0%
54	2.0%	13.0%	65	NA	50.0%
55	2.0%	15.0%	66	NA	50.0%
56	2.0%	15.0%	67	NA	50.0%
57	2.0%	15.0%	68	NA	50.0%
58	2.0%	20.0%	69	NA	50.0%
59	2.0%	20.0%	70	NA	100.0%
60	NA	20.0%			

10% is assumed for members with at least 20 years of service before age 50

6. Other Assumptions

- a. Percent married: 85.00% 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: It is assumed that 45% of active members who terminate with a vested deferred benefit will elect to have their contributions refunded.
- 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 age 60.
- f. No benefit amount data is available for members entitled to deferred benefits. The benefit is estimated using the final average compensation and service provided by WRS.
- g. There will be no recoveries once disabled.
- h. No children are assumed for purposes of valuing the ordinary death benefit.

Actuarial Assumptions and Methods - Law Enforcement

Exhibit II

Wyoming Law Enforcement Retirement Fund

Actuarial Assumptions and Methods

- 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. 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.
- n. Benefit Service: All members are assumed to accrue one year of service each year.

Actuarial Assumptions and Methods - Law Enforcement

Exhibit II

Wyoming Law Enforcement Retirement Fund

Changes in Plan Provisions, Actuarial Assumptions and Methods

Changes in Plan Provisions

Effective July 1, 2019, the interest on contributions for non-vested inactive Employees will be 0%.

There have been no other changes in the benefit provisions since the prior valuation.

Changes in Actuarial Assumptions and Methods

There have been no changes to the assumptions or methods since the prior valuation.

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Actuarial Assumptions and Methods - Paid Firemen's Pension Plan A

Exhibit III

Wyoming Paid Firemen's Retirement Fund Plan A

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).

- 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 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, as a level dollar amount.

Actuarial Assumptions and Methods - Paid Firemen's Pension Plan A

Exhibit III

Wyoming Paid Firemen's Retirement Fund Plan A

Actuarial Assumptions and Methods

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

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

4.50% per year

c. 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%.

d. Cost-of-living adjustment:

3.00% per year

Actuarial Assumptions and Methods - Paid Firemen's Pension Plan A

Exhibit III

Wyoming Paid Firemen's Retirement Fund Plan A

Actuarial Assumptions and Methods

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 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%

Actuarial Assumptions and Methods - Paid Firemen's Pension Plan A

Exhibit III

Wyoming Paid Firemen's Retirement Fund Plan A

Actuarial Assumptions and Methods

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%		

Actuarial Assumptions and Methods - Paid Firemen's Pension Plan A

Exhibit III

Wyoming Paid Firemen's Retirement Fund Plan A

Actuarial Assumptions and Methods

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 disabled members are totally disabled.
- h. Administrative expenses: Assumed to be the average of the prior two years, with each year projected at 2.50% to the valuation date.
- i. 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.
- j. Decrement timing: Decrements of all types are assumed to occur mid-year.
- k. 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.
- l. 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.
- m. Benefit Service: All members are assumed to accrue one year of service each year.

Actuarial Assumptions and Methods - Paid Firemen's Pension Plan A

Exhibit III

Wyoming Paid Firemen's Retirement Fund Plan A

Changes in Plan Provisions, Actuarial Assumptions and Methods

Changes in Plan Provisions

There have been no changes in the benefit provisions since the prior valuation.

Changes in Actuarial Assumptions and Methods

The have been no changes to the assumptions or methods since the prior valuation.

Exhibit IV

Wyoming Paid Firemen's Retirement Fund Plan B

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

Actuarial Assumptions and Methods - Paid Firemen's Pension Plan B

Exhibit IV

Wyoming Paid Firemen's Retirement Fund Plan B

Actuarial Assumptions and Methods

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

Actuarial Assumptions and Methods - Paid Firemen's Pension Plan B

Exhibit IV

Wyoming Paid Firemen's Retirement Fund Plan B

Actuarial Assumptions and Methods

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.

Actuarial Assumptions and Methods - Paid Firemen's Pension Plan B

Exhibit IV Wyoming Paid Firemen's Retirement Fund Plan B

Actuarial Assumptions and Methods

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%

Exhibit IV
Wyoming Paid Firemen's Retirement Fund Plan B
Actuarial Assumptions and Methods

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 disabled members are totally disabled.
- h. Administrative expenses: Assumed to be the average of the prior two years, with each year projected at 2.50% to the valuation date.
- i. 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.
- j. Decrement timing: Decrements of all types are assumed to occur mid-year.
- k. 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.
- l. 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.
- m. Benefit Service: All members are assumed to accrue one year of service each year.

Actuarial Assumptions and Methods - Paid Firemen's Pension Plan B

Exhibit IV

Wyoming Paid Firemen's Retirement Fund Plan B

Changes in Plan Provisions, Actuarial Assumptions and Methods

Changes in Plan Provisions

Effective July 1, 2019 the employee contribution rate will increase from 9.245% to 9.745% and the employer contribution rate will increase from 12.00% to 13.00%. The employee contribution rate will continue to increase by 0.50% on July 1 each subsequent year until it reaches the ultimate rate of 11.245% on July 1, 2022 and the employer contribution rate will continue to increase 1.00% on July 1 each subsequent year until it reaches the ultimate rate of 16.00% on July 1, 2022.

There have been no other changes in the benefit provisions since the prior valuation.

Changes in Actuarial Assumptions and Methods

There have been no changes to the assumptions or methods since the prior valuation.

Actuarial Assumptions and Methods - Warden, Patrol, DCI Plan

Exhibit V

Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund

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).

- 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.

Actuarial Assumptions and Methods - Warden, Patrol, DCI Plan

Exhibit V

Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund

Actuarial Assumptions and Methods

- 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, 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

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.

Actuarial Assumptions and Methods - Warden, Patrol, DCI Plan

Exhibit V Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund

Actuarial Assumptions and Methods

b. Salary increase rate

Age	Rate
20	8.50%
25	8.00%
30	5.75%
35	4.00%
40	3.00%
45	3.00%
50	3.00%
55	2.50%
60	2.50%

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%

Actuarial Assumptions and Methods - Warden, Patrol, DCI Plan

Exhibit V

Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund

Actuarial Assumptions and Methods

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	
			Ultimate	
	Male	Female	Male	Female
20	0.10%	0.10%	18.00%	18.00%
25	0.10%	0.10%	6.00%	6.00%
30	0.23%	0.23%	6.00%	6.00%
35	0.39%	0.39%	6.00%	6.00%
40	0.57%	0.57%	5.00%	5.00%
45	0.73%	0.73%	5.00%	5.00%
50	0.75%	0.75%	2.50%	2.50%
55	0.75%	0.75%	1.00%	1.00%
60	0.75%	0.75%	1.00%	1.00%

100% of active disabilities are assumed to be duty-related

Actuarial Assumptions and Methods - Warden, Patrol, DCI Plan

Exhibit V Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund

Actuarial Assumptions and Methods

c. Retirement Rates

Age	Rate	Age	Rate
50	15%	56	10%
51	5%	57	15%
52	5%	58	15%
53	5%	59	15%
54	10%	60	35%
55	10%	61	40%
		62	100%

Actuarial Assumptions and Methods - Warden, Patrol, DCI Plan

Exhibit V

Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund

Actuarial Assumptions and Methods

6. Other Assumptions

- a. Percent married: 85.00% 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 age 50.
- f. No benefit amount data is available for members entitled to deferred benefits. The benefit is estimated using the final average compensation and service provided by WRS.
- g. There will be no recoveries once disabled.
- h. Administrative expenses: Average of actual expenses for the prior two years, with each year projected at 2.50% to the valuation date.
- i. 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.
- j. Decrement timing: Decrements of all types are assumed to occur mid-year.
- k. 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.
- l. 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.
- m. Benefit service: All members are assumed to accrue one year of service each year.

Actuarial Assumptions and Methods - Warden, Patrol, DCI Plan

Exhibit V

Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Retirement Fund

Changes in Plan Provisions, Actuarial Assumptions and Methods

Changes in Plan Provisions

There Effective July 1, 2019, the interest on contributions for non-vested inactive Employees will be 0%.

There have been no other changes in the benefit provisions since the prior valuation.

Changes in Actuarial Assumptions and Methods

The have been no changes to the assumptions or methods since the prior valuation.

Exhibit VI

Wyoming Judicial Retirement System

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 percent 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 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.

Actuarial Assumptions and Methods - Judicial Plan

Exhibit VI Wyoming Judicial Retirement System Actuarial Assumptions and Methods

- 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 15 years from the valuation date. The Board's policy consists of amortizing the unfunded liability as of January 1, 2018, over a closed 15 year period with each subsequent amortization base created as a result of year to year experience changes over individual 15 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, 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

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

4.00% per annum

c. Payroll growth rate

In the amortization of the unfunded actuarial accrued liability, payroll is assumed to increase 4.00% 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.

Actuarial Assumptions and Methods - Judicial Plan

Exhibit VI Wyoming Judicial Retirement System Actuarial Assumptions and Methods

5. Demographic Assumptions

a. Mortality

Healthy 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%

Healthy 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%

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%

Actuarial Assumptions and Methods - Judicial Plan

Exhibit VI Wyoming Judicial Retirement System Actuarial Assumptions and Methods

b. Disability and Withdrawal

Age	Disability		Withdrawal	
	Male	Female	Ultimate	
	Male	Female	Male	Female
20	0.01%	0.01%	5.60%	5.60%
25	0.01%	0.01%	4.20%	4.20%
30	0.01%	0.01%	2.90%	2.90%
35	0.01%	0.01%	2.00%	2.00%
40	0.01%	0.01%	1.50%	1.50%
45	0.01%	0.01%	1.10%	1.10%
50	0.03%	0.03%	0.80%	0.80%
55	0.05%	0.05%	0.60%	0.60%
60	0.07%	0.07%	0.40%	0.40%

c. Retirement Rates

Age	Rate	Age	Rate
55	2%	64	2%
56	2%	65	15%
57	2%	66	10%
58	2%	67	10%
59	2%	68	10%
60	2%	69	10%
61	2%	70	15%
62	2%	71	15%
63	2%	72	100%

Exhibit VI Wyoming Judicial Retirement System Actuarial Assumptions and Methods

6. Other Assumptions

- a. Percent married: 85.00% 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. It is assumed that 25% of active members who terminate with a deferred vested benefit will elect to have their contributions refunded.
- 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 age 65.
- f. No benefit amount data is available for members entitled to deferred benefits. The benefit is estimated using the final average compensation and service provided by WRS.
- g. There will be no recoveries once disabled. We assume all disabled 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.

Actuarial Assumptions and Methods - Judicial Plan

Exhibit VI

Wyoming Judicial Retirement System

Actuarial Assumptions and Methods

- 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. Exact fractional service is used to determine the amount of benefit payable

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Actuarial Assumptions and Methods - Judicial Plan

Exhibit VI

Wyoming Judicial Retirement System

Changes in Plan Provisions, Actuarial Assumptions and Methods

Changes in Plan Provisions

There have been no changes to plan provisions since the prior valuation.

Changes in Actuarial Assumptions and Methods

There have been no changes to the assumptions or methods since the prior valuation.

Actuarial Assumptions and Methods - Air Guard Firefighters Plan

Exhibit VII Wyoming Air Guard Firefighters Retirement System 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 percent 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 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

Actuarial Assumptions and Methods - Air Guard Firefighters Plan

Exhibit VII

Wyoming Air Guard Firefighters Retirement System

Actuarial Assumptions and Methods

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, 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

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

Service	Rate	Service	Rate
1	6.50%	14	3.50%
2	6.50%	15	3.25%
3	6.50%	16	3.25%
4	6.00%	17	3.25%
5	5.25%	18	3.25%
6	4.75%	19	3.00%
7	4.25%	20	3.00%
8	4.00%	21	2.75%
9	4.00%	22	2.75%
10	4.00%	23	2.75%
11	3.75%	24	2.75%
12	3.50%	25	2.50%
13	3.50%	25+	2.50%

Actuarial Assumptions and Methods - Air Guard Firefighters Plan

Exhibit VII

Wyoming Air Guard Firefighters Retirement System

Actuarial Assumptions and Methods

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. Mortality

Healthy 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%

Healthy 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%

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%

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Actuarial Assumptions and Methods - Air Guard Firefighters Plan

Exhibit VII

Wyoming Air Guard Firefighters Retirement System

Actuarial Assumptions and Methods

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%

b. Disability and Withdrawal

Age	Disability		Withdrawal	
	Male	Female	Male	Female
20	0.01%	0.01%	11.00%	10.00%
25	0.01%	0.01%	11.00%	10.00%
30	0.01%	0.01%	6.00%	6.00%
35	0.01%	0.01%	5.00%	5.00%
40	0.01%	0.01%	4.00%	5.00%
45	0.03%	0.03%	4.00%	5.00%
50	0.08%	0.08%	3.00%	4.00%
55	0.20%	0.20%	3.00%	4.00%
60	0.20%	0.20%	3.00%	4.00%

Service	Withdrawal	
	Male	Female
1	22.00%	25.00%
2	18.00%	21.00%
3	14.00%	15.00%
4	13.00%	15.00%
5	13.00%	14.00%

65% of active disabilities are assumed to be duty-related

Actuarial Assumptions and Methods - Air Guard Firefighters Plan

Exhibit VII

Wyoming Air Guard Firefighters Retirement System

Actuarial Assumptions and Methods

c. Retirement Rates

Age	Retirement	
	Unreduced	Reduced
<50	15.0%	1.0%
50	15.0%	0.5%
51	15.0%	0.5%
52	15.0%	0.5%
53	15.0%	0.5%
54	15.0%	0.5%
55	17.0%	1.0%
56	17.0%	1.0%
57	15.0%	1.0%
58	15.0%	1.0%
59	15.0%	2.5%
60	13.0%	
61	13.0%	
62	18.0%	
63	15.0%	
64	15.0%	
65	25.0%	
66	30.0%	
67	28.0%	
68	25.0%	
69	25.0%	
70	15.0%	
71	15.0%	
72	15.0%	
73	15.0%	
74	15.0%	
75	15.0%	
76	15.0%	
77	15.0%	
78	15.0%	
79	15.0%	
80+	100.0%	

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Actuarial Assumptions and Methods - Air Guard Firefighters Plan

Exhibit VII

Wyoming Air Guard Firefighters Retirement System

Actuarial Assumptions and Methods

6. Other Assumptions

- a. Percent married: 85.00% 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 age 60.
- 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.
- h. Administrative expenses: Assumed to be the average of the actual expenses for the prior two years, with each year projected at 2.50% to the valuation date.
- i. 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.
- j. Decrement timing: Decrements of all types are assumed to occur mid-year.
- k. 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.
- l. 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.
- m. Benefit Service: All members are assumed to accrue one year of service each year. Exact fractional service is used to determine the amount of benefit payable

Actuarial Assumptions and Methods - Air Guard Firefighters Plan

Exhibit VII

Wyoming Air Guard Firefighters Retirement System Changes in Plan Provisions, Actuarial Assumptions and Methods

Changes in Plan Provisions

There have been no changes to plan provisions since the prior valuation.

Changes in Actuarial Assumptions and Methods

There have been no changes to the assumptions or methods since the prior valuation.

Actuarial Assumptions and Methods - Vol Fire and EMT Plan

Exhibit VIII

Wyoming Volunteer Firefighter and Emergency Medical Technician Pension Fund

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 dollar amount. Under this method, the employer contribution amount is the sum of (i) the employer normal cost amount, and (ii) the amount 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 7.00%), of each participant's expected benefit payable at retirement or death is determined, based on his/her age, service, and sex. 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, or survivor's benefit. 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 employer contribution amount which, if applied to 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.

Actuarial Assumptions and Methods - Vol Fire and EMT Plan

Exhibit VIII

Wyoming Volunteer Firefighter and Emergency Medical Technician Pension Fund

Actuarial Assumptions and Methods

- d. 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, 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

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.

5. Demographic Assumptions

a. Rates Before Retirement

Healthy 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%

Healthy 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%

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Actuarial Assumptions and Methods - Vol Fire and EMT Plan

Exhibit VIII Wyoming Volunteer Firefighter and Emergency Medical Technician Pension Fund

Actuarial Assumptions and Methods

Age	Pre-Retirement		Post-Retirement	
	Projected to 2019 using Scale MP-2017			
	Male	Female	Male	Female
20	0.04%	0.02%	0.04%	0.01%
25	0.05%	0.02%	0.06%	0.03%
30	0.05%	0.02%	0.09%	0.06%
35	0.06%	0.03%	0.13%	0.09%
40	0.07%	0.04%	0.19%	0.14%
45	0.09%	0.06%	0.27%	0.18%
50	0.16%	0.11%	0.38%	0.24%
55	0.27%	0.17%	0.55%	0.32%
60	0.47%	0.25%	0.78%	0.47%
65	0.83%	0.36%	1.11%	0.70%
70	1.35%	0.60%	1.63%	1.08%
75			2.56%	1.76%
80			4.27%	2.96%
85			7.44%	5.18%
90			13.11%	9.20%
95			21.02%	15.32%
100			30.49%	23.34%

b. Withdrawal Rates

Age	Withdrawal		Withdrawal		
	Ultimate		Service	First five years	
	Male	Female		Male	Female
20	20.00%	20.00%	1	16.0%	16.0%
25	11.00%	11.00%	2	15.5%	15.5%
30	8.00%	8.00%	3	15.0%	15.0%
35	5.00%	5.00%	4	13.0%	13.0%
40	5.00%	5.00%	5	10.0%	10.0%
45	3.00%	3.00%			
50	2.00%	2.00%			
55	2.00%	2.00%			
60	2.00%	2.00%			

Actuarial Assumptions and Methods - Vol Fire and EMT Plan

Exhibit VIII Wyoming Volunteer Firefighter and Emergency Medical Technician Pension Fund

Actuarial Assumptions and Methods

c. Retirement Rates

Age	Rates
<60	0.0%
60	70.0%
61	15.0%
62	15.0%
63	20.0%
64	25.0%
65	25.0%
66	30.0%
67	40.0%
68	40.0%
69	75.0%
70	100.0%

6. Other Assumptions

- a. Percent married: 85% 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. Administrative expenses: Average of actual expenses for the prior two years, with each year projected at 2.50% to the valuation date.
- e. Decrement timing: Decrements of all types are assumed to occur mid-year.
- f. 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.
- g. Incidence of contributions: Contributions are assumed to be received continuously throughout the year.
- h. Benefit service: All members are assumed to accrue one year of service each year.
- i. Premium tax allocation: Provided by staff and based on booked total premium taxes.

Actuarial Assumptions and Methods - Vol Fire and EMT Plan

Exhibit VIII

Wyoming Volunteer Firefighter and Emergency Medical Technician Pension Fund

Actuarial Assumptions and Methods

- j. Percent of eligible deferred vested members electing a refund: 25% of all future deferred vested members are assumed to leave their contributions in the fund and elect a deferred vested annuity payable commencing at age 60.
- k. No benefit data is available for members entitled to deferred benefits. The benefit is estimated using the final average compensation and service provided by WRS

Exhibit VIII
Wyoming Volunteer Firefighter and Emergency Medical Technician Pension Fund

Changes in Plan Provisions, Actuarial Assumptions and Methods

Merger of the Volunteer Plans

Effective July 1, 2015, the Volunteer Firemen's Pension Fund and the Volunteer Emergency Medical Technician Pension Fund were merged into one plan, the Volunteer Firefighter and Emergency Medical Technician Pension Fund.

Changes in Plan Provisions

Pursuant to Enrolled Act No. 55, the premium tax allocated to fund this plan will increase from 70% to 80% starting July 1, 2019. Additionally, Search and Rescue members are allowed to join the plan if they contribute \$30 per month.

There have been no changes to plan provisions since the prior valuation.

Changes in Actuarial Assumptions and Methods

There have been no changes to the assumptions or methods since the prior valuation.

Assets

As shown in the Auditor's Report as of December 31, 2018, net position totaled \$7,914,035,291 at fair value; compared to \$8,511,733,716 the prior year. This represents a decrease of 7.0%.

For the Public Employee System, there is a difference of approximately \$487 million between market and actuarial value of assets. The actuarial value of assets on this basis is \$7,318,379,669 which is \$3.7 million higher than last year's value of \$7,314,683,343.

For the Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Pension Plan, there is an approximate difference of \$9,465,350 between market and actuarial value of assets. The actuarial value of assets on this basis is \$142,734,809 which is 1.4% higher than last year's value of \$140,712,382.

For the Volunteer Firefighter & EMT Pension Plan, there is an approximate difference of \$5,545,133 between fair value and actuarial value of assets. The actuarial value of assets on this basis is \$81,800,847 which is 0.8% higher than last year's value of \$81,168,922.

For the Paid Firemen's Pension Plan A, there is an approximate difference of \$7,453,015 between fair value and actuarial value of assets. The actuarial value of assets on this basis is \$97,220,978 which is 16.7% lower than last year's value of \$117,019,469.

For the Paid Firemen's Pension Plan B, there is an approximate difference of \$9.9 million between fair value and actuarial value of assets. The actuarial value of assets on this basis is \$151,224,958 which is 4.4% higher than last year's value of \$144,816,308.

For the Wyoming Judicial Pension Plan, there is an approximate difference of \$1,993,143 between fair value and actuarial value of assets. The actuarial value of assets on this basis is \$30,341,215 which is 4.4% higher than last year's value of \$29,062,780.

For the Wyoming Law Enforcement Pension Plan, there is an approximate difference of \$42.2 million between fair value and actuarial value of assets. The actuarial value of assets on this basis is \$641,342,345 which is 2.5% higher than last year's value of \$625,562,038.

For the Air Guard Firefighters Pension Plan, there is an approximate difference of \$503,613 between fair value and actuarial value of assets. The actuarial value of assets on this basis is \$7,710,523 which is 4.0% higher than last year's value of \$7,411,093.

Results of Actuarial Valuation

An actuarial cost procedure, known as the individual entry age normal actuarial cost method, for funding all benefits has been utilized. This method is used in situations where a cost is desired which will remain relatively level as a percentage of the participating payroll.

Under the individual entry age normal actuarial method, the total contribution requirement has three components: an annual normal cost, an allowance for administrative expenses, and a payment with respect to the unfunded actuarial accrued liability (UAAL).

The annual normal cost is calculated as the level percentage of pay required over each employee's period of covered employment to fund the total expected benefits. If the average entry age remains stable, the total normal cost rate should remain a level percentage of payrolls.

The normal cost payments are not sufficient to finance the benefit program when there is an unfunded actuarial liability. An unfunded actuarial liability may be created by changes in the benefits, actuarial assumptions, or funding method and by experience which differs from that projected by the actuarial assumptions. When plan assets exceed the actuarial liability, there is a negative unfunded liability indicating that past changes and experience have been favorable.

We have calculated the cost of funding (or amortizing) the unfunded actuarial accrued liability (UAAL) over an open period. This methodology was adopted by the Retirement Board effective January 1, 2008. This amortization is added to the normal cost with administrative expenses to determine the total cost.

Funding Status

It is the responsibility of the WRS Board to develop and maintain funding policy.

One measure of the progress of funding a retirement plan is by funding ratios. The funding ratio represents the percentage of plan assets to plan liabilities which are both measured as of a point in time. See schedule of funding progress included at the end of this section of the report.

Schedule of Active Member Valuation Data

Funding Basis –Actuarial Accrued Liability

This measure of liabilities is used in calculating pension costs. It uses the Entry Age Normal Actuarial Cost method that spreads costs as a level percentage of payrolls over a participant's working career.

For determining plan costs, a smoothed value of assets (called actuarial value) is used. Hence, for this ratio, the actuarial value of assets is used.

Public Employee Pension Plan

Valuation Date	Reporting Agencies	Number	Annual Payroll*	Annual Average Salary	% Increase In Average Salary	Average Monthly Salary
1/1/2010	442	35,593	1,698,836	47,729	6	3,977
1/1/2011	444	35,828	1,728,434	48,243	1	4,020
1/1/2012	475	36,070	1,756,856	48,707	1	4,059
1/1/2013	481	36,444	1,782,069	48,899	0	4,075
1/1/2014	485	36,354	1,782,062	49,020	0	4,085
1/1/2015	478	36,489	1,818,197	49,829	2	4,152
1/1/2016	479	36,577	1,858,678	50,816	2	4,235
1/1/2017	479	35,892	1,851,874	51,596	2	4,300
1/1/2018	476	35,013	1,784,888	50,978	-1	4,248
1/1/2019	477	34,873	1,781,668	51,090	0	4,258

*Annual Payroll in Thousands

Wyoming State Highway Patrol, Game & Fish, and Criminal Investigator Pension Plan

Valuation Date	Reporting Agencies	Number	Annual Payroll*	Annual Average Salary	% Increase In Average Salary	Average Monthly Salary
1/1/2010	3	320	23,393	73,104	5	6,092
1/1/2011	3	322	23,745	73,741	1	6,145
1/1/2012	3	318	24,390	76,698	4	6,392
1/1/2013	3	322	24,425	75,854	-1	6,321
1/1/2014	3	303	22,745	75,066	-1	6,256
1/1/2015	3	304	23,140	76,119	1	6,343
1/1/2016	3	317	24,641	77,732	2	6,478
1/1/2017	3	315	24,646	78,242	1	6,520
1/1/2018	3	304	23,640	77,762	-1	6,480
1/1/2019	3	304	23,697	77,950	0	6,496

*Annual Payroll in Thousands

Volunteer Firefighter's Pension Plan

Valuation Date	Reporting Agencies	Number	Average Contribution	Average Age	Average Years of Service
1/1/2016	128	2,379	5,370	45	11
1/1/2017	125	2,320	5,468	49	11
1/1/2018	122	2,318	5,545	49	11
1/1/2019	122	2,347	5,543	50	11

*Note: The statutes that govern this Pension Plan specifies that contributions are to be a fixed amount per month.

Schedule of Active Member Valuation Data

Paid Firemen's Pension Plan A

Valuation Date	Reporting Agencies	Number	Annual Payroll*	Annual Average Salary	% Increase In Average Salary	Average Monthly Salary
1/1/2010	6	12	860	71,695	41	5,975
1/1/2011	5	8	552	68,983	4	5,749
1/1/2012	5	7	481	68,753	0	5,729
1/1/2013	4	7	486	69,467	1	5,789
1/1/2014	2	3	198	66,135	-5	5,511
1/1/2015	2	3	179	59,829	-10	4,986
1/1/2016	2	3	195	65,074	9	5,423
1/1/2017	2	3	195	65,074	0	5,423
1/1/2018	2	2	134	67,077	3	5,590
1/1/2019	2	1	66	65,621	-2	5,468

*Annual Payroll in Thousands

Paid Firemen's Pension Plan B

Valuation Date	Reporting Agencies	Number	Annual Payroll*	Annual Average Salary	% Increase In Average Salary	Average Monthly Salary
1/1/2010	12	331	22,211	67,104	1	5,592
1/1/2011	14	327	22,517	68,860	3	5,738
1/1/2012	15	328	22,678	69,141	0	5,762
1/1/2013	16	356	24,211	68,008	-2	5,667
1/1/2014	16	368	25,596	69,554	2	5,796
1/1/2015	16	369	27,091	73,417	6	6,118
1/1/2016	16	372	27,512	73,957	1	6,163
1/1/2017	16	371	29,409	79,268	7	6,606
1/1/2018	16	363	27,481	75,706	-4	6,309
1/1/2019	16	365	28,729	78,710	4	6,559

*Annual Payroll in Thousands

Judicial Pension Plan

Valuation Date	Reporting Agencies	Number	Annual Payroll*	Annual Average Salary	% Increase In Average Salary	Average Monthly Salary
1/1/2010	1	39	4,664	119,593	6	9,966
1/1/2011	1	40	4,867	121,667	2	10,139
1/1/2012	1	40	4,862	121,544	0	10,129
1/1/2013	1	41	5,411	131,967	9	10,997
1/1/2014	1	44	6,214	141,222	7	11,769
1/1/2015	1	46	6,602	143,514	2	11,960
1/1/2016	1	46	6,624	144,001	0	12,000
1/1/2017	1	46	6,625	144,032	0	12,003
1/1/2018	1	47	6,820	145,114	1	12,093
1/1/2019	1	47	6,866	146,094	1	12,175

*Annual Payroll in Thousands

Schedule of Active Member Valuation Data

Law Enforcement Pension Plan

Valuation Date	Reporting Agencies	Number	Annual Payroll*	Annual Average Salary	% Increase In Average Salary	Average Monthly Salary
1/1/2010	81	2,801	149,481	53,367	3	4,447
1/1/2011	78	2,879	154,652	53,717	1	4,476
1/1/2012	78	2,847	155,482	54,613	2	4,551
1/1/2013	80	2,834	157,764	55,668	2	4,639
1/1/2014	80	2,808	154,072	54,869	-1	4,572
1/1/2015	78	2,755	156,792	56,912	4	4,743
1/1/2016	78	2,761	161,357	58,442	3	4,870
1/1/2017	78	2,719	160,073	58,872	1	4,906
1/1/2018	78	2,661	155,696	58,510	-1	4,876
1/1/2019	81	2,662	159,748	60,010	3	5,001

*Annual Payroll in Thousands

Air Guard Firefighters Pension Plan

Valuation Date	Reporting Agencies	Number	Annual Payroll*	Annual Average Salary	% Increase In Average Salary	Average Monthly Salary
1/1/2011	1	24	1,499	62,474	0	5,206
1/1/2012	1	24	1,523	63,448	2	5,287
1/1/2013	1	31	1,866	60,206	-5	5,017
1/1/2014	1	31	1,805	58,236	-3	4,853
1/1/2015	1	38	2,215	58,278	0	4,857
1/1/2016	1	36	2,243	62,318	7	5,193
1/1/2017	1	35	2,060	58,846	-6	4,904
1/1/2018	1	38	2,208	58,116	1	4,843
1/1/2019	1	41	2,400	58,535	1	4,878

Note: The Air Guard Firefighters Pension Plan was separated from the Public Employee Pension Plan on 01/01/2011.

*Annual Payroll in Thousands

Schedule of Retirees & Beneficiaries Added to & Removed from Rolls

Public Employee Pension Plan								
Added to Rolls			Removed from Rolls					
Year	Number	Annual Pension Benefits*	Number	Annual Pension Benefits*	Rolls-End of Year Number	\$ Annual Pension Benefit**	% Change in Annual Pension Benefit	\$ Average Annual Pension Benefit
2010	1,388	31,055	562	6,314	19,742	331.4	8.6	15,774
2011	1,538	34,517	592	7,020	20,688	338.9	8.8	16,382
2012	1,497	35,647	585	6,920	21,600	367.6	8.5	17,020
2013	1,745	39,634	614	8,228	22,731	399	8.5	17,555
2014	1,755	42,076	726	9,207	23,760	431.9	8.2	18,178
2015	1,657	38,446	689	9,453	24,728	460.9	6.7	18,639
2016	1,768	43,328	728	9,191	25,768	495	7.4	19,211
2017	1,806	43,470	766	10,396	26,808	528	6.7	19,700
2018	1,786	41,353	812	10,936	27,782	559	5.8	20,104

* Amounts in Thousands ** Amounts in Millions

Wyoming State Highway Patrol, Game & Fish, and Criminal Investigator Pension Plan								
Added to Rolls			Removed from Rolls					
Year	Number	Annual Pension Benefits	Number	Annual Pension Benefits	Rolls-End of Year Number	\$ Annual Pension Benefit	% Change in Annual Pension Benefit	\$ Average Annual Pension Benefit
2010	15	705,497	5	82,482	268	6,885,900	10	25,694
2011	15	576,180	3	48,554	280	7,413,526	7.7	26,477
2012	14	442,263	10	164,287	284	7,691,502	3.8	27,083
2013	12	524,215	6	150,013	290	8,065,703	4.9	27,813
2014	29	835,107	11	292,130	308	8,608,680	6.7	27,950
2015	20	714,877	8	176,195	320	9,147,362	6.3	28,586
2016	15	467,619	12	191,375	323	9,523,606	4.1	29,485
2017	19	715,125	12	232,044	330	10,006,686	5.1	30,323
2018	14	493,355	4	54,193	340	10,445,848	4.4	30,723

Volunteer Firefighter & EMT Pension Plan								
Added to Rolls			Removed from Rolls					
Year	Number	Annual Pension Benefits	Number	Annual Pension Benefits	Rolls-End of Year Number	\$ Annual Pension Benefit	% Change in Annual Pension Benefit	\$ Average Annual Pension Benefit
2014	106	368,168	35	114,448	1,251	4,250,343	N/A	3,398
2015*	81	1,113,515	25	74,858	1,307	5,289,000	24.4	4,047
2016*	108	461,121	40	130,252	1,375	5,619,869	6.3	4,087
2017	99	414,899	41	139,273	1,433	5,895,495	4.9	4,114
2018	101	459,658	39	123,709	1,495	6,231,444	5.7	4,168

* Added to amounts include increased benefit amounts under the provisions of the new plan.

Note: Information not available before 2014.

Schedule of Retirees & Beneficiaries Added to & Removed from Rolls

Paid Firemen's Pension Plan A								
Added to Rolls			Removed from Rolls					
Year	Number	Annual Pension Benefits	Number	Annual Pension Benefits	Rolls-End of Year Number	\$ Annual Pension Benefit	% Change in Annual Pension Benefit	\$ Average Annual Pension Benefit
2010	6	740,209	9	399,019	304	13,814,160	2.5	45,441
2011	7	767,782	12	579,402	299	14,002,540	1.4	46,831
2012	3	481,949	7	308,184	295	14,176,304	1.2	48,055
2013	10	935,977	13	635,129	292	14,477,152	2.1	49,579
2014	4	578,284	7	351,046	289	14,704,390	1.6	50,880
2015	7	820,788	14	665,571	282	14,859,607	1.1	52,694
2016	3	618,031	3	180,254	282	15,297,384	3.0	54,246
2017	6	737,535	7	376,512	281	15,658,407	2.4	55,724
2018	4	698,064	9	455,714	276	15,900,757	1.6	57,611

Paid Firemen's Pension Plans B								
Added to Rolls			Removed from Rolls					
Year	Number	Annual Pension Benefits*	Number	Annual Pension Benefits*	Rolls-End of Year Number	\$ Annual Pension Benefit**	% Change in Annual Pension Benefit	\$ Average Annual Pension Benefit
2010	10	383,726	0	0	55	1,821,843	26.7	33,124
2011	12	535,099	0	0	67	2,356,942	29.4	35,178
2012	7	278,412	0	0	74	2,635,354	11.8	35,613
2013	7	274,075	0	0	81	2,909,429	10.4	35,919
2014	11	481,088	2	71,846	90	3,318,671	14.1	36,874
2015	11	631,130	1	13,610	100	3,936,191	18.6	39,362
2016	15	726,211	0	0	115	4,662,401	18.5	40,543
2017	14	587,654	1	12,361	128	5,237,694	12.3	40,919
2018	12	475,307	3	60,290	137	5,652,712	7.9	41,261

Judicial Pension Plan								
Added to Rolls			Removed from Rolls					
Year	Number	Annual Pension Benefits*	Number	Annual Pension Benefits*	Rolls-End of Year Number	\$ Annual Pension Benefit**	% Change in Annual Pension Benefit	\$ Average Annual Pension Benefit
2010	3	127,495	2	133,897	11	610,572	-1	55,507
2011	0	0	0	0	11	610,572	0	55,507
2012	0	0	0	0	11	610,572	0	55,507
2013	2	113,010	0	0	13	723,582	18.5	55,660
2014	3	107,248	0	0	16	830,830	14.8	51,927
2015	2	150,491	0	0	18	981,321	18.1	54,518
2016	0	0	0	0	18	981,321	0.0	54,518
2017	4	307,625	0	0	22	1,288,946	31.4	58,588
2018	5	364,563	1	67,372	26	1,586,136	23.1	61,005

Schedule of Retirees & Beneficiaries Added to & Removed from Rolls

Law Enforcement Pension Plan								
Added to Rolls			Removed from Rolls					
Year	Number	Annual Pension Benefits*	Number	Annual Pension Benefits*	Rolls-End of Year Number	\$ Annual Pension Benefit**	% Change in Annual Pension Benefit	\$ Average Annual Pension Benefit
2010	75	1,881,618	12	-109,159	719	16,467,434	12	22,903
2011	93	2,330,905	7	-101,024	805	18,697,315	13.5	23,226
2012	54	1,418,567	7	-62,989	852	20,052,893	7.3	23,536
2013	77	2,048,141	12	-155,942	917	21,945,092	9.4	23,931
2014	98	2,598,158	14	-250,849	1,001	24,292,401	10.7	24,268
2015	83	2,229,651	14	-234,679	1,070	26,287,373	8.2	24,568
2016	91	2,618,016	14	-239,572	1,147	28,665,817	9.1	24,992
2017	83	2,325,313	28	-478,242	1,202	30,512,888	6.4	25,385
2018	89	2,817,707	17	-254,449	1,274	33,076,146	8.4	25,962

Air Guard Firefighters Pension Plan								
Added to Rolls			Removed from Rolls					
Year	Number	Annual Pension Benefits*	Number	Annual Pension Benefits*	Rolls-End of Year Number	\$ Annual Pension Benefit**	% Change in Annual Pension Benefit	\$ Average Annual Pension Benefit
2010	0	0	0	0	2	40,129	0	20,065
2011	0	0	0	0	2	40,129	0	20,065
2012	0	0	0	0	2	40,129	0	20,065
2013	1	46,109	0	0	3	86,238	114.9	28,746
2014	2	66,242	0	0	5	152,480	76.8	30,496
2015	1	40,663	0	0	6	193,143	26.7	32,191
2016	3	138,890	0	0	9	332,033	71.9	36,893
2017	1	32,744	0	0	10	364,776	9.9	36,478
2018	1	27,581	0	0	11	392,357	7.6	35,669

Solvency Test

Testing the financial solvency of a retirement system can be done in several ways. The funding objective is to meet long term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the system are level in concept and soundly executed, and if the system continues its present operations pattern for the indefinite future, the system will pay all promised benefits when due the ultimate test of financial soundness.

A short-term solvency test is one means of checking a system's progress under its funding program. In a short-term solvency test, the plan's present assets (cash and investments) are compared with:

1. Active members' contributions on deposit;
2. Liabilities for future benefits to present retired members;
3. Liabilities for service already rendered by active members.

In a system that has been following the discipline of level percent of payroll financing, the liabilities for active member contributions on deposit (liability 1) and the liabilities for future benefits to present retired members (liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (liability 3) will be partially covered by the remainder of present assets. Generally, if the system has been using level cost financing, the funded portion of liability 3 will increase over time. Liability 3 being fully funded is very rare.

The tables that follow illustrate the progress of funding liability (3) of Wyoming Retirements System's nine plans, and is indicative of each plans' policy to follow the discipline of level contribution rate funding.

Public Employees Pension Plan							
Valuation Date	(1) Active Member Contributions*	(2) Retirees and Beneficiaries*	(3) Active Members* (Employer Financed Portion)	Valuation Assets*	Portion of Accrued Liabilities Covered by Assets		
					-1	-2	-3
1/1/2012	1,226,273	3,455,741	2,355,173	5,761,222	100%	100%	45.8%
1/1/2013	1,286,010	3,724,948	2,308,247	5,749,968	100%	100%	32.0%
1/1/2014	1,333,533	4,251,120	2,460,394	6,244,502	100%	100%	26.8%
1/1/2015	1,394,083	4,600,840	2,375,744	6,609,612	100%	100%	25.9%
1/1/2016	1,472,112	4,897,375	2,343,866	6,814,920	100%	100%	19.0%
1/1/2017	1,491,205	5,255,364	2,292,735	7,063,052	100%	100%	13.8%
1/1/2018	1,504,862	5,994,582	2,089,209	7,314,683	100%	97%	0.0%
1/1/2019	1,527,497	6,322,069	2,020,049	7,318,380	100%	92%	0.0%

* Amounts in Thousands

Wyoming State Highway Patrol, Game & Fish Warden and Criminal Investigator Pension Plan							
Valuation Date	(1) Active Member Contributions*	(2) Retirees and Beneficiaries*	(3) Active Members* (Employer Financed Portion)	Valuation Assets*	Portion of Accrued Liabilities Covered by Assets		
					-1	-2	-3
1/1/2012	27,073	77,423	28,945	6,118	100%	100%	5.6%
1/1/2013	27,760	79,144	28,676	106,038	100%	96%	0.0%
1/1/2014	31,224	87,447	31,318	116,151	100%	97%	0.0%
1/1/2015	32,458	93,060	30,684	123,681	100%	98%	0.0%
1/1/2016	33,664	100,994	29,864	128,598	100%	94%	0.0%
1/1/2017	25,855	103,925	29,471	134,609	100%	95%	0.0%
1/1/2018	36,388	119,189	25,035	140,712	100%	88%	0.0%
1/1/2019	37,280	124,477	24,776	142,735	100%	85%	0.0%

* Amounts in Thousands

Volunteer Firefighter & EMT Pension Plan

Valuation Date	(1) Active Member Contributions*	(2) Retirees and Beneficiaries*	(3) Active Members* (Employer Financed Portion)	Valuation Assets*	Portion of Accrued Liabilities Covered by Assets		
					-1	-2	-3
1/1/2016	5,370	60,710	36,199	76,098	100%	100%	27.7%
1/1/2017	5,468	61,195	35,583	78,177	100%	100%	32.4%
1/1/2018	5,545	67,352	36,195	81,169	100%	100%	22.9%
1/1/2019	5,543	71,401	35,344	81,801	100%	100%	13.7%

The Volunteer Firefighter & Emergency Medical Technician Plans were consolidated on July 1, 2015.

* Amounts in Thousands

Paid Firemen's Pension Plan A

Valuation Date	(1) Active Member Contributions*	(2) Retirees and Beneficiaries*	(3) Active Members* (Employer Financed Portion)	Valuation Assets*	Portion of Accrued Liabilities Covered by Assets		
					-1	-2	-3
1/1/2012	226	189,373	6,085	153,371	100%	80.90%	0.0%
1/1/2013	226	188,733	6,240	139,181	100%	73.60%	0.0%
1/1/2014	96	203,199	2,960	140,917	100%	69.30%	0.0%
1/1/2015	96	202,385	2,735	138,088	100%	68.20%	0.0%
1/1/2016	96	201,512	3,081	30,776	100%	64.80%	0.0%
1/1/2017	79	202,702	3,171	124,435	100%	61.30%	0.0%
1/1/2018	47	226,793	2,487	117,019	100%	51.60%	0.0%
1/1/2019	19	225,859	1,223	104,674	100%	46.30%	0.0%

*Amounts in Thousands

Paid Firemen's Pension Plan B

Valuation Date	(1) Active Member Contributions*	(2) Retirees and Beneficiaries*	(3) Active Members* (Employer Financed Portion)	Valuation Assets*	Portion of Accrued Liabilities Covered by Assets		
					-1	-2	-3
1/1/2012	11,511	29,264	37,989	86,130	100%	100%	119.4%
1/1/2013	12,909	32,551	50,005	91,248	100%	100%	114.5%
1/1/2014	14,398	36,923	53,304	103,693	100%	100%	98.3%
1/1/2015	16,382	41,354	57,416	115,323	100%	100%	100.3%
1/1/2016	17,298	50,930	57,713	124,496	100%	100%	97.5%
1/1/2017	18,890	57,946	58,399	134,451	100%	100%	98.7%
1/1/2018	20,129	70,763	60,090	144,816	100%	100%	89.7%
1/1/2019	21,031	77,830	63,856	151,225	100%	100%	82.0%

* Amounts in Thousands

Solvency Test

Wyoming Judicial Pension Plan

Valuation Date	(1) Active Member Contributions*	(2) Retirees and Beneficiaries*	(3) Active Members* (Employer Financed Portion)	Valuation Assets*	Portion of Accrued Liabilities Covered by Assets		
					-1	-2	-3
1/1/2012	4,310	5,520	5,829	16,748	100%	100%	100.0%
1/1/2013	4,846	5,300	6,780	17,549	100%	100%	100.0%
1/1/2014	5,203	6,682	7,780	20,261	100%	100%	100.0%
1/1/2015	5,800	7,659	7,784	22,728	100%	100%	100.0%
1/1/2016	6,235	9,046	7,724	24,634	100%	100%	100.0%
1/1/2017	7,019	8,860	8,581	26,773	100%	100%	100.0%
1/1/2018	6,833	12,686	9,567	29,063	100%	100%	99.7%
1/1/2019	6,491	15,689	8,888	30,341	100%	100%	91.8%

* Amounts in Thousands

Wyoming Law Enforcement Pension Plan

Valuation Date	(1) Active Member Contributions*	(2) Retirees and Beneficiaries*	(3) Active Members* (Employer Financed Portion)	Valuation Assets*	Portion of Accrued Liabilities Covered by Assets		
					-1	-2	-3
1/1/2012	106,872	210,367	123,266	422,203	100%	100%	85.2%
1/1/2013	116,003	229,727	127,815	437,235	100%	100%	71.6%
1/1/2014	121,916	260,467	144,399	486,818	100%	100%	72.3%
1/1/2015	128,199	286,400	149,643	528,543	100%	100%	76.1%
1/1/2016	133,912	309,474	153,470	557,126	100%	100%	74.1%
1/1/2017	137,265	335,397	155,423	590,466	100%	100%	75.8%
1/1/2018	140,029	389,302	179,627	625,562	100%	100%	53.6%
1/1/2019	140,664	421,539	187,322	641,342	100%	100%	42.2%

* Amounts in Thousands

Air Guard Firefighters Pension Plan

Valuation Date	(1) Active Member Contributions*	(2) Retirees and Beneficiaries*	(3) Active Members* (Employer Financed Portion)	Valuation Assets*	Portion of Accrued Liabilities Covered by Assets		
					-1	-2	-3
1/1/2012	2,691	571	1,119	3,751	100%	100%	43.7%
1/1/2013	3,102	554	1,196	4,450	100%	100%	66.3%
1/1/2014	3,290	1,003	1,512	5,175	100%	100%	58.3%
1/1/2015	3,551	1,876	1,185	5,929	100%	100%	42.4%
1/1/2016	3,716	2,494	1,137	6,617	100%	100%	36.7%
1/1/2017	2,973	4,093	732	6,801	100%	94%	0.0%
1/1/2018	3,141	4,840	735	7,411	100%	88%	0.0%
1/1/2019	3,388	4,980	646	7,711	100%	87%	0.0%

* Amounts in Thousands

Summary of Unfunded Actuarial Accrued Liabilities

Unfunded actuarial accrued liabilities(UAAL) are the difference between actuarially calculated liabilities for service already rendered and the assets of the retirement fund. It is natural for unfunded liabilities to exist for the System's nine retirement plans.

The statutes governing the Wyoming Retirement System's plans requires that these liabilities be financed systematically over future years.

Benefits to retirees are "fully funded," that is, assets reserved for benefits currently being paid equal liabilities for those benefits. Liabilities for members are based on service rendered toward their retirement benefits which will be payable in the future. Unfunded actuarial accrued liabilities exist because liabilities for such service by members exceed assets currently on hand for such future benefits.

In an inflationary economy, the value of dollars is decreasing. Looking at just the dollar amounts of unfunded accrued liabilities can be misleading. Unfunded accrued liabilities dollars divided by active employee payroll dollars provide a meaningful index which helps understanding. The smaller the ratio of unfunded liabilities compared to active member payroll the stronger the system.

Observation of this relative index over a period of years will give an indication of whether the system is becoming financially stronger or weaker.

Analysis of Financial Experience

Gains & Losses in Accrued Liabilities during the Year Ended 12/31/2018

Resulting from Differences between Assumed Experience & Actual Experience

Type of Activity	Public Employees Pension Plan	State Patrol, Game & Fish Warden, and Criminal Investigator Pension Plan	Volunteer Firefighter & EMT Pension Plan	Paid Firemen's Pension Plan A
Age & Service Retirements	-\$18,177,840	\$32,711	\$32,992	\$339,161
If members retire at older ages or with lower final average pay than assumed, there is a gain. If younger ages or higher average pays, a loss				
Disability Retirements	108,690	4,415	-	-
If disability claims are less than assumed, there is a gain. If more claims, a loss.				
Death-In-Service Benefits	-195,716	66,131	-4,265	-
If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.				
Withdrawal From Employment	-8,382,993	160,969	-524,864	-
If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases a loss.				
Rehires	1,251,358	-	55,541	-
New employees entering the plan will create a loss.				
Pay Increases	48,032,731	933,742	-	-
If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.				
Contribution Income	-46,806,901	-181,089	-247,514	-16,119,850
If more contributions are received than expected, there is a gain. If less, a loss.				
Investment Income	-219,575,776	-3,885,775	-2,170,539	-4,098,755
If there is greater investment income than assumed, there is a loss. If not as long, a gain.				
Death After Retirement	2,673,444	-538,440	39,959	1,796,799
If retirees live longer than assumed, there is a loss. If not as long, a gain.				
Other	-18,265,417	-172,768	70,510	-164,872
Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, valuation methods, etc.				
Gain (Loss) During Year From Financial Experience	-\$259,338,420	-\$3,580,103	-\$2,859,262	-\$18,247,518

Analysis of Financial Experience

Gains & Losses in Accrued Liabilities during the Year Ended 12/31/2017

Resulting from Differences between Assumed Experience & Actual Experience

Type of Activity	Paid Firemen's Pension Plan B	Judicial Pension Plan	Law Enforcement Pension Plan	Air Guard Firefighters Pension Plan
Age & Service Retirements	-\$161,072	-\$464,629	-\$1,511,958	-\$81,936
If members retire at older ages or with lower final average pay than assumed, there is a gain. If younger ages or higher average pays, a loss				
Disability Retirements	149,240	1008	-979826	1842
If disability claims are less than assumed, there is a gain. If more claims, a loss.				
Death-In-Service Benefits	88,938	11,166	1,103,434	2,667
If survivor claims are less than assumed, there is a gain. If more claims, there is a loss.				
Withdrawal From Employment	111,477	-20,753	-3,029,469	-65,191
If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases a loss.				
Rehires	-	-	-343,825	-
New employees entering the plan will create a loss.				
Pay Increases	-338,425	470,273	1,992,127	169,026
If there are smaller pay increases than assumed, there is a gain. If greater increases, a loss.				
Contribution Income	-863,594	30,776	-698,696	232,781
If more contributions are received than expected, there is a gain. If less, a loss.				
Investment Income	-3,994,331	-845,740	-18,300,834	-217,965
If there is greater investment income than assumed, there is a loss. If not as long, a gain.				
Death After Retirement	-202,677	181,765	-953,447	24,690
If retirees live longer than assumed, there is a loss. If not as long, a gain.				
Other	-67,164	-66,672	-1,406,777	-52,849
Miscellaneous gains and losses resulting from data adjustments, timing of financial transactions, valuation methods, etc.				
Gain (Loss) During Year From Financial Experience	-\$5,277,608	-\$702,806	-\$24,129,271	\$13,065

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL)(b-a)	Funded Ratio as a (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) /c)
Public Employees Pension Plan:						
January 1, 2012	5,761,221,926	7,037,186,665	1,275,964,739	81.9	1,756,856,648	72.6
January 1, 2013	5,749,967,972	7,319,204,726	1,569,236,754	78.6	1,782,069,208	88.1
January 1, 2014	6,244,501,550	8,045,046,972	1,800,545,422	77.6	1,782,062,471	101.0
January 1, 2015	6,609,612,342	8,370,666,482	1,761,054,140	79.0	1,818,197,022	96.9
January 1, 2016	6,814,919,591	8,713,353,524	1,898,433,933	78.2	1,858,678,687	102.1
January 1, 2017	7,063,051,856	9,039,303,831	1,976,251,975	78.1	1,851,873,634	106.7
January 1, 2018	7,314,683,343	9,588,652,976	2,273,969,633	76.3	1,784,888,475	127.4
January 1, 2019	7,318,379,669	9,869,615,224	2,551,235,555	74.2	1,781,668,069	143.2
State Patrol, Game and Fish Warden and Criminal Investigator Pension Plan:						
January 1, 2012	106,117,900	133,440,800	27,322,900	79.5	24,389,987	112.0
January 1, 2013	106,067,552	137,580,636	31,513,084	77.1	24,424,919	129.0
January 1, 2014	116,151,164	149,989,392	33,838,229	77.4	22,744,938	148.8
January 1, 2015	123,680,718	156,201,302	32,520,584	79.2	23,140,300	140.5
January 1, 2016	128,597,582	164,522,386	35,924,804	78.2	24,641,033	145.8
January 1, 2017	134,609,253	169,251,572	34,642,319	79.3	24,646,258	140.6
January 1, 2018	140,712,382	180,615,436	39,903,054	77.9	23,639,756	168.8
January 1, 2019	142,734,809	186,532,553	43,797,744	76.5	23,696,821	184.8
Volunteer Firefighter & EMT Pension Plan:						
January 1, 2016	76,097,619	102,278,423	26,180,804	74.4	n/a	n/a
January 1, 2017	78,176,796	102,244,853	24,068,057	76.5	n/a	n/a
January 1, 2018	81,168,922	109,091,945	27,923,023	74.4	n/a	n/a
January 1, 2019	81,800,847	112,287,528	30,486,681	72.9	n/a	n/a
Note: The Volunteer Firefighter and Emergency Medical Technican Pension Plan was consolidated into one plan on July 1, 2015.						
n/a - not applicable						
Paid Firemen's Pension Plan A:						
January 1, 2012	153,370,736	195,685,206	42,314,470	78.4	481,271	8,792.2
January 1, 2013	139,181,449	195,199,195	56,017,746	71.3	486,270	11,519.9
January 1, 2014	140,917,231	206,255,267	65,338,036	68.3	198,404	32,931.8
January 1, 2015	138,087,746	205,216,099	67,128,353	67.3	179,486	37,400.4
January 1, 2016	130,776,292	204,689,787	73,912,495	63.9	195,221	37,861.5
January 1, 2017	124,435,245	205,952,912	81,517,667	60.4	195,221	41,756.7
January 1, 2018	117,019,469	229,327,120	112,307,651	51.0	134,155	83,715.0
January 1, 2019	104,673,993	227,100,614	122,426,621	46.1	65,621	186,567.5

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) Entry Age (b)	Unfunded AAL (UAAL)(b-a)	Funded Ratio as a (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) /c)
Paid Firemen's Pension Plan B:						
January 1, 2012	86,130,061	78,763,646	-7,366,415	109.4	22,678,277	-32.5
January 1, 2013	91,248,379	85,464,453	-5,783,926	106.8	24,210,827	-23.9
January 1, 2014	103,693,169	104,624,698	931,529	99.1	25,596,043	3.6
January 1, 2015	115,323,104	115,152,708	-170,396	100.2	27,090,867	-0.6
January 1, 2016	124,496,124	125,941,369	1,445,245	98.9	27,512,076	5.3
January 1, 2017	134,450,595	135,234,856	784,261	99.4	29,408,598	2.7
January 1, 2018	144,816,308	150,981,756	6,165,448	95.9	27,481,361	22.4
January 1, 2019	151,224,958	162,716,621	11,491,663	93.0	28,729,092	40.0
Judicial Pension Plan:						
January 1, 2012	16,747,907	15,657,847	-1,090,060	107.0	4,861,758	-22.4
January 1, 2013	17,549,360	16,925,219	-624,141	103.7	5,410,651	-11.5
January 1, 2014	20,260,811	19,664,408	-596,403	103.0	6,213,775	-9.6
January 1, 2015	22,728,268	21,243,000	-1,485,268	107.0	6,601,641	-22.5
January 1, 2016	24,633,859	23,004,559	-1,629,300	107.1	6,624,052	-24.6
January 1, 2017	26,773,208	24,459,333	-2,313,875	109.5	6,625,476	-34.9
January 1, 2018	29,062,780	29,087,091	24,311	99.9	6,820,351	0.4
January 1, 2019	30,341,215	31,067,933	726,718	97.7	6,866,395	10.6
Law Enforcement Pension Plan:						
January 1, 2012	422,202,959	440,504,864	18,301,905	95.9	155,481,933	11.8
January 1, 2013	437,235,498	473,544,657	36,309,158	92.3	157,764,488	23.0
January 1, 2014	486,817,860	526,782,470	39,964,610	92.4	154,071,943	25.9
January 1, 2015	528,542,864	564,241,353	35,698,489	93.7	156,791,728	22.8
January 1, 2016	557,125,768	596,856,177	39,730,409	93.3	161,357,314	24.6
January 1, 2017	590,466,391	628,084,812	37,618,421	94.0	160,072,828	23.5
January 1, 2018	625,562,038	708,957,832	83,395,794	88.2	155,696,162	53.6
January 1, 2019	641,342,345	749,524,885	108,182,540	85.6	159,747,760	67.7
Air Guard Firefighters Pension Plan:**						
January 1, 2012	3,750,702	4,380,850	630,148	85.6	1,522,749	41.4
January 1, 2013	4,449,572	4,852,245	402,673	91.7	1,866,393	21.6
January 1, 2014	5,174,861	5,804,761	629,900	89.2	1,805,329	34.9
January 1, 2015	5,929,006	6,611,411	682,405	89.7	2,214,578	30.8
January 1, 2016	6,616,954	7,336,724	719,770	90.2	2,243,456	32.1
January 1, 2017	6,800,719	7,798,108	997,389	87.2	2,059,595	48.4
January 1, 2018	7,411,093	8,715,990	1,304,897	85.0	2,208,407	59.1
January 1, 2019	7,710,523	9,012,642	1,302,119	85.6	2,399,940	54.3

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Comprehensive Annual Financial Report 2018

STATISTICAL SECTION



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The Statistical Section contains schedules, as described below, which are derived from information in the annual actuarial valuation. These Schedules provide detailed information on both financial and census information on each plan. The Wyoming Retirement System acts as Administrator to eight defined benefit pension plans. The major features of each plan are discussed in the Management Discussion and Analysis Section and Note 2 to the Basic Financial Statements.

Changes in Fiduciary Net Position:

The Changes in Net Position 2009 – 2018 statements are provided to present comparative information on 10 years of historical financial information on each plan for additions and deductions. Significant fluctuations and/or trends for the current year have been discussed in the Management Discussion and Analysis.

Schedule of Average Monthly Benefit Payments:

This schedule outlines the number of retirees and their average benefit by years of service.

Pensions in Force:

The Pensions in Force schedule for the Public Employees Pension Plan shows the benefit by option selected (male & female), as well as census data for 2018 of the total number of pensions awarded by amount range and option. A synopsis of the pension options available to the retirees is presented at the end of this section.

The Pensions in Force schedule for the other seven plans stratify the number of retirees receiving a pension by their age and the monthly amount of benefit received. Disability census information is also presented as a part of this schedule.

Member and Benefit Recipients Statistics:

This schedule is intended to show by plan both the active members in the plans as of December 31, 2018, and a reconciliation of the number of retirees for the year ended December 31, 2018. It also shows the average monthly benefit of the retirees for the year then ended.

Active Membership:

Information presented in the two Active Membership schedules is for the Public Employee Pension Plan, as this plan represents in excess of 80% of all members in the plans administered by the Wyoming Retirement System. The information provided shows the number of active members stratified by both employer type and age bracket.

Affiliated Employers:

This gives the reader more detailed census information about employers by plan and the names of the participating employers.

Changes in Fiduciary Net Position

Public Employees Pension Plan										
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions(Deletions) by Source										
Employee Contributions	146,255	145,008	147,650	147,360	137,145	122,611	119,052	116,692	99,352	89,353
Employer Contributions	145,912	147,037	149,619	142,666	127,930	122,137	121,027	118,652	101,296	90,645
Investment Income(loss)	-252,571	923,878	454,713	-67,156	314,706	780,556	723,468	-63,533	638,060	903,211
Other Income	6,596	6,454	6,642	8,126	5,614	6,141	3,621	3,905	3,526	153,568
Total	46,192	1,222,377	758,624	230,996	585,395	1,031,445	967,168	175,716	842,234	1,236,777
Deductions by Type										
Benefits										
Member	510,719	481,746	450,686	419,726	388,318	359,050	331,071	303,702	277,248	257,242
Beneficiary	37,194	35,091	32,796	30,864	29,957	28,387	26,296	25,035	23,616	22,178
Refunds	18,114	18,655	18,128	19,365	17,822	17,131	17,263	15,242	13,585	13,015
Other Expenses	287,669	313	312	313	75	-	-	3,324	-	-
Administrative Expenses	70,334	6,551	5,993	5,098	5,183	6,514	6,463	5,541	3,603	3,083
Total	542,356	542,356	507,915	475,366	441,355	411,082	381,093	352,844	318,052	295,518
Change in Plan Net Position	-527,157	680,021	250,709	-244,370	144,040	620,363	586,075	-177,128	524,182	941,259

Note: Amounts in Thousands

State Patrol, Game and Fish Warden, and Criminal Investigator Pension Plan										
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions(Deletions) by Source										
Employee Contributions	3,416	3,429	3,441	3,331	3,151	2,976	2,726	2,685	2,526	2,469
Employer Contributions	3,492	3,503	3,517	3,290	3,006	2,998	2,799	2,621	2,597	2,542
Investment Income(loss)	-4,908	17,623	8,622	-1,199	5,836	14,444	13,286	-1,153	11,737	16,574
Other Income	418	107	294	259	231	355	177	178	99	116
Total	2,418	24,662	15,874	5,681	12,224	20,773	18,988	4,331	16,959	21,701
Deductions by Type										
Benefits										
Member	9,310	8,856	8,517	8,025	7,489	7,129	6,826	6,377	5,740	5,355
Beneficiary	950	939	880	901	876	765	753	749	741	717
Refunds	351	509	323	121	368	336	287	366	316	347
Other Expenses	6	6	6	6	1	-	-	-	-	-
Administrative Expenses	139	129	115	96	97	107	85	73	49	43
Total	10,439	10,439	9,841	9,149	8,831	8,337	7,951	7,565	6,846	6,462
Change in Plan Net Position	-8,339	14,223	6,033	-3,468	3,393	12,436	11,037	-3,234	10,113	15,239

Note: Amounts in Thousands

Changes in Fiduciary Net Position

Volunteer Firefighter & EMT Pension Plan				
	2018	2017	2016	2015
Additions(Deletions) by Source				
Employee Contributions	422	418	421	398
Employer Contributions	n/a	n/a	n/a	n/a
Investment Income(loss)	-2783	10,036	4,940	-675
Other Income	2,973	3,298	3,237	2,258
Total	612	13,752	8,598	1,981

Deductions by Type				
Benefits				
Member	5,439	5,138	3,696	4,288
Beneficiary	663	643	592	545
Refunds	44	33	35	35
Other Expenses	3	3	3	3
Administrative Expenses	91	89	73	73
Total	6,240	5,906	5,626	4,944

Change in Plan Net Position	-5,628	7,846	2,972	-2,963
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Note: Amounts in Thousands

The Volunteer Firefighter & EMT Pension Plans were consolidated July 1, 2015, replacing the previous Volunteer Firemen's Pension Plan and the Volunteer Emergency Medical Technician Pension Plan.

Changes in Fiduciary Net Position

Paid Firemen's Pension Plan A										
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions(Deletions) by Source										
Employee Contributions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Employer Contributions	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Investment Income(loss)	-3,580	15,352	8,160	-1,107	6,980	18,324	18,404	-1,434	18,317	27,997
Other Income	-	-	-	-	-	-	243	-	-	14
Total	-3,580	15,352	8,160	-1,107	6,980	18,324	18,647	-1,434	18,317	28,011
Deductions by Type										
Benefits										
Member	12,333	11,996	11,851	11,874	11,981	11,972	12,043	11,686	11,730	11,074
Beneficiary	3,455	3,415	3,225	2,951	2,601	2,384	2,184	2,187	1,901	2,206
Refunds	-	-	-	-	-	-	-	-	-	-
Other Expenses	5	6	6	6	2	-	-	-	-	-
Administrative Expenses	99	109	110	103	113	130	102	91	64	61
Total	15,891	15,526	15,192	14,934	14,697	14,486	14,329	13,964	13,695	13,341
Change in Plan Net Position	-19,472	-174	-7,032	-16,041	-7,717	3,838	4,318	-15,398	4,622	14,670

Note: Amounts in Thousands

n/a: Paid Firemen's Plan A contributions were suspended April 1, 1997.

Paid Firemen's Pension Plan B										
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions(Deletions) by Source										
Employee Contributions	2,585	2,490	2,605	2,529	2,414	2,160	1,998	1,922	1,850	1,848
Employer Contributions	3,356	3,225	3,371	3,273	3,184	3,023	2,825	2,713	2,631	2,485
Investment Income(loss)	-5,198	17,838	8,477	-1,159	5,248	12,576	11,110	-962	8,975	11,901
Other Income	237	289	254	397	266	30	7	-	8	6
Total	980	23,842	14,707	5,040	11,112	17,789	15,940	3,673	13,464	16,240
Deductions by Type										
Benefits										
Member	5,129	4,710	4,084	3,452	2,817	2,633	2,321	1,876	1,508	1,091
Beneficiary	345	345	260	260	274	199	199	135	135	135
Refunds	64	120	72	75	63	84	109	38	38	38
Other Expenses	5	5	6	5	1	-	-	-	-	-
Administrative Expenses	141	131	112	91	87	97	67	53	33	28
Total	5,684	5,311	4,534	3,883	3,242	3,013	2,696	2,102	1,714	1,292
Change in Plan Net Position	-4,704	18,531	10,173	1,157	7,870	14,776	13,244	1,571	11,750	14,948

Note: Amounts in Thousands

Changes in Fiduciary Net Position

Judicial Pension Plan										
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions(Deletions) by Source										
Employee Contributions	611	604	589	585	583	551	345	429	422	409
Employer Contributions	960	949	926	921	917	866	610	675	663	643
Investment Income(loss)	-1,039	3,549	1,679	-228	1,027	2,432	2,137	-175	1,748	2,330
Other Income	-	-	-	-	-	-	-	-	-	1
Total	532	5,102	3,194	1,278	2,527	3,849	3,092	929	2,833	3,383

Deductions by Type										
Benefits										
Member	1,332	1,078	892	843	687	608	544	544	557	573
Beneficiary	123	89	89	89	89	67	67	67	67	-
Refunds	-	-	-	-	-	-	98	-	-	-
Other Expenses	1	2	1	1	-	-	-	-	-	-
Administrative Expenses	28	25	22	18	17	17	14	9	6	5
Total	1,484	1,194	1,004	951	793	692	723	620	630	578

Change in Plan Net Position	-952	3,908	2,190	327	1,734	3,157	2,369	309	2,203	2,805
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Note: Amounts in Thousands

Law Enforcement Pension Plan										
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions(Deletions) by Source										
Employee Contributions	\$13,482	\$13,285	\$13,460	\$14,569	\$13,314	\$13,044	\$12,964	\$12,839	\$12,811	\$11,868
Employer Contributions	13,471	13,320	13,454	12,468	13,308	13,009	12,972	12,826	12,752	11,295
Investment Income(loss)	-22,169	77,947	37,783	-5,372	24,588	59,946	53,843	-4,747	44,882	60,764
Other Income	674	701	1,258	1,068	803	550	392	671	415	484
Total	5,458	105,253	65,955	22,733	52,013	86,549	80,171	21,589	70,860	84,411

Deductions by Type										
Benefits										
Member	29,828	27,550	26,002	23,912	21,650	20,036	18,418	16,718	14,863	13,353
Beneficiary	2,186	2,072	1,872	1,547	1,560	1,256	1,220	1,135	948	884
Refunds	3,971	4,041	3,491	4,660	4,110	4,426	3,576	2,815	2,845	2,549
Other Expenses	25	52	26	25	6	-	-	-	-	-
Administrative Expenses	639	580	518	418	408	470	417	345	219	185
Total	36,649	34,295	31,909	30,562	27,734	26,188	23,631	21,013	18,875	16,971

Change in Plan Net Position	-\$31,190	\$70,958	\$34,046	-\$7,829	\$24,279	\$60,361	\$56,540	\$576	\$51,985	\$67,440
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Note: Amounts in Thousands

Changes in Fiduciary Net Position

Air Guard Firefighter Pension Plan										
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions(Deletions) by Source										
Employee Contributions	373	367	320	370	336	310	256	241	n/a	n/a
Employer Contributions	160	156	137	158	142	133	109	103	n/a	n/a
Investment Income	-254	902	431	-55	258	595	485	-223	n/a	n/a
Other Income	72	-	57	35	1	-	121	3,324	n/a	n/a
Total	351	1,425	945	508	737	1,038	971	3,445	n/a	n/a
Deductions by Type										
Benefits										
Member	385	351	291	168	120	74	43	37	n/a	n/a
Beneficiary	-	-	-	-	-	-	-	-	n/a	n/a
Refunds	214	40	412	21	7	14	-	-	n/a	n/a
Other Expenses	-	1	-	-	-	-	-	-	n/a	n/a
Administrative Expenses	7	6	6	5	4	5	3	3	n/a	n/a
Total	606	398	709	194	131	93	46	40	n/a	n/a
Change in Plan Net Position	-255	1,027	236	314	606	945	925	3,405	n/a	n/a

Note: Amounts in Thousands

n/a: The Wyoming Air Guard Firefighters Plan was separated from the Public Employees Pension Plan effective January 1, 2011.

Deferred Compensation 457 Plan										
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Additions(Deletions) by Source										
Contributions	\$45,945	\$45,366	\$42,431	\$41,043	\$39,589	\$41,338	\$37,539	\$37,005	\$35,881	\$33,063
Investment Income	-27,870	78,394	36,980	-3,504	24,077	59,382	35,654	978	31,263	40,535
Other Income	-	-4	99	177	146	148	210	195	175	113
Total	18,075	123,756	79,510	37,716	63,812	100,868	73,403	38,178	67,319	73,711
Deductions by Type										
Benefits	39,783	34,399	30,786	33,788	28,231	27,992	22,972	18,237	18,430	12,442
Administrative Expenses	814	871	802	682	856	848	854	794	741	578
Total	40,597	35,270	31,588	34,470	29,087	28,840	23,826	19,031	19,171	13,020
Change in Plan Net Position	-\$22,523	\$88,486	\$47,922	\$3,246	\$34,725	\$72,028	\$49,577	\$19,147	\$48,148	\$60,691

Note: Amounts in Thousands

Schedule of Monthly Benefit Payments

Public Employees Pension Plan								
	Years of Service							
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
2018								
Number	1,053	4,066	3,939	3,666	3,540	3,975	3,462	1,542
Average Benefit	\$230	\$427	\$766	\$1,183	\$1,738	\$2,477	\$3,299	\$4,340
Ave Final Ave Salary:	\$51,529							
2017								
Number	1,046	3,942	3,776	3,571	3,410	3,838	3,365	1,408
Average Benefit	\$224	\$420	\$751	\$1,155	\$1,713	\$2,452	\$3,263	\$4,263
Ave Final Ave Salary:	\$82,083							
2016								
Number	1,037	3,794	3,621	3,459	3,305	3,684	3,232	1,264
Average Benefit	\$217	\$411	\$735	\$1,125	\$1,682	\$2,419	\$3,228	\$4,178
Ave Final Ave Salary:	\$51,594							
2015								
Number	1,023	3,667	3,483	3,366	3,199	3,519	3,054	1,121
Average Benefit	\$225	\$401	\$717	\$1,105	\$1,643	\$2,385	\$3,178	\$4,072
Ave Final Ave Salary:	\$52,242							
2014								
Number	983	3,519	3,362	3,259	3,090	3,384	2,904	1,016
Average Benefit	\$215	\$396	\$704	\$1,085	\$1,603	\$2,347	\$3,120	\$3,970
Ave Final Ave Salary:	\$51,374							
2013								
Number	994	3,385	3,236	3,184	2,974	3,208	2,721	882
Average Benefit	\$271	\$382	\$680	\$1,063	\$1,571	\$2,301	\$3,066	\$3,870
Ave Final Ave Salary	\$51,586							
2012								
Number	964	3,173	3,119	3,078	2,808	3,074	2,548	778
Average Benefit	\$191	\$373	\$660	\$1,038	\$1,521	\$2,266	\$3,010	\$3,752
Ave Final Ave Salary	\$51,085							
2011								
Number	945	3,042	3,042	3,004	2,690	2,917	2,341	692
Average Benefit	\$191	\$362	\$643	\$1,016	\$1,477	\$2,214	\$2,942	\$3,666
Ave Final Ave Salary	\$49,951							
2010								
Number	904	2,938	2,945	2,924	2,578	2,730	2,158	627
Average Benefit	\$178	\$356	\$630	\$991	\$1,442	\$2,162	\$2,859	\$3,535
Ave Final Ave Salary:	\$49,426							
2009								
Number	881	2,863	2,904	2,864	2,465	2,528	1,993	569
Average Benefit	\$177	\$352	\$620	\$971	\$1,402	\$2,092	\$2,808	\$3,434
Ave Final Ave Salary	Final Average Salary not available before 2010							

Schedule of Monthly Benefit Payments

State Highway Patrol, Game & Fish Warden and Criminal Investigator Pension Plan								
	Years of Service							
2018	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	6	36	26	36	55	60	43	13
Average Benefit	\$1,749	\$1,648	\$2,307	\$2,284	\$2,694	\$3,383	\$4,056	\$4,139
Ave Final Ave Salary:	\$82,786							
2017	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	6	36	26	33	52	59	42	13
Average Benefit	\$1,749	\$1,563	\$2,252	\$2,219	\$2,621	\$3,337	\$4,051	\$4,139
Ave Final Ave Salary:	\$82,463							
2016	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	6	33	26	32	53	56	43	13
Average Benefit	\$1,749	\$1,484	\$2,252	\$2,066	\$2,511	\$3,174	\$3,996	\$4,116
Ave Final Ave Salary:	\$85,169							
2015	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	6	33	24	29	53	55	43	12
Average Benefit	\$1,749	\$1,476	\$2,344	\$1,919	\$2,440	\$3,149	\$3,851	\$3,997
Ave Final Ave Salary:	\$83,862							
2014	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	6	28	20	28	56	55	40	12
Average Benefit	\$1,923	\$1,552	\$2,239	\$1,924	\$2,370	\$2,985	\$3,648	\$3,997
Ave Final Ave Salary:	\$75,038							
2013	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	5	27	15	27	53	56	43	10
Average Benefit	\$1,377	\$1,538	\$2,155	\$1,844	\$2,310	\$2,860	\$3,602	\$4,041
Ave Final Ave Salary	\$74,889							
2012	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	5	24	13	27	53	56	42	10
Average Benefit	\$1,377	\$1,381	\$1,962	\$1,844	\$2,247	\$2,767	\$3,533	\$4,041
Ave Final Ave Salary	\$81,610							
2011	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	5	23	13	27	54	56	40	10
Average Benefit	\$1,377	\$1,378	\$1,962	\$1,761	\$2,187	\$2,686	\$3,372	\$4,041
Ave Final Ave Salary	\$77,942							
2010	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	21	11	27	51	57	36	10
Average Benefit	\$1,673	\$1,259	\$1,838	\$1,768	\$2,095	\$2,576	\$3,248	\$4,041
Ave Final Ave Salary:	\$91,818							
2009	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	21	11	28	50	56	31	9
Average Benefit	\$1,673	\$1,259	\$1,838	\$1,667	\$1,989	\$2,486	\$2,846	\$3,918
Ave Final Ave Salary	Average Final Average Salary not available before 2010							

Schedule of Monthly Benefit Payments

Volunteer Firefighter & EMT Pension Plan								
	Years of Service							
2018	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	5	109	217	199	270	246	147	45
Average Benefit	\$193	\$140	\$217	\$305	\$398	\$487	\$567	\$654
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							
2017	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	5	97	212	201	263	231	137	37
Average Benefit	\$217	\$142	\$217	\$305	\$396	\$483	\$563	\$612
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							
2016	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	6	91	211	195	258	216	129	34
Average Benefit	\$219	\$144	\$218	\$305	\$395	\$482	\$562	\$608
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							
2015	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	6	83	214	199	255	200	115	18
Average Benefit	\$219	\$148	\$219	\$305	\$396	\$483	\$565	\$653
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							
2014	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	61	71	199	190	225	168	104	22
Average Benefit	\$288	\$158	\$205	\$257	\$315	\$388	\$462	\$474
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							
2013	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	69	67	192	195	216	152	87	12
Average Benefit	\$275	\$161	\$208	\$258	\$316	\$391	\$466	\$547
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							
2012	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	69	67	190	186	199	135	76	9
Average Benefit	\$276	\$164	\$209	\$260	\$318	\$394	\$467	\$547
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							
2011	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	61	68	187	179	179	106	63	8
Average Benefit	\$287	\$176	\$212	\$261	\$318	\$393	\$468	\$555
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							
2010	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	62	68	181	164	169	91	51	7
Average Benefit	\$291	\$177	\$213	\$262	\$317	\$400	\$469	\$551
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							
2009	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	63	66	180	159	139	80	42	5
Average Benefit	\$289	\$179	\$214	\$264	\$320	\$404	\$469	\$564
Ave Final Ave Salary:	Benefits In This Plan Not Based on Salary							

Note: Data prior to 2015 is estimated from the consolidation of the predecessor Volunteer Firefighter's Pension Plan and Volunteer Emergency Medical Technician Pension Plan.

Schedule of Monthly Benefit Payments

Paid Firemen's Pension Plan A								
	Years of Service							
2018	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	0	1	14	9	112	49	21	5
Average Benefit	\$0	\$2,005	\$2,701	\$4,295	\$4,715	\$5,655	\$5,847	\$6,157
Ave Final Ave Salary:	n/a							
2017	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	0	1	14	9	116	49	20	5
Average Benefit	\$0	\$1,947	\$2,622	\$4,170	\$4,583	\$5,479	\$5,707	\$5,977
Ave Final Ave Salary:	n/a							
2016	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	0	1	14	9	118	50	21	4
Average Benefit	\$0	\$1,890	\$2,546	\$4,048	\$4,452	\$5,304	\$5,610	\$5,943
Ave Final Ave Salary:	n/a							
2015	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	0	1	14	9	120	51	21	4
Average Benefit	\$0	\$1,835	\$2,472	\$3,931	\$4,328	\$5,170	\$5,453	\$5,770
Ave Final Ave Salary:	\$83,862							
2014	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	13	1	16	11	121	49	18	3
Average Benefit	\$4,389	\$1,782	\$2,422	\$3,777	\$4,196	\$5,077	\$5,343	\$5,629
Ave Final Ave Salary:	\$75,038							
2013	0 - 4	9-May	14-Oct	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Average Benefit	\$4,261	\$1,730	\$2,244	\$3,667	\$4,083	\$4,914	\$5,188	\$5,465
Ave Final Ave Salary	\$74,889							
2012	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	9	1	18	11	134	51	19	3
Average Benefit	\$3,827	\$1,680	\$2,178	\$3,560	\$3,960	\$4,752	\$5,051	\$5,306
Ave Final Ave Salary	\$81,610							
2011	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	9	1	16	11	136	53	19	3
Average Benefit	\$3,703	\$1,631	\$2,173	\$3,456	\$3,851	\$4,614	\$4,904	\$5,151
Ave Final Ave Salary	\$77,942							
2010	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	9	1	16	12	142	53	20	4
Average Benefit	\$3,595	\$1,583	\$2,110	\$3,396	\$3,742	\$4,480	\$4,751	\$5,104
Ave Final Ave Salary:	\$91,818							
2009	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	9	2	14	12	144	55	17	3
Average Benefit	\$3,490	\$1,227	\$2,085	\$3,297	\$3,635	\$4,335	\$4,421	\$4,516
Ave Final Ave Salary	Average Final Average Salary not available before 2010							

Schedule of Monthly Benefit Payments

Paid Firemen's Pension Plan B								
	Years of Service							
2018	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	8	12	15	25	52	8	-
Average Benefit	\$1,667	\$1,721	\$1,809	\$2,433	\$3,691	\$4,509	\$4,608	-
Ave Final Ave Salary:	\$84,821							
2017	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	7	11	14	22	49	8	-
Average Benefit	\$1,667	\$1,752	\$1,787	\$2,384	\$3,615	\$4,476	\$4,608	-
Ave Final Ave Salary:	\$87,557							
2016	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	5	10	14	22	43	7	-
Average Benefit	\$1,667	\$1,762	\$1,670	\$2,384	\$3,615	\$4,417	\$4,549	-
Ave Final Ave Salary:	\$83,403							
2015	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	5	8	12	15	39	7	-
Average Benefit	\$1,667	\$1,762	\$1,662	\$2,347	\$3,176	\$4,357	\$4,549	-
Ave Final Ave Salary:	\$91,091							
2014	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	5	8	11	12	35	4	-
Average Benefit	\$1,667	\$1,762	\$1,662	\$2,231	\$2,754	\$4,268	\$4,503	-
Ave Final Ave Salary:	\$83,778							
2013	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	4	7	11	12	31	4	-
Average Benefit	\$1,667	\$1,586	\$1,761	\$2,015	\$2,754	\$4,112	\$4,458	-
Ave Final Ave Salary	\$75,091							
2012	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	4	7	8	12	29	2	-
Average Benefit	\$1,667	\$1,586	\$1,761	\$1,895	\$2,883	\$4,101	\$4,494	-
Ave Final Ave Salary	\$66,398							
2011	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	4	4	6	8	12	27	-	-
Average Benefit	\$1,667	\$1,583	\$1,883	\$1,895	\$2,883	\$4,115	-	-
Ave Final Ave Salary	\$70,181							
2010	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	3	3	5	7	10	21	-	-
Average Benefit	\$1,532	\$1,047	\$1,983	\$1,860	\$2,703	\$3,946	-	-
Ave Final Ave Salary:	\$68,396							
2009	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	3	1	5	7	8	15	-	-
Average Benefit	\$1,532	\$1,484	\$1,983	\$1,860	\$2,673	\$3,879	-	-
Ave Final Ave Salary	Average Final Average Salary not available before 2010							

Schedule of Monthly Benefit Payments

Judicial Pension Plan								
	Years of Service							
2018	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	1	5	9	6	1	-	-
Average Benefit	-	\$3,783	\$3,643	\$6,438	\$6,010	\$5,950	-	-
Ave Final Ave Salary:	No New Retirees in 2017							
2017	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	1	5	6	6	1	-	-
Average Benefit	-	\$3,783	\$3,850	\$5,826	\$6,010	\$5,950	-	-
Ave Final Ave Salary:	No New Retirees in 2017							
2016	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	1	4	4	5	1	-	-
Average Benefit	-	\$3,783	\$3,633	\$5,391	\$5,706	\$5,950	-	-
Ave Final Ave Salary:	No New Retirees in 2016							
2015	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	1	4	4	5	1	-	-
Average Benefit	-	\$3,783	\$3,633	\$5,391	\$5,706	\$5,950	-	-
Ave Final Ave Salary:	\$155,143							
2014	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	1	3	3	5	1	-	-
Average Benefit	-	\$3,783	\$2,972	\$4,879	\$5,706	\$5,950	-	-
Ave Final Ave Salary:	No New Retirees in 2014							
2013	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	2	3	5	1	-	-
Average Benefit	-	-	\$2,801	\$4,879	\$5,706	\$5,950	-	-
Ave Final Ave Salary	\$120,159							
2012	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	1	3	4	1	-	-
Average Benefit	-	-	\$3,014	\$4,879	\$5,425	\$5,950	-	-
Ave Final Ave Salary	No New Retirees in 2012							
2011	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	1	3	4	1	-	-
Average Benefit	-	-	\$3,014	\$4,879	\$5,425	\$5,950	-	-
Ave Final Ave Salary	No New Retirees in 2011							
2010	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	1	3	4	1	-	-
Average Benefit	-	-	\$3,014	\$4,879	\$5,425	\$5,950	-	-
Ave Final Ave Salary:	\$119,108							
2009	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	1	3	4	2	-	-
Average Benefit	-	-	\$3,014	\$4,926	\$5,425	\$5,960	-	-
Ave Final Ave Salary	No New new retirees in 2009							

Schedule of Monthly Benefit Payments

Law Enforcement Pension Plan								
	Years of Service							
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
2018								
Number	143	125	138	108	404	153	63	10
Average Benefit	\$1,865	\$915	\$1,713	\$1,881	\$2,438	\$3,225	\$3,718	\$4,001
Ave Final Ave Salary:	\$65,865							
2017								
Number	147	118	132	100	373	143	57	6
Average Benefit	\$1,863	\$890	\$1,674	\$1,853	\$2,404	\$3,150	\$3,774	\$3,787
Ave Final Ave Salary:	\$62,802							
2016								
Number	148	113	115	94	357	135	55	6
Average Benefit	\$1,872	\$905	\$1,651	\$1,827	\$2,378	\$3,051	\$3,785	\$3,787
Ave Final Ave Salary:	\$61,349							
2015								
Number	151	102	107	91	334	122	47	5
Average Benefit	\$1,861	\$902	\$1,630	\$1,819	\$2,352	\$3,013	\$3,750	\$3,878
Ave Final Ave Salary:	\$61,426							
2014								
Number	151	93	101	82	309	111	41	3
Average Benefit	\$1,907	\$944	\$1,634	\$1,780	\$2,319	\$2,953	\$3,707	\$3,777
Ave Final Ave Salary:	\$57,765							
2013								
Number	155	83	78	78	281	106	37	3
Average Benefit	\$1,893	\$906	\$1,536	\$1,752	\$2,292	\$2,892	\$3,722	\$3,524
Ave Final Ave Salary	\$58,151							
2012								
Number	157	75	70	73	252	96	33	2
Average Benefit	\$1,885	\$909	\$1,527	\$1,762	\$2,254	\$2,835	\$3,744	\$3,105
Ave Final Ave Salary	\$58,829							
2011								
Number	158	70	64	70	235	88	29	2
Average Benefit	\$1,872	\$911	\$1,530	\$1,777	\$2,224	\$2,786	\$3,705	\$3,105
Ave Final Ave Salary	\$57,577							
2010								
Number	155	57	55	61	203	82	25	-
Average Benefit	\$1,891	\$967	\$1,495	\$1,681	\$2,170	\$2,782	\$3,670	-
Ave Final Ave Salary:	\$57,362							
2009								
Number	155	48	46	60	182	74	19	-
Average Benefit	\$1,872	\$832	\$1,531	\$1,690	\$2,127	\$2,673	\$3,545	-
Ave Final Ave Salary	No New new retirees in 2009							

Schedule of Monthly Benefit Payments

Air Guard Firefighter Pension Plan								
	Years of Service							
2018	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	-	3	6	2	-	-
Average Benefit	-	-	-	*	\$2,892	*	-	-
Ave Final Ave Salary:	\$56,838							
2017	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	-	3	5	2	-	-
Average Benefit	-	-	-	*	\$3,010	*	-	-
Ave Final Ave Salary:	\$89,657							
2016	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	-	2	5	2	-	-
Average Benefit	-	-	-	*	\$3,010	*	-	-
Ave Final Ave Salary:	\$75,026							
2015	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	-	2	4	-	-	-
Average Benefit	-	-	-	*	\$2,955	-	-	-
Ave Final Ave Salary:	\$62,088							
2014	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	-	2	3	-	-	-
Average Benefit	-	-	-	*	*	-	-	-
Ave Final Ave Salary:	\$59,799							
2013	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	-	1	2	-	-	-
Average Benefit	-	-	-	*	*	-	-	-
Ave Final Ave Salary	\$93,530							
2012	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	-	1	1	-	-	-
Average Benefit	-	-	-	*	*	-	-	-
Ave Final Ave Salary	No New Retirees in 2012							
2011	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	-	1	1	-	-	-
Average Benefit	-	-	-	*	*	-	-	-
Ave Final Ave Salary	No New Retirees in 2011							
2010	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	Over 34
Number	-	-	-	1	1	-	-	-
Average Benefit	-	-	-	*	*	-	-	-
Ave Final Ave Salary:	\$20,065							

Note: Data was not available for this plan until 2010, as the plan had been included in the Public Employees Pension Plan

***: Average benefit is not shown for cells with less than or equal to three participants**

Pensions In Force

Public Employees Pension Plan			
Pensions In Force as of December 31, 2018			
By Monthly Amount		By Nearest Age	
Under \$ 200	1,634	Under 50	64
\$ 200 - \$ 399	3,061	50 - 54	123
\$ 400 - \$ 599	2,810	55 - 59	950
\$ 600 - \$ 799	2,291	60 - 64	4,087
\$ 800 - \$ 999	1,991	65 - 69	6,920
\$ 1,000 - \$ 1,499	3,865	70 - 74	6,173
\$ 1,500 - \$ 1,999	2,821	75 - 79	4,176
\$ 2,000 - \$ 2,499	2,441	80 - 84	2,796
\$ 2,500 & Over	6,868	85 & Over	2,493
Total	26,808	Total	26,808

Pensions By Payout Option							Count Elect- ed Self-Funded COLA**		
	Number			Monthly Benefit			1%	2%	3%
	Male	Female	Total	Male	Female	Total			
Pensioners:									
Option 1	2,126	6,613	8,739	\$3,756,107	\$9,517,060	\$13,273,167	29	19	32
Option 2	4,589	3,488	8,077	9,834,531	5,740,512	\$15,575,043	19	19	32
Option 3	488	559	1,047	1,166,102	932,463	\$2,098,565	3	3	1
Option 4a	323	581	904	505,082	799,110	\$1,304,192	4	-	6
Option 4b	50	77	127	85,425	111,573	\$196,998	4	4	3
Option 5	513	1,505	2,018	798,433	1,948,937	\$2,747,370	9	8	7
Option 2P	1,440	1,995	3,435	2,666,411	3,591,478	\$6,257,889	9	14	17
Option 3P	303	593	896	735,668	1,255,949	\$1,991,617	4	5	7
Total	9,832	15,411	25,243	\$19,547,759	\$23,897,082	\$43,444,841	81	72	105
Beneficiaries	574	1,965	2,539	624,737	2,474,757	\$3,099,494	-	-	-
Total	10,406	17,376	27,782	\$20,172,496	\$26,371,839	\$46,544,335	81	72	105

** Option totals in left portion of the table include these counts of members who elected a self-funded COLA option.

Option 1 - Provides a lifetime benefit as calculated in the formula. Upon the retiree's death, the beneficiary would receive a lump-sum payment of any remaining contributions and interest in the account.

Option 2 - Full joint and survivor benefit. Based on both the life expectancy of the retiree and beneficiary. When the retiree dies, the beneficiary receives the same benefit payment for the remainder of their life.

Option 2P - Full joint and survivor benefit with pop-up provision. Based on both the life expectancy of the retiree and beneficiary. When the retiree dies, the beneficiary receives the same benefit payment for the remainder of their life. If the beneficiary dies first, the benefit pops-up to Option 1.

Option 3 - ½ joint and survivor benefit. Based on both the life expectancy of the retiree and beneficiary. When the retiree dies, the beneficiary receives one half the monthly benefit payment for the remainder of their life.

Option 3P - ½ joint and survivor benefit. Based on both the life expectancy of the retiree and beneficiary. When the retiree dies, the beneficiary receives one half the monthly benefit payment for the remainder of their life. If the beneficiary dies first, the benefit pops-up to Option 1.

Option 4a - Ten Year Certain Benefit. Based on the age of the retiree. If the retiree dies before receiving the benefit for 10 years, the beneficiary would receive the allowance for the balance of the 10-year period.

Option 4b - Twenty Year Certain Benefit. Based on the age of the retiree. If the retiree dies before receiving the benefit for 20 years, the beneficiary would receive the allowance for the balance of the 20-year period.

Option 5 - Lifetime benefit with no beneficiary. Payable during the retiree's lifetime with no provision for any beneficiary payment after the retiree's death.

Pensions In Force

Pensions Awarded During 2018

	Total	Option 1	Option 2	Option 2P	Option 3	Option 3P	Option 4	Option 5
Under \$200	78	24	15	10	0	2	4	23
\$200 - \$399	147	62	24	16	2	1	6	36
\$400 - \$599	165	58	33	22	2	5	9	36
\$600 - \$799	143	49	29	14	5	4	8	34
\$800 - \$999	132	48	32	15	3	3	7	24
\$1,000 - \$1,499	269	100	43	32	8	8	16	62
\$1,500 - \$1,999	180	62	60	19	2	2	5	30
\$2,000 - \$2,499	156	51	45	19	2	4	4	31
\$2,500 & Over	516	149	197	72	14	14	9	61
Total	1,786	603	478	219	38	43	68	337

State Highway Patrol, Game and Fish Warden, and Criminal Investigator Pension Plan

Pensions In Force as of December 31, 2018

By Monthly Amount		By Nearest Age	
Under \$ 200	1	Under 50	12
\$ 200 - \$ 399	3	50 - 54	30
\$ 400 - \$ 599	9	55 - 59	37
\$ 600 - \$ 799	18	60 - 64	64
\$ 800 - \$ 999	11	65 - 69	69
\$ 1,000 - \$ 1,499	53	70 - 74	43
\$ 1,500 - \$ 1,999	38	75 - 79	37
\$ 2,000 - \$ 2,499	48	80 - 84	25
\$ 2,500 & Over	159	85 & Over	23
Total	340	Total	340

Volunteer Firefighter & EMT Pension Plan

Pensions In Force as of December 31, 2018

By Monthly Amount		By Nearest Age	
Under \$ 50	0	Under 60	0
\$ 50 - \$ 99	15	60 - 64	303
\$100 - \$149	54	65 - 69	377
\$150 - \$199	96	70 - 74	260
\$200 - \$249	154	75 - 79	158
\$250 - \$299	99	80 & Over	140
\$300 - \$349	116		
\$350 - \$399	135		
\$400 & Over	569		
Total	1,238	Total	1,238

Paid Firefighter Pension Plan A

Pensions In Force as of December 31, 2018

By Monthly Amount		By Nearest Age	
Under \$ 200	0	Under 50	0
\$ 200 - \$ 399	1	50 - 54	1
\$ 400 - \$ 599	0	55 - 59	12
\$ 600 - \$ 799	0	60 - 64	65
\$ 800 - \$ 999	1	65 - 69	51
\$ 1,000 - \$ 1,499	3	70 - 74	47
\$ 1,500 - \$ 1,999	0	75 - 79	36
\$ 2,000 - \$ 2,499	12	80 - 84	30
\$ 2,500 & Over	259	85 & Over	34
Total	276	Total	276

Paid Firefighter Pension Plan B

Pensions In Force as of December 31, 2018

By Monthly Amount		By Nearest Age	
Under \$ 200	0	Under 50	8
\$200-\$399	0	50 - 54	25
\$400-\$599	1	55 - 59	42
\$600-\$799	1	60 - 64	43
\$800-\$999	2	65 - 69	15
\$1,000-\$1,499	9	70 - 74	3
\$1,500-\$1,999	13	75 - 79	1
\$2,000-\$2,499	18	80 - 84	0
\$ 2,500 & Over	93	85 & Over	0
Total	137	Total	137

Pensions In Force

Judicial Pension Plan			
Pensions In Force as of December 31, 2018			
By Monthly Amount		By Nearest Age	
Under \$ 200	0	Under 50	0
\$200-\$399	0	50 - 54	0
\$400-\$599	0	55 - 59	0
\$600-\$799	0	60 - 64	0
\$800-\$999	0	65 - 69	4
\$1,000-\$1,499	0	70 - 74	1
\$1,500-\$1,999	0	75 - 79	0
\$2,000-\$2,499	0	80 - 84	0
\$2,500 & Over	5	85 & Over	0
Total	5	Total	5

Law Enforcement Pension Plan			
Pensions In Force as of December 31, 2018			
By Monthly Amount		By Nearest Age	
Under \$ 200	2	Under 50	22
\$ 200 - \$ 399	1	50 - 54	18
\$ 400 - \$ 599	4	55 - 59	14
\$ 600 - \$ 799	2	60 - 64	17
\$ 800 - \$ 999	2	65 - 69	13
\$ 1,000 - \$ 1,499	8	70 - 74	2
\$ 1,500 - \$ 1,999	7	75 - 79	2
\$ 2,000 - \$ 2,499	11	80 - 84	1
\$ 2,500 & Over	52	85 & Over	0
Total	89	Total	89

Air Guard Firefighter Pension Plan			
Pensions In Force as of December 31, 2018			
By Monthly Amount		By Nearest Age	
Under \$ 200	0	Under 50	0
\$ 200 - \$ 399	0	50 - 54	0
\$ 400 - \$ 599	0	55 - 59	1
\$ 600 - \$ 799	0	60 - 64	0
\$ 800 - \$ 999	0	65 - 69	0
\$ 1,000 - \$ 1,499	0	70 - 74	0
\$ 1,500 - \$ 1,999	0	75 - 79	0
\$ 2,000 - \$ 2,499	0	80 - 84	0
\$ 2,500 & Over	1	85 & Over	0
Total	1	Total	1

Member and Benefit Recipient Statistics

Member and Benefit Recipient Statistics								
	Public Employees	Warden & Patrol	Volunteer Firefighter & EMT's	Paid Firemen Plan A	Paid Firemen Plan B	Judicial Plan	Law Enforcement	Air Guard Firefighters
Active Members – 12/31/2018	34,873	304	2,347	1	365	47	2,662	41
Retirement Benefits:								
Total receiving retirement benefits on December 31, 2017	26,808	330	1,433	281	128	22	1,202	10
Total added to rolls in 2018	1,786	14	101	4	12	5	89	1
Total removed from rolls in 2018	812	4	39	9	3	1	17	0
Total receiving retirement benefits - December 31, 2018	27,782	340	1,495	276	137	26	1,274	11
Total paid in retirement benefits in 2018 (amounts in millions)	\$558.5	\$10.4	\$6.2	\$15.9	\$5.7	\$1.5	\$33.1	\$0.4
Average monthly benefit	\$1,675	\$2,560	\$347	\$4,801	\$3,438	\$5,084	\$2,164	\$2,972

Active Membership

Public Employee Plan Active Membership by Year										
	2018	Total	2017	Total	2016	Total	2015	Total	2014	Total
State	7,542	22%	7,616	22%	7,681	20%	7,762	20%	7,866	21%
University	1,065	3%	1,017	3%	1,074	3%	1,174	3%	1,155	3%
Community Colleges	1,237	4%	1,360	4%	1,321	4%	1,350	4%	1,322	4%
Schools	18,048	52%	17,584	50%	18,369	50%	18,438	50%	18,230	50%
Counties	2,467	7%	2,436	7%	2,491	7%	2,583	7%	2,576	7%
Libraries	403	1%	396	1%	403	1%	434	1%	426	1%
Cities & Towns	2,418	7%	2,412	7%	2,465	7%	2,580	7%	2,525	7%
Weed & Pest	103	0%	86	0%	105	0%	117	0%	118	0%
Irrigation Districts	67	0%	64	0%	70	0%	65	0%	68	0%
Others	1,523	4%	2,042	6%	1,913	7%	2,074	7%	2,203	7%
Totals	34,873	100%	35,013	100%	35,892	100%	36,577	100%	36,489	100%

	2013	Total	2012	Total	2011	Total	2010	Total	2009	Total
State	7,830	21%	7,926	22%	8,001	22%	8,011	22%	8,022	23%
University	1,113	3%	1,099	3%	1,085	3%	1,075	3%	1,083	3%
Community Colleges	1,334	4%	1,336	4%	1,322	4%	1,285	4%	1,266	4%
Schools	18,023	50%	17,735	49%	17,622	49%	17,366	48%	17,369	49%
Counties	2,518	7%	2,498	7%	2,436	7%	2,336	7%	2,206	6%
Libraries	446	1%	443	1%	440	1%	444	1%	467	1%
Cities & Towns	2,495	7%	2,469	7%	2,397	7%	2,402	7%	2,540	7%
Weed & Pest	109	0%	107	0%	103	0%	96	0%	99	0%
Irrigation Districts	66	0%	70	0%	57	0%	55	0%	56	0%
Others	2,420	7%	2,761	7%	2,607	7%	2,758	8%	2,485	7%
Totals	36,354	100%	36,444	100%	36,070	100%	35,828	100%	35,593	100%

Public Employee Plan Active Membership by Age and Years of Service								
Age Last Birthday	Years of Service							
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30 Plus	Total
Less - 20	60	0	0	0	0	0	0	60
20 – 24	940	6	0	0	0	0	0	946
25 – 29	2,211	388	4	0	0	0	0	2603
30 – 34	2,070	1,385	307	6	0	0	0	3768
35 – 39	1,904	1,253	1005	191	0	0	0	4353
40 – 44	1,547	1,101	940	679	113	1	0	4381
45 – 49	1,271	956	883	658	539	118	2	4427
50 – 54	1,115	806	819	664	457	509	128	4498
55 – 59	985	716	867	730	574	484	460	4816
60 – 64	650	592	601	522	418	324	451	3558
65 - 69	239	194	191	144	110	85	142	1105
Over 70	120	63	50	48	12	19	46	358
Total	13,112	7,460	5,667	3,642	2,223	1,540	1,229	34,873

Average Age = 46.24

7,284

Average Service = 9.97

Affiliated Employers - Top Ten Largest Employers

The following schedules show the top ten largest employers within the Wyoming Retirement System for the last ten years.

12/31/2018			12/31/2009		
Public Employee Pension Plan	# of Employees	%	Public Employee Pension Plan	# of Employees	%
State of Wyoming	7,542	21.6%	State of Wyoming	8,022	22.5%
Natrona County School District # 1	2,145	6.2%	Natrona County School District # 1	2,273	6.4%
Laramie County School District # 1	2,345	6.7%	Laramie County School District # 1	2,226	6.3%
Campbell County School District	1,726	4.9%	Campbell County School District	1,631	4.6%
University of Wyoming	1,057	3.0%	University of Wyoming	1,083	3.0%
Sweetwater County School District # 1	939	2.7%	Sweetwater County School District # 1	994	2.8%
Albany County Schools	717	2.1%	Albany County School District	748	2.1%
Sheridan County School District # 2	588	1.7%	Sheridan County School District # 2	608	1.7%
Uinta County School District # 1	534	1.5%	Uinta County School District # 1	543	1.5%
Fremont County School District # 25	510	1.5%	Sweetwater County School District # 2	518	1.5%
All Others	16,770	48.1%	All Others	16,947	47.6%
Total	34,873	100.0%	Total	35,593	100.0%

12/31/2018			12/31/2009		
Warden, Patrol, & DCI Pension Plan	# of Employees	%	Warden, Patrol, & DCI Pension Plan	# of Employees	%
State of Wyoming	304	100.0%	State of Wyoming	320	100.0%
Total	304	100.0%	Total	320	100.0%

12/31/2018			12/31/2015		
Volunteer Firefighter & EMT Pension Plan	# of Employees	%	Volunteer Firefighter & EMT Pension Plan	# of Employees	%
Fremont County	140	8.3%	Fremont County	155	6.5%
Campbell County	78	4.6%	Campbell County	99	4.2%
Sublette County	77	4.6%	Sublette County	72	3.0%
Cody	68	4.0%	Cody	67	2.8%
Holly Frontier	52	3.1%	Jackson Hole Fire	61	2.6%
Jackson Hole Fire	51	3.0%	Sinclair Refinery	57	2.4%
Sinclair Refinery	50	3.0%	Holly frontier	53	2.2%
Riverton	50	3.0%	Powell	51	2.1%
Newcastle	47	2.8%	Lander	50	2.1%
Lander	46	2.7%	Riverton	50	2.1%
All Others	0	0.0%	All Others	1,664	69.9%
Total	1,688	39.0%	Total	2,379	100.0%

Note: Volunteer Firefighter & EMT Pension Plan Top ten information is not available before 2015.

Affiliated Employers - Top Ten Largest Employers

12/31/2018			12/31/2009		
Paid Firemen's Pension Plans A & B	# of Employees	%	Paid Firemen's Pension Plans A & B	# of Employees	%
City of Cheyenne	87	24.0%	City of Cheyenne	91	26.5%
City of Casper	72	19.8%	City of Casper	72	21.0%
City of Laramie	46	12.7%	City of Laramie	44	12.8%
City of Rock Springs	35	9.6%	City of Rock Springs	34	9.9%
Campbell County	22	6.1%	City of Sheridan	29	8.5%
Jackson/Teton County	22	6.1%	Campbell County	23	6.7%
Natrona County	20	5.5%	Natrona County	21	6.1%
City of Sheridan	16	4.4%	City of Rawlins	10	2.9%
City of Rawlins	11	3.0%	Natrona County Airport	7	2.0%
Town of Mills	8	2.2%	Uinta County	5	1.5%
All Others	24	6.6%	All Others	7	2.0%
Total	363	100.0%	Total	343	100.0%

12/31/2018			12/31/2009		
Judicial Pension Plan	# of Employees	%	Judicial Pension Plan	# of Employees	%
State of Wyoming	47	100.0%	State of Wyoming	39	100.0%
Total	47	100.0%	Total	39	100.0%

12/31/2018			12/31/2009		
Law Enforcement Pension Plan	# of Employees	%	Law Enforcement Pension Plan	# of Employees	%
State of Wyoming	673	25.3%	State of Wyoming	771	27.5%
Laramie County	147	5.5%	Laramie County	142	5.1%
Campbell County	128	4.8%	Campbell County	119	4.2%
Natrona County	114	4.3%	Natrona County	113	4.0%
City of Casper	110	4.1%	City of Casper	109	3.9%
City of Cheyenne	109	4.1%	City of Cheyenne	107	3.8%
Freemont County	77	2.9%	Sweetwater County	90	3.2%
Sweetwater County	71	2.7%	Freemont County	89	3.2%
Sublett County	65	2.4%	Sublett County	62	2.2%
City of Gillette	63	2.4%	City of Laramie	61	2.2%
All Others	1,105	41.5%	All Others	1,138	40.6%
Total	2,662	100.0%	Total	2,801	100.0%

12/31/2018			12/31/2010		
Air Guard Firefighters Pension Plan	# of Employees	%	Air Guard Firefighters Pension Plan	# of Employees	%
State of Wyoming	41	100.0%	State of Wyoming	24	100.0%
Total	41	100.0%	Total	24	100.0%

Note: Air Guard Firefighters Pension Plan Top ten information is not available before 2010.

Affiliated Employers - List of Employers By Plan

Public Employees Pension Plan			
Cities & Towns			
Afton	Dubois	LaGrange	Riverton
Alpine	East Thermopolis	Lander	Rock River
Baggs	Edgerton	Laramie	Rock Springs
Bairoil	Elk Mountain	Lingle	Rolling Hills
Bar Nunn	Encampment	Lovell	Saratoga
Basin	Evanston	Lusk	Sheridan
Bear River	Evansville	Lyman	Shoshoni
Big Piney	Fort Laramie	Marbleton	Sinclair
Buffalo	Frannie	Medicine Bow	Star Valley Ranch
Burns	Gillette	Meeteetse	Sundance
Byron	Glendo	Midwest	Ten Sleep
Casper	Glenrock	Mills	Thayne
Cheyenne	Green River	Moorcroft	Thermopolis
Chugwater	Greybull	Mountain View	Torrington
Cody	Guernsey	Newcastle	Upton
Cokeville	Hanna	Pine Bluffs	Wamsutter
Cowley	Hudson	Pine Haven	Wheatland
Deaver	Hulett	Pinedale	Worland
Diamondville	Jackson	Powell	Yoder
Dixon	Kaycee	Ranchester	
Douglas	Kemmerer	Rawlins	
Counties			
Albany	Fremont	Natrona	Teton
Big Horn	Goshen	Park	Uinta
Campbell	Hot Springs	Platte	Washakie
Carbon	Johnson	Sheridan	Weston
Converse	Laramie	Sublette	
Crook	Lincoln	Sweetwater	
Libraries			
Albany County	Goshen County	Natrona County	Sweetwater County
Carbon County	Hot Springs County	Park County	Teton County
Converse County	Johnson County	Platte County	Uinta County
Crook County	Laramie County	Sheridan County	Washakie County
Fremont County	Lincoln County	Sublette County	Weston County
University & Colleges			
Casper College	Eastern Wyoming College	Northern Wyoming College	University of Wyoming
Central Wyoming College	Laramie County Community College	Northwest College	Western Wyoming College
Irrigation Districts			
Big Horn Canal	Goshen	La Prelle	Wheatland
Cody Canal	Hanover	Lakeview	Willwood
Deaver	Heart Mountain	Shoshone	

Affiliated Employers - List of Employers By Plan

Public Employees Pension Plan (Cont)			
Other Special Districts			
Afton/Lincoln County Airport	Children's Learning Center	Goshen County Senior Friendship Center	Natrona County Airport
Albany County Fair Board	City of Cheyenne-Laramie County Health Board	Green River/RS Joint Powers	Natrona County Conservation District
Albany County SAFE Project	Community Action Partnership/ Natrona County	Greybull Recreation District	Natrona County Fair
Ark Regional Services	Converse County Aging Service	High Country Behavioral Health	Natrona County Health Department
Baggs Solid Waste	Converse County Airport	High Country Joint Powers	Niobrara County Hospital District
Basin Authority Child Support	Converse County Conservation District	HOPE Agency Inc, Hot Springs Crisis Line	North Platte Valley Conservation District
Big Horn County Solid Waste District	Converse County Senior Housing	Hot Springs County Cemetery District	Northern Wyoming Mental Health
Big Horn Enterprises	Converse Hope Center	Hot Springs County Senior Citizens Center	Northwest Rural Water District
Big Horn Regional Joint Powers Board	Crisis Intervention Services	Jackson Hole Airport Board	Park County Drug Court
Big Piney Cemetery District	Crisis Prevention & Response Center	Jamestown Rio Vista Water Sever District	Park County Museum
Board of Public Utilities	Crook County Fair	Jim Gatchell Memorial Museum	Pinedale Aquatic Center
Bridger Valley Joint Powers	Crook County Museum	Johnson County Fair Board	Pipeline Authority
Byron Solid Waste	Crook County Natural Resource District	Johnson County Solid Waste	Platte County Fair Board
Campbell County Cemetery District	Crown Hill Cemetery District	Kemmerer Diamondville Joint Power Board	Platte County Housing Authority
Campbell County Conservation District	Deaver-Frannie Cenetry District	Kemmerer Senior Citizens	Platte County Resource District
Campbell County Fire Department (Admin Personnel)	Dubois-Crowheart Conservation District	Lake Desmet Conserv. District	Popo Agie Conservation District
Campbell County Public Land Dbas Cam-plex	Eastern Laramie County Solid Waste District	Lander Senior Citizens	Powell Recreation District
Campbell County Senior Center	Eppson Center For Seniors	Laramie County Conservation	Rendezvous Pointe
Carbon County Senior Service	Evanston Housing Authority	Laramie County Fair Board	Renew
Carbon County COVE	Evanston Parks & Recreation	Laramie Regional Airport	Riverside Cemetery District
Central Wyoming Counseling Center	Fremont County Fair Board	Laramie Rivers Conservation District	Rock Springs/Green River Sweetwater Co
Central Wyoming Senior Services	Fremont County Museum	Lincoln County Fair Board	Rock Springs/Sweetwater County Airport
Cheyenne Housing Authority	Fremont County Solid Waste	Little Snake River Conservation District	Saratoga-Encampment-Rawlins Conservation
Cheyenne Regional Airport Board	Glenrock Area Solid Waste Disposal District	Local Government Liability Pool	Self Help Center
Child Development Services Fremont County	Glenrock Cemetery District	Magic City Enterprises	Senior Citizens Council
Child Support Authority - 4th JD	Glenrock Community Recreation District	Meeteetse Conservation District	Sheridan County Conservation District
Child Support Authority - 6D	Glenrock Hospital District	Meeteetse Recreation District	Sheridan County Fair Assn.
Children's Advocacy Project	Goshen County Fair	Mountain View Cemetery District	Sheridan Juvenile Justice Joint Powers

Affiliated Employers - List of Employers By Plan

Public Employees Pension Plan (Cont)			
Other Special Districts (Cont)			
Sheridan Recreation District	Sublette County Rural Health Care	Thayne Senior Center	Wyoming Association of Risk Management
Shoshone Municipal Pipeline	SW Sublette County Pioneers	Treatment Court of Sweetwater County	Wyoming Child & Family Development Inc.
Snowy Range Academy	Sweetwater County Conservation District	Uinta County Conserv. District	Wyoming Coalition Against Domestic Violence
Solutions For Life	Sweetwater County District Board of Health	Uinta County SAFV Task Force	Wyoming Community Development Authority
South Big Horn Conservation District	Sweetwater County Fair Board	Wardwell Water & Sewer District	Wyoming County Commissioners Association
South Big Horn Seniors Citizens, Inc.	Sweetwater County Museum	Washakie County Conservation District	Wyoming Education Association
South Cheyenne Water & Sewer	Sweetwater County Recreation	Washakie County Solid Waste District #1	Wyoming High School Activities
South Lincoln Special Cemetery District	Sweetwater County Solid Waste	Weston County Children's Center	Wyoming Lottery
Southwest Counseling Services.	Sweetwater County Solid Waste District 2	Weston County Fair Board	Wyoming Public Employees Association
Star Valley Conservation District	Sweetwater County Transit	Weston County Museum District	Wyoming School Boards
Star Valley Senior Citizen, Inc.	Ten Sleep Senior Center	Weston County Natural Resource District	Wyoming Senior Citizens Inc.
Sublette County SAFV Task Force	Teton Conservation District	White Mountain Water & Sewer District	Wyoming State Bar
Sublette County Conservation District	Teton Village Association	Wind River Transportation Authority	Yellowstone Regional Airport
Sublette County Fair Board	Teton Village Water And Sewer District	Worland Senior Center	
Schools			
Albany County Schools	Fremont CSD #14	Niobrara CSD #1	Sheridan CSD #2
Big Horn CSD #1	Fremont CSD #21	NW Wyoming Board of Coop Ed Serv.	Sheridan CSD #3
Big Horn CSD #2	Fremont CSD #24	Park CSD #1	Sublette CSD #1
Big Horn CSD #3	Fremont CSD #25	Park CSD #6	Sublette CSD #9
Big Horn CSD #4	Fremont CSD #38	Park CSD #16	Sweetwater CSD #1
Board of Cooperative Educational Services	Fremont/Wind River CSD #6	Platte CSD #1	Sweetwater CSD #2
Carbon County Higher Education	Goshen CSD #1	Platte CSD #2	Teton County Schools
Campbell County Schools	Hot Springs CSD #1	Powell Valley Community Education	Uinta CSD #1
Carbon CSD #1	Johnson CSD #1	Washakie CSD #1	Uinta CSD #4
Carbon CSD #2	Laramie CSD #1	Washakie CSD #2	Uinta CSD #6
Converse CSD #1	Laramie CSD #2	Weston CSD #1	
Converse CSD #2	Laramie Montessori	Weston CSD #7	
Crook County Schools	Lincoln CSD #1	PODER Academy	
Fremont CSD #1	Lincoln CSD #2	PODER Academy Secondary School	CSD = County School District
Fremont CSD #2	Natrona CSD #1	Sheridan CSD #1	

Affiliated Employers - List of Employers By Plan

Public Employees Pension Plan (Cont)			
State of Wyoming			
Attorney General	Enterprise Technology Services	Judicial District 6	Secretary of State
AWEC Agency Fund 592	Environmental Quality	Judicial District 6B	State Auditor
Board of Cosmetology	Environmental Quality Council	Judicial District 6C	State Engineer
Board of CPA's	Fire Prevention	Judicial District 7A	State Lands & Investments
Board of Equalization	Game & Fish Commission	Judicial District 7B	State Parks & Cultural Resources
Board of Nursing	Geological Survey	Judicial District 7C	State Treasurer
Board of Occupational Therapy	Governor's Mansion	Judicial District 8A	Supreme Court
Board of Outfitters	Governor's Office	Judicial District 8B	Water Development Comm.
Board of Travel and Tourism	Insurance Department	Judicial District 9A	Wildlife & Natural Resources Trust Board
Commission on Judicial Conduct	Judicial District 1A	Judicial District 9B	Wyoming Board of Pharmacy
Community College Commission	Judicial District 1B	Judicial District 9C	Wyoming Board of Professional Geologists
Department of A & I	Judicial District 1C	Legislative Service Office	Wyoming Business Council
Department of Agriculture	Judicial District 2A	Medical Board of Examiners - Board of Medicine	Wyoming Department of Corrections
Department of Audit	Judicial District 2B	Mixed Martial Arts Board	Wyoming Department of Transportation
Department of Education	Judicial District 3	Oil and Gas Commission	Wyoming Financial Center Admin Hearings
Department of Family Services	Judicial District 3B	Pari-Mutuel Commission	Wyoming Livestock Board
Department of Health	Judicial District 3C	Professional Teaching Standards Board	Wyoming Military Department
Department of Revenue	Judicial District 4a	Public Defender	Wyoming Parole Board
Department of Workforce Services	Judicial District 4b	Public Service Commission	Wyoming Retirement System
District Attorney District #1	Judicial District 5a	Real Estate Commission	
District Attorney District #7	Judicial District 5b	School Facilities Commission	
Weed & Pest			
Albany County Weed & Pest	Fremont County Weed & Pest	Natrona County Weed & Pest Control District	Sweetwater County Weed & Pest
Big Horn County Weed & Pest	Goshen County Weed & Pest	Niobrara County Weed & Pest	Teton County Weed & Pest
Campbell County Weed & Pest	Hot Springs Weed & Pest	Park County Weed & Pest	Uinta County Weed & Pest
Carbon County Weed & Pest	Johnson County Weed & Pest	Platte County Weed & Pest	Washakie County Weed & Pest
Converse County Weed & Pest	Laramie County Weed & Pest	Sheridan County Weed & Pest	Weston County Weed & Pest
Crook County Weed & Pest	Lincoln County Weed & Pest	Sublette County Weed & Pest	
Board of Cooperative Educational Services (BOCES)			
Board of Cooperative Education Service	Northeast Wyoming BOCES	Region V BOCES	Uinta BOCES #1
Carbon County Higher Education	Northwest WY BOCES	Sublette BOCES	Uinta County BOCES #4,#6
Fremont County BOCES	Oyster Ridge BOCES	Sweetwater BOCES	Western/Sublette County #9 BOCES

Affiliated Employers - List of Employers By Plan

State Highway Patrol, Game & Fish, and Criminal Investigation Pension Plan

Wyoming Attorney General's Office	Wyoming Game & Fish Commission	Wyoming Department of Transportation
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Paid Fireman A Pension Plan

City of Casper	City of Rock Springs
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Paid Fireman B Pension Plan

Campbell County	City Of Laramie	Evansville Emergency Services	Natrona Cnty Fire Protection
Casper/Natrona County Airport	City Of Rawlins	Jackson /Teton County Fire Department	Town Of Mills
City Of Casper	City Of Rock Springs	Johnson County Fire Department	Uinta County Fire Protection
City Of Cheyenne	City Of Sheridan	Laramie County Fire District # 2	Worland Protection District

Affiliated Employers - List of Employers By Plan

Volunteer Firefighter and EMT Plan			
Afton Volunteer Fire Department	Evansville Volunteer Fire Department	Laramie County #8 Volunteer Fire Department	South Lincoln Vol Fire Department
Albany County Volunteer Fire Department	Fort Laramie Volunteer Fire Department	Lingle Volunteer Fire Department	Star Valley Medical Center - EMT
Albin Volunteer Fire Department	Fremont County Fire Protection District	Little Snake River - EMT	Story Volunteer Fire Department
Alpine Volunteer Fire Department	Glendo Volunteer Ambulance - EMT	Lovell Volunteer Fire Department	Sublette County Unified Fire
Antelope Gap Rural Fire District	Glendo Volunteer Fire Department	Lusk Volunteer Fire Department	Sundance Volunteer Fire Department
Bairoil Volunteer Fire Department	Glenrock Volunteer Fire Department	Manderson Volunteer Fire Department	Superior Volunteer Fire Department
Bar Nunn Volunteer Fire Department	Granger Volunteer Fire Department	Medicine Bow Volunteer Fire Department	Sweetwater County Volunteer Fire Department
Big Horn #1 Volunteer Fire Department	Green River Volunteer Fire Department	Meeteetse Volunteer Fire Department	Sweetwater District 1 Volunteer Fire Department
Big Horn Co Volunteer Fire - District 5	Greybull Volunteer Fire Department	Moorcroft Volunteer Fire Department	Ten Sleep Ambulance Service - EMT
Big Horn County Volunteer Fire Department	Guernsey Ambulance Service - EMT	Newcastle Volunteer Fire Department	Ten Sleep Volunteer Fire Department
Big Horn County Fire Protection District	Guernsey Rural Fire District	Osage Volunteer Fire Department	Teton Village Volunteer Fire Department
Buffalo Volunteer Fire Department	Guernsey Volunteer Fire Department	Other	Thayne Ambulance Service - EMT
Campbell County Volunteer Fire Department	Hartville Volunteer Fire Department	Palmer Canyon Fire Department	Thayne Volunteer Fire Department
Carbon County Volunteer Fire Department	Hawk Springs Volunteer Fire Department	Pine Haven Ambulance	Thermopolis Volunteer Fire Department
Casper Mountain Volunteer Fire Department	Holly Frontier Refinery Fire Rescue	Pine Haven Volunteer Fire Department	Tongue River Volunteer Fire Department
Centennial Valley Volunteer - EMT	Hulett Emergency Medical Services Inc	Powder River Fire District	Torrington Ambulance Service - EMT
Chugwater Volunteer Fire Department	Hulett Volunteer Fire Department	Powell Valley Healthcare - EMT	Torrington Volunteer Fire Department
Clark Volunteer Fire Department	Jackson Hole - EMT	Powell Volunteer Fire Department	Town Of Pine Bluffs EMS
Cody Volunteer Fire Department	Jackson Hole Volunteer Fire	Prairie Center Volunteer Fire Department	Uinta County Volunteer Fire Department
Cokeville Vol FD/Bear River Fire Prot	Jeffrey City Volunteer Fire Department	Rawlins Volunteer Fire Department	Uinta County - EMT
Converse County Rural Fire	Johnson County Fire Control District #1	Laramie County #8 Volunteer Fire Department	South Lincoln County - EMT
Crook County Volunteer Fire Department	Johnson County Ambulance - EMT	Riverton Volunteer Fire Department	Upton Volunteer Fire Department
Dayton Volunteer Fire Department	LaGrange Volunteer Fire Department	Rock River Volunteer Fire Department	Veteran Volunteer Fire Department
Douglas Volunteer Fire Department	Lander Volunteer Fire Department	Salt Creek Volunteer Fire Department	Wamsutter Volunteer Fire Department
Dubois Volunteer Fire Department	Laramie County #1 Volunteer Fire Department	Saratoga Volunteer Fire Department	Washakie County - EMT
Eden-Farson Fire Control District	Laramie County #10 Volunteer Fire Department	Shell Volunteer Fire Department	West Park Hospital - EMT
Eden-Farson Volunteer Fire Department	Laramie County #2 Volunteer Fire Department	Sheridan Area Rural Volunteer Fire Department	Weston Co Volunteer Fire Protection Dist
Elk Mountain Volunteer Fire Department	Laramie County #4 Volunteer Fire Department	Sinclair Ref Volunteer Fire Dept	Wheatland Volunteer Fire Department
Encampment Volunteer Fire Department	Laramie County #5 Volunteer Fire Department	Sinclair Volunteer Fire Department	Worland Volunteer Fire Department
Evanston Volunteer Fire Department	Laramie County #6 Volunteer Fire Department	South Central EMS	Yoder Volunteer Fire Department

Affiliated Employers - List of Employers By Plan

Judicial Pension Plan

Wyoming Judicial Branch

Law Enforcement Pension Plan

Albany County	City Of Sundance	Town Of Basin	Town Of Moorcroft
Big Horn County	City Of Torrington	Town Of Byron	Town Of Mountain View
Campbell County	City Of Worland	Town Of Cokeville	Town Of Pine Bluffs
Carbon County	Converse County	Town of Cowley	Town Of Saratoga
City Of Buffalo	Crook County	Town of Deaver	Town Of Shoshoni
City Of Casper	Fremont County	Town of Diamondville	Town Of Sinclair
City Of Cheyenne	Goshen County	Town Of Encampment	Town Of Thermopolis
City Of Cody	Hot Springs County	Town Of Evansville	Town Of Upton
City of Douglas	Johnson County	Town Of Glenrock	Town Of Wheatland
City Of Evanston	Laramie County	Town Of Greybull	Uinta County
City Of Gillette	Lincoln County	Town Of Guernsey	University Of Wyoming
City Of Green River	Natrona County	Town Of Hanna	Washakie County
City Of Kemmerer	Park County	Town Of Hulett	Weston County
City Of Lander	Platte County	Town Of Jackson	WY Attorney General
City Of Laramie	Rock Springs/Green River/ Sweetwater County	Town Of Kaycee	WY Board of Outfitters
City Of Newcastle	Sheridan County	Town Of Lingle	WY Dept of Corrections
City Of Powell	Sublette County	Town Of Lovell	WY Dept of Transportation
City Of Rawlins	Sweetwater County	Town Of Lusk	WY Livestock Board
City Of Riverton	Teton County	Town Of Lyman	
City Of Rock Springs	Town Of Afton	Town Of Midwest	
City Of Sheridan	Town Of Bairoil	Town Of Mills	

Air Guard Firefighter Pension Plan

Wyoming Military Department

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