Comprehensive Annual Financial Report

For the Fiscal Year Ended June 30, 2019

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PUBLIC EMPLOYEES RETIREMENT SYSTEM

Oregon Public Employees Retirement System

An Agency of the State of Oregon

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Front Cover Photo: Gold Beach

Taken by: Radford Bean

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Comprehensive Annual Financial Report

For the Fiscal Year Ended June 30, 2019

Oregon Public Employees Retirement System

An Agency of the State of Oregon

Kevin Olineck

Director

Richard Horsford

Chief Financial Officer

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INTRODUCTORY SECTION

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Oregon
Kate Brown, Governor

Public Employees Retirement System
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December 16, 2019

Public Employees Retirement Board
Oregon Public Employees Retirement System
11410 SW 68th Parkway
Tigard, Oregon 97223

We are pleased to submit the Comprehensive Annual Financial Report (CAFR) of the Oregon Public Employees Retirement System (PERS, System or Agency) for the fiscal year ended June 30, 2019. This report includes all funds over which the Public Employees Retirement Board (Board) exercises authority. These funds were established to provide retirement, death, and disability benefits, and other postemployment benefits (OPEB) to members; administer retiree health insurance programs; and oversee the state-sponsored deferred compensation program. As of June 30, 2019, PERS provides services to 906 employers and over 374,000 active, inactive, and retired members and beneficiaries.

The CAFR is intended to fulfill the legal requirements of Oregon Revised Statute (ORS) 238.630. PERS management is responsible for both the accuracy of the data and the completeness and fairness of the presentation, including all disclosures.

Macias Gini & O'Connell LLP (MGO) has audited the accompanying financial statements in accordance with generally accepted auditing standards and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. The independent auditor's report is included in this report.

Management's Discussion and Analysis

Included in this report is a section entitled Management's Discussion and Analysis (MD&A). This section provides a narrative introduction, overview, and analysis to accompany the basic financial statements. The letter of transmittal is designed to complement the MD&A and should be read in conjunction with it. We would like to direct your attention to the MD&A that begins on page 20.

Financial Information

The financial statements contained in this report have been prepared in accordance with accounting principles generally accepted in the United States of America, also known as generally accepted accounting principles (GAAP) as set forth in the principles established by the Governmental Accounting Standards Board (GASB), including all effective GASB pronouncements, and in conformance with the guidelines for financial reporting developed by the Government Finance Officers Association of the United States and Canada (GFOA).

Management of the System assumes full responsibility for the completeness and reliability of all of the information presented in this report. To provide a reasonable basis for making these representations, management of the System has established internal controls designed to protect the System's assets from loss, theft, or misuse, and to compile sufficient reliable information for the preparation of the included financial statements. Because the cost of internal controls should not exceed their effectiveness, management has developed controls that provide reasonable, rather than absolute, assurance that the financial statements contained in this report will be free of material misstatements. As management, we assert that, to the best of our knowledge and belief, this financial report is complete and reliable in all material aspects.

Factors Affecting Economic Condition

The economic condition of the System is primarily affected by investment earnings. A comparative analysis of investment rates of return is presented on page 31 of this report.

Funding

The System is funded through contributions and investment earnings. For judges, the contribution is set at 7.0 percent of covered salary. Employer contributions are established by actuarial valuations conducted biennially in odd-numbered calendar years. The System's funding objective is to meet long-term benefit promises through contributions that fund benefits as they accrue. An adequate contribution level, when combined with investment earnings, will result in the full funding of benefits as they come due. If the level of funding is adequate, the ratio of assets accumulated to total liabilities will increase, and more income will be available for investment. Prudent investment of assets, and returns on those investments, may increase the funding base and allow for a more stable employer contribution rate. As of the December 31, 2018 actuarial valuation, the System has a funded ratio of 75.0 percent for the defined benefit pension plan it administers, including employer side accounts, and 69.0 percent funded ratio, excluding employer side accounts.

All members, with the exception of judges, contribute 6.0 percent of salary to the Individual Account Program (IAP), an individual account-based program under the PERS tax-qualified governmental plan for all PERS members, established in 2004.

Investments

The Oregon Investment Council (OIC) has statutory authority (ORS 293.701) to establish policies for the investment and reinvestment of the System's funds. The System's long-term investment strategy is designed to capitalize on investment return while protecting principal. The OIC works to strategically allocate assets in the System's portfolio. The target investment portfolio mix at fair value as of June 30, 2019, is 37.50 percent public equity, 17.50 percent private equity, 20.00 percent debt securities, 12.50 percent real estate and 12.50 percent alternatives. In addition to approved asset classes, target asset allocation ranges, and rebalancing policies, the OIC further safeguards the System's investment portfolio through use of an independent custodian, defined limits on delegated authority, and independent audits. The OIC uses external portfolio managers, employing both passive (indexed) and active investment strategies. The portfolio is broadly diversified among equities, debt securities, real estate, and private equities, with additional diversification achieved through domestic and international investing. System securities are held by State Street Bank and Trust Company.

The System's Regular Investment Portfolio (Portfolio) experienced gains in fiscal year 2019 with a rate of return of 6.52 percent. This compares with a rate of return of 9.40 percent for fiscal year 2018. The Portfolio's trailing 10-year return was 10.17 percent. Descriptions of OIC policies regarding diversification, performance objectives, fees, and asset allocation are found on page 98.

Major Initiatives

Senate Bill 1049 (SB1049)

SB1049 was signed into law by the Governor on June 11, 2019. The challenge for PERS is to not only implement this bill, but also continue to provide our members and employers with uninterrupted service, while working through the intricacies of SB1049.

The Agency is developing an overall implementation approach to tackle each element of SB1049, and will be managed as one, comprehensive program with the following five individual projects:

Project	Effective Date
Employer Programs Project	Effective 7/1/2019
Salary Limit Project	Effective 1/1/2020
Work After Retirement Project	Effective 1/1/2020
Member Redirect Project	Effective 7/1/2020
Member Choice Project	Effective 1/1/2021

Strategic Management System

PERS continues to evolve its outcome-based management system to improve operational performance and organizational alignment. This process-based system integrates problem solving and decision making with active engagement from the front-line staff who perform daily work.

The 2018-2023 PERS Strategic Plan was updated during the year to reflect five strategic priorities, with several areas of focus and specific, achievable goals and objectives. The five strategic priorities are:

1. Organizational Management and Development;
2. Member Services and Communications;
3. Data Reliability;
4. Information Governance, Security, and Technology; and
5. Financial Management.

For each of the strategic priorities, PERS is using existing strategic and operational planning functions to prioritize and allocate resources. Strategies will be implemented using a variety of approaches. The approaches include problem solving, project management, breakthrough initiatives, and integration into core business practices. Specific performance metrics will be identified for tracking progress as part of strategy initiation.

Supporting the Agency's strategic priorities are six core operating processes and six core supporting processes. Each process has an owner, sub-processes, and outcome measures to monitor and document progress. Quarterly target review meetings are held to review progress and identify areas for improvement.

More information on The 2018-2023 PERS Strategic Plan can be found on our website at: https://www.oregon.gov/pers/Documents/Strategic-Plan.pdf

Information Security and Continuity Management Programs

The Agency has been working diligently on establishing a Continuity Management Program, which encompasses our Continuity of Operations Plan, Business Recovery, and Disaster Recovery Plans. With the assistance of consultants, agency staff has made significant strides in establishing this program. We were successful in having the consultant provide a letter verifying that the Agency has established an industry standard program. That said, there is recognition that, while we now have the basics in place, there is still significant effort required to ensure that we continue to build out our Continuity Management Program.

Similar to Continuity Management, Information Security is one of the foundational initiatives the Agency needs to have in place. This instills in our stakeholders a sense of trust and confidence, assuring them that the data that we maintain is secure. Working collaboratively with the State Enterprise Security Office, staff made significant strides in building out our Information Security Program, which included changes from both a system and process point of view. We also received an external assessment that culminated in a letter from the assessor stating we have an industry best practice Information Security Program.

<u>Member and Employer Satisfaction Surveys</u>

A member satisfaction survey conducted in fiscal year 2019 showed an overall decrease in member satisfaction but reflects a significant increase in the active member (non-retiree) response rate. While overall member satisfaction fell from 91% in 2018 to 87% in 2019, retiree satisfaction stayed flat at 95%. Non-retiree feedback is significantly impacted by discussions during legislative years; while overall results are fairly similar to 2017, non-retiree satisfaction actually increased from 65% in 2017 to 74% in 2019.

The employer satisfaction survey reported a satisfaction rating of 87% in 2019, down from 89% in 2018 and 91% in 2017. Lower overall satisfaction ratings may be impacted by a small sample size, as well as receiving more targeted feedback from non-payroll staff at PERS-participating employers.

Awards and Acknowledgements

Certificate of Achievement

The Certificate of Achievement for Excellence in Financial Reporting is applicable for the year ended June 30, 2018. The Certificate of Achievement is a prestigious national award that recognizes conformance with the highest standards of preparation of state and local government financial reports.

To be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized CAFR, whose contents conform to program standards. The CAFR must satisfy both generally accepted accounting principles and applicable legal requirements. A Certificate of Achievement is valid for one year. The System has received a Certificate of Achievement for the last 28 consecutive years. We believe our current report continues to conform to the Certificate of Achievement program requirements, and we are submitting it to the GFOA.

Public Pension Standards Award

The Public Pension Coordinating Council (PPCC) awarded the 2019 Public Pension Standards Award to PERS for its plan design and administration.

The PPCC is a coalition of three associations representing public pension funds covering the vast majority of public employees in the United States. The associations are as follows: the National Association of State Retirement Administrators (NASRA), the National Conference on Public Employee Retirement Systems (NCPERS), and the National Council on Teacher Retirement (NCTR). Public pension standards are intended to reflect minimum expectations for public retirement system management and administration, and to serve as benchmarks by which all defined benefit public plans are measured.

This is the 17th year the PPCC has offered the award to public retirement systems and the 16th consecutive year PERS has applied for, and received, the award.

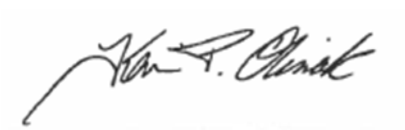
Acknowledgments

The information contained in this report is used for making management decisions, to demonstrate stewardship of the assets entrusted to the System, and to comply with legal and accounting provisions. Staff strives to provide reliable and complete information for these purposes. The compilation of this report reflects the combined efforts of the PERS Financial Services Division.

This report is available on the PERS website at http://www.oregon.gov/pers/Pages/Financials/Actuarial-Financial-Information.aspx, and a link to this document will be e-mailed to all PERS employers. Summary financial information and the website link will be reported in the PERS newsletter, *Perspectives,* which is distributed to active and retired members.

We would like to thank the PERS Board and staff, participating employers, the Oregon Investment Council, the Office of the State Treasurer, and all others working on behalf of the System for their time, commitment, support and hard work. We are grateful for their continued support and assistance.

Respectfully submitted,



Kevin Olineck	Richard Horsford
Director	Chief Financial Officer

Public Employees Retirement Board

The Oregon Legislature has delegated authority to the Public Employees Retirement System (PERS) Board of Trustees to administer the PERS system. The Board is composed of five trustees who administer retirement (service and disability), death, and retiree health insurance benefits. PERS also administers the Oregon Savings Growth Plan, a deferred compensation program for state and local government employees.

All members of the Board are appointed by the state governor and confirmed by the state Senate. The governor designates the chairperson.

Statute specifies Board membership must consist of three people with experience in business management, pension management, or investing who are not members of the PERS system; one person who is either an employee of the state in a management position, or a person who holds an elective office in the governing body of a participating public employer other than the state; and one person representing public employees and retirees.

As of June 30, 2019, the three Board members representing business management, pension management, or investing are Christelle deAsis, Sadhana Shenoy (Board Chair), and Stephen Buckley. Steve Demarest was appointed to represent public employees and retirees; Lawrence Furnstahl (Vice-Chair) was appointed to represent public employers. Terms for each member are staggered.

Sadhana Shenoy (Board Chair)

Sadhana Shenoy has spent the last five years in the Mobility-as-a-Service (MaaS) space. She was the CFO/COO of Moovel, a transit technology company, and has held this position as the company has grown from start-up, to acquisition and into growth stages. She started her career as a software engineer working with databases and children's software. She then moved to the non-profit sector, working on boards within the environmental (Sierra Club), educational (Montessori School of Beaverton) and legal (CRAG Law Center) areas. Ms. Shenoy is a Charter and board member of TiE Oregon (The Indus Entrepreneurs) and of TYE Oregon (TiE Youth Entrepreneurs) and enjoys angel investing in exciting new ideas and promoting youth entrepreneurship.

Ms. Shenoy holds Bachelor of Science degrees in Accounting and Business Administration, a Master of Science degree in Computer Science and is a Certified Public Accountant (CPA) in Oregon.

Lawrence Furnstahl (Vice-Chair)

Lawrence J. Furnstahl has three decades of experience in the strategic, financial and operational management of complex organizations, including universities and academic health centers. Mr. Furnstahl has served as a chief financial officer for over 25 years. He is now the Executive Vice President and Chief Financial Officer of Oregon Health & Science University (OHSU). OHSU is a $2.3 billion public corporation with 2,500 faculty, 15,000 staff, 4,000 students and trainees. OHSU participates in $350 million of research and is the state's only major academic health center. Prior to joining OHSU in January 2011, Mr. Furnstahl served as Chief Financial and Strategy Officer with the University of Chicago Medical Center and Biological Sciences Division. Over the years, he has also served as Vice President of Financial Planning for Science for University of Chicago; Senior Vice President and Chief Financial Officer for UCSF Stanford Health Care; Vice President and Chief Financial Officer for the University of Chicago; and Vice President and Treasurer of Patient Services for the University of Chicago Hospitals. Mr. Furnstahl is a member of the Visiting Committee to the Physical Sciences Division of the University of Chicago, and a board director and former Chair of the Hyde Park Art Center. He is a 1983 graduate of the College of the University of Chicago, in economics.

Christelle deAsis

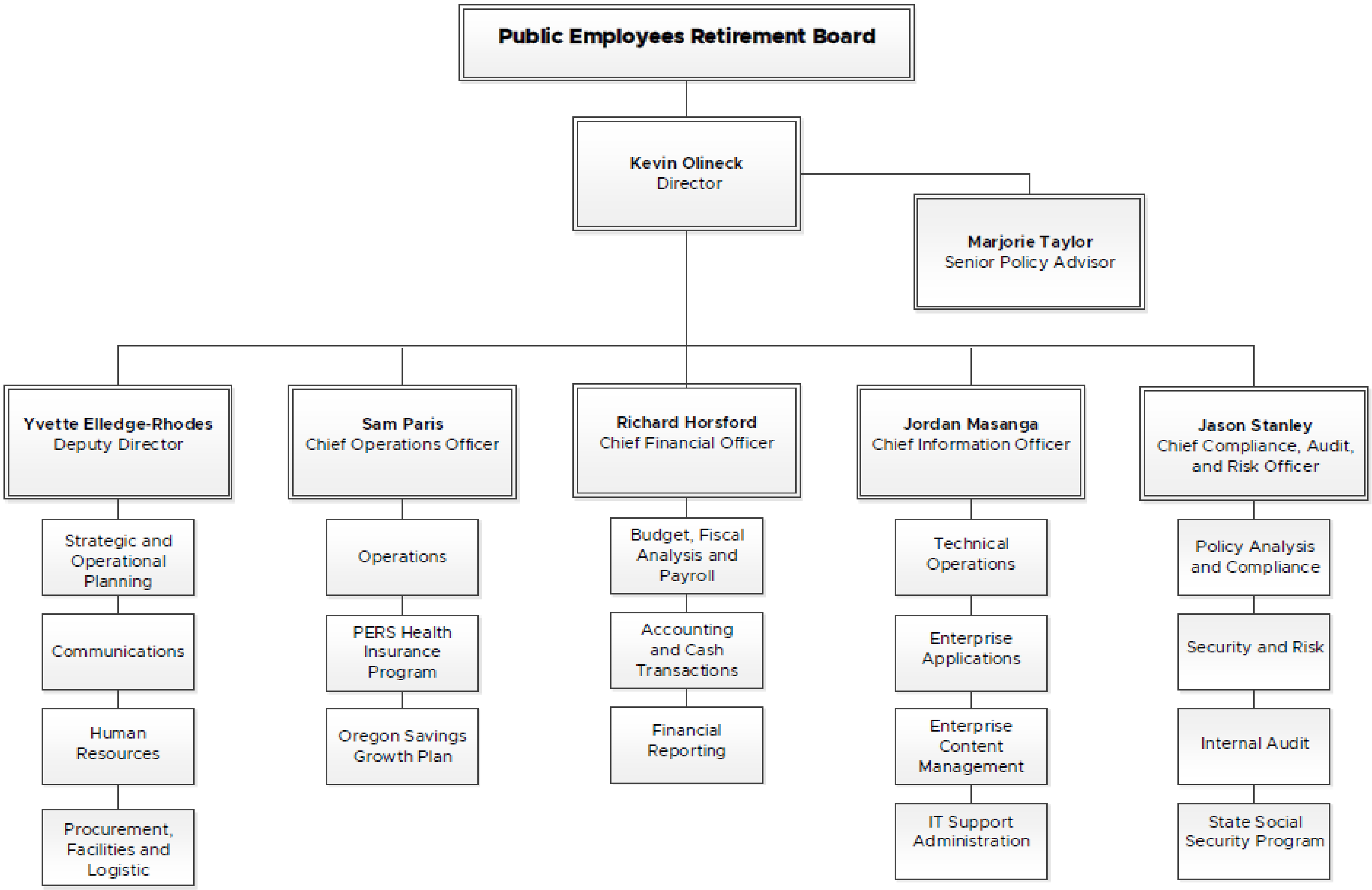
Mrs. deAsis was a financial manager for Holiday Retirement (Holiday). In this role, she was responsible for managing the finances of a portfolio of Holiday's communities and upholding financial objectives for long-term strategic planning. Prior to joining Holiday, Mrs. deAsis spent nine years with Portland General Electric Company (PGE) in a variety of financial roles. This work included oversight of the economic value of PGE's major capital investments and management of the risk of PGE's commodity trading portfolio. Mrs. deAsis currently serves as the chairwoman of the PERS Audit Committee. Additionally, Mrs. deAsis serves as Treasurer for Legacy Health – Emanuel Medical Center Foundation and sits on the Legacy Health Foundations Investment Committee. Mrs. deAsis earned her Bachelor of Arts degree in Finance from Portland State University.

Stephen Buckley

Stephen Buckley is a partner in the Portland, Oregon, law firm Brownstein Rask, LLP. For more than 25 years, Mr. Buckley has served as legal counsel for boards of trustees of private sector health and welfare plans and defined benefit, defined contribution, and 401(k) pension plans in Washington, Oregon, and California. Mr. Buckley is a speaker at employee benefit conferences sponsored by the International Foundation of Employee Benefit Plans. Mr. Buckley is a graduate of Colorado State University and received his Juris Doctorate degree from Willamette University College of Law.

Steve Demarest

Steve Demarest is an Administrative Law Judge with the Oregon Office of Administrative Hearings. In this position, he hears appeals of a wide variety of decisions by state agencies, boards, and commissions. Mr. Demarest is also the President of the Service Employees International Union (SEIU) Local 503. In this capacity, he supports the value of being "In It Together" with one another, and with the communities that SEIU serves.



Oregon Public Employees Retirement System Consultants

Actuary
Milliman, Inc.

Legal Counsel
Oregon Department of Justice

Auditor
Macias Gini & O'Connell LLP

Insurance Consultant
Butler Partners & Associates LLC

Medical Advisor
F. William Miller, MD

Investments
Investment managers are reported in the Summary of Investment Fees, Commissions, and Expenses on page 91.

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Oregon Public Employees Retirement System

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

June 30, 2018

Christopher P. Morrill

Executive Director/CEO

Management would like to offer a special thank you to the Oregon Public Employees Retirement System Financial Reporting Division for their ongoing work to earn this prestigious award.

Financial Reporting Coordinator — Matthew Graves

Senior Investment Accountant — Michiru Farney

Public Pension Coordinating Council

Public Pension Standards Award For Funding and Administration 2019

Presented to

Oregon Public Employees Retirement System

In recognition of meeting professional standards for
plan funding and administration as
set forth in the Public Pension Standards.

Presented by the Public Pension Coordinating Council, a confederation of

National Association of State Retirement Administrators (NASRA)
National Conference on Public Employee Retirement Systems (NCPERS)
National Council on Teacher Retirement (NCTR)

Alan H. Winkle
Program Administrator

Mission

We serve the people of Oregon by administering public employee benefit trusts to pay the right person the right benefit at the right time

Core Values

Service-Focus: We work together to meet the needs of others with dependability, professionalism, and respect.

Accountability: We take ownership for our decisions, actions, and outcomes.

Integrity: We inspire trust through transparency and ethical, sound judgment.

Operating Principles

Professional: We are responsive, respectful, and sensitive to the needs of our members, employers, and staff.

Accurate: We ensure data integrity and provide consistent, dependable information and benefits.

Judicious: We use sound judgment and prudent, principled decision-making in upholding our fiduciary responsibility.

Information Security: We are constantly vigilant to safeguard confidential information.

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FINANCIAL SECTION

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Certified Public Accountants

Independent Auditor's Report

To the Honorable Kate Brown
Governor of Oregon

To the Public Employees Retirement Board of the
Oregon Public Employees Retirement System
Tigard, Oregon

Report on the Financial Statements

We have audited the accompanying financial statements of the fiduciary activities and proprietary activities of the Oregon Public Employees Retirement System (the System), an agency of the State of Oregon, as of and for the fiscal year ended June 30, 2019, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

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 opinions 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 from 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 opinions.

Macias Gini & O'Connell LLP
3000 S Street, Suite 300
Sacramento, CA 95816

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Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the fiduciary activities and proprietary activities of the Oregon Public Employees Retirement System as of June 30, 2019, and the respective changes in financial position and, where applicable, cash flows thereof for the fiscal year then ended in accordance with accounting principles generally accepted in the United States of America.

Emphasis of Matters

As discussed in Note 9 to the financial statements, the total pension liability for the Defined Benefit Pension Plan, based on the actuarial valuation as of December 31, 2017, rolled forward to June 30, 2019, exceeded the plan's fiduciary net position by $17.3 billion. The actuarial valuation is very sensitive to the underlying assumptions, including a discount rate of 7.20 percent, which represents the long-term expected rate of return.

As discussed in Note 10 to the financial statements, the fiduciary net position of the Retirement Health Insurance Account (RHIA) other postemployment benefit plan exceeded the total other postemployment benefits (OPEB) liability, based on the actuarial valuation as of December 31, 2017, rolled forward to June 30, 2019, by $193.3 million. The actuarial valuation is very sensitive to the underlying assumptions, including a discount rate of 7.20 percent, which represents the long-term expected rate of return.

As discussed in Note 10 to the financial statements, the total OPEB liability for the Retiree Health Insurance Premium Account (RHIPA) other postemployment benefit plan, based on the actuarial valuation as of December 31, 2017, rolled forward to June 30, 2019, exceeded the plan's fiduciary net position by $25.3 million. The actuarial valuation is very sensitive to the underlying assumptions, including a discount rate of 7.20 percent, which represents the long-term expected rate of return, and a healthcare cost trend rate of 7.50 percent applied at the beginning of the measurement period and decreasing to an ultimate rate of 4.20 percent.

Our opinions are not modified with respect to these matters.

Other Matters

Prior-Year Comparative Information

The financial statements include partial prior-year comparative information. Such information does not include all of the information required to constitute a presentation in conformity with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with the System's financial statements for the fiscal year ended June 30, 2018, from which such partial information was derived.

We have previously audited the System's 2018 financial statements, and we expressed unmodified audit opinions on the respective financial statements of the fiduciary activities and the proprietary activities in our report dated November 30, 2018. In our opinion, the partial comparative information presented herein as of and for the fiscal year ended June 30, 2018, is consistent, in all material respects, with the audited financial statements from which it has been derived.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that management's discussion and analysis, the schedule of changes in net pension liability/(asset) and related ratios, the schedule of investment returns - defined benefit pension plan, the schedule of defined benefit pension plan employer contributions, the schedule of changes in net OPEB (asset) and related ratios – other postemployment benefit plans – RHIA, the schedule of investment returns – other postemployment benefit plans – RHIA, the schedule of changes in net OPEB liability and related ratios – other postemployment benefit plans – RHIPA, the schedule of investment returns – other postemployment benefit plans – RHIPA, the schedule of OPEB – RHIA employer contributions, the schedule of OPEB – RHIPA employer contributions, and the schedule of claims development information, as listed in the table of contents, be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the 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 financial statements, and other knowledge we obtained during our audit of the 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 opinions on the financial statements that collectively comprise the System's basic financial statements. The other supplementary information and the introductory, investment, actuarial, and statistical sections, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The other supplementary information 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 December 16, 2019, on our consideration of the System'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 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 the System's internal control over financial reporting and compliance.

Macias Gini & O'Connell LLP

Sacramento, California
December 16, 2019

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MANAGEMENT'S DISCUSSION AND ANALYSIS

This section presents management's discussion and analysis of the Oregon Public Employees Retirement System's (PERS or the System) financial performance during the fiscal year ended June 30, 2019. It is a narrative overview and analysis that we present in conjunction with the Letter of Transmittal included in the Introductory Section of this Comprehensive Annual Financial Report (CAFR). It should also be read in conjunction with PERS' basic financial statements, as presented on pages 33-39 of this report.

PERS is primarily responsible for administering retirement benefits, health benefits, and supplemental retirement savings plans. PERS comprises six funds: a defined benefit pension plan, an individual account-based program under the PERS tax-qualified governmental plan, two Other Postemployment Benefit (OPEB) plans, a deferred compensation plan, and a proprietary fund.

OVERVIEW OF THE FINANCIAL STATEMENTS AND ACCOMPANYING INFORMATION

Management's discussion and analysis provides an introduction to and overview of the basic financial statements, which comprise the following components: Fund Financial Statements and Notes to the Basic Financial Statements. Collectively, this information presents the combined net position restricted for pension benefits, OPEB, individual account-based program, and deferred compensation, along with the unrestricted net position of the proprietary fund administered by PERS as of June 30, 2019. It also summarizes the combined changes in net position restricted for pension benefits, other employee benefits and OPEB, the changes in unrestricted net position, and the cash flows of the proprietary fund for the year then ended, along with an actuarial measurement of the employers' total pension and OPEB liabilities compared to the fiduciary net position of the defined benefit pension and OPEB plans. The information available in each of these sections is briefly summarized below:

Fund Financial Statements

At June 30, 2019, financial statements are presented for the two types of funds administered by PERS: fiduciary funds, where PERS acts in a fiduciary capacity as a trustee for others and is responsible for administering the assets placed under its control; and a proprietary fund, where fees are charged for services provided and the focus is on determining financial position, operating and non-operating income, cash flows, and changes in net position.

Fiduciary Funds – include the Defined Benefit Pension Plan, Oregon Public Service Retirement Plan Individual Account Program (IAP), the Retirement Health Insurance Account (RHIA), the Retiree Health Insurance Premium Account (RHIPA), and the Deferred Compensation Plan, known as the Oregon Savings Growth Plan. Fiduciary funds are used to account for resources held for the benefit of PERS participants. A statement of fiduciary net position and a statement of changes in fiduciary net position are presented for the fiduciary funds as of and for the fiscal year ended June 30, 2019, along with comparative total information as of and for the fiscal year ended June 30, 2018. These financial statements reflect the resources available to pay benefits to retired members and other beneficiaries as of year-end, as well as the changes in those resources during the year.

Proprietary Fund – includes the Standard Retiree Health Insurance Account (SRHIA), an enterprise fund. A statement of net position, a statement of revenues, expenses, and changes in net position, and a statement of cash flows are presented for the proprietary fund as of and for the fiscal year ended June 30, 2019, along with comparative total information as of and for the fiscal year ended June 30, 2018. These financial statements reflect the net position, changes in net position, and cash flows resulting from PERS business-type activities.

Notes to the Basic Financial Statements

- Note 1 – provides a summary of significant accounting policies, including the basis of accounting for each of the fund types: investment accounting policies, management's use of estimates, and other significant accounting policies.
- Note 2 – provides a general description of PERS as well as a description of each of the funds administered by PERS. Information regarding employer and member participation in the pension plans administered by PERS is also provided.
- Note 3 – provides information on the System's accounts receivables and payables.
- Note 4 – provides information on cash and cash equivalents. The note also describes investments, including the techniques and inputs used to determine fair value, investing authority, investment risk categorizations, and additional information about unfunded investment commitments, securities lending, and derivatives.
- Note 5 – provides information about capital assets used in plan operations.
- Note 6 – provides information on reserves.
- Note 7 – provides information on potential contingencies of PERS.
- Note 8 – provides information on the estimated claims liability of the SRHIA.
- Note 9 – provides information on the Employers' Net Pension Liability.
- Note 10 – provides information on Employers' Net OPEB Liability/(Asset).

Required Supplementary Information

In addition to the financial statements and notes explained above, this CAFR includes 10 additional Required Supplementary Information schedules with historical trend information, as described below:

- The Schedule of Changes in Net Pension Liability/(Asset) and Related Ratios, page 76, presents the pension plan's total pension liability, fiduciary net position, net pension liability, the change in net pension liability, fiduciary net position as a percentage of the total pension liability, total covered payroll, and net pension liability as a percentage of covered payroll. This required 10-year trend schedule will disclose future years prospectively, beginning with the fiscal year ended June 30, 2014.
- The Schedule of Investment Returns – Defined Benefit Pension Plan, page 76, presents for each fiscal year the annual money-weighted return (internal rate of return) on pension plan investments, net of pension plan investment expense. This required 10-year trend schedule will disclose future years prospectively, beginning with the fiscal year ended June 30, 2014.
- The Schedule of Defined Benefit Pension Plan Employer Contributions, on pages 77 – 78, contains a 10-year schedule comparing the amount of actuarially determined contributions with the amount of contributions recognized in relation to the actuarially determined contributions, and showing whether there is a contribution deficiency or excess. The schedule also shows the amounts of contributions recognized by the pension plan in relation to the actuarially determined contributions as a percentage of covered payroll.
- The Schedules of Changes in Net OPEB Liability/(Asset) and Related Ratios, for RHIA is on page 79 and RHIPA on 80, presents the OPEB plan's total OPEB liability, fiduciary net position, net OPEB liability/(asset), and the change in net OPEB liability/(asset), fiduciary net position as a percentage of the total OPEB liability, total covered payroll, and net OPEB liability/(asset) as a percentage of covered payroll. These required 10-year trend schedules will disclose future years prospectively, beginning with the fiscal year ended June 30, 2017.

- The Schedules of Investment Returns – OPEB Plans, for RHIA and RHIPA, on pages 79 and 80, respectively, presents for each fiscal year the annual money-weighted return (internal rate of return) for each of the OPEB plan investments, net of OPEB plan investment expense. These required 10-year trend schedules will disclose future years prospectively, beginning with the fiscal year ended June 30, 2017.
- The Schedules of OPEB Plan Employer Contributions for both RHIA and RHIPA, on pages 81 – 84, contain a 10-year schedule comparing the amount of actuarially determined contributions with the amount of contributions recognized in relation to the actuarially determined contributions, and showing whether there is a contribution deficiency or excess. The schedules also show the amounts of contributions recognized by the OPEB plans in relation to the actuarially determined contributions as a percentage of covered payroll.
- The Schedule of Claims Development Information for SRHIA, page 85, shows earned revenues and expenses over the past nine years.

Other Supplementary Information

In addition to the Required Supplementary Information, there are five Other Supplementary Information schedules, as described below:

- The Schedule of Plan Net Position and Schedule of Changes in Plan Net Position – Defined Benefit Pension Plan, pages 87 and 88, display the components of the defined benefit pension plan.
- The Schedule of Administrative Expenses and Schedule of Payments to Consultants and Contractors on pages 89 and 90 show the costs of managing the System.
- The Summary of Investment Fees, Commissions, and Expenses begins on page 91 and provides the detail of investment-related expenses included in the Investment Expense line item reported in the Statement of Changes in Fiduciary Net Position.

FIDUCIARY FUNDS

- PERS' assets exceeded its liabilities at the close of fiscal year 2019, with $82,866.6 million restricted for pension, IAP, OPEB, and deferred compensation benefits.
- Fiduciary net position increased by $1,768.5 million, or 2.2 percent, primarily due to $2,905.6 million increase in total investments. This increase was offset by a decrease of $2,706.2 million, or 37.1 percent, in Cash and Receivables, and a $1,552.5 million, or 38.4 percent, decrease in Investment Purchases and Accrued Expenses.
- Revenues (additions to fiduciary net position), which include member and employer contributions of $2,581.8 million and net income from investment activities totaling $4,699.9 million, decreased 22.9 percent to $7,300.6 million, for fiscal year 2019, compared to $9,463.3 million in fiscal year 2018. This decrease is primarily attributed to a $2,538.6 million decrease in revenues from investment activities compared to the prior year.
- Expenses (deductions from fiduciary net position) increased $122.1 million, or 2.3 percent, to $5,532.1 million during the fiscal year from $5,410.0 million in fiscal year 2018, primarily due to a similar increase in benefit payments caused by cost-of-living increases and a 1.4 percent increase in services retirements.

FIDUCIARY NET POSITION

The condensed comparative summaries of Fiduciary Net Position on page 24 demonstrate that the pension trust funds are primarily focused on investments and net position (reserves).

- The net position of the Defined Benefit Pension Plan increased approximately $876.2 million, or 1.3 percent, during the fiscal year ended June 30, 2019, primarily due to a $1,905.4 million, or 2.9 percent, increase in the value of investments, offset by a $2,441.5 million decrease in Cash and Receivables, as well as a $1,407.3 million decrease in Investment Purchases payable.
- The net position of the OPSRP IAP increased approximately $709.5 million, or 7.7 percent, during the fiscal year ended June 30, 2019, as the value of investments increased $760.3 million, or 8.5 percent, and Investment Purchases payables decreased $134.3 million. This increase was offset by a $189.1 million decrease in Cash and Receivables, which was primarily due to a $115.2 million, or 56.4 percent, decrease in Investment Sales receivables.
- The net position of the Deferred Compensation Plan increased approximately $119.2 million, or 6.1 percent, during the fiscal year ended June 30, 2019, due to a $172.3 million, or 9.1 percent increase in the value of investments. This increase was offset by a $59.3 million decrease in Cash and Receivables.
- The net position of the RHIA increased approximately $52.0 million, or 9.0 percent, during the fiscal year ended June 30, 2019, due to a $56.0 million, or 10.0 percent, increase in the value of investments, and an $11.0 million, or 36.1 percent, decrease in Investment Purchases payable, offset by a $16.0 million, or 30.4 percent, decrease in Cash and Receivables.
- The net position of the RHIPA increased approximately $11.7 million, or 33.3 percent, during the fiscal year ended June 30, 2019, as the value of investments grew by $11.6 million, or 38.1 percent.

CHANGES IN FIDUCIARY NET POSITION

Revenues – Additions to Fiduciary Net Position

Additions to Fiduciary Net Position needed to finance retirement benefits are accumulated through the collection of employer and member contributions and through investment income.

- For fiscal year 2019, the financial markets moved toward more volatility resulting in a decrease in Net Investment and Other Income for all plans. See the Investment Activities section on page 28 for further discussion.
- Defined Benefit Pension Plan: Total additions decreased $1,908.6 million, or 25.0 percent, compared to fiscal year 2018. This decrease was attributed to a $2,237.4 million, or 35.8 percent, decrease in Net Investment and Other Income, offset by a $330.1 million increase in Employer Contributions, primarily due to new side account deposits totaling $277.1 million.
- Individual Account Program: Total additions decreased $182.3 million, or 13.1 percent, due to the $207.2 million, or 26.8 percent, decrease in Net Investment and Other Income, offset by a $24.8 million, or 4.0 percent, increase in Member Contributions, which is due to a 1.8 percent overall increase in plan membership and the increase in salaries in line with the Consumer Price Index for Urban Wage Earners and Clerical Workers in the Pacific Time Zone from the bureau of Labor Statistics, which was 2.7 percent as of June 30, 2019.
- Deferred Compensation Plan: Total additions decreased $59.3 million, or 19.5 percent. This decrease was due to the $64.6 million, or 38.1 percent, decrease in Net Investment and Other Income, compared to fiscal year 2018.
- Retirement Health Insurance Account: Total additions decreased $13.3 million, or 13.5 percent. The decrease was due to the $14.9 million, or 29.3 percent, decrease in Net Investment and Other Income compared to fiscal year 2018.

TABLE 1
FIDUCIARY NET POSITION, PENSION
(in thousands) As of June 30

	Defined Benefit Pension Plan		Individual Account Program		Deferred Compensation Plan	
	2019	2018	2019	2018	2019	2018
Cash and Receivables	$ 4,090,855	$ 6,532,384	$ 434,594	$ 623,735	$ 19,848	$ 79,178
Investments at Fair Value	68,431,344	66,525,904	9,695,972	8,935,676	2,057,502	1,885,160
Securities Lending Collateral	813,156	1,064,760	87,490	108,504	6	41
Other	30,287	30,995	684	267	–	–
Total Assets	73,365,642	74,154,043	10,218,740	9,668,182	2,077,356	1,964,379
Investment Purchases	2,269,342	3,676,599	200,410	334,730	1,306	811
Securities Lending Payable	813,339	1,064,922	87,510	108,520	6	41
Other Payables	79,240	85,021	18,825	22,401	726	7,380
Total Liabilities	3,161,921	4,826,542	306,745	465,651	2,038	8,232
Total Net Position	$ 70,203,721	$ 69,327,501	$ 9,911,995	$ 9,202,531	$ 2,075,318	$ 1,956,147

TABLE 2
FIDUCIARY NET POSITION, OTHER POSTEMPLOYMENT BENEFITS
(in thousands) As of June 30

	Retirement Health Insurance Account		Retiree Health Insurance Premium Account	
	2019	2018	2019	2018
Cash and Receivables	$ 36,551	$ 52,517	$ 6,012	$ 6,243
Investments at Fair Value	616,269	560,288	41,940	30,380
Securities Lending Collateral	7,380	9,047	511	496
Other	39	34	3	2
Total Assets	660,239	621,886	48,466	37,121
Investment Purchases	19,540	30,591	1,183	1,514
Securities Lending Payable	7,382	9,049	511	496
Other Payables	4,427	5,384	81	79
Total Liabilities	31,349	45,024	1,775	2,089
Total Net Position	$ 628,890	$ 576,862	$ 46,691	$ 35,032

- Retiree Health Insurance Premium Account: Total additions increased $791.0 thousand, or 5.1 percent, over fiscal year 2018. This increase was due to a $719.0 thousand, or 5.4 percent, increase in Employer Contributions attributable primarily to a 6.7 percent increase in covered payroll, and a $72.0 thousand increase in Net Investment and Other Income.

Expenses – Deductions from Fiduciary Net Position

Benefit payments, refunds of contributions to members who terminate employment, health insurance premium subsidies, deferred compensation payments, and administrative costs comprise the System's expenses.

- Defined Benefit Pension Plan: Pension benefit and other payments were $4,865.4 million in fiscal year 2019, a $171.1 million, 3.6 percent, increase over fiscal year 2018 expenses of $4,694.3 million, primarily due to the 2.4 percent increase in the number of retirees, as well as the annual cost of living adjustment.
- Individual Account Program: IAP benefit and other payments decreased by $56.2 million, or 10.0 percent, during the year, from $559.2 million in fiscal year 2018 to $503.0 million in fiscal year 2019. The decrease in IAP benefit payments is consistent with the decrease in the number of service retirements discussed on page 29.
- Deferred Compensation Plan: Deferred compensation benefits and other expenses increased by $7.5 million, or 6.4 percent, from $117.8 million in fiscal year 2018 to $125.3 million in fiscal year 2019. Benefit payments were higher due to increased retirement activity.
- Retirement Health Insurance Account: RHIA healthcare premium and other payments decreased by $239.0 thousand, or 0.7 percent, from $33.8 million in fiscal year 2018 to $33.5 million in fiscal year 2019. This decrease was primarily attributed to a $269.0 thousand, or 0.8 percent, decrease in Healthcare Premium Subsidies due to a decrease in participants.
- Retiree Health Insurance Premium Account: RHIPA healthcare premium and other payments decreased by $132.0 thousand, or 2.7 percent, from $4.9 million in fiscal year 2018 to $4.8 million in fiscal year 2019, primarily due to a decrease in participants.

The tables on page 26 show condensed comparative summaries of the changes in fiduciary net position and reflect the activities of the plans administered by the System.

PROPRIETARY FUND

Standard Retiree Health Insurance Account (SRHIA) uses an enterprise fund to account for the activities of PERS' health insurance program (PHIP), a public entity risk pool.

NET POSITION

- The net position of the SRHIA as of June 30, 2019, was $89.7 million, a $17.1 million, or 23.5 percent, increase over fiscal year 2018. This increase was primarily due to an increase of $10.1 million, or 16.0 percent, in Cash and Cash Equivalents, generated from operating activities.
- There was an $8.3 million, or 90.6 percent, reduction in the Estimated Insurance Claims Due, due to a change from a minimum premium financing to conventionally funded arrangement, described on page 27.

TABLE 3
CHANGES IN FIDUCIARY NET POSITION, PENSION
(in thousands) For the Fiscal Years Ended June 30:

	Defined Benefit Pension Plan		Individual Account Program		Deferred Compensation Plan	
	2019	2018	2019	2018	2019	2018
Additions:						
Employer Contributions	$ 1,720,183	$ 1,390,111	$ –	$ –	$ –	$ –
Member Contributions	11,354	12,559	647,139	622,296	139,544	134,260
Net Investment and Other Income	4,010,048	6,247,472	565,352	772,501	104,964	169,578
Total Additions	5,741,585	7,650,142	1,212,491	1,394,797	244,508	303,838
Deductions:						
Pension Benefits	4,815,059	4,642,718	490,459	546,866	123,058	116,331
Other	50,306	51,627	12,568	12,310	2,278	1,470
Total Deductions	4,865,365	4,694,345	503,027	559,176	125,336	117,801
Net Increase	876,220	2,955,797	709,464	835,621	119,172	186,037
Net Position						
Beginning of Year	69,327,501	66,371,704	9,202,531	8,366,910	1,956,146	1,770,110
End of Year	$ 70,203,721	$ 69,327,501	$ 9,911,995	$ 9,202,531	$ 2,075,318	$ 1,956,147

TABLE 4
CHANGES IN FIDUCIARY NET POSITION, OTHER POSTEMPLOYMENT BENEFITS
(in thousands) For the Fiscal Years Ended June 30:

	Retirement Health Insurance Account		Retiree Health Insurance Premium Account	
	2019	2018	2019	2018
Additions:				
Employer Contributions	$ 49,615	$ 47,998	$ 14,009	$ 13,290
Net Investment and Other Income	35,959	50,869	2,455	2,383
Total Additions	85,574	98,867	16,464	15,673
Deductions:				
Healthcare Premium Subsidies	32,234	32,503	4,487	4,659
Other	1,312	1,282	318	278
Total Deductions	33,546	33,785	4,805	4,937
Net Increase	52,028	65,082	11,659	10,736
Net Position				
Beginning of year	576,862	511,780	35,032	24,296
End of Year	$ 628,890	$ 576,862	$ 46,691	$ 35,032

- There was a shift from a minimum premium funding plan with Moda Health that was in effect through December 31, 2018, to a conventionally funded plan that went into effect on January 1, 2019. Under the minimum premium programs, a monthly minimum premium that represented administrative, stoploss and other fixed costs was remitted. In addition, claims were invoiced on a weekly basis as Moda/Delta Dental made payments for services delivered to covered PERS members. Effective January 1, 2019, only the Delta Dental coverage was under the minimum premium funding arrangement, with the remaining plans being fully insured conventionally funded.

CHANGES IN NET POSITION

- SRHIA insurance premiums and other revenue for the fiscal year ended June 30, 2019, was $111.7 million, a $64.7 million, or 36.7 percent, decrease from fiscal year 2018. This decrease was primarily due to the change to the financing arrangement with one of the insurance providers from a minimum premium arrangement to a conventionally insured arrangement.
- SRHIA healthcare and other payments for the fiscal year ended June 30, 2019, decreased $64.4 million, or 40.5 percent, from $159.0 million in fiscal year 2018 to $94.6 million in fiscal year 2019 due primarily to the decreases in claims expense related to the change in financing arrangement, offset by the $8.3 million Change in Estimated Liabilities.

The tables below and on the next page show the condensed summary of net position and the condensed summary of changes in revenues, expenses, and net position for SRHIA.

TABLE 5
NET POSITION, PROPRIETARY FUND
(in thousands) As of June 30

	Standard Retiree Health Insurance Account	
	2019	2018
Cash and Receivables	$ 91,310	$ 83,336
Net OPEB Asset	4	1
Securities Lending Collateral	2,230	1,187
Total Assets	93,544	84,524
Deferred Outflows of Resources:		
Pensions	175	142
OPEB	3	3
Total Deferred Outflows of Resources	178	145
Claims Payable	865	9,200
Other Payables	424	1,269
Securities Lending Payable	2,230	1,187
Net Pension Liability	454	369
Other Liabilities	45	47
Total Liabilities	4,018	12,072
Deferred Inflows of Resources:		
Pensions	25	3
OPEB	2	1
Total Deferred Inflows of Resources	27	4
Total Net Position	$ 89,677	$ 72,593

TABLE 6
REVENUES, EXPENSES, AND CHANGES IN NET POSITION, PROPRIETARY FUND
(in thousands) For the Fiscal Years Ended June 30:

	Standard Retiree Health Insurance Account	
	2019	2018
Revenues:		
Insurance Premiums	$ 83,905	$ 137,827
Reinsurance Reimbursements	25,857	37,585
Investment and Other Income	1,922	971
Total Revenues	111,684	176,383
Expenses:		
Claims	91,575	142,437
Change in Estimated Liabilities	(8,335)	500
Administrative and Other Expense	11,360	16,109
Total Expenses	94,600	159,046
Net Increase	17,084	17,337
Net Position		
Beginning of Year	72,593	55,270
Cumulative Change in Accounting Principle	–	(14)
End of Year	$ 89,677	$ 72,593

NET PENSION LIABILITY

The Employers' Net Pension Liability (NPL) as of June 30, 2019, was $17,297.5 million, compared to a Net Pension Liability of $15,148.6 million as of June 30, 2018. The increase in Employers' Net Pension Liability was primarily due to a $3,025.1 million, or 3.58 percent, increase in Total Pension Liability, offset by a lesser increase in Fiduciary Net Position of $876.2 million, or 1.26 percent.

NET OPEB LIABILITY/(ASSET)

The Employers' Net OPEB Asset for RHIA as of June 30, 2019 was $193.3 million, compared to the Net OPEB Asset of $111.6 million as of June 30, 2018. The increase in Employers' Net OPEB Asset was primarily due to a 9.0 percent increase in Fiduciary Net Position as net investment income exceeded benefit payments.

The Employer's Net OPEB Liability for RHIPA as of June 30, 2019 was $25.3 million, compared to the Net OPEB Liability of $35.3 million as of June 30, 2018. The decrease in Employers' Net OPEB Liability was primarily due to a 33.3 percent increase in Fiduciary Net Position due to excess contributions..

INVESTMENT ACTIVITIES

During fiscal year 2019, investments increased a modest 3.7 percent over the prior fiscal year as markets moved toward more volatility. Holdings in all asset classes experienced positive investment returns, except Real Estate and Public Equity. The Alternatives Portfolio increased substantially by $1,221.3 million, or 20.4 percent, followed by Private Equity which increased by $1,049.3 million or 6.5 percent. The other portfolios changed as follows: Real Estate increased $639.2 million, or 7.7 percent; Debt Securities increased $848.1

million, or 5.5 percent; The Opportunity Portfolio decreased $48.3 million, or 2.7 percent; and Public Equity decreased $804.0 million, or 2.7 percent. One-year returns on asset classes and comparative benchmarks are presented in the table on page 31.

PLAN MEMBERSHIP

The table below reflects the Defined Benefit Pension Plan membership as of the end of the fiscal years.

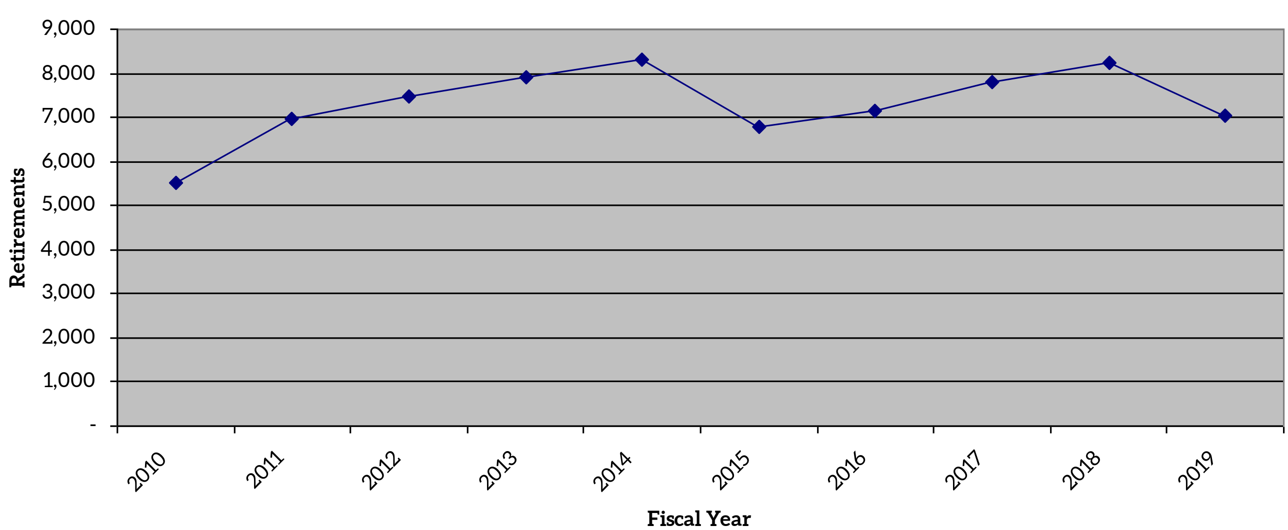
TABLE 7
CHANGES IN PLAN MEMBERSHIP
As of June 30:

	2019	2018	Percentage Change
Retirees and beneficiaries benefits:			
General	137,314	133,942	2.5 %
Police and Fire	12,072	11,921	1.3
Total	149,386	145,863	2.4
Current and terminated employees:			
Vested:			
General	205,822	202,912	1.4
Police and Fire	17,623	17,268	2.1
Nonvested:			
General	1,589	1,728	(8.0)
Police and Fire	79	82	(3.7)
Total	225,113	221,990	1.4 %

SERVICE RETIREMENTS

Service retirements decreased 14.7 percent in fiscal year 2019, primarily due to a decrease in inactive members receiving benefits. Service retirements in fiscal year 2019 were 7,037 compared to 8,251 in fiscal year 2018.

TABLE 8
RETIREMENTS FROM SERVICE
By Fiscal Year



CURRENTLY KNOWN FACTS, CONDITIONS, OR DECISIONS

The following are currently known facts, conditions, or decisions that are expected to have a significant effect on the System's financial position or results of operations:

- During the 2019 Legislative session, Senate Bill 1049 was approved and signed into law by the Governor. There are five components of the bill that will significantly impact the System, and will be implemented over the next few years:

    1. Employer Programs Project (Effective July 1, 2019): established the Employer Incentive Fund (EIF) Program, which will allow eligible employers to receive matching funds if they apply and make a qualifying deposit into a side account. In order to participate in this program, each Employer is required to also participate in the UAL Resolution Program (UALRP).
    2. Salary Limit Project (Effective January 1, 2020): A new salary cap will limit annual salary to $195,000 beginning with calendar year 2020. PERS subject salary paid by an employer (including contributions and final average salary) will be limited to $195,000 beginning with calendar year 2020. This amount will be indexed annually to the Consumer Price Index (CPI).
    3. Work After Retirement Project (Effective January 1, 2020): The 1,039-hour Work After Retirement limit for all PERS retirees is removed for calendar years 2020 through 2024. If a member retires on or after normal retirement age, starting in 2020, they can work for a PERS-covered employer and continue receiving their pension benefit (without accruing any new benefits) with no hour limitations. If a member retires earlier than normal retirement age, starting in 2020, they can work for a PERS-covered employer and continue receiving their pension benefit (without accruing any new benefits) with no hour limitations if the date of their employment is more than six months after their retirement date.
    4. Member Redirect Project (Effective July 1, 2020): For all currently employed Tier One/Tier Two and OPSRP members earning $2,500/month or more, a portion of their 6 percent IAP contributions will be redirected to an "Employee Pension Stability Account." The Employee Pension Stability Account will be used to pay for part of the member's future pension benefit.
        - Tier One/Tier Two Members: 2.5 percent of each member's salary, currently contributed to the IAP, (whether paid by the member or employer) will start going into an Employee Pension Stability Account (EPSA). The remaining 3.5 percent of salary will continue to go to the member's existing IAP account.
        - OPSRP Members: 0.75 percent of each member's salary, currently contributed to the IAP, (whether paid by the member or employer) will start going into their EPSA. The remaining 5.25 percent of salary will continue to go to the member's existing IAP account.
        - Members may voluntarily choose to make additional after-tax contributions into their IAP account to make a full, 6 percent contribution to the IAP.
    5. Member Choice Project (Effective January 1, 2021): IAP accounts are currently invested in Target-Date Funds based on a member's birth year. Beginning in 2021, members may choose to invest their IAP balance in a fund that is more reflective of their risk tolerance than the default based on their age.

CONTACTING THE SYSTEM'S FINANCIAL MANAGEMENT

This financial report is designed to provide plan participants, employers, citizens, taxpayers, and others with a general overview of the System's finances and to demonstrate the Board's oversight of the System. If you have questions about this report or need additional financial information, please contact the Financial and Administrative Services Division Administrator at P.O. Box 23700, Tigard, Oregon 97281-3700

Table 9
Investment Results*
Periods Ended June 30,

	2019	2018
Total Portfolio, Excluding Variable Account	6.52 %	9.40 %
Policy Benchmark[1]	7.20	9.19
Variable Account	4.91	11.53
Benchmark: MSCI All Country World Investable Market Index Net	4.56	11.14
Domestic Stocks	5.30	15.01
Benchmark: Russell 3000 Index	8.98	14.78
International Stocks	0.39	8.88
Benchmark: MSCI All Country World ex-US Investable Market Index Net	0.26	7.75
Fixed Income Segment	7.24	0.28
Benchmark: Custom Index[2]	7.15	0.24
Real Estate[3]	5.85	8.65
Benchmark: Oregon Custom Real Estate Benchmark[3]	6.55	7.11
Private Equity[4]	15.03	17.75
Benchmark: Russell 3000 Index + 300 bps	12.01	17.19
Alternatives Portfolio	(2.65)	4.45
Benchmark: Consumer Price Index + 400 bps	5.71	6.98
Opportunity Portfolio	3.55	7.28
Benchmark: Consumer Price Index + 500 bps	6.72	8.00

The rates of return reported in the Investment Section are based on a time-weighted rate of return methodology based upon market values, unless disclosed otherwise in the footnotes to the associated tables.

* Investment Results are based upon OIC asset classes as determined by each manager's primary investment type, not the financial statement classification of individual holdings.

[1] From October 1, 2013 to March 31, 2016, the policy benchmark was 20% Russell 3000+300 Bps quarter lag, 23.5% Oregon Custom FI Benchmark, 12.5% NCREIF Property Index quarter lag, 41.5% MSCI ACWI and 2.5% CPI+4%.
From April 1, 2016 to June 30, 2016 the policy benchmark was 20% Russell 3000+300 Bps quarter lag, 23.5% Oregon Custom FI Benchmark, 12.5% Oregon Custom Real Estate Benchmark, 41.5% MSCI AC World Index and 2.5% CPI+4%.
From July 1, 2016 to March 1, 2018 the policy benchmark is 20% Russell 3000+300 Bps quarter lag, 22.5% Oregon Custom FI Benchmark, 12.5% Oregon Custom Real Estate Benchmark, 40% MSCI ACWI IMI Net and 5% CPI+4%.
From April 1, 2018 to present the policy benchmark is 19% Russell 3000+300 Bps quarter lag, 22% Oregon Custom FI Benchmark, 12.5% Oregon Custom Real Estate Benchmark, 39% MSCI ACWI IMI Net and 7.5% CPI+4%.

[2] From March 1, 2011 to December 31, 2013, index was 60% Barclays Capital (BC) U.S. Universal Index, 20% S&P/LSTA Leveraged Loan Index, 10% JP Morgan Emerging Market Bond Index Global Index, and 10% Bank of America Merrill Lynch (BofA ML) High Yield Master II Index.
From January 1, 2014 to February 29, 2016, index was 40% BC U.S. Aggregate Bond, 40% BC U.S. 1-3 Year Government/Credit Bond Index, 15% S&P LSTA Leveraged Loan Index, and 5% BofA ML High Yield Master II Index.
From March 1, 2016 to present, index is 46% Barclays Aggregate Bond, 37% Barclays Treasury, 13% S&P LSTA and 4% BofA ML High Yield Master II.

[3] Through March 31, 2016, the Oregon Custom Real Estate Benchmark was made up of the NCREIF Property quarter lag Index.
From April 1, 2016, the benchmark, is made up of the NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE) quarter lag Net of Fees.
From July 1, 2017, the monthly return is calculated as the geometrically linked monthly-portion of the quarterly return. Returns are not actual monthly, but rather equivalent for all intra-quarter months, in order to match the actual quarterly return.

[4] Through December 31, 2016, the Private Equity return combines the estimated return from the most recent quarter with a revision component that trues up the past two quarters' reported returns with the past two quarters' actual returns.

[5] Until June 30, 2017 the index is Russell 3000+300 Bps, quarter lag. From July 1, 2017, the monthly return is calculated as the geometrically linked monthly-portion of the quarterly return. Returns are not actual monthly, but rather equivalent for all intra-quarter months, in order to match the actual quarterly return.

Basic Financial Statements

Statement of Fiduciary Net Position
Pension and Other Postemployment Benefit Plans
As of June 30, 2019, with Comparative Totals as of June 30, 2018

			Defined Benefit OPEB Plans	
	Defined Benefit Pension Plan	Oregon Public Service Retirement Plan Individual Account Program	Retirement Health Insurance Account	Retiree Health Insurance Premium Account
Assets:				
Cash and Cash Equivalents	$ 2,576,485,372	$ 318,749,070	$ 25,385,858	$ 3,848,018
Receivables:				
Employer	54,289,303	–	1,746,885	1,311,346
Plan Member	–	1,644,533	–	–
Interest and Dividends	138,529,258	14,888,862	1,256,375	85,503
Member Loans	–	–	–	–
Investment Sales and Other Receivables	866,770,174	89,047,266	7,541,586	538,201
Transitional Liability	453,335,964	–	–	–
Total Receivables	1,512,924,699	105,580,661	10,544,846	1,935,050
Due from Other Funds	1,444,960	10,263,929	620,569	229,221
Investments:				
Debt Securities	13,013,696,271	2,755,532,887	118,026,237	8,032,331
Public Equity	23,942,881,517	3,557,591,360	212,785,852	14,481,241
Real Estate	8,025,792,884	862,596,981	72,789,015	4,953,691
Private Equity	15,449,787,790	1,660,513,858	140,120,092	9,535,939
Alternatives Portfolio	6,461,539,560	694,474,004	58,602,198	3,988,200
Opportunity Portfolio	1,537,645,907	165,263,263	13,945,505	949,068
Total Investments	68,431,343,929	9,695,972,353	616,268,899	41,940,470
Securities Lending Collateral	813,155,680	87,490,324	7,380,448	510,534
Prepaid Expenses	5,658,338	456,882	38,553	2,624
Capital Assets at Cost, Net	24,628,483	226,867	–	–
Total Assets	**73,365,641,461**	**10,218,740,086**	**660,239,173**	**48,465,917**
Liabilities:				
Investment Purchases and Accrued Expenses	2,269,341,483	200,410,208	19,539,811	1,182,728
Deposits and Other Liabilities	68,126,292	17,636,654	4,397,869	53,891
Due Other Funds	11,113,719	1,188,160	29,448	27,457
Securities Lending Collateral Due Borrowers	813,339,348	87,510,065	7,382,113	510,647
Total Liabilities	**3,161,920,842**	**306,745,087**	**31,349,241**	**1,774,723**
Net Position:				
Restricted for:				
Defined Benefit Pension Plan	70,203,720,619	–	–	–
Other Postemployment Benefits (OPEB)	–	–	628,889,932	46,691,194
Other Employee Benefits:				
Individual Account Program	–	9,911,994,999	–	–
Deferred Compensation Plan	–	–	–	–
Total Net Position	**$ 70,203,720,619**	**$ 9,911,994,999**	**$ 628,889,932**	**$ 46,691,194**

The accompanying notes are an integral part of the financial statements.

Deferred Compensation Plan	2019	2018
$ 6,241,900	$ 2,930,710,218	$ 4,301,913,061
–	57,347,534	70,074,492
–	1,644,533	8,890,096
673,774	155,433,772	137,411,068
12,705,365	12,705,365	12,332,389
226,410	964,123,637	2,259,152,395
–	453,335,964	493,252,928
13,605,549	1,644,590,805	2,981,519,856
–	12,558,679	10,624,304
381,971,607	16,277,259,333	15,429,157,797
1,675,530,552	29,403,270,522	30,207,233,914
–	8,966,132,571	8,326,898,466
–	17,259,957,679	16,210,706,197
–	7,218,603,962	5,997,324,626
–	1,717,803,743	1,766,087,042
2,057,502,159	80,843,027,810	77,937,408,042
6,208	908,543,194	1,182,847,929
–	6,156,397	4,433,149
–	24,855,350	27,271,584
2,077,355,816	**86,370,442,453**	**86,445,611,437**
1,305,536	2,491,779,766	4,044,244,999
599,834	90,814,540	109,725,955
126,667	12,485,451	10,540,074
6,208	908,748,381	1,183,028,260
2,038,245	**3,503,828,138**	**5,347,539,288**
–	70,203,720,619	69,327,500,445
–	675,581,126	611,893,971
	9,911,994,999	9,202,531,398
2,075,317,571	2,075,317,571	1,956,146,335
$ 2,075,317,571	**$ 82,866,614,315**	**$ 81,098,072,149**

Statement of Changes in Fiduciary Net Position
Pension and Other Postemployment Benefit Plans
For the Fiscal Year Ended June 30, 2019, with Comparative Totals for the Fiscal Year Ended June 30, 2018

			Defined Benefit OPEB Plans	
	Defined Benefit Pension Plan	Oregon Public Service Retirement Plan Individual Account Program	Retirement Health Insurance Account	Retiree Health Insurance Premium Account
Additions:				
Contributions:				
Employer	$ 1,720,183,341	$ –	$ 49,615,345	$ 14,009,075
Plan Member	11,354,366	647,139,479	–	–
Total Contributions	1,731,537,707	647,139,479	49,615,345	14,009,075
Investment Income:				
Net Appreciation in Fair Value of Investments	3,042,039,424	468,736,261	27,514,502	1,911,860
Interest, Dividends and Other Investment Income	1,754,489,230	184,743,294	15,531,508	988,616
Total Investment Income	4,796,528,654	653,479,555	43,046,010	2,900,476
Less Investment Expense	(811,137,791)	(89,345,727)	(7,158,129)	(449,669)
Net Investment Income	3,985,390,863	564,133,828	35,887,881	2,450,807
Securities Lending Income:				
Securities Lending Income	28,088,195	2,933,532	246,402	15,221
Less Securities Lending Expense	(20,315,196)	(2,122,721)	(178,306)	(11,052)
Net Securities Lending Income	7,772,999	810,811	68,096	4,169
Other Income	16,884,167	407,313	3,391	197
Total Additions	5,741,585,736	1,212,491,431	85,574,713	16,464,248
Deductions:				
Benefits	4,810,975,064	490,459,364	–	–
Death Benefits	4,083,536	–	–	–
Refunds of Contributions	11,903,642	–	–	–
Administrative Expense	38,403,320	12,568,466	1,312,229	318,425
Healthcare Premium Subsidies	–	–	32,234,400	4,486,752
Total Deductions	4,865,365,562	503,027,830	33,546,629	4,805,177
Change in Net Position	**876,220,174**	**709,463,601**	**52,028,084**	**11,659,071**
Net Position				
Beginning of Year	69,327,500,445	9,202,531,398	576,861,848	35,032,123
End of Year	**$ 70,203,720,619**	**$ 9,911,994,999**	**$ 628,889,932**	**$ 46,691,194**

The accompanying notes are an integral part of the financial statements.

Deferred Compensation Plan	2019	2018
$ –	$ 1,783,807,761	$ 1,451,399,597
139,543,729	798,037,574	769,114,659
139,543,729	2,581,845,335	2,220,514,256
93,596,167	3,633,798,214	6,141,242,443
13,463,857	1,969,216,505	1,767,039,747
107,060,024	5,603,014,719	7,908,282,190
(3,717,336)	(911,808,652)	(680,011,556)
103,342,688	4,691,206,067	7,228,270,634
56	31,283,406	30,131,573
(56)	(22,627,331)	(19,912,978)
–	8,656,075	10,218,595
1,621,080	18,916,148	4,314,540
244,507,497	7,300,623,625	9,463,318,025
123,057,988	5,424,492,416	5,301,065,697
–	4,083,536	4,849,807
–	11,903,642	13,876,294
2,278,273	54,880,713	53,090,243
–	36,721,152	37,162,676
125,336,261	5,532,081,459	5,410,044,717
119,171,236	**1,768,542,166**	**4,053,273,308**
1,956,146,335	81,098,072,149	77,044,798,841
$ **2,075,317,571**	$ **82,866,614,315**	$ **81,098,072,149**

Statement of Net Position
Proprietary Fund
As of June 30, 2019, with Comparative Totals as of June 30, 2018

	Enterprise Fund	
	Standard Retiree Health Insurance Account	
	2019	2018
Assets:		
Current Assets		
Cash and Cash Equivalents	$ 73,508,225	$ 63,379,394
Reinsurance Reimbursements and Rebate Receivables	17,802,127	19,956,310
Securities Lending Collateral	2,229,576	1,186,752
Total Current Assets	**93,539,928**	**84,522,456**
Non-current Assets		
Net OPEB Asset	3,702	1,289
Total Non-current Assets	**3,702**	**1,289**
Total Assets	**93,543,630**	**84,523,745**
Deferred Outflows of Resources		
Pensions	174,954	142,149
OPEB	3,445	3,200
Total Deferred Outflows of Resources	**178,399**	**145,349**
Liabilities:		
Current Liabilities		
Accrued Expenses	331,605	1,167,810
Compensated Absences	17,234	15,882
Due to Other Funds	73,228	84,230
Estimated Insurance Claims Due	865,000	9,200,000
Pension-Related Debt	1,966	1,400
Securities Lending Collateral Due Borrowers	2,229,576	1,186,752
Total Current Liabilities	**3,518,609**	**11,656,074**
Non-current Liabilities		
Compensated Absences	8,878	8,552
Pension-Related Debt	19,672	21,966
Other Liabilities	16,294	16,656
Net Pension Liability	454,125	368,837
Total Non-current Liabilities	**498,969**	**416,011**
Total Liabilities	**4,017,578**	**12,072,085**
Deferred Inflows of Resources		
Pensions	25,524	3,082
OPEB	1,594	909
Total Deferred Inflows of Resources	**27,118**	**3,991**
Net Position:		
Restricted for:		
OPEB	3,702	1,289
Unrestricted	89,673,631	72,591,729
Total Net Position	**$ 89,677,333**	**$ 72,593,018**

The accompanying notes are an integral part of the financial statements.

Statement of Revenues, Expenses, and Changes in Net Position
Proprietary Fund
For the Fiscal Year Ended June 30, 2019, with Comparative Totals for the Fiscal Year Ended June 30, 2018

	Enterprise Fund	
	Standard Retiree Health Insurance Account	
	2019	2018
Operating Revenues:		
Insurance Premium Revenue	$ 83,905,350	$ 137,827,233
Reinsurance Reimbursements	25,856,914	37,585,003
Other Income	315	–
Total Operating Revenues	109,762,579	175,412,236
Operating Expenses:		
Claims Expense	91,574,566	142,436,948
Increase/(Decrease) in Estimated Liabilities	(8,335,000)	500,000
Administrative Expense	11,359,850	16,109,792
Total Operating Expenses	94,599,416	159,046,740
Operating Income	**15,163,163**	**16,365,496**
Non-Operating Revenues:		
Interest, Dividends and Other Investment Income	1,921,152	971,245
Securities Lending Income	29,667	5,977
Less Securities Lending Expense	(29,667)	(5,977)
Net Securities Lending Income	–	–
Total Non-Operating Revenues	1,921,152	971,245
Change in Net Position	17,084,315	17,336,741
Total Net Position		
Beginning of Year	72,593,018	55,256,277
End of Year	**$ 89,677,333**	**$ 72,593,018**

The accompanying notes are an integral part of the financial statements.

Statement of Cash Flows

Proprietary Fund

For the Fiscal Year Ended June 30, 2019, with Comparative Totals for the Fiscal Year Ended June 30, 2018

	Enterprise Fund	
	Standard Retiree Health Insurance Account	
	2019	**2018**
Cash Flows from Operating Activities:		
Insurance Premiums and Reinsurance Reimbursements	$ 111,916,447	$ 180,233,809
Claims Paid	(91,574,566)	(142,436,948)
Other Receipts	315	–
Other Payments	(12,134,518)	(17,339,069)
Net Cash Provided by Operating Activities	**8,207,679**	**20,457,792**
Cash Flows from Investing Activities:		
Interest and Dividends Received	1,921,152	971,245
Net Increase in Cash and Cash Equivalents	10,128,831	21,429,037
Cash and Cash Equivalents Beginning of Year	63,379,394	41,950,357
Cash and Cash Equivalents End of Year	$ 73,508,225	$ 63,379,394
Reconciliation of Operating Income to Net Cash Provided by Operating Activities		
Operating Income	$ 15,163,163	$ 16,365,496
Adjustments to reconcile operating income to net cash provided by operating activities:		
Effect of Cumulative Change in Accounting Principle	–	(14,076)
Changes in assets, deferred outflows of resources, liabilities, and deferred inflows of resources:		
Reinsurance Reimbursements and Rebate Receivables	2,154,183	4,821,573
Net OPEB Asset	(2,413)	(1,289)
Deferred Outflows of Resources - Pension	(32,805)	60,231
Deferred Outflows of Resources - OPEB	(245)	(3,200)
Accrued Expenses	(836,205)	(1,282,198)
Compensated Absences	1,678	528
Due to Other Funds	(11,002)	22,890
Estimated Insurance Claims Due	(8,335,000)	500,000
Pension-Related Debt	(1,728)	(1,406)
Other Liabilities	(362)	(1,574)
Net Pension Liability	85,288	(9,578)
Deferred Inflows of Resources - Pension	22,442	(514)
Deferred Inflows of Resources - OPEB	685	909
Net Cash Provided by Operating Activities	**$ 8,207,679**	**$ 20,457,792**

The accompanying notes are an integral part of the financial statements.

Note 1 - Summary of Significant Accounting Policies

A. Reporting Entity

The Oregon State Treasurer has statutory responsibility for custody and investment of the Oregon Public Employees Retirement System's (PERS or the System) assets. As a result of this fiduciary responsibility, PERS is included as part of the primary government in the *State of Oregon Comprehensive Annual Financial Report*.

B. Basis of Presentation

The accompanying financial statements are prepared on the basis of a fiscal year ended June 30, 2019, in accordance with generally accepted accounting principles in the United States of America as set forth in Governmental Accounting Standards Board (GASB) pronouncements that apply to governmental accounting for fiduciary funds and enterprise funds. Fiduciary funds are used to account for assets held by a governmental unit in a trustee capacity (trust funds). Proprietary funds may be used to report any activity for which a fee is charged to external users for goods or services.

PERS' pension, other postemployment benefits (OPEB), and deferred compensation activities are accounted for in five pension and other postemployment benefit trust funds:

- Defined Benefit Pension Plan, a cost-sharing, multiple-employer plan, which includes the Variable Annuity Account
- Oregon Public Service Retirement Plan – Individual Account Program, an individual account-based program under the PERS tax-qualified governmental plan
- Retirement Health Insurance Account, a cost-sharing, multiple-employer plan
- Retiree Health Insurance Premium Account, a single-employer plan
- Deferred Compensation Fund (Oregon Savings Growth Plan)

PERS' public entity risk pool activity is accounted for in a single proprietary enterprise fund:

- Standard Retiree Health Insurance Account

C. Basis of Accounting

The accrual basis of accounting is used for all funds. Revenues are recognized when earned. Contributions are recognized when due, pursuant to legal (or statutory) requirements. Benefits and withdrawals are recognized when they are currently due and payable in accordance with the terms of the plans.

Proprietary funds distinguish operating revenues and expenses from non-operating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with a proprietary fund's principal ongoing operations. The principal operating revenues are insurance premiums and reinsurance reimbursements, and operating expenses include claims and administrative expenses. All revenues and expenses not meeting this definition are reported as non-operating revenues and expenses. Deferred outflows of resources related to pensions and OPEB resulting from contributions made subsequent to the measurement date will be recognized as a reduction of the net pension liability and net OPEB liability, or an increase in the net OPEB asset in the following year. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions and OPEB will be recognized in pension and OPEB expenses for approximately each of the subsequent four years.

D. Investments

Oregon Revised Statute (ORS) 293.706 established the Oregon Investment Council (OIC), which consists of five voting members. Four members of the council, who are qualified by training and experience in the field of investment or finance, are appointed by the Governor subject to state Senate confirmation. The State Treasurer serves as the council's remaining voting member. In addition, the Director of the System serves as a non-voting OIC member.

ORS 293.701 defines the investment funds over which OIC has responsibility. Included are the Oregon Public Employees Retirement Fund (OPERF), which is comprised of the Defined Benefit Pension Plan, the Individual Account Program, the Other Postemployment Benefit plans, and the Deferred Compensation Fund. OIC establishes policies for the investment and reinvestment of moneys in the investment funds as well as the acquisition, retention, management, and disposition of investments in the investment funds. OIC is also responsible for providing an examination of the effectiveness of the investment program.

OIC ensures moneys in the investment funds are invested and reinvested to achieve the investment objective of making the moneys as productive as possible. Furthermore, the investments of those funds are managed as a prudent investor would do under the prevailing circumstances and in light of the purposes, terms, distribution requirements, and laws governing each investment fund. This standard requires the exercise of reasonable care, skill, and caution and is applied to investments not in isolation, but in the context of each fund's portfolio as part of an overall investment strategy. The strategy should incorporate risk and return objectives reasonably suitable to the particular investment fund.

When implementing investment decisions, OIC has a duty to diversify the investments of the investment funds unless, under the circumstances, it is not prudent to do so. In addition, OIC must act with prudence when selecting agents and delegating authority.

Investments are recognized at fair value, the amount that could be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.

Investments that do not have a readily determinable fair value are valued using the net asset value (NAV) per share. Such values generally represent PERS' ownership interest in partnership capital.

The fair value of publicly traded debt and equity securities in active markets is determined by the custodian's pricing agent using nationally recognized pricing services. The custodian's pricing agent values equity securities traded on a national or international exchange at the last reported sales price and generally values debt securities by using evaluated bid prices. For securities that do not have an active market, such as private placements or commingled investment vehicles, a market price is calculated by either the custodian's pricing agent or the investment manager. For example, a similar benchmark security may be used to derive the fair value. The benchmark will typically have a coupon rate and maturity date comparable to the debt security being valued, and its market risk will be similar, considering current market conditions. The fair value of real estate investment trust (REIT) securities is determined by the custodian's pricing agent using recognized pricing services.

Investments in real estate, other than publicly traded REITS, for which observable market prices in active markets do not exist, are reported at fair value as of June 30, 2019, as determined by management based on valuation information provided in good faith by the general partner. Direct investments in real estate are appraised every two to three years, and between appraisals, investment managers adjust values to reflect current and projected operating performance and financial transactions. In the absence of observable market prices, general partners determine the fair value of real estate partnerships using valuation methods considered most appropriate. A variety of factors are considered, including the nature of the investment, local market conditions, trading values on public exchanges for comparable investments, current and projected operating performance, and financing transactions subsequent to the acquisition of the investment.

Investments in private equities are recorded at fair value as of June 30, 2019, as determined by management based on valuation information provided by the general partner. Investments in private equities representing publicly traded securities are stated at quoted market price. Where observable market inputs are not available, valuation models are applied. The general partner determines fair value based on the best information available and by reference to information including, but not limited to, the following: projected sales, net earnings, earnings before interest, taxes, depreciation and amortization, balance sheets, public and private transactions, valuations for publicly traded comparable companies, and/or other measures, and consideration of any other pertinent information including the types of securities held and the general partner's own assumptions regarding the investment. The methods used to determine the fair value of these investments typically include: (1) the market approach (whereby fair value is derived by reference to observable valuation measures for comparable companies or assets) and (2) the income approach (e.g., the discounted cash flow method).

Investments in the opportunity and alternatives portfolios are recorded at fair value as of June 30, 2019 by the respective general partner or account manager. Investments in the opportunity and alternatives portfolios representing publicly traded securities are stated at quoted market price. Where observable market inputs are not available, valuation models are applied. The general partner or account manager determines fair value based on the best information available and by reference to information including, but not limited to, the following: projected sales, net earnings, earnings before interest, taxes, depreciation, and amortization, balance sheets, public and private transactions, valuations for publicly traded comparable companies, and/or other measures, and consideration of any other pertinent information including the types of securities held and the general partner's own assumptions regarding the investment. The methods used to determine the fair value of these investments typically include: (1) the market approach (whereby fair value is derived by reference to observable valuation measures for comparable companies or assets); (2) the income approach (e.g. the discounted cash flow method).

Due to the inherent uncertainty and the degree of judgment involved in determining private equity, opportunity, real estate, and alternatives portfolio investment valuations, the fair values reflected in the accompanying financial statements may differ significantly from values that would have been used had a readily determinable fair value for the investments existed and the difference could be material. In addition, these investments are generally considered to be illiquid long-term investments, and the recorded fair values may materially differ from the amounts that eventually may be realized from the sale or other disposition of these investments.

OIC has approved the following asset classes for the OPERF: Short-Term Investments, Fixed Income, Real Estate, Public and Private Equities, and Alternative Investments. In addition, OPERF invests in the Opportunity Portfolio, which may be populated with investment approaches across a wide range of investment opportunities with no limitation as to asset classes or strategies. OIC must approve, in advance, the purchase of investments in a new asset class not described above.

Table 1 below displays the OIC approved asset allocation policy. See the Long-Term Expected Rate of Return table on page 74.

TABLE 1

Asset Class	Target Allocation
Cash	0.0%
Debt Securities	20.0%
Public Equity	37.5%
Private Equity	17.5%
Real Estate	12.5%
Alternatives Portfolio	12.5%
Opportunity Portfolio	0.0%
Total	100.0%

See Geometric Return Table 31 on page 74

E. Earnings Crediting

By law earnings are credited to member accounts on a calendar-year basis. Members in Tier One are currently guaranteed to receive at least the assumed earnings rate used in the most recent actuarial valuation. Members participating in the Variable Annuity Account, IAP members, and Tier Two members are credited actual earnings or losses, less deductions allowed by law.

F. Administrative Costs

The System's administrative expenses are funded from investment earnings and administrative fees collected from members and are allocated to all plans and programs administered by the System. If investment earnings and fees are insufficient for such purpose, the remaining expenses are paid from employer contributions.

G. Use of Estimates in the Preparation of Financial Statements

The preparation of the System's financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect certain financial statement amounts and disclosures. Actual results could differ from those estimates.

H. Comparative Totals

The basic financial statements include certain prior year summarized comparative information in total, but not at the level of detail required for a presentation in conformity with the accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with the System's financial statements as of and for the fiscal year ended June 30, 2018, from which the summarized information was derived.

Certain reclassifications have been made to the comparative totals as of and for the fiscal year ended June 30, 2018, to conform to the presentation as of and for the fiscal year ended June 30, 2019.

Note 2 - Description of Plan

A. Organization

PERS administers a cost-sharing, multiple-employer defined benefit pension plan for units of state government, political subdivisions, community colleges, and school districts, containing multiple actuarial pools. Plan assets may be used to pay the benefits of the employees of any employer that provides pensions through the Plan. Participation by state government units, school districts, and community colleges is mandatory. Participation by most political subdivisions is optional but irrevocable if elected. As of June 30, 2019, there were 906 participating employers.

PERS is administered in accordance with Oregon Revised Statutes (ORS) Chapter 238, Chapter 238A, and Internal Revenue Code Section 401(a). The Oregon Legislature has delegated authority to the Public Employees Retirement Board (Board) to administer and manage the System. All members of the Board are appointed by the Governor and confirmed by the Senate. The Governor designates the chairperson. One member must be a public employer manager or a local elected official, one member must be a union-represented public employee or retiree, and three members must have experience in business management, pension management, or investing.

B. Plan Membership

Employer, retiree, active and inactive member data as of June 30, 2019, is shown in Table 2 on the following page.

The 1995 Legislature enacted Chapter 654, Section 3, Oregon Laws 1995, which has been codified into ORS 238.435. This legislation created a second tier of benefits for those who established membership on or after January 1, 1996. The second tier does not have the Tier One assumed earnings rate guarantee and has a higher normal retirement age of 60, compared to age 58 for Tier One.

As of June 30, 2019, there were 18,971 active plan

TABLE 2

Plan Membership as of June 30, 2019	Employers	Defined Benefit Plan Tier 1	Defined Benefit Plan Tier 2	Defined Benefit Plan OPSRP	Total	Postemployment Healthcare RHIA	Postemployment Healthcare RHIPA
Employers							
State Agencies	109						
School Districts	296						
Political Subdivisions	484						
Community Colleges	17						
Total Employers	**906**						
Inactive Members - General Service							
Retirees and beneficiaries currently receiving benefits		115,177	14,199	5,301	134,677	41,749	801
Alternate Payees currently receiving benefits		2,530	95	12	2,637	n/a	n/a
Inactive Members - General Service Receiving Benefits		***117,707***	***14,294***	***5,313***	***137,314***	***41,749***	***801***
Inactive members eligible for, but not yet receiving benefits		7,392	5,502	5,656	18,550	10,724	n/a
Inactive members eligible for refund value of account only		3,304	9,253	n/a[1]	12,557	n/a	n/a
Inactive members not eligible for refund or retirement		0	0	15,388	15,388	n/a	n/a
Inactive Members - General Service Not Receiving Benefits		***10,696***	***14,755***	***21,044***	***46,495***	***10,724***	–
Total Inactive Members - General Service		**128,403**	**29,049**	**26,357**	**183,809**	**52,473**	**801**
Inactive Members - Police and Fire							
Retirees and beneficiaries currently receiving benefits		9,904	1,256	324	11,484	2,459	104
Alternate Payees currently receiving benefits		566	17	5	588	n/a	n/a
Inactive Members - Fire and Police Receiving Benefits		***10,470***	***1,273***	***329***	***12,072***	***2,459***	***104***
Inactive members eligible for, but not yet receiving benefits		263	276	212	751	623	n/a
Inactive members eligible for refund value of account only		106	535	n/a[1]	641	n/a	n/a
Inactive members not eligible for refund or retirement		0	0	899	899	n/a	n/a
Inactive Members - Fire and Police Not Receiving Benefits		***369***	***811***	***1,111***	***2,291***	***623***	–
Total Inactive Members - Fire and Police		**10,839**	**2,084**	**1,440**	**14,363**	**3,082**	**104**
Active Members - General Service							
State Agencies		4,888	7,248	31,446	43,582	11,275	11,890
School Districts		7,503	13,683	51,891	73,077	18,208	n/a
Political Subdivisions		4,176	6,335	25,704	36,215	9,500	n/a
Community Colleges		730	1,406	5,906	8,042	1,923	n/a
Total Active Members - General Service		**17,297**	**28,672**	**114,947**	**160,916**	**40,906**	**11,890**
Active Members - Police and Fire							
State Agencies		605	1,541	3,971	6,117	2,015	2,092
School Districts		15	23	49	87	15	n/a
Political Subdivisions		1,051	2,200	5,935	9,186	3,021	n/a
Community Colleges		3	5	13	21	1	n/a
Total Active Members - Fire and Police		**1,674**	**3,769**	**9,968**	**15,411**	**5,052**	**2,092**
Grand Total Members		**158,213**	**63,574**	**152,712**	**374,499**	**101,513**	**14,887**

[1] Defined benefit only. No individual accounts are maintained.

[2] Data for 2019 provided by Multnomah County was incomplete at the time this table was prepared, leading to understated totals for non-retired members.

members, 128,177 retired plan members or their beneficiaries currently receiving benefits, 11,065 inactive plan members entitled to but not yet receiving benefits, for a total of 158,213 Tier One members.

For Tier Two members, as of June 30, 2019, there were 32,441 active plan members, 15,567 retired plan members or their beneficiaries currently receiving benefits, 15,566 inactive plan members entitled to but not yet receiving benefits, for a total of 63,574.

The 2003 Legislature enacted HB 2020, codified as ORS 238A, which created the Oregon Public Service Retirement Plan (OPSRP). OPSRP consists of the Pension Program and the Individual Account Program. Membership includes public employees hired on or after August 29, 2003.

As of June 30, 2019, there were 124,915 active plan members, 5,642 retired plan members or their beneficiaries currently receiving benefits, 5,868 inactive plan members entitled to but not yet receiving benefits, and 16,287 inactive plan members not eligible for refund or retirement, for a total of 152,712 OPSRP Pension Program members.

Beginning January 1, 2004, PERS active Tier One and Tier Two members became members of the Individual Account Program (IAP) of OPSRP. PERS members retain their existing Regular or Variable accounts, but member contributions are now deposited into the member's IAP account. Accounts are credited with earnings and losses net of administrative expenses. OPSRP is part of PERS and is administered by the Board. The PERS Board is directed to adopt any rules necessary to administer OPSRP, and such rules are to be considered part of the plan for IRS purposes.

C. Plan Benefits

a. PERS Pension (Chapter 238 — Tier One/Tier Two)

1. Pension Benefits

The PERS retirement allowance is payable monthly for life. Members may select from 13 retirement benefit options that are actuarially equivalent to the base benefit.

These options include survivorship benefits and lump-sum refunds. The basic benefit is based on years of service and final average salary. A percentage (2.0 percent for Police and Fire employees, 1.67 percent for General Service employees) is multiplied by the number of years of service and the final average salary. Benefits may also be calculated under a formula plus annuity (for members who were contributing before August 21, 1981) or a money match computation if a greater benefit results. Monthly payments must be a minimum of $200 per month or the member will receive a lump-sum payment of the actuarial equivalence of benefits to which he or she is entitled.

Police and Fire members may purchase increased benefits that are payable between the date of retirement and age 65.

A member is considered vested and will be eligible at minimum retirement age for a service retirement allowance if he or she has had a contribution in each of five calendar years or has reached at least 50 years of age before ceasing employment with a participating employer (age 45 for Police and Fire members). General Service employees may retire after reaching age 55. Police and Fire members are eligible after reaching age 50. Tier One General Service employee benefits are reduced if retirement occurs prior to age 58 with fewer than 30 years of service. Police and Fire member benefits are reduced if retirement occurs prior to age 55 with fewer than 25 years of service. Tier Two members are eligible for full benefits at age 60. The plans are closed to new members hired on or after August 29, 2003.

A judge member who has made contributions to PERS during each of five calendar years shall receive a retirement allowance, payable monthly, for life. Before reaching age 60, judge members must choose the calculation formula under which they will retire. The election is irrevocable after the member attains age 60. The two formulas, A and B, are described in the following paragraph.

The Plan A retirement allowance for judge members is computed by multiplying 2.8125 percent by the final average salary for the first 16 years of service and 1.67 percent of the final average salary multiplied by the number of years of service as a judge in excess of 16. For most judge members the maximum amount is limited to 65 percent of final average salary. The Plan B retirement allowance for judge members is computed by multiplying 3.75 percent by the final average salary for the first 16 years of service and 2.0 percent of the final average salary multiplied by the number of years of service as a judge in excess of 16 years of service. For most judge members the maximum amount is limited to 75 percent of final average salary. Plan B requires a judge to serve up to 35 days per year for a period of five years as a pro tem judge. There is no actuarial reduction for retirement before age 65.

2. Death Benefits

Upon the death of a non-retired member, the beneficiary receives a lump-sum refund of the member's account balance (accumulated contributions and interest). In addition, the beneficiary will receive a lump-sum payment from employer funds equal to the account balance, provided one or more of the following conditions are met:

- the member was employed by a PERS employer at the time of death,
- the member died within 120 days after termination of PERS-covered employment,
- the member died as a result of injury sustained while employed in a PERS-covered job, or
- the member was on an official leave of absence from a PERS-covered job at the time of death.

A member's beneficiary may choose a monthly payment for life instead of the lump-sum or a combination of lump-sum and monthly payments, if eligible. The monthly payment must be a minimum of $30 per month for deaths that occur July 30, 2003, and earlier; $200 per month for deaths that occur after July 30, 2003.

3. Disability Benefits

A member with 10 or more years of creditable service who becomes disabled from other than duty-connected causes may receive a non-duty disability benefit. A disability resulting from a job-incurred injury or illness qualifies a member (including PERS judge members) for disability benefits regardless of the length of PERS-covered service. Upon qualifying for either a non-duty or duty disability, service time is computed to age 58 (55 for Police and Fire members) when determining the monthly benefit.

Judge members of PERS who have served a minimum of six consecutive years and who become physically or mentally incapacitated are entitled to benefits as provided in ORS 238.555.

4. Benefit Changes After Retirement

Members may choose to continue participation in their Variable Account after retiring and may experience annual benefit fluctuations due to changes in the fair value of the underlying global equity investments of that account.

Under ORS 238.360 monthly benefits are adjusted annually through cost-of-living changes (COLA). The COLA is capped at 2.0 percent.

b. OPSRP Pension Program

1. Pension Benefits

This portion of OPSRP provides a life pension funded by employer contributions. Benefits are calculated with the following formula for members who attain normal retirement age:

Police and Fire: 1.8 percent is multiplied by the number of years of service and the final average salary. Normal retirement age for Police and Fire members is age 60 or age 53 with 25 years of retirement credit. To be classified as a Police and Fire member, the individual must have been employed continuously as a Police and Fire member for at least five years immediately preceding retirement.

General Service: 1.5 percent is multiplied by the number of years of service and the final average salary. Normal retirement age for General Service members is age 65, or age 58 with 30 years of retirement credit.

A member of the pension program becomes vested on the earliest of the following dates: the date the member completes 600 hours of service in each of five calendar years, the date the member reaches normal retirement age, and, if the pension program is terminated, the date on which termination becomes effective.

2. Death Benefits

Upon the death of a non-retired member, the spouse or other person who is constitutionally required to be treated in the same manner as the spouse receives for life 50 percent of the pension that would otherwise have been paid to the deceased member. The surviving spouse or other person may elect to delay payment of the death benefit, but payment must commence no later than December 31 of the calendar year in which the member would have reached 70½ years.

3. Disability Benefits

A member who has accrued 10 or more years of retirement credits before the member becomes disabled or a member who becomes disabled due to job-related injury shall receive a disability benefit of 45 percent of the member's salary determined as of the last full month of employment before the disability occurred.

c. Individual Account Program

1. Benefit Terms

The IAP is an individual account-based program under the PERS tax-qualified governmental plan as defined under ORS 238A.400. An IAP member becomes vested on the date the employee account is established or on the date the rollover account was established. If the employer makes optional employer contributions for a member, the member becomes vested on the earliest of the following dates: the date the member completes 600 hours of service in each of five calendar years, the date the member reaches normal retirement age, the date the IAP is terminated, the date the active member becomes disabled, or the date the active member dies. The accounts fall under Internal Revenue Code Section 401(a).

Upon retirement, a member of the IAP may receive the amounts in his or her employee account, rollover account, and vested employer account as a lump-sum payment or in equal installments over a 5-, 10-, 15-, 20-year period or an anticipated life span option. Installment amounts vary with market returns as the account remains invested while in distribution. When chosen, the distribution option must result in a $200 minimum distribution amount, or the frequency of the installments will be adjusted to reach that minimum.

2. Death Benefits

Upon the death of a non-retired member, the beneficiary receives in a lump sum the member's account balance, rollover account balance, and vested employer optional contribution account balance. If a retired member dies before the installment payments are completed, the beneficiary may receive the remaining installment payments or choose a lump-sum payment.

3. Recordkeeping

PERS contracts with Voya Financial to maintain IAP participant records.

d. Postemployment Healthcare Benefits

ORS 238.420 established the Retirement Health Insurance Account (RHIA) and authorizes a payment of up to $60 from RHIA toward the monthly cost of health insurance for eligible PERS members. RHIA is a cost-sharing, multiple-employer OPEB plan for 906 participating employers. The plan was closed to new entrants hired on or after August 29, 2003.

To be eligible to receive this monthly payment toward the premium costs the member must: (1) have eight years or more of qualifying service in PERS at the time of retirement or receive a disability allowance as if the member had eight years or more of creditable service in PERS, (2) receive both Medicare Parts A and B coverage, and (3) enroll in a PERS-sponsored health plan.

A surviving spouse or dependent of a deceased PERS retiree who was eligible to receive the subsidy is eligible to receive the subsidy if he or she (1) is receiving a retirement benefit or allowance from PERS or (2) was insured at the time the member died and the member retired before May 1, 1991.

For the fiscal year ended June 30, 2019, PERS employers contributed 0.07 percent of PERS-covered salaries for Tier One and Tier Two members to fund the normal cost portion of RHIA benefits. PERS employers contributed 0.43 percent of all PERS-covered salaries to amortize the unfunded actuarial accrued liability over a fixed period with new unfunded actuarial accrued liabilities being amortized over 20 years. These rates were based on the December 31, 2015 actuarial valuation. This is included in the employer contribution rates listed in Table 3 below.

Employer contributions are advance-funded on an actuarially determined basis. There is no inflation assumption for RHIA postemployment benefits because the payment amount is set by statute and is not adjusted for increases in healthcare costs. The number of inactive plan RHIA participants receiving benefits was 44,208 for the fiscal year ended June 30, 2019, and there were 45,958 active and 11,347 inactive members who meet the requirements to receive RHIA benefits when they retire.

ORS 238.415 established the Retiree Health Insurance Premium Account (RHIPA) and requires the Board on or before January 1 of each year to calculate the average difference between the health insurance premiums paid by retired state employees under contracts entered into by the Board and health insurance premiums paid by active state employees. ORS 238.415 authorizes payment of this average difference to qualified retired state employees. Retired state employees are qualified to receive this benefit if they had eight or more years of qualifying service with a state agency in the System at the time of retirement or are receiving a disability pension calculated as if they had eight or more years of qualifying service but are not eligible for federal Medicare coverage. RHIPA is a single-employer (the state as one employer) defined benefit OPEB plan and was closed to new entrants hired on or after August 29, 2003.

A surviving spouse or dependent of a deceased retired state employee is eligible to receive the subsidy if he or she (1) is receiving a retirement benefit or allowance from PERS or (2) was insured at the time the member died, and the member retired on or after September 29, 1991.

For the year ended June 30, 2019, state agencies contributed 0.11 percent of PERS-covered salaries for Tier One and Tier Two members to fund the normal

TABLE 3

Contribution Rate Summary[1]	Defined Benefit Pension							Postemployment Healthcare	
	PERS Defined Benefit Plan					OPSRP Pension Program		RHIA	RHIPA
	Pooled Employers			Non-Pooled Employers		All Employers		All Employers	State Agencies
	State Agencies[2]	State and Local Government Rate Pool[3]	School Pool[3]	Political Subdivisions[3,4]	Judiciary	General Service	Police and Fire		
Employee IAP	6.00 %	6.00 %	6.00 %	6.00 %	0.00 %	6.00 %	6.00 %	0.00 %	0.00 %
Employee Normal Cost	0.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00	0.00
Employer Normal Cost	15.73	15.78	13.28	16.71	18.34	8.02	12.79	0.07	0.11
Unfunded Actuarial Liability	0.68	6.10	12.15	3.43	(1.28)	1.27	1.27	0.43	0.38
Total Employer Contributions	16.41 %	21.88 %	25.43 %	20.14 %	17.06 %	9.29 %	14.06 %	0.50 %	0.49 %

1 Group average rates shown were effective July 1, 2017 through June 30, 2019.
2 A subcomponent of the State and Local Government Rate Pool; includes UAL payment rate offset.
3 Does not include UAL payment rate offsets.
4 Non-pooled Political Subdivisions are valued separately for the Defined Benefit Plan.

cost portion of RHIPA benefits. State agencies contributed 0.38 percent of all PERS-covered salaries to amortize the unfunded actuarial accrued liability over a fixed period with new unfunded actuarial accrued liabilities being amortized over 20 years. These rates were based on the December 31, 2015 actuarial valuation. This is included in the employer contribution rates listed in Table 3 on the previous page.

The number of inactive plan RHIPA participants receiving benefits was 905 for the fiscal year ended June 30, 2019. As of June 30, 2019, there were 13,982 active members who meet the requirements to receive RHIPA benefits when they retire. Inactive members are not eligible for these benefits. All subsidy payments from the RHIA and RHIPA are initially deposited in the Standard Retiree Health Insurance Account, as described in Note 8 on page 69, and subsequently remitted to the appropriate PERS health plan.

e. Deferred Compensation Plan

Deferred compensation plans are authorized under Internal Revenue Code Section 457. The Oregon Legislature enacted Chapter 179, Oregon Laws 1997, which established the Deferred Compensation Fund. ORS 243.400 to 243.507 established and provided for PERS to administer the state deferred compensation plan, known as the Oregon Savings Growth Plan (OSGP). As of June 30, 2019, the fair value of investments was $2,057.5 million.

The plan is a benefit available to all state employees. To participate, an employee executes an individual agreement with the state deferring current earnings to be paid at a future date. Participants in the plan are not required to pay federal and state income taxes on the deferred contributions and earnings until the funds are received. Participants or their beneficiaries cannot receive the funds until at least one of the following occurs: termination by reason of resignation, death, disability, or retirement; unforeseeable emergency; or by requesting a *de minimis* distribution from inactive accounts valued less than $5,000. A loan program is also available for eligible participants. Member loans receivable at June 30, 2019, totaled $12.7 million. Of that amount, $10.2 million is not expected to be collected within one year.

PERS contracts with Voya Financial to maintain OSGP participant records. The Oregon State Treasury, as custodian of the assets, also contracts with State Street Bank and Trust Company to provide financial services. There are 20 investment options with varying degrees of market risk. Up to five financial institutions provide investment services in mutual funds for each investment option. A participant receives a blend of these mutual funds within the investment option. Participants direct the selection of investment options and also bear any market risk. The Oregon State Treasury has no liability for losses under the plan but does have the prudent investor responsibility of due care. Total membership as of June 30, 2019, was 26,948.

PERS may assess a charge to the participants not to exceed 2.0 percent on amounts deferred, both contributions and investment earnings, to cover costs incurred for administering the program. Actual charges to participants, including investment charges, for the year ended June 30, 2019, averaged 0.18 percent of amounts deferred.

Oregon Revised Statute 243.505 established a Deferred Compensation Advisory Committee to provide input to the PERS Board. This committee is composed of seven members who meet at least quarterly.

f. Standard Retiree Health Insurance Account

ORS 238.410 established the Standard Retiree Health Insurance Account (SRHIA), a public entity risk pool. SRHIA is both a risk sharing and insurance purchasing pool. The Board contracts for medical and hospital insurance on behalf of retired members. Members and their dependents are eligible for PERS healthcare coverage if the member is receiving a retirement allowance or benefit under the System. A surviving spouse or dependent of a PERS retiree is eligible to participate if he or she was covered under the health plan at the time of the retiree's death. As of June 30, 2019, there are 58,268 retirees and their dependents participating in the health insurance program.

PERS contracts with various contracted health plans (CHPs) on a fully insured conventionally funded insurance basis and remits premiums collected from participating members to the CHPs monthly. PERS contracts with Moda Health/Delta Dental on a fully insured insurance basis with some benefit programs under a conventionally funded arrangement and others under a minimum premium arrangement. Under the minimum premium programs, a monthly minimum premium that represents administrative, stoploss and other fixed costs is remitted. In addition, claims are invoiced on a weekly basis as Moda/Delta Dental makes payments for services delivered to covered PERS members. A settlement is required after calendar year end to reconcile that the claims payments did not exceed the contractual maximum liability established during the annual renewal process.

Prior to January 1, 2019, Medicare Advantage was conventionally funded, while a minimum premium arrangement was in effect for Medicare Supplement, Medicare Supplement Rx, Medicare Advantage Rx, Non Medicare Medical and Rx, and Dental. Beginning January 1, 2019, Medicare Supplement and Medicare Supplement Rx became conventionally funded, and only dental remained on a minimum premium arrangement.

In fiscal year 2019, SRHIA recognized Reinsurance Reimbursement and Rebate receivables of approximately $17.8 million. These receivables were primarily comprised of $17.7 million in reinsurance settlements, and $0.1 million in outstanding drug rebates and coverage gap discounts, which reflect changes in the prior year estimated receivables. The System, through MODA Health, provides a custom Medicare Part D prescription drug plan known as an Employer Group Waiver Plan (EGWP). EGWP subsidies can include direct subsidies, low income cost-sharing subsidies, low income premium subsidies, reinsurance subsidies, and coverage gap discounts. Reinsurance subsidies are reported as operating revenues; coverage gap discounts along with pharmacy rebates are reported as an offset to claims expense.

The current estimate of Incurred But Not Reported (IBNR) insurance claims is $865,000.

D. Contributions

PERS' funding policy provides for periodic member and employer contributions at rates established by the Board, subject to limits set in statute. The rates established for member and employer contributions were approved based on the recommendations of the System's third-party actuary.

a. Member Contributions

Beginning January 1, 2004, all member contributions, except for contributions by judge members, were placed in the OPSRP Individual Account Program (IAP). Prior to that date, all member contributions were credited to the Defined Benefit Pension Plan. Member contributions are set by statute at 6.0 or 7.0 percent of salary and are remitted by participating employers. The contributions are either deducted from member salaries or paid by the employers on the members behalf. The Member Reserve, described in Note 6.A., represents accumulated member contributions and earnings allocations made prior to January 1, 2004, and subsequent earnings allocations less refunds and amounts transferred to reserves for retirements and disabilities. The IAP member accounts represent member contributions made on or after January 1, 2004, plus earnings allocations less disbursements for refunds, death benefits, and retirements.

1. Target Date Funds

The Oregon Investment Council, responsible for all PERS fund investments, approved the transition to a Target Date Fund investment methodology for all IAP accounts beginning January 1, 2018.

This change in investment methodology reflects an investment best practice that will better protect participants from potential losses as they approach and enter retirement by gradually reducing investment risk as participants age.

Participants are placed in Target Date Funds based on their year of birth. Investments in each fund will adjust over time to reduce investment risk — and potential losses in market downturns. As the participant moves toward retirement, the investments in the fund gradually shift, becoming more conservative to help protect against market fluctuations.

b. Employer Contributions

PERS funding policy provides for monthly employer contributions at actuarially determined rates. These contributions, expressed as a percentage of covered payroll, are intended to accumulate sufficient assets to pay benefits when due. This funding policy applies to the PERS Defined Benefit Plan and OPEB Plans.

Employer contribution rates during the period were based on the December 31, 2015 actuarial valuation, which became effective July 1, 2017. The state of Oregon and certain schools, community colleges, and political subdivisions have made unfunded actuarial liability payments, and their rates have been reduced. See the contribution rate summary provided in Table 3 on page 46.

1. PERS Defined Benefit Plan Contributions (ORS 238)

Pension rates for the State and Local Government Rate Pool were 21.88 percent, schools 25.43 percent, and judiciary 17.06 percent of PERS-covered salaries, effective July 1, 2017. Political subdivisions that have not joined the State and Local Government Pool had an average pension rate of 20.14 percent.

Oregon Laws 2001, Chapter 945, Section 13 authorized the establishment of the State and Local Government Rate Pool. Local political subdivisions were given the option to join the state of Oregon and community colleges for the actuarial purpose of calculating employer rates. Participation by local political subdivisions in this pool was effective for the actuarial valuation period beginning January 1, 2002.

Based on the actuarial valuation as of December 31, 2015, the state agencies, the judiciary, schools, and political subdivisions all had increases in employer contribution rates on July 1, 2017. These rate changes are measured against the actual average rates paid since July 1, 2015. Board practice is to implement new employer contribution rates July 1 of each odd-numbered year based on the valuation of the previous odd-numbered year.

2. OPSRP Pension Program Contributions (ORS 238A)

PERS employers participating in the OPSRP Pension Program participate in the same rate sharing pool and therefore share the same contribution rate. The OPSRP Pension Program employer rates effective July 1, 2017, through June 30, 2019, are 9.29 percent of covered salaries for general service employees and 14.06 percent of covered salaries for police and fire employees. These rates increased from 7.94 percent of covered salaries for general service and 12.05 percent of covered salaries for police and fire employees for the period July 1, 2015, through June 30, 2017. Each of these rates includes a component related to disability benefits for general service and police and fire members.

Note 3 – Receivables and Payables

A. Receivables

Table 4 disaggregates receivable balances reported in the Statements of Fiduciary Net Position as Investment Sales and Other Receivables.

The Strunk and Eugene Accrual resulted from recalculating benefits for recipients who received overpayments based on the reallocation of 1999 earnings. Approximately 76.3 percent of these receivables have been received as of June 30, 2019, $11.6 million is expected to be collected within the next year.

TABLE 4

Accounts Receivable		June 30, 2019
Broker Receivable	$	925,088,937
Strunk and Eugene Accrual		30,381,431
Overpaid Benefits		74,026
Other		8,579,243
Total Accounts Receivable	**$**	**964,123,637**

Additionally, there were $17.8 million in Reinsurance Reimbursements and Rebate receivables reported in the Statement of Net Position – Proprietary Fund.

B. Payables

Table 5 on the right disaggregates payable balances reported in the Statements of Fiduciary Net Position as Investment Purchases and Accrued Expenses.

TABLE 5

Accounts Payable		June 30, 2019
Broker Payable	$	2,054,814,606
Pension Roll		392,119,487
Investment Fees		10,766,283
Death Benefits		25,020,792
Compensated Absences		2,089,025
Services and Supplies		3,103,418
Other		3,866,155
Total Accounts Payable	**$**	**2,491,779,766**

Note 4 - Investments

The Oregon State Treasury is the investment officer for the state of Oregon. Investment standards are established in ORS 293.726 and require funds to be managed as a prudent investor would do. The Oregon Investment Council (OIC) establishes policies for the investment and reinvestment of moneys in the Oregon Public Employees Retirement Fund. Policies are established based on the primary investment asset class of each investment manager and do not reflect the classifications of individual holdings as presented in the financial statements. Contracts with individual investment managers provide additional guidelines that vary from manager to manager.

A. Deposits

PERS cash and cash equivalents consist of cash on hand, deposits in the Oregon Short Term Fund (OSTF), moneys held by external investment managers, cash equivalents held by the health insurance provider, and cash held by the IAP program custodian. OSTF is a cash and investment pool that operates as a demand deposit account and is required for use by all state funds. See Table 6 below.

TABLE 6

Depository Account		Bank Balance
Insured	$	750,000
Oregon Short Term Fund		2,061,667,400
Health Insurance Claims Fund		2,969,765
IAP On Demand Deposit		7,233,228
Uninsured and uncollateralized		939,672,230
Total deposits	**$**	**3,012,292,623**

OSTF has separately audited by the Oregon Audits Division. which can be viewed at: https://sos.oregon.gov/audits/Documents/2019-32.pdf. OSTF investment risks are addressed in the notes to those financial statements.

Health Insurance Claims Fund of $3.2 million was held at US Bank. The account is identified as Public Funds, therefore, any amount in the account above Federal Deposit Insurance Corporation (FDIC) was insured by Public Funds Collateralization Program.

1. Custodial Credit Risk

Custodial credit risk for deposits is the risk that in the event of a bank failure, PERS' deposits may not be recovered.

The deposit and investment risks, including custodial risk, of the OSTF are outlined in the OSTF financial statements. As of June 30, 2019, the carrying amount of PERS' deposits in OSTF totaled $2,053.6 million, and the corresponding bank balance was $2,061.7 million.

Investment managers' deposits with custodian banks consist of cash and cash equivalents that represent buying reserves. As of June 30, 2019, there was $939.9 million on deposit for the accounts of the OPERF investment managers.

As of June 30, 2019, IAP On Demand Deposit Account of $7.5 million was held at State Street Bank, the custodian of the IAP program third-party administrator. The balance on the deposit is insured by the FDIC up to the standard maximum deposit insurance amount. The balance in excess of the FDIC limit was uninsured.

2. Foreign Currency Risk

Foreign currency risk for deposits is the risk that changes in exchange rates will adversely affect the fair value of the deposits. Foreign currency risk is controlled via contractual agreements with the investment managers. As of June 30, 2019, $64.1 million in cash and cash equivalents was exposed to foreign currency risk. The U.S. dollar balances of foreign currency deposits organized by currency denomination are presented in Table 12 on page 57.

3. Restricted Cash Equivalents

PERS' cash and cash equivalents at June 30, 2019, include collateral of $58.9 million held by investment managers. Swap collateral is offset by a related liability with a net settlement feature. Collateral is restricted and is not available to pay current liabilities.

B. Investments

Table 7 on the right presents the fair value of investments held by the state of Oregon for PERS as of June 30, 2019.

TABLE 7

Investments as of June 30, 2019		**Fair Value**
U.S. Treasury Obligations	$	6,332,087,742
U.S. Treasury Obligations - Strips		15,766,528
U.S. Treasury Obligations - TIPS		197,034,634
U.S. Federal Agency Mortgage Securities		1,225,759,309
U.S. Federal Agency Mortgage TBAs		367,408,995
U.S. Federal Agency Debt		70,209,518
U.S. Federal Agency Strips		36,116,645
International Debt Securities		997,885,194
Non-Government Debt Securities		270,420,366
Corporate Bonds		2,184,137,868
Bank Loans		1,535,735,513
Municipal Bonds		13,121,502
Collateralized Mortgage Obligations		428,993,311
Asset-Backed Securities		340,420,414
Guaranteed Investment Contracts[1]		249,191,201
Domestic Fixed Income Funds		2,012,887,322
Global Fixed Income Funds		83,271
Total Debt Securities		16,277,259,333
Derivatives in Asset Positions		360,856,092
Domestic Equity Securities		12,868,318,267
International Equity Securities		9,936,798,304
Domestic Equity Funds		1,957,330,096
Global Equity Funds		480,891,055
International Equity Funds		3,134,944,762
Target Date Funds		645,994,891
Oregon Savings Growth Plan - Self Directed		18,137,055
Total Public Equity		29,403,270,522
Real Estate and Real Estate Investment Trusts		8,966,132,571
Private Equity		17,259,957,679
Alternatives Portfolio		7,218,603,962
Opportunity Portfolio		1,717,803,743
Total PERS Investments - Fiduciary Funds	**$**	**80,843,027,810**

[1]Guranteed Investment Contracts are stated at contract value.

1. Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Observable inputs are developed based on market data obtained from sources independent of the reporting entity. Unobservable inputs are developed based on the best information available about the assumptions market participants would use in pricing the asset.

The classification of investments within the fair value hierarchy is based upon the activity level in the market for the security type and the inputs used to determine their fair value. The three levels of the hierarchy are described below:

Level 1 – Unadjusted quoted prices for identical instruments in active markets.

Level 2 – Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.

Level 3 – Valuations derived from valuation techniques in which significant inputs are unobservable.

Inputs used to measure fair value might fall in different levels of the fair value hierarchy. Categorization within the hierarchy is based on the lowest level input that is significant to the fair value measurement.

Equity securities are generally valued based on quoted prices from an active market and are therefore categorized in level 1. In the absence of quoted market prices, such as equity securities that trade infrequently or not at all, valuations are based on the last traded price or a price provided by investment managers and are generally categorized in level 3.

Debt securities classified as level 2 are valued using the latest bid prices or evaluated quotes from independent pricing vendors. The third-party vendors use a variety of methods when pricing these securities that incorporate relevant observable market data to arrive at an estimate of what a buyer in the marketplace would pay for a security under current market conditions. When independent price sources are not available, debt securities are priced based on the last traded price or a valuation provided by the investment manager and are categorized in level 3.

Fund investments (e.g., mutual/commingled/ open ended funds), valued using a unit price that is published daily and validated with a sufficient level of observable activity are categorized in level 1. If observable activity is limited, yet supports that the unit price or NAV represents an exit value of the security at the measurement date, the securities are categorized in level 2. Investments that are measured at NAV as a practical expedient, such as most private equity, alternative, opportunity and real estate investments, are excluded from the fair value hierarchy if the NAV per share (or its equivalent) was calculated in a manner consistent with the Financial Accounting Standards Board's measurement principles for investment companies. Funds not meeting this criteria are categorized in level 3.

Exchange-traded derivatives, including futures, rights and warrants, that are actively traded are valued using quoted prices and are categorized in level 1. Derivative contract valuations, such as swaps and options, are modeled using observable pricing inputs and techniques that do not entail material subjectivity and are therefore categorized in level 2. Level 3 derivatives include securities valued at a price that has been determined by the investment manager's valuation committee.

Investments in real estate, other than real estate investment trusts which are generally valued based on an active market price and are categorized in level 1, have been valued based on the NAV per share (or its equivalent), as provided by the general partner. This type includes 68 commingled real estate funds, structured as limited partnerships, where the funds have a finite term. Distributions from the funds will be received as the underlying investments of the funds are liquidated. Liquidation is expected to take place during the 5 year period following the termination of the investment period, which extend to 2035. Investments in real estate also include 13 joint ventures where the investments are expected to be held for the long term and generate cash flow that will represent a significant component of the total return. Real estate also includes investments in 7 open ended funds that permit quarterly redemption of shares, subject to certain requirements being met.

Private Equity consists of approximately 261 funds, organized as limited partnerships and limited liability companies, participating in diversified strategies including leveraged-buyouts, venture capital, growth equity, fund-of-funds, co-investments and special situations. The fair values of the private equity investments have been determined using the NAV per share (or its equivalent) as provided by the general partner or managing member. These funds have a finite term. Distributions will be received as the underlying investments of the funds are liquidated, which is expected to occur over the next 12 to 14 years.

The Alternatives Portfolio investments seek to provide diversification and inflation hedging characteristics to the Fund and includes investments with a focus on infrastructure and natural resources. The Alternatives Portfolio consists of 55 investments in commingled funds organized as limited partnerships and limited liability companies. The fair values of the investments have been determined using a NAV per share (or its equivalent) of the investments. For alternative infrastructure and natural resource investments, which includes 48 of the 55 funds, the funds have a finite term. Distributions will be received as the underlying investments of the funds are liquidated, which is expected to occur over the next 10 to 14 years. Alternative diversifying strategies permit periodic redemption of shares, subject to certain requirements being met, and consist of 7 funds investing in diversifying hedge strategies.

The Opportunity Portfolio includes strategies that fall outside of other asset classes and include 15 funds investing in a broad range of performing and distressed debt and debt related securities as well as royalties and insurance-based investments. The fair values of the investments have been determined using a NAV per share (or its equivalent) of the investments. For 9 of the 15 funds, the funds have a finite term. Distributions will be received as the underlying investments of the funds are liquidated, which is expected to occur over the next 10 to 14 years. The remaining six funds are open ended, permitting periodic redemption of shares.

PERS has the following recurring fair value measurements as of June 30, 2019. See Table 8 below.

Disclosures regarding redemption and investments valued at the NAV per share (or its equivalent), including Unfunded Commitments, are presented in Table 9 on page 54.

2. Rate of Return

For the year ended June 30, 2019, the annual money-weighted rate of return on defined benefit pension plan investments, net of defined benefit pension plan investment expenses, was 6.40 percent. The annual money-weighted rates of return on the other postemployment healthcare benefits (OPEB) investments, net of OPEB investment expenses, were 6.67 percent for the Retirement Health Insurance Account (RHIA) and 7.56 percent for the Retiree Health Insurance Premium Account (RHIPA). The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the timing of cash flows and the changing amounts actually invested.

TABLE 8

Investments and Derivative Instruments Measured at Fair Value

		Fair Value Measurements Using		
	6/30/2019	**Quoted Prices in Active Markets for Identical Assets (Level 1)**	**Significant Other Observable Inputs (Level 2)**	**Significant Unobservable Inputs (Level 3)**
Investments by Fair Value Level				
Debt Securities				
U.S. Treasury Obligations	$ 6,332,087,742	$ –	$ 6,332,087,742	$ –
U.S. Treasury Obligations - Strips	15,766,528	–	15,766,528	–
U.S. Treasury Obligations - TIPS	197,034,634	–	197,034,634	–
U.S. Federal Agency Mortgage Securities	1,225,759,309	–	1,225,759,309	–
U.S. Federal Agency Mortgage TBAs	367,408,995	–	367,408,995	–
U.S. Federal Agency Debt	70,209,518	–	70,209,518	–
U.S. Federal Agency Strips	36,116,645	–	36,116,645	–
Non-Government Debt Securities	270,420,366	–	270,420,366	–
Corporate Bonds	2,768,537,023	–	2,729,160,055	39,376,968
Bank Loans	1,692,442,590	–	1,603,235,457	89,207,133
Municipal Bonds	13,121,502	–	13,121,502	–
Collateralized Mortgage Obligations	436,838,346	–	436,838,346	–
Asset-Backed Securities	589,354,341	–	585,158,366	4,195,975
Domestic Fixed Income Funds	2,012,887,322	–	2,012,887,322	–
Global Fixed Income Funds	83,271	–	-	83,271
Total Debt Securities[1]	16,028,068,132	–	15,895,204,785	132,863,347
Public Equity				
Domestic Equity Securities	12,868,318,267	12,783,661,791	–	84,656,476
International Equity Securities	9,936,798,304	9,897,971,953	–	38,826,351
Domestic Equity Funds	1,957,330,096	–	1,957,330,096	–
Global Equity Funds	480,891,055	–	480,891,055	–
International Equity Funds	3,134,944,762	1,029,678,916	2,105,115,248	150,598
Target Date Funds	645,994,891	–	645,994,891	–
Oregon Savings Growth Plan - Self Directed	18,137,055	18,137,055	-	–
Total Public Equity	29,042,414,430	23,729,449,715	5,189,331,290	123,633,425
Real Estate Investment Trusts	963,012,057	962,783,884	–	228,173
Total Investments by Fair Value Level	**$ 46,033,494,619**	**$ 24,692,233,599**	**$ 21,084,536,075**	**$ 256,724,945**

TABLE 8 continues on the next page

TABLE 8 continuing from the previous page

Investments Measured at the Net Asset Value (NAV)				
Real Estate				
Real Estate Investments	$ 6,702,903,460			
Real Estate Open Ended Funds	1,300,217,054			
Total Real Estate	8,003,120,514			
Private Equity	17,259,957,679			
Alternatives Portfolio				
Alternative Diversifying Strategies	3,241,701,106			
Alternative Infrastructure	2,348,480,519			
Alternative Natural Resources	1,628,422,337			
Total Alternatives Portfolio	7,218,603,962			
Opportunity Portfolio				
Opportunity Private Investments	551,332,472			
Opportunity Open Ended Funds	1,166,471,271			
Total Opportunity Portfolio	1,717,803,743			
Total Investments Measured at the NAV	34,199,485,898			
Total Investments Measured at Fair Value	**$ 80,232,980,517**			
Investments Derivative Instruments				
Credit Default Swaps	$ 928,516	$ –	$ 928,516	$ –
Foreign Exchange Forwards	20,759,074	–	20,759,074	–
Forwards	266,580,415	–	–	266,580,415
Interest Rate Swaps	71,506,780	–	71,506,664	116
Options	9,945,076	681,269	9,263,807	–
Rights and Warrants	10,484,515	9,287,313	–	1,197,202
Total Return Swaps	1,410,792	1,410,792	–	–
Total Assets	381,615,168	11,379,374	102,458,061	267,777,733
Credit Default Swaps	(9,389,772)	–	(9,389,772)	–
Foreign Exchange Forwards	(25,952,421)	–	(25,952,421)	–
Interest Rate Swaps	(91,365,666)	–	(91,365,666)	–
Options	(12,564,908)	–	(12,564,908)	–
Total Return Swaps	(1,232,899)	–	(1,232,899)	–
Total Liabilities	(140,505,666)	–	(140,505,666)	–
Total Investments Derivative Instruments	**$ 241,109,502**	**$ 11,379,374**	**$ (38,047,605)**	**$ 267,777,733**
Invested Securities Lending Collateral				
Asset-Backed Securities	$ 154,951,613	$ –	$ 154,951,613	$ –
Negotiable Certificates of Deposit	161,083,877	–	161,083,877	–
Commercial Paper	145,315,309	–	145,315,309	–
Corporate Bonds	270,969,633	–	270,969,633	–
Repurchase Agreements	167,238,000	–	167,238,000	–
Total Invested Securities Lending Collateral[2]	**$ 899,558,432**	**$ –**	**$ 899,558,432**	**$ –**

[1]Guaranteed Investment Contracts are excluded from the table as these are stated at contract value.

[2] For OSTF's participation in securities lending activity, refer to their audited financial statements at: https://sos.oregon.gov/audits/Documents/2019-32.pdf

TABLE 9

Investments Measured at the Net Asset Value

		Fair Value		Unfunded Commitments*	Redemption Frequency (If Currency Eligible)	Redemption Notice Period
Real Estate						
Real Estate Investments	$	6,702,903,460	$	1,647,807,190	n/a	n/a
Real Estate Open Ended Funds		1,300,217,054		-	Quarterly	15 - 90 days
Private Equity		17,259,957,679		10,024,213,984	n/a	n/a
Alternatives Portfolio						
Alternative Diversifying Strategies		3,241,701,106		-	Monthly	2 - 75 days
Alternative Infrastructure		2,348,480,519		2,687,457,517	n/a	n/a
` Alternative Natural Resources		1,628,422,337		832,206,360	n/a	n/a
Opportunity Portfolio						
Opportunity Private Investments		551,332,472		303,301,477	n/a	n/a
Opportunity Open Ended Funds		1,166,471,271		390,599,150	Monthly/Quarterly	5-90 days
Total	**$**	**34,199,485,898**	**$**	**15,885,585,678**		

* Excludes unfunded commitments associated with investments included in the fair value hierarchy (Levels 1, 2, and 3) and new commitments not yet funded at 6/30/2019.

3. Investment Concentrations

As of June 30, 2019, there were no organizations that represent 5 percent or more of the pension plan's fiduciary net position or total investments.

4. Credit Risk Debt Securities

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. OIC has no formal policy regarding credit risk. As of June 30, 2019, the fair value of below grade investments, excluding unrated securities, is $2,312.7 million, or 24.67 percent, of total securities subject to credit risk and 14.21 percent of total debt securities. The weighted quality rating average is A. Unrated securities include $158.5 million in bank loans, $2,013.0 million in domestic and global fixed income funds, $249.2 million in guaranteed investment contracts, and $168.9 million in other debt securities. Unrated federal agency securities include $252.4 million in Federal Home Loan Mortgage Corporation (FHLMC), $881.4 million in Federal National Mortgage Association (FNMA), and $147.8 million in other federal agency securities. These federal agency securities are not rated by the credit rating agencies as these are implicitly guaranteed by the U.S. government. Table 10 on the next page details the quality ratings for credit risk debt securities as of June 30, 2019.

5. Custodial Credit Risk

Custodial credit risk for investments is the risk that in the event of a failure of the counterparty, PERS will not be able to recover the value of the investments or collateral securities that are in the possession of an outside party. OIC has no formal policy regarding the holding of securities by a custodian or counterparty. As of June 30, 2019, no investments were exposed to custodial credit risk.

6. Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. This risk is managed within the portfolio using the effective duration methodology. Policies state that the fixed income manager positions will maintain a weighted average effective duration within plus or minus 20 percent of the benchmark's effective duration. There is no policy restriction for non-fixed income investment managers who may hold fixed income positions. As of June 30, 2019, the weighted average duration of PERS' fixed income portfolio was 4.33 years.

Effective duration is a measure of a fixed income investment's exposure to fair value changes arising from changes in interest rates. Effective duration makes assumptions regarding the most likely timing and amounts of variable cash flows. These assumptions take into consideration factors indicative of investments highly sensitive to interest rate changes, including callable options, prepayments, and other factors. These factors are reflected in the effective duration numbers provided herein.

No individual fixed income investment manager's portfolio was outside the policy guidelines at June 30, 2019. Table 11 on the next page shows the investments by type, amount, and effective weighted duration.

TABLE 10

Schedule of Credit Risk at June 30, 2019

Quality Rating		Fair Value
AAA	$	696,366,970
AA		261,251,291
A		654,578,746
BBB		1,578,474,349
BB		447,861,674
B		1,469,624,304
CCC		389,877,755
CC		5,378,713
Not Rated		2,589,550,449
Not Rated - U.S. Agency[1]		1,281,665,632
Total Subject to Credit Risk		**9,374,629,883**
U.S. Government Guaranteed Securities		6,902,629,450
Total Debt Securities	**$**	**16,277,259,333**

[1] Federal Agency securities are not rated by the credit rating agencies as they carry an implicit guarantee of the U.S. Government. See Credit Risk Debt Securities note disclosure on the previous page for more detail.

TABLE 11

Schedule of Interest Rate Risk - Effective Duration at June 30, 2019

Investments		Fair Value	Effective Weighted Duration Rate (in years)
U.S. Treasury Obligations	$	6,332,087,742	7.22
U.S. Treasury Obligations - Strips		15,766,528	0.73
U.S. Treasury Obligations - TIPS		197,034,634	8.46
U.S. Federal Agency Mortgage Securities		1,225,759,309	3.52
U.S. Federal Agency Mortgage TBAs		367,408,995	3.81
U.S. Federal Agency Debt		70,209,518	7.20
U.S. Federal Agency Strips		36,116,645	1.14
International Debt Securities		997,885,194	2.86
Non-U.S. Government Debt Securities		269,965,059	6.98
Corporate Bonds		2,184,087,981	5.68
Bank Loans		1,521,059,016	0.11
Municipal Bonds		13,121,502	9.57
Collateralized Mortgage Obligations		428,993,311	2.90
Asset-Backed Securities		340,420,414	1.75
Domestic Fixed Income Funds		2,012,887,322	3.93
No Effective Duration:			
Non-U.S. Government Debt Securities		455,307	N/A
Corporate Bonds		49,887	N/A
Bank Loans		14,676,497	N/A
Global Fixed Income Funds		83,271	N/A
Guaranteed Investment Contracts		249,191,201	N/A
Total Debt Securities		**16,277,259,333**	
Cash Equivalent - Mutual Funds - STIF		623,857,392	42 Days[1]
Cash Equivalent - Oregon Short Term Fund		1,706,258,685	226 Days[1]
Total Subject to Interest Rate Risk	**$**	**18,607,375,410**	

[1]Weighted average maturity. Pools are not rated.

At June 30, 2019, PERS held approximately $1,654.8 million in debt instruments backed by pooled mortgages, Collateralized Mortgage Obligations (CMOs), or fixed-rate mortgages. These securities represent a stream of principal and interest payments from underlying mortgages. Assets with these characteristics are susceptible to prepayment by the mortgage holders, which may result in a decrease in total interest realized. The value of these securities can be volatile as interest rates fluctuate. Additionally, the risk of default exists and collateral held may potentially be insufficient to cover the principal due. PERS also held approximately $367.4 million in To-Be-Announced (TBA) federal agency-issued mortgage pools. An additional $340.4 million of debt instruments held are asset-backed securities backed primarily by automobiles, consumer credit receivables, heavy equipment leases, and student loan receivables.

7. Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. Policy states that no more than 25 percent of the fixed income manager positions may be invested in non-dollar denominated securities. As of June 30, 2019, approximately 0.77 percent of the debt investment portfolio was invested in non-dollar denominated securities. Policies for the non-fixed portion of PERS' portfolio do not limit non-dollar denominated investments. PERS utilizes a currency overlay manager to reduce risk through offsetting investments in the developed foreign currency market for international equity portfolios. See Table 12 on the next page.

8. Unfunded Commitments

OIC has entered into agreements that commit OPERF, upon request, to make additional investment purchases up to a predetermined amount. As of June 30, 2019, the OPERF had $11,657.6 million in commitments to purchase private equity investments, which includes $5,873.2 million in recallable distributions, $1,647.8 million in commitments to purchase real estate investments, $3,869.7 million in commitments to purchase alternatives portfolio, which includes $601.4 million in recallable distributions, and $693.9 million in commitments to purchase opportunity portfolio investments, which includes $316.7 million in recallable distributions. These amounts are unfunded and are not recorded in the Statement of Fiduciary Net Position.

C. Securities Lending

In accordance with state investment policies, OPERF participates in securities lending transactions. Through securities lending authorization agreements, the Oregon State Treasury has authorized its custodian, State Street Bank, to lend its securities pursuant to the terms and conditions of policy and applicable agreements. Both OPERF and the borrowers maintained the right to terminate all securities lending transactions on demand. There were no significant violations of the provisions of securities lending agreements during the period of these financial statements.

The custodian had the authority to loan short-term, fixed income, and equity securities and to receive as collateral U.S. dollar and foreign currency cash, U.S. government and agency securities, letters of credit, and foreign sovereign debt of Organization of Economic Cooperation and Development (OECD) countries. Borrowers were required to deliver collateral for each loan equal to not less than 102 percent of the fair value of loaned U.S. securities and international fixed income securities, or 105 percent in the case of international equity. The custodian did not have the ability to pledge or sell collateral securities absent a borrower default, and OPERF did not impose any restrictions during the fiscal year on the amount of the loans the custodian made on its behalf. OPERF is fully indemnified against losses due to borrower default by its current custodian. There were no losses during the year from the failure of borrowers to return loaned securities and no recoveries of amounts from prior losses.

Prior to July 1, 2010, OPERF was a participant in a securities lending collateral reinvestment pool managed by State Street Global Advisors ("SSgA"), a division of State Street Bank. On July 1, 2010, OPERF withdrew from this pool and directed SSgA to allocate its share of pool assets into a new legacy fund owned exclusively by OPERF. At the same time OPERF also directed SSgA to open a new securities lending collateral reinvestment fund for ongoing lending activities. The legacy fund will be maintained until all existing assets have matured or been sold, and proceeds will be invested in the new fund. Since the assets in the legacy and new funds are wholly owned by OPERF, the balances in the funds are stated at fair value in the Statements of Fiduciary Net Position as of June 30, 2019. Previous securities lending collateral reinvestment pool balances were stated at "constant value," which approximates fair value, since OPERF was a participant in a pool along with other qualified plans, due to the lending agent's practice of redeeming shares at $1.00 per unit. The investments in the legacy and new funds are held by the custodian.

The maturities of investments made with cash collateral did not generally match the maturities of the securities loaned. Since the securities loaned are callable on demand by either the lender or borrower, the life of the loans at June 30, 2019, is effectively one day. On June 30, 2019, OPERF had no credit risk exposure to borrowers because the amounts OPERF owes borrowers exceeds the amounts borrowers owe OPERF.

TABLE 12

Currency Exposures by Asset Class in US Dollar Equivalents as of June 30, 2019

Currency	Cash and Cash Equivalents	Debt Securities	Public Equity	Derivatives in Asset Positions	Real Estate	Alternatives Portfolio	Total
Argentine peso	$ 7,870	$ -	$ -	$ -	$ -	$ -	$ 7,870
Australian dollar	1,821,074	-	376,256,756	407	25,098,430	-	403,176,667
Brazilian real	1,280,901	455,307	242,741,715	-	433,894	-	244,911,817
Canadian dollar	1,111,233	-	526,044,556	291,878	3,449,056	-	530,896,723
Chilean peso	625,519	-	16,281,841	114,922	-	-	17,022,282
Chinese yuan	5,798,898	803,527	130,549,805	-	-	-	137,152,230
Colombian peso	76,445	-	7,451,210	-	-	-	7,527,655
Czech koruna	15,626	-	6,808,886	-	-	-	6,824,512
Danish krone	118,954	2,076	208,766,789	-	-	-	208,887,819
Egyptian pound	366,728	-	11,700,629	-	-	-	12,067,357
Euro	14,244,251	26,856,975	1,917,042,627	31,879,515	1,877,677	1,040,438,597	3,032,339,642
Hong Kong dollar	3,011,669	-	612,537,915	111,385	18,844,404	-	634,505,373
Hungarian forint	389,983	-	17,719,956	-	-	-	18,109,939
Indian rupee	1,829,464	-	165,428,735	-	-	-	167,258,199
Indonesian rupiah	331,004	-	50,043,774	4,022	-	-	50,378,800
Israeli shekel	272,336	-	93,547,670	-	796,288	-	94,616,294
Japanese yen	10,361,175	55,469,389	1,258,957,996	56,320,324	10,821,086	-	1,391,929,970
Kenya shilling	71,393	-	1,963,178	-	-	-	2,034,571
Malaysian ringgit	707,572	-	57,983,567	-	-	-	58,691,139
Mexican peso	2,400,410	15,129,541	61,322,373	-	20,479,124	-	99,331,448
Moroccan dirham	-	-	1,749,944	-	-	-	1,749,944
Taiwan dollar	507,835	-	256,103,795	-	-	-	256,611,630
New Zealand dollar	75,825	-	29,518,590	-	1,076,572	-	30,670,987
Nigerian naira	324,847	-	5,357,112	-	-	-	5,681,959
Norwegian krone	1,089,179	-	82,761,884	505,096	-	-	84,356,159
Pakistani rupee	18,136	-	2,719,108	-	-	-	2,737,244
Peruvian nuevo sol	2,142	13,212,498	15,299	-	-	-	13,229,939
Philippine peso	95,983	-	23,979,248	5,154	-	-	24,080,385
Polish zloty	432,497	-	23,857,917	-	-	-	24,290,414
Pound sterling	13,167,059	4,314,588	1,583,380,208	1,153,369	1,048,733	-	1,603,063,957
Qatar riyal	3,298	-	1,065,687	-	-	-	1,068,985
Romanian leu	-	-	2,803,659	-	-	-	2,803,659
Russian ruble	-	8,371,418	20,764,303	-	-	-	29,135,721
Singapore dollar	367,892	-	75,864,087	-	9,453,917	-	85,685,896
South African rand	286,984	-	183,315,301	-	-	-	183,602,285
South Korean won	562,974	-	383,001,515	-	112,466	-	383,676,955
Swedish krona	536,521	-	201,771,496	2,688,189	-	-	204,996,206
Swiss franc	582,369	-	544,195,750	396	-	-	544,778,515
Thai baht	635,827	-	68,843,053	267	754,498	-	70,233,645
Tunisia dinar	-	-	-	8	-	-	8
Turkish lira	128,287	-	45,821,399	-	534,581	-	46,484,267
United Arab Emirates dirham	2,767	-	10,433,211	-	-	-	10,435,978
Vietnamese dong	318,742	-	9,816,905	-	-	-	10,135,647
Zimbabwe dollar	100,661	-	-	-	-	-	100,661
Total Subject to Foreign Currency Risk	**$ 64,082,330**	**$ 124,615,319**	**$ 9,320,289,449**	**$ 93,074,932**	**$ 94,780,726**	**$ 1,040,438,597**	**$ 10,737,281,353**

On June 30, 2019, the fair value of cash collateral received and invested cash collateral were $899.9 million and $899.7 million, respectively. The cumulative unrealized loss in invested cash collateral of $0.2 million has been recognized in securities lending income in the Statements of Changes in Fiduciary Net Position in the period in which the gain or losses occurred. For the fiscal year ended June 30, 2019, total income from securities lending activity was $31.3 million, and total expenses for the period were $22.6 million for a net gain of $8.7 million.

OSTF also participates in securities lending activity. OPERF receives an allocated portion of this activity based on its deposits in OSTF. As of June 30, 2019, OPERF's allocated portion of cash collateral received and invested cash collateral were $11.0 million and $11.0 million, respectively.

Cash collateral received for OSTF securities lent is invested in securities lending collateral pools and is not exposed to custodial risk. For more information on OSTF's participation in securities lending activity, refer to their audited financial statements at: https://sos.oregon.gov/audits/Documents/2019-32.pdf.

Table 13 on the next page shows the combined balances of the securities on loan, cash and securities collateral received, and investments of cash collateral held. Securities lending collateral

TABLE 13

Securities Lending as of June 30, 2019

Investment Type	Securities on Loan at Fair Value	Cash and Securities Collateral Received	Investments of Cash Collateral at Fair Value
U.S. Treasury Securities	$ 1,016,165,286	$ 1,038,217,151	$ 124,257,787
U.S. Agency Securities	13,054,017	13,291,154	993,697
Domestic Equity Securities	927,535,933	940,797,211	563,252,171
Domestic Debt Securities	145,546,127	148,344,778	122,954,225
International Equity Securities	200,851,671	212,696,926	86,744,312
International Debt Securities	1,507,864	1,545,960	1,545,608
Allocation from Oregon Short Term Fund	15,661,023	15,985,441	11,024,970
Total	**$ 2,320,321,921**	**$ 2,370,878,621**	**$ 910,772,770**

subject to credit risk as of June 30, 2019, is shown in Table 14 on page 59. Securities lending collateral subject to interest rate risk as of June 30, 2019, is shown in Table 15, also on page 59.

D. Derivatives

Oregon Investment Council policy allows, with some restrictions, for the use of derivative instruments in the prudent management of OPERF investments. Certain internally and externally managed accounts are allowed, through contract and policy, to invest in derivative instruments to carry out their investment management activities. Risks inherent with derivatives are managed through investment management's adherence to contractual and policy prescribed terms that are consistent with OPERF's investing objectives.

All derivative instruments held by OPERF are considered investments. The fair value of OPERF derivative investments is reported in the Investment Sales and Other Receivables, Investment Purchases and Accrued Expenses, and the Public Equity lines of the Statements of Fiduciary Net Position – Pension and Other Postemployment Plans on pages 33 and 34. Changes in fair value during the fiscal year are reported in the Net Appreciation/Depreciation in Fair Value of Investments line of the Statements of Changes in Fiduciary Net Position – Pension and Other Postemployment Plans on pages 35 and 36.

Table 16 on page 60 presents the related net appreciation/(depreciation) in fair value amounts and the notional amounts of derivative instruments outstanding as of June 30, 2019.

A forward foreign currency exchange contract is a forward contract that is a commitment to purchase or sell a foreign currency at a future date at a negotiated forward rate. The fair value of a foreign currency forward is determined by the difference between the contract exchange rate and the closing exchange rate, at the end of reporting period. Risks associated with such contracts include movement in the value of foreign currencies and the ability of the counterparty to perform.

A futures contract represents a commitment to purchase or sell an underlying asset at a future date and at a specified price. Futures contracts have standardized terms and are traded on exchanges. The counterparty credit risk for futures is generally less than for privately negotiated forward contracts, since the clearinghouse, which is the issuer or counterparty to each exchange-traded future, settles daily the net change in the futures contract's value in cash with the broker and results in the contract itself having no fair value at the end of any trading day.

A swap is an agreement that obligates two parties to exchange a series of cash flows or the net value of cash flows at specified intervals based upon, or calculated by, reference to changes in specified prices or rates for a specified amount of an underlying asset. Swaps are privately negotiated contracts with customized terms and are transacted in over-the-counter markets. OPERF held various types of swaps including credit default, interest rate, and total return swaps. The payment flows are usually netted against each other, with the difference being paid by one party or another. In addition, collateral may be pledged or received by OPERF in accordance with the terms of the respective swap agreements to provide value and recourse to OPERF or its counterparties. Swaps are subject to general market risk, liquidity risk, credit risk, interest rate risk and the risk that the counterparty may fail to perform.

An option is an instrument that gives one party the right, but not the obligation, to buy or sell an underlying asset from or to another party at a fixed price over a specified period of time. In writing an option, OPERF bears the market risk of an unfavorable change in the price of the underlying investment of the written option. Exercise of an option written by OPERF could result in OPERF

TABLE 14

Securities Lending Invested Cash Collateral Subject to Credit Risk as of June 30, 2019

Quality Rating		Fair Value
AAA	$	109,873,353
AA[1]		588,265,404
A		32,020,965
B		2,160,710
Total Subject to Credit Risk		**732,320,432**
U.S. Government Guaranteed Repurchase Agreements		167,238,000
Allocation from Oregon Short Term Fund		11,024,970
Cash		189,368
Total Securities Lending Invested Cash Collateral	**$**	**910,772,770**

[1] Commercial paper ratings of A-1+/A-1/P-1 categorized as AA.

TABLE 15

Securities Lending Invested Cash Collateral Subject to Interest Rate Risk as of June 30, 2019

Security Type		Fair Value	Effective Weighted Duration Rate (in days) [1]
Asset-Backed Securities	$	154,951,613	21
Negotiable Certificates of Deposit		161,083,877	55
Corporate Bonds		270,969,633	54
Commercial Paper		145,315,309	71
Total Subject to Interest Rate Risk		732,320,432	**50**
U.S. Government Guaranteed Repurchase Agreements		167,238,000	
Allocation from Oregon Short Term Fund		11,024,970	
Cash		189,368	
Total Securities Lending Invested Cash Collateral	**$**	**910,772,770**	

[1] Weighted average days to maturity or next reset date.

TABLE 16

Derivative Instruments as of June 30, 2019

Investment Derivatives	Net Appreciation/ (Depreciation) in Fair Value of Investments [1,3]	Classification	Fair Value	Notional Value [2]
Credit Default Swaps Bought	$ (1,536,101)	Public Equity	$ (1,722,528)	$ 160,974,000
Credit Default Swaps Written	1,055,890	Public Equity	(6,738,728)	78,054,000
Fixed Income Futures Long	85,548,037	Public Equity	–	2,042,500,000
Fixed Income Futures Short	(30,145,510)	Public Equity	–	(314,955,628)
Fixed Income Options Bought	3,425,606	Public Equity	9,211,643	596,182,088
Fixed Income Options Written	(3,127,287)	Public Equity	(11,379,785)	(2,670,595,867)
Foreign Currency Options Bought	(1,038,545)	Public Equity	52,164	8,770,000
Foreign Currency Options Written	775,143	Public Equity	(33,098)	(17,540,000)
Futures Options Bought	(526,714)	Public Equity	681,269	3,151,000
Futures Options Written	3,622,185	Public Equity	(1,152,025)	(3,486,500)
Foreign Exchange Forwards	57,300,551	Receivables/Payables	(5,193,346)	6,019,227,810
Index Futures Long	45,637,663	Public Equity	–	4,248,905
Index Futures Short	25,455,039	Public Equity	–	(70,160)
Pay Fixed Interest Rate Swaps	(48,188,032)	Public Equity	(32,318,479)	1,719,754,387
Receive Fixed Interest Rate Swaps	27,418,342	Public Equity	12,459,592	1,604,171,990
Rights	229,973	Public Equity	1,170,189	15,716,058
Total Return Swaps Bond	(2,887,636)	Public Equity	(407,449)	100,583,196
Total Return Swaps Equity	(3,432,191)	Public Equity	585,342	(52,142,107)
Warrants	1,044,471	Public Equity	9,314,326	1,716,332
Total	**$ 160,630,884**		**$ (25,470,913)**	**$ 9,296,259,504**

[1] Negative values (in brackets) refer to losses.

[2] Notional may be a dollar amount or size of underlying for futures, rights, warrants, and options. Negative values refer to short positions.

[3] Excludes futures margin payments.

selling or buying an asset at a price different from the current fair value. Options may be subject to interest rate risk, general market risk, liquidity risk, credit risk, foreign currency risk, and, for non-exchange traded options, the risk of the counterparty's ability to perform.

Rights are the right, but not the obligation, to purchase newly issued equity shares, often in proportion to the number of shares currently owned, in a specified company, at a pre-established price on or within a predetermined date. A warrant provides the holder the right, but not the obligation, to purchase securities from the issuing entity at a specific price and within a certain time period. In the OPERF portfolio, rights and warrants are often obtained and held due to existing investments and are subject to general market risk and liquidity risk.

Counterparty Credit Risk

Table 17 on page 61 presents a summary of counterparty credit ratings relating to derivative instruments in asset positions, as of June 30, 2019.

Interest Rate Risk

As of June 30, 2019, OPERF is exposed to interest rate risk on its various swap arrangements and options. Table 18 on page 61 presents a segmented time schedule of those instruments, and Table 19, on pages 62 through 65 shows a schedule of derivative instruments that were highly sensitive to interest rate changes.

Foreign Currency Risk

OPERF is exposed to foreign currency risk on its derivative instruments. Table 20 on page 66 presents a summary of derivative instruments subject to foreign currency risk as of June 30, 2019.

Note 5 - Capital Assets Used in Plan Operations

Capital construction of PERS' headquarters in Tigard, Oregon, was completed May 31, 1997. The land, building, and improvements are recorded at cost. The depreciation of the building and improvements is computed on the straight-line method over the estimated useful life of 40 years.

TABLE 17

Derivative Instruments Subject to Counterparty Credit Risk as of June 30, 2019

Counterparty Name	Percentage of Net Exposure	S&P Rating	Fitch Rating	Moody's Rating
JP Morgan Chase Bank N.A. London	32.20%	A+	AA	Aa2
JP Morgan CME	15.43%	A-	AA-	A2
JP Morgan Chase Bank, N.A.	9.54%	A+	AA	Aa2
UBS AG	6.93%	A+	AA-	Aa3
NatWest Markets PLC	6.19%	A-	A	Baa2
State Street Bank and Trust Company	5.49%	AA-	AA	Aa3
Barclays Bank CME	4.40%	A	A+	A2
Citibank N.A.	3.09%	A+	A+	Aa3
Bank of New York	2.36%	A	AA-	A1
Morgan Stanley CME	2.00%	BBB+	A	A3
Barclays Bank PLC Wholesale	1.85%	A	A+	A2
Morgan Stanley Co Incorporated	1.08%	BBB+	A	A3
Toronto Dominion Bank	1.01%	AA-	AA-	Aa3
Citigroup Global Markets INC	0.89%	BBB+	A	A3
Citigroup Global Markets CME	0.88%	BBB+	A	A3
Standard Chartered Bank	0.74%	A	A+	A1
National Australia Bank Limited	0.73%	AA-	AA-	Aa3
Australia and New Zealand Banking Group	0.60%	AA-	AA-	Aa3
BNP Paribas SA	0.56%	A+	A+	Aa3
Credit Suisse International	0.54%	A+	A	A1
HSBC Bank USA	0.47%	AA-	AA-	Aa3
Citigroup Global Markets LCH	0.44%	BBB+	A	A3
Brown Brothers Harriman & Co.	0.42%	NR	A+	NR
Citigroup	0.41%	BBB+	A	A3
JP Morgan Chase Bank N.A.	0.41%	A+	AA	Aa2
Royal Bank of Scotland PLC	0.29%	A-	A	Baa2
Bank of Montreal	0.21%	A+	AA-	Aa2
Royal Bank of Canada	0.20%	AA-	AA	A2
Bank of America, N.A.	0.16%	A+	AA-	Aa2
Commonwealth Bank of Australia Sydney	0.13%	AA-	AA-	Aa3
Morgan Stanley and Co. Inc.	0.12%	BBB+	A	A3
State Street Bank London	0.11%	A	AA-	A1
Goldman Sachs & Co. LLC	0.09%	BBB+	A	A3
Morgan Stanley and Co. International PLC	0.02%	BBB+	A	A3
Credit Suisse First Boston International	0.01%	A+	A	A1
	100.00%			

TABLE 18

Derivative Instruments Subject to Interest Rate Risk as of June 30, 2019

Investment Type	Fair Value	Investment Maturities (in years) Less Than 1	1 - 5	6 - 10	More than 10
Credit Default Swaps Bought	$ (1,722,528)	$ –	$ (2,137,779)	$ –	$ 415,251
Credit Default Swaps Written	(6,738,728)	-	132,905	-	(6,871,633)
Fixed Income Options Bought	9,211,643	5,483,755	2,509,424	1,050,611	167,853
Fixed Income Options Written	(11,379,785)	(8,247,504)	(2,621,708)	(510,573)	-
Pay Fixed Interest Rate Swaps	(32,318,479)	-	(10,020,207)	(8,026,773)	(14,271,499)
Receive Fixed Interest Rate Swaps	12,459,592	(682,042)	9,065,856	1,327,139	2,748,639
Total Return Swaps Bond	(407,449)	(407,449)	-	-	-
Total Return Swaps Equity	585,342	585,342	-	-	-
Total	**$ (30,310,392)**	**$ (3,267,898)**	**$ (3,071,509)**	**$ (6,159,596)**	**$ (17,811,389)**

TABLE 19

Derivative Instruments Highly Sensitive to Interest Rate Changes as of June 30, 2019

Investment Type	Reference Rate	Fair Value	Notional Value
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.75000%	$ (1,351,082)	$ 11,385,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 1.37000%	(421,234)	3,530,281
Pay Fixed Interest Rate Swaps	Receive Variable 6-month NOK NIBOR, Pay Fixed 2.18625%	(598,471)	18,708,546
Pay Fixed Interest Rate Swaps	Receive Variable 12-month GBP UKRPI, Pay Fixed 3.41250%	(22,742)	11,893,383
Pay Fixed Interest Rate Swaps	Receive Variable 12-month GBP UKRPI, Pay Fixed 3.45000%	(47,536)	11,893,383
Pay Fixed Interest Rate Swaps	Receive Variable 12-month USCPI, Pay Fixed 2.24900%	(660,126)	17,815,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month GBP LIBOR, Pay Fixed 1.38500%	(1,020,904)	167,058,446
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 3.3300%	(4,947,835)	22,701,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 3.04536%	(992,637)	17,988,079
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 3.00000%	(1,757,510)	11,396,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.42000%	(158,537)	10,818,604
Pay Fixed Interest Rate Swaps	Receive Variable 6-month JPY LIBOR, Pay Fixed 0.67250%	(520,415)	6,218,675
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.87500%	(2,587,259)	19,980,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.57500%	(124,553)	6,790,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.57200%	(1,236,081)	31,060,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month JPY LIBOR, Pay Fixed 0.33600%	(8,882)	342,863
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.50000%	(129,394)	7,790,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.51500%	(299,474)	17,360,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.89750%	(360,010)	2,410,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.55000%	(99,739)	5,690,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.57500%	(317,753)	17,270,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.48000%	(161,521)	9,660,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month GBP LIBOR, Pay Fixed 1.51500%	(591,416)	13,210,628
Pay Fixed Interest Rate Swaps	Receive Variable 6-month GBP LIBOR, Pay Fixed 1.50100%	(273,250)	6,287,139
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.63100%	(401,568)	31,175,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.54000%	(166,818)	9,660,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.62150%	(76,196)	1,810,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.62800%	(142,483)	3,360,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.43000%	(266,255)	17,640,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month JPY LIBOR, Pay Fixed 0.71500%	(11,480)	227,771
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.75000%	(2,389,282)	22,644,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.50000%	(3,188,472)	75,141,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.15550%	(13,968)	1,320,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.16100%	(22,957)	1,140,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.35670%	(200,497)	6,050,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.33827%	(205,963)	6,070,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.39350%	(96,571)	9,750,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.40300%	(98,180)	9,750,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.04000%	(41,516)	6,832,803
Pay Fixed Interest Rate Swaps	Receive Variable 3-month SEK LIBOR, Pay Variable 3-month SEK LIBOR	-	145,502,361
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.31150%	(95,359)	3,500,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.31700%	(72,310)	2,630,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.36000%	(465,936)	16,530,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.35900%	(435,629)	15,480,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.35800%	(619,506)	22,050,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.36250%	(455,522)	16,095,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.09800%	(157,281)	22,001,624
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.05000%	(57,537)	9,349,551
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.10000%	(67,063)	9,349,551
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.50750%	(94,047)	7,760,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.35950%	(121,055)	8,290,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.11000%	(83,680)	11,433,556

TABLE 19 continues on the next page

TABLE 19 continuing from the previous page

Investment Type	Reference Rate	Fair Value	Notional Value
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.30000%	(565,856)	99,714,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.27700%	(194,573)	29,790,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.35000%	(246,749)	8,540,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.23050%	(70,759)	5,820,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.55350%	(60,841)	1,210,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.30700%	(1,154,844)	84,600,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.37650%	(112,231)	8,220,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.37050%	(74,044)	5,469,995
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.48000%	(51,666)	1,110,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.46650%	(108,802)	2,400,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.00650%	(87,513)	22,850,000
Pay Fixed Interest Rate Swaps	Receive Variable 12-month FEDL, Pay Fixed 1.83500%	(168,497)	27,410,000
Pay Fixed Interest Rate Swaps	Receive Variable 12-month FEDL, Pay Fixed 1.75000%	(316,825)	26,880,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.87000%	(86,510)	34,670,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.03300%	(48,890)	11,879,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month SEK LIBOR, Pay Variable 3-month SEK LIBOR	-	53,308,508
Pay Fixed Interest Rate Swaps	Receive Variable 3-month SEK LIBOR, Pay Variable 3-month SEK LIBOR	-	99,163,954
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.78500%	(15,141)	11,540,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.75350%	(1,338)	850,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.87500%	(25,872)	8,260,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.99700%	(30,612)	8,760,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.77000%	(115,573)	66,050,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.37000%	(64,132)	2,260,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.87450%	(30,502)	4,550,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.14000%	(26,831)	5,352,362
Pay Fixed Interest Rate Swaps	Receive Variable 6-month JPY LIBOR, Pay Fixed 0.29500%	(767)	325,320
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.07000%	(11,581)	2,020,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.89000%	(6,846)	4,410,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.78950%	(4,938)	3,590,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.08500%	(10,946)	5,397,914
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.61500%	13,507	7,750,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.32500%	74	440,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 2.00650%	(1,997)	610,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.73200%	59,126	46,340,000
Pay Fixed Interest Rate Swaps	Receive Variable 0-month FEDL, Pay Fixed 1.55000%	42,305	61,804,000
Pay Fixed Interest Rate Swaps	Receive Variable 3-month LIBOR, Pay Fixed 1.6700%	4,943	8,620,000
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.12987%	(3,937)	2,995,045
Pay Fixed Interest Rate Swaps	Receive Variable 6-month Euro EURIBOR, Pay Fixed 0.12763%	(3,329)	2,995,045
Subtotal - Pay Fixed Interest Rate Swaps		(32,318,479)	1,719,754,387
Receive Fixed Interest Rate Swaps	Receive Fixed 3.08000%, Pay Variable 3-month LIBOR	308,179	1,910,000
Receive Fixed Interest Rate Swaps	Receive Fixed 7.35050%, Pay Variable 1-month MXN TIIE	(271,406)	64,947,571
Receive Fixed Interest Rate Swaps	Receive Fixed 7.33000%, Pay Variable 1-month MXN TIIE	(26,883)	44,530,272
Receive Fixed Interest Rate Swaps	Receive Fixed 1.37750%, Pay Variable 6-month NOK NIBOR	(682,042)	169,047,801
Receive Fixed Interest Rate Swaps	Receive Fixed 0.87800%, Pay Variable 6-month Euro EURIBOR	19,869	276,729
Receive Fixed Interest Rate Swaps	Receive Fixed 2.89600%, Pay Variable 3-month LIBOR	1,175,866	25,160,000
Receive Fixed Interest Rate Swaps	Receive Fixed 3.48500%, Pay Variable 12-month GBP UKRPI	(11,561)	11,893,383
Receive Fixed Interest Rate Swaps	Receive Fixed 3.50500%, Pay Variable 12-month GBP UKRPI	18,519	11,893,383
Receive Fixed Interest Rate Swaps	Receive Fixed 2.16400%, Pay Variable 12-month USCPI	363,605	17,815,000
Receive Fixed Interest Rate Swaps	Receive Fixed 3.00000%, Pay Variable 3-month LIBOR	1,881,114	15,458,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.83360%, Pay Variable 3-month LIBOR	78,954	3,385,500
Receive Fixed Interest Rate Swaps	Receive Fixed 0.36400%, Pay Variable 6-month Euro EURIBOR	56,916	4,230,643
Receive Fixed Interest Rate Swaps	Receive Fixed 2.52050%, Pay Variable 3-month LIBOR	324,673	19,100,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.52600%, Pay Variable 3-month LIBOR	2,721,528	156,480,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.50850%, Pay Variable 3-month LIBOR	46,469	2,720,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.48350%, Pay Variable 3-month LIBOR	45,149	2,720,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.57000%, Pay Variable 3-month LIBOR	372,632	9,390,000

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Investment Type	Reference Rate	Fair Value	Notional Value
Receive Fixed Interest Rate Swaps	Receive Fixed 0.01600%, Pay Variable 6-month Euro EURIBOR	37,837	5,181,542
Receive Fixed Interest Rate Swaps	Receive Fixed 2.62000%, Pay Variable 3-month LIBOR	374,300	8,900,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.49750%, Pay Variable 3-month LIBOR	46,332	2,730,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.46200%, Pay Variable 3-month LIBOR	89,231	5,450,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.45950%, Pay Variable 3-month LIBOR	67,294	4,110,000
Receive Fixed Interest Rate Swaps	Receive Fixed 0.56000%, Pay Variable 6-month Euro EURIBOR	81,509	2,038,453
Receive Fixed Interest Rate Swaps	Receive Fixed 0.05900%, Pay Variable 6-month Euro EURIBOR	41,871	10,420,024
Receive Fixed Interest Rate Swaps	Receive Fixed 2.66100%, Pay Variable 3-month LIBOR	24,153	385,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.67000%, Pay Variable 3-month LIBOR	24,463	385,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.43050%, Pay Variable 3-month LIBOR	87,182	5,490,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.43350%, Pay Variable 3-month LIBOR	87,502	5,490,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.24700%, Pay Variable 3-month LIBOR	79,392	6,440,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.22950%, Pay Variable 3-month LIBOR	99,147	8,270,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.60000%, Pay Variable 3-month LIBOR	244,642	4,260,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.06300%, Pay Variable 3-month LIBOR	37,259	4,240,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.03320%, Pay Variable 3-month LIBOR	227,210	27,670,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.17877%, Pay Variable 3-month LIBOR	228,847	11,750,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.05550%, Pay Variable 3-month LIBOR	42,899	4,960,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.04850%, Pay Variable 3-month LIBOR	75,343	8,850,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.24950%, Pay Variable 3-month LIBOR	17,527	1,410,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.52000%, Pay Variable 3-month LIBOR	22,085	440,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.52000%, Pay Variable 3-month LIBOR	22,085	440,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.20950%, Pay Variable 3-month LIBOR	64,605	5,500,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.78000%, Pay Variable 6-month NOK NIBOR	59,242	127,596,015
Receive Fixed Interest Rate Swaps	Receive Fixed 2.25000%, Pay Variable 3-month LIBOR	609,914	97,879,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.24350%, Pay Variable 3-month LIBOR	54,753	4,425,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.26600%, Pay Variable 3-month LIBOR	56,680	4,425,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.25500%, Pay Variable 3-month LIBOR	27,869	2,212,500
Receive Fixed Interest Rate Swaps	Receive Fixed 2.52000%, Pay Variable 3-month LIBOR	41,397	825,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.25450%, Pay Variable 3-month LIBOR	27,848	2,212,498
Receive Fixed Interest Rate Swaps	Receive Fixed 2.31800%, Pay Variable 3-month LIBOR	39,294	3,170,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.25000%, Pay Variable 3-month LIBOR	397,544	31,810,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.21250%, Pay Variable 3-month LIBOR	52,156	4,430,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.31400%, Pay Variable 3-month LIBOR	67,966	5,470,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.27100%, Pay Variable 3-month LIBOR	63,554	5,480,001
Receive Fixed Interest Rate Swaps	Receive Fixed 2.26500%, Pay Variable 3-month LIBOR	62,914	5,480,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.28850%, Pay Variable 3-month LIBOR	65,423	5,479,999
Receive Fixed Interest Rate Swaps	Receive Fixed 2.50000%, Pay Variable 3-month LIBOR	31,915	660,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.29300%, Pay Variable 3-month LIBOR	33,141	2,740,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.30000%, Pay Variable 3-month LIBOR	33,515	2,740,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.28500%, Pay Variable 3-month LIBOR	32,774	2,745,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.44500%, Pay Variable 3-month LIBOR	52,910	1,220,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.20900%, Pay Variable 3-month LIBOR	62,235	6,825,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.20600%, Pay Variable 3-month LIBOR	61,834	6,825,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.44650%, Pay Variable 3-month LIBOR	39,624	1,240,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.16400%, Pay Variable 3-month LIBOR	56,675	6,830,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.16900%, Pay Variable 3-month LIBOR	57,342	6,830,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.00650%, Pay Variable 3-month LIBOR	87,513	22,850,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.24100%, Pay Variable 3-month LIBOR	88,443	8,940,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.99750%, Pay Variable 3-month CAD CDOR	202,165	50,698,297
Receive Fixed Interest Rate Swaps	Receive Fixed 2.11950%, Pay Variable 3-month LIBOR	48,653	5,500,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.08600%, Pay Variable 3-month LIBOR	22,533	2,750,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.08700%, Pay Variable 3-month LIBOR	22,586	2,750,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.19350%, Pay Variable 3-month LIBOR	43,620	6,240,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.18600%, Pay Variable 3-month LIBOR	42,742	6,240,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.20350%, Pay Variable 3-month LIBOR	71,697	10,010,000
Receive Fixed Interest Rate Swaps	Receive Fixed 0.08100%, Pay Variable 6-month Euro EURIBOR	10,464	4,281,889

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TABLE 19 continuing from the previous page

Investment Type	Reference Rate	Fair Value	Notional Value
Receive Fixed Interest Rate Swaps	Receive Fixed 2.08200%, Pay Variable 3-month LIBOR	98,008	17,510,000
Receive Fixed Interest Rate Swaps	Receive Fixed 0.02250%, Pay Variable 3-month SEK STIBOR	103,064	53,308,508
Receive Fixed Interest Rate Swaps	Receive Fixed 2.02500%, Pay Variable 3-month LIBOR	39,299	8,770,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.01350%, Pay Variable 3-month LIBOR	74,500	17,505,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.97100%, Pay Variable 3-month LIBOR	30,026	8,770,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.87600%, Pay Variable 3-month LIBOR	12,861	7,804,522
Receive Fixed Interest Rate Swaps	Receive Fixed 1.86250%, Pay Variable 3-month LIBOR	8,096	5,853,275
Receive Fixed Interest Rate Swaps	Receive Fixed 1.87950%, Pay Variable 3-month LIBOR	15,071	8,780,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.89350%, Pay Variable 3-month LIBOR	17,481	8,780,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.84200%, Pay Variable 3-month LIBOR	8,625	8,790,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.83000%, Pay Variable 3-month LIBOR	2,911	3,902,203
Receive Fixed Interest Rate Swaps	Receive Fixed 1.91450%, Pay Variable 3-month LIBOR	14,439	5,860,000
Receive Fixed Interest Rate Swaps	Receive Fixed 0.00000%, Pay Variable 3-month SEK LIBOR	138,643	99,163,954
Receive Fixed Interest Rate Swaps	Receive Fixed 1.83000%, Pay Variable 3-month LIBOR	2,954	13,439,866
Receive Fixed Interest Rate Swaps	Receive Fixed 1.83700%, Pay Variable 3-month LIBOR	2,371	6,720,034
Receive Fixed Interest Rate Swaps	Receive Fixed 1.84200%, Pay Variable 3-month LIBOR	3,069	6,855,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.86150%, Pay Variable 3-month LIBOR	5,442	6,652,550
Receive Fixed Interest Rate Swaps	Receive Fixed 0.11400%, Pay Variable 6-month Euro EURIBOR	6,325	2,676,181
Receive Fixed Interest Rate Swaps	Receive Fixed 0.13950%, Pay Variable 6-month Euro EURIBOR	15,862	8,597,943
Receive Fixed Interest Rate Swaps	Receive Fixed 1.84400%, Pay Variable 3-month LIBOR	6,839	12,540,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.74400%, Pay Variable 3-month LIBOR	30,780	11,170,000
Receive Fixed Interest Rate Swaps	Receive Fixed 0.13750%, Pay Variable 6-month Euro EURIBOR	24,484	13,346,741
Receive Fixed Interest Rate Swaps	Receive Fixed 1.89750%, Pay Variable 3-month LIBOR	7,353	4,390,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.88000%, Pay Variable 3-month LIBOR	5,873	4,390,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.82950%, Pay Variable 3-month LIBOR	1,700	4,410,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.83100%, Pay Variable 3-month LIBOR	1,828	4,410,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.06350%, Pay Variable 3-month LIBOR	8,220	970,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.85100%, Pay Variable 3-month LIBOR	7,454	8,780,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.62000%, Pay Variable 3-month LIBOR	956	3,262,000
Receive Fixed Interest Rate Swaps	Receive Fixed 0.23950%, Pay Variable 6-month Euro EURIBOR	(835)	2,706,127
Receive Fixed Interest Rate Swaps	Receive Fixed 0.24150%, Pay Variable 6-month Euro EURIBOR	(945)	2,706,127
Receive Fixed Interest Rate Swaps	Receive Fixed 1.81900%, Pay Variable 3-month LIBOR	1,897	8,800,000
Receive Fixed Interest Rate Swaps	Receive Fixed 0.19750%, Pay Variable 6-month Euro EURIBOR	7,364	13,494,785
Receive Fixed Interest Rate Swaps	Receive Fixed 1.50700%, Pay Variable 3-month LIBOR	(14,048)	17,820,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.58500%, Pay Variable 3-month LIBOR	(3,617)	2,780,000
Receive Fixed Interest Rate Swaps	Receive Fixed 2.10150%, Pay Variable 3-month LIBOR	327	620,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.75200%, Pay Variable 3-month LIBOR	(4,129)	4,430,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.71800%, Pay Variable 3-month LIBOR	(13,699)	8,840,000
Receive Fixed Interest Rate Swaps	Receive Fixed 0.67250%, Pay Variable 6-month JPY LIBOR	520,415	6,218,674
Receive Fixed Interest Rate Swaps	Receive Fixed 1.96700%, Pay Variable 3-month LIBOR	(1,019)	3,880,000
Receive Fixed Interest Rate Swaps	Receive Fixed 1.79450%, Pay Variable 3-month LIBOR	116	8,890,000
Subtotal - Receive Fixed Interest Rate Swaps		12,459,592	1,604,171,990
Total Interest Rate Swaps		**$ (19,858,887)**	**$ 3,323,926,377**

TABLE 20

Derivative Instruments Subject to Foreign Currency Risk as of June 30, 2019

	Currency Forward Contracts				
Currency Name	**Net Receivables**	**Net Payables**	**Options/Rights/ Warrants**	**Swaps**	**Total Exposure**
Argentine peso	$ 2,171,432	$ –	$ –	$ –	$ 2,171,432
Australian dollar	1,263,777	(386,098)	407	-	878,086
Brazilian real	277,584	(418,930)	-	-	(141,346)
Canadian dollar	3,744,885	(4,486,733)	27,699	202,165	(511,984)
Chilean peso	110,467	(302,037)	114,922	-	(76,648)
Danish krone	345,320	44,325	-	-	389,645
Egyptian pound	-	(18,349)	-	-	(18,349)
Euro	2,001,254	(79,117)	564,675	(285,549)	2,201,263
Hong Kong dollar	87,099	(132,588)	-	116,948	71,459
Hungarian forint	164,354	(40,205)	-	-	124,149
Indian rupee	249,552	(289,116)	-	-	(39,564)
Indonesian rupiah	-	-	4,022	-	4,022
Japanese yen	1,628,150	(11,614,349)	136,736	(73,805)	(9,923,268)
Malaysian ringgit	-	(1)	-	-	(1)
Mexican peso	614,320	(594,882)	-	(298,289)	(278,851)
Moroccan dirham	109,559	-	-	-	109,559
New Israeli sheqel	477,935	(1,056,095)	-	-	(578,160)
New Taiwan dollar	126,516	19	-	-	126,535
New Zealand dollar	2,836,926	(1,743,850)	-	-	1,093,076
Norwegian krone	161,986	(1,200,155)	-	(1,221,271)	(2,259,440)
Peruvian sol	22,036	(182,505)	-	-	(160,469)
Philippine peso	-	-	5,154	-	5,154
Polish zloty	206,077	(334,584)	-	-	(128,507)
Pound sterling	(1,561,517)	8,354,317	1,138,818	(1,948,891)	5,982,727
Romanian leu	179,142	-	-	-	179,142
Russian ruble	1,064,729	(491,923)	-	-	572,806
Saudi riyal	790	(8,105)	-	-	(7,315)
Singapore dollar	216,542	(982,959)	-	-	(766,417)
South African rand	155,426	(100,173)	-	-	55,253
South Korean won	-	(420,298)	-	-	(420,298)
Swedish krona	1,250,117	247,684	-	(90,692)	1,407,109
Swiss franc	2,564,338	(9,876,896)	-	397	(7,312,161)
Thailand baht	102,145	(44,646)	267	-	57,766
Tunisian dinar	3,377	-	7	-	3,384
Turkish lira	225,057	200,667	-	-	425,724
United Arab Emirates dirham	-	(2,160)	-	-	(2,160)
Yuan renminbi	(38)	(19,339)	-	-	(19,377)
Yuan renminbi - Offshore	(40,263)	26,661	-	-	(13,602)
Total Subject to Foreign Currency Risk	**20,759,074**	**(25,952,420)**	**1,992,707**	**(3,598,987)**	**(6,799,626)**
U.S. dollar	-	-	5,871,976	(24,543,263)	(18,671,287)
Total	**$ 20,759,074**	**$ (25,952,420)**	**$ 7,864,683**	**$ (28,142,250)**	**$ (25,470,913)**

Data processing hardware, furniture, and equipment are recorded at cost. These are items that are not consumed in the normal course of operations, have a useful life of more than one year, and whose value is $5,000 or more.

Depreciation is computed using the straight-line method over the assets' estimated useful lives. Useful lives range from three to 10 years.

Data processing software generated internally as part of the Oregon Retirement Information On-line Network (ORION) project is recorded at cost. The useful life is amortized using the straight-line method over 20 years. See Table 21 below.

Note 6 - Reserves and Designations

In accordance with the following plan requirements, various funds have been established to account for reserves or designations held for future and current payments:

Chapter 238 Defined Benefit Plan

Table 22 on the next page details the amounts comprising the total Net Position Restricted for Pension Benefits.

TABLE 21

Schedule of Changes in Capital Assets for the fiscal year ended June 30, 2019

	Beginning of Year	Increases	Decreases	End of Year
Capital assets, not being depreciated or amortized:				
Land	$ 944,463	$ –	$ –	$ 944,463
Total capital assets, not being depreciated or amortized	944,463	–	–	944,463
Capital assets, being depreciated or amortized:				
Furniture and Equipment	1,236,513	15,500	–	1,252,013
Data Processing Software	40,395,201	–	–	40,395,201
Data Processing Hardware	2,128,431	194,371	(306,304)	2,016,498
Building and Building Improvement	8,691,997	–	–	8,691,997
Total capital assets being depreciated or amortized	52,452,142	209,871	(306,304)	52,355,709
Less accumulated depreciation or amortization for:				
Furniture and Equipment	(1,016,935)	(177,252)	–	(1,194,187)
Data Processing Software	(19,188,594)	(1,876,881)	–	(21,065,475)
Data Processing Hardware	(1,540,028)	(257,993)	269,107	(1,528,914)
Building and Building Improvement	(4,379,464)	(276,782)	–	(4,656,246)
Total accumulated depreciation or amortization	(26,125,021)	(2,588,908)	269,107	(28,444,822)
Total capital assets, being depreciated or amortized, net	26,327,121	(2,379,037)	(37,197)	23,910,887
Capital assets, net	**$ 27,271,584**	**$ (2,379,037)**	**$ (37,197)**	**$ 24,855,350**

Depreciation expense	**Amount**
Defined Benefit Pension Plan Depreciation	$ 2,548,501
Oregon Public Service Retirement Plan Individual Account Program Depreciation	40,407
Total depreciation expense	**$ 2,588,908**

A. Member Reserve

The Member Reserve represents member contributions made through December 31, 2003, and earnings allocations less refunds and amounts transferred to reserves for retirements and disabilities.

B. Employer Contribution Designation

The Employer Contribution Designation represents employer contributions and earnings allocations less amounts transferred to reserves for retirements and disabilities. Employer side accounts consist of lump sum payments deposited into the Oregon Public Employees Retirement Fund, less amounts amortized as credits to employer contributions, plus investment earnings allocated in accordance with OAR 459-007-0530. Final earnings crediting is done annually on a calendar year basis. PERS estimates that the approximate value of employer side accounts was $5,280.9 million as of June 30, 2019. Side account balances are included in the Employer Contribution Designation reserve.

C. Benefit Reserve

The Benefit Reserve is the amount set aside to pay future benefits. It includes funds transferred from the individual member and employer accounts and earnings allocations less amounts paid for retirements and disabilities.

D. Tier One Rate Guarantee Reserve

The Tier One Rate Guarantee Reserve may be credited with investment earnings in excess of the required Tier One assumed earnings rate guarantee. ORS 238.255(1) requires regular accounts for Tier One members to be credited at the assumed rate of return on investments adopted by the Board for use in actuarial valuations.

The regular account for Tier One members and alternate payees of those members cannot be credited with earnings in excess of the assumed interest rate until: (a) the reserve is fully funded with amounts determined by the Board, after consultation with the actuary employed by the Board, necessary to ensure a zero balance in the reserve when all Tier One members and alternate payees of those members have retired; and (b) the reserve has been fully funded as described in paragraph (a) of this subsection in each of the three immediately preceding calendar years.

E. Contingency Reserve

The Contingency Reserve is to be maintained and used by the Board to prevent any deficit of moneys available for the payment of retirement allowances due to interest fluctuations, changes in mortality rates, or other unforeseen contingency.

F. Employer Contingency Reserve

The Employer Contingency Reserve was established by the Board to prevent any deficit in the fund caused by the insolvency of an employer. Only earnings on employer contributions fund this reserve.

G. Unallocated Earnings Designation

The Unallocated Earnings Designation represents January through June investment earnings or losses less administrative expenses, which will be credited on a calendar year basis. Crediting takes place in March of the following year after employer annual reports have been reconciled and contributions have been posted to individual member and employer accounts.

H. OPSRP Defined Benefit Program

OPSRP Defined Benefit Program reserve represents the program's accumulation of employer contributions and investment earnings less benefits and administrative expenses.

TABLE 22

Reserves and Designations	**Defined Benefit Pension Plan**
Chapter 238 Defined Benefit Plan and Employee Benefit Plan	
Member Reserve	$ 3,197,122,533
Employer Contribution Designation	24,542,110,194
Benefit Reserve	21,463,738,617
Tier One Rate Guarantee Reserve	448,776,254
Contingency Reserve	47,500,000
Employer Contingency Reserve	2,500,000
Unallocated Earnings Designation	14,932,838,665
OPSRP Defined Benefit Program	5,569,134,356
Net Position Restricted for Pension Benefits	**$ 70,203,720,619**

Other Postemployment Benefits Plans

I. Retirement Health Insurance Account (RHIA)

The RHIA plan fiduciary net position balance represents the program's accumulation of employer contributions and investment earnings less premium subsidies and administrative expenses. As of June 30, 2019, the balance of this account was $628.9 million. The Internal Revenue Code limits employer contributions to a 401(h) account to a maximum of 25 percent of the employer's normal cost contributions to the pension plan.

J. Retiree Health Insurance Premium Account (RHIPA)

The RHIPA plan fiduciary net position balance represents the program's accumulation of employer contributions and investment earnings less premium subsidies and administrative expenses. As of June 30, 2019, the balance of this account was $46.7 million. The Internal Revenue Code limits employer contributions to a 401(h) account to a maximum of 25 percent of the employer's normal cost contributions to the pension plan.

Other Plans

K. Individual Account Program

The Individual Account Program fiduciary net position balance represents the member contributions and investment earnings less benefits paid and administrative expenses. As of June 30, 2019, the balance of this account was $9,912.0 million. Member contributions are described in Note 2.D.a. The Oregon Legislature created the IAP in 2003 to provide an individual account-based defined contribution retirement benefit for new workers hired on or after August 29, 2003, and for Tier One/Tier Two members active on and after January 1, 2004.

L. Deferred Compensation Plan

The Deferred Compensation plan fiduciary net position balance represents the program's accumulation of plan member contributions and investment earnings less benefits paid and administrative expenses. As of June 30, 2019, the balance of this account was $2,075.3 million. The Internal Revenue Code (IRC) limits plan member contributions to an IRC 457 account to a maximum of $19,000 (calendar year 2019), with optional catch up provisions available to members over age 50.

Enterprise Fund

M. Standard Retiree Health Insurance Account (SRHIA)

The SRHIA net position balance represents the program's accumulation of retiree insurance premiums, reinsurance reimbursements, and interest earnings less insurance claims and administrative expenses. As of June 30, 2019, the balance of this account was $89.7 million.

Note 7 - Litigation

PERS is a defendant in various lawsuits, including several cases that have been filed on behalf of PERS members challenging certain elements of Senate Bill 1049. Although the outcome of these lawsuits is not presently determinable, in the opinion of the System's legal counsel, the resolution of these matters will not have a material adverse effect on the financial condition of the System.

Note 8 - Standard Retiree Health Insurance Account

A. Basis for Estimated Liabilities

The Standard Retiree Health Insurance Account (SRHIA) establishes claim liabilities based on estimates of the ultimate costs of claims (including future claim adjustment expenses) that have been reported but not settled and of claims that have been "incurred but not reported" (IBNR). Table 23 below shows the changes in the aggregated estimated claims liabilities for the fiscal years ended June 30, 2019 and 2018.

The estimated claims liability was calculated by Butler, Partners, & Associates, PERS' health insurance consultant, at June 30, 2019, using a variety of mathematical and statistical techniques and adjusted for actual experience to produce current estimates that reflect recent settlements, claim frequency, and other economic and social factors. Adjustments to claims liabilities are charged or credited to expense in the periods in which they are made. The estimated claims liability of $865,000 is carried at its face amount, and no interest discount is assumed. The "IBNR" represents an estimate for claims that have been incurred prior to June 30, 2019, but have not been reported to the SRHIA.

TABLE 23

Changes in the Aggregated Estimated Claims Liabilities of SRHIA For the Year Ended June 30.

	2019	2018
Total Estimated Claims at Beginning of Fiscal Year	$ 9,200,000	$ 8,700,000
Insured Claims and Claim Adjustment Expenses		
Provision for Insured Events of Current Fiscal Year	69,661,876	133,490,060
Increase/(Decrease) in Provision for Insured Events of Prior Years	13,577,690	9,446,888
Total Incurred Claims and Claim Adjustment Expenses	83,239,566	142,936,948
Payments		
Claims and Claim Adjustment Expenses Attributable to Insured Events of Current Fiscal Year	77,981,591	124,290,060
Claims and Claim Adjustment Expenses Attributable to Insured Events of Prior Fiscal Year	13,592,975	18,146,888
Total Payments	91,574,566	142,436,948
Total Estimated Claims at End of Fiscal Year	**$ 865,000**	**$ 9,200,000**

Note 9 - Employers' Net Pension Liability

Actuarial Cost Method and Assumptions

The components of the net pension liability of the defined benefit pension plan are shown in Table 24 on page 71.

The actuarial valuation calculations are based on the benefits provided under the terms of the plan in effect at the time of each valuation and on the pattern of sharing of costs between the employer and plan members. The December 31, 2017 Actuarial Valuation was used to develop the GASB 67 financial reporting results for the Defined Benefit Pension Plan as of June 30, 2019.

Key actuarial methods and assumptions used to measure the total pension liability are illustrated in Table 25 on page 71.

Discount Rate

The discount rate used to measure the total pension liability was 7.20 percent for the Defined Benefit Pension Plan. The projection of cash flows used to determine the discount rate assumed that contributions from plan members and those of the contributing employers are made at the contractually required rates, as actuarially determined. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments for the Defined Benefit Pension Plan was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity Analysis

Table 26 on page 71 presents the net pension liability calculated using the discount rate of 7.20 percent, as well as what the net pension liability would be if it were calculated using a discount rate that is one percent lower (6.20 percent) or one percent higher (8.20 percent) than the current rate. The results of actuarial valuations used for rate setting and the related Schedules of Funding Progress may be found in the Actuarial Section beginning on page 106.

Long-Term Expected Rate of Return

To develop an analytical basis for the selection of the long-term expected rate of return assumption, in July 2017 the PERS Board reviewed long-term assumptions developed by both Milliman's capital market assumptions team and the Oregon Investment Council's (OIC) investment advisors. Table 31 on page 74 shows Milliman's assumptions for each of the asset classes in which the plan was invested at that time based on the OIC long-term target asset allocation. The OIC's description of each asset class was used to map the target allocation to the asset classes shown on page 74 . Each asset class assumption is based on a consistent set of underlying assumptions, and includes adjustment for the inflation assumption. These assumptions are not based on historical returns, but instead are based on a forward-looking capital market economic model.

Depletion Date Projection

GASB 67 generally requires that a blended discount rate be used to measure the Total Pension Liability (the Actuarial Accrued Liability calculated using the Individual Entry Age Normal Cost Method). The long-term expected return on plan investments may be used to discount liabilities to the extent that the plan's Fiduciary Net Position (fair value of assets) is projected to cover benefit payments and administrative expenses. A 20-year high quality (AA/Aa or higher) municipal bond rate must be used for periods where the Fiduciary Net Position is not projected to cover benefit payments and administrative expenses. Determining the discount rate under GASB 67 will often require that the actuary perform complex projections of future benefit payments and asset values. GASB 67 (paragraph 43) does allow for alternative evaluations of projected solvency, if such evaluation can reliably be made. GASB does not contemplate a specific method for making an alternative evaluation of sufficiency; it is left to professional judgment.

The following circumstances justify an alternative evaluation of sufficiency for Oregon PERS:

- Oregon PERS has a formal written policy to calculate an Actuarially Determined Contribution (ADC), which is articulated in the actuarial valuation report.
- The ADC is based on a closed, layered amortization period, which means that payment of the full ADC each year will bring the plan to a 100 percent funded position by the end of the amortization period if future experience follows assumption.
- GASB 67 specifies that the projections regarding future solvency assume that plan assets earn the assumed rate of return and there are no future changes in the plan provisions or actuarial methods and assumptions, which means that the projections would not reflect any adverse future experience which might impact the plan's funded position.

Based on these circumstances, it is our third-party actuary's opinion that the detailed depletion date projections outlined in GASB 67 would clearly indicate that the Fiduciary Net Position is always projected to be sufficient to cover benefit payments and administrative expenses.

TABLE 24

Net Pension Liability (in Millions)
As of June 30,

		2019
Total Pension Liability	$	87,501.2
Plan Fiduciary Net Position		70,203.7
Employers' Net Pension Liability	**$**	17,297.5
Plan net position as a percentage of total pension liability		80.2 %

TABLE 25

Actuarial Methods and Assumptions

	Pension
Valuation date	December 31, 2017
Measurement date	June 30, 2019
Experience Study	2016, published July 26, 2017
Actuarial assumptions:	
Actuarial cost method	Entry Age Normal
Inflation rate	2.50 percent
Long-term expected rate of return	7.20 percent
Discount rate	7.20 percent
Projected salary increases	3.50 percent
Cost-of-living adjustments (COLA)	Blend of 2.00% COLA and graded COLA (1.25%/0.15%) in accordance with *Moro* decision; blend based on service.
Mortality	***Healthy retirees and beneficiaries:*** RP-2014 Healthy annuitant, sex-distinct, generational with Unisex, Social Security Data Scale, with collar adjustments and set-backs as described in the valuation. ***Active members:*** RP-2014 Employees, sex-distinct, generational with Unisex, Social Security Data Scale, with collar adjustments and set-backs as described in the valuation. ***Disabled retirees:*** RP-2014 Disabled retirees, sex-distinct, generational with Unisex, Social Security Data Scale.

TABLE 26

Sensitivity of Net Pension Liability to Changes in the Discount Rate (in Millions)
As of June 30, 2019

Employers' Net Pension Liability	**1% Decrease (6.20 %)**	**Current Discount Rate (7.20%)**	**1% Increase (8.20 %)**
Defined Benefit Pension Plan	$ 27,700.6	$ 17,297.5	$ 8,591.7

Note 10 - Employers' Net OPEB Liability/ (Asset)

Actuarial Cost Method and Assumptions

The components of the Net OPEB liability (asset) for the OPEB plans are shown in Table 27 on page 73. The actuarial valuation calculations are based on the benefits provided under the terms of the plan in effect at the time of each valuation and on the pattern of sharing of costs between the employer and plan members as of the December 31, 2017 valuation rolled forward to June 30, 2019. Key actuarial methods and assumptions used to measure the total OPEB liability are illustrated in Table 28.

Discount Rate

The discount rate used to measure the total OPEB liability was 7.20 percent for the OPEB Plans. The projection of cash flows used to determine the discount rate assumed that contributions from contributing employers are made at the contractually required rates, as actuarially determined. Based on those assumptions, the OPEB plans' fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments for the OPEB Plans was applied to all periods of projected benefit payments to determine the total OPEB liability.

Sensitivity Analysis

Table 29 on page 73 presents the net OPEB liability/(asset) calculated using the discount rate of 7.20 percent, as well as what the net OPEB liability/(asset) would be if it were calculated using a discount rate that is one percent lower (6.20 percent) or one percent higher (8.20 percent) than the current rate. The results of actuarial valuations used for rate setting and the related Schedules of Funding Progress may be found in the Actuarial Section on pages 128 and 133.

Table 30 on page 74 presents the net OPEB liability /(asset) calculated using the current healthcare cost trend rates, as well as what the net OPEB liability/(asset) would be if it were calculated using healthcare trend rates that are one percentage point lower, or one percentage point higher than the current rates. Healthcare trend cost rates are applicable to RHIPA only, due to the variable nature of benefits.

Long-Term Expected Rate of Return

To develop an analytical basis for the selection of the long-term expected rate of return assumption, in July 2017 the PERS Board reviewed long-term assumptions developed by both Milliman's capital market assumptions team and the Oregon Investment Council's (OIC) investment advisors. Table 31 on page 74 shows Milliman's assumptions for each of the asset classes in which the plans were invested at that time based on the OIC long-term target asset allocation. The OIC's description of each asset class was used to map the target allocation to the asset classes shown on page 74. Each asset class assumption is based on a consistent set of underlying assumptions, and includes adjustment for the inflation assumption. These assumptions are not based on historical returns, but instead are based on a forward-looking capital market economic model.

Depletion Date Projection

GASB 74 generally requires that a blended discount rate be used to measure the Total OPEB Liability (the Actuarial Accrued Liability calculated using the Individual Entry Age Normal Cost Method). The long-term expected return on plan investments may be used to discount liabilities to the extent that the plan's Fiduciary Net Position (fair value of assets) is projected to cover benefit payments and administrative expenses. A 20-year high quality (AA/Aa or higher) municipal bond rate must be used for periods where the Fiduciary Net Position is not projected to cover benefit payments and administrative expenses. Determining the discount rate under GASB 74 will often require that the actuary perform complex projections of future benefit payments and asset values. GASB 74 (paragraph 51) does allow for alternative evaluations of projected solvency, if such evaluation can reliably be made. GASB does not contemplate a specific method for making an alternative evaluation of sufficiency; it is left to professional judgment.

The following circumstances justify an alternative evaluation of sufficiency for Oregon PERS:

- Oregon PERS has a formal written policy to calculate an Actuarially Determined Contribution (ADC), which is articulated in the actuarial valuation report.
- The ADC is based on a closed, layered amortization period, which means that payment of the full ADC each year will bring the plan to a 100 percent funded position by the end of the amortization period if future experience follows assumption.
- GASB 74 specifies that the projections regarding future solvency assume that plan assets earn the assumed rate of return and there are no future changes in the plan provisions or actuarial methods and assumptions, which means that the projections would not reflect any adverse future experience which might impact the plan's funded position.

Based on these circumstances, it is our third-party actuary's opinion that the detailed depletion date projections outlined in GASB 74 would clearly indicate that the Fiduciary Net Position is always projected to be sufficient to cover benefit payments and administrative expenses.

TABLE 27

Net OPEB - RHIA (Asset) (in Millions)
As of June 30, 2019

		2019
Total OPEB - RHIA Liability	$	435.6
Plan Fiduciary Net Position		628.9
Employers' Net OPEB - RHIA (Asset)	**$**	**(193.3)**
Plan net position as a percentage of Total OPEB - RHIA Liability		144.4 %

Net OPEB - RHIPA Liability (in Millions)
As of June 30, 2019

		2019
Total OPEB - RHIPA Liability	$	72.0
Plan Fiduciary Net Position		46.7
Employer's Net OPEB - RHIPA Liability	**$**	**25.3**
Plan net position as a percentage of Total OPEB - RHIPA Liability		64.9 %

TABLE 28

Actuarial Methods and Assumptions

	RHIA	RHIPA
Valuation date	December 31, 2017	December 31, 2017
Measurement date	June 30, 2019	June 30, 2019
Experience Study	2016, published July 26, 2017	2016, published July 26, 2017
Actuarial assumptions:		
Actuarial cost method	Entry Age Normal	Entry Age Normal
Inflation rate	2.50 percent	2.50 percent
Long-term expected rate of return	7.20 percent	7.20 percent
Discount rate	7.20 percent	7.20 percent
Projected salary increases	3.50 percent	3.50 percent
Retiree healthcare participation	Healthy retirees: 35% Disabled retirees: 20%	8-14 Years of Service: 10.0% 15-19 Years of Service: 18.0% 20-24 Years of Service 23.0% 25-29 Years of Service: 29.0% 30+ Years of Service: 38.0%
Healthcare cost trend rate	Not applicable	Applied at beginning of plan year, starting with 7.5% for 2017, decreasing to 5.2% for 2024, increasing to 6.2% for 2029, and decreasing to an ultimate rate of 4.2% for 2093 and beyond.
Mortality	***Healthy retirees and beneficiaries:*** RP-2014 Healthy annuitant, sex-distinct, generational with Unisex, Social Security Data Scale, with collar adjustments and set-backs as described in the valuation. ***Active members:*** RP-2014 Employees, sex-distinct, generational with Unisex, Social Security Data Scale, with collar adjustments and set-backs as described in the valuation. ***Disabled retirees:*** RP-2014 Disabled retirees, sex-distinct, generational with Unisex, Social Security Data Scale.	***Healthy retirees and beneficiaries:*** RP-2014 Healthy annuitant, sex-distinct, generational with Unisex, Social Security Data Scale, with collar adjustments and set-backs as described in the valuation. ***Active members:*** RP-2014 Employees, sex-distinct, generational with Unisex, Social Security Data Scale, with collar adjustments and set-backs as described in the valuation. ***Disabled retirees:*** RP-2014 Disabled retirees, sex-distinct, generational with Unisex, Social Security Data Scale.

TABLE 29

Sensitivity of Net OPEB Liability/(Asset) to Changes in the Discount Rate (in Millions)
As of June 30, 2019

Employers' Net OPEB Liability/(Asset)		**1% Decrease (6.20 %)**		**Current Discount Rate (7.20%)**		**1% Increase (8.20 %)**
Other Postemployment Benefit Plan - RHIA	$	(149.8)	$	(193.2)	$	(230.2)
Other Postemployment Benefit Plan - RHIPA	$	30.1	$	25.3	$	20.9

TABLE 30

Sensitivity of Net OPEB Liability/(Asset) to Changes in the Healthcare Cost Trend Rate (in Millions)
As of June 30, 2019 *

Employers' Net OPEB Liability/(Asset)	1% Decrease	Current Trend Rate	1% Increase
Other Postemployment Benefit Plan - RHIPA	$ 19.0	$ 25.3	$ 32.4

* Not applicable for RHIA

TABLE 31

Long-Term Expected Rate of Return [1]

Asset Class	Target Allocation*	Annual Arithmetic Return [2]	Compound Annual (Geometric) Return	Standard Deviation
Core Fixed Income	8.00 %	3.59 %	3.49 %	4.55 %
Short-Term Bonds	8.00	3.42	3.38	2.70
Bank/Leveraged Loans	3.00	5.34	5.09	7.50
High Yield Bonds	1.00	6.90	6.45	10.00
Large/Mid Cap US Equities	15.75	7.45	6.30	16.25
Small Cap US Equities	1.31	8.49	6.69	20.55
Micro Cap US Equities	1.31	9.01	6.80	22.90
Developed Foreign Equities	13.13	8.21	6.71	18.70
Emerging Market Equities	4.13	10.53	7.45	27.35
Non-US Small Cap Equities	1.88	8.67	7.01	19.75
Private Equity	17.50	11.45	7.82	30.00
Real Estate (Property)	10.00	6.15	5.51	12.00
Real Estate (REITS)	2.50	8.26	6.37	21.00
Hedge Fund of Funds - Diversified	2.50	4.36	4.09	7.80
Hedge Fund - Event-driven	0.63	6.21	5.86	8.90
Timber	1.88	6.37	5.62	13.00
Farmland	1.88	6.90	6.15	13.00
Infrastructure	3.75	7.54	6.60	14.65
Commodities	1.88	5.43	3.84	18.95
Assumed Inflation - Mean			2.50 %	1.85 %

[1] Based on the OIC Statement of Investment Objectives and Policy Framework for the Oregon Public Employees Retirement Fund, revised as of June 7, 2017.

[2] The arithmetic mean is a component that goes into calculating the geometric mean. Expected rates of return are presented using the geometric mean, which the Board uses in setting the discount rate.

OREGON
PERS
PUBLIC EMPLOYEES RETIREMENT SYSTEM

Required Supplementary Information
Schedule of Changes in Net Pension Liability/(Asset) and Related Ratios (Unaudited)
Defined Benefit Pension Plan
For the Fiscal Year Ended June 30,[1]
(amounts in millions)

	2019	2018	2017	2016	2015	2014
Total Pension Liability [2]						
Service Cost	$ 1,146.4	$ 1,108.2	$ 1,105.5	$ 1,016.8	$ 960.9	$ 1,020.3
Interest on Total Pension Liability	5,952.1	5,858.2	5,662.2	5,355.3	4,779.5	4,819.4
Effect of Plan Changes [3]	(50.6)	–	–	–	–	–
Changes in Benefit Terms	–	–	–	–	5,353.5	(2,423.6)
Changes in Assumptions	–	2,240.3	–	3,946.4	–	–
Differences Between Expected and Actual Experience	804.2	74.3	351.8	317.3	380.0	–
Benefit Payments	(4,827.0)	(4,656.6)	(4,362.2)	(4,206.5)	(3,943.6)	(3,863.4)
Net Change in Total Pension Liability	3,025.1	4,624.4	2,757.3	6,429.3	7,530.3	(447.3)
Total Pension Liability - Beginning	84,476.1	79,851.7	77,094.4	70,665.1	63,134.8	63,582.1
Total Pension Liability - Ending	$ 87,501.2	$ 84,476.1	$ 79,851.7	$ 77,094.4	$ 70,665.1	$ 63,134.8
Plan Fiduciary Net Position						
Employer Contributions	$ 1,720.2	$ 1,390.1	$ 1,022.2	$ 977.3	$ 1,123.3	$ 915.2
Member Contributions	11.4	12.6	13.1	14.2	13.8	15.3
Net Investment and Other Income	4,010.0	6,247.5	7,660.0	413.9	2,364.5	9,886.6
Benefit Payments	(4,815.1)	(4,642.7)	(4,346.2)	(4,193.3)	(3,927.2)	(3,837.8)
Refunds of Contributions	(11.9)	(13.9)	(16.0)	(13.1)	(16.5)	(25.6)
Administrative Expense	(38.4)	(37.8)	(43.5)	(40.5)	(35.7)	(31.2)
Net Change in Plan Fiduciary Net Position	876.2	2,955.8	4,289.6	(2,841.5)	(477.8)	6,922.5
Plan Fiduciary Net Position - Beginning	69,327.5	66,371.7	62,082.1	64,923.6	65,401.4	58,478.9
Plan Fiduciary Net Position - Ending	$ 70,203.7	$ 69,327.5	$ 66,371.7	$ 62,082.1	$ 64,923.6	$ 65,401.4
Net Pension Liability/(Asset)	$ 17,297.5	$ 15,148.6	$ 13,480.0	$ 15,012.3	$ 5,741.5	$ (2,266.6)
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability/(Asset)	80.2 %	82.1 %	83.1 %	80.5 %	91.9 %	103.6 %
Covered Payroll	$ 10,716.7	$ 10,044.0	$ 10,037.5	$ 9,428.4	$ 9,000.2	$ 8,701.7
Net Pension Liability/(Asset) as a Percentage of Covered Payroll	161.4 %	150.8 %	134.3 %	159.2 %	63.8 %	(26.0) %

[1] 10-year trend information will be disclosed prospectively

[2] See Table 25 for Actuarial Methods and Assumptions

[3] Senate Bill 1049, signed into law in June 2019, introduced a limit on the amount of annual salary included for the calculation of benefits. Beginning in 2020, annual salary in excess of $195,000 (as indexed in future years) will be excluded when determining member benefits. As a result, future benefits for certain active members are now projected to be lower than prior to the legislation.

Changes in Benefit Terms and Assumptions:
Benefit Terms: The 2013 Oregon Legislature made a series of changes to PERS that lowered projected future benefit payments from the System. These changes included reductions to future Cost of Living Adjustments (COLA) made through Senate Bills 822 and 861. Senate Bill 822 also required the contribution rates scheduled to be in effect from July 2013 to June 2015 to be reduced. The Oregon Supreme Court decision in Moro v. State of Oregon, issued on April 30, 2015, reversed a significant portion of the reductions the 2013 Oregon Legislature made to future System Cost of Living Adjustments (COLA) through Senate Bills 822 and 861. This reversal increased the total pension liability as of June 30, 2015 compared to June 30, 2014 total pension liability.

Assumptions: The PERS Board adopted assumption changes that were used to measure the June 30, 2016 total pension liability and June 30, 2018 total pension liability. For included the lowering of the long-term expected rate of return to 7.50 percent and lowering of the assumed inflation to 2.50 percent. For June 30, 2018, the long-term expected rate of return was lowered to 7.20 percent. In addition, the healthy mortality assumption was changed to reflect an updated mortality improvement scale for all groups, and assumptions were updated for merit increases, unused sick leave, and vacation pay were updated.

Required Supplementary Information
Schedule of Investment Returns (Unaudited)
Defined Benefit Pension Plan
For the Fiscal Year Ended June 30[1]

	2019	2018	2017	2016	2015	2014
Annual Money-Weighted Rate of Return Net of Investment Expense	6.4%	9.7%	11.8%	1.6%	3.7%	17.2%

[1] 10-year trend information will be disclosed prospectively.

Required Supplementary Information
Schedule of Defined Benefit Pension Plan Employer Contributions[3] (Unaudited)
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2019	2018	2017	2016	2015
Actuarially determined contributions	$ 1,410,966	$ 1,318,672	$ 960,254	$ 941,321	$ 909,912
Contributions in relation to the actuarially determined contributions[2]	1,410,966	1,318,672	960,254	941,321	909,912
Contribution deficiency (excess)	$ –	$ –	$ –	$ –	$ –
Covered payroll	$ 10,716,707	$10,044,005	$ 10,037,542	$ 9,428,447	$ 9,000,246
Contributions as a percentage of covered payroll	13.17%	13.13%	9.57%	9.98%	10.11%

Notes:

[1] The actuarially determined contributions on this Schedule of Defined Benefit Pension Plan Contributions have been adjusted to remove contribution requirements related to employer-specific liabilities.

[2] Employer contributions on the Statement of Changes in Fiduciary Net Position include interest related to employer-specific liabilities and employers' optional supplemental contributions.

[3] For Actuarial Assumptions and Methods, see table below.

Actuarial Assumptions and Methods Used to Set the Actuarially Determined Contributions

Actuarial Valuation:	**December 31, 2015**	**December 31, 2013**	**December 31, 2011**
Effective:	July 2017 - June 2019	July 2015 - June 2017	July 2013 - June 2015
Actuarial cost method:	Entry Age Normal	Entry Age Normal	Projected Unit Credit
Amortization method:	Level percentage of payroll	Level percentage of payroll	Level percentage of payroll
Asset valuation method:	Fair value	Fair value	Fair value
Remaining amortization periods:	20 years	20 years	N/A
Actuarial assumptions:			
Inflation rate	2.50 percent	2.75 percent	2.75 percent
Projected salary increases	3.50 percent	3.75 percent	3.75 percent
Investment rate of return	7.50 percent	7.75 percent	8.00 percent

2014	2013	2012	2011	2010
$ 866,635	$ 781,015	$ 774,461	$ 361,655	$ 377,778
866,635	781,015	774,461	361,655	377,778
$ –	$ –	$ –	$ –	$ –
$ 8,701,657	$ 8,280,731	$ 8,650,799	$ 8,618,636	$ 8,451,349
9.96%	9.43%	8.95%	4.20%	4.47%

December 31, 2009	December 31, 2007	December 31, 2005
July 2011 - June 2013	July 2009 - June 2011	July 2007 - June 2009
Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
Level percentage of payroll	Level percentage of payroll	Level percentage of payroll
Fair value	Fair value	Fair value
N/A	20 years	22 years
2.75 percent	2.75 percent	2.75 percent
3.75 percent	3.75 percent	3.75 percent
8.00 percent	8.00 percent	8.00 percent

Required Supplementary Information
Schedule of Changes in Net OPEB (Asset) and Related Ratios (Unaudited)
Other Postemployment Benefit Plans - RHIA
For the Fiscal Year Ended June 30,[1]
(amounts in millions)

	2019	2018	2017
Total OPEB Liability [2]			
Service Cost	$ 2.5	$ 3.1	$ 3.4
Interest on Total OPEB Liability	32.4	34.2	33.8
Changes in Benefit Terms	–	–	–
Changes in Assumptions	–	(0.5)	–
Differences Between Expected and Actual Experience	(32.3)	(9.1)	–
Benefit Payments	(32.2)	(32.5)	(31.2)
Net Change in Total OPEB Liability	(29.6)	(4.8)	6.0
Total OPEB Liability - Beginning	465.2	470.0	464.0
Total OPEB Liability - Ending	$ 435.6	$ 465.2	$ 470.0
Plan Fiduciary Net Position			
Employer Contributions	$ 49.6	$ 48.0	$ 49.8
Net Investment and Other Income	36.0	50.9	57.6
Benefit Payments	(32.2)	(32.6)	(31.2)
Administrative Expense	(1.3)	(1.3)	(1.3)
Net Change in Plan Fiduciary Net Position	52.1	65.0	74.9
Plan Fiduciary Net Position - Beginning	576.8	511.8	436.9
Plan Fiduciary Net Position - Ending	$ 628.9	$ 576.8	$ 511.8
Net OPEB Asset	$ (193.3)	(111.6)	(41.8)
Plan Fiduciary Net Position as a Percentage of the Total OPEB Asset	144.4 %	124.0 %	108.9 %
Covered Payroll	$ 4,023.3	4,303.2	4,570.1
Net OPEB Asset as a Percentage of Covered Payroll	(4.80) %	(2.59) %	(0.91) %

[1] 10-year trend information will be disclosed prospectively
[2] See Table 28 for Actuarial Methods and Assumptions

Changes in Benefit Terms and Assumptions:
Assumptions: The PERS Board adopted assumption changes that were used to measure the June 30, 2018 and 2019 total OPEB liability. The changes include the lowering of the long-term expected rate of return from 7.50 to 7.20 percent. In addition, healthy retiree participation and healthy mortality assumptions were changed to reflect an updated trends and mortality improvement scale for all groups.

Required Supplementary Information
Schedule of Investment Returns (Unaudited)
Other Postemployment Benefit Plans - RHIA
For the Fiscal Year Ended June 30[1]

	2019	2018	2017
Annual Money-Weighted Rate of Return Net of Investment Expense	6.7%	9.7%	12.5%

[1] 10-year trend information will be disclosed prospectively.

Required Supplementary Information
Schedule of Changes in Net OPEB Liability and Related Ratios (Unaudited)
Other Postemployment Benefit Plans - RHIPA
For the Fiscal Year Ended June 30,[1]
(amounts in millions)

	2019	2018	2017
Total OPEB Liability [2]			
Service Cost	$ 1.5	$ 1.5	$ 1.5
Interest on Total OPEB Liability	5.0	5.2	5.0
Changes in Benefit Terms	–	–	–
Changes in Assumptions	–	0.4	–
Differences Between Expected and Actual Experience	(0.3)	(3.0)	–
Benefit Payments	(4.5)	(4.7)	(4.3)
Net Change in Total OPEB Liability	1.7	(0.6)	2.2
Total OPEB Liability - Beginning	70.3	70.9	68.7
Total OPEB Liability - Ending	$ 72.0	$ 70.3	$ 70.9
Plan Fiduciary Net Position			
Employer Contributions	$ 14.0	$ 13.3	$ 11.9
Net Investment and Other Income	2.5	2.4	2.0
Benefit Payments	(4.5)	(4.7)	(4.3)
Administrative Expense	(0.3)	(0.3)	(0.3)
Net Change in Plan Fiduciary Net Position	11.7	10.7	9.3
Plan Fiduciary Net Position - Beginning	35.0	24.3	15.0
Plan Fiduciary Net Position - Ending	$ 46.7	$ 35.0	$ 24.3
Net OPEB Liability	$ 25.3	$ 35.3	$ 46.6
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	64.9 %	49.8 %	34.3 %
Covered Payroll	$ 1,120.5	$ 1,165.3	$ 1,327.1
Net OPEB Liability as a Percentage of Covered Payroll	2.26 %	3.03 %	3.51 %

[1] 10-year trend information will be disclosed prospectively
[2] See Table 28 for Actuarial Methods and Assumptions

Changes in Benefit Terms and Assumptions:
Assumptions: The PERS Board adopted assumption changes that were used to measure the June 30, 2018 and 2019 total OPEB liability. The changes include the lowering of the long-term expected rate of return from 7.50 to 7.20 percent. In addition, the healthy healthcare participation and cost trend rates, and healthy mortality assumptions were changed to reflect an updated trends and mortality improvement scale for all groups.

Required Supplementary Information
Schedule of Investment Returns (Unaudited)
Other Postemployment Benefit Plans - RHIPA
For the Fiscal Year Ended June 30[1]

	2019	2018	2017
Annual Money-Weighted Rate of Return Net of Investment Expense	7.6%	10.2%	12.5%

[1] 10-year trend information will be disclosed prospectively

Required Supplementary Information
Schedule of OPEB - RHIA Employer Contributions[1] (Unaudited)
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2019	2018	2017	2016	2015
Actuarially determined contributions[1]	$ 49,615	$ 47,998	$ 49,786	$ 44,588	$ 53,648
Contributions in relation to the actuarially determined contributions	49,615	47,998	49,786	44,588	53,648
Contribution deficiency (excess)	$ –	$ –	$ –	$ –	$ –
Covered payroll	$ 10,716,707	$ 10,044,005	$ 10,037,542	$ 9,428,447	$ 9,000,246
Contributions as a percentage of covered payroll	0.46%	0.48%	0.50%	0.47%	0.60%

Note:
[1] For Actuarial Assumptions and Methods, see table below.

Actuarial Assumptions and Methods Used to Set the Actuarially Determined Contributions

Actuarial Valuation:	December 31, 2015	December 31, 2013	December 31, 2011
Effective:	July 2017 - June 2019	July 2015 - June 2017	July 2013 - June 2015
Actuarial cost method:	Entry Age Normal	Entry Age Normal	Projected Unit Credit
Amortization method:	Level percentage of payroll, closed	Level percentage of payroll, closed	Level percentage of payroll, closed
Amortization Period:	10 years	10 years	10 years
Asset valuation method:	Market value	Market value	Market value
Remaining amortization periods:	20 years	20 years	N/A
Actuarial assumptions:			
Inflation rate	2.50 percent	2.75 percent	2.75 percent
Healthcare cost trend rates	None. Statute stipulates $60 monthly payment for healthcare insurance.	None. Statute stipulates $60 monthly payment for healthcare insurance.	None. Statute stipulates $60 monthly payment for healthcare
Projected salary increases	3.50 percent	3.75 percent	3.75 percent
Investment rate of return	7.50 percent	7.75 percent	8.00 percent

2014	2013	2012	2011	2010
$ 48,253	$ 47,294	$ 46,465	$ 22,177	$ 22,351
48,253	47,294	46,465	22,177	22,351
$ –	$ –	$ –	$ –	$ –
$ 8,686,772	$ 8,686,771	$ 8,650,799	$ 8,618,636	$ 8,451,349
0.56%	0.54%	0.54%	0.26%	0.26%

December 31, 2009	December 31, 2007	December 31, 2005
July 2011 - June 2013	July 2009 - June 2011	July 2007 - June 2009
Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
Level percentage of payroll, closed	Level percentage of payroll, closed	Level percentage of payroll, closed
10 years	N/A	N/A
Market value	Market value	Market value
N/A	20 years	22 years
2.75 percent	2.75 percent	2.75 percent
None. Statute stipulates $60 monthly payment for healthcare	None. Statute stipulates $60 monthly payment for healthcare	None. Statute stipulates $60 monthly payment for
3.75 percent	3.75 percent	3.75 percent
8.00 percent	8.00 percent	8.00 percent

Required Supplementary Information
Schedule of OPEB - RHIPA Employer Contributions[1] (Unaudited)
Last 10 Fiscal Years
(Dollar amounts in thousands)

	2019	2018	2017	2016	2015
Actuarially determined contributions[1]	$ 14,009	$ 13,290	$ 11,864	$ 10,967	$ 6,887
Contributions in relation to the actuarially determined contributions	14,009	13,290	11,864	10,967	6,887
Contribution deficiency (excess)	$ –	$ –	$ –	$ –	$ –
Covered payroll	$ 3,118,065	$ 2,952,776	$ 3,024,383	$ 2,850,753	$ 2,737,792
Contributions as a percentage of covered payroll	0.45%	0.45%	0.39%	0.38%	0.25%

Note:
[1] For Actuarial Assumptions and Methods, see table below.

Actuarial Assumptions and Methods Used to Set the Actuarially Determined Contributions

Actuarial Valuation:	December 31, 2015	December 31, 2013	December 31, 2011
Effective:	July 2017 - June 2019	July 2015 - June 2017	July 2013 - June 2015
Actuarial cost method:	Entry Age Normal	Entry Age Normal	Projected Unit Credit
Amortization method:	Level percentage of payroll, closed	Level percentage of payroll, closed	Level percentage of payroll, closed
Amortization Period:	10 years	10 years	10 years
Asset valuation method:	Market value	Market value	Market value
Remaining amortization periods:	20 years	20 years	N/A
Actuarial assumptions:			
Inflation rate	2.50 percent	2.75 percent	2.75 percent
Healthcare cost trend rates	Graded from 6.3 percent in 2016 to 4.4 percent in 2094.	Graded from 6.1 percent in 2014 to 4.7 percent in 2083.	Graded from 6.9 percent in 2012 to 4.5 percent in
Projected salary increases	3.50 percent	3.75 percent	3.75 percent
Investment rate of return	7.50 percent	7.75 percent	8.00 percent

2014	2013	2012	2011	2010
$ 6,150	$ 3,444	$ 3,378	$ 1,428	$ 1,497
6,150	3,444	3,378	1,428	1,497
$ –	$ –	$ –	$ –	$ –
$ 2,566,555	$2,422,404	$ 2,563,850	$2,374,856	$ 2,353,312
0.24%	0.14%	0.13%	0.06%	0.06%

December 31, 2009	December 31, 2007	December 31, 2005
July 2011 - June 2013	July 2009 - June 2011	July 2007 - June 2009
Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
Level percentage of payroll, closed	Level percentage of payroll, closed	Level percentage of payroll, closed
10 years	N/A	N/A
Market value	Market value	Market value
N/A	20 years	22 years
2.75 percent	2.75 percent	2.75 percent
Graded from 7.0 percent in 2010 to 4.5 percent in	Graded from 8.0 percent in 2008 to 5.0 percent in	Graded from 9.0 percent in 2007 to 5.0
3.75 percent	3.75 percent	3.75 percent
8.00 percent	8.00 percent	8.00 percent

Required Supplementary Information
Schedule of Claims Development Information (Unaudited)
Standard Retiree Health Insurance Account
Fiscal and Policy Year Ended (In Millions)[1]

	2011	2012	2013	2014	2015	2016	2017	2018	2019
1. Net earned required contribution and investment revenues	$ 174.19	$ 188.99	$ 195.59	$ 198.85	$ 226.61	$ 197.92	$ 157.55	$ 176.38	$ 111.68
2. Unallocated expenses	20.01	22.15	25.00	29.00	32.09	26.30	16.55	16.11	11.36
3. Estimated incurred claims and expense, end of policy year	152.55	150.62	172.89	175.41	212.21	179.01	133.10	142.94	83.24
4. Paid (cumulative) as of:									
End of policy year	150.42	160.15	172.76	175.01	211.90	184.61	133.60	142.44	91.57
One year later	161.43	171.80	185.22	192.78	226.61	200.50	151.25	156.03	
Two years later	161.34	171.68	185.21	192.81	226.61	200.50	151.76		
Three years later	161.27	171.66	185.20	192.81	226.61	200.49			
Four years later	161.25	171.66	185.20	192.81	226.60				
Five years later	161.27	171.66	185.20	192.81					
Six years later	161.27	171.66	185.20						
Seven years later	161.27	171.66							
Eight years later	161.27								
Nine years later									
5. Reestimated incurred claims and expense:									
End of policy year	152.55	150.62	172.89	175.41	212.21	179.01	133.10	142.94	83.24
One year later	163.56	162.27	185.35	193.18	226.92	194.90	151.25	156.53	
Two years later	163.47	162.20	185.34	193.21	226.92	194.91	151.26		
Three years later	163.35	162.17	185.33	193.21	226.91	194.89			
Four years later	163.34	162.17	185.33	193.22	226.91				
Five years later	163.35	162.17	185.33	193.21					
Six years later	163.35	162.17	185.33						
Seven years later	163.35	162.17							
Eight years later	163.35								
Nine years later									
6. Increase in estimated incurred claims and expense from end of policy year:	10.79	11.58	12.46	17.77	14.71	15.89	18.15	13.59	

[1] 10-year trend information will be disclosed prospectively.

OREGON

PERS

PUBLIC EMPLOYEES RETIREMENT SYSTEM

Other Supplementary Information
Schedule of Plan Net Position
Defined Benefit Pension Plan
As of June 30, 2019

	Regular Account	Oregon Public Service Retirement Plan Pension Program	Variable Account	Total
Assets:				
Cash and Cash Equivalents	$ 2,306,796,243	$ 260,421,438	$ 9,267,691	$ 2,576,485,372
Receivables:				
Employer	57,499,637	(3,210,334)	–	54,289,303
Interest and Dividends	127,580,393	10,948,865	–	138,529,258
Investment Sales and Other Receivables	801,185,915	65,584,259	–	866,770,174
Transitional Liability	453,335,964	–	–	453,335,964
Total Receivables	1,439,601,909	73,322,790	–	1,512,924,699
Interaccount Receivables and Payables	(5,907,844)	9,892,686	(3,984,842)	–
Due from Other Funds	1,444,960	–	–	1,444,960
Investments:				
Debt Securities	11,985,139,517	1,028,556,754	–	13,013,696,271
Public Equity	21,607,637,306	1,854,353,156	480,891,055	23,942,881,517
Real Estate	7,391,462,460	634,330,424	–	8,025,792,884
Private Equity	14,228,690,936	1,221,096,854	–	15,449,787,790
Alternatives Portfolio	5,950,842,213	510,697,347	–	6,461,539,560
Opportunity Portfolio	1,416,115,786	121,530,121	–	1,537,645,907
Total Investments	62,579,888,218	5,370,564,656	480,891,055	68,431,343,929
Securities Lending Collateral	748,652,094	64,462,653	40,933	813,155,680
Prepaid Expenses	5,322,359	335,979	–	5,658,338
Capital Assets at Cost, Net	22,829,683	1,798,800	–	24,628,483
Total Assets	**67,098,627,622**	**5,780,799,002**	**486,214,837**	**73,365,641,461**
Liabilities:				
Investment Purchases and Accrued Expenses	2,119,836,307	146,506,427	2,998,749	2,269,341,483
Deposits and Other Liabilities	67,443,674	681,049	1,569	68,126,292
Due Other Funds	11,113,719	–	–	11,113,719
Securities Lending Cash Collateral Due Borrowers	748,821,246	64,477,169	40,933	813,339,348
Total Liabilities	**2,947,214,946**	**211,664,645**	**3,041,251**	**3,161,920,842**
Net Position Restricted for Pension Benefits	**$ 64,151,412,676**	**$ 5,569,134,357**	**$ 483,173,586**	**$ 70,203,720,619**

Other Supplementary Information
Schedule of Changes in Plan Net Position
Defined Benefit Pension Plan
For the Fiscal Year Ended June 30, 2019

	Regular Account	Oregon Public Service Retirement Plan Pension Program	Variable Account	Total
Additions:				
Contributions:				
Employer	$ 1,011,689,887	$ 708,493,454	$ –	$ 1,720,183,341
Plan Member	11,202,990	–	151,376	11,354,366
Total Contributions	1,022,892,877	708,493,454	151,376	1,731,537,707
Investment Income:				
Net Appreciation in Fair Value of Investments	2,816,095,263	202,431,999	23,512,162	3,042,039,424
Interest, Dividends and Other Investment Income	1,533,922,123	220,410,547	156,560	1,754,489,230
Total Investment Income	4,350,017,386	422,842,546	23,668,722	4,796,528,654
Less Investment Expense	(714,790,889)	(95,938,164)	(408,738)	(811,137,791)
Net Investment Income	3,635,226,497	326,904,382	23,259,984	3,985,390,863
Securities Lending Income:				
Securities Lending Income	26,050,304	2,037,521	370	28,088,195
Less Securities Lending Expense	(18,838,928)	(1,475,898)	(370)	(20,315,196)
Net Securities Lending Income	7,211,376	561,623	–	7,772,999
Other Income	15,666,386	30,867	1,186,914	16,884,167
Total Additions	4,680,997,136	1,035,990,326	24,598,274	5,741,585,736
Deductions:				
Benefits	4,738,286,111	37,507,647	35,181,306	4,810,975,064
Death Benefits	4,083,536	–	–	4,083,536
Refunds of Contributions	11,698,664	–	204,978	11,903,642
Administrative Expense	29,047,612	8,065,154	1,290,554	38,403,320
Interaccount Transfers	(52,674,219)	–	52,674,219	–
Total Deductions	4,730,441,704	45,572,801	89,351,057	4,865,365,562
Change in Net Position	(49,444,568)	990,417,525	(64,752,783)	876,220,174
Net Position Restricted for Pension Benefits				
Beginning of Year	64,200,857,244	4,578,716,832	547,926,369	69,327,500,445
End of Year	$ 64,151,412,676	$ 5,569,134,357	$ 483,173,586	$ 70,203,720,619

Other Supplementary Information
Schedule of Administrative Expenses - All Funds
For the Fiscal Year Ended June 30, 2019

Personal Services:		
Staff Salaries	$	23,358,657
Social Security		1,757,393
Retirement		4,567,856
Unemployment Compensation		14,138
Workers' Compensation		8,020
Insurance		5,620,787
Assessments		148,423
Total Personal Services		35,475,273
Professional Services:		
Actuarial		595,555
Data Processing		20,709
Audit		379,171
Legal Counsel		402,282
Medical Consultants		43,313
Training and Recruitment		270,931
Contract Services		5,740,121
Healthcare Fees		11,423,586
Total Professional Services		18,875,667
Communications:		
Printing		117,976
Telephone		203,070
Postage		576,665
Travel		157,485
Total Communication		1,055,196
Rentals:		
Office Space		422,531
Equipment		24,285
Total Rentals		446,816
Miscellaneous:		
Central Government Charges		3,614,642
Supplies		392,140
Maintenance		2,697,625
Non-Capitalized Equipment		1,055,613
Loss on Disposal of Capital Assets		37,197
Depreciation		2,588,908
Other		1,486
Total Miscellaneous		10,387,610
Total Administrative Expenses:	**$**	**66,240,563**

Individual or Firm	Commission/Fees	Nature of Service
Milliman Inc	$ 595,555	Actuarial
Macias Gini & O'Connell LLP	379,171	Audit
Oregon Audits Division	15,377	Audit
CEM Benchmarking	45,000	Benchmarking
Deloitte Consulting LLP	469,288	Consulting
Butler Partners & Associates LLC	183,394	Health Insurance
BenefitHelp Solutions	3,354,967	Health Insurance
ODS Health Plan Inc	7,887,695	Health Insurance
Allegiant Business Finance	791	Health Insurance
Voya	3,359,466	IAP Administration
Ice Miller LLP	2,876	Legal
Oregon Department of Justice	357,020	Legal
Frederick William Miller MD	39,950	Medical
MCN Holdings	2,695	Medical
NW Occupational Medicine	413	Medical
Medi-Copies Services	30	Medical
Charles W Cammack Associates Inc	67,669	Technology
Gartner Group Inc	77,624	Technology
Lancesoft	1,869,739	Technology
LexisNexis Risk Data Management Inc	13,339	Technology
U Work Com Inc	90,275	Technology
Fishnet Security Inc	66,564	Technology
Interior Office Solutions	1,365	Technology
Proposal Technologies Network	11,900	Technology
Structured Communication Systems	24,000	Technology
Oregon Department of Human Services	19,274	Vital Records
	$ 18,935,436	

Other Supplementary Information
Summary of Investment Fees, Commissions, and Expenses
For the Fiscal Year Ended June 30, 2019

	2019
Debt Securities Managers	
Alliance Bernstein L.P.	$ 1,882,442
BlackRock Financial Management	1,945,204
KKR Financial Credit Portfolio	6,218,381
Oak Hill Advisors	6,574,069
Wellington Management Company, LLP	1,319,091
Western Asset Management Company	1,502,518
Domestic Equity Fund Managers	
AQR Capital Management, LLC	1,310,745
Aronson+Johnson+Ortiz, LP	1,598,745
Boston Company	2,008,495
Callan LLC	1,174,899
Dimensional Fund Advisors	3,922,688
Eudaimonia Asset Management	892,716
Hamilton Lane	1,398,234
Wellington Management Company, LLP	558,365
International Equity Fund Managers	
Acadian Asset Management, Inc.	4,707,801
Adrian Lee & Partners	1,300,000
Alliance Bernstein International	2,713,574
AQR Capital Management	4,228,248
Arrowstreet Capital, LP	13,753,640
Brandes Investment Partners LLC	2,613,954
Dimensional Fund Advisors	4,055,254
EAM Investors, LLC	604,114
Genesis Asset Managers, LLP	2,663,593
Harris Associates LP	2,166,943
Lazard Asset Management	5,263,336
Los Angeles Capital Management	2,477,870
Walter Scott Management	2,666,774
Westwood Global Investments	2,008,634
William Blair & Company, LLC	2,704,798
Real Estate Portfolio Managers	
ABS Allegiance RE	1,353,766
Aetos Capital Asia TE II	33,051
Aetos Capital Asia TE III	39,496
AG Asia Realty Fund II, LP	174,042
Alpha Asia Macro Trends Fund	30,000
Alpha Asia Macro Trends Fund II	1,107,000
Ascentris-Core	513,551
Ascentris-OR Partners LLC	1,983,935
Beacon Capital Strategic Partners VI, LP	189,896
Blackstone Real Estate Partners VI, LP	101,020
Blackstone Real Estate Partners VII, LP	737,884
Brazil Real Estate Opportunities II	1,345,127
Buchanan Fund V	40,247
Cameron Village	560,923
Clarion	648,757
Clarion (Non Mandate)	776,452
Clarion Columbia Office Property	4,790,970
Cohen & Steers Capital Management	442,996
Columbia Woodbourne Holdings, LLC	456,093
DivcoWest Fund IV REIT, LP	235,979
DivcoWest Fund V	2,049,844
Fortress Investment Fund V	132,836
Harrison Street Core Property Fund, LP	852,418
Harrison Street Real Estate Partners V-A	985,022
Harrison Street REP V Co-Investment	230,793
Heitman America Real Estate Trust, LP	880,780
Heritage Fields Capital	421,788
IL & FS India Realty Fund II	172,071
JPMCB Strategic Property Fund	2,426,821
Landmark Real Estate Partners VII, LP	1,000,000
LaSalle Investment Management	806,818
Lincoln	3,528,586

	2019
Real Estate Portfolio Managers (continued)	
Lincoln Non Mandate	$ 405,857
Lion Mexico Fund	244,535
Lionstone CFO ONE	10,268
Lionstone West End	854,102
Lone Star Fund IX	679,785
Lone Star Fund VIII	257,461
Lone Star Real Estate Fund (US), LP	861,899
Lone Star Real Estate Fund II	11,203
Lone Star Real Estate Fund III	138,390
Lone Star Real Estate Fund IV	502,595
Lone Star Real Estate Fund V	2,932,740
LORE One, LP (Core)	3,644,305
LORE One, LP (Value Add)	2,879,108
Madison Realty Capital Debt Fund III, LP	1,847,340
Och-Ziff Real Estate Fund III	1,045,079
Prime Property Fund	1,548,094
Prologis Targeted Europe Logistics Fund	1,684,255
Regency Core	1,166,223
Regency II	1,411,015
Rockpoint Finance Fund I, LP	14,610
Rockpoint Growth and Income Fund I, LP	974,480
Rockpoint Real Estate Fund II, LP	28,268
Rockpoint Real Estate Fund III	219,709
Rockpoint Real Estate Fund IV	488,116
Rockwood Capital RE Partners VIII	24,871
Rreef America REIT II	931,871
Starwood Capital Hospitality Fund I-2	569,836
Starwood Capital Hospitality Fund II Global LP	569,836
Vornado Capital Partners LP	596,248
Waterton Fund IX PT Chicago, LLC	582,000
Waterton Residential Property Venture XI	234,349
Waterton Residential Property Venture XII	1,299,343
Western National Realty II, PIV-O	359,701
Windsor Columbia Realty Fund	7,367,312
WRPV XI CK Expansion, LLC	100,000
Private Equity Portfolio Managers	
A&M Capital Partners	387,373
A&M Capital Partners Europe I	1,128,729
A&M Capital Partners II	4,047,487
ACON Equity Partners IV	2,002,503
Advent International GPE VI A	287,064.00
Advent International GPE VII C	460,725
Advent Latin American Private Equity VI C	1,500,000
Affinity Asia Pacific Fund III	456,093
APAX IX	3,375,000
APAX VIII	1,432,476
Apollo Investment Fund IX	6,240,000
Apollo Investment Fund VII	626,973
Apollo Investment Fund VIII	2,018,410
Aquiline Financial Services Fund	130,297
Aquiline Financial Services Fund III	1,750,000
Austin Ventures X	242,560
Avista Capital Partners III	1,443
Baring Asia Private Equity Fund V	1,208,367
Baring Asia Private Equity Fund VI	1,083,149
BDCM Opportunity Fund II	277,504
BDCM Opportunity Fund IV	3,630,959
Black Diamond Opportunity III	4,203,323
Blackstone Capital Partners VI	927,619
Blackstone Capital Partners VII	5,625,000
Blackstone Energy Partners II	2,710,165
Bridgepoint Europe VI	3,838,388
Bridgepoint Europe VI (Sidecar)	11,025
Capital International Private Equity Fund VI	673,655

Other Supplementary Information
Summary of Investment Fees, Commissions, and Expenses
For the Fiscal Year Ended June 30, 2019

Private Equity Portfolio Managers (continued)	2019
CCMP Asia Opportunity Fund III	$ 1,273,314
CDH Fund V	1,231,461
Centerbridge Capital Partners II	713,249
Centerbridge Capital Partners III	2,025,000
Centerbridge Capital Partners	310,128
Centerbridge Special Credit Partners III	2,250,000
Cinven V Fund	429,922
Cinven VI Fund	1,954,734
Coller International Partners	865,327
Court Square Capital Partners III	463,400
Court Square Capital Partners II	146,133
Crescent Mezzanine Partners VI	391,338
CVC Capital Partners VI	1,671,805
CVC Capital Partners VII	3,838,388
CVC European Equity V	125,382
EnCap Energy Capital Fund X	932,048
EnCap Energy Capital Fund XI	3,750,000
Endeavour Capital Fund VI	1,313,150
Endeavour Capital Fund VII	2,180,155
First Reserve XII	384,836
Fisher Lynch Capital Fund II	1,820,012
Focus Ventures III	125,440
Francisco Partners III	1,451,622
Francisco Partners IV	1,844,621
Francisco Partners V	2,999,999
General Atlantic Partners	5,461,956
Genstar Capital Partners IX	215,833
Genstar Capital Partners VIII	1,750,000
Genstar VIII Opportunities Fund	365,556
GGV Capital Select	160,229
GGV Capital V	342,959
GGV Capital VI	476,965
GGV Capital VII	702,222
GGV Discovery I	75,731
GGV Discovery II	219,444
GI Partners Fund V	4,375,000
GI Partners Fund IV	1,533,234
Gores Capital Partners II	122,732
Gores Capital Partners III	322,681
Granite Ventures II	84,676
Green Equity Investors V	258,680
Green Equity Investors VI	1,180,877
Green Equity Investors VII	3,574,575
Grove Street NEV Fund	50,000
Grove Street NEV Fund III	1,250,000
Grove Street NEV Fund II	240,000
GSO Capital Opportunities Fund I	4,673
GSO Capital Opportunities Fund II	599,780
GTCR Fund XII	2,333,860
Hamilton Lane Int'l SMID Fund	1,086,266
HarbourVest Partners 2013 Direct Fund	564,799
Hellman + Friedman Cap IX	1,971,667
Hellman + Friedman Cap VIII	1,287,814
KKR 2006 Fund	242,204
KKR Asian Fund	42,508
KKR Asian Fund II	951,284
KKR Asian Fund III	3,750,178
KKR European Fund II	112,840
KKR Millenium Fund	199,855
KKR North America XI Fund	2,169,796
KKR North America XII Fund	5,439,816
KSL Capital Partners Credit Opportunities Fund	286,400
KSL Capital Partners Fund III	422,679
KSL Capital Partners IV	2,303,069

Private Equity Portfolio Managers (continued)	2019
KSL Capital Partners V	$ 778,846
Lion Capital Fund II	460,250
Lion Capital Fund III	798,551
Littlejohn Fund IV	315,768
MatlinPatterson Fund III	166,797
Mayfield Select	20,281
Mayfield XIV	588,182
Mayfield XV	353,524
MBK Partners IV	3,687,500
MHR Institutional Partners IV	2,496,463
Montauk TriGuard Fund IV	364,978
Montauk TriGuard Fund V	519,413
Montauk Triguard Fund VI	950,000
New Mountain Partners III	490,107
Nordic Capital Fund VIII	280,300
North Haven Private Equity Asia IV	1,219,416
Novalpina Capital Fund I	4,549,200
Oak Investments Partners XII	(1,191)
Oak Investments Partners XIII	669,873
Oaktree European Principal Fund III (US)	650,065
Oaktree Opportunities Fund IX	856,586
Oaktree Opportunities Fund VIII	103,232
Oaktree Opportunities Fund VIIIb	401,161
Oaktree Opportunities Fund X	732,000
Oaktree Opportunities Fund Xb	147,315
Oaktree Principal Fund V	768,003
OCM Opportunities Fund VIIb	71,418
OPUS Capital Fund VI	595,274
OPUS Capital V	609,924
OrbiMed Private Investments VI	1,089,098
Orchid Asia VII	3,374,099
Oregon Investment Fund (Series 1)	354,690
Oregon Investment Fund (Series 1-A)	204,021
Palladium Equity Partners IV	696,081
Palladium Equity Partners V	4,912,444
Pathway Private Equity Fund III	85,427
Permira VI	3,710,441
Pine Brook Capital Partners II	1,570,235
Pine Brook Capital Partners	123,822
Providence Equity Partners VII	1,010,889
Public Pension Capital	1,371,204
Rhône Partners IV	333,058
Rhône Partners V	3,070,710
Riverside Capital Appreciation Fund V	72,327
Riverside Capital Appreciation Fund VI	755,051
Riverstone-Carlyle RAE Fund II	395,035
Roark Capital Partners IV	1,306,200
Roark Capital Partners V	4,404,966
RRJ Capital Master Fund II	(2,490,906)
RRJ Capital Master Fund III	(5,969,229)
Tailwind Capital Partners II	529,138
Tailwind Capital Partners III	2,500,000
Tailwind Capital Partners	201,959
TCW Crescent Mezzanine Partners IV	3,161
TCW Crescent Mezzanine Partners V	157,945
TDR Capital III	598,086
TDR Capital IV	3,318,961
Technology Crossover Ventures VII	184,054
TPG GROWTH II	560,626
TPG GROWTH III (A)	1,684,685
TPG Growth IV	3,499,919
TPG Healthcare Partners	632,261
TPG Partners VI	496,714
TPG Partners VII	2,708,337

Other Supplementary Information
Summary of Investment Fees, Commissions, and Expenses
For the Fiscal Year Ended June 30, 2019

	2019
Private Equity Portfolio Managers (continued)	
TPG Partners VIII	$ 2,529,041
Union Square Ventures 2014	112,500
USV 2016	308,750
USV 2019	120,000
USV Opportunity 2019	112,500
Vector Capital Fund IV	308,798
Veritas Capital Fund V	2,149,092
Veritas Capital Fund VI	3,599,999
Vestar Capital Partners V	218,343
Vista Equity Partners Fund V	2,419,133
Vista Equity Partners Fund III	101,064
Vista Equity Partners Fund IV	733,260
Vista Equity Partners Fund VI	7,500,000
Vista Equity Partners Fund VII	2,527,624
Vista Foundation Fund III	4,000,000
Vista Foundation Fund II	1,500,000
Warburg Pincus Private Equity IX	51,094
Warburg Pincus Private Equity X	544,987
WLR Recovery Fund IV	24,060
WLR Recovery Fund V	496,835
Alternatives Portfolio Managers	
Alinda Infrastructure Fund II	557,320
Alterna Core Capital Assets Fund II	1,212,417
Appian Natural Resources Fund	848,298
AQR Multi-Strategy Fund X	4,674,270
Aspect Core Trend HV Fund	1,961,388
BlackRock Style Advantage Onshore	472,950
Brookfield Agriculture Fund II	1,505,000
Brookfield Infrastructure Fund III B	3,940,000
Brookfield Infrastructure Fund IV	589,808
Brookfield Timberlands Fund V	109,555
Digital Colony Partners	2,707,397
EMR Capital Resources Fund II	899,243
EnCap Flatrock Midstream Fund III	438,719
EnCap Flatrock Midstream Fund IV	1,695,000
The Energy & Minerals Group Fund III	2,617,486
EnerVest Energy Institutional Fund XIV	1,563,098
EQT Infrastructure Fund III	1,904,887
EQT Infrastructure Fund IV - USD Fund	2,215,521
Global Infrastructure Partners III	5,233,313
Global Infrastructure Partners II A1	1,887,184
Global Infrastructure Capital Solutions Fund	3,910,663
Global Infrastructure Partners IV	2,755,435
Highstar Capital Fund IV	1,035,166
Homestead Capital USA Farmland Fund II	1,500,000
International Infrastructure Finance Company Fund	377,482
JPM Systematic Alpha	2,908,367
LS Power Equity Partners III	1,500,000
LS Power Equity Partners IV	1,863,833

	2019
Alternatives Portfolio Managers (continued)	
NGP Agribusiness Follow-on Fund	$ 1,112,415
NGP Natural Resources X	868,080
NGP Natural Resources XI	1,347,380
NGP Natural Resources XII	3,434,922
Northern Shipping Fund III	1,827,155
Northern Shipping Fund IV	312,240
Orion Mine Finance Fund I	809,793
Reservoir Resource Partners	12,367
Reservoir Strategic Partners Fund	462,569
SailingStone Global Natural Resources Portfolio	945,707
Stonepeak Infrastructure Fund	821,427
Stonepeak Infrastructure Fund II	1,384,060
Stonepeak Infrastructure Fund III	4,850,184
Taurus Mining Finance Annex Fund	625,000
Taurus Mining Finance Fund	1,250,000
Tillridge Global Agribusiness Partners II	1,731,027
Twin Creeks Timber	537,943
Warwick Partners III	2,819,425
Warwick Partners IV	289,726
Westbourne Infrastructure Debt 6 - A	16,329
Opportunity Portfolio Managers	
Apollo Credit Opportunity Fund II	15,932
Blackstone Tactical Opportunities - O	3,069,058
Content Partners Fund 3	693,903
Lone Star Fund X	775,824
Nephila Juniper Fund	734,459
Nephila Palmetto Fund	806,408
OrbiMed Royalty Opportunities Fund II	523,427
Owl Rock Capital Corporation	363,512
SailingStone Natural Gas Portfolio	222,409
Sanders Capital All Asset Value Fund	3,577,419
TPG Specialty Lending Europe I (US Feeder)	1,153,592
TSSP Adjacent Opportunities Partners	3,057,333
Russell Investments - Cash Overlay	619,380
BlackRock - Variable Fund	257,212
IAP Target Date Funds: Alliance Bernstein	3,048,997
IAP Target Date Funds: State Street Bank	367,868
Brokerage Commissions	9,460,665
Consulting and Subscription Fees	7,447,026
License Fees	481,716
State Street Bank:	
Incentive Fee/Carried Interest	279,323,850
Foreign Income Taxes	18,734,866
Operating Expenses1	96,312,796
Other Expenses2	2,363,295
State Treasury Fees	22,813,515
Deferred Compensation Investment Fees and Expenses	3,717,336
Total Investment Fees, Commissions and Expenses	$ 911,808,652

[1]Start up fee for new private equity fund and improvement made to real estate property.
[2]Expenses related to legal, travel, and other adjustments.
Note: Negative management fees are due to adjusting entries and reimbursements.

INVESTMENT SECTION

OREGON
PERS
PUBLIC EMPLOYEES RETIREMENT SYSTEM

OREGON
STATE
TREASURY

Tobias Read
Oregon State Treasurer

Michael Kaplan
Deputy State Treasurer

October 25, 2019

Dear PERS Members:

The Investment Division of the Oregon State Treasury (OST) manages a large and complex investment portfolio. This portfolio is designed to generate investment returns which help fund many important State objectives including retirement security for public sector employees, academic support for Oregon schoolchildren and compensation claims for injured state workers. In aggregate, the Investment Division oversees a financial and real asset portfolio that exceeded $106.4 billion as of June 30, 2019. This portfolio includes the Oregon Public Employee Retirement Fund (OPERF), which advanced 6.5% last fiscal year, totaled $79.5 billion at June 30, 2019 and comprised the Oregon Public Employee Retirement System Defined Benefit Pension Plan, the Individual Account Program of the Oregon Public Service Retirement Plan and other post-employment benefit plans.

Consistent with institutional investment standards, OPERF is broadly and deliberately diversified across several asset classes and multiple developed and emerging market geographies. Moreover, OPERF investment strategies have historically produced good results: average, annualized net returns for the three-, five- and ten-year periods ended June 30, 2019 were 9.3%, 6.7% and 10.2%, respectively[1]. According to state actuaries, this consistently positive investment performance has significantly reduced taxpayers' share of retiree benefit payments.

On behalf of all Oregon Public Employee Retirement System beneficiaries, OPERF assets are commingled, invested consistent with a common set of objectives and allocated among the following five, strategic investment categories: public equity; private equity; real estate; fixed income; and other "alternative" and "opportunistic" investments. Return expectations and target allocations for each of these five categories are developed between staff and external consultants; moreover, return forecasts contemplate a 20-year investment horizon. Importantly, equity-oriented investments represent OPERF's largest capital allocation. While improving the likelihood of generating an adequate, long-term return, this equity-biased approach also produces higher levels of short-term portfolio volatility.

For example, in bull market conditions (e.g., 2017), OPERF's equity-oriented portfolio will likely generate strong investment results, but during periods of market duress and/or outright asset price declines (e.g., 2008), OPERF's investment performance will lag long-term expectations and may even register negative returns. Accordingly, the Investment Division has broadly diversified OPERF's portfolio in an attempt to mitigate short-term asset price volatility and protect against a sharp and/or protracted downturn in any single market, geography or asset category.

The U.S. stock market (as measured by the Russell 3000 index) generated strong returns last fiscal year (FY 2019), advancing 9.0% over the 12-month period ended June 30, 2019. With a net gain of 5.3%, OPERF's

[1] All performance figures cited throughout this letter are based on market values and time-weighted return calculations.

STATE OF OREGON 1859

Investment Division
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OREGON STATE TREASURY

Tobias Read
Oregon State Treasurer

Michael Kaplan
Deputy State Treasurer

U.S. public equity portfolio lagged its Russell 3000 benchmark due to an emphasis on small capitalization stocks, a proxy for which (namely, the Russell 2000 index) registered a 3.3% decline in FY 2019. Foreign equities lagged domestic stocks in FY 2019, but most international and emerging market indices produced positive results. OPERF managers investing abroad produced a collective 0.4% gain last fiscal year, better than the 0.3% earned by OPERF's non-U.S. public equity benchmark, the MSCI ACWI Ex-US IMI Net index.

With an estimated fiscal year-end value of $16.5 billion, OPERF's private equity investments represented 20.8% of total OPERF assets at June 30, 2019, and generated a net gain of 15.0% in FY 2019. This result eclipsed the private equity portfolio's 12.0% benchmark return. At 14.5%, average annual returns over the previous 10-year period fell considerably short of the 19.4% return for this same benchmark, the Russell 3000 (lagged one quarter) plus 300 basis points, as public markets assets pushed further into a multi-year trend of outperformance relative to private market equivalents.

In real estate, OPERF capital is allocated across four property or security types: core; value-add; opportunistic; and publicly-traded real estate investment trusts (i.e., REITs). In FY 2019, OPERF's real estate investments generated a 5.9% net return, slightly behind the 6.6% return on OPERF's real estate benchmark, the NCREIF Fund Index – Open End Diversified Core Equity, lagged one quarter. At fiscal year-end, these real estate investments were valued at $8.3 billion, and represented 10.4% of total OPERF assets. For the ten-year period ended June 30, 2019, OPERF's real estate portfolio delivered a net 10.0% on an average annual basis, ahead of the benchmark's 8.5% average annual return during that same period.

Bond markets delivered solid results in FY 2019, as the U.S. Federal Reserve moderated its previous tightening of monetary policy in response to slowing U.S. and international economic growth. Investments in fixed income securities comprised 20.0% of total OPERF assets at June 30, 2019, and contributed a 7.2% net return in FY 2019, essentially matching the 7.2% return recorded by OPERF's custom fixed income benchmark.

Finally, OPERF investments in "alternative" assets and "opportunistic" strategies contributed mixed results in FY 2019 (-2.7% and 3.6%, respectively), an expected outcome given the highly heterogeneous nature of these two categories which include, among other things, investments in minerals and mining, timber, agriculture, infrastructure and select, systematic hedge funds. At June 30, 2019, these alternative asset and opportunistic strategies comprised only 11.4% of OPERF's total portfolio, but the Investment Division plans to continue expanding these strategies' combined OPERF allocation given their attractive return and diversification attributes.

Sincerely,

John D. Skjervem
Chief Investment Officer

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Investment Objectives

The function of PERS is to provide present and future retirement or survivor benefits for its members. The investment program comprising OPERF, which includes PERS' Defined Benefit Pension Plan, Oregon Public Service Retirement Plan – Individual Account Program, and Other Post Employment Benefit Plans, is managed to provide long-term financial security for PERS members while maintaining the Fund's stability and future productivity. The OIC has established policies that promote and guide investment strategies with the highest probability of achieving PERS Board's approved, actuarial discount rate at a corresponding risk level deemed acceptable for both active and retired PERS members.

Description of Investment Policies

Oregon Revised Statute (ORS) 293.706 established the Oregon Investment Council (OIC), which consists of five voting members. Four members of the council, who are qualified by training and experience in the field of investment or finance, are appointed by the governor subject to state Senate confirmation. The state treasurer serves as the council's remaining voting member. In addition, the director of the Public Employees Retirement System serves as a non-voting OIC member.

ORS 293.701 defines the investment funds over which OIC has responsibility. Included are the Oregon Public Employees Retirement Fund (OPERF) and the Deferred Compensation Fund. OIC establishes policies for the investment and reinvestment of moneys in the investment funds as well as the acquisition, retention, management, and disposition of investments in the investment funds. OIC is also responsible for providing an examination of the effectiveness of the investment program.

OIC ensures moneys in the investment funds are invested and reinvested to achieve the investment objective of making the moneys as productive as possible. Furthermore, the investments of those funds are managed as a prudent investor would do under the prevailing circumstances and in light of the purposes, terms, distribution requirements, and laws governing each investment fund. This standard requires the exercise of reasonable care, skill, and caution, and is applied to investments not in isolation, but in the context of each fund's portfolio as part of an overall investment strategy. The strategy should incorporate risk and return objectives reasonably suitable to the particular investment fund.

When implementing investment decisions, OIC has a duty to diversify the investments of the investment funds unless, under the circumstances, it is not prudent to do so. In addition, OIC must act with prudence when selecting agents and delegating authority. OIC has approved the following asset classes for OPERF: Short-Term Investing, Fixed Income, Real Estate, Public and Private Equities, and Alternative Investments. In addition, OPERF invests in the Opportunity Portfolio, which may be populated with investment approaches across a wide range of investment opportunities with no limitation as to asset classes or strategies. OIC must approve, in advance, the purchase of investments in a new asset class not described above.

OIC has an open-door policy wherein investment officers employed by the Oregon State Treasury will hear and consider investment proposals and solicitations from any person, firm, or partnership that submits a proposal or solicitation in good faith. However, under no circumstance does this policy require that the Oregon State Treasury purchase the proposed investment.

OIC maintains an equal opportunity policy. When awarding contracts or agreements, OIC does not discriminate because of age, race, color, sex, religion, national origin, marital status, sexual orientation, or disability. Furthermore, OIC encourages firms doing or seeking to do business with OIC to have equal opportunity programs. OIC requires that all written contracts or agreements with OIC incorporate reference that affirms compliance with applicable nondiscrimination, equal opportunity, and contract compliance laws.

In compliance with ORS 192.630-660, OIC holds its meeting in a public forum. Public notice, including a meeting agenda, is provided to interested persons and news media that have requested notice. Written minutes and recordings are taken at all meetings.

OIC regularly reviews various aspects of investment policy, performance of investment managers and accounts, asset allocation, and a large number of investment proposals and recommendations. OIC's statement of Investment Objectives and Policy Framework is available on the Oregon State Treasury website at https://www.oregon.gov/treasury/invested-for-oregon/Documents/Invested-for-OR-OIC-INV/Invested-for-OR-OIC-INV-1203--Statement-of-Investment-Objectives-and-Policy-Framework.pdf

Investment Results*

	Periods Ended June 30, 2019		
		Annualized	
	1-Year	3-Year	5-Year
Total Portfolio, Excluding Variable Account	6.52 %	9.34 %	6.65 %
OPERF Policy Benchmark1	7.20	9.78	7.23
Variable Account	4.91	11.83	6.44
Benchmark: MSCI All Country World Investable Market Index Net	4.56	11.42	6.03
Domestic Stocks	5.30	13.15	9.06
Benchmark: Russell 3000 Index	8.98	14.02	10.19
International Stocks	0.39	9.80	3.35
Benchmark: MSCI All Country World ex-US Investable Market Index Net	0.26	9.17	2.25
Fixed Income Segment	7.24	2.98	2.81
Benchmark: Custom Index[2]	7.15	2.55	2.54
Real Estate	5.85	7.59	9.12
Benchmark: Oregon Custom Real Estate Benchmark[3]	6.55	7.01	9.03
Private Equity[4]	15.03	15.11	11.69
Benchmark: Russell 3000 Index + 300 bps (Adj.)[5]	12.01	16.86	13.64
Alternatives Portfolio	(2.65)	4.13	1.88
Benchmark: Consumer Price Index + 4%	5.71	6.12	5.50
Opportunity Portfolio	3.55	6.65	4.49
Benchmark: Consumer Price Index + 5%	6.72	7.14	6.52

The rates of return reported in the Investment Section are based on a time-weighted rate of return methodology based upon market values, unless disclosed otherwise in the footnotes to the associated tables.

1 From October 1, 2013 to March 31, 2016, the policy benchmark was 20% Russell 3000+300 Bps quarter lag, 23.5% Oregon Custom FI Benchmark, 12.5% NCREIF Property Index quarter lag, 41.5% MSCI ACWI and 2.5% CPI+4%. From April 1, 2016 to June 30, 2016 the policy benchmark was 20% Russell 3000+300 Bps quarter lag, 23.5% Oregon Custom FI Benchmark, 12.5% Oregon Custom Real Estate Benchmark, 41.5% MSCI AC World Index and 2.5% CPI+4%. From July 1, 2016 to March 31, 2018 the policy benchmark is 20% Russell 3000+300 Bps quarter lag, 22.5% Oregon Custom FI Benchmark, 12.5% Oregon Custom Real Estate Benchmark, 40% MSCI ACWI IMI Net and 5% CPI+4%. From April 1, 2018 to December 31, 2018 the policy benchmark is 19% Russell 3000+300 Bps quarter lag, 22% Oregon Custom FI Benchmark, 12.5% Oregon Custom Real Estate Benchmark, 39% MSCI ACWI IMI Net and 7.5% CPI+4%. From January 1, 2019 to present the policy benchmark is 19% Russell 3000+300 Bps quarter lag, 21% Oregon Custom FI Benchmark, 12.5% Oregon Custom Real Estate Benchmark, 37.5% MSCI ACWI IMI Net and 10% CPI+4%.

2 From March 1, 2011 to December 31, 2013, index was 60% Barclays Capital (BC) U.S. Universal Index, 20% S&P/LSTA Leveraged Loan Index, 10% JP Morgan Emerging Market Bond Index Global Index, and 10% Bank of America Merrill Lynch (BofA ML) High Yield Master II Index. From January 1, 2014 to February 29, 2016, index was 40% BC U.S. Aggregate Bond, 40% BC U.S. 1-3 Year Government/Credit Bond Index, 15% S&P LSTA Leveraged Loan Index, and 5% BofA ML High Yield Master II Index. From March 1, 2016 to present, index is 46% Barclays Aggregate Bond, 37% Barclays Treasury, 13% S&P LSTA and 4% BofA ML High Yield Master II.

[3] Through March 31, 2016, the Oregon Custom Real Estate Benchmark was made up of the NCREIF Property quarter lag Index. From April 1, 2016, the benchmark, is made up of the NCREIF Fund Index - Open End Diversified Core Equity (NFI-ODCE) quarter lag Net of Fees. From July 1, 2017, the monthly return is calculated as the geometrically linked monthly-portion of the quarterly return. Returns are not actual monthly, but rather equivalent for all intra-quarter month, in order to match the actual quarterly return.

[4] Through December 31, 2016, the Private Equity return combines the estimated return from the most recent quarter with a revision component that trues up the past two quarters' reported returns with the past two quarters' actual returns.

[5] Until June 30, 2017 the index is Russell 3000+300 Bps, quarter lag. From July 1, 2017, the monthly return is calculated as the geometrically linked monthly-portion of the quarterly return. Returns are not actual monthly, but rather equivalent for all intra-quarter months, in order to match the actual quarterly return.

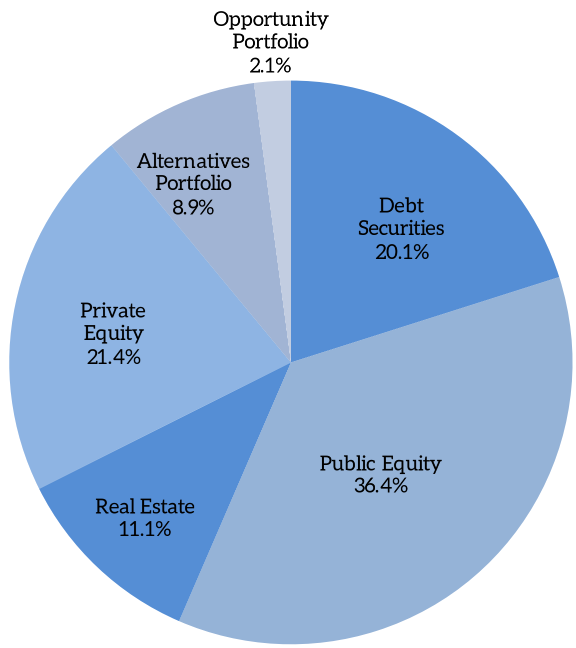
* Investment Results are based upon OIC asset classes as determined by each manager's primary investment type, not the financial statement classification of individual holdings.

OIC Target and Actual Investment Allocation as of June 30, 2019*

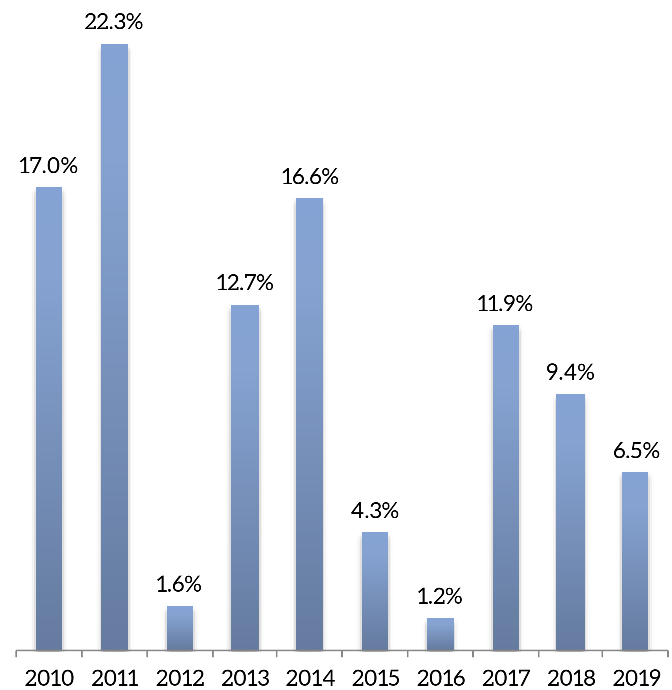
Asset Class/Strategy	OIC Policy Range				OIC Target Allocation		Asset Class/Strategy	Actual Allocation	
Debt Securities	15.0	-	25.0	%	20.0	%	Debt Securities	20.1	%
Public Equity	32.5	-	42.5		37.5		Public Equity	36.4	
Real Estate	9.5	-	15.5		12.5		Real Estate	11.1	
Private Equity	14.0	-	21.0		17.5		Private Equity	21.4	
Alternatives Portfolio	0.0	-	12.5		12.5		Alternatives Portfolio	8.9	
Opportunity Portfolio[1]	0.0	-	3.0		0.0		Opportunity Portfolio	2.1	
Total					100.0	%	Total	100.0	%

[1]Opportunity Portfolio is an investment strategy and it may be invested up to 3% of total plan net position.

Investment Mix by Asset Class/Strategy



Total Fund Performance 10-Year Review, One-Year Returns



* The OIC Target Allocations are based on OIC asset classes as determined by each manager's primary investment type, not the financial statement classification of individual holdings. The Target Allocation amounts do not include Deferred Compensation Plan investments. The Actual Investment Allocation is based on the financial statement investment classifications, including Deferred Compensation Plan investments.

List of Largest Assets Held

Largest Stock Holdings (by Fair Value)
June 30, 2019

Description	Shares	Fair Value
Microsoft Corporation	2,323,603	$ 311,269,858
Apple Inc.	1,188,429	235,213,868
Intel Corporation	4,100,651	196,298,163
AT&T Inc.	5,722,887	191,773,943
Procter & Gamble Co	1,607,514	176,263,910
Johnson & Johnson	1,241,292	172,887,150
The Walt Disney Co	1,181,604	164,999,183
Visa Inc Class A Shares	941,556	163,407,044
Mastercard Inc. A	588,148	155,582,790
Facebook Inc. A	748,385	144,438,305

Largest Bond Holdings (by Fair Value)
June 30, 2019

Description	Par Value	Fair Value
U.S. Treasury Note 1.625% Due November 15, 2022	$ 318,108,200	$ 317,051,982
U.S. Treasury Note 2.250% Due November 15, 2025	245,340,000	251,253,077
U.S. Treasury Note 2.875% Due August 15, 2045	187,827,500	200,747,977
U.S. Treasury Note 2.375% Due April 15, 2021	190,398,300	192,332,033
U.S. Treasury Note 1.625% Due October 15, 2020	153,633,700	153,141,593
U.S. Treasury Note 2.750% Due February 15, 2024	145,747,200	152,191,959
U.S. Treasury Note 1.625% Due May 31, 2023	150,000,000	149,408,204
U.S. Treasury Note 2.125% Due June 30, 2022	139,549,300	141,195,546
U.S. Treasury Note 2.500% Due February 15, 2045	128,549,400	128,062,319
U.S. Treasury Note 2.625% Due November 15, 2020	125,000,000	126,284,180

A complete list of portfolio holdings may be requested from the Oregon State Treasury, 350 Winter Street NE, Suite 100, Salem, OR 97301-3896.

Schedule of Fees and Commissions
For the Fiscal Year Ended June 30, 2019

	Assets Under Management	Fees	Percentage
Investment Managers' Fees:			
Debt Securities Managers	$ 16,277,259,333	$ 19,441,705	0.1194 %
Public Equity Managers	29,403,270,522	68,037,878	0.2314
Real Estate Managers	8,966,132,571	65,533,767	0.7309
Private Equity Managers	17,259,957,679	221,756,053	1.2848
Alternatives Portfolio Managers	7,218,603,962	78,341,548	1.0853
Opportunity Portfolio Managers	1,717,803,743	14,993,277	0.8728
Total Assets Under Management	$ 80,843,027,810		
Other Investment Service Fees:			
Investment Consultants		10,496,023	
Commissions and Other Fees		433,208,401	
Total Investment Service and Managers' Fees		**$911,808,652**	

Schedule of Broker Commissions
For the Fiscal Year Ended June 30, 2019

Broker's Name	Commission	Shares / Par	Commission per Share
INSTINET	$ 1,321,197	599,044,699	$ 0.0022
Goldman, Sachs & Co.	1,048,175	138,589,219	0.0076
Investment Technology Group Inc.	620,732	250,434,070	0.0025
Merrill Lynch, Pierce, Fenner & Smith Incorporated	595,010	179,095,656	0.0033
UBS Securities Inc.	483,315	129,644,892	0.0037
Barclays Capital, Inc.	423,290	72,311,900	0.0059
Citigroup	369,889	199,081,481	0.0019
HSBC Bank	355,256	238,672,443	0.0015
J.P. Morgan Securities Inc.	352,265	153,638,909	0.0023
Credit Suisse First Boston	352,199	25,472,207	0.0138
Jefferies & Company, Inc.	266,967	87,550,576	0.0030
Société Générale	232,343	177,315,258	0.0013
Morgan Stanley	231,515	127,644,777	0.0018
Macquarie Securities	224,595	154,523,281	0.0015
Virtu Financial Inc.	159,399	17,813,890	0.0089
Deutsche Bank Securities Inc.	138,546	57,094,282	0.0024
CLSA	132,649	113,329,210	0.0012
LIQUIDNET	124,369	9,915,802	0.0125
JonesTrading Institutional Services LLC	116,036	5,642,103	0.0206
Sanford C Bernstein & Co LLC	106,087	62,947,202	0.0017

Brokerage commissions on purchases and sales are too numerous to list; therefore, only the top 20 brokers by amount of commission paid are shown.

Investment Summary

Type of Investment	Fair Value as of June 30, 2019	Percent of Total Fair Value[1]
Debt Securities		
U.S. Government Securities	$ 6,544,888,904	8.10 %
U.S. Agency Securities	1,699,494,467	2.10
International Debt Securities	997,885,194	1.23
Non-U.S. Government Debt Securities	270,420,366	0.33
Corporate Bonds	3,719,873,381	4.60
Municipal Bonds	13,121,502	0.02
Asset-Backed Securities	769,413,725	0.95
Guaranteed Investment Contracts[2]	249,191,201	0.31
Domestic Fixed Income Funds	2,012,887,322	2.49
Global Fixed Income Funds	83,271	0.00
Total Debt Securities	**16,277,259,333**	**20.13**
Public Equity		
Domestic Equity Securities	13,215,304,639	16.35
International Equity Securities	9,950,668,024	12.31
Domestic Equity Funds	1,957,330,096	2.42
Global Equity Funds	499,028,110	0.62
International Equity Funds	3,134,944,762	3.88
Target Date Funds	645,994,891	0.80
Total Public Equity	**29,403,270,522**	**36.37**
Real Estate	**8,966,132,571**	11.09
Private Equity	**17,259,957,679**	21.36
Alternative Portfolio	**7,218,603,962**	8.93
Opportunity Portfolio	**1,717,803,743**	2.12
Total Fair Value	**$ 80,843,027,810**	**100.00** %

[1] These percentages do not include cash and cash equivalents.

[2] Guaranteed Investment Contacts are stated at contract value.

ACTUARIAL SECTION

OREGON

PERS

PUBLIC EMPLOYEES RETIREMENT SYSTEM

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December 13, 2019

Public Employees Retirement Board
Oregon Public Employees Retirement System

Re: Actuarial Valuation as of December 31, 2018

Dear Members of the Board,

As part of our engagement with the Oregon Public Employees Retirement System ("PERS" or "the System"), we performed an actuarial valuation of PERS as of December 31, 2018. Our findings are set forth in the system-wide December 31, 2018 Actuarial Valuation, issued December 12, 2019. Previously, we published a system-wide December 31, 2017 Actuarial Valuation, which was issued September 28, 2018. Both reports reflect the benefit provisions of the system in effect as of the valuation dates. The December 31, 2018 Actuarial Valuation also reflects Senate Bill 1049 signed into law in June 2019.

Both the December 31, 2018 Actuarial Valuation and the December 31, 2017 Actuarial Valuation are used to develop information provided in the Comprehensive Annual Financial Report (CAFR) for Oregon PERS. The December 31, 2018 Actuarial Valuation forms the basis for the *Actuarial Section* of the CAFR. The December 31, 2017 Actuarial Valuation is used to develop the financial reporting results required by Governmental Accounting Standards Board (GASB) Statement No. 67 for the Tier 1/Tier 2 and OPSRP programs and by GASB Statement No. 74 for the RHIA and RHIPA programs.

Actuarial Section of the CAFR

The material included in the *Actuarial Section* of CAFR for Oregon PERS is a subset of the results contained in the December 31, 2018 Actuarial Valuation. The descriptions in that report regarding the actuarial basis of the valuation and the material inputs and limitations of use of the valuation apply to the CAFR exhibits, and are incorporated herein by reference.

Actuarial valuations are performed annually, but only "rate-setting" valuations performed as of the end of each odd-numbered year are used to set actuarially determined biennial contribution rates. Those rates are then considered for adoption by the Public Employees Retirement Board ("PERB"). Interim valuations performed as of the end of each even-numbered year are only advisory in nature, and contribution rates developed in those valuations are not presented to the PERB for adoption.

The PERB has sole authority to determine the actuarial assumptions and methods used for the valuation. The actuarial assumptions and methods used in the December 31, 2018 Actuarial Valuation were adopted by the PERB based upon the results of the 2018 Experience Study conducted by Milliman, issued July 24, 2019. The actuarial assumptions and methods used in the December 31, 2017 Actuarial Valuation were adopted by the PERB based upon the results

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of the 2016 Experience Study conducted by Milliman, issued July 26, 2017. The assumptions and methods were selected in a manner consistent with current Actuarial Standards of Practice.

Milliman prepared the following information that is presented in the *Actuarial Section* of the 2019 Comprehensive Annual Financial Report (CAFR) based on the December 31, 2018 Actuarial Valuation:

- Schedule of Active Member Valuation Data
- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedules of Funding Progress by Rate Pool
- Solvency Test
- Analysis of Financial Experience
- Schedules of Funding Progress

We understand the *Actuarial Section* of the CAFR will also include summaries of the actuarial methods, actuarial assumptions, and plan provisions valued. These summaries are contained in the December 31, 2018 Actuarial Valuation.

Financial Reporting Under GASB 67 and GASB 74

Under GASB 67 and GASB 74, the required financial reporting schedules present information using a Measurement Date of the System's fiscal year end. The Total Pension Liability (under GASB 67) and Total OPEB Liability (under GASB 74) for the June 30, 2019 fiscal year end were determined based on the results of the December 31, 2017 Actuarial Valuation. The liability calculated at the actuarial valuation date was then adjusted to the Measurement Date using standard actuarial roll-forward procedures. The Total Pension Liability/Total OPEB Liability is compared to the Fiduciary Net Position as of the Measurement Date, as provided by PERS and measured on a fair market value of assets basis, to determine the Net Pension Liability (Asset) under GASB 67 and the Net OPEB Liability (Asset) under GASB 74.

Milliman prepared the following exhibits for GASB 67 to assist PERS in completing the required *Notes to the Financial Statements* and *Required Supplementary Information*:

- Net Pension Liability (Asset)
- Changes in Net Pension Liability (Asset)
- Sensitivity Analysis
- Schedule of Changes in Net Pension Liability (Asset) and Related Ratios
- Long Term Expected Rate of Return

These exhibits, along with a discussion of the actuarial basis underlying the results, are presented in our *GASB 67 Reporting for Fiscal Year End 2019* letter dated December 6, 2019.

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Milliman prepared the following exhibits for GASB 74 to assist PERS in completing the required *Notes to the Financial Statements* and *Required Supplementary Information*:

- Net OPEB Liability (Asset)
- Changes in Net OPEB Liability (Asset)
- Sensitivity Analysis
- Schedule of Changes in Net OPEB Liability (Asset) and Related Ratios
- Long Term Expected Rate of Return

These exhibits, along with a discussion of the actuarial basis underlying the results, are presented in our *GASB 74 Reporting for Fiscal Year End 2019* letter dated December 6, 2019. The first four exhibits listed above were provided separately for RHIA and RHIPA.

Funding Policy

The funding policy selected by the PERB is to adopt biennial contribution rates in accordance with the results of a "rate-setting" actuarial valuation performed using the assumptions and methods described in the associated actuarial valuation report. For example, the rates developed in the December 31, 2017 Actuarial Valuation were adopted by the PERB and established employer contributions for the July 1, 2019 to June 30, 2021 biennium. Contribution rates include funding the cost associated with new benefit accruals as well as amortizing any unfunded actuarial liability, determined using the market value of assets, over closed, layered amortization periods that vary from 10 to 20 years, according to the benefit program. The contribution rate stabilization method (also known as the "rate collar") limits rate changes from one biennium to the next, in effect phasing in changes over multiple rate-setting periods if asset or liability experience causes a large movement in the actuarially calculated contribution rate prior to application of the rate collar.

All members hired prior to August 29, 2003, are covered under Chapter 238 and are collectively referred to as Tier 1/Tier 2 members. Their benefit costs are calculated using two experience sharing pool valuations and some independent employer valuations. All school districts pool their Tier 1/Tier 2 experience through the school district pool. State government and some local governments pool their Tier 1/Tier 2 experience through the State and Local Government Rate Pool (SLGRP). As of December 31, 2018, there are also 127 independent employers who do not pool their Tier 1/Tier 2 experience with the other employers except through the Benefits in Force Reserve, which pools the experience of Tier 1/Tier 2 members in payee status across all employers and all other Tier 1/Tier 2 pooling arrangements.

All members hired after August 28, 2003, are covered under Chapter 238A and are referred to as OPSRP members, except for those members who previously established membership under Chapter 238 and meet the statutory requirements to reinstate those benefits. Experience for Chapter 238A members is pooled across all employers regardless of their status under the Chapter 238 arrangements. Chapter 238 benefits and Chapter 238A benefits are parts of a single plan.

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Finally, some employers made lump sum deposits in addition to their regularly scheduled contributions. These deposits are placed in a "side account" within the legally restricted pension trust and are used to offset a portion of future contribution requirements of the depositing employers via side account transfers. For financial reporting purposes, lump sum deposits are not considered as contributions in relation to the actuarially determined contribution. However, side accounts are included as assets in the Fiduciary Net Position. The Schedule of Funding Progress and Solvency Test also include side accounts as part of the Plan's assets.

Actuarial Basis

In preparing the valuation reports, we relied, without audit, on information (some oral and some in writing) supplied by the System's staff. This information includes, but is not limited to, System benefit provisions as defined by statute, member census data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

All costs, liabilities, rates of interest, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer a reasonable estimate of anticipated experience affecting the System.

The valuation reports are only an estimate of the System's financial condition as of a single date. They can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of System benefits, only the timing of the System's actuarially calculated contributions. While the valuations are based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct.

Future actuarial measurements may differ significantly from the current measurements presented in these reports due to such factors as the following: System experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the System's funded status); and changes in System benefit provisions or applicable law. Due to the limited scope of this assignment, we did not perform an analysis of the potential range of future measurements. The PERB has the final decision regarding the appropriateness of the assumptions and adopted them as indicated herein at its October 2019 public meeting.

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Some of the actuarial computations presented in the valuation reports are for purposes of determining contribution rates for System employers. Other actuarial computations presented in the reports under GASB Statements No. 67, 68, 74, and 75 are for purposes of assisting the System and participating employers in fulfilling their financial reporting requirements. The computations prepared for these two purposes may differ as disclosed in our report. The calculations in the reports have been made on a basis consistent with our understanding of the System's funding policy and goals, the System benefit provisions as summarized in the reports, and GASB Statements No. 67, 68, 74, and 75. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in these reports. Accordingly, additional determinations may be needed for other purposes.

Milliman's work has been prepared exclusively for the Oregon Public Employees Retirement System for a specific and limited purpose. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. It is a complex, technical analysis that assumes a high level of knowledge concerning the System's operations, and uses the System's data, which Milliman has not audited. No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices. We are members of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Sincerely,

Matthew R. Larrabee, FSA, EA, MAAA
Principal and Consulting Actuary

Scott D. Preppernau, FSA, EA, MAAA
Principal and Consulting Actuary

OREGON

PERS

PUBLIC EMPLOYEES RETIREMENT SYSTEM

Actuarial Methods and Assumptions

Tier 1/Tier 2 (including Retiree Healthcare)

Actuarial Methods and Valuation Procedures

In October 2019 the Board adopted the following actuarial methods and valuation procedures for the December 31, 2018 and 2019 actuarial valuations of PERS Tier 1/Tier 2 benefits.

Actuarial cost method	**Entry Age Normal.** Under the Entry Age Normal (EAN) cost method, each active member's **entry age present value of projected benefits** is allocated over the member's service from the member's date of entry until their assumed date of exit, taking into consideration expected future compensation increases. Thus, the total pension to which each member is expected to become entitled at retirement is broken down into units, each associated with a year of past or projected future credited service. Typically, when this method is introduced, there will be an initial liability for benefits credited for service prior to that date, and to the extent that the liability is not covered by assets of the plan, there is an unfunded accrued liability to be funded over a stipulated period in accordance with an amortization schedule. A detailed description of the calculation follows: • An individual member's **entry age present value of projected benefits** is the sum of the present value of the benefit described under the plan at each possible separation date, determined at the member's entry age using the projected compensation and service at each separation date. • An individual member's **entry age present value of projected salaries** is the sum of the present value of the projected compensation over the member's working career associated with each possible future separation date, determined at the member's entry age. • An individual member's **present value of projected benefits** is the sum of the present value of the benefit described under the plan at each possible separation date, determined at the valuation date using the projected compensation and service at each separation date. • An individual member's **normal cost** for a certain year is the member's **entry age present value of projected benefits** divided by the member's **entry age present value of projected salaries** and multiplied by the member's projected compensation for the year following the valuation date. • An individual member's **actuarial accrued liability** is the member's **present value of projected benefits** less the sum of the present value of the member's **normal costs** for each future year, determined at the valuation date using the projected compensation and service at each future year. – The plan's **normal cost** is the sum of the individual member normal costs, and the plan's **actuarial accrued liability** is the sum of the individual members' actuarial accrued liabilities.

Tier 1/Tier 2 UAL amortization	The Tier 1/Tier 2 UAL amortization period was reset to 20 years as of December 31, 2013. Gains and losses between subsequent odd-year valuations have been amortized as a level percentage of projected combined valuation payroll (Tier 1/ Tier 2 plus OPSRP payroll) over a closed 20 year period from the valuation in which they are first recognized. Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
Retiree Healthcare UAL amortization	The UAL for Retiree Health Care as of December 31, 2007 is amortized as a level percentage of projected combined valuation payroll (Tier 1/ Tier 2 plus OPSRP payroll) over a closed 10 year period. Gains and losses between subsequent odd-year valuations are amortized as a level percentage of combined valuation payroll over a closed 10 year period from the valuation in which they are first recognized.
Asset valuation method	The actuarial value of assets equals the market value of assets, excluding the Contingency and Capital Preservation Reserves, and the Rate Guarantee Reserve when it is in positive surplus status. Market values are reported to Milliman by PERS. It is our understanding that select real estate and private equity investments are reported on a three-month lag basis. This valuation report does not attempt to quantify any effects of the reporting lag.
Contribution rate stabilization method	Contribution rates for a rate pool (e.g. Tier 1/Tier 2 SLGRP, Tier 1/Tier 2 School Districts rate pool, OPSRP) are confined to a collared range based on the prior contribution rate (prior to application of side accounts, pre-SLGRP liabilities, and 6 percent Independent Employer minimum). The new contribution rate will generally not increase or decrease from the prior contribution rate by more than the greater of 3 percent of payroll or 20 percent of the prior contribution rate. If the funded percentage excluding side accounts drops below 60% or increases above 140%, the size of the collar doubles. If the funded percentage excluding side accounts is between 60% and 70% or between 130% and 140%, the size of the rate collar is increased on a graded scale.
Offset for Member Redirect Contributions	Under Senate Bill 1049, a portion of the 6% of pay member contribution otherwise made to the IAP is redirected to fund Tier 1/Tier 2 and OPSRP defined benefits beginning July 1, 2020. For Tier 1/Tier 2 members, the redirected amount will be 2.50% of pay, and for OPSRP it will be 0.75% of pay. Members with less than $2,500 in monthly pay (indexed in future years) will be exempt from the redirection. For employer contribution rates shown in this valuation, member redirect contributions are assumed to offset total contribution rates beginning with the July 2021 – June 2023 biennium. Reflecting the effect of the monthly pay level-based exemption noted above, the offset is assumed to be 2.45% of total payroll for Tier 1/Tier 2 and 0.70% of total payroll for OPSRP.
Allocation of Liability for Service Segments	For active Tier 1/Tier 2 members who have worked for multiple PERS employers over their career, the calculated actuarial accrued liability is allocated among the employers based on a weighted average of the Money Match methodology, which uses account balance, and the Full Formula methodology, which uses service. The allocation is 10% (0% for police & fire) based on account balance with each employer and 90% (100% for police & fire) based on service with each employer. The entire normal cost is allocated to the current employer.

Allocation of Benefits-In-Force (BIF) Reserve	The BIF reserve is allocated to each rate pool in proportion to the retiree liability attributable to the rate pool.
Census Data	PERS staff provided the data on plan members and beneficiaries upon which this valuation is based. Milliman did not audit the data, but did review it for reasonableness and consistency with data provided for previous years, in accordance with Actuarial Standard of Practice No. 23. PERS staff assisted in resolving questions and inconsistencies discovered in the data review, and provided updated records or direction for adjusting data as needed. The final census data is expected to be sufficiently accurate and complete for purposes of the actuarial valuation, and we are not aware of any significant concerns or unresolved issues that would materially affect results.
Internal Revenue Code 415 Benefit Limits	Annual benefit limits under Internal Revenue Code 415 are not explicitly reflected in the valuation. In accordance with ORS 238.488, we understand that members whose benefits are restricted by IRC 415 benefit limits are paid the difference between the unrestricted benefit and the IRC 415-restricted benefit from the Public Employee Benefit Equalization Fund.

Economic Assumptions

The Board adopted the following economic assumptions for the December 31, 2018 and 2019 actuarial valuations. All assumptions were reviewed and adopted in conjunction with the 2018 Experience Study, published in July 2019. The assumption selection process and rationale is described in detail in that report.

Investment return	7.20% compounded annually
Pre-2014 Interest crediting	8.00% compounded annually on members' regular account balances 8.25% compounded annually on members' variable account balances
Post-2013 Interest crediting	7.20% compounded annually on members' regular account balances 7.20% compounded annually on members' variable account balances
Inflation	2.50% compounded annually
Administrative expenses	$32.5 million per year is added to the normal cost.
Payroll growth	3.50% compounded annually. This assumption represents the sum of the inflation assumption and a real wage growth assumption of 100 basis points.
Healthcare cost trend	Healthcare cost trend rates are used to estimate increases in the RHIPA Maximum Subsidy. These rates include consideration of the excise tax scheduled to be introduced in 2022 by the Affordable Care Act.

Year[1]	Rate	Year	Rate
2019	7.1%	2045	5.6%
2020	5.8	2046 – 2047	5.5
2021	5.2	2048 – 2050	5.4
2022 – 2024	5.0	2051 – 2053	5.3
2025	5.1	2054 – 2058	5.2
2026 – 2029	5.0	2059 – 2063	5.1
2030	5.4	2064	5.0
2031 – 2033	5.9	2065	4.9
2034	5.8	2066 – 2067	4.8
2035	5.9	2068	4.7
2036 – 2039	5.8	2069	4.6
2040	5.7	2070	4.5
2041	5.8	2071 – 2072	4.4
2042	5.7	2073	4.3
2043	5.8	2074 – 2093	4.2
2044	5.7	2094+	4.1

[1] *For valuation purposes, the health cost trend rates are assumed to be applied at the beginning of the plan year.*

Demographic Assumptions

The Board adopted the following demographic assumptions for the December 31, 2018 and 2019 actuarial valuations. All assumptions were reviewed and adopted in conjunction with the 2018 Experience Study, published in July 2019. The study relied on data from an observation period of January 1, 2015 to December 31, 2018, with the exception of the merit scale assumption, which relied on data from 2010 through 2018. Assumptions selected from the study represent an estimate of future experience based on relevant recent experience and reasonable expectations about the future.

Mortality

Healthy Retired Members and Beneficiaries

The following healthy annuitant mortality tables were first adopted in the December 31 valuation of the years shown.

Basic Table	Pub-2010 Healthy Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale	Valuation Year Adopted
School District male	Teachers, no set back	2018
Other General Service male*	General Employees, set back 12 months	2018
Police & Fire male	Public Safety, no set back	2018
School District female	Teachers, no set back	2018
Other General Service female**	General Employees, no set back	2018
Police & Fire female	Public Safety, set back 12 months	2018

** including male beneficiaries of members of all classes*

*** including female beneficiaries of members of all classes*

Disabled Retired Members

The following disabled retiree mortality rates were first adopted for the December 31, 2018 actuarial valuation.

Basic Table	Pub-2010 Disabled Retiree, Sex Distinct, Generational Projection with Unisex Social Security Data Scale
Police & Fire male	Blended 50% Public Safety, 50% Non-Safety, no set back
Other General Service male	Non-Safety, set forward 24 months
Police & Fire female	Blended 50% Public Safety, 50% Non-Safety, no set back
Other General Service female	Non-Safety, set forward 12 months

Non-Annuitant Members

The following non-annuitant mortality tables were first adopted in the December 31 valuation of the years shown.

Basic Table	Pub-2010 Employee, Sex Distinct, Generational Projection with Unisex Social Security Data Scale	Valuation Year Adopted
School District male	120% of Employee table with same job category and set back as Healthy Retiree assumption	2018
Other General Service male	115% of Employee table with same job category and set back as Healthy Retiree assumption	2018
Police & Fire male	100% of Employee table with same job category and set back as Healthy Retiree assumption	2018
School District female	100% of Employee table with same job category and set back as Healthy Retiree assumption	2018
Other General Service female	125% of Employee table with same job category and set back as Healthy Retiree assumption	2018
Police & Fire female	100% of Employee table with same job category and set back as Healthy Retiree assumption	2018

Retirement Assumptions

The retirement assumptions used in the actuarial valuation include the following:

- Retirement from active status/dormant status
- Probability a member will elect a lump sum option at retirement
- Percentage of members who elect to purchase credited service at retirement.

Rates of Retirement from Active Status

The following retirement rate assumptions were first adopted in the December 31, 2018 valuation.

	Police & Fire			General Service			School Districts			
Age	< 13 yrs	13-24 yrs	25+ yrs	< 15 yrs	15-29 yrs	30+ yrs	< 15 yrs	15-29 yrs	30+ yrs	Judges
Less than 50						15.00%			25.00%	
50	1.50%	2.50%	27.50%			15.00%			25.00%	
51	1.50%	2.50%	21.50%			15.00%			25.00%	
52	1.50%	2.50%	21.50%			15.00%			25.00%	
53	1.50%	2.50%	21.50%			15.00%			25.00%	
54	1.50%	3.50%	21.50%			15.00%			25.00%	
55	3.00%	12.00%	25.00%	1.50%	2.50%	15.00%	1.50%	3.50%	25.00%	
56	3.00%	8.00%	25.00%	1.50%	2.50%	15.00%	1.50%	3.50%	25.00%	
57	3.00%	8.00%	25.00%	1.50%	2.50%	15.00%	1.50%	3.50%	25.00%	
58	6.00%	8.00%	25.00%	1.50%	9.00%	21.00%	1.50%	11.00%	27.50%	
59	6.00%	8.00%	25.00%	3.50%	9.00%	21.00%	4.50%	11.00%	27.50%	

	Police & Fire			General Service			School Districts			
Age	< 13 yrs	13-24 yrs	25+ yrs	< 15 yrs	15-29 yrs	30+ yrs	< 15 yrs	15-29 yrs	30+ yrs	Judges
60	6.00%	11.00%	25.00%	6.00%	11.00%	21.00%	6.50%	12.50%	27.50%	8.50%
61	6.00%	14.00%	25.00%	6.00%	11.00%	21.00%	6.50%	12.50%	27.50%	8.50%
62	15.00%	25.00%	38.00%	13.00%	19.50%	31.00%	15.00%	23.50%	34.00%	8.50%
63	15.00%	15.00%	28.00%	11.50%	16.50%	23.00%	13.00%	19.50%	26.50%	8.50%
64	15.00%	15.00%	28.00%	12.50%	16.50%	23.00%	13.00%	19.50%	31.50%	8.50%
65	100.00%	100.00%	100.00%	19.50%	28.00%	35.50%	25.50%	33.50%	45.00%	8.50%
66				27.50%	36.00%	40.50%	23.00%	36.50%	45.00%	8.50%
67				22.50%	26.50%	28.50%	21.00%	34.50%	42.00%	16.00%
68				19.50%	26.50%	28.50%	21.00%	28.00%	28.50%	16.00%
69				19.50%	26.50%	28.50%	21.00%	28.00%	28.50%	16.00%
70				100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Retirement from Dormant Status

Dormant members are assumed to retire at Normal Retirement Age (age 58 for Tier 1, age 60 for Tier 2, age 60 for Judges, and age 55 for Police & Fire) or at the first unreduced retirement age (30 years of service, or age 50 with 25 years of service for Police & Fire).

Lump Sum Option at Retirement

Members retiring may elect to receive a full or partial lump sum at retirement. The probability that a retiring member will elect a lump sum at retirement is summarized in the table below. The total lump sum rates were first adopted effective December 31, 2016. The partial lump sum rate was first adopted effective December 31, 2018.

Lump Sum Option at Retirement	
Partial Lump Sum:	3.0% for all years
Total Lump Sum:	1.0% for 2019, declining by 0.5% per year until reaching 0.0%
No Lump Sum:	96.0% in 2019, increasing by 0.5% per year until reaching 97.0%

Purchase of Credited Service at Retirement

The following percentages of members are assumed to purchase service credit at time of retirement for the six-month waiting period that occurs prior to establishing membership in the system. These rates were first adopted effective December 31, 2018.

Purchase of Credited Service at Retirement	
Money Match Retirements:	0%
Non-Money Match Retirements:	70%

The cost of the service purchase is estimated based on assumed salary and contribution rates at entry age.

State Judiciary Member Plan Election

All State Judiciary members are assumed to elect to retire under the provisions of Plan B.

Disability Assumptions

There are two disability assumptions used in the valuation - duty disability and ordinary (non-duty) disability. Duty disability rates are separated between Police & Fire and General Service, while ordinary disability is the same for all members. The rates for ordinary disability and for duty disability for General Service were first adopted effective December 31, 2018. The rates for duty disability for Police & Fire were first adopted effective December 31, 2012.

	Percentage of the 1985 Disability Class 1 Rates
Duty Disability Police & Fire	20%
Duty Disability General Service	0.8%
Ordinary Disability	30% with 0.18% cap

Ordinary disability rates are not applied until the minimum service requirement for non-duty disability benefits is met. Disability decrement rates continue to be applied after retirement eligibility.

Termination Assumptions

The General Service termination assumptions were first adopted effective December 31, 2018. The School District termination assumptions were first adopted effective December 31, 2016. The Police & Fire termination assumption was first adopted effective December 31, 2014.

Sample termination rates are shown for each group below:

Duration from Hire Date	School District Male	School District Female	General Service Male	General Service Female	Police & Fire
0	16.63%	13.50%	15.00%	15.50%	10.00%
1	14.25%	12.50%	12.50%	14.50%	5.97%
5	6.86%	7.13%	7.19%	8.04%	3.31%
10	3.31%	3.85%	4.13%	4.77%	2.23%
15	2.30%	2.68%	2.93%	3.43%	1.50%
20	1.62%	1.95%	2.08%	2.47%	1.01%
25	1.20%	1.50%	1.47%	1.78%	0.80%
30+	1.20%	1.50%	1.40%	1.40%	0.80%

Termination rates are not applied after a member reaches retirement eligibility. For a complete table of rates, please refer to the 2018 Experience Study report for the System, published in July 2019.

Oregon Residency Post-Retirement

For purposes of determining eligibility for SB 656/HB 3349 benefit adjustments, 85% of retirees are assumed to remain Oregon residents after retirement. This assumption was first adopted effective December 31, 2012.

Police & Fire Unit Purchase

Police & Fire members retiring from active service prior to age 65 are assumed to purchase additional benefit units at an estimated employer matching cost of $4,000.

Salary Increase Assumptions

The salary increase assumptions reflected in the actuarial valuation include:

- Merit scale increases in addition to the payroll growth increase
- Unused Sick Leave adjustments
- Vacation Pay adjustments

Merit Scale Increases

Merit scale increases are based on duration of service for the following groups with sample rates shown in the following table. These rates were first adopted effective December 31, 2018, except for the Police & Fire assumption, which was adopted December 31, 2016.

Duration	School District	Other General Service	Police & Fire
0	3.72%	3.70%	4.44%
1	3.43%	3.37%	3.95%
5	2.34%	2.24%	2.39%
10	1.14%	1.21%	1.23%
15	0.17%	0.54%	0.69%
20	-0.53%	0.16%	0.52%
25	-0.89%	0.01%	0.44%
30+	-0.95%	0.00%	0.21%

The assumed merit scale increase for active State Judiciary members is 0.0%.

For a complete table of rates, please refer to the 2018 Experience Study for the System, published in July 2019.

Unused Sick Leave

Members covered by the provision allowing unused sick leave to be used to increase final average salary at time of retirement are assumed to receive increases in their final average salary in accordance with the table below. This adjustment is not applied to disability benefits. Effective dates for the current assumption are shown in the table.

Unused Sick Leave		Valuation year adopted
Actives		
• State General Service Male	7.00%	2018
• State General Service Female	3.75%	2010
• School District Male	7.75%	2018
• School District Female	5.75%	2012
• Local General Service Male	5.25%	2018
• Local General Service Female	3.50%	2018
• State Police & Fire	4.00%	2018
• Local Police & Fire	7.25%	2016
Dormant Members	3.25%	2016

Vacation Pay

Members eligible to include a lump sum payment of unused vacation pay in their final average salary calculation at time of retirement are assumed to receive increases in their final average salary in accordance with the table below. This adjustment is not applied to disability benefits. These rates were adopted December 31, 2018, except the school district rates which were adopted effective December 31, 2012.

Vacation Pay	
Tier 1	
• State General Service	2.25%
• School District	0.25%
• Local General Service	3.25%
• State Police & Fire	2.75%
• Local Police & Fire	4.25%
Tier 2	0.00%

Retiree Healthcare Participation

The following percentages of eligible retiring members are assumed to elect RHIPA and RHIA coverage:

Retiree Healthcare Participation	
RHIPA	
• 8 – 9 years of service	10.0%
• 10 – 14 years of service	10.0%
• 15 – 19 years of service	15.0%
• 20 – 24 years of service	19.0%
• 25 – 29 years of service	26.0%
• 30+ years of service	34.0%
RHIA	
• Healthy Retired	32.0%
• Disabled Retired	20.0%

The RHIA disabled retired rate was first adopted December 31, 2008. The RHIA healthy retired rate and RHIPA rates for 15 or more years of service were adopted December 31, 2018. RHIPA Rates up through 14 years of service were first adopted effective December 31, 2012

Spouse Assumptions

Non-annuitant death benefits are valued assuming all members are married. Future participants in RHIA and RHIPA are assumed to have eligible spouses. For these purposes, the spouse is assumed to be three years younger than a male member or three years older than a female member.

Actuarial Equivalence Assumptions

Early retirement factors and optional form conversion factors are assumed to remain level in all future years.

For members with pop-up annuities, the future amount payable if the spouse predeceases the member is estimated based on an assumed 0.90 optional form conversion factor for 100% contingent annuities and an assumed 0.94 optional form conversion factor for 50% contingent annuities.

OPSRP

Most of the methods and assumptions adopted for the OPSRP valuation are the same as those used for Tier 1/Tier 2. The methods and assumptions that differ for OPSRP are summarized below. The Board adopted the following methods, procedures and assumptions for the December 31, 2018 and December 31, 2019 actuarial valuations.

Actuarial Methods and Valuation Procedures

OPSRP UAL amortization	The UAL as of December 31, 2007 is amortized as a level percentage of projected combined valuation payroll (Tier 1/ Tier 2 plus OPSRP payroll) over a closed period 16 year period. Gains and losses between subsequent odd-year valuations are amortized as a level percentage of combined valuation payroll over 16 years from the valuation in which they are first recognized.

Economic Assumptions

Administrative expenses	$8.0 million per year is added to the normal cost.

Demographic Assumptions

Rates of Retirement from Active Status

	Police & Fire			General Service			School Districts		
Age	< 13 yrs	13-24 yrs	25+ yrs	< 15 yrs	15-29 yrs	30+ yrs	< 15 yrs	15-29 yrs	30+ yrs
50	0.50%	1.50%	5.50%						
51	0.50%	1.50%	5.50%						
52	0.50%	1.50%	5.50%						
53	0.50%	1.50%	25.00%						
54	0.50%	1.50%	21.50%						
55	2.00%	5.00%	25.00%	1.00%	2.50%	5.00%	1.00%	2.50%	5.00%
56	2.00%	5.00%	25.00%	1.00%	2.50%	5.00%	1.00%	2.50%	5.00%
57	2.00%	5.00%	25.00%	1.00%	2.50%	7.50%	1.00%	2.50%	7.50%
58	5.00%	5.00%	25.00%	1.50%	3.00%	30.00%	1.50%	3.00%	30.00%
59	5.00%	5.00%	25.00%	2.00%	3.00%	25.00%	1.50%	3.00%	25.00%
60	5.00%	15.00%	25.00%	3.00%	3.75%	20.00%	2.50%	3.75%	20.00%
61	5.00%	8.50%	25.00%	3.00%	5.00%	20.00%	3.00%	5.00%	20.00%
62	10.00%	25.00%	38.00%	8.00%	12.00%	30.00%	6.00%	12.00%	30.00%
63	7.00%	15.00%	28.00%	7.00%	10.00%	20.00%	6.00%	10.00%	20.00%
64	7.00%	15.00%	28.00%	7.00%	10.00%	20.00%	6.00%	10.00%	20.00%
65	100.00%	100.00%	100.00%	14.50%	35.00%	20.00%	11.50%	35.00%	20.00%
66				18.50%	33.00%	20.00%	12.50%	33.00%	20.00%
67				17.00%	22.00%	30.00%	11.00%	22.00%	30.00%
68				13.00%	17.00%	20.00%	9.00%	17.00%	20.00%
69				13.00%	17.00%	20.00%	9.00%	17.00%	20.00%
70				100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Retirement from Dormant Status

Dormant members are assumed to retire at their Normal Retirement Age.

Disability Assumptions

Assumed disability rates are not applied to OPSRP members after they reach Normal Retirement Age.

Cost of living increases for the adjusted salary used to calculate retirement benefits for disabled OPSRP members are estimated based on the valuation inflation assumption.

Changes in Actuarial Methods and Assumptions — Tier 1/Tier 2 and OPSRP

A summary of key changes implemented since the December 31, 2017 valuation are described briefly below. Additional detail and a comprehensive list of changes in methods and assumptions can be found in the 2018 Experience Study for the System, published in July 2019.

Changes in Actuarial Methods and Allocation Procedures

Tier 1/Tier 2 UAL Amortization

Senate Bill 1049 was signed into law in June 2019 and requires a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.

Allocation of Liability for Service Segments

For purposes of allocating Tier 1/Tier 2 members' actuarial accrued liability among multiple employers, the valuation uses a weighted average of the Money Match methodology and the Full Formula methodology used by PERS when the member retires. The weights are determined based on the prevalence of each formula among the current Tier 1/Tier 2 population. For the December 31, 2016 and December 31, 2017 valuations, the Money Match was weighted 15 percent for General Service members and 0 percent for Police & Fire members. For the December 31, 2018 and December 31, 2019 valuations, this weighting has been adjusted to 10 percent for General Service members and 0 percent for Police & Fire members, based on the projected proportion of liability for new retirees attributable to Money Match benefits at those valuation dates.

Changes in Economic Assumptions

Administrative Expenses

The administrative expense assumptions were updated to $32.5 million per year for Tier 1/Tier 2 and $8.0 million per year for OPSRP. Previously these were assumed to be $37.5 million per year and $6.5 million per year, respectively.

Healthcare Cost Inflation

The healthcare cost inflation assumption for the maximum RHIPA subsidy was updated based on analysis performed by Milliman's healthcare actuaries. This analysis includes the consideration of the excise tax that is scheduled to be introduced in 2022 by the Affordable Care Act.

Changes in Demographic Assumptions

Healthy Annuitant Mortality Base Tables

The healthy annuitant mortality base tables were updated to Pub-2010 generational Healthy Retiree mortality tables with group-specific job category and setback adjustments. Previously they were based on RP-2014 generational Healthy Annuitant mortality tables with group-specific collar and setback adjustments.

Disabled Mortality Base Tables

The disabled mortality base tables were updated to Pub-2010 generational Disabled Retiree mortality tables with group-specified job category and setback adjustments. Previously they were based on RP-2014 generational Disabled Retiree mortality tables.

Non-Annuitant Mortality Base Tables

The non-annuitant mortality base tables were updated to Pub-2010 generational Employee mortality tables with the same group-specific job category and setback adjustments as for healthy annuitants, and with an additional scaling factor adjustment for certain subgroups. Previously they were based on RP-2014 generational Employee mortality tables with the same group-specific collar and setback adjustments as for healthy annuitants.

Mortality Improvement Projection Scale

The mortality improvement projection scale applied to each of the base mortality tables described above was updated to reflect the most recent 60-year average unisex Social Security experience available at the time the assumptions were reviewed. The current assumption is based on experience through 2015. The previous assumption was based on experience through 2013.

Disability, Retirement from Active Status, and Termination

Rates for disability, retirement from active status, and termination were adjusted for certain subgroups. The rates at which members are assumed to elect partial lump sums or purchase credited service at retirement were also adjusted.

Merit Increases, Unused Sick Leave, and Vacation Pay

Assumed merit increases, Unused Sick Leave, and Vacation Pay rates were adjusted for certain subgroups.

Retiree Healthcare Participation

The RHIA participation rate for healthy retirees was reduced from 35% to 32%. The RHIPA participation rate was updated for members with 15 or more years of service.

Schedule of Active Member Valuation Data

Valuation Date	Count	Annual Payroll (in Thousands)	Average Annual Pay	% Increase in Average Pay	Number of Participating Employers[1]
12/31/2009	178,606	$ 8,512,192	$ 47,659	0.0%	776
12/31/2010	193,569	$ 8,750,064	$ 45,204	-5.2%	787
12/31/2011	170,972	$ 8,550,511	$ 50,011	10.6%	791
12/31/2012	167,103	$ 8,590,879	$ 51,411	2.8%	798
12/31/2013	162,185	$ 8,671,835	$ 53,469	4.0%	799
12/31/2014	164,859	$ 9,115,767	$ 55,294	3.4%	802
12/31/2015	168,177	$ 9,544,132	$ 56,751	2.6%	804
12/31/2016	172,483	$ 9,872,557	$ 57,238	0.9%	805
12/31/2017	173,002	$ 10,098,889	$ 58,374	2.0%	802
12/31/2018	176,763	$ 10,851,980	$ 61,393	5.2%	798

[1] *Effective in 2006, participating employers are defined for this purpose as any employer with covered payroll during the prior year. In prior years, employers with liabilities but without covered payroll were included as well.*

Schedule of Retirees and Beneficiaries Added to and Removed from Rolls

Annual Allowances are shown in thousands.

	Added to Rolls		Removed from Rolls		Rolls - End of Year			
Valuation Date	Count	Annual Allowances[1]	Count	Annual Allowances	Count	Annual Allowances	% Increase in Annual Allowances[2]	Average Annual Allowances
12/31/2009 [3]	6,377	$ 226,713	3,374	$ 46,228	112,141	$ 2,826,252	6.8%	$ 25,203
12/31/2010 [3]	6,359	$ 217,424	3,512	$ 51,627	114,988	$ 2,992,048	5.9%	$ 26,021
12/31/2011 [3]	8,715	$ 282,098	3,679	$ 55,633	120,024	$ 3,218,514	7.6%	$ 26,816
12/31/2012 [3]	7,023	$ 235,917	4,875	$ 59,353	122,172	$ 3,395,079	5.5%	$ 27,789
12/31/2013	9,724	$ 307,551	3,644	$ 66,607	128,252	$ 3,636,023	7.1%	$ 28,351
12/31/2014 [4]	6,910	$ 235,250	3,524	$ 66,621	131,638	$ 3,804,651	4.6%	$ 28,902
12/31/2015 [4]	8,566	$ 304,818	3,781	$ 73,305	136,423	$ 4,036,165	6.1%	$ 29,586
12/31/2016 [4]	6,413	$ 242,372	3,931	$ 80,903	138,905	$ 4,197,633	4.0%	$ 30,219
12/31/2017 [4]	10,075	$ 385,197	3,878	$ 83,921	145,102	$ 4,498,910	7.2%	$ 31,005
12/31/2018	7,856	$ 297,542	3,933	$ 90,107	149,025	$ 4,706,345	4.6%	$ 31,581

[1] *Additions to annual allowances reflect the combined effects of new retirements and COLA increases since the previous valuation date.*

[2] *Since last valuation date.*

[3] *Annual allowances reflect estimated adjustments to retiree benefits due to the implementation of the Strunk v. PERB, et al. and City of Eugene v. State of Oregon, PERB, et al. decisions.*

[4] *Annual allowances reflect estimated adjustments to retiree benefits for the Moro v. State of Oregon decision for records that were not already adjusted in the data provided.*

Schedules of Funding Progress by Rate Pool

(dollar amounts in millions)

Actuarial Valuation Date	Actuarial Value of Assets[1,2] (a)	Actuarial Accrued Liability (AAL)[2] (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll[3] (c)	UAAL as a % of Covered Payroll ((b-a)/c)
Tier 1/Tier 2 State & Local Government Rate Pool						
12/31/2013 [4]	$ 30,590.2	$ 31,738.8	$ 1,148.6	96.4%	$ 2,915.9	39.4%
12/31/2014 [5]	$ 31,162.6	$ 37,169.9	$ 6,007.3	83.8%	$ 2,827.9	212.4%
12/31/2015 [4]	$ 30,185.3	$ 38,396.8	$ 8,211.5	78.6%	$ 2,691.8	305.1%
12/31/2016	$ 30,417.6	$ 40,351.3	$ 9,933.7	75.4%	$ 2,546.7	390.1%
12/31/2017 [4]	$ 33,366.0	$ 42,150.7	$ 8,784.7	79.2%	$ 2,410.6	364.4%
12/31/2018	$ 31,798.9	$ 43,149.3	$ 11,350.4	73.7%	$ 2,299.5	493.6%
Tier 1/Tier 2 School District Rate Pool						
12/31/2013	$ 23,063.3	$ 23,392.6	$ 329.4	98.6%	$ 1,663.0	19.8%
12/31/2014 [5]	$ 23,361.2	$ 27,059.9	$ 3,698.7	86.3%	$ 1,626.0	227.5%
12/31/2015	$ 22,728.9	$ 27,670.7	$ 4,941.8	82.1%	$ 1,578.8	313.0%
12/31/2016	$ 22,870.2	$ 29,152.2	$ 6,282.0	78.5%	$ 1,532.7	409.9%
12/31/2017	$ 24,934.4	$ 29,677.4	$ 4,743.1	84.0%	$ 1,443.7	328.5%
12/31/2018	$ 23,557.9	$ 29,898.4	$ 6,340.6	78.8%	$ 1,401.2	452.5%
Tier 1/Tier 2 Independent Employers and Judiciary						
12/31/2013 [4]	$ 4,851.0	$ 5,164.3	$ 313.3	93.9%	$ 494.8	63.3%
12/31/2014 [5]	$ 4,967.4	$ 6,104.9	$ 1,137.4	81.4%	$ 479.2	237.4%
12/31/2015 [4]	$ 4,807.6	$ 6,327.1	$ 1,519.5	76.0%	$ 460.3	330.1%
12/31/2016	$ 4,856.6	$ 6,690.8	$ 1,834.3	72.6%	$ 437.3	419.5%
12/31/2017 [4]	$ 5,018.2	$ 6,536.3	$ 1,518.1	76.8%	$ 392.6	386.7%
12/31/2018	$ 4,756.2	$ 6,736.3	$ 1,980.1	70.6%	$ 375.4	527.5%
OPSRP Rate Pool						
12/31/2013	$ 1,630.2	$ 2,243.3	$ 613.2	72.7%	$ 3,598.1	17.0%
12/31/2014 [5]	$ 2,024.6	$ 3,064.1	$ 1,039.5	66.1%	$ 4,182.7	24.9%
12/31/2015	$ 2,389.1	$ 3,742.5	$ 1,353.5	63.8%	$ 4,813.3	28.1%
12/31/2016	$ 3,021.4	$ 4,717.0	$ 1,695.6	64.1%	$ 5,355.8	31.7%
12/31/2017	$ 4,116.5	$ 5,634.7	$ 1,518.2	73.1%	$ 5,852.0	25.9%
12/31/2018	$ 4,783.0	$ 6,738.0	$ 1,955.0	71.0%	$ 6,775.9	28.9%
Postemployment Healthcare Benefits - Retirement Health Insurance Account						
12/31/2013	$ 353.5	$ 473.6	$ 120.0	74.7%	$ 5,073.7	2.4%
12/31/2014	$ 395.9	$ 468.4	$ 72.5	84.5%	$ 4,933.1	1.5%
12/31/2015	$ 419.3	$ 465.6	$ 46.3	90.0%	$ 4,730.8	1.0%
12/31/2016	$ 465.0	$ 463.7	$ (1.3)	100.3%	$ 4,516.7	(0.0%)
12/31/2017	$ 553.3	$ 437.6	$ (115.7)	126.4%	$ 4,246.9	(2.7%)
12/31/2018	$ 570.7	$ 411.7	$ (159.1)	138.6%	$ 4,076.1	(3.9%)
Postemployment Healthcare Benefits - Retiree Health Insurance Premium Account						
12/31/2013	$5.2	$61.2	$55.9	8.6%	$1,434.5	3.9%
12/31/2014	$7.2	$70.5	$63.3	10.2%	$1,406.3	4.5%
12/31/2015	$11.2	$67.8	$56.6	16.5%	$1,339.4	4.2%
12/31/2016	$19.1	$67.9	$48.8	28.1%	$1,276.0	3.8%
12/31/2017	$29.8	$69.4	$39.5	43.0%	$1,212.2	3.3%
12/31/2018	$38.5	$62.7	$24.3	61.3%	$1,159.5	2.1%

Notes:

1 *Side account assets are included with Tier 1/Tier 2 assets.*

2 *Excludes effect of Multnomah Fire District (net UAAL of $146 million as of 12/31/2018).*

3 *Covered payroll shown is for members of the rate pool benefiting from the specified program. For example, Tier 1/Tier 2 School District payroll is only payroll for Tier 1/Tier 2 members and excludes OPSRP. However, UAL is amortized using combined Tier 1/Tier 2 and OPSRP payroll.*

4 *Reflects the transfer in assets and liabilities for new employers that joined the SLGRP effective January 1 following the valuation date.*

5 *The 12/31/2014 valuation reflects benefit changes from the Oregon Supreme Court's ruling in Moro v. State of Oregon, which overturned portions of Senate Bills 822 and 861.*

Analysis of Financial Experience

(dollar amounts in millions)

Tier 1/Tier 2 Pension Program	$ Gain (or Loss) for Year 2018	2017
Type of Activity		
Retirements from Active Status	$ (82.2)	$ (145.1)
Active Mortality and Withdrawal	(10.8)	(12.5)
Pay Increases	(74.4)	(70.7)
Contributions	143.1	49.4
Interest Crediting Experience	88.5	(95.7)
Investment Income	(3,641.3)	4,496.6
Retirement, Mortality and Lump Sums from Dormant Status	(8.0)	15.9
Retiree and Beneficiary Mortality	(42.3)	(34.6)
New Entrants	(1.1)	(1.2)
Other	5.8	(297.0)
Gain (or Loss) During Year From Financial Experience	**$ (3,622.6)**	**$ 3,905.1**
Non-Recurring Items		
Assumption Changes	60.0	0.0
Plan Changes	41.0	0.0
Composite Gain (or Loss) During Year	**$ (3,521.6)**	**$ 3,905.1**

OPSRP Pension Program	$ Gain (or Loss) for Year 2018	2017
Retirements from Active Status	$ (5.4)	$ 1.1
Active Mortality and Withdrawal	(27.2)	10.2
Pay Increases	(81.4)	(97.7)
Contributions	61.0	41.6
Investment Income	(300.2)	317.5
Retirement, Mortality and Lump Sums from Dormant Status	3.7	2.0
Retiree and Beneficiary Mortality	0.8	(0.1)
New Entrants[1]	(81.5)	(67.1)
Other	(4.3)	42.0
Gain (or Loss) During Year From Financial Experience	**$ (434.6)**	**$ 249.7**
Non-Recurring Items		
Assumption Changes	(13.7)	0.0
Plan Changes	11.1	0.0
Composite Gain (or Loss) During Year	**$ (437.2)**	**$ 249.7**

[1] Accrued liability associated w ith new entrants is show n. For a full assessment of the new entrant effect on UAL, this w ould need to be combined w ith contributions associated w ith new entrants.

Analysis of Financial Experience

Gains and losses in Unfunded Accrued Liability resulting from differences between assumed experience and actual experience and assumption changes

(dollar amounts in millions)

Pension and Retiree Healthcare Plans	$ Gain (or Loss) for Year 2018	2017
Type of Activity		
Retirements from Active Status	$ (87.6)	$ (143.9)
Active Mortality and Withdrawal	(38.0)	(2.3)
Pay Increases	(155.9)	(168.4)
Contributions	208.3	94.2
Interest Crediting Experience	88.5	(95.7)
Investment Income	(3,982.7)	4,854.2
Retirement, Mortality and Lump Sums from Dormant Status	(4.3)	18.0
Retiree and Beneficiary Mortality	(41.5)	(34.6)
New Entrants[1]	(82.6)	(68.3)
Other	15.2	(225.8)
Gain (or Loss) During Year From Financial Experience	**$ (4,080.5)**	**$ 4,227.3**
Non-Recurring Items		
Assumption Changes	67.3	0.0
Plan Changes	52.1	0.0
Composite Gain (or Loss) During Year	**$ (3,961.1)**	**$ 4,227.3**

[1] *Accrued liability associated with new entrants is shown. For a full assessment of the new entrant effect on UAL, this would need to be combined with contributions associated with new entrants.*

Retiree Healthcare Programs	$ Gain (or Loss) for Year			
	RHIA		RHIPA	
	2018	2017	2018	2017
Contributions	$ 3.2	2.4	$ 0.9	$ 0.9
Investment Income	(38.6)	38.7	(2.5)	1.3
Other	11.7	29.0	1.9	0.2
Gain (or Loss) During Year From Financial Experience	**$ (23.7)**	**$ 70.2**	**$ 0.4**	**$ 2.3**
Non-Recurring Items				
Assumption Changes	14.7	0.0	6.4	0.0
Plan Changes	0.0	0.0	0.0	0.0
Composite Gain (or Loss) During Year	**$ (9.0)**	**$ 70.2**	**$ 6.8**	**$ 2.3**

Solvency Test

(dollar amounts in millions)

Tier 1/Tier 2 Pension

Valuation Date[2]	Actuarial Accrued Liability[1] Active Member Contributions (1)	Retired Members and Beneficiaries (2)	Other Members (3)	Valuation Assets[1,3]	Portion of Actuarial Accrued Liabilities Covered by Assets (1)	(2)	(3)
12/31/2012 [4]	$ 7,704.9	$ 36,377.3	$ 14,527.4	$ 53,594.0	100%	100%	65%
12/31/2013 [5]	$ 7,120.1	$ 39,116.2	$ 14,114.1	$ 58,384.0	100%	100%	86%
12/31/2014 [6]	$ 6,950.4	$ 46,113.5	$ 17,331.0	$ 59,370.6	100%	100%	36%
12/31/2015 [5]	$ 6,476.8	$ 48,641.5	$ 17,335.7	$ 57,611.0	100%	100%	14%
12/31/2016	$ 6,168.1	$ 51,655.5	$ 18,429.6	$ 58,037.6	100%	100%	1%
12/31/2017 [5]	$ 5,585.9	$ 54,967.4	$ 17,868.1	$ 63,209.7	100%	100%	15%
12/31/2018	$ 5,153.6	$ 56,534.9	$ 18,148.3	$ 60,019.3	100%	97%	0%

[1] *Includes effect of Multnomah Fire District (net UAAL of $146 million as of 12/31/2018).*

[2] *An extensive revision of the actuarial assumptions occurs prior to each even-year valuation; therefore, the figures are not directly comparable.*

[3] *Includes the value of UAL Lump Sum Side Accounts.*

[4] *The 12/31/2012 valuation reflects the benefit changes enacted by the 2013 Oregon Legislature in Senate Bills 822 and 861, as well as a change in cost method to Entry Age Normal.*

[5] *Reflects the transfer in assets and liabilities for new employers that joined the SLGRP effective January 1 following the valuation date.*

[6] *The 12/31/2014 valuation reflects benefit changes from the Oregon Supreme Court's ruling in Moro v. State of Oregon, which overturned portions of Senate Bills 822 and 861.*

OPSRP Pension

Valuation Date[1]	Actuarial Accrued Liability Active Member Contributions (1)	Retired Members and Beneficiaries (2)	Other Members (3)	Valuation Assets	Portion of Actuarial Accrued Liabilities Covered by Assets (1)	(2)	(3)
12/31/2012 [2]	$ 0.0	$ 28.6	$ 1,766.9	$ 1,190.0	100%	100%	66%
12/31/2013	$ 0.0	$ 51.2	$ 2,192.1	$ 1,630.2	100%	100%	72%
12/31/2014 [3]	$ 0.0	$ 92.4	$ 2,971.6	$ 2,024.6	100%	100%	65%
12/31/2015	$ 0.0	$ 144.6	$ 3,597.9	$ 2,389.1	100%	100%	62%
12/31/2016	$ 0.0	$ 201.1	$ 4,515.9	$ 3,021.4	100%	100%	62%
12/31/2017	$ 0.0	$ 310.1	$ 5,324.5	$ 4,116.5	100%	100%	71%
12/31/2018	$ 0.0	$ 419.0	$ 6,318.9	$ 4,783.0	100%	100%	69%

[1] *An extensive revision of the actuarial assumptions occurs prior to each even-year valuation; therefore, the figures are not directly comparable.*

[2] *The 12/31/2012 valuation reflects the benefit changes enacted by the 2013 Oregon Legislature in Senate Bills 822 and 861, as well as a change in cost method to Entry Age Normal.*

[3] *The 12/31/2014 valuation reflects benefit changes from the Oregon Supreme Court's ruling in Moro v. State of Oregon, which overturned portions of Senate Bills 822 and 861.*

Solvency Test

(dollar amounts in millions)

Valuation Date[1]	Retiree Health Insurance Account (RHIA) Actuarial Accrued Liability: Active Member Contributions (1)	Retired Members and Beneficiaries (2)	Other Members (3)	Valuation Assets	Portion of Actuarial Accrued Liabilities Covered by Assets (1)	(2)	(3)
12/31/2012 [2]	$ 0.0	$ 338.3	$ 133.5	$ 291.6	100%	86%	0%
12/31/2013	$ 0.0	$ 348.0	$ 125.6	$ 353.5	100%	100%	4%
12/31/2014	$ 0.0	$ 355.1	$ 113.3	$ 395.9	100%	100%	36%
12/31/2015	$ 0.0	$ 357.7	$ 107.9	$ 419.3	100%	100%	57%
12/31/2016	$ 0.0	$ 361.7	$ 102.0	$ 465.0	100%	100%	101%
12/31/2017	$ 0.0	$ 343.9	$ 93.7	$ 553.3	100%	100%	224%
12/31/2018	$ 0.0	$ 329.8	$ 81.8	$ 570.7	100%	100%	294%

[1] An extensive revision of the actuarial assumptions occurs prior to each even-year valuation; therefore, the figures are not directly comparable.

[2] The 12/31/2012 valuation reflects a change in cost method to Entry Age Normal.

Valuation Date[1]	Retiree Health Insurance Premium Account (RHIPA) Actuarial Accrued Liability: Active Member Contributions (1)	Retired Members and Beneficiaries (2)	Other Members (3)	Valuation Assets	Portion of Actuarial Accrued Liabilities Covered by Assets (1)	(2)	(3)
12/31/2012 [2]	$ 0.0	$ 15.1	$ 45.3	$ 4.4	100%	29%	0%
12/31/2013	$ 0.0	$ 16.1	$ 45.1	$ 5.2	100%	33%	0%
12/31/2014	$ 0.0	$ 15.7	$ 54.9	$ 7.2	100%	46%	0%
12/31/2015	$ 0.0	$ 14.9	$ 52.9	$ 11.2	100%	75%	0%
12/31/2016	$ 0.0	$ 14.4	$ 53.5	$ 19.1	100%	100%	9%
12/31/2017	$ 0.0	$ 14.4	$ 53.5	$ 19.1	100%	100%	9%
12/31/2018	$ 0.0	$ 14.0	$ 48.8	$ 38.5	100%	100%	50%

[1] An extensive revision of the actuarial assumptions occurs prior to each even-year valuation; therefore, the figures are not directly comparable.

[2] The 12/31/2012 valuation reflects a change in cost method to Entry Age Normal.

Schedules of Funding Progress

(dollar amounts in millions)

Actuarial Valuation Date		Actuarial Value of Assets[1] (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll ((b-a)/c)
Pension Benefits - Tier 1/Tier 2 and OPSRP[2]							
12/31/2009	3	48,729.2	56,810.6	8,081.4	85.8%	8,512.2	94.9%
12/31/2010		51,583.6	59,329.5	7,746.0	86.9%	8,750.1	88.5%
12/31/2011	3	50,168.2	61,198.4	11,030.2	82.0%	8,550.5	129.0%
12/31/2012	4	54,784.1	60,405.2	5,621.1	90.7%	8,590.9	65.4%
12/31/2013	3	60,014.1	62,593.6	2,579.5	95.9%	8,671.8	29.7%
12/31/2014	5	61,395.2	73,458.9	12,063.7	83.6%	9,115.8	132.3%
12/31/2015	3	60,000.1	76,196.6	16,196.5	78.7%	9,544.1	169.7%
12/31/2016		61,059.0	80,970.3	19,911.2	75.4%	9,872.6	201.7%
12/31/2017	3	67,326.1	84,056.1	16,730.0	80.1%	10,098.9	165.7%
12/31/2018		64,802.3	86,574.7	21,772.4	74.9%	10,852.0	200.6%
Postemployment Healthcare Benefits - Retirement Health Insurance Account							
12/31/2009		214.1	511.2	297.1	41.9%	8,512.2	3.5%
12/31/2010		232.3	547.1	314.8	42.5%	8,750.1	3.6%
12/31/2011		239.6	461.1	221.5	52.0%	8,550.5	2.6%
12/31/2012		291.6	471.8	180.2	61.8%	8,590.9	2.1%
12/31/2013		353.5	473.6	120.0	74.7%	8,671.8	1.4%
12/31/2014		395.9	468.4	72.5	84.5%	9,115.8	0.8%
12/31/2015		419.3	465.6	46.3	90.0%	9,544.1	0.5%
12/31/2016		465.0	463.7	(1.3)	100.3%	9,872.6	(0.0%)
12/31/2017		553.3	437.6	(115.7)	126.4%	10,098.9	(1.1%)
12/31/2018		570.7	411.7	(159.1)	138.6%	10,852.0	(1.5%)
Postemployment Healthcare Benefits - Retiree Health Insurance Premium Account							
12/31/2009		6.4	24.5	18.2	25.9%	2,371.8	0.8%
12/31/2010		5.7	33.9	28.2	16.8%	2,379.7	1.2%
12/31/2011		4.5	34.4	29.9	13.2%	2,376.9	1.3%
12/31/2012		4.4	60.3	55.9	7.4%	2,432.4	2.3%
12/31/2013		5.2	61.2	55.9	8.6%	2,531.5	2.2%
12/31/2014		7.2	70.5	63.3	10.2%	2,718.9	2.3%
12/31/2015		11.2	67.8	56.6	16.5%	2,831.8	2.0%
12/31/2016		19.1	67.9	48.8	28.1%	2,881.4	1.7%
12/31/2017		29.8	69.4	39.5	43.0%	2,984.5	1.3%
12/31/2018		38.5	62.7	24.3	61.3%	3,211.6	0.8%

Notes:

[1] *Side account assets are included with pension assets.*

[2] *Includes UAAL for Multnomah Fire District ($146 million as of 12/31/2018).*

[3] *Reflects the transfer in assets and liabilities for new employers that joined the SLGRP effective January 1 following the valuation date.*

[4] *The 12/31/2012 valuation reflects the benefit changes enacted by the 2013 Oregon Legislature in Senate Bills 822 and 861, as well as a change in cost method to Entry Age Normal.*

[5] *The 12/31/2014 valuation reflects benefit changes from the Oregon Supreme Court's ruling in Moro v. State of Oregon, which overturned portions of Senate Bills 822 and 861.*

Plan Summary

OREGON

PERS

PUBLIC EMPLOYEES RETIREMENT SYSTEM

Summary of Plan Provisions

Summary of Plan Provisions

The following section summarizes the plan provisions considered in the actuarial valuation. A more detailed description of plan provisions is available from PERS.

Membership	All employees of public employers participating in this System who are in qualifying positions become members of the System after completing six months of service except those who are eligible for and have elected to participate in an optional retirement plan. Different benefit provisions of the plan apply based on date of hire.	
	Tier 1	Hired prior to 1996
	Tier 2	Hired after 1995 and before August 29, 2003
	OPSRP	Hired after August 28, 2003, and neither a judge nor a former Tier 1/Tier 2 member eligible to reestablish Tier 1/Tier 2 membership
	Judges	Members of the State Judiciary
Member Contributions	**Judges**	7% of salary
	All others	None as of valuation date Prior to January 1, 2004, Tier 1/Tier 2 members contributed 6% of salary to member accounts. Effective July 1, 2020: 2.5% of salary for Tier 1/Tier 2 members and 0.75% of salary for OPSRP members (only applicable to members earning at least $2,500 per month, indexed for inflation) will be contributed to Employee Pension Stability Accounts (EPSA). EPSA balances will not affect the calculation of Money Match or Formula Plus Annuity benefits.
Employer Contributions	Set by the PERS Board based on actuarial calculations that follow Board rate-setting policies for employers.	

Summary of Chapter 238 Provisions — Tier 1/Tier 2 and Judges

Normal Retirement Date	**Police and Fire**	Age 55
	Judges	Age 65
	Tier 1 General Service	Age 58
	Tier 2 General Service	Age 60

Normal Retirement Allowance

For Members who are not Judges, the greatest of the Full Formula benefit, the Money Match benefit, or the Formula Plus Annuity benefit (only available to Members who made contributions before August 21, 1981). For Members with 15 or more years of creditable service, the benefit will not be less than the minimum service retirement allowance of $100 per month, as described in ORS 238.310.

Full Formula The percentage multiplier from the table below multiplied by final average salary and years of creditable service plus a prior service pension, if applicable.

Percentage Multiplier	Membership Classification
2.00%	Fire, Police and Legislators
1.67%	All other members

Money Match The Member's account balance and a matching employer amount converted to an actuarially equivalent annuity.

Formula Plus Annuity The Member's account balance converted to an actuarially equivalent cash refund annuity plus the percentage multiplier from the table below multiplied by final average salary and years of creditable service, plus a prior service pension, if applicable.

Percentage Multiplier	Membership Classification
1.35%	Fire, Police and Legislators
1.00%	All other members

Judges Final average salary multiplied by the first percentage multiplier from the table below for up to 16 years of service plus the second percentage multiplier for any service in excess of 16 years, but not to exceed the maximum percentage of final average salary also shown below. Judges must elect Plan A or Plan B no later than age 60. A "Plan B" judge must serve as a pro tem judge for a total of 175 days postretirement.

Plan	Percentage Factor (up to 16 years)	Percentage Factor (after 16 years)	Maximum Percentage of Final Average Salary
A	2.8125%	1.67%	65%
B	3.75%	2.00%	75%

Final Average Salary	The greater of: • Average salary earned during the three calendar years in which the member was paid the highest salary, even if one of those years is less than a full calendar year. • Total salary earned over the last 36 months of employment divided by the actual months of service during that 36 month period. Covered salary for this purpose includes the value of member contributions assumed and paid by employers, any payment due to an employer's participation in the Unused Sick Leave program, and, for Tier 1 members, lump sum payment of unused vacation time. For Tier 2 members, covered salary is limited by Internal Revenue Code 401(a)(17). The limit was $280,000 in 2019. Tier 1 members are not subject to this limit. Under Senate Bill 1049, passed during the 2019 legislative session, the salary included in the determination of Final Average Salary will be limited for all members beginning in 2020. The limit will be equal to $195,000 in 2020, and will be indexed with inflation in later years. For this purpose, payment due to the unused sick leave program will not be affected by the Final Average Salary limit. However, lump sum payments of unused vacation time for Tier 1 members will be included in total salary subject to the limit.
Creditable Service	The number of years and months an active Member is paid a salary by a participating PERS employer and PERS benefits are being funded.
Prior Service Pension	Benefits payable on account of Prior Service Credit for a member's service with a participating employer prior to the employer's participation in PERS, as described in ORS 238.442.
SB 656/HB 3349 Adjustment	All members receive an increase to their monthly retirement benefit equal to the greater of the increase under Senate Bill 656 (SB 656) or House Bill 3349 (HB 3349). The adjustment for SB 656 only applies to members who established membership prior to July 14, 1995. Senate Bill 822, enacted in 2013, limits eligibility for these adjustments to only PERS beneficiaries who pay Oregon state income tax.

SB 656 Increase

Years of Service	General Service	Police & Fire
0-9	0.0%	0.0%
10-14	1.0	1.0
15-19	1.0	1.0
20-24	2.0	2.5
25-29	3.0	4.0
30 & Over	4.0	4.0

HB 3349 Increase

$$\left(\frac{1}{1 - \text{maximum Oregon personal income tax rate (limited to 9\%)}} - 1\right) \times \frac{\text{Service prior to October 1, 1991}}{\text{All Service}}$$

Early Retirement Eligibility	**Police and Fire**	Age 50 or 30 years of service
	Judges	Age 60
	General Service	Age 55 or 30 years of service
Early Retirement Allowance	Normal retirement allowance, actuarially reduced to early retirement age. However, there is no reduction applied if a member has completed 30 years of service (25 years for police & fire members) or for judges in Plan B.	
Vesting	Contributions made in any part of five calendar years or attainment of age 50 (45 for police & fire) while working in a qualifying position.	
Termination Benefits	**Non-Vested**	Payment of member's account balance.
	Vested	Same as normal (or early) retirement allowance, but commencement is deferred to normal (or early) retirement date.
Optional Forms of Retirement Allowance	The normal form of benefit is a cash refund annuity (joint and two-thirds survivor contingent annuity for a married judge). All optional amounts are adjusted to be actuarially equivalent. **Options Available** • Life annuity • Cash refund annuity • Life annuity guaranteed 15 years • Joint and 50% or 100% survivor contingent annuity, with or without pop-up feature • Partial Lump Sum: Refund of member contribution account balance plus a pension (under any optional form) of employer-paid portion of the Full Formula or Money Match annuity. • Total Lump Sum: Refund of member contribution account plus a matching employer amount.	
Preretirement Death Benefit Eligibility	**Judges**	Six or more years of service.
	All others	Death occurring while the member is an employee of a participating employer or within 120 days of termination provided the employee does not withdraw the account balance or retire, or a result of injuries received while in the service of a participating employer.
Preretirement Death Benefit	**Judges**	The spouse shall receive a life pension equal to two-thirds of the service retirement allowance. The beneficiary of an unmarried judge shall receive the member's accumulated contributions with interest.
	All others	The member's account balance plus a matching employer amount.
Additional Police & Fire Death Benefits	Upon the death of a retired police officer or firefighter, the surviving spouse or dependent children under age 18 will receive a monthly benefit based on 25% of the cash refund retirement allowance due to police and fire service.	
Disability Benefit Eligibility	**Duty**	Disablement occurring as a direct result of a job-related injury or illness, regardless of length of service.
	Non-Duty	Disablement occurring after ten years of service (six years, if a judge), but prior to normal retirement eligibility.

Disability Benefits	The normal retirement allowance calculated based on the service credit that would have been earned if the member had continued working to age 58 (age 55 for police and fire, age 65 for judge members) payable commencing immediately. **Fire and Police Members' Alternative** In lieu of the above, firefighters and police officers who qualify for duty disability may elect to receive a benefit of 50% of final average monthly salary at the time of disablement. **Minimum Monthly Retirement Allowance** **Judges** 45% of final average monthly salary. **All others** $100 for a member with at least 15 years of creditable service, actuarially reduced if an optional form of benefit is chosen. **Reduction of Benefits** Whenever a disabled employee's disability benefit and earned income for any month exceed the monthly salary received at the time of disablement or $400, if greater, the disability benefit will be reduced by the excess. For Tier Two members, the disability benefit may not exceed the member's salary at the time of disablement.
Waiting Time Service Purchases	Members with at least 10 years of combined credited and/or prior service under PERS may elect to purchase service credit for the six-month "waiting time" period worked prior to establishing membership in the system. The waiting time purchase is interest-free and must be purchased in one payment prior to retirement.
Police & Fire Unit Purchases	Police & fire members may purchase 60-month annuity benefits (up to $80 per month) that must be paid out by age 65 and cannot commence prior to the earliest retirement age. The amount purchased by the member is matched by the employer. In certain situations, such as termination of employment prior to retiring, or working beyond age 65, the employer's matching purchase is forfeited.
Automatic Postretirement Cost of Living Adjustments (COLAs)	All monthly pension and annuity benefits except unit purchases are eligible for postretirement adjustments. As a result of the Senate Bills 822 and 861 and the Oregon Supreme Court decision in *Moro v. State of Oregon*, automatic postretirement adjustments are based on a blended COLA as described below. **Automatic COLA prior to SB 822 and SB 861** Benefits were adjusted annually to reflect the increase or decrease in the Consumer Price Index (Portland area - all items) as published by the Bureau of Labor Statistics. The maximum adjustment to be made for any year was 2% of the previous year's benefit. Any CPI change in excess of the limit was accumulated for future benefit adjustments which would otherwise be less than the limit. No benefit was decreased below its original amount. **Automatic Adjustments Provided by Senate Bills 822 and 861** This legislation, passed in 2013, provided for that benefits would be increased annually based on a marginal rate schedule. The increase is calculated as 1.25% on the first $60,000 of annual benefit and 0.15% on amounts above $60,000 of annual benefit.

	Blended COLA after *Moro* decision	The Supreme Court decision in *Moro* requires that members "will be entitled to receive during retirement a blended COLA rate that reflects the different COLA provisions applicable to benefits earned at different times." The Supreme Court did not articulate a specific methodology for determining the blended COLA. For purposes of this valuation, we have determined the blend based on creditable service earned before and after October 2013. This approach is consistent with OAR 459-005-0510 adopted by the PERS Board in September 2015.
Ad Hoc Adjustments	From time to time, as granted by the Legislature, retired members and beneficiaries have received increases in their monthly benefits.	
Variable Annuity Program	**Contributions**	Prior to January 1, 2004, a member could elect to have 25, 50 or 75 percent of his or her contributions invested in the variable account.
	Benefit	At retirement, a member may elect to receive a variable annuity with the funds accumulated in his or her variable account. Alternatively, a member may elect to have all or a portion of the funds in his or her variable account transferred back to the regular account and receive an annuity from the System as though no variable annuity program existed. The employer-provided benefit, however, is based on the earnings the member would have received in the regular account.
Interest Credit on Member Accounts	**Tier 1 Regular**	Actuarially assumed rate of return until the rate guarantee reserve has been fully funded for three consecutive years and the Board elects to credit additional interest.
	Tier 2 Regular	Amount determined by the Board based on actual investment earnings of the regular account.
	Variable	Actual earnings in variable account.
Retiree Healthcare – Medicare Supplement (RHIA)	**Retiree Eligibility**	All of the following must be met: (a) Currently receiving a retirement allowance from the System, (b) Covered for eight years before retirement, (c) Enrolled in a PERS-sponsored health plan, and (d) Enrolled in both Medicare Part A and Part B.
	Surviving Spouse or Dependent Eligibility	A surviving spouse or dependent of a deceased RHIA-eligible retiree is eligible for RHIA benefits if they are enrolled in both Medicare Part A and Part B, and *either* of the following criteria are met: (a) Currently receiving a retirement allowance from the System, or (b) The surviving spouse or dependent was covered under the eligible retiree's PERS-sponsored health insurance at the time of the retiree's death and the deceased retiree retired before May 1, 1991.

	Benefit Amount	A monthly contribution of up to $60 per retiree is applied to PERS-sponsored Medicare supplemental insurance costs.
Retiree Healthcare – Under Age 65 (RHIPA)	**Retiree Eligibility**	Retired PERS members who were state employees at the time of retirement, are enrolled in a PERS-sponsored health plan, and are not eligible for Medicare.
	Surviving Spouse or Dependent Eligibility	A surviving spouse or dependent of a deceased RHIPA-eligible retiree is eligible for RHIPA benefits if they are not yet eligible for Medicare, and *either* of the following criteria are met: (a) Currently receiving a retirement allowance from the System, or (b) The surviving spouse or dependent was covered under the eligible retiree's PERS-sponsored health plan at the time of the retiree's death and the deceased retiree retired on or after September 29, 1991.
	Benefit	A percentage (as shown in the table below) of the maximum monthly subsidy based on years of service. The maximum monthly subsidy is calculated annually as the average difference between the health insurance premiums paid by active state employees and the premium retirees would pay if they were rated separately from active state employees. The maximum monthly subsidy for 2019 is $412.48 per month.

Years of Service with State Employer	Subsidized Amount
Under 8	0%
8-9	50%
10-14	60%
15-19	70%
20-24	80%
25-29	90%
30 & Over	100%

Summary of Chapter 238A Provisions — OPSRP

Normal Retirement Date	**Police & Fire**	Age 60 or age 53 with 25 years of retirement credit
	General Service	Age 65 or age 58 with 30 years of retirement credit
	School Districts	Age 65 or age 58 with 30 calendar years of active membership
Normal Retirement Allowance	A single life annuity equal to final average salary times years of retirement credit attributable to service as fire and police times 1.8% plus final average salary times all other years of retirement credit times 1.5%.	
Final Average Salary	The greater of: • Average salary earned during the three calendar years in which the member was paid the highest salary, even if one of those years is less than a full calendar year. • Total salary earned over the last 36 months of employment divided by the actual months of service during that 36 month period. Covered salary for this purpose includes base pay, plus overtime up to an average amount, plus bonuses, plus member contributions paid by the employer on a salary reduction basis. Excludes payments of unused vacation or accumulated sick leave at retirement, and member contributions “assumed and paid” by the employer. For OPSRP members, covered salary is limited by Internal Revenue Code 401(a)(17) The limit was $280,000 in 2019. Under Senate Bill 1049 passed during the 2019 legislative session, the salary included in the determination of Final Average Salary will be limited for all members beginning in 2020. The limit will be equal to $195,000 in 2020, and will be indexed with inflation in later years.	
Early Retirement Eligibility	**Police & Fire**	Age 50 and 5 years of vesting service
	General Service	Age 55 and 5 years of vesting service
Early Retirement Allowance	Normal retirement allowance, actuarially reduced to early retirement age.	
Vesting	Five years or attainment of normal retirement age.	
Vested Termination Benefit	Same as normal (or early) retirement allowance, but commencement is deferred to normal (or early) retirement date.	
Optional Forms of Retirement Benefit	The normal form of benefit is a life annuity. All optional amounts are adjusted to be actuarially equivalent. **Options Available** • Life annuity • Joint and 50% or 100% survivor contingent benefit, with or without pop-up feature • Lump sum if monthly normal retirement benefit is less than $200 or if lump sum value is less than $5,000.	
Preretirement Death Benefit Eligibility	Death of a vested member before retirement benefits begin.	

Preretirement Death Benefit	If member was eligible for early retirement, the actuarial equivalent of 50% of the early retirement benefit the participant was eligible to receive at date of death. If member was not eligible for early retirement, the actuarial equivalent of 50% of the early retirement benefit the participant would have been eligible to receive if he terminated employment on his date of death and retired at the earliest possible date.	
Disability Benefit Eligibility	**Duty**	Disablement occurring as a direct result of a job-related injury or illness, regardless of length of service.
	Non-Duty	Disablement occurring after ten years of service, but prior to normal retirement eligibility.
Disability Benefit Amounts	**Preretirement Benefit**	45% of salary during last full month of employment before disability, reduced if the total benefit exceeds 75% of salary. Benefit is payable monthly until normal retirement age.
	Retirement Benefit	Same formula as Normal Retirement Benefit, except: Final average salary is adjusted to reflect cost-of-living increases from date of disability to normal retirement age, and Retirement credits continue to accrue from date of disability to normal retirement age.
Postretirement Adjustments	All monthly pension and annuity benefits except unit purchases are eligible for postretirement adjustments. As a result of the Senate Bills 822 and 861 and the Oregon Supreme Court decision in *Moro v. State of Oregon*, automatic postretirement adjustments are based on a blended COLA as described below.	
	Automatic COLA prior to SB 822 and SB 861	Benefits were adjusted annually to reflect the increase or decrease in the Consumer Price Index (Portland area - all items) as published by the Bureau of Labor Statistics. The maximum adjustment to be made for any year was 2% of the previous year's benefit. Any CPI change in excess of the limit was accumulated for future benefit adjustments which would otherwise be less than the limit. No benefit was decreased below its original amount.
	Automatic Adjustments Provided by Senate Bills 822 and 861	This legislation, passed in 2013, provided for that benefits would be increased annually based on a marginal rate schedule. The increase is calculated as 1.25% on the first $60,000 of annual benefit and 0.15% on amounts above $60,000 of annual benefit.

Changes in Plan Provisions — Tier 1/Tier 2 and OPSRP

Senate Bill 1049, signed into law in June 2019, made a number of changes to the PERS system, including:

- Effective with calendar year 2020, annual salary included in the calculation of Final Average Salary will be limited to $195,000 (as indexed for inflation in future years).
- The PERS Board was required to implement a one-time re-amortization of Tier 1/Tier 2 UAL over a closed 22 year period at the December 31, 2019 rate-setting actuarial valuation, which will set actuarially determined contribution rates for the 2021-2023 biennium.
- For years 2020 through 2024, the limitation on the hours that can be worked by a rehired retire is eliminated. Effective January 1, 2020, contributions will also be charged on the payroll of rehired retirees.
- Effective July 1, 2020, a portion of the 6% of salary member contribution to the Individual Account Program (IAP) will be redirected to Employee Pension Stability Accounts, which will help fund the defined benefits provided under Tier 1/Tier 2 and OPSRP. For Tier 1/Tier 2 members, the prospectively redirected amount will be 2.5% of salary, and for OPSRP members the amount will be 0.75% of salary. The redirection will only apply to members earning $2,500 per month or more (indexed for inflation).

The projected benefits in this valuation reflect the limit on annual salary starting in 2020, which reduced the actuarial accrued liability. The re-amortization of Tier 1/Tier 2 UAL is incorporated in the calculation of the advisory Tier 1/Tier 2 UAL rate. The changes related to the work after retirement provisions and the redirection of member contributions are not explicitly reflected in the determination or liabilities or contribution rates shown in this valuation. However, our current understanding is that redirected member contributions are expected to help pay the total contribution rates adopted for the 2021-2023 biennium and will serve as an offset to employer contributions.

OREGON

PERS

PUBLIC EMPLOYEES RETIREMENT SYSTEM

STATISTICAL SECTION

OREGON

PERS

PUBLIC EMPLOYEES RETIREMENT SYSTEM

Statistical Notes

The statistical section of the Oregon Public Employees Retirement System (PERS or the System) CAFR presents detailed information as a context for understanding what the information in the financial statements, note disclosures, and required supplementary information says about the System's overall financial health. The data presented was extracted from the PERS' information systems.

Financial Trends

These schedules contain trend information to help the reader understand how the System's financial performance and wellbeing have changed over time. Financial information is presented on an accrual basis.

The Schedules of Additions by Source, Deductions by Type, and Changes in Fiduciary Net Position are presented on both a fiscal and calendar year basis. The System prepares its financial statements on a fiscal-year basis but has its actuarial valuations performed on a calendar-year basis.

The Schedule of Benefit Expenses by Type provides additional detail of benefit expense for fiscal years reported in the aggregate in the Schedules of Deductions by Type.

The Schedule of Earnings and Crediting at December 31 shows earnings available for crediting net of administrative expenses and the rates approved by the Board for the programs it administers.

Operating Information

These schedules contain data to help illustrate how the information in the System's financial reports relates to the services the System provides and the activities it performs.

The Schedule of Average OPEB Benefits for Retirement Health Insurance Account and Schedule of Average OPEB Benefits for Retiree Health Insurance Premium Account show the average monthly other postemployment healthcare benefits, and the number of retirees receiving benefits under each plan.

The Schedule of Average Defined Benefit Pension Payments presents average monthly benefits, final average salary, and number of retirees still receiving benefits, by year of retirement.

The Schedule of Benefit Recipients by Benefit Type shows retired members by benefit level, benefit type, and payment option selected.

The Schedule of Retirement System Membership shows demographics of membership over a period of time. The fiscal year schedule shows membership over the last seven years. The calendar-year schedule is in five-year increments going back to 1985.

The Schedule of Principal Participating Employers shows the 10 employers with the largest number of current employees, along with aggregate information for the remaining employers with current employees.

The Schedule of Participating Employers lists all employers as of June 30, 2019, to show public employers of the state of Oregon participating in PERS.

Additions by Source - Retirement Programs
For the Last Ten Fiscal Years Ended June 30:

Defined Benefit Pension Plan

Fiscal Year	Member Contributions	Employer Contributions Dollars [1]	Employer Contributions Percent of Annual Covered Payroll	Net Investment and Other Income	Total[1]
2010	$ 13,600,476	$ 433,268,434	4.88 %	$ 7,279,890,664	$ 7,726,759,574
2011	14,024,484	424,101,414	5.30	10,931,390,952	11,369,516,850
2012	16,534,650	1,455,729,689	9.69	380,749,755	1,853,014,094
2013	16,985,722	834,161,587	10.26	6,949,742,064	7,800,889,373
2014	15,319,270	915,236,878	10.54	9,886,700,639	10,817,256,787
2015	13,785,439	1,123,256,703	12.25	2,364,479,372	3,501,521,514
2016	14,214,341	977,332,329	10.37	413,915,853	1,405,462,523
2017	13,177,984	1,022,201,249	10.18	7,660,055,575	8,695,434,808
2018	12,558,631	1,390,111,534	13.84	6,247,472,490	7,650,142,655
2019	11,354,366	1,720,183,341	16.21	4,010,048,029	5,741,585,736

Oregon Public Service Retirement Plan
Individual Account Program

Fiscal Year	Member Contributions	Employer Contributions Dollars	Employer Contributions Percent of Annual Covered Payroll	Net Investment and Other Income	Total
2010	$ 505,922,492	$ N/A	N/A %	$ 393,651,362	$ 899,573,854
2011	513,715,949	N/A	N/A	735,695,057	1,249,411,006
2012	516,174,983	N/A	N/A	71,535,911	587,710,894
2013	510,796,006	N/A	N/A	635,350,054	1,146,146,060
2014	527,303,202	N/A	N/A	977,439,367	1,504,742,569
2015	563,417,649	N/A	N/A	276,949,224	840,366,873
2016	566,450,233	N/A	N/A	76,509,002	642,959,235
2017	605,277,281	N/A	N/A	948,360,842	1,553,638,123
2018	622,296,460	N/A	N/A	772,501,114	1,394,797,574
2019	647,139,479	N/A	N/A	565,351,952	1,212,491,431

Deferred Compensation Plan

Fiscal Year	Member Contributions	Employer Contributions Dollars	Employer Contributions Percent of Annual Covered Payroll	Net Investment and Other Income	Total
2010	$ 66,708,970	$ N/A	N/A %	$ 84,417,201	$ 151,126,171
2011	73,291,691	N/A	N/A	176,999,516	250,291,207
2012	80,632,698	N/A	N/A	9,841,830	90,474,528
2013	74,248,188	N/A	N/A	135,572,819	209,821,007
2014	92,174,335	N/A	N/A	203,181,598	295,355,933
2015	99,796,739	N/A	N/A	48,617,428	148,414,167
2016	107,286,636	N/A	N/A	3,166,856	110,453,492
2017	121,701,967	N/A	N/A	189,041,478	310,743,445
2018	134,259,568	N/A	N/A	169,577,769	303,837,337
2019	139,543,729	N/A	N/A	104,963,768	244,507,497

[1] Amounts and balance restated for fiscal year 2012 due to a prior period adjustment.

Deductions by Type - Retirement Programs
For the Last Ten Fiscal Years Ended June 30:

Defined Benefit Pension Plan

Fiscal Year		Benefits		Administrative Expenses [1]		Refunds		Total [1]
2010	$	2,915,568,801	$	28,512,343	$	25,692,404	$	2,969,773,548
2011		3,203,938,769		29,256,747		26,487,226		3,259,682,742
2012		3,295,709,818		33,102,667		34,020,450		3,362,832,935
2013		3,556,059,999		33,505,928		17,439,568		3,607,005,495
2014		3,837,870,411		31,247,350		25,560,094		3,894,677,855
2015		3,927,167,032		35,739,837		16,481,215		3,979,388,084
2016		4,193,307,712		40,567,225		13,154,578		4,247,029,515
2017		4,346,282,735		43,546,184		15,961,744		4,405,790,663
2018		4,642,717,844		37,751,319		13,876,294		4,694,345,457
2019		4,815,058,600		38,403,320		11,903,642		4,865,365,562

Oregon Public Service Retirement Plan
Individual Account Program

Fiscal Year		Benefits		Administrative Expenses		Refunds		Total
2010	$	72,802,216	$	7,673,682	$	N/A	$	80,475,898
2011		133,970,603		6,810,487		N/A		140,781,090
2012		224,729,644		7,698,098		N/A		232,427,742
2013		241,326,511		7,093,871		N/A		248,420,382
2014		330,535,801		6,934,980		N/A		337,470,781
2015		319,978,740		7,565,611		N/A		327,544,351
2016		364,549,091		8,478,008		N/A		373,027,099
2017		417,119,098		9,481,014		N/A		426,600,112
2018		546,866,343		12,309,768		N/A		559,176,111
2019		490,459,364		12,568,466		N/A		503,027,830

Deferred Compensation Plan

Fiscal Year		Benefits		Administrative Expenses		Refunds		Total
2010	$	45,901,913	$	889,647	$	N/A	$	46,791,560
2011		55,929,452		1,326,224		N/A		57,255,676
2012		61,465,377		417,776		N/A		61,883,153
2013		70,550,942		874,584		N/A		71,425,526
2014		89,652,030		997,202		N/A		90,649,232
2015		84,177,564		1,018,468		N/A		85,196,032
2016		91,351,490		1,202,786		N/A		92,554,276
2017		97,089,531		1,330,947		N/A		98,420,478
2018		116,331,317		1,469,816		N/A		117,801,133
2019		123,057,988		2,278,273		N/A		125,336,261

Changes in Fiduciary Net Position - Retirement Programs
For the Last Ten Fiscal Years Ended June 30:

Defined Benefit Pension Plan

Fiscal Year	Additions	Deductions	Net Change	Net Position Beginning of Year	Net Position End of Year
2010	$ 7,726,759,574	$ 2,969,773,548	$ 4,756,986,026	$ 42,928,028,561	$ 47,685,014,587
2011	11,369,516,850	3,259,682,742	8,109,834,108	47,685,014,587	55,794,848,695
2012	1,853,014,094	3,362,832,935	(1,509,818,841)	55,794,848,695	54,285,029,854
2013	7,800,889,373	3,607,005,495	4,193,883,878	54,285,029,854	58,478,913,732
2014	10,817,256,787	3,894,677,855	6,922,578,932	58,478,913,732	65,401,492,664
2015	3,501,521,514	3,979,388,084	(477,866,570)	65,401,492,664	64,923,626,094
2016	1,405,462,523	4,247,029,515	(2,841,566,992)	64,923,626,094	62,082,059,102
2017	8,695,434,808	4,405,790,663	4,289,644,145	62,082,059,102	66,371,703,247
2018	7,650,142,655	4,694,345,457	2,955,797,198	66,371,703,247	69,327,500,445
2019	5,741,585,736	4,865,365,562	876,220,174	69,327,500,445	70,203,720,619

Oregon Public Service Retirement Plan
Individual Account Program

Fiscal Year	Additions	Deductions	Net Change	Net Position Beginning of Year	Net Position End of Year
2010	$ 899,573,854	$ 80,475,898	$ 819,097,956	$ 2,109,108,776	$ 2,928,206,732
2011	1,249,411,006	140,781,090	1,108,629,916	2,928,206,732	4,036,836,648
2012	587,710,894	232,427,742	355,283,152	4,036,836,648	4,392,119,800
2013	1,146,146,060	248,420,382	897,725,678	4,392,119,800	5,289,845,478
2014	1,504,742,569	337,470,781	1,167,271,788	5,289,845,478	6,457,117,266
2015	840,366,873	327,544,351	512,822,522	6,457,117,266	6,969,939,788
2016	642,959,235	373,027,099	269,932,136	6,969,939,788	7,239,871,924
2017	1,553,638,123	426,600,112	1,127,038,011	7,239,871,924	8,366,909,935
2018	1,394,797,574	559,176,111	835,621,463	8,366,909,935	9,202,531,398
2019	1,212,491,431	503,027,830	709,463,601	9,202,531,398	9,911,994,999

Deferred Compensation Plan

Fiscal Year	Additions	Deductions	Net Change	Net Position[1] Beginning of Year	Net Position[1] End of Year
2010	$ 151,126,171	$ 46,791,560	$ 104,334,611	$ 807,606,114	$ 911,940,725
2011	250,291,207	57,255,676	193,035,531	911,940,725	1,104,976,256
2012	90,474,528	61,883,153	28,591,375	1,104,976,256	1,133,567,631
2013	209,821,007	71,425,526	138,395,481	1,133,567,631	1,271,963,112
2014	295,355,933	90,649,232	204,706,701	1,271,963,112	1,476,669,813
2015	148,414,167	85,196,032	63,218,135	1,476,669,813	1,539,887,948
2016	110,453,492	92,554,276	17,899,216	1,539,887,948	1,557,787,164
2017	310,743,445	98,420,478	212,322,967	1,557,787,164	1,770,110,131
2018	303,837,337	117,801,133	186,036,204	1,770,110,131	1,956,146,335
2019	244,507,497	125,336,261	119,171,236	1,956,146,335	2,075,317,571

[1]Balances are restated for fiscal year 2012 due to prior period adjustments.

Additions by Source - OPEB
For the Last Ten Fiscal Years Ended June 30:

Retirement Health Insurance Account

Fiscal Year	Member Contributions	Employer Contributions Dollars	Employer Contributions Percent of Annual Covered Payroll	Net Investment and Other Income	Total
2010	$ N/A	$ 22,351,240	0.29 %	$ 31,145,418	$ 53,496,658
2011	N/A	22,176,966	0.29	47,359,659	69,536,625
2012	N/A	46,464,958	0.54	3,023,553	49,488,511
2013	N/A	47,294,060	0.57	35,636,711	82,930,771
2014	N/A	48,253,398	0.56	56,194,217	104,447,615
2015	N/A	53,648,437	0.59	15,606,876	69,255,313
2016	N/A	44,587,963	0.47	4,246,552	48,834,515
2017	N/A	49,785,501	0.50	57,566,224	107,351,725
2018	N/A	47,997,918	0.48	50,869,212	98,867,130
2019	N/A	49,615,345	0.47	35,959,368	85,574,713

Retiree Health Insurance Premium Account

Fiscal Year	Member Contributions	Employer Contributions Dollars	Employer Contributions Percent of Annual Covered Payroll	Net Investment and Other Income	Total
2010	$ N/A	$ 1,496,640	0.08 %	$ 939,274	$ 2,435,914
2011	N/A	1,428,453	0.08	1,135,114	2,563,567
2012	N/A	3,378,230	0.13	16,723	3,394,953
2013	N/A	3,443,805	0.14	499,279	3,943,084
2014	N/A	6,149,608	0.24	739,056	6,888,664
2015	N/A	6,887,258	0.25	266,949	7,154,207
2016	N/A	10,966,837	0.39	228,057	11,194,894
2017	N/A	11,863,776	0.39	2,027,506	13,891,282
2018	N/A	13,290,145	0.45	2,383,184	15,673,329
2019	N/A	14,009,075	0.45	2,455,173	16,464,248

Deductions by Type - OPEB
For the Last Ten Fiscal Years Ended June 30:

Retirement Health Insurance Account

Fiscal Year		Benefits[1]		Administrative Expenses		Refunds		Total
2010	$	28,821,539	$	974,988	$	N/A	$	29,796,527
2011		29,251,771		1,039,603		N/A		30,291,374
2012		29,935,920		963,843		N/A		30,899,763
2013		30,777,470		1,149,475		N/A		31,926,945
2014		34,112,567		1,044,937		N/A		35,157,504
2015		31,922,820		1,279,427		N/A		33,202,247
2016		33,602,540		1,256,017		N/A		34,858,557
2017		31,186,802		1,288,059		N/A		32,474,861
2018		32,503,140		1,281,744		N/A		33,784,884
2019		32,234,400		1,312,229		N/A		33,546,629

Retiree Health Insurance Premium Account

Fiscal Year		Benefits[1]		Administrative Expenses		Refunds		Total
2010	$	2,307,058	$	103,645	$	N/A	$	2,410,703
2011		3,024,382		161,559		N/A		3,185,941
2012		3,885,769		71,981		N/A		3,957,750
2013		4,093,736		169,137		N/A		4,262,873
2014		4,925,743		170,901		N/A		5,096,644
2015		4,230,808		188,598		N/A		4,419,406
2016		4,682,975		259,850		N/A		4,942,825
2017		4,327,944		285,895		N/A		4,613,839
2018		4,659,536		277,596		N/A		4,937,132
2019		4,486,752		318,425		N/A		4,805,177

[1] Benefit payments paid by RHIA and RHIPA consisted of Healthcare Premium Subsidies exclusively.

Changes in Plan Fiduciary Net Position - OPEB
For the Last Ten Fiscal Years Ended June 30:

Retirement Health Insurance Account

Fiscal Year	Additions	Deductions	Net Change	Net Position Beginning of Year	Net Position End of Year
2010	$ 53,496,658	$ 29,796,527	$ 23,700,131	$ 185,045,647	$ 208,745,778
2011	69,536,625	30,291,374	39,245,251	208,745,778	247,991,029
2012	49,488,511	30,899,763	18,588,748	247,991,029	266,579,777
2013	82,930,771	31,926,945	51,003,826	266,579,777	317,583,603
2014	104,447,615	35,157,504	69,290,111	317,583,603	386,873,714
2015	69,255,313	33,202,247	36,053,066	386,873,714	422,926,780
2016	48,834,515	34,858,557	13,975,958	422,926,780	436,902,738
2017	107,351,725	32,474,861	74,876,864	436,902,738	511,779,602
2018	98,867,130	33,784,884	65,082,246	511,779,602	576,861,848
2019	85,574,713	33,546,629	52,028,084	576,861,848	628,889,932

Retiree Health Insurance Premium Account

Fiscal Year	Additions	Deductions	Net Change	Net Position Beginning of Year	Net Position End of Year
2010	$ 2,435,914	$ 2,410,703	$ 25,211	$ 5,719,342	5,744,553
2011	2,563,567	3,185,941	(622,374)	5,744,553	5,122,179
2012	3,394,953	3,957,750	(562,797)	5,122,179	4,559,382
2013	3,943,084	4,262,873	(319,789)	4,559,382	4,239,593
2014	6,888,664	5,096,644	1,792,020	4,239,593	6,031,613
2015	7,154,207	4,419,406	2,734,801	6,031,613	8,766,414
2016	11,194,894	4,942,825	6,252,069	8,766,414	15,018,483
2017	13,891,282	4,613,839	9,277,443	15,018,483	24,295,926
2018	15,673,329	4,937,132	10,736,197	24,295,926	35,032,123
2019	16,464,248	4,805,177	11,659,071	35,032,123	46,691,194

Additions by Source - Retirement Programs
For the Last Ten Years Ended December 31[1]:

Defined Benefit Pension Plan

Calendar Year	Member Contributions	Employer Contributions: Dollars	Employer Contributions: Percent of Annual Covered Payroll	Net Investment and Other Income	Total
2009	$ 11,209,060	$ 561,305,422	6.59 %	$ 8,054,309,024	$ 8,626,823,506
2010	14,327,206	411,590,742	4.61	6,018,828,853	6,444,746,801
2011	15,771,376	593,451,757	6.85	1,189,044,156	1,798,267,289
2012	14,148,372	862,934,319	10.99	7,201,022,711	8,078,105,402
2013	18,664,061	1,496,033,607	17.68	8,595,803,270	10,110,500,938
2014	13,200,528	937,788,619	10.48	4,342,718,450	5,293,707,597
2015	14,362,049	1,127,799,421	12.25	1,232,493,098	2,374,654,568
2016	13,085,105	976,297,293	10.17	4,290,378,888	5,279,761,286
2017	14,668,384	1,179,420,962	10.77	9,343,076,932	10,537,166,278
2018	10,447,081	1,745,401,831	16.96	226,842,118	1,982,691,030

Oregon Public Service Retirement Plan
Individual Account Program

Calendar Year	Member Contributions	Employer Contributions: Dollars	Employer Contributions: Percent of Annual Covered Payroll	Net Investment and Other Income	Total
2009	$ 504,209,955	$ N/A	N/A %	$ 435,988,065	$ 940,198,020
2010	502,322,036	N/A	N/A	400,883,000	903,205,036
2011	518,199,449	N/A	N/A	96,058,972	614,258,421
2012	499,094,923	N/A	N/A	623,896,684	1,122,991,607
2013	542,566,655	N/A	N/A	814,928,040	1,357,494,695
2014	511,048,423	N/A	N/A	450,087,155	961,135,578
2015	596,936,756	N/A	N/A	140,226,970	737,163,726
2016	597,188,543	N/A	N/A	518,172,223	1,115,360,766
2017	613,683,342	N/A	N/A	1,213,845,362	1,827,528,704
2018	638,930,679	N/A	N/A	(61,712,368)	577,218,311

Deferred Compensation Plan

Calendar Year	Member Contributions	Employer Contributions: Dollars	Employer Contributions: Percent of Annual Covered Payroll	Net Investment and Other Income	Total
2009	$ 63,087,307	$ N/A	N/A %	$ 147,674,587	$ 210,761,894
2010	67,994,065	N/A	N/A	82,812,783	150,806,848
2011	75,619,604	N/A	N/A	35,406,816	111,026,420
2012	78,115,678	N/A	N/A	105,067,553	183,183,231
2013	88,901,454	N/A	N/A	207,310,080	296,211,534
2014	92,495,435	N/A	N/A	102,188,822	194,684,257
2015	97,373,493	N/A	N/A	15,087,160	112,460,653
2016	109,040,225	N/A	N/A	83,913,037	192,953,262
2017	120,454,924	N/A	N/A	212,359,507	332,814,431
2018	144,365,735	N/A	N/A	62,553,479	206,919,214

[1]Calendar year-end information is provided because earnings are distributed as of December 31.

Deductions by Type - Retirement Programs
For the Last Ten Years Ended December 31[1]:

Defined Benefit Pension Plan

Calendar Year	Benefits	Administrative Expenses[2]	Refunds	Total
2009	$ 2,823,723,754	$ 26,011,412	$ 18,269,906	$ 2,868,005,072
2010	3,053,863,566	29,126,521	17,996,148	3,100,986,235
2011	3,351,517,947	29,244,166	38,369,101	3,419,131,214
2012	3,351,430,408	31,807,897	17,970,250	3,401,208,555
2013	3,708,827,767	34,271,919	25,529,913	3,768,629,599
2014	3,888,166,333	35,187,183	17,850,587	3,941,204,103
2015	4,068,416,728	37,333,754	15,932,985	4,121,683,467
2016	4,248,984,127	41,936,746	14,931,267	4,305,852,140
2017	4,495,375,698	41,149,466	14,404,077	4,550,929,241
2018	4,737,604,779	36,802,183	13,668,587	4,788,075,549

Oregon Public Service Retirement Plan
Individual Account Program

Calendar Year	Benefits	Administrative Expenses	Refunds	Total
2009	$ 53,171,640	$ 7,905,631	$ N/A	$ 61,077,271
2010	95,293,228	7,822,430	N/A	103,115,658
2011	196,350,366	8,363,154	N/A	204,713,520
2012	218,180,975	5,528,973	N/A	223,709,948
2013	301,297,929	7,164,598	N/A	308,462,527
2014	332,722,945	7,315,352	N/A	340,038,297
2015	343,688,428	7,746,075	N/A	351,434,503
2016	386,689,618	9,106,820	N/A	395,796,438
2017	497,309,999	9,958,373	N/A	507,268,372
2018	508,929,082	13,454,299	N/A	522,383,381

Deferred Compensation Plan

Calendar Year	Benefits	Administrative Expenses	Refunds	Total
2009	$ 37,366,503	$ 863,699	$ N/A	$ 38,230,202
2010	46,759,679	804,345	N/A	47,564,024
2011	60,816,774	963,874	N/A	61,780,648
2012	65,498,582	783,755	N/A	66,282,337
2013	79,075,903	982,625	N/A	80,058,528
2014	92,995,075	998,023	N/A	93,993,098
2015	82,398,740	1,050,769	N/A	83,449,509
2016	81,073,521	1,374,662	N/A	82,448,183
2017	101,419,280	1,390,830	N/A	102,810,110
2018	131,272,865	1,483,023	N/A	132,755,888

[1]Calendar year-end information is provided because earnings are distributed as of December 31.
[2]Balances are restated for calendar year 2009 due to prior period adjustments.

Changes in Fiduciary Net Position - Retirement Programs
For the Last Ten Years Ended December 31[1]:

Defined Benefit Pension Plan

Calendar Year	Additions	Deductions[2]	Net Change	Net Position[3] Beginning of Year	Net Position[3] End of Year
2009	$ 8,626,823,506	$ 2,868,005,072	$ 5,758,818,434	$ 43,662,935,062	$ 49,421,753,496
2010	6,444,746,801	3,100,986,235	3,343,760,566	49,421,753,496	52,765,514,062
2011	1,798,267,289	3,419,131,214	(1,620,863,925)	52,765,514,062	51,144,650,137
2012	8,078,105,402	3,401,208,555	4,676,896,847	51,144,650,137	55,821,546,984
2013	10,110,500,938	3,768,629,599	6,341,871,339	55,821,546,984	62,163,418,323
2014	5,293,707,597	3,941,204,103	1,352,503,494	62,163,400,642	63,515,904,136
2015	2,374,654,568	4,116,424,013	(1,741,769,445)	63,515,904,136	61,774,134,691
2016	5,279,761,286	4,305,852,140	973,909,146	61,774,134,691	62,748,043,837
2017	10,537,166,278	4,551,871,595	5,985,294,683	62,748,043,837	68,733,338,520
2018	1,982,691,030	4,788,075,549	(2,805,384,519)	68,733,338,520	65,927,954,001

Oregon Public Service Retirement Plan
Individual Account Program

Calendar Year	Additions	Deductions	Net Change	Net Position Beginning of Year	Net Position End of Year
2009	$ 940,198,020	$ 61,077,271	$ 879,120,749	$ 1,876,644,680	$ 2,755,765,429
2010	903,205,036	103,115,658	800,089,378	2,755,765,429	3,555,854,807
2011	614,258,421	204,713,520	409,544,901	3,555,854,807	3,965,399,708
2012	1,122,991,607	223,709,948	899,281,659	3,965,399,708	4,864,681,367
2013	1,357,494,695	308,462,527	1,049,032,168	4,864,681,367	5,913,713,535
2014	961,135,579	340,038,297	621,097,282	5,913,713,535	6,534,810,817
2015	737,163,726	351,434,503	385,729,223	6,534,810,817	6,920,540,040
2016	1,115,360,766	395,796,438	719,564,328	6,920,540,040	7,640,104,368
2017	1,827,528,704	507,268,372	1,320,260,332	7,640,104,368	8,960,364,700
2018	577,218,311	522,383,381	54,834,930	8,960,364,700	9,015,199,630

Deferred Compensation Plan

Calendar Year	Additions	Deductions	Net Change	Net Position Beginning of Year	Net Position End of Year
2009	$ 210,761,894	$ 38,230,202	$ 172,531,692	$ 744,170,784	$ 916,702,476
2010	150,806,848	47,564,024	103,242,824	916,702,476	1,019,945,300
2011	111,026,420	61,780,648	49,245,772	1,019,945,300	1,069,191,072
2012	183,183,231	66,282,337	116,900,894	1,069,191,072	1,186,091,966
2013	296,211,535	80,058,528	216,153,007	1,186,091,966	1,402,244,973
2014	194,684,257	93,993,098	100,691,159	1,402,244,973	1,502,936,132
2015	112,460,653	83,449,509	29,011,144	1,502,936,132	1,531,947,276
2016	192,953,262	82,448,183	110,505,079	1,531,947,276	1,642,452,355
2017	332,814,431	102,810,110	230,004,321	1,642,452,355	1,872,456,676
2018	206,919,214	132,755,888	74,163,326	1,872,456,676	1,946,620,002

[1]Calendar year-end information is provided because earnings are distributed as of December 31.
[2]Balances are restated for calendar years 2009 to 2015 due to prior period adjustments.
[3]Balances restated for calendar years 2013, 2014, and 2017 to correct amounts.

Additions by Source - OPEB
For the Last Ten Years Ended December 31[1]:

Retirement Health Insurance Account

Calendar Year	Member Contributions	Employer Contributions: Dollars	Employer Contributions: Percent of Annual Covered Payroll	Net Investment and Other Income	Total
2009	$ N/A	$ 25,863,178	0.34 %	$ 33,958,964	$ 59,822,142
2010	N/A	22,156,216	0.31	26,075,309	48,231,525
2011	N/A	32,610,644	0.25	5,474,204	38,084,848
2012	N/A	48,118,569	0.38	35,088,054	83,206,623
2013	N/A	47,729,940	0.59	46,420,994	94,150,934
2014	N/A	49,466,294	0.56	25,754,870	75,221,164
2015	N/A	48,846,297	0.55	7,995,269	56,841,566
2016	N/A	48,339,520	0.59	31,003,380	79,342,900
2017	N/A	49,167,576	0.50	72,787,020	121,954,596
2018	N/A	49,483,717	0.48	1,768,069	51,251,786

Retiree Health Insurance Premium Account

Calendar Year	Member Contributions	Employer Contributions: Dollars	Employer Contributions: Percent of Annual Covered Payroll	Net Investment and Other Income	Total
2009	$ N/A	$ 1,796,343	0.08 %	$ 1,016,811	$ 2,813,154
2010	N/A	1,458,105	0.08	659,794	2,117,899
2011	N/A	2,347,710	0.06	158,742	2,506,452
2012	N/A	3,450,509	0.10	557,438	4,007,947
2013	N/A	4,708,305	0.15	588,465	5,296,770
2014	N/A	6,378,015	0.19	361,915	6,739,930
2015	N/A	8,747,711	0.24	131,852	8,879,563
2016	N/A	11,621,895	0.25	933,866	12,555,761
2017	N/A	12,646,688	0.40	2,915,300	15,561,988
2018	N/A	13,587,039	0.45	(36,367)	13,550,672

[1]Calendar year-end information is provided because earnings are distributed as of December 31.

Deductions by Type - OPEB
For the Last Ten Years Ended December 31[1]:

Retirement Health Insurance Account

Calendar Year	Benefits	Administrative Expenses	Refunds	Total
2009	$ 28,537,920	$ 974,580	$ N/A	$ 29,512,500
2010	29,066,220	973,329	N/A	30,039,549
2011	29,524,122	1,283,144	N/A	30,807,266
2012	30,375,640	837,282	N/A	31,212,922
2013	31,132,920	1,095,853	N/A	32,228,773
2014	31,636,379	1,167,459	N/A	32,803,838
2015	32,273,928	1,223,215	N/A	33,497,143
2016	32,385,680	1,206,654	N/A	33,592,334
2017	32,438,822	1,275,297	N/A	33,714,119
2018	32,422,620	1,374,059	N/A	33,796,679

Retiree Health Insurance Premium Account

Calendar Year	Benefits	Administrative Expenses	Refunds	Total
2009	$ 2,020,198	$ 113,096	$ N/A	$ 2,133,294
2010	2,664,123	106,791	N/A	2,770,914
2011	3,547,400	124,769	N/A	3,672,169
2012	3,968,267	134,246	N/A	4,102,513
2013	4,323,159	172,485	N/A	4,495,644
2014	4,615,612	180,524	N/A	4,796,136
2015	4,680,196	214,500	N/A	4,894,696
2016	4,340,503	288,507	N/A	4,629,010
2017	4,578,655	273,005	N/A	4,851,660
2018	4,608,776	290,534	N/A	4,899,310

[1]Calendar year-end information is provided because earnings are distributed as of December 31.

Change in Fiduciary Net Position - OPEB
For the Last Ten Years Ended December 31[1]:

Retirement Health Insurance Account

Calendar Year	Additions	Deductions	Net Change	Net Position Beginning of Year	Net Position End of Year
2009	$ 59,822,142	$ 29,512,500	$ 30,309,642	$ 183,831,314	$ 214,140,956
2010	48,231,525	30,039,549	18,191,976	214,140,956	232,332,932
2011	38,084,848	30,807,266	7,277,582	232,332,932	239,610,514
2012	83,206,623	31,212,922	51,993,701	239,610,514	291,604,215
2013	94,150,934	32,228,773	61,922,161	291,604,215	353,526,376
2014	75,221,164	32,803,838	42,417,326	353,526,376	395,943,702
2015	56,841,566	33,497,143	23,344,423	395,943,702	419,288,125
2016	79,342,900	33,592,334	45,750,566	419,288,125	465,038,691
2017	121,954,596	33,714,119	88,240,477	465,038,691	553,279,168
2018	51,251,786	33,796,679	17,455,107	553,279,168	570,734,275

Retiree Health Insurance Premium Account

Calendar Year	Additions	Deductions	Net Change	Net Position Beginning of Year	Net Position End of Year
2009	$ 2,813,154	$ 2,133,294	$ 679,860	$ 5,678,273	$ 6,358,133
2010	2,117,899	2,770,914	(653,015)	6,358,133	5,705,118
2011	2,506,452	3,672,169	(1,165,717)	5,705,118	4,539,401
2012	4,007,946	4,102,513	(94,567)	4,539,401	4,444,834
2013	5,296,770	4,495,644	801,126	4,444,834	5,245,960
2014	6,739,930	4,796,136	1,943,794	5,245,960	7,189,754
2015	8,879,563	4,894,696	3,984,867	7,189,754	11,174,621
2016	12,555,761	4,629,010	7,926,751	11,174,621	19,101,372
2017	15,561,988	4,851,660	10,710,328	19,101,372	29,811,700
2018	13,550,672	4,899,310	8,651,362	29,811,700	38,463,062

[1]Calendar year-end information is provided because earnings are distributed as of December 31.

Schedule of Earnings and Crediting at December 31[1]:

Calendar Year	Tier One Earnings/(Loss) Available for Crediting	Credited: Tier One	Credited: Tier Two	Variable Earnings/ (Loss) Credited	Individual Account Program
2009	19.12 %	8.00 %	19.12 %	37.57 %	18.47 %
2010	12.65	8.00	12.44	15.17	12.13
2011	2.21	8.00	2.21	(7.80)	2.15
2012	14.53	8.00	14.68	18.43	14.09
2013	15.76	8.00	15.62 [2]	25.74 [3]	15.59
2014	7.24	7.75	7.24	4.29	7.05
2015	1.87	7.75	1.87	(1.61)	1.85
2016	7.15	7.50	7.15	8.76	7.13
2017	15.23	7.50	15.23	26.48	14.72
2018	0.23	7.20	0.23	(10.03)	(0.63)

[1]Calendar year-end information is provided because earnings are credited as of December 31.
[2]Earnings rate includes allocation from settlement of *Murray v. PERB* litigation.
[3]Earnings rate includes allocation from settlement of *White, et al. v. PERB* litigation.

Schedule of Benefit Expenses By Type - Defined Benefit Pension Plan For the Fiscal Years Ended June 30:

Fiscal Year	Service Benefits	Disability Benefits: Duty	Disability Benefits: Non-Duty	Retirement Benefit Totals	Death Benefits	Refunds[1]: Normal	Refunds[1]: Death	Total
2010	$2,795,098,921	$ 15,188,097	$ 101,866,823	$ 2,912,153,841	$ 3,414,960	$ 25,692,404	$ N/A	$ 2,941,261,205
2011	3,074,390,373	15,967,087	105,974,442	3,196,331,902	7,606,867	17,203,318	9,283,908	3,230,425,995
2012	3,166,918,154	16,449,589	108,423,907	3,291,791,650	3,918,168	27,966,120	6,054,330	3,329,730,268
2013	3,422,618,167	17,242,718	111,616,337	3,551,477,222	4,582,777	10,074,038	7,365,530	3,573,499,567
2014	3,701,010,685	17,739,646	113,317,283	3,832,067,614	5,802,797	13,614,833	11,945,261	3,863,430,505
2015	3,790,050,384	17,943,338	113,129,130	3,921,122,852	6,044,180	7,283,720	9,197,495	3,943,648,247
2016	4,045,951,252	18,896,881	118,534,433	4,183,382,566	9,925,146	6,342,385	6,812,193	4,206,462,290
2017	4,204,153,060	18,965,495	118,479,583	4,341,598,137	4,684,598	6,589,962	9,371,782	4,362,244,479
2018	4,497,671,956	19,356,946	120,819,135	4,637,868,037	4,849,807	5,145,792	8,730,502	4,656,594,138
2019	4,666,793,109	20,360,781	123,821,174	4,810,975,064	4,083,536	3,356,265	8,547,377	4,826,962,242

[1]Prior to fiscal year 2011 information to present refunds by type was not available and was combined in Normal Refunds.

Schedule of Average OPEB Benefits for Retirement Health Insurance Account[1] For the Fiscal Year Ended June 30, 2019:

Years Credited Service	8+
Average Monthly Benefit	$60.00
Final Average Salary	N/A
Number of Active Retirees	206

Schedule of Average OPEB Benefits for Retiree Health Insurance Premium Account[1] For the Fiscal Year Ended June 30, 2019:

Years Credited Service	8 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 +	Total
Average Monthly Benefit	$ 206	$ 247	$ 289	$ 330	$ 371	$ 412	$ 383
Final Average Salary	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Number of Active Retirees	5	20	57	89	190	544	905

[1] Effective years of retirement and final average salary are not available for OPEB.

Schedule of Average Defined Benefit Pension Payments

Retirement Effective Dates July 1, 2009 to June 30, 2019		Years Credited Service							
		0-5	6-10	11-15	16-20	21-25	26-30	31+	Total
2010	Average Monthly Benefit	$672	$1,068	$1,344	$1,940	$2,735	$4,234	$5,380	**$2,727**
	Final Average Salary	$3,185	$3,644	$3,931	$4,515	$5,132	$5,438	$5,858	**$4,736**
	Number of Active Retirees	240	627	672	916	874	1,144	548	**5,021**
2011	Average Monthly Benefit	$691	$1,029	$1,396	$1,895	$2,678	$4,080	$5,578	**$2,701**
	Final Average Salary	$3,270	$3,634	$4,072	$4,642	$5,252	$5,901	$6,275	**$4,939**
	Number of Active Retirees	286	768	914	1,080	1,124	1,240	778	**6,190**
2012	Average Monthly Benefit	$658	$1,021	$1,442	$1,868	$2,591	$3,883	$5,347	**$2,602**
	Final Average Salary	$3,566	$3,881	$4,381	$4,894	$5,688	$6,266	$6,976	**$5,294**
	Number of Active Retirees	322	861	1,010	1,055	1,238	1,204	875	**6,565**
2013	Average Monthly Benefit	$707	$1,068	$1,480	$1,948	$2,613	$3,850	$5,489	**$2,608**
	Final Average Salary	$3,642	$3,828	$4,439	$5,020	$5,921	$6,616	$6,950	**$5,389**
	Number of Active Retirees	378	953	1,101	1,112	1,342	1,163	940	**6,989**
2014	Average Monthly Benefit	$759	$1,072	$1,405	$1,791	$2,518	$3,620	$5,302	**$2,464**
	Final Average Salary	$3,574	$3,629	$4,366	$4,996	$5,899	$6,385	$6,955	**$5,291**
	Number of Active Retirees	396	1,037	1,130	1,236	1,442	1,240	928	**7,409**
2015	Average Monthly Benefit	$603	$827	$1,246	$1,742	$2,347	$3,466	$5,179	**$2,258**
	Final Average Salary	$3,901	$3,801	$4,494	$5,147	$5,771	$6,524	$7,347	**$5,382**
	Number of Active Retirees	301	842	1,023	1,113	1,155	1,102	643	**6,179**
2016	Average Monthly Benefit	$708	$866	$1,241	$1,759	$2,337	$3,425	$5,145	**$2,352**
	Final Average Salary	$3,593	$3,818	$4,516	$5,280	$5,878	$6,811	$7,347	**$5,543**
	Number of Active Retirees	331	860	1,006	1,134	1,247	1,303	800	**6,681**
2017	Average Monthly Benefit	$677	$975	$1,285	$1,753	$2,469	$3,417	$5,248	**$2,464**
	Final Average Salary	$3,689	$3,851	$4,537	$5,443	$6,192	$7,036	$8,085	**$5,815**
	Number of Active Retirees	379	916	1,098	1,198	1,178	1,379	1,030	**7,178**
2018	Average Monthly Benefit	$1,011	$1,050	$1,252	$1,699	$2,478	$3,326	$4,965	**$2,394**
	Final Average Salary	$3,921	$3,950	$4,394	$5,437	$6,387	$7,085	$8,014	**$5,837**
	Number of Active Retirees	367	955	1,055	1,330	1,207	1,483	948	**7,345**
2019	Average Monthly Benefit	$800	$926	$1,218	$1,773	$2,548	$3,469	$4,883	**$2,298**
	Final Average Salary	$3,786	$3,914	$4,563	$5,562	$6,519	$7,422	$8,334	**$5,869**
	Number of Active Retirees	411	966	1,002	1,199	1,090	1,257	737	**6,662**

Schedule of Benefit Recipients by Benefit Type
For the Fiscal Year Ended June 30, 2019

Monthly Benefit Amount	Number of Retirees	Type of Retirement *					Refund Annuity	Annuity Options **				Lump-Sum Options **		
		1	2	3	4	5		1	2	3	4	1	2	3
$ 1-500	17,543	14,150	57	100	2,755	481	1,276	5,726	4,942	985	795	1,921	1,535	363
501-1000	21,082	17,383	97	516	2,355	731	2,067	7,258	6,684	1,843	1,101	1,022	873	234
1001-1500	17,797	14,813	79	610	1,716	579	1,681	5,760	6,111	1,751	819	743	724	208
1501-2000	15,280	12,831	66	570	1,344	469	1,439	4,504	5,588	1,628	713	561	684	163
2001-2500	13,380	11,463	70	498	1,017	332	1,225	3,870	4,905	1,483	544	548	660	145
2501-3000	11,313	9,895	65	363	740	250	1,034	3,171	4,249	1,219	427	460	636	117
3001-3500	9,477	8,372	57	246	644	158	826	2,622	3,635	1,218	359	312	411	94
3501-4000	8,362	7,583	42	168	490	79	733	2,266	3,436	1,108	306	182	269	62
4001-4500	7,350	6,759	35	140	365	51	600	1,937	3,204	1,064	270	105	124	46
4501-5000	6,420	6,013	28	79	267	33	448	1,642	2,899	970	259	74	98	30
5001-5500	5,447	5,112	12	54	248	21	383	1,349	2,582	852	170	28	63	20
5501-6000	4,261	4,001	12	25	209	14	311	1,126	1,937	673	141	20	45	8
6000+	11,674	11,004	26	64	553	27	621	2,460	5,685	2,383	354	47	99	25
Totals	**149,386**	**129,379**	**646**	**3,433**	**12,703**	**3,225**	**12,644**	**43,691**	**55,857**	**17,177**	**6,258**	**6,023**	**6,221**	**1,515**

* Type of Retirement

1 - Normal
2 - Duty Disability
3 - Non-Duty Disability
4 - Survivor Payment
5 - Alternate Payee

** Annuity and Lump-Sum Options

1 - No benefit for beneficiary
2 - Beneficiary receives same monthly benefit for life
3 - Beneficiary receives half the monthly benefit for life
4 - 15-year certain

Schedule of Retirement System Membership at December 31:

Five Year Increments	1985	1990	1995	2000	2005	2010	2015
State Agencies	37,824	46,187	45,068	42,434	38,076	48,018	47,331
School Districts	47,590	48,144	55,734	63,133	56,756	79,798	66,184
Political Subdivisions	26,238	33,177	40,635	53,291	50,085	65,332	54,662
Inactive Members	15,920	23,225	32,033	44,830	47,289	40,481	42,849
Total Non-Retired	127,572	150,733	173,470	203,688	192,206	233,629	211,026
Retired Members and Beneficiaries	46,181	55,540	64,796	82,355	101,213	110,573	136,298
Total Membership	173,753	206,273	238,266	286,043	293,419	344,202	347,324
Administrative Expense[1]	$2,905,072	$8,901,091	$13,500,677	$24,358,550	$40,056,600	$38,029,071	$47,934,435
Pension Roll (one month)	$18,083,614	$33,175,888	$58,457,531	$122,467,087	$202,633,214	$265,490,496	$333,044,107

[1] Fiduciary Funds only.

Schedule of Retirement System Membership at June 30:

	2012	2013	2014	2015	2016	2017	2018	2019
State Agencies	45,953	45,019	45,774	47,620	47,868	48,099	48,320	49,699
School Districts	67,172	63,297	64,824	66,434	68,648	69,510	71,238	73,164
Political Subdivisions	56,656	54,943	54,376	54,536	55,160	55,696	56,439	53,464
Inactive Members	42,286	44,819	43,646	44,786	45,925	45,709	45,993	48,786
Total Non-Retired	212,067	208,078	208,620	213,376	217,601	219,014	221,990	225,113
Retired Members and Beneficiaries	119,346	123,827	129,138	132,506	136,435	136,435	145,863	149,386
Total Membership	331,413	331,905	337,758	345,882	354,036	355,449	367,853	374,499
Administrative Expense[1]	$42,254,365	$42,792,995	$40,395,370	$45,791,942	$51,763,886	$55,931,659	$53,090,243	$54,880,713
Pension Roll (one month)	$284,236,712	$299,997,147	$303,834,899	$317,090,746	$337,405,252	$355,414,652	$376,397,537	$382,187,402

[1] Fiduciary Funds only.

Schedule of Principal Participating Employers
Current Fiscal Year and Nine Years Ago

	2019			2010		
	Number of Current Employees	Rank	Percent of Total System	Number of Current Employees	Rank	Percent of Total System
State of Oregon	48,320	1	27.46 %	46,105	1	26.08 %
Portland Public Schools	5,788	2	3.29	5,769	2	3.26
City of Portland	5,389	3	3.06	4,457	7	2.52
Salem Keizer Public Schools	5,205	4	2.96	5,115	4	2.89
Beaverton School District	4,986	5	2.83	4,488	5	2.54
Oregon Health and Science Universi	4,755	6	2.70	5,759	3	3.26
Hillsboro School District	3,640	7	2.07	2,467	8	1.40
Portland Community College	2,434	8	1.38	2,350	9	1.33
Clackamas County	2,313	9	1.31	**(b)**		**(b)**
Eugene School District	2,035	10	1.16	2,137	10	1.21
Multnomah County	**(a)**		**(a)**	4,479	6	2.52
All Others*	91,132		51.78	93,624		52.97
Total	175,997		100.00 %	176,750		100.00 %

* "All Others" consisted of:

	2019 Number of Current Employees	2019 Percent of Total System	2010 Number of Current Employees	2010 Percent of Total System
Counties	13,160	7.48 %	13,562	7.67 %
Municipalities	13,238	7.53	12,913	7.31
School Districts	50,837	28.90	52,680	29.80
Community Colleges	5,694	3.24	6,476	3.66
Other Political Subdivisions	8,203	4.66	7,993	4.52
Total All Others	91,132	51.78 %	93,624	52.97 %

(a) Data for 2019 provided by Multnomah County was incomplete at the time this table was prepared, leading to understated totals for non-retired members.
(b) Clackamas County was not ranked in the top ten principal participating employers in 2010.

Schedule of Participating Employers (906)

State (109)

Appraiser Certification and Licensure Board
Board of Accountancy
Board of Architect Examiners
Board of Chiropractic Examiners
Board of Examiners for Engineering and Land Surveying
Board of Geologists Examiners
Board of Optometry
Board of Parole and Post-Prison Supervision
Board of Pharmacy
Bureau of Labor and Industries
Commission on Indian Services
Commission on Judicial Fitness and Disability
Construction Contractors Board
Department of Administrative Services
Department of Agriculture
Department of Aviation
Department of Consumer and Business Services
Department of Corrections
Department of Education
Department of Energy
Department of Environmental Quality
Department of Human Services
Department of Justice
Department of Land Conservation and Development
Department of Military-Federal Employees
Department of Revenue
Department of State Lands
Department of State Police
Department of Transportation
Department of Veterans' Affairs
Department Of Education Coordinating Commission
District Attorneys Department
Eastern Oregon University
Employment Department
Employment Relations Board
Forestry Department
Geology and Mineral Industries
Health Related Licensing Boards
Judicial Department
Land Use Board of Appeals
Landscape Contractors Board
Legislative Administration Board (Committee)
Legislative Assembly
Legislative Committees
Legislative Fiscal Office
Legislative Policy & Research Committee
Long Term Care Ombudsman
Military Department
Office of Legislative Counsel
Office of the Governor
Office of the State Treasurer
Oregon Advocacy Commission Office
Oregon Beef Council
Oregon Board of Dentistry
Oregon Board of Licensed Professional Counselors and Therapists
Oregon Board of Massage Therapists
Oregon Board of Medical Examiners
Oregon Business Development Department
Oregon Commission for the Blind
Oregon Corrections Enterprises
Oregon Criminal Justice Commission
Oregon Dairy Products Commission
Oregon Department of Fish and Wildlife
Oregon Dungeness Crab Commission
Oregon Education Investment Board
Oregon Film and Video
Oregon Forest Resources Institute
Oregon Government Ethics Commission
Oregon Health Authority
Oregon Hop Commission
Oregon Housing and Community Services
Oregon Institute of Technology
Oregon Liquor Control Commission
Oregon Parks and Recreation Department
Oregon Patient Safety Commission
Oregon Potato Commission
Oregon Racing Commission
Oregon Salmon Commission
Oregon State Bar
Oregon State Bar Professional Liability Fund
Oregon State Board of Nursing
Oregon State Library
Oregon State University
Oregon Tourism Commission
Oregon Trawl Commission
Oregon Watershed Enhancement Board
Oregon Wheat Commission
Oregon Youth Authority
Physical Therapist Licensing Board
Portland State University
Psychiatric Security Review Board
Public Defense Services Commission
Public Employees Retirement System
Public Safety Standards and Training
Public Utility Commission
Real Estate Agency
Secretary of State
Southern Oregon University
State Accident Insurance Fund
State Board of Clinical Social Workers
State Board of Tax Practitioners
State Lottery Commission
State Marine Board
Teacher Standards and Practices Commission
Travel Information Council
University of Oregon
Water Resources Department
Western Oregon University

Political Subdivisions (484)

Adair Village, City of
Albany, City of
Amity Fire District
Amity, City of
Applegate Valley RFPD 9
Arch Cape Service District
Ashland Parks Commission
Ashland, City of
Astoria, City of
Athena, City of
Aumsville RFPD
Aumsville, City of
Aurora RFPD
Aurora, City of
Baker County
Baker County Library District
Baker Valley Irrigation District
Baker, City of
Bandon, City of
Banks Fire District 13
Banks, City of
Bay City, City of
Beaverton, City of
Bend Metropolitan Park and Recreation District
Bend, City of
Benton County
Black Butte Ranch RFPD
Black Butte Ranch Service District
Boardman RFPD
Boardman, City of
Brookings, City of
Brownsville RFPD
Burns, City of
Burnt River Irrigation District
Butte Falls, Town of
Canby FPD 62
Canby Utility Board
Canby, City of
Cannon Beach RFPD
Cannon Beach, City of
Canyon City, Town of
Canyonville, City of
Carlton, City of
Cascade Locks, City of
Cave Junction, City of
Central Cascades Fire and EMS
Central Oregon Coast Fire and Rescue District
Central Oregon Intergovernmental Council
Central Oregon Irrigation District
Central Oregon Regional Housing Authority
Central Point, City of
Charleston RFPD
Chetco Community Public Library Board
Chiloquin, City of

Chiloquin-Agency Lake RFPD
City County Insurance Services
City of Forest Grove
Clackamas County
Clackamas County Fair
Clackamas County Fire District 1
Clackamas County Vector Control District
Clackamas River Water
Clackamas River Water Providers
Clatskanie Library District
Clatskanie People's Utility District
Clatskanie RFPD
Clatskanie, City of
Clatsop County
Clean Water Services
Cloverdale RFPD
Coburg RFPD
Coburg, City of
Colton RFPD 70
Columbia City, City of
Columbia County
Columbia County 911 Communications District
Columbia Drainage Vector Control District
Columbia River Fire and Rescue
Columbia River PUD
Community Services Consortium
Condon, City of
Coos Bay, City of
Coos County
Coos County Airport District
Coquille, City of
Corbett Water District
Cornelius, City of
Corvallis, City of
Cottage Grove, City of
Crescent RFPD
Creswell, City of
Crook County
Crook County RFPD 1
Crooked River Ranch RFPD
Crystal Springs Water District
Culver, City of
Curry County
Curry Public Library District
Dallas, City of
Dayton, City of
Depoe Bay RFPD
Depoe Bay, City of
Deschutes County
Deschutes Public Library District
Deschutes Valley Water District
Dexter RFPD
Douglas County
Douglas County RFPD 2
Douglas County Soil and Water Conservation District
Drain, City of
Dufur, City of
Dundee, City of
Dunes City, City of
Durham, City of
Eagle Point, City of
East Fork Irrigation District
East Umatilla County RFPD
Echo, City of
Elgin, City of
Elkton, City of
Enterprise, City of
Estacada Cemetery Maintenance District
Estacada RFD 69
Estacada, City of
Eugene Water and Electric Board
Eugene, City of
Fairview Water District
Fairview, City of
Falls City, City of
Farmers Irrigation District
Fern Ridge Community Library
Florence, City of
Fossil, City of
Garibaldi, City of
Gaston RFPD
Gaston, City of
Gearhart, City of
Gervais, City of
Gilliam County
Gladstone, City of
Glide RFPD
Gold Beach, City of
Gold Hill, City of
Goshen RFPD
Grant County
Grant County Emergency Communications
Grants Pass Irrigation District
Grants Pass, City of
Greater St. Helens Parks and Recreation
Greater Toledo Pool Recreation District
Green Sanitary District
Gresham, City of
Halsey, City of
Halsey-Shedd RFPD
Happy Valley, City of
Harbor Water PUD
Harney County
Harney Health District
Harrisburg Fire and Rescue
Harrisburg, City of
Helix, City of
Heppner, City of
Hermiston, City of
High Desert Park and Recreation District
Hillsboro, City of
Hines, City of
Hood River County
Hood River, City of
Hoodland RFD 74
Horsefly Irrigation District
Housing Authority of Clackamas County
Housing Authority of Jackson County
Housing Authority of Portland
Hubbard RFPD
Hubbard, City of
Huntington, City of
Ice Fountain Water District
Idanha-Detroit Rural Fire Protection District
Illinois Valley RFPD
Imbler RFPD
Imbler, City of
Independence, City of
Irrigon, City of
Jackson County
Jackson County Fire District 3
Jackson County Fire District 4
Jackson County Fire District 5
Jackson County Fire District 6
Jackson County Vector Control District
Jacksonville, City of
Jefferson County
Jefferson County EMS District
Jefferson County Library District
Jefferson County RFPD 1
Jefferson County SWCD
Jefferson RFPD
Jefferson, City of
John Day, City of
Jordan Valley, City of
Joseph, City of
Josephine County
Judges PERS
Junction City RFPD
Junction City, City of
Keizer RFPD
Keizer, City of
Keno Rural Fire Protection District
King City, City of
Klamath County
Klamath County Emergency Communications
Klamath County Fire District 1
Klamath Falls, City of
Klamath Housing Authority
Klamath Vector Control District
Knappa Svensen Burnside RFPD
La Grande Rural Fire Protection District
La Grande, City of
La Pine RFPD
Lafayette, City of
Lake Chinook Fire And Rescue District
Lake County
Lake County Library District
Lake Health District
Lake Oswego, City of
Lakeside Water District
Lakeside, City of
Lakeview, Town of
Lane Council of Governments
Lane County
Lane Fire Authority
League of Oregon Cities
Lebanon Aquatic District
Lebanon RFPD
Lebanon, City of
Lincoln City, City of

Lincoln County
Linn County
Linn-Benton Housing Authority
Lowell, City of
Lowell RFPD
Lyons, City of
Lyons Fire District
Madras, City of
Malheur County
Malin, City of
Manzanita, City of
Mapleton Water District
Marion County
Marion County Fire District 1
Marion County Housing Authority
Maupin, City of
McKenzie RFPD
McMinnville Water and Light Department
McMinnville, City of
Medford Irrigation District
Medford Water Commission
Medford, City of
Merrill, City of
Metolius, City of
METRO
Metropolitan Area Communication Commission
Mid-Columbia Center for Living
Mid-Columbia Fire And Rescue
Mid-Valley Behavioral Care Network
Mill City RFPD
Mill City, City of
Millersburg, City of
Millington RFPD
Milton-Freewater, City of
Milwaukie, City of
Mist-Birkenfeld RFPD
Mohawk Valley RFD
Molalla RFPD 73
Molalla, City of
Monmouth, City of
Monroe RFPD
Monroe, City of
Moro, City of
Mosier Fire District
Mt. Angel Fire District
Mt. Angel, City of
Mt. Vernon, City of
Mulino Water District 23
Multnomah County
Multnomah County Drainage District 1
Multnomah County RFPD 14
Myrtle Creek, City of
Myrtle Point, City of
Nehalem Bay Fire and Rescue
Nehalem Bay Health District
Nehalem Bay Wastewater Agency
Nesika Beach - Ophir Water District
Neskowin Regional Sanitary Authority
Neskowin Regional Water District
Nestucca RFPD
Netarts Water District
Netarts-Oceanside RFPD
Netarts-Oceanside Sanitary District
Newberg, City of
Newport, City of
North Bend City Housing Authority
North Bend, City of
North Central Public Health District
North Clackamas County Water Commission
North Douglas County Fire and EMS
North Lincoln Fire & Rescue District 1
North Marion County Communications
North Morrow Vector Control District
North Plains, City of
North Powder, City of
North Wasco County Parks & Recreation District
Northeast Oregon Housing Authority
Northern Oregon Corrections
Northwest Senior and Disability Services
Nyssa Road Assessment District 2
Nyssa, City of
Oak Lodge Water Service District
Oakland, City of
Oakridge, City of
Ochoco Irrigation District
Odell Sanitary District
Ontario, City of
Oregon Cascades West COG
Oregon City, City of
Oregon Community College Association
Oregon Health & Science University
Oregon Municipal Electric Utilities Association
Oregon School Boards Association
Oregon Trail Library District
Owyhee Irrigation District
Parkdale RFPD
Pendleton, City of
Philomath Fire and Rescue
Philomath, City of
Phoenix, City of
Pilot Rock, City of
Pleasant Hill Goshen Fire and Rescue
Pleasant Hill RFPD
Polk County
Polk County Fire District 1
Polk Soil and Water Conservation District
Port of Astoria
Port of Cascade Locks
Port of Coos Bay, International
Port of Garibaldi
Port of Hood River
Port of Newport
Port of Portland
Port of St. Helens
Port of The Dalles
Port of Tillamook Bay
Port of Umatilla
Port Orford Public Library
Port Orford, City of
Portland Development Commission
Portland, City of
Powers, City of
Prairie City, City of
Prineville, City of
Rainbow Water District
Rainier Cemetery District
Rainier, City of
Redmond Area Park and Recreation District
Redmond Fire and Rescue
Redmond, City of
Reedsport, City of
Riddle, City of
Rockaway Beach, City of
Rockwood Water PUD
Rogue River RFPD
Rogue River Valley Irrigation District
Rogue River, City of
Roseburg Urban Sanitary Authority
Roseburg, City of
Rural Road Assessment District 3
Salem Housing Authority
Salem, City of
Salmon Harbor and Douglas County
Sandy RFPD 72
Sandy, City of
Scappoose Public Library District
Scappoose RFPD
Scappoose, City of
Scio RFPD
Seal Rock RFPD
Seal Rock Water District
Shady Cove, City of
Sheridan Fire District
Sheridan, City of
Sherman County
Sherwood, City of
Siletz Rural Fire Protection District
Silver Falls Library District
Silverton RFPD 2
Silverton, City of
Sisters and Camp Sherman RFPD
Sisters, City of
Siuslaw Public Library District
Siuslaw RFPD 1
South Fork Water Board
South Lane County Fire and Rescue
South Suburban Sanitary District
Southwest Lincoln County Water District
Springfield, City of
St. Helens, City of
Stanfield, City of
Stayton RFPD
Stayton, City of
Sublimity RFPD
Suburban East Salem Water District
Sunrise Water Authority
Sunriver Service District
Sutherlin Water Control District
Sutherlin, City of
Sweet Home Cemetery Maintenance District

Sweet Home Fire and Ambulance District
Sweet Home, City of
Talent Irrigation District
Talent, City of
Tangent RFPD
Tigard, City of
Tillamook County Emergency Communications District
Tillamook County Soil and Water Conservation District
Tillamook Fire District
Tillamook People's Utility District
Tillamook, City of
Toledo, City of
Tri-City Water and Sanitary Authority
Tri-County Cooperative Weed Management Area
Troutdale, City of
Tualatin Valley Fire and Rescue
Tualatin Valley Irrigation District
Tualatin Valley Water District
Tualatin, City of
Turner, City of
Umatilla County
Umatilla County Fire District #1
Umatilla County Soil and Water District
Umatilla County Special Library District
Umatilla RFPD 7-405
Umatilla, City of
Umatilla-Morrow Radio and Data District
Vale, City of
Valley View Cemetery Maintenance District
Veneta, City of
Vernonia RFPD
Vernonia, City of
Waldport, City of
Wallowa County
Wallowa, City of
Warrenton, City of
Wasco County
Wasco County Soil and Water Conservation District
Washington County
Washington County Consolidated Communications Agency
West Extension Irrigation District
West Linn, City of
West Multnomah Soil and Water Conservation District
West Side Fire District
West Slope Water District
West Valley Fire District
West Valley Housing Authority
Western Lane Ambulance District
Westfir, City of
Weston Cemetery District
Weston, City of
Wheeler, City of
Wickiup Water District
Willamina, City of
Wilsonville, City of
Winchester Bay Sanitary District
Winston, City of
Winston-Dillard Fire District
Winston-Dillard Water District
Wood Village, City of
Woodburn Fire District
Woodburn, City of
Wy'East Fire District
Yachats RFPD
Yachats, City of
Yamhill Communications Agency
Yamhill County
Yamhill Fire Protection District
Yamhill, City of
Yoncolla, City of

Community Colleges (17)
Blue Mountain Community College
Central Oregon Community College
Chemeketa Community College
Clackamas Community College
Clatsop Community College
Columbia Gorge Community College
Klamath Community College
Lane Community College
Linn-Benton Community College
Mt. Hood Community College
Oregon Coast Community College
Portland Community College
Rogue Community College
Southwestern Oregon Community College
Tillamook Bay Community College
Treasure Valley Community College
Umpqua Community College

School Districts (296)
Alliance Charter Academy
Arco Iris Spanish Immersion Charter School
Armadillo Technical Institute
Baker CSD 16J
Baker CSD 30 J
Baker CSD 5J
Baker CSD 61
Baker Web Academy
Ballston Community School
Beaverton School District 48J
Bend International School
Bennett Pearson Academy Charter School
Benton CSD 17J
Benton CSD 1J
Benton CSD 509J
Benton CSD 7J
Bridge Charter Academy
Cannon Beach Academy
Cascade Heights Public Charter School
Center For Advanced Learning
Central Curry School District 1
City View Charter School
Clackamas Charter Alliance 1
Clackamas County ESD
Clackamas CSD 108
Clackamas CSD 115
Clackamas CSD 12
Clackamas CSD 3
Clackamas CSD 35
Clackamas CSD 46
Clackamas CSD 53
Clackamas CSD 62
Clackamas CSD 7J
Clackamas CSD 86
Clackamas Charter Alliance 2
Clatskanie School District 6J
Clatsop CSD 10
Clatsop CSD 1C
Clatsop CSD 30
Clatsop CSD 4
Clatsop CSD 8
Coburg Community Charter School
Columbia CSD 13
Columbia CSD 47 J
Columbia CSD 502
Columbia Gorge Education Service District
Condon Admin. School District 25J
Coos CSD 13
Coos CSD 31
Coos CSD 41
Coos CSD 54
Coos CSD 8
Coos CSD 9
Crater Lake Charter Academy
Crook CSD
Curry CSD 17C
Curry CSD 2CJ
Dallas Community School
Dayton School District 8
Desert Sky Montessori
Deschutes CSD 1
Deschutes CSD 2J
Deschutes CSD 6
Douglas County ESD
Douglas CSD 1
Douglas CSD 105
Douglas CSD 116
Douglas CSD 12
Douglas CSD 130
Douglas CSD 15
Douglas CSD 19
Douglas CSD 21
Douglas CSD 22
Douglas CSD 32
Douglas CSD 34
Douglas CSD 4
Douglas CSD 70
Douglas CSD 77
EagleRidge High School
Eddyville Charter School
Estacada Web and Early College Academy 1
Forest Grove Community School
Fossil School District 21J
Four Rivers Community School
Frontier Charter Academy
Gilliam CSD 3

Grant County ESD
Grant CSD 16J
Grant CSD 17
Grant CSD 4
Grant CSD 8
Grant School District 3
Greater Albany Public Schools 8J
Harney CSD 10
Harney CSD 13
Harney CSD 16
Harney CSD 28
Harney CSD 3
Harney CSD 4
Harney CSD 5
Harney CSD 7
Harney CSD UH1J
Harney ESD Region 17
Harrisburg School District 7
High Desert Education Service District
Hillsboro School District 1J
Hood River CSD
Hope Chinese Charter School
Howard Street Charter School, Inc.
Inavale Community Partners
Insight School Of Oregon Charter
Ione School District
Jackson CSD 35
Jackson CSD 4
Jackson CSD 5
Jackson CSD 549C
Jackson CSD 59
Jackson CSD 6
Jackson CSD 9
Jackson CSD 91
Jackson CSD 94
Jefferson County ESD
Jefferson CSD 4
Jefferson CSD 41
Jefferson CSD 509J
Jefferson CSD 8
Jordan Valley School District 3
Josephine County UJ School District
Josephine CSD 7
Kairos PDX
Kings Valley Charter School
Klamath CSD CU
Klamath Falls City Schools
Knova Learning Oregon
Lake County ESD
Lake CSD 11C
Lake CSD 14
Lake CSD 18
Lake CSD 21
Lake CSD 7
Lane County ESD
Lane CSD 1
Lane CSD 19
Lane CSD 28J
Lane CSD 32
Lane CSD 40
Lane CSD 45J3
Lane CSD 4J
Lane CSD 52
Lane CSD 66
Lane CSD 68
Lane CSD 69
Lane CSD 71
Lane CSD 76
Lane CSD 79J
Lane CSD 90
Lane CSD 97J
Le Monde Immersion Charter School
Lewis and Clark Montessori Charter School
Lincoln CSD
Linn Benton Lincoln ESD
Linn CSD 129J
Linn CSD 55
Linn CSD 552C
Linn CSD 9
Linn CSD 95C
Logos Public Charter School
Lourdes Charter School
Luckiamute Valley Charter School
Madrone Trail Public Charter School
Malheur CSD 12
Malheur CSD 26C
Malheur CSD 29
Malheur CSD 61
Malheur CSD 66
Malheur CSD 81
Malheur CSD 84
Malheur CSD 8C
Malheur ESD Region 14
Marion CSD 1
Marion CSD 103C
Marion CSD 14CJ
Marion CSD 15
Marion CSD 24J
Marion CSD 45
Marion CSD 4J
Marion CSD 5
Marion CSD 91
Mastery Learning Institute
Metro East Web Academy
Molalla River Academy
Morrow CSD
Mosier Community School
Multisensory Institute Teaching Children
Multisensory Learning Academy
Multnomah County ESD
Multnomah CSD 1
Multnomah CSD 10
Multnomah CSD 28-302 JT
Multnomah CSD 3
Multnomah CSD 39
Multnomah CSD 51JT
Multnomah CSD 7
Multnomah CSD R-40
Nixyaawii Community School
North Central ESD
North Powder School District
North Santiam School District 29J
North Wasco CSD 21
Northwest Regional ESD
Opal School
Oregon Connections Academy
Oregon Family School
Oregon Virtual Academy
Oregon Virtual Education East
Oregon Virtual Education West
Personalized Learning, Inc.
Phoenix School, The
Polk CSD 13J
Polk CSD 2
Polk CSD 21
Polk CSD 57
Portland Village School
Powell Butte Community Charter School
Renaissance Public Academy
Ridgeline Montessori Public Charter School
River's Edge Academy Charter School
Sage Community School
Sand Ridge Charter School
Sauvie Island Academy
Scappoose School District 1J
Sheridan AllPrep Academy
Sheridan Japanese School Foundation
Sherman CSD
Sherwood Charter School
Siletz Valley Early College Academy
Siletz Valley School
Sisters Web and Early College Academy #3
South Coast ESD Region 7
South Columbia Family School
South Harney School District 33
South Wasco County School District 1
Southern Oregon ESD
Southwest Charter School
Springfield Academy Of Arts & Academics
Springwater Environmental Sciences School
Sunny Wolf Charter School
Sweet Home Charter School
The Emerson School
The Ivy School
The Lighthouse School
The Valley School of Southern Oregon
The Village School
Three Rivers Charter School
Tillamook CSD 101
Tillamook CSD 56
Tillamook CSD 9
Trillium Charter School
Umatilla County Administrative School District 1R
Umatilla CSD 16R
Umatilla CSD 29RJ
Umatilla CSD 2R
Umatilla CSD 5
Umatilla CSD 61R
Umatilla CSD 6R
Umatilla CSD 7
Umatilla CSD 80R
Umatilla CSD 8R

Umatilla Morrow ESD
Union CSD 1
Union CSD 11
Union CSD 15
Union CSD 23
Union CSD 5
Wahtonka Community School
Wallowa County Region 18 ESD
Wallowa CSD 12
Wallowa CSD 21
Wallowa CSD 54
Wallowa CSD 6
Wasco CSD 29
Washington CSD 13
Washington CSD 15
Washington CSD 23J
Washington CSD 511JT
Washington CSD 88J
West Lane Technical Learning Center
Wheeler CSD 1
Wheeler CSD 55U
Willamette ESD
Woodland Charter School
Yamhill CSD 1
Yamhill CSD 29JT
Yamhill CSD 30-44-63J
Yamhill CSD 40
Yamhill CSD 48J
Yamhill CSD 4J

OREGON

PERS

PUBLIC EMPLOYEES RETIREMENT SYSTEM