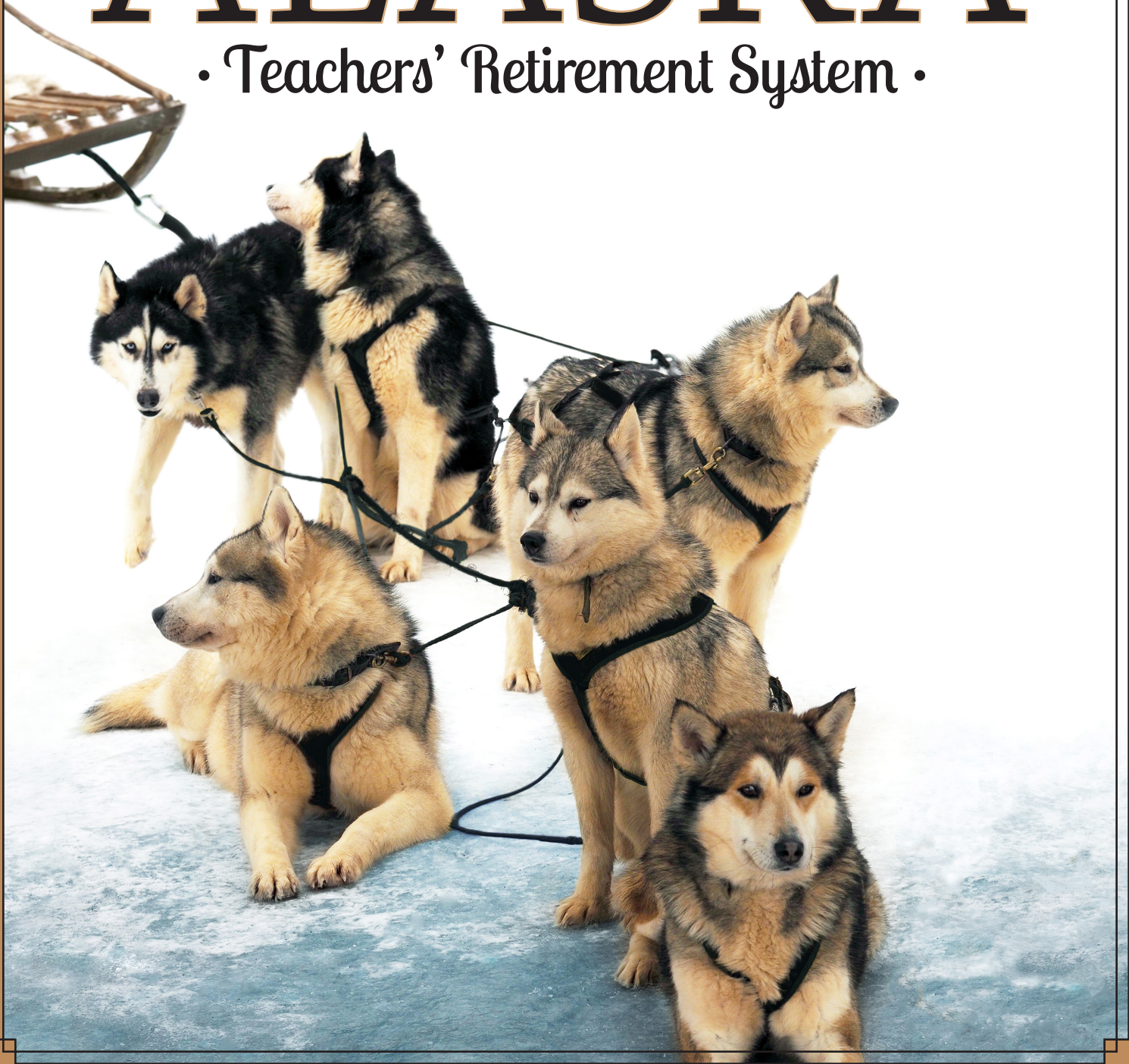


ALASKA

• Teachers' Retirement System •



A component unit of the State of Alaska
Comprehensive Annual Financial Report
Fiscal Year Ended June 30, 2018
Michael J. Dunleavy Governor

TEACHERS' RETIREMENT SYSTEM

COMPREHENSIVE ANNUAL FINANCIAL REPORT

A Component Unit of the State of Alaska

For the Fiscal Year Ended June 30, 2018



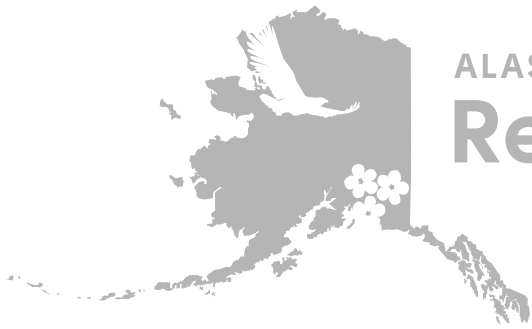
Michael J. Dunleavy, Governor

Prepared by

Department of Administration
Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Leslie Ridle, Commissioner
Sylvan Robb, Deputy Commissioner
Ajay Desai, Director
Christina Maiquis, Interim Chief Financial Officer
Kathy Lea, Chief Pension Officer
Michele Michaud, Chief Health Official

Located at: 333 Willoughby Avenue
State Office Building, 6th floor
Toll-Free (800) 821-2251 or in Juneau (907) 465-4460
alaska.gov/drb



ALASKA DIVISION OF
**Retirement
and Benefits**

The Alaska Department of Administration complies with Title II of the 1990 Americans with Disabilities Act (ADA). This publication is available in alternative communication formats upon request. To make necessary arrangements, contact the ADA Coordinator for the Division of Retirement and Benefits, at (907) 465-4460 or contact the TDD for the hearing impaired at (907) 465-2805.

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Teachers' Retirement System Defined Contribution Retirement Plan

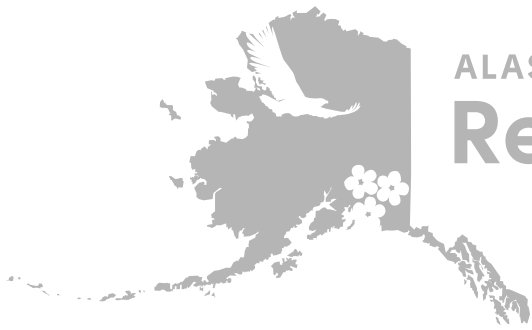
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INTRODUCTORY SECTION



ALASKA DIVISION OF
**Retirement
and Benefits**



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

**Department of
Administration**

DIVISION OF RETIREMENT AND BENEFITS

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P.O. Box 110203
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Toll-Free: (800) 821-2251

LETTER OF TRANSMITTAL

December 15, 2018

The Honorable Mike Dunleavy, Governor
Members of the Alaska State Legislature
Alaska Retirement Management Board
Employers and Plan Members

We are pleased to present the Comprehensive Annual Financial Report (CAFR) of the Teachers' Retirement System (TRS) (System) for the fiscal year ended June 30, 2018. The CAFR is intended to fulfill the legal requirements of Alaska Statute (AS) 14.25.004(a)(8).

The CAFR provides comprehensive information on the financial operations of the System for the fiscal year. Responsibility for the accuracy, completeness and fairness of the information presented rests with the management of the System. To the best of our knowledge and belief, the enclosed information is accurate in all material respects and is reported in a manner designed to fairly present the financial position and results of operations of the System for the year ended June 30, 2018. All disclosures necessary to enable the reader to gain an understanding of the System's activities have been included.

KPMG LLP, Certified Public Accountants, has issued an unmodified opinion on the System's basic financial statements for the year ended June 30, 2018. The independent auditor's report is located at the beginning of the Financial Section of this report.

The management's discussion and analysis (MD&A) is also located in the Financial Section of this report. The MD&A provides an analytical overview of the financial statements. This letter of transmittal is designed to complement the MD&A and should be read in conjunction with it.

Introductory Section

The CAFR is divided into five sections:

- **Introductory Section**, which contains the letter of transmittal, the organizational chart of the Division, and a list of the members serving on the Alaska Retirement Management Board (Board);
- **Financial Section**, which contains the Independent Auditor's Report, MD&A, basic financial statements, required supplementary information, and additional information;
- **Investment Section**, which contains a report prepared by the investment consultant, a report on investment activity, investment results, and various investment schedules;
- **Actuarial Section**, which contains the Actuarial Certification letter and the results of the most current annual actuarial valuation; and
- **Statistical Section**, which includes additional information related to financial trends, demographic and economic information, and operating information.

Profile of the System

The System was established in 1955 to provide pension benefits to teachers and other eligible participants. Post-employment health care benefits were added July 1, 1975. Senate Bill 141, signed into law on July 27, 2005, closed the Defined Benefit (DB) Plan effective July 1, 2006, to new members and created a Defined Contribution Retirement (DCR) Plan for members first hired on or after July 1, 2006. Beginning in fiscal year 2007, the System consists of: (1) the DB Plan and (2) the DCR Plan. This report includes both plans. The DB Plan includes the pension plan and the Alaska Retiree Health Care Trust (Tiers I and II). The DCR Plan includes the defined contribution retirement trust, occupational death and disability plan, retiree major medical plan, and the health reimbursement arrangement plan (Tier III).

Reporting Entity

The System is considered a component unit of the State of Alaska (State) for financial reporting purposes. Due to the closeness of the System's relationship to the State, it is included in the State CAFR as a fiduciary fund.

The Commissioner of the Department of Administration, appointed by the Governor, is responsible for administering the System. In order to meet the statutory requirements of administering the System, the Commissioner appoints the Plan Administrator of the Division of Retirement and Benefits (Division). The Plan Administrator is responsible for the daily operations of the System.

The Board, constituted effective October 1, 2005, replaced the Teachers' Retirement Board (effective July 1, 2005) and the Alaska State Pension Investment Board (effective October 1, 2005).

The Board is responsible for:

- adopting investment policies and developing investment objectives;
- providing a range of investment options and establishing the rules by which participants can direct their investments among those options, when applicable;
- establishing crediting rates for members' individual contribution accounts, when applicable;
- assisting in prescribing policies for the proper operation of the System;
- coordinating with the System Administrator to have actuarial valuations performed;
- reviewing actuarial assumptions and conducting experience analyses;
- contracting for an independent audit of actuarial valuations and external performance calculations; and
- reporting the financial condition of the Systems to the Governor, Legislature, and individual employers participating in the System.

Major Initiatives / Changes

The System continues to make progress on several on-going projects. Most of these efforts are focused on improving customer service, technology, methods for employers to submit information, methods for members to obtain information, and continued compliance with accounting requirements of the Governmental Accounting Standards Board (GASB) and the Financial Accounting Standards Board (FASB), as applicable.

The System continues to assess and retool its communication efforts, which include printed handbooks, newsletters, and website content. This year, the System has developed new employee videos for employers to use and make the plan information easy to access by members. The System strives to ensure that all communication material is clear, accurate, and user-friendly.

The System strives to provide the highest degree of customer service to all members. The Division continues to enhance and develop the central Member Services Section with the goals of improving phone service, provide faster processing of all customer requests, improving member education services.

The System continues to offer a broad array of fairs and seminars directed toward both active members and employers, with the goal to assist employers with successful marketing of the plans, educating members about all benefits available from early career through to retirement, encouraging healthy living, and how to best use the health plan.

Introductory Section

Funding Requirements

The System's consulting actuary, Conduent Human Resource Services, presented the results of the June 30, 2017, actuarial valuation report to the Plan Administrator, Division, and the Board. The assumptions and benefits are explained in the Actuarial Section of this report.

Based on the most recent valuation report dated June 30, 2017, the System's DB Plan has a funding ratio (actuarial value of DB Plan assets divided by actuarial liabilities for pension and postemployment healthcare benefits) of 82.0%. The DB Plan's unfunded actuarial accrued liability (actuarial liability minus actuarial value of DB plan assets) totals approximately \$1.8 billion. The unfunded liability continues to be addressed at all levels of the State. The Governor's budget proposes to provide funding to System's employers in order to maintain an appropriate level of employer contributions while also paying the actuarially determined contribution rate adopted by the Board.

Investments

On June 30, 2018, the DB Plan's investment portfolio was valued at \$8.3 billion and earned a 9.62% return for the fiscal year ended June 30, 2018. The DCR Plan's investment portfolio was valued at \$587.2 million for the fiscal year ended June 30, 2018. Over the past five years ending June 30, 2018, the DB Plan's investments earned an 8.68% return. The Board has statutory oversight of the System's investments and the Department of Revenue, Treasury Division, provides staff for the Board. Actual investing is performed by investment officers in the Treasury Division or by contracted external investment managers. The Board reviews and updates investment policies and strategies and is responsible for safeguarding invested assets.

Accounting System

This CAFR has been prepared to conform to the principles of accounting and reporting established by the GASB. Specific accounting treatments are detailed in the Notes to Financial Statements found in the Financial Section of this report.

Internal Controls

Division management is responsible for establishing and maintaining a system of internal controls to protect System assets from loss, theft, or misuse and to ensure adequate accounting data is compiled for the preparation of financial statements in conformity with generally accepted accounting principles. The cost of internal control should not exceed anticipated benefits; the objective is to provide reasonable, rather than absolute, assurance that the financial statements are free of any material misstatements.

Awards

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the System for its CAFR for the fiscal year ended June 30, 2017. 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.

In order to be awarded a Certificate of Achievement, a government entity must publish an easily readable and efficiently organized CAFR. This report must satisfy both U.S. generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year. The Division is confident our current CAFR continues to meet the Certificate of Achievement Program's requirements and are submitting it to the GFOA for consideration.

Additionally, the Public Pension Coordinating Council (PPCC) awarded the Public Pension Standards Award for Funding and Administration certificate to the Division for the fiscal year ended June 30, 2018.

The Public Pension Standards Award for Funding and Administration certificate is valid for a period of one year. The Division is confident the System will continue to meet the standards award requirements and will apply to the PPCC for consideration in 2019.

Acknowledgements

The preparation of this report is made possible by the dedicated services of the staff of the Department of Administration, Division of Retirement and Benefits and Division of Finance; Department of Law; and the Department of Revenue, Treasury Division. This report is intended to provide complete and reliable information as a basis for making management decisions, as a means of determining compliance with legal provisions, and as a means of determining responsible stewardship of the System's financial resources.

The report is available on the web at <http://doa.alaska.gov/drb/trs/employee/resources/cafr.html> and mailed to those who submit a formal request. This report forms the link between the System and the membership. The cooperation of the membership contributes significantly to the success of the System. We hope the employers and plan members find this report informative.

Introductory Section

We are grateful to the Alaska Retirement Management Board, staff, advisors, and to the many people who have diligently worked to assure the successful operation of the System.

Respectfully submitted,



John Quick
Commissioner




Ajay Desai
Division Director



Michele Michaud
Chief Health Official



Kathy Lea
Chief Pension Officer



Christina Maiquis
Interim Chief Financial Officer



Government Finance Officers Association

Certificate of
Achievement
for Excellence
in Financial
Reporting

Presented to

Alaska Teachers' Retirement System

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

June 30, 2017

Christopher P. Morill

Executive Director/CEO



Public Pension Coordinating Council

***Public Pension Standards Award
For Funding and Administration
2018***

Presented to

Alaska Teachers' 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

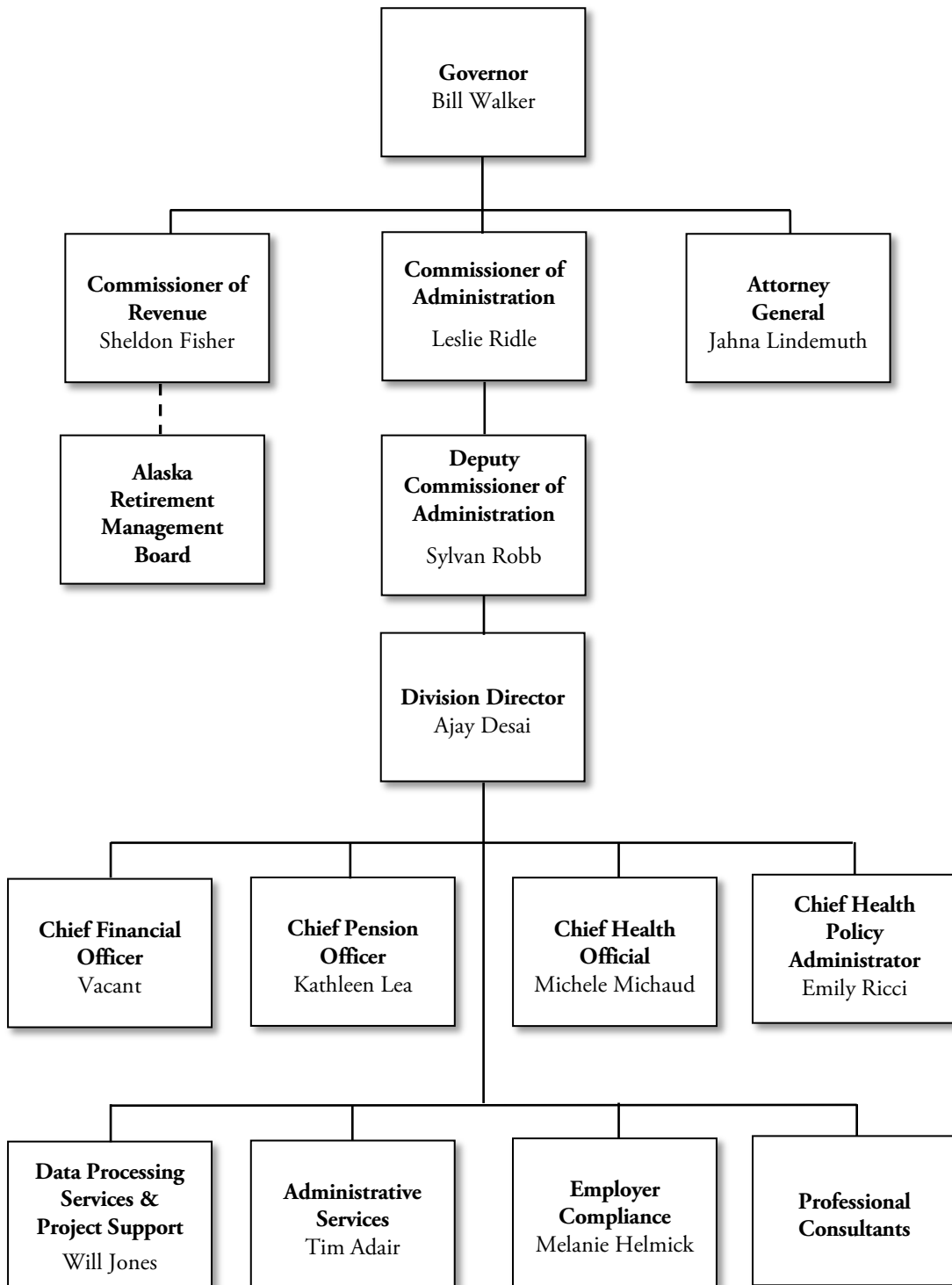
National Association of State Retirement Administrators (NASRA)
National Conference on Public Employee Retirement Systems (NCPERS)
National Council on Teacher Retirement (NCTR)

A handwritten signature in black ink that reads "Alan H. Winkle".

Alan H. Winkle
Program Administrator

ORGANIZATION CHART

As of June 30, 2018



Introductory Section

Section Responsibilities

The **Member Services Section** is responsible for providing comprehensive retirement counseling to the participating members and employers in the plan. This section appoints members to retirement and maintains benefit payment information.

The **Health Plan Administration Section** is responsible for the administration of health, disability, and life insurance. This section provides benefits counseling and plan change information to the membership.

The **Financial Services Section** is responsible for maintaining the employee and employer records and accounts in each of the plans administered by the Division, producing financial statements and reports, and assuring compliance with Internal Revenue Service requirements.

The **Data Processing Services and Project Support Section** supports the information systems the System uses. Responsibilities include planning, development, data base design, programming, and operational support of the data processing systems, including the Local Area Network.

The **Administrative Services Section** is responsible for budget preparation, fiscal management of appropriations, procuring professional services, supplies, and equipment. The section manages the System's record center containing the member's physical records and performs other administrative functions such as legislative tracking and personnel management.

Professional Consultants		
<p>Consulting Actuary Buck <i>Denver, Colorado</i> Gabriel Roeder Smith <i>Denver, Colorado</i></p>	<p>Third-Party Healthcare Claim Administrator Aetna Life Insurance Company <i>Lexington, Kentucky</i> Moda Health / Delta Dental of Alaska <i>Portland, Oregon</i> PayFlex Systems USA, Inc. <i>Omaha, Nebraska</i> CHCS Services, Inc. <i>Pensacola, Florida</i></p>	<p>Consulting Physicians Managed Medical Review Organization <i>Novi, Michigan</i></p>
<p>Independent Auditors KPMG LLP <i>Anchorage, Alaska</i></p>		
<p>Benefits Consultants Buck <i>Denver, Colorado</i> The Segal Company <i>Greenwood Village, Colorado</i></p>	<p>Legal Counsel Joan Wilkerson Elizabeth Smith Siobhan McIntyre Janell Hafner Kevin Dilg Assistant Attorney Generals <i>Juneau, Alaska</i> Ice Miller LLP <i>Indianapolis, Indiana</i></p>	
<p>IT Consultants Computer Task Group Applied Microsystems, Inc. <i>Anchorage, Alaska</i> Alaska IT Group <i>Juneau, Alaska</i></p>		

A list of investment consultants can be found in the Investment Section of this CAFR.

Alaska Retirement Management Board

As of June 30, 2018

Robert M. (“Rob”) Johnson, Chair, has been an attorney in Alaska for over 40 years. In private practice, Mr. Johnson was outside counsel for ARMB since its inception in 2005 until he recently retired from full-time practice. He also was sole outside counsel for ARMB’s predecessor entities, the Alaska State Pension Investment Board and the PERS and TRS board. Mr. Johnson’s law practice included many matters of state-wide importance including Exxon Valdez litigation, public sector labor disputes under the Public Employees Relations Act, and multi-year controversies involving valuation of the Trans-Alaska Pipeline System. His public employment included tenures as an assistant attorney general and director of petroleum revenue. Mr. Johnson received his law degree from Stanford and a BA in history from Claremont McKenna College. Mr. Johnson is the immediate past vice chair of the Alaska Retirement Management Board.

Gail Anagick Schubert, Vice Chair, serves as the President and CEO of the Bering Straits Native Corp. (BSNC), one of the twelve Alaska Native regional corporations formed under the Alaska Native Claims Settlement Act. She is Treasurer of the Alaska Federation of Natives, Vice Chair of the Akeela Treatment Services Board, Vice Chair of the Alaska Native Justice Center, and Vice Chair of the ANCSA Regional Association. Mrs. Schubert is the immediate past chair of the Alaska Native Heritage Center, which she served on for nearly 15 years. She is a member of the Anchorage Chamber of Commerce ATHENA Society, a program that recognizes women’s leadership. She has served on the BSNC Board of Directors since 1992. Mrs. Schubert is the 2014 recipient of the Northwest Indian Bar Association’s Unsung Hero Award. The annual award honors an attorney for his or her outstanding contributions toward improving the legal and political landscape of Pacific Northwest Indian Country. Prior to joining BSNC, Mrs. Schubert practiced law in Anchorage after a successful career on Wall Street, where she worked at the Federal Reserve Bank of New York and two Wall Street law firms. She earned an undergraduate degree from Stanford University, a MBA from Cornell University’s Johnson School of Management with an emphasis in accounting and finance, and a JD from the Cornell University School of Law. Mrs. Schubert was born and raised in Unalakleet, Alaska. Mrs. Schubert is the immediate past chair of the Alaska Retirement Management Board.

Gayle W. Harbo, Secretary, retired after teaching mathematics in Fairbanks for 25 years. She also served as math department chair, as advanced placement coordinator, on the district curriculum, evaluation and budget committees, and twice as chair of the Lathrop Self-Evaluation for Accreditation Committee. Ms. Harbo is a member of Alpha Delta Kappa, AARP, National Retired Teachers of Alaska, Fairbanks Retired Teachers Association, National Council of Teacher Retirement Systems, NCTR Education Committee, and the Alaska Teachers’ Retirement Board. She is also a co-manager of a family trust. Ms. Harbo was named Alaska Teacher of the Year in 1989. She holds a BS in Mathematics from North Carolina State University, and a Masters in Teaching from the University of Alaska, Fairbanks, and has completed an additional 40 hours in mathematics, counseling, law and finance.

Tom Brice is the Business Representative for the Alaska District Council of Laborers administering the contracts in Southeast Alaska for Laborers Local 942 and Public Employees Local 71. He was elected to the position of Vice President of Laborers Local 942 in 2011, and has sat on the negotiating team for the state contract with Public Employees Local 71 for the past three contracts. Prior to this position, Mr. Brice was the Apprenticeship Outreach Coordinator for the Alaska Works Partnership. Here he developed and managed a statewide program focused on assisting qualified rural Alaskans to gain entrance to the various registered Alaskan Building Trade apprenticeships. Mr. Brice also served in the Alaska State House of Representatives between the 18th and 21st legislatures. He has a BA from the University of Alaska Fairbanks.

Introductory Section

Kristin Erchinger is currently finance director for the city of Seward, having worked for the city in finance positions since 1994 including a year serving simultaneously as finance director and acting city manager. She became the finance director in 2000. Ms. Erchinger is past president of the Alaska Government Finance Officer's Association and represents that organization in the Alaska Municipal League. She also served on the Providence Alaska Region Board, the Graduate Medical Education Committee, the Alaska Municipal League Board, and the Board of the American Society for Public Administration, Alaska Chapter. Ms. Erchinger earned bachelor's degrees in international studies and Japanese language and literature, both from the University of Washington, and a master's degree in public administration from the University of Alaska Anchorage.

Sheldon Fisher, Commissioner of the Department of Revenue, was appointed by Governor Walker in September 2017. Prior to this appointment, Mr. Fisher was the Commissioner of the Department of Administration and appointed by Governor Walker in December 2014. Mr. Fisher was born and raised in Ashland, Oregon, and attended Brigham Young University (BYU), where he graduated with honors with a degree in economics. After BYU, Mr. Fisher went on to receive a law degree from Yale Law School and worked for a time for the law firm of Latham & Watkins. In 1994, Mr. Fisher left Latham & Watkins to pursue a career in telecommunications, working first for Hughes Electronics, and later, as the General Manager of Sprint's Broadband Wireless business. Mr. Fisher came to Alaska in 2004 taking a position as Senior Vice President of Sales and Product Marketing for Alaska Communications Systems, where he was responsible for all customer facing organizations, including all revenue generation. In 2010, Mr. Fisher resigned from ACS in order to run for Congress. In 2011, Mr. Fisher joined McKinley Capital Management, LLC, as the Chief Operating Officer, where he was responsible for the day to day administrative and general business operations of McKinley Capital. Mr. Fisher brings 20 years of management experience focusing on operations, technology infrastructure and marketing. Mr. Fisher has been married to his wife, Christine, for 26 years, and they are the parents of 7 children.

Randall Hoffbeck, Commissioner of the Department of Revenue, was appointed by Governor Walker in December 2014. Mr. Hoffbeck has 30+ years of experience in tax administration, valuation, and appraisal of real estate, as a contractor to the Tax Division from 1999-2001, and then as Petroleum Property Assessor for the State of Alaska from 2001-2006. In that capacity, he was the lead appraiser in the valuation and administration of tax assessments on all oil and gas properties in the State of Alaska. From 2006-2011 Mr. Hoffbeck served as the Director of Administration and Finance and CFO for the North Slope Borough before being appointed Chief of Staff in 2012. In late 2012 he retired from government service to focus on the completion of a Master of Divinity Degree which was completed in October 2014. Mr. Hoffbeck and his wife Cindy have just returned from serving with a short term Christian medical mission team in Kenya.

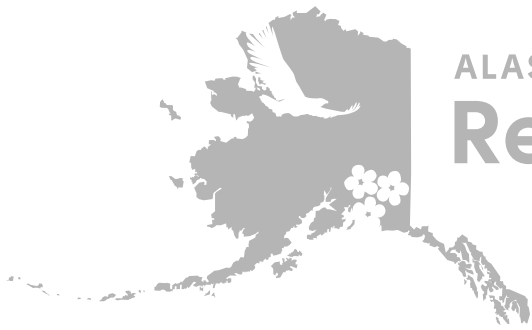
Leslie Ridle, has served as the Deputy Commissioner at the Department of Administration for the Walker Administration. Her portfolio includes the Divisions of Personnel and Labor Relations, Shared Services, Motor Vehicles, Facilities Management, the Public Defender Agency, Office of Public Advocacy and the Alaska Public Offices Commission. Ms. Ridle is also directly involved in labor negotiations, legislative issues, and communications. Ms. Ridle is a 50-year Alaskan who grew up in Douglas and Anchorage. Her professional background includes teaching, as well as government service in Anchorage, Washington, D.C, and Juneau. As Acting Commissioner of the Department of Administration, Leslie will oversee the functions of this department and ensure uninterrupted delivery of services to state agencies as well as the public.

Norman West, CPA, is the Chief Financial Officer at Alaska USA Federal Credit Union with over 30 years of experience with employee benefit plans and management of large fixed income securities portfolios of \$200 million to \$1 billion. Mr. West is responsible for the investment of the Credit Union's fixed income portfolio as well as accounting and related activities. He served on the boards of the Credit Union subsidiaries, including Alaska USA Mortgage, Alaska USA Trust Company, Alaska USA Insurance Brokers, and served as a trustee on the Alaska USA Federal Credit Union's defined benefit plan. Prior to his Alaska USA employment, Mr. West was the Trust Controller and Chief Investment Officer for the Alaska Teamsters Employer Service Corp., the administrator for the union's benefit plans. He previously practiced as a CPA in Alaska, Arizona and Texas, and received training as an ERISA specialist in 1977. He has been active for

Introductory Section

many years in professional organizations as a member, officer and presenter, and served as a volunteer in church and Boy Scouts most of his adult life. Mr. West is a graduate of Brigham Young University with a B.S. in Accounting. He resides in Palmer and is the father of eleven children.

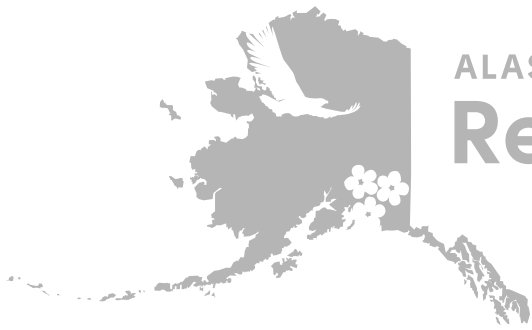
Bob Williams began his teaching career as a Peace Corps teacher in Gambia, Africa. He is a nationally board certified teacher, (NBCT, Math – AYA) and currently teaches Calculus and Geometry at Colony High School in Palmer. Mr. Williams is the Alaska 2009 Teacher of the Year, served as the president of the Alaska Council of Teachers of Mathematics from 2011-2013, and is the recipient of the Presidential Award for Excellence in Mathematics Teaching. He was one of five national recipients of the 2010 Horace Mann Teaching Excellence award and is a 2012 Aspen Teacher Leader Fellow. Mr. Williams has a B.S. in Petroleum Engineering from the University of Alaska, Fairbanks, an M.A. in Mathematics Education from Columbia University, and an M.Ed. in Educational Leadership from the University of Alaska, Anchorage.



ALASKA DIVISION OF
**Retirement
and Benefits**



FINANCIAL SECTION



ALASKA DIVISION OF
**Retirement
and Benefits**



KPMG LLP
Suite 600
701 West Eighth Avenue
Anchorage, AK 99501

Independent Auditors' Report

The Division of Retirement and Benefits and
Members of the Alaska Retirement Management Board
State of Alaska Teachers' Retirement System:

We have audited the accompanying combining financial statements of the State of Alaska Teachers' Retirement System (the System), a component unit of the State of Alaska as of and for the year ended June 30, 2018, 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 U.S. generally accepted accounting principles; 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.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. 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 auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

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

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the State of Alaska Teachers' Retirement System as of June 30, 2018, and the changes in fiduciary net position for the year then ended, in accordance with U.S. generally accepted accounting principles.

Financial Section

Other Matters

Prior-Year Comparative Information

We have previously audited the System's 2017 combining financial statements, and we expressed an unmodified opinion on those financial statements in our report dated December 5, 2017. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2017 is consistent, in all material respects, with the audited financial statements from which it has been derived.

Required Supplementary Information

U.S. generally accepted accounting principles require that the management's discussion and analysis on pages 17-26, and the schedules of changes in employer net pension and Other Post-Employment Benefits (OPEB) liabilities and related ratios, schedules of employer and nonemployer contributions, and schedules of investment returns, on pages 48-64 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the GASB, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplemental Schedules

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The supplemental schedules on pages 78 and 79 are presented for purposes of additional analysis and are not a required part of the basic financial statements. The supplemental schedules are the responsibility of management and were derived from and relate 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 supplemental schedules are fairly stated in all material respects in relation to the basic financial statements as a whole.

KPMG LLP

November 21, 2018

State of Alaska
Teachers' Retirement System
(A Component Unit of the State of Alaska)

Management's Discussion and Analysis (Unaudited)

June 30, 2018

This section presents management's discussion and analysis (MD&A) of the Teachers' Retirement System's (the System) financial position and performance for the year ended June 30, 2018. This section is presented as a narrative overview and analysis. Please read the MD&A in conjunction with the financial statements, notes to financial statements, required supplementary information, and supplemental schedules to better understand the financial condition and performance of the System during the fiscal year ended June 30, 2018.

Financial Highlights

The System's financial highlights as of June 30, 2018 were as follows:

- The System's fiduciary net position restricted for pension benefits, postemployment healthcare benefits, and individuals increased by \$373.5 million during fiscal year 2018.
- The System's plan member and employer contributions increased by \$271 thousand during fiscal year 2018 when compared to fiscal year 2017.
- The State of Alaska (the State) directly appropriated \$111.8 million to the System during fiscal year 2018.
- The System's net investment income decreased \$303.3 million compared to fiscal year 2017 to \$703.6 million during fiscal year 2018.
- The System's pension benefit expenditures totaled \$456.4 million during fiscal year 2018.
- The System's postemployment healthcare benefit expenditures totaled \$134.1 million in fiscal year 2018.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the System's financial statements. The System's financial statements are composed of three components: (1) combining statement of fiduciary net position, (2) combining statement of changes in fiduciary net position, and (3) notes to the financial statements. This report also contains required supplementary information and other supplemental schedules.

Combining Statement of Fiduciary Net Position – This statement presents information regarding the System's assets, liabilities, and resulting net position restricted for pension benefits, postemployment healthcare benefits, and individuals. This statement reflects the System's investments at fair value, along with cash and cash equivalents, receivables, and other assets less liabilities at June 30, 2018.

Combining Statement of Changes in Fiduciary Net Position – This statement presents how the System's net position restricted for pension benefits, postemployment healthcare benefits, and individuals changed during the fiscal year ended June 30, 2018. This statement presents contributions and investment income during the period. Deductions for pension and postemployment healthcare benefits, refunds, and operating deductions are also presented.

The above statements represent resources available for investment and payment of benefits as of June 30, 2018, and the sources and uses of those funds during fiscal year 2018.

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Notes to Financial Statements – The notes to financial statements are an integral part of the financial statements and provide additional detailed information and schedules that are essential to a full understanding of the System's financial statements.

Required Supplementary Information and Related Notes – The required supplementary information consists of 12 schedules and related notes concerning the funded status of the system and actuarial assumptions and methods used in the actuarial valuation.

Supplemental Schedules – Supplemental schedules include detailed information on administrative and investment deductions incurred by the System and payments to consultants (other than investment advisors) for professional services.

Condensed Financial Information (In thousands)

Description	System net position				
	2018	2017	Increase (decrease)		2016
			Amount	Percentage	
Assets:					
Cash and cash equivalents	\$ 92,098	225,161	(133,063)	(59.1)%	\$ 74,899
Due from State of Alaska					
General Fund	5,088	5,604	(516)	(9.2)	5,976
Contributions receivable	8,431	4,351	4,080	93.8	4,757
Other accounts receivables	100	1,451	(1,351)	(93.1)	87
Investments at fair value	8,888,692	8,406,762	481,930	5.7	7,792,741
Other assets	318	318	—	—	711
Total assets	8,994,727	8,643,647	351,080	4.1	7,879,171
Liabilities:					
Accrued expenses	1,703	1,466	237	16.2	4,693
Claims payable	14,408	12,788	1,620	12.7	13,924
Forfeitures payable to employers	10,639	10,282	357	3.5	8,977
Securities lending collateral payable	30,555	55,150	(24,595)	(44.6)	—
Due to State of Alaska General Fund	—	1	(1)	(100.0)	—
Total liabilities	57,305	79,687	(22,382)	(28.1)	27,594
Net position	\$ 8,937,422	8,563,960	373,462	4.4 %	\$ 7,851,577

State of Alaska
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Management's Discussion and Analysis (Unaudited)

June 30, 2018

Condensed Financial Information Continued (In thousands)

Description	Changes in system net position				2016
	2018	2017	Increase (decrease)		
			Amount	Percentage	
Net position, beginning of year	\$ 8,563,960	7,851,577	712,383	9.1 %	\$ 8,168,738
Additions:					
Contributions – employers and plan members	163,455	163,184	271	0.2	163,821
Contributions – nonemployer State of Alaska	111,757	116,700	(4,943)	(4.2)	130,108
Net investment income (loss)	703,592	1,006,847	(303,255)	(30.1)	(43,534)
Other income	8,413	13,976	(5,563)	(39.8)	9,848
Total additions	<u>987,217</u>	<u>1,300,707</u>	<u>(313,490)</u>	<u>(24.1)</u>	<u>260,243</u>
Deductions:					
Pension and postemployment healthcare benefits	590,569	566,291	24,278	4.3	558,653
Refunds of contributions	13,219	12,296	923	7.5	9,560
Administrative	9,967	9,737	230	2.4	9,191
Total deductions	<u>613,755</u>	<u>588,324</u>	<u>25,431</u>	<u>4.3</u>	<u>577,404</u>
Increase (decrease) in net position	<u>373,462</u>	<u>712,383</u>	<u>(338,921)</u>	<u>47.6</u>	<u>(317,161)</u>
Net position, end of year	<u>\$ 8,937,422</u>	<u>8,563,960</u>	<u>373,462</u>	<u>4.4 %</u>	<u>\$ 7,851,577</u>

Financial Analysis of the System

The statements of fiduciary net position as of June 30, 2018 and 2017 show net position restricted for pension benefits, postemployment healthcare benefits, and individuals of \$8,937,422,000 and \$8,563,960,000, respectively. The entire amount is available to cover the System's obligations to pay pension and postemployment healthcare benefits to its members and their beneficiaries as well as administrative costs.

This represents an increase in the System's net position restricted for pension benefits, postemployment healthcare benefits, and individuals of \$373,462,000 or 4.4% from fiscal year 2017 to 2018 and an increase of \$712,383,000 or 9.1% from fiscal year 2016 to 2017. Over the long term, plan member, employer, and nonemployer contributions, as well as investment income earned, are anticipated to sufficiently fund the pension benefit and postemployment healthcare costs of the System.

During the 30th Alaska State Legislature and as part of the State's Fiscal Year 2018 Operating Budget, House Bill 57 appropriated \$111,757,000 from the General Fund and the Alaska Higher Education Investment Fund to the Department of Administration for deposit in the Defined-Benefit Pension fund.

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June 30, 2018

The investment of pension funds is a long-term undertaking. On an annual basis, the Alaska Retirement Management Board (the Board) reviews and adopts an asset allocation strategy to ensure the asset mix will remain at an optimal risk/return level given the System's constraints and objectives.

System Asset Allocation

During fiscal years 2018 and 2017, the Board adopted the following asset allocation for the Defined Benefit Pension Plan (DB Plan) and Defined Contribution Retirement Pension Plan's (DCR Plan) retiree major medical insurance fund, health reimbursement arrangement fund, and occupational death and disability fund:

	2018	
	Pension and healthcare trust	
	Allocation	Range
Broad domestic equity	24.0 %	± 6%
Global equity ex-U.S.	22.0	± 4
Fixed income	10.0	± 5
Opportunistic	10.0	± 5
Real assets	17.0	± 8
Absolute return	7.0	± 4
Private equity	9.0	± 5
Cash equivalents	1.0	+ 3/- 1
Total	100.0 %	
Expected return 10-year geometric mean	6.60 %	
Projected standard deviation	14.70	
	2017	
	Pension and healthcare trust	
	Allocation	Range
Broad domestic equity	26.0 %	± 6%
Global equity ex-U.S.	22.0	± 4
Private equity	9.0	± 5
Real assets	17.0	± 8
Absolute return	7.0	± 4
Fixed income	13.0	± 5
Alternative equity strategies	5.0	± 2
Cash equivalents	1.0	+ 3/- 1
Total	100.0 %	
Expected return 10-year geometric mean	7.10 %	
Projected standard deviation	15.00	

For fiscal years 2018 and 2017, the DB Plan's investments generated a 9.62% and 13.36% rate of return, respectively.

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June 30, 2018

Contributions, Investment Income, and Other Additions

The additions required to fund retirement benefits are accumulated through a combination of employer and plan member contributions, State appropriation, investment income, and other additions as follows:

	Additions (In thousands)				
	2018	2017	Increase (decrease)		2016
			Amount	Percentage	
Contributions – plan members	\$ 66,505	66,766	(261)	(0.4)%	\$ 67,864
Contributions – employers	96,950	96,418	532	0.6	95,957
Contributions – nonemployer					
State of Alaska	111,757	116,700	(4,943)	(4.2)	130,108
Net investment income (loss)	703,592	1,006,847	(303,255)	(30.1)	(43,534)
Other income	8,413	13,976	(5,563)	(39.8)	9,848
Total	\$ 987,217	1,300,707	(313,490)	(24.1)%	\$ 260,243

The System's employer contributions increased from \$96,418,000 in fiscal year 2017 to \$96,950,000 in fiscal year 2018, an increase of \$532,000 or 0.6%. The System's employer contributions increased from \$95,957,000 in fiscal year 2016 to \$96,418,000 in fiscal year 2017, an increase of \$461,000 or 0.5%. The increase in employer contributions is attributable to increased contributions from the defined benefit unfunded liability portion of DCR Plan salaries.

The State provided \$111,757,000 and \$116,700,000 for fiscal years 2018 and 2017, respectively, in nonemployer contributions per Alaska Statute (AS) 14.25.085. The employer on-behalf amount (or additional State contribution as defined in AS 14.25.085) is calculated by the System's actuary. It is based on projected payroll and the difference between the actuarially determined contribution rate and the statutory effective rate. The statutory employer effective contribution rate of 12.56% is established in AS 14.25.070(a).

The System's net investment income in fiscal year 2018 decreased by \$303,255,000 or 30.1% from amounts recorded in fiscal year 2017. The System's net investment income in fiscal year 2017 increased by \$1,050,381,000 or 2,412.8% from amounts recorded in fiscal year 2016. Fiscal year 2018 saw rates of returns above the assumed rate of return. The investment returns received in fiscal year 2018 were lower than the returns seen in fiscal year 2017 due to market conditions, causing a decrease in returns in comparison between 2018 and 2017. Over the long term, investment earnings play a significant role in funding plan benefits. The Board continues to look at investment classes and strategies best suited to meet the expected earnings returns to meet future benefit payments.

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June 30, 2018

The System's investment rates of return at June 30 are as follows:

	Year ended		
	2018	2017	2016
System returns	9.62 %	13.36 %	(0.36)%
Domestic equities	15.22	18.55	0.58
International equities	7.95	20.42	(9.15)
Private equity	26.65	17.04	4.71
Real assets	7.53	5.98	4.76
Absolute return	4.78	8.47	(3.09)
Fixed income	(0.71)	2.91	5.15
Opportunistic	5.63	—	—
Alternative equity	—	11.38	3.41
Cash equivalents	1.53	0.80	0.55
Actuarially assumed rate of return	8.00	8.00	8.00

Benefits and Other Deductions

The primary deduction of the DB Plan is the payment of pension and other postemployment benefits, primarily healthcare. The primary deduction of the DCR Plan is the refund of contributions. These benefit payments, healthcare claims paid, refunds of contributions, and the cost of administering the System comprise the cost of operations as follows:

	Deductions (In thousands)				
	2018	2017	Increase (decrease)		2016
			Amount	Percentage	
Pension benefits	\$ 456,427	446,044	10,383	2.3 %	\$ 435,699
Postemployment benefits	134,142	120,247	13,895	11.6	122,954
Refund of contributions	13,219	12,296	923	7.5	9,560
Administrative	9,967	9,737	230	2.4	9,191
Total	\$ 613,755	588,324	25,431	4.3 %	\$ 577,404

The System's pension benefit payments in 2018 increased \$10,383,000 or 2.3% from fiscal year 2017 and increased \$10,345,000 or 2.4% from fiscal year 2016. The increase in pension benefits in fiscal year 2018 is the result of a continued increase in the number of retirees.

The System's postemployment benefit payments in fiscal year 2018 increased \$13,895,000 or 11.6% from fiscal year 2017 and decreased \$2,707,000 or 2.2% from fiscal year 2016. The System has seen an increase in plan utilization for healthcare as the number of retirees in the DB Plan continue to increase. However, the increase is offset by those members and beneficiaries who transition over to Medicare due to age, and costs shift from the System to Medicare. The System continues to look at ways for cost containment while providing benefits applicable to the plan.

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The System's refund of contributions increased \$923,000 or 7.5% from fiscal year 2017 and increased \$2,736,000 or 28.6% from fiscal year 2016. The increase in refunds is largely in the DCR Plan, where refunds increased \$1,217,000 between fiscal year 2017 to 2018, and increased \$2,241,000 between fiscal year 2016 to 2017. The System continues to look at ways to retain member contributions by emphasizing the low investment costs to members to maintain funds within the DCR Plan, with a number of investment options available.

The System's administrative costs in fiscal year 2018 increased \$230,000 or 2.4% from fiscal year 2017 and increased \$546,000 or 5.9% from fiscal year 2016 to 2017. The increase in administrative costs in fiscal year 2018 is related to increases in management, consulting, and other professional services, offset by a decrease in Patient Protection and Affordable Care Act transitional reinsurance program fees.

Net Pension Liability

Governmental Accounting Standards Board (GASB) Statement No. 67 requires the Defined Benefit (DB) Plan to report the total pension liability, fiduciary net position, and the net pension liability. The Total Pension Liability determines the total obligation for the DB Plan's pension benefits related to costs incurred as a result of years of service, changes in benefit terms, changes in actuarial assumptions, and any differences between the actuarial assumptions and actual experience. The DB Plan's Fiduciary Net Position determines the assets available to pay the DB Plan's future payment stream. The assets are derived from contributions received from participating employers, plan members, and nonemployer contributions, as well as investment earnings, less benefit payments during the year and the related costs to administer the DB Plan. The difference between the Total Pension Liability and Fiduciary Net Position is the Net Pension Liability, or the unfunded portion of the Total Pension Liability.

The components of the NPL of the participating employers were as follows (in thousands):

	<u>2018</u>	<u>2017</u>
Total pension liability	\$ 7,387,056	7,338,907
Plan fiduciary net position	<u>(5,472,727)</u>	<u>(5,312,295)</u>
Employers' net pension liability	<u>\$ 1,914,329</u>	<u>2,026,612</u>
Plan fiduciary net position as a percentage of the total pension liability	74.09 %	72.39 %

Net OPEB (Asset) Liability

GASB Statement No. 74, implemented in 2017, requires the DB Other Postemployment Benefit (OPEB) Plans to report the Total OPEB Liability, Fiduciary Net Position, and Net OPEB Liability for each plan. The Total OPEB Liability determines the total obligation for the DB Plan's postemployment healthcare benefits related to costs incurred as a result of years of service, changes in benefit terms, changes in actuarial assumptions, and any differences between the actuarial assumptions and actual experience. The DB Plan's Fiduciary Net Position determines the assets available to pay the DB

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June 30, 2018

OPEB Plan's future payment stream. The assets are derived from contributions received from participating employers, plan members, and nonemployer contributions, as well as investment earnings, less benefit payments during the year and the related costs to administer the DB Plans. The difference between the Total OPEB Liability and Fiduciary Net Position is the Net OPEB Liability or the unfunded portion of the Total OPEB Liability.

The components of the net OPEB (asset) liability of the participating employers for the Plans as of June 30, 2018 were as follows (in thousands):

	Alaska Retiree Healthcare Trust Plan (ARHCT)	Occupational Death and Disability (ODD)	Retiree Medical Plan (RMP)
Total OPEB liability	\$ 3,181,074	291	33,466
Plan fiduciary net position	(2,870,135)	(3,797)	(36,665)
Employers' net OPEB liability (asset)	\$ 310,939	(3,506)	(3,199)
Plan fiduciary net position as a percentage of the total OPEB liability	90.23 %	1,304.81 %	109.56 %

The components of the net OPEB liability (asset) of the participating employers for the Plans as of June 30, 2017 were as follows (in thousands):

	Alaska Retiree Healthcare Trust Plan (ARHCT)	Occupational Death and Disability (ODD)	Retiree Medical Plan (RMP)
Total OPEB liability	\$ 2,941,598	263	26,108
Plan fiduciary net position	(2,757,665)	(3,531)	(30,848)
Employers' net OPEB liability (asset)	\$ 183,933	(3,268)	(4,740)
Plan fiduciary net position as a percentage of the total OPEB liability	93.75 %	1,342.59 %	118.16 %

Funding

Retirement benefits are financed by accumulations from employers, plan members, State nonemployer contributions, and income earned on System investments.

- The employer contribution rate is adopted and set by the Board annually based on actuarial determinations made by the System's consulting actuary as reviewed by the Board's contracted actuary. AS 14.25.070(a) sets the employer effective contribution rate at 12.56%. The difference between the actuarially determined contribution

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rate adopted by the Board and the statutory employer effective rate is paid by the State as a direct nonemployer contribution per AS 14.25.085.

- AS 14.25.085 provides that additional State contributions are made each July 1 or as soon after July 1 for the ensuing fiscal year that when combined with the total employer contributions are sufficient to pay the System's past service liability at the contribution rate adopted by the Board for that fiscal year.
- Plan member contributions are established by AS14.25.050 for the DB Plan and AS 14.25.340 for the DCR Plan.
- The Board works with an external consultant to determine the proper asset allocation strategy.

Legislation

During fiscal year 2018, the 30th Alaska State Legislature enacted one law that affects the System. Conference Committee Substitute House Bill 286, Section 25(c) appropriates \$128.2 million from the General Fund to the Department of Administration for deposit in the System's defined benefit pension fund as partial payment of the participating employers' contribution for fiscal year ending June 30, 2019. This appropriation is to fund the difference between the statutory employer required contribution of 12.56% paid by participating employers for both defined benefit and defined contribution members and the actuarially determined contribution rate adopted by the Board for that fiscal year. This additional state contribution is specified in AS 14.25.085 – Additional State Contributions.

Economic Conditions, Future Contribution Rates, and Status of Unfunded Liability

Net investment income decreased from \$1,006,847,000 in fiscal year 2017 to income of \$703,592,000 in fiscal year 2018, a decrease of \$303,255,000 or 30.10%. The return on the System's investments was above the 8.00% actuarially assumed rate of return with the System's rate of return of 9.62% at June 30, 2018. In fiscal year 2017, the System's investments returned 13.36%, also more than the actuarially assumed return of 8.00%. The Board continues to work with its investment counsel and the Alaska Department of Revenue, Treasury Division, to diversify the portfolio of the System to maintain an optimal risk/return ratio.

The consulting actuary recommended a decrease from the System's actuarially determined contribution rate of 28.02% in fiscal year 2017 to 26.78% in fiscal year 2018. The Board adopted the fiscal year 2018 actuarially determined contribution rate of 26.78%, which represented a decrease of 1.24%. The statutory employer effective contribution rate remained at 12.56% for fiscal years 2018 and 2017.

The June 30, 2017 and 2016 actuarial valuation reports for the DB Plan reported funding ratios based on valuation assets of 82.0% and 82.8%, respectively, as well as unfunded liabilities of \$1.8 billion and \$1.7 billion, respectively.

For fiscal years 2018 and 2017, the DCR Plan's employer contribution rate was established by AS 14.25.070(a) at 12.56%. The DCR Plan's actuarially determined occupational death and disability rate was adopted by the Board to be 0.00% in both fiscal years 2018 and 2017. The DCR Plan retiree medical plan actuarially determined contribution rate for fiscal years 2018 and 2017 was adopted by the Board to be 0.91% and 1.05%, respectively.

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Requests for Information

This financial report is designed to provide a general overview of the finances for all those with interest in the finances. Questions concerning any of the information provided in this report or requests for additional information should be addressed to:

State of Alaska Teachers' Retirement System
Division of Retirement and Benefits, Finance Section
P.O. Box 110203
Juneau, Alaska 99811-0203

Questions concerning any of the investment information provided in this report or requests for additional investment information should be addressed to:

State of Alaska
Department of Revenue, Treasury Division
P.O. Box 110405
Juneau, Alaska 99811-0405

State of Alaska
Teachers' Retirement System
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Combining Statement of Fiduciary Net Position

June 30, 2018
(With summarized financial information for June 30, 2017)

(In thousands)

	Defined benefit pension	Defined contribution pension	Other Postemployment Benefit Plans				System total June 30, 2018	System total June 30, 2017
			Alaska Retiree Healthcare Trust	Occupational death and disability	Retiree medical	Health reimbursement arrangement		
Assets:								
Cash and cash equivalents (note 3):								
Short-term Fixed Income Pool	\$ 33,446	11,910	14,910	23	235	691	61,215	168,374
Securities lending collateral	19,674	—	10,365	14	129	373	30,555	55,150
Empower money market fund – nonparticipant-directed	—	328	—	—	—	—	328	1,637
Total cash and cash equivalents	<u>53,120</u>	<u>12,238</u>	<u>25,275</u>	<u>37</u>	<u>364</u>	<u>1,064</u>	<u>92,098</u>	<u>225,161</u>
Receivables:								
Contributions	5,626	1,663	735	—	101	306	8,431	4,351
Due from State of Alaska General Fund	1,632	2,105	539	—	209	603	5,088	5,604
Other accounts receivable	87	—	13	—	—	—	100	1,451
Total receivables	<u>7,345</u>	<u>3,768</u>	<u>1,287</u>	<u>—</u>	<u>310</u>	<u>909</u>	<u>13,619</u>	<u>11,406</u>
Investments (note 3), at fair value:								
Fixed income securities:								
U.S. Treasury Fixed Income Pool	495,641	—	261,744	344	3,296	9,577	770,602	624,932
International Fixed Income Pool	—	—	—	—	—	—	—	59,830
Emerging Markets Debt Pool	—	—	—	—	—	—	—	54,091
Total fixed income securities	<u>495,641</u>	<u>—</u>	<u>261,744</u>	<u>344</u>	<u>3,296</u>	<u>9,577</u>	<u>770,602</u>	<u>738,853</u>
Broad domestic equity:								
Large Cap Pool	1,075,694	—	568,064	747	7,152	20,786	1,672,443	1,739,030
Small Cap Pool	203,690	—	107,567	142	1,354	3,936	316,689	356,366
Total broad domestic equity	<u>1,279,384</u>	<u>—</u>	<u>675,631</u>	<u>889</u>	<u>8,506</u>	<u>24,722</u>	<u>1,989,132</u>	<u>2,095,396</u>
Global equity ex-US:								
International Equity Pool	929,669	—	490,950	646	6,181	17,964	1,445,410	1,566,441
International Equity Small Cap Pool	84,745	—	44,753	59	564	1,638	131,759	117,448
Emerging Markets Equity Pool	158,469	—	83,686	110	1,054	3,062	246,381	255,239
Total global equity ex-US	<u>1,172,883</u>	<u>—</u>	<u>619,389</u>	<u>815</u>	<u>7,799</u>	<u>22,664</u>	<u>1,823,550</u>	<u>1,939,128</u>
Opportunistic:								
Alternative Equity Strategies Pool	276,690	—	146,117	192	1,840	5,347	430,186	252,347
Opportunistic Fixed Income Pool	183,695	—	97,008	128	1,221	3,549	285,601	68,451
Other Opportunities Pool	70,516	—	37,238	49	469	1,363	109,635	72,802
Tactical Allocation Strategies Pool	64	—	34	—	—	1	99	209,964
Convertible Bond Pool	—	—	—	—	—	—	—	62,165
Total opportunistic	<u>530,965</u>	<u>—</u>	<u>280,397</u>	<u>369</u>	<u>3,530</u>	<u>10,260</u>	<u>825,521</u>	<u>665,729</u>
Private Equity Pool	504,739	—	266,548	351	3,356	9,753	784,747	690,883
Absolute Return Pool	405,272	—	214,021	282	2,695	7,831	630,101	519,563
Real assets:								
Real Estate Pools	345,064	—	182,241	240	2,295	6,668	536,508	468,454
Real Estate Investment Trust Pool	42,213	—	22,292	29	281	816	65,631	114,820
Infrastructure Private Pool	106,815	—	56,408	74	710	2,064	166,071	128,710
Infrastructure Public Pool	53,590	—	28,300	37	356	1,036	83,319	80,166
Master Limited Partnership Pool	210,841	—	111,343	146	1,402	4,074	327,806	163,394
Energy Pool	20,801	—	10,985	14	138	402	32,340	30,055
Farmland Pool	175,192	—	92,517	122	1,165	3,385	272,381	271,971
Timber Pool	77,391	—	40,870	54	514	1,495	120,324	114,159
Treasury Inflation Protected Securities Pool	11,820	—	6,242	8	79	228	18,377	18,043
Total real assets	<u>1,043,727</u>	<u>—</u>	<u>551,198</u>	<u>724</u>	<u>6,940</u>	<u>20,168</u>	<u>1,622,757</u>	<u>1,389,772</u>
Other investment funds:								
Pooled investment funds	—	273,730	—	—	—	—	273,730	212,872
Collective investment funds	—	168,552	—	—	—	—	168,552	154,566
Total other investment funds	<u>—</u>	<u>442,282</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>442,282</u>	<u>367,438</u>
Total investments	<u>5,432,611</u>	<u>442,282</u>	<u>2,868,928</u>	<u>3,774</u>	<u>36,122</u>	<u>104,975</u>	<u>8,888,692</u>	<u>8,406,762</u>
Other assets	—	—	318	—	—	—	318	318
Total assets	<u>5,493,076</u>	<u>458,288</u>	<u>2,895,808</u>	<u>3,811</u>	<u>36,796</u>	<u>106,948</u>	<u>8,994,727</u>	<u>8,643,647</u>
Liabilities:								
Accrued expenses	675	119	900	—	2	7	1,703	1,466
Claims payable (note 6)	—	—	14,408	—	—	—	14,408	12,788
Forfeitures payable to employers	—	10,639	—	—	—	—	10,639	10,282
Securities lending collateral payable	19,674	—	10,365	14	129	373	30,555	55,150
Due to State of Alaska General Fund	—	—	—	—	—	—	—	1
Total liabilities	<u>20,349</u>	<u>10,758</u>	<u>25,673</u>	<u>14</u>	<u>131</u>	<u>380</u>	<u>57,305</u>	<u>79,687</u>
Net position restricted for pension benefits, postemployment healthcare benefits, and individuals	\$ 5,472,727	447,530	2,870,135	3,797	36,665	106,568	8,937,422	8,563,960

See accompanying notes to financial statements.

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Combining Statement of Changes in Fiduciary Net Position

Year ended June 30, 2018
 (With summarized financial information for June 30, 2017)

(In thousands)

	Defined benefit pension	Defined contribution pension	Other Postemployment Benefit Plans				System total June 30, 2018	System total June 30, 2017
			Alaska Retiree Healthcare Trust	Occupational death and disability	Retiree medical	Health reimbursement arrangement		
Additions:								
Contributions:								
Employers	\$ 39,835	23,710	19,305	—	3,271	10,829	96,950	96,418
Plan members	37,674	28,831	—	—	—	—	66,505	66,766
Nonemployer State of Alaska	111,757	—	—	—	—	—	111,757	116,700
Total contributions	189,266	52,541	19,305	—	3,271	10,829	275,212	279,884
Investment income:								
Net appreciation in fair value (note 2)	342,565	36,066	177,662	229	2,025	5,816	564,363	874,637
Interest	19,175	33	9,973	13	116	334	29,644	29,133
Dividends	72,967	—	38,315	49	450	1,299	113,080	107,142
Total investment income	434,707	36,099	225,950	291	2,591	7,449	707,087	1,010,912
Less investment expense	2,810	153	1,466	2	16	46	4,493	4,413
Net investment income before securities lending activities	431,897	35,946	224,484	289	2,575	7,403	702,594	1,006,499
Securities lending income	791	—	411	1	5	14	1,222	434
Less securities lending expense	145	—	75	—	1	3	224	86
Net income from securities lending activities	646	—	336	1	4	11	998	348
Net investment income	432,543	35,946	224,820	290	2,579	7,414	703,592	1,006,847
Other income	184	134	8,094	—	1	—	8,413	13,976
Total additions	621,993	88,621	252,219	290	5,851	18,243	987,217	1,300,707
Deductions:								
Pension and postemployment benefits	456,427	—	134,051	24	31	36	590,569	566,291
Refunds of contributions	2,084	11,135	—	—	—	—	13,219	12,296
Administrative	3,050	1,248	5,665	—	3	1	9,967	9,737
Total deductions	461,561	12,383	139,716	24	34	37	613,755	588,324
Net increase	160,432	76,238	112,503	266	5,817	18,206	373,462	712,383
Net position restricted for pension benefits, postemployment healthcare benefits, and individuals:								
Balance, beginning of year	5,312,295	371,292	2,757,632	3,531	30,848	88,362	8,563,960	7,851,577
Balance, end of year	\$ 5,472,727	447,530	2,870,135	3,797	36,665	106,568	8,937,422	8,563,960

See accompanying notes to financial statements.

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(1) Description

The State of Alaska Teachers' Retirement System (TRS or the System) is a component unit of the State of Alaska (the State). The System is administered by the Division of Retirement and Benefits within the Department of Administration. The Alaska Retirement Management Board (the Board), is responsible for overseeing the management and investment of the system. The Board consists of nine trustees as follows: two members, consisting of the commissioner of administration and the commissioner of revenue; two trustees who are members of the general public; one trustee who is employed as a finance officer for a political subdivision participating in either the Public Employees' Retirement System (PERS) or TRS; two trustees who are members of PERS; and two trustees who are members of TRS.

TRS acts as the common investment and administrative agency for the following multiple-employer plans:

Plan name	Type of plan
Defined Benefit Pension	Cost-sharing, Defined Benefit Pension
Defined Contribution Retirement Pension	Defined Contribution Pension
Defined Benefit Other Postemployment Benefits (OPEB)	
Alaska Retiree Healthcare Trust Plan	Cost-sharing, Defined Benefit OPEB
Occupational Death and Disability Plan	Cost-sharing, Defined Benefit OPEB
Retiree Medical Plan	Cost-sharing, Defined Benefit OPEB
Defined Contribution Other Postemployment Benefits	
Healthcare Reimbursement Arrangement Plan	Defined Contribution OPEB

At June 30, 2018 and 2017, the number of participating local government employers and public organizations, including the State, was as follows:

State of Alaska	1
School districts	53
Other	3
Total employers	57

Inclusion in the Defined Benefit Pension Plan (DB Plan) and Defined Contribution Retirement Pension Plan (DCR Plan) is a condition of employment for permanent school district, University of Alaska, and State Department of Education employees who meet the eligibility requirements for participation.

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Defined Benefit Pension Plan

General

The DB Plan provides pension benefits for teachers and other eligible members. Benefit and contribution provisions are established by State law and may be amended only by the State Legislature. With the passage of Senate Bill (SB) 141, the DB Plan is closed to all new members effective July 1, 2006.

The DB Plan's membership consisted of the following at June 30, 2018:

Inactive plan members or beneficiaries currently receiving benefits	12,962
Inactive plan members entitled to but not yet receiving benefits	801
Inactive plan members not entitled to benefits	1,906
Active plan members	<u>4,457</u>
Total DB Plan membership	<u><u>20,126</u></u>

Pension Benefits

Vested members hired prior to July 1, 1990 are entitled to pension benefits beginning at normal retirement age, 55, or early retirement age, 50. For members hired after June 30, 1990, the normal and early retirement ages are 60 and 55, respectively. Members may also retire at any age and receive a normal benefit when they accumulate the required credited service.

The normal annual pension benefit is based on years of service and average base salary. The average base salary is based upon the members' three highest contract years' salaries.

The benefit related to all years of credited service prior to July 1, 1990 and for years of service through a total of 20 years is equal to 2% of the employee's average base salary. The benefit for each year over 20 years of service subsequent to June 30, 1990 is equal to 2.5% of the employee's base salary.

Minimum benefits for members eligible for retirement are \$25 per month for each year of credited service.

Married members must receive their benefits in the form of a joint and survivor annuity unless their spouse consents to another form of benefit or benefits are payable under the 1% supplemental contributions provision.

The DB Plan has two types of postretirement pension adjustments (PRPA). The automatic PRPA is issued annually to all eligible benefit recipients when the cost of living increases in the previous calendar year. The automatic PRPA increase is paid beginning July 1 of each year. The discretionary PRPA may be granted to eligible recipients by the DB Plan's administrator if the funding ratio of the DB Plan meets or exceeds 105%. If both an automatic and discretionary PRPA are granted, and a retiree is eligible for both adjustments, the one that provides the retiree the greater increase will be paid.

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Contributions

Contributions requirements of the active plan members and the participating employers are actuarially determined and approved by the Board as an amount that, when combined, is expected to finance the costs of benefits earned by plan members during the year, with an additional amount to finance any unfunded accrued liability. The DB Plan members contribute 8.65% of their base salary as required by statute. The statutory employer effective contribution rate is 12.56% of annual payroll, which is allocated 8.40% to the DB Pension Plan and 4.16% to the DB ARHCT Plan as determined by the actuary of the Plan. Alaska Statute (AS) 14.25.085 provides that additional State contributions be made each July 1, or as soon after July 1, for the ensuing fiscal year that when combined with the total employer contributions are sufficient to pay the System's past service liability at the actuarially determined contribution rate adopted by the Board for that fiscal year. Additionally, there is a Defined Benefit Unfunded Liability (DBUL) amount levied against the DCR Plan payroll. The DBUL amount is computed as the difference between:

- (A) The amount calculated for the statutory employer contribution rate of 12.56% on eligible salary less
- (B) The total of the employer contributions for:
 - (1) The defined contribution employer matching amount
 - (2) Major medical
 - (3) Occupational death and disability
 - (4) Health reimbursement arrangement.

The difference is deposited based on an actuarial allocation into the DB Plan's pension and healthcare funds.

Refunds

DB Plan member contributions may be voluntarily or, under certain circumstances, involuntarily refunded to the employee or a garnishing agency 60 days after termination of employment. Voluntary refund rights are forfeited on July 1 following the member's 75th birthday or within 50 years of the member's last termination date. Members who have had contributions refunded forfeit all retirement benefits, including postemployment healthcare benefits. Members are allowed to reinstate refunded service due to involuntary refunds by repaying the total involuntary refunded balance and accrued interest. Members are allowed to reinstate voluntarily refunded service by repaying the voluntarily refunded balance and accrued interest, as long as they reestablish an employee relationship with a participating DB Plan employer before July 1, 2010. Members who have not reestablished an employee relationship with a participating DB Plan employer by June 30, 2010 will not be eligible to reinstate voluntarily refunded service and will forfeit any claim to DB Plan membership rights. Balances previously refunded to members accrue interest at the rate of 7.0% per annum compounded semiannually.

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Defined Contribution Retirement Pension Plan

General

The DCR Plan provides retirement benefits for eligible employees hired after July 1, 2006. Additionally, certain active members of the DB Plan were eligible to transfer to the DCR Plan if that member had not vested in the DB Plan. Benefit and contribution provisions are established by State law and may be amended only by the State Legislature.

At June 30, 2018, membership in the DCR Plan consisted of 4,937 members.

Retirement Benefits

A participating member is immediately and fully vested in that member's contributions and related earnings (losses). A member shall be fully vested in the employer contributions made on that member's behalf and related earnings (losses) after five years of service. A member is partially vested in the employer contributions made on that member's behalf and the related earnings in the ratio of (a) 25% with two years of service; (b) 50% with three years of service; (c) 75% with four years of service; and (d) 100% with five years of service.

Contributions

State statutes require an 8.0% contribution rate for DCR Plan members. Employers are required to contribute 7.0% of the member's compensation.

Participant Distributions and Refunds of Contributions

A member is eligible to request a refund of contributions from their account 60 days after termination of employment.

Participant Accounts

Participant accounts under the DCR Plan are self-directed with respect to investment options.

Each participant designates how contributions are to be allocated among the investment options. Each participant's account is credited with the participant's contributions and the appreciation or depreciation in unit value for the investment funds.

Record-keeping/administrative fees consisting of a fixed amount, applied in a lump sum each calendar year, and a variable amount, applied monthly, are deducted from each participant's account and applied pro rata to all the funds in which the employee participates. This fee is for all costs incurred by the recordkeeper and by the State. The investment management fees are netted out of the funds' performance.

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Defined Benefit Other Postemployment Benefit Plans

Alaska Retiree Healthcare Trust Plan

Beginning July 1, 2007, the Alaska Retiree Healthcare Trust Plan (ARHCT), a healthcare trust fund of the State, was established. The ARHCT is self-funded and provides major medical coverage to retirees of the DB Plan. The System retains the risk of loss of allowable claims for eligible members. The ARHCT began paying member healthcare claims on March 1, 2008. Prior to that, healthcare claims were paid for by the Retiree Health Fund.

Membership in the plan was as follows as of June 30, 2018:

Inactive plan members or beneficiaries currently receiving benefits	12,962
Inactive plan members entitled to but not yet receiving benefits	801
Inactive plan members not entitled to benefits	1,906
Active plan members	4,457
Total ARHCT Plan membership	20,126

OPEB Benefits

When pension benefits begin, major medical benefits are provided without cost to (1) all members first hired before July 1, 1990; (2) members hired after July 1, 1990, with 25 years of membership service; and (3) members who are disabled or age 60 or older, regardless of their initial hire dates. Members first hired after June 30, 1990, may receive major medical benefits prior to age 60 by paying premiums.

Contributions

Employer contribution rates are actuarially determined and adopted by the Board. The 2018 statutory employer effective contribution rate is 12.56% of member's compensation, with 4.16% specifically allocated to ARHCT.

Occupational Death and Disability Plan

The Occupational Death and Disability Plan (ODD) provides death benefits for beneficiaries of plan participants and long-term disability benefits to all active members within the System. Members in the Death and Disability Plan consisted of the following at June 30, 2018:

Active plan members	4,937
Participating employers	57
Open claims	7

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Death Benefits

If (1) the death of an employee occurs before the employee's retirement and before the employee's normal retirement date, (2) the proximate cause of death is a bodily injury sustained or a hazard undergone while in the performance and within the scope of the employee's duties, and (3) the injury or hazard is not the proximate result of willful negligence of the employee, then a monthly survivor's pension shall be paid to the surviving spouse. If there is no surviving spouse or if the spouse later dies, the monthly survivor's pension shall be paid in equal parts to the dependent children of the employee.

When benefits are payable under the 1% supplemental contribution provision, the DB Plan member's spouse is eligible for a spouse's pension if there is (are) no dependent child(ren). If there is (are) dependent child(ren), a survivor's allowance may be payable to the DB Plan member's spouse, or guardian of the dependent child(ren). The amount of the pension or allowance is determined by the DB Plan member's base salary. DB Plan members first hired after June 30, 1982 are not eligible to participate in this provision.

If an active DB Plan member dies from occupational causes, the spouse may receive a monthly pension from the DB Plan. When death is due to occupational causes and there is no surviving spouse, the DB Plan member's dependent child(ren) may receive a monthly pension until the child(ren) is(are) no longer dependents. If the member does not have a spouse or dependent children at the time of death, a lump-sum death benefit is payable to the named beneficiary(ies). The amount of the occupational death pension is 40% of the member's base salary at the time of death. The amount of the occupational death pension changes on the date the DB Plan member's normal retirement would have occurred if the DB Plan member had lived. The new benefit is based on the DB Plan member's average base salary at the time of death and the credited service that would have accrued had the DB Plan member lived and continued to work until normal retirement. If benefits are payable under the 1% supplemental contribution provision, benefits are not payable under this provision. If the death was from nonoccupational causes, and the DB Plan member was vested, the spouse may receive a monthly 50% joint and survivor option benefit based on the member's credited service and average base salary at the time of death. If the DB Plan member is not married or vested, a lump-sum death benefit is payable to the named beneficiary(ies).

The monthly survivor's pension section for survivors of DCR Plan employees is 40% of the employee's monthly compensation in the month in which the employee dies. While the monthly survivor's pension is being paid, the employer shall make contributions on behalf of the employee's beneficiaries based on the deceased employee's gross monthly compensation at the time of occupational death.

Disability Benefits

If a DB Plan member has been in membership service for five or more years for which contributions have been made, is not eligible for normal retirement benefits, and becomes permanently disabled, the DB Plan member is entitled to

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a monthly benefit. The annual disability benefit is equal to 50% of the base salary at the time of the disability plus an additional 10% of his/her base salary for each dependent child up to a maximum of four children. At normal retirement age, a disabled System member receives normal retirement benefits.

A DCR Plan member is eligible for an occupational disability benefit if employment is terminated because of a total and apparently permanent occupational disability before the employee's normal retirement date. The occupational disability benefits accrue beginning the first day of the month following termination of employment as a result of the disability and are payable the last day of the month. If a final determination granting the benefit is not made in time to pay the benefit when due, a retroactive payment shall be made to cover the period of deferment.

Contributions

An employer shall contribute to each member's account based on the member's compensation. For fiscal year 2018, the rate is 0.0%.

Retiree Medical Plan

The Retiree Medical Plan (RMP) is established under AS 14.25.480 – Medical Benefits. The Department of Administration, Division of Retirement and Benefits, which administers the System's health plans, finalized the Retiree Medical Plan for members eligible for the DCR Plan's health benefits plan in July 2016. Members are not eligible to use this plan until they have at least 10 years of service and are Medicare age eligible.

Membership in the plan consists of the following at June 30, 2018:

Inactive plan members or beneficiaries currently receiving benefits	13
Inactive plan members entitled to but not yet receiving benefits	610
Inactive plan members not entitled to benefits	2,387
Active plan members	4,937
Total RMP Plan membership	7,947

OPEB Benefits

The medical benefits available to eligible persons means that an eligible person may not be denied insurance coverage except for failure to pay the required premium. Major medical insurance coverage, to cover medical expenses, takes effect on the first day of the month following the date of the Plan administrator's approval of the election and stops when the person who elects coverage dies or fails to make the required premium payment. The coverage for persons 65 years of age or older is the same as that available for persons under 65 years of age. The benefits payable to those persons 65 years of age or older supplement any benefits provided under the federal old age, survivors, and disability insurance program. The medical and optional insurance premiums owed by the person who elects coverage may be

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deducted from the health reimbursement arrangement account until the account balance becomes insufficient to pay the premiums, at this time the person who elects coverage shall pay the premiums directly.

The cost of premiums for retiree major medical coverage for an eligible member or surviving spouse who is

- (1) not eligible for Medicare is an amount equal to the full monthly group premium for retiree major medical insurance coverage,
- (2) eligible for Medicare is the following percentage of the premium:
 - (a) 30 percent if the member had 10 or more, but less than 15, years of service;
 - (b) 25 percent if the member had 15 or more, but less than 20, years of service;
 - (c) 20 percent if the member had 20 or more, but less than 25, years of service;
 - (d) 15 percent if the member had 25 or more, but less than 30, years of service; and
 - (e) 10 percent if the member had 30 or more years of service.

Contributions

Employer contribution rates are actuarially determined and adopted by the Board. The 2018 employer effective contribution rate is 0.91% of member's compensation.

Defined Contribution Other Postemployment Benefit Plan

The Health Reimbursement Arrangement (HRA) Plan is established under AS 39.30.300. The Department of Administration, Division of Retirement and Benefits administers the System's health plans. The Health Reimbursement Arrangement Plan allows for medical care expenses to be reimbursed from individual savings accounts established for eligible persons. The HRA Plan became effective July 1, 2006, at which time contributions by employers began.

Membership in the plan was as follows as of June 30, 2018:

Inactive plan members or beneficiaries currently receiving benefits	9
Inactive plan members entitled to but not yet receiving benefits	614
Inactive plan members not entitled to benefits	2,387
Active plan members	4,937
	<hr/>
Total ODD Plan membership	7,947
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OPEB Benefits

Persons who meet the eligibility requirements of AS 14.25.470 are eligible for reimbursements from the individual account established for a member under the Plan but do not have to retire directly from the System.

The Plan Administrator may deduct the cost of monthly premiums from the HRA individual account for the Retiree Medical Plan insurance on behalf of an eligible person who elected the retiree major medical insurance under AS 14.25.480. Upon application of an eligible person, the Plan Administrator shall reimburse the costs for medical care expenses defined in 26 USC 213(d). Reimbursement is limited to the medical expenses of (1) an eligible member, the spouse of an eligible member, and the dependent children of an eligible member; or (2) a surviving spouse and the dependent children of an eligible member dependent on the surviving spouse. When the member's individual account balance is exhausted, any deductions from the HRA individual account end. If all eligible persons die before exhausting the member's individual account, the account balance reverts to the Plan.

Contributions

An employer shall contribute to the HRA Plan trust fund an amount equal to 3.00% of the average annual compensation of all employees of all employers in the TRS and PERS. The administrator maintains a record of each member to account for employer contributions on behalf of that member. The 2018 contribution amount was an annual contribution not to exceed \$2,084, and required for every pay period in which the employee is enrolled in the DCR Plan, regardless of the compensation paid during the year. An amount less than \$2,084 would be deposited to a member's account if that member worked less than a full year.

(2) Summary of Significant Accounting Policies

Basis of Accounting

The accompanying financial statements have been prepared using the economic resources measurement focus and on the accrual basis of accounting in conformity with U.S. generally accepted accounting principles (GAAP), as prescribed by the Governmental Accounting Standards Board (GASB). Contributions are due to the System when employee services have been performed and paid. Contributions are recognized as revenue when due pursuant to statutory requirements. Benefits and refunds are recognized when due and payable and expenses are recorded when the corresponding liabilities are incurred, regardless of when contributions are received or payment is made.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of additions and deductions during the reporting period. Actual results could differ from those estimates.

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Defined Benefit Pension and OPEB Investments

The System owns shares in various investment pools that are administered by the State of Alaska, Department of Revenue, Division of Treasury (Treasury). The System's investment in the pools except for the Short-term Fixed Income Pool, is reported at fair value based on the net asset value reported by the Treasury. The Short-term Fixed Income Pool maintains a share price of \$1. Each participant owns shares in the pool, the number of which fluctuates daily with contributions and withdrawals.

Defined Contribution Participant – Directed Investments

The Board contracts with an external investment manager who is given the authority to invest in a wholly owned pooled environment to accommodate 13 participant-directed funds. Additionally, the Board contracts with external managers who manage a mix of collective investment funds. Income for the Pooled Investment and Collective Investment Funds is credited to the fund's net asset value on a daily basis and allocated to pool participants daily on a pro rata basis.

Pooled Participant-directed Investment Funds, held in trust, are stated at fair value based on the unit value as reported by the Trustees multiplied by the number of units held by the Plan. The unit value is determined by the Trustees based on fair value of the underlying assets. Purchases and sales of securities are recorded on a trade-date basis. Underlying assets comprise domestic and international stocks, investment-grade bonds, federally guaranteed mortgages, money market instruments, and other cash equivalent instruments with maturities of less than one year, which include but are not limited to commercial paper, asset-backed securities, banker acceptances, certificates of deposit with ratings of A1/P1 or better, as well as obligations of the U.S. government and its agencies, and repurchase agreements collateralized by U.S. Treasury instruments.

Collective Investment Funds, held in trust, are stated at fair value based on the unit value as reported by the Trustees multiplied by the number of units held by the Plan. The unit value is determined by the Trustees based on fair value of the underlying assets. Purchases and sales of securities are recorded on a trade-date basis. Underlying assets are comprised of commingled investment funds, alongside other investors, through ownership of equity shares.

Contributions Receivable

Contributions from the System's members and employers applicable to payrolls received through July for wages paid for service through June 30 are accrued. These contributions are considered fully collectible, and accordingly, no allowance for uncollectible receivables is reflected in the financial statements.

Administrative Costs

Administrative costs are paid from investment earnings.

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Due from (to) State of Alaska General Fund

Amounts due from (to) the State of Alaska General Fund represent the amounts paid by the System on behalf of others and amounts paid by others on behalf of the System.

Federal Income Tax Status

The DB Plan and DCR Plan are qualified plans under Sections 401(a) and 414(d) of the Internal Revenue Code and are exempt from federal income taxes under Section 501(a).

(3) Investments

The Board is the investment oversight authority of the System's investments. As the fiduciary, the Board has the statutory authority to invest the assets under the Prudent Investor Rule. Fiduciary responsibility for the Board's invested assets is pursuant to AS 37.10.210-390.

AS 37.10.071 provides that investments shall be made with the judgment and care under circumstances then prevailing that an institutional investor of ordinary professional prudence, discretion, and intelligence exercises in managing large investment portfolios.

Treasury provides staff for the Board. Treasury has created a pooled environment by which it manages investments of the Board. Additionally, Treasury manages a mix of Pooled Investment Funds and Collective Investment Funds for the Defined Contribution (DC) Participant-Directed Pension Plans under the Board's fiduciary responsibility.

Actual investing is performed by investment officers in Treasury or by contracted external investment managers. The Board has developed investment guidelines, policies, and procedures for Treasury staff and external investment managers to adhere to when managing investments. Treasury manages the U.S. Treasury Fixed Income Pool, Real Estate Investment Trust Pool, and Treasury Inflation Protected Securities Pool, in addition to acting as oversight manager for all externally managed investments. All other investments are managed by external management companies.

The Short-term Fixed Income Pool is a State pool managed by Treasury that holds investments on behalf of the Board as well as other state funds.

Rate of Return

The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested. The annual money-weighted rate of return, net of investment expense for the year ended June 30, 2018 for the DB Plan is 8.30%, for the ARHCT is 8.33%, for the Occupational Death and Disability Plan is 8.24%, and for the Retiree Medical Plan is 7.92%.

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For additional information on securities lending, interest rate risk, credit risk, foreign exchange, derivatives, fair value, and counterparty credit risk, see the separately issued report on the Invested Assets of the State of Alaska Retirement and Benefits Plans at treasury.dor.alaska.gov/armb/Reports-and-Policies/Annual-Audited-Financial-Schedules.aspx.

(4) Net Pension Liability – Defined Benefit Pension Plan

The components of the net pension liability of the participating employers at June 30, 2018 were as follows (in thousands):

Total pension liability	\$ 7,387,056
Plan fiduciary net position	<u>(5,472,727)</u>
Employers' net pension liability	<u>\$ 1,914,329</u>
Plan fiduciary net position as a percentage of the total pension liability	74.09 %

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of June 30, 2017 using the following actuarial assumptions, applied to all periods included in the measurement, and rolled forward to the measurement date of June 30, 2018:

Inflation	3.12%
Salary increases	Graded by service, from 8.11% to 3.87%
Investment rate of return	8.00%, net of pension plan investment expenses. This is based on an average inflation rate of 3.12% and a real return of 4.88%.
Mortality	Post-termination mortality rates were based on 94% of the male rates and 97% of the female rates of the RP-2000 Mortality Table, 2000 Base Year projected to 2018 with Projection Scale BB, with a three-year setback for males and four-year setback for females. The rates for pretermination mortality were 68% of the male rates and 60% of female rates of the post-termination mortality rates. Deaths are assumed to result from nonoccupational causes 85% of the time.

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The actuarial assumptions used in the June 30, 2017 actuarial valuation were based on the results of an actuarial experience study for the period July 1, 2009 to June 30, 2013. The assumptions used in the June 30, 2017 actuarial valuation are the same as those used in the June 30, 2016 actuarial valuation.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and adding expected inflation. Best estimates of arithmetic rates of return for each major asset class included in the pension plan's target asset allocation as of June 30, 2018 are summarized in the following table (note that the rates shown below exclude the inflation component):

<u>Asset class</u>	<u>Long-term Expected real rate of return</u>	<u>Allocation</u>	<u>Range</u>
Domestic equity	8.90%	24.0 %	+/- 6%
Global ex-U.S. equity	7.85	22.0	+/- 4
Fixed Income	1.25	10.0	+/- 5
Opportunistic	4.76	10.0	+/- 5
Real assets	6.20	17.0	+/- 8
Absolute return	4.76	7.0	+/- 4
Private equity	12.08	9.0	+/- 5
Cash equivalents	0.66	1.0	+3/-1

Discount Rate

The discount rate used to measure the total pension liability was 8.00%. The projection of cash flows used to determine the discount rate assumed that employer and State contributions will continue to follow the current funding policy, which meets State statutes. 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 was applied to all periods of projected benefit payments to determine the total pension liability in accordance with the method prescribed by GASB Statement No. 67. In the event benefit payments are not covered by the plan's fiduciary net position, a municipal bond rate would be used to discount the benefit payments not covered by the plan's fiduciary net position. The S&P Municipal Bond 20-Year High Grade Index rate was 2.98% as of June 30, 2018.

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Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the System as of June 30, 2018 calculated using the discount rate of 8.00% as well as what the System's net pension liability would be if it were calculated using a discount rate that is one-percentage-point lower or one-percentage-point higher than the current rate (in thousands):

	<u>1.00% Decrease (7.00%)</u>	<u>Current discount rate (8.00%)</u>	<u>1.00% Increase (9.00%)</u>
Net pension liability	\$ 2,738,519	1,914,329	1,220,808

(5) Net OPEB Liability (Asset)

The components of the net OPEB liability (asset) of the participating employers for each plan at June 30, 2018 were as follows (in thousands):

	<u>ARHCT</u>	<u>ODD</u>	<u>RMP</u>
Total OPEB liability	\$ 3,181,074	291	33,466
Plan fiduciary net position	<u>(2,870,135)</u>	<u>(3,797)</u>	<u>(36,665)</u>
Employers' net OPEB liability (asset)	<u>\$ 310,939</u>	<u>(3,506)</u>	<u>(3,199)</u>
Plan fiduciary net position as a percentage of the total OPEB liability	90.23 %	1,304.81 %	109.56 %

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Actuarial Assumptions

The total OPEB liability for each plan was determined by actuarial valuations as of June 30, 2017 using the following actuarial assumptions, applied to all periods in the measurement, and rolled forward to the measurement date of June 30, 2018:

Inflation	3.12%
Salary increases	Graded by service, from 8.11% to 3.87%
Investment rate of return	8.00%, net of postretirement healthcare plan investment expenses. This is based on an average inflation rate of 3.12% and a real return of 4.88%.
Healthcare cost trend rates (ARHCT and RMP)	Pre-65 medical: 8.0% grading down to 4.0% Post-65 medical: 5.5% grading down to 4.0% Prescription drug: 9.0% grading down to 4.0% RDS/EGWP: 6.5% grading down to 4.0%
Mortality	Post-termination mortality rates were based on 94% of the male rates and 97% of the female rates of the RP-2000 Combined Mortality Table, 2000 Base Year projected to 2018 with Projection Scale BB, with a three-year setback for males and four-year setback for females. The rates for pretermination mortality were 68% of the male rates and 60% of female rates of the post-termination mortality rates.

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Participation rates reflect the expected plan election rate that varies by reason for decrement, duration that a member may pay full cost prior to Medicare eligibility and availability of alternative and/or lower cost options, particularly in the Medicare market. This assumption is based on observed trends in participation from a range of other plans. The following participation rates were used to measure the collective net OPEB liability of the Plan as of June 30, 2018:

<u>Decrement Due to Disability</u>		<u>Decrement Due to Retirement</u>	
<u>Age</u>	<u>Percent Participation</u>	<u>Age</u>	<u>Percent Participation</u>
<56	73.00%	55	40.00%
56	78.00	56	50.00
57	79.75	57	55.00
58	82.00	58	60.00
59	84.25	59	65.00
60	86.50	60	70.00
61	88.75	61	75.00
62	91.00	62	80.00
63	93.25	63	85.00
64	95.50	64	90.00
65+	94.40	65+	<u>Years of Service</u>
			<15
			15-19
			20-24
			25-29
			30+
			70.50%
			75.20
			79.90
			89.30
			94.00

The actuarial assumptions used in the June 30, 2017 actuarial valuations were based on the results of an actuarial experience study for the period from July 1, 2009 to June 30, 2013. The assumptions used in the June 30, 2017 actuarial valuation are the same as those used in the June 30, 2016 valuation with the following exceptions:

1. The medical trend rate assumption was updated to reflect anticipated increases in costs based on recent survey data.
2. An obligation for the Cadillac Tax was added to the June 30, 2017 valuation because it was no longer deemed immaterial due to the updated trend rates and the change to use chained Consumer Price Index (which was part of the Tax Cut and Jobs Act passed in December 2017) to project the tax thresholds in future years.
3. Per capita claims costs were updated reflecting recent experience.

The long-term expected rate of return on postretirement healthcare plan investments for each plan was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of postretirement healthcare plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and adding expected inflation. Best estimates of arithmetic rates of

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return for each major asset class included in the plans' target asset allocation as of June 30, 2018 (see the discussion of the plans' investment policy) are summarized in the following table (note that the rates shown below exclude the inflation component):

<u>Asset class</u>	<u>Long-term Expected real rate of return</u>	<u>Allocation</u>	<u>Range</u>
Domestic equity	8.90%	24.0 %	+/- 6%
Global ex-U.S. equity	7.85	22.0	+/- 4
Fixed Income	1.25	10.0	+/- 5
Opportunistic	4.76	10.0	+/- 5
Real assets	6.20	17.0	+/- 8
Absolute return	4.76	7.0	+/- 4
Private equity	12.08	9.0	+/- 5
Cash equivalents	0.66	1.0	+3/-1

Discount Rate

The discount rate used to measure the total OPEB liability for each plan was 8.00%. The projection of cash flows used to determine the discount rate assumed that employer and State contributions will continue to follow the current funding policy, which meets State statutes. Based on those assumptions, the fiduciary net position for each plan 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 plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability for each plan in accordance with the method prescribed by GASB Statement No. 74. In the event benefit payments are not covered by the plan's fiduciary net position, a municipal bond rate would be used to discount the benefit payments not covered by the plan's fiduciary net position. The S&P Municipal Bond 20-Year High Grade Index rate was 2.98% as of June 30, 2018. The corresponding rate was 3.13% as of June 30, 2017.

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Sensitivity of the Net OPEB Liability to Changes in the Discount Rate

The following presents the net OPEB liability (asset) for each plan as of June 30, 2018 calculated using the discount rate of 8.00% as well as what the respective plan's net OPEB liability (asset) would be if it were calculated using a discount rate that is one-percentage-point lower or one-percentage-point higher than the current rate (in thousands):

	1.00% Decrease (7.00%)	Current discount rate (8.00%)	1.00% Increase (9.00%)
ARHCT	\$ 738,084	310,939	(41,644)
ODD	(3,524)	(3,506)	(3,496)
RMP	5,462	(3,199)	(9,786)

Sensitivity of the Net OPEB Liability to Changes in the Healthcare Cost Trend Rates

The following presents the net OPEB liability (asset) for each plan as of June 30, 2018 calculated using the healthcare cost trend rates as summarized in the 2017 actuarial valuation reports as well as what the respective plan's net OPEB liability would be if it were calculated using trend rates that are one-percentage-point lower or one-percentage-point higher than the current healthcare cost trend rates (in thousands):

	1.00% Decrease	Current healthcare cost trend rate	1.00% Increase
ARHCT	\$ (84,699)	310,939	793,808
ODD	N/A	N/A	N/A
RMP	(11,025)	(3,199)	7,582

(6) Claims Payable

The liability for claims incurred but not reported represents the estimated amounts necessary to settle all outstanding claims, incurred but not reported, as of the balance sheet date. The ARHCT and RMP's reserve estimates are based primarily on historical development patterns adjusted for current trends that would modify past experience. Claims are reevaluated periodically to consider the effects of inflation, claims settlement trends, and other economic factors. The process of establishing loss reserves is subject to uncertainties that are normal, recurring, and inherent in the healthcare business.

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Changes in the balances of claims liabilities are as follows (in thousands):

		2018
Total, beginning of year	\$	12,788
Benefit deductions		134,082
Benefits paid		(132,462)
Total, end of year	\$	14,408
End of year:		
Incurred but not reported		14,408
Total, end of year	\$	14,408

(7) Commitments and Contingencies

Contingencies

The Division of Retirement and Benefits is a defendant in various lawsuits. Although the outcome of these lawsuits is not presently determinable, in the opinion of the Division of Retirement and Benefits' counsel, the resolution of these matters will not have a material adverse effect on the financial condition of the Division of Retirement and Benefits.

(8) Medicare Part D Retiree Drug Subsidy

One of the provisions of Medicare Part D provides sponsors of pension healthcare plans the opportunity to receive a Retiree Drug Subsidy (RDS) payment if the sponsor's plan provides a prescription drug benefit that is actuarially equivalent to the Medicare Part D benefit. The RDS is equal to 28% of the amount of eligible prescription drug benefit costs of retirees who are eligible for, but not enrolled in, Medicare Part D, by virtue of continuing to be covered by the sponsor's plan. The ARHCT Plan was approved for participation in the Medicare Part D program beginning calendar year 2006.

REQUIRED SUPPLEMENTARY INFORMATION **(Unaudited)**

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Required Supplementary Information (Unaudited)
Schedule of Changes in Employer Net Pension Liability and Related
Ratios Defined Benefit Pension Plan
(In thousands)

	2018	2017	2016	2015	2014	2013	2012
Total pension liability:							
Service cost	\$ 64,961	68,376	61,011	63,608	64,324	69,113	69,548
Interest	572,791	559,165	550,392	540,981	515,325	517,511	501,252
Differences between expected and actual experience	(131,092)	(65,757)	(55,682)	(5,693)	—	1,108	10,986
Changes of assumptions	—	—	—	156,854	—	—	—
Benefit payments, including refunds of member contributions	(458,511)	(448,422)	(437,582)	(418,545)	(399,001)	(397,956)	(378,113)
Net change in total pension liability	48,149	113,362	118,139	337,205	180,648	189,776	203,673
Total pension liability – beginning	7,338,907	7,225,545	7,107,406	6,770,201	6,589,553	6,399,777	6,196,104
Total pension liability – ending (a)	7,387,056	7,338,907	7,225,545	7,107,406	6,770,201	6,589,553	6,399,777
Plan fiduciary net position:							
Contributions – employer	39,835	36,634	33,478	36,374	37,571	37,372	38,189
Contributions – member	37,674	39,878	42,654	45,506	47,724	50,201	52,020
Contributions – nonemployer entity (State)	111,757	116,700	90,589	1,662,700	208,890	196,945	157,387
Total net investment income (loss)	432,543	628,184	(31,340)	152,561	599,958	373,868	2,190
Benefit payments, including refunds of member contributions	(458,511)	(448,422)	(437,582)	(418,545)	(399,001)	(382,933)	(363,839)
Administrative expenses	(3,050)	(2,890)	(2,648)	(2,789)	(3,160)	(2,989)	(2,847)
Other income	184	10	95	9	27	19	17
Net change in plan fiduciary net position	160,432	370,094	(304,754)	1,475,816	492,009	272,483	(116,883)
Plan fiduciary net position – beginning	5,312,295	4,942,201	5,246,955	3,771,139	3,279,130	3,006,647	3,123,530
Plan fiduciary net position – ending (b)	5,472,727	5,312,295	4,942,201	5,246,955	3,771,139	3,279,130	3,006,647
Plan's net pension liability (a) - (b)	\$ 1,914,329	2,026,612	2,283,344	1,860,451	2,999,062	3,310,423	3,393,130
Plan fiduciary net position as a percentage of the total pension liability	74.09%	72.39%	68.40%	73.82%	55.70%	49.76%	46.98%
Covered-employee payroll	\$ 425,841	449,629	473,734	490,667	514,035	550,044	561,971
Net pension liability as a percentage of covered-employee payroll	449.54%	450.73%	481.99%	379.17%	583.44%	601.85%	603.79%

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Required Supplementary Information (Unaudited)
Schedule of Employer and Nonemployer Contributions
Defined Benefit Pension Plan

Last 10 Fiscal Years

(In thousands)

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Actuarially determined contribution	\$ 144,391	133,417	359,790	321,971	240,366
Contributions in relation to the actuarially determined contribution	151,593	153,334	124,067	1,699,074	246,461
Contribution deficiency (excess)	\$ (7,202)	(19,917)	235,723	(1,377,103)	(6,095)
Covered-employee payroll	\$ 425,841	449,629	473,734	490,667	514,035
Contributions as a percentage of covered-employee payroll	35.60%	34.10%	26.19%	346.28%	47.95%

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Schedule of Employer and Nonemployer Contributions
Defined Benefit Pension Plan (continued)

Last 10 Fiscal Years

(In thousands)

	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>
Actuarially determined contribution	\$ 259,786	229,509	167,978	170,788	94,388
Contributions in relation to the actuarially determined contribution	234,317	195,576	142,147	134,275	131,533
Contribution deficiency (excess)	\$ <u>25,469</u>	<u>33,933</u>	<u>25,831</u>	<u>36,513</u>	<u>(37,145)</u>
Covered-employee payroll	\$ 550,044	561,971	584,068	564,887	557,026
Contributions as a percentage of covered-employee payroll	42.60%	34.80%	24.34%	23.77%	23.61%

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Schedule of Investment Returns

Defined Benefit Pension Plan

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Annual money-weighted rate of return, net of investment expense	8.30%	13.04%	(0.36%)	3.30%	18.41%

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Required Supplementary Information (Unaudited)

Schedule of Changes in Employer Net OPEB Liability and Related Ratios Alaska Retiree Health Trust Plan

(In thousands)

	2018	2017
Total OPEB liability:		
Service cost	\$ 32,821	31,605
Interest	232,774	224,435
Differences between expected and actual experience	(57,990)	(27,011)
Changes of assumptions	163,911	—
Benefit payments, including refunds of member contributions	(132,040)	(120,204)
Net change in total OPEB liability	239,476	108,825
Total OPEB liability – beginning	2,941,598	2,832,773
Total OPEB liability – ending (a)	3,181,074	2,941,598
Plan fiduciary net position:		
Contributions – employer	19,305	24,069
Contributions – Retiree Drug Subsidy	1,894	—
Total net investment income	224,820	322,219
Benefit payments, including refunds of member contributions	(132,040)	(120,204)
Administrative expenses	(1,527)	(5,908)
Other income	18	13,909
Net change in plan fiduciary net position	112,470	234,085
Plan fiduciary net position – beginning	2,757,665	2,523,580
Plan fiduciary net position – ending (b)	2,870,135	2,757,665
Plan's net OPEB liability (a) – (b)	\$ 310,939	183,933
Plan fiduciary net position as a percentage of the total OPEB liability	90.23%	93.75%
Covered-employee payroll	\$ 425,841	449,629
Net OPEB liability as a percentage of covered-employee payroll	73.02%	40.91%

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Required Supplementary Information (Unaudited)
Schedule of Employer and Nonemployer Contributions
Alaska Retiree Healthcare Trust Plan
Last 10 Fiscal Years
(In thousands)

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Actuarially determined contribution	\$ 19,518	42,171	336,595	352,417	320,797
Contributions in relation to the actuarially determined contribution	<u>19,305</u>	<u>24,069</u>	<u>66,099</u>	<u>364,222</u>	<u>139,936</u>
Contribution deficiency	\$ <u>213</u>	<u>18,102</u>	<u>270,496</u>	<u>(11,805)</u>	<u>180,861</u>
Covered-employee payroll	\$ 425,841	449,629	473,734	490,667	514,035
Contributions as a percentage of covered-employee payroll	4.53%	5.35%	13.95%	74.23%	27.22%

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Required Supplementary Information (Unaudited)
Schedule of Employer and Nonemployer Contributions
Alaska Retiree Health Trust Plan (continued)

Last 10 Fiscal Years

(In thousands)

	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>
Actuarially determined contribution	\$ 330,411	192,700	167,686	312,922	164,171
Contributions in relation to the actuarially determined contribution	<u>141,125</u>	<u>113,411</u>	<u>124,724</u>	<u>115,681</u>	<u>149,051</u>
Contribution deficiency	\$ <u>189,286</u>	<u>79,289</u>	<u>42,962</u>	<u>197,241</u>	<u>15,120</u>
Covered-employee payroll	\$ 550,044	561,971	584,068	564,887	557,026
Contributions as a percentage of covered-employee payroll	25.66%	20.18%	21.35%	20.48%	26.76%

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Required Supplementary Information (Unaudited)

Schedule of Investment Returns

Alaska Retiree Healthcare Trust Plan

	<u>2018</u>	<u>2017</u>
Annual money-weighted rate of return, net of investment expense	8.33%	12.58%

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Required Supplementary Information (Unaudited)
Schedule of Changes in Employer Net OPEB Liability and Related
Ratios Occupational Death and Disability Plan
(In thousands)

	2018	2017
Total OPEB liability:		
Service cost	\$ 259	238
Interest	41	21
Changes of benefit terms	—	—
Differences between expected and actual experience	(248)	(15)
Benefit payments	(24)	—
Net change in total OPEB liability	28	244
Total OPEB liability – beginning	263	19
Total OPEB liability – ending (a)	291	263
Plan fiduciary net position:		
Total net investment income	290	406
Benefit payments	(24)	—
Administrative expenses	—	(12)
Net change in plan fiduciary net position	266	394
Plan fiduciary net position – beginning	3,531	3,137
Plan fiduciary net position – ending (b)	3,797	3,531
Plan's net OPEB asset (a) – (b)	\$ (3,506)	(3,268)
Plan fiduciary net position as a percentage of the total OPEB asset	1,304.81%	1,342.59%
Covered-employee payroll	\$ 327,765	300,750
Net OPEB liability as a percentage of covered-employee payroll	(1.07%)	(1.09%)

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Required Supplementary Information (Unaudited)
Schedule of Employer and Nonemployer Contributions
Occupational Death and Disability Plan

Last 10 Fiscal Years

(In thousands)

	2018	2017	2016	2015	2014
Actuarially determined contribution	\$ —	—	—	—	—
Contributions in relation to the actuarially determined contribution	—	—	1	—	—
Contribution deficiency	\$ —	—	(1)	—	—
Covered-employee payroll	\$ 327,765	300,750	289,714	255,186	229,971
Contributions as a percentage of covered-employee payroll	0.00%	0.00%	0.00%	0.00%	0.00%

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

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Schedule of Employer and Nonemployer Contributions
Occupational Death and Disability Plan (continued)

Last 10 Fiscal Years

(In thousands)

	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>
Actuarially determined contribution	\$ —	—	474	442	623
Contributions in relation to the actuarially determined contribution	<u>—</u>	<u>(1)</u>	<u>474</u>	<u>442</u>	<u>623</u>
Contribution deficiency	\$ —	1	—	—	—
Covered-employee payroll	\$ 206,771	200,043	170,606	118,813	89,708
Contributions as a percentage of covered-employee payroll	0.00%	0.00%	0.28%	0.37%	0.69%

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

Financial Section

State of Alaska
Teachers' Retirement System
(A Component Unit of the State of Alaska)

Required Supplementary Information (Unaudited)

Schedule of Investment Returns

Occupational Death and Disability Plan

	<u>2018</u>	<u>2017</u>
Annual money-weighted rate of return, net of investment expense	8.24%	12.03%

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

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State of Alaska
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Required Supplementary Information (Unaudited)

Schedule of Changes in Employer Net OPEB Liability and Related Ratios Retiree Medical Plan

(In thousands)

	2018	2017
Total OPEB liability:		
Service cost	\$ 3,247	2,703
Interest	2,347	1,934
Differences between expected and actual experience	(389)	(2)
Changes of assumptions	2,184	—
Benefit payments, including refunds of member contributions	(31)	(3)
Net change in total OPEB liability	7,358	4,632
Total OPEB liability – beginning	26,108	21,476
Total OPEB liability – ending (a)	33,466	26,108
Plan fiduciary net position:		
Contributions – employers	3,271	3,524
Total net investment income	2,579	3,260
Benefit payments, including refunds of member contributions	(31)	(3)
Administrative expenses	(3)	(12)
Other income	1	—
Net change in plan fiduciary net position	5,817	6,769
Plan fiduciary net position – beginning	30,848	24,079
Plan fiduciary net position – ending (b)	36,665	30,848
Plan's net OPEB asset (a) – (b)	\$ (3,199)	(4,740)
Plan fiduciary net position as a percentage of the total OPEB asset	109.56%	118.16%
Covered-employee payroll	\$ 327,765	300,750
Net OPEB asset as a percentage of covered-employee payroll	(0.98%)	(1.58%)

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

Financial Section

State of Alaska
Teachers' Retirement System
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Required Supplementary Information (Unaudited)
Schedule of Employer and Nonemployer Contributions
Retiree Medical Plan
Last 10 Fiscal Years

(In thousands)

	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>
Actuarially determined contribution	\$ 2,983	3,158	6,837	6,099	1,334
Contributions in relation to the actuarially determined contribution	<u>3,271</u>	<u>3,524</u>	<u>6,317</u>	<u>5,670</u>	<u>1,181</u>
Contribution deficiency	\$ <u>(288)</u>	<u>(366)</u>	<u>520</u>	<u>429</u>	<u>153</u>
Covered-employee payroll	\$ 327,765	300,750	289,714	255,186	229,971
Contributions as a percentage of covered-employee payroll	1.00%	1.17%	2.18%	2.22%	0.51%

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

State of Alaska
Teachers' Retirement System
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Required Supplementary Information (Unaudited)
Schedule of Employer and Nonemployer Contributions
Retiree Medical Plan (continued)

Last 10 Fiscal Years

(In thousands)

	<u>2013</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>	<u>2009</u>
Actuarially determined contribution	\$ 1,241	1,420	1,422	1,628	1,162
Contributions in relation to the actuarially determined contribution	<u>1,101</u>	<u>1,160</u>	<u>1,154</u>	<u>1,421</u>	<u>992</u>
Contribution deficiency	\$ <u>140</u>	<u>260</u>	<u>268</u>	<u>207</u>	<u>170</u>
Covered-employee payroll	\$ 206,771	200,043	170,606	118,813	89,708
Contributions as a percentage of covered-employee payroll	0.53%	0.58%	0.68%	1.20%	1.11%

See accompanying notes to required supplementary information (unaudited) and independent auditors' report.

State of Alaska
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Required Supplementary Information (Unaudited)

Schedule of Investment Returns

Retiree Medical Plan

	<u>2018</u>	<u>2017</u>
Annual money-weighted rate of return, net of investment expense	7.92%	11.80%

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

This schedule is intended to present information for 10 years. Additional years will be displayed as they become available.

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State of Alaska
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Notes to Required Supplementary Information (Unaudited)

June 30, 2018

(1) Description of Schedule of Funding Progress

Each time a new benefit is added, which applies to service already rendered, an “unfunded actuarial accrued liability” is created. Laws governing the Teachers' Retirement System (the System) require that these additional liabilities be financed systematically over a period of future years. Also, if actual financial experiences are less favorable than assumed financial experiences, the difference is added to the unfunded actuarial accrued liability.

In an inflationary economy, the value of the dollar is decreasing. This environment results in employee pay increasing in dollar amounts, resulting in unfunded actuarial accrued liabilities increasing in dollar amounts, all at a time when the actual value of these items, in real terms, may be decreasing.

(2) Actuarial Assumptions and Methods

The actuarial valuation was prepared by Conduent Human Resource Services. The significant actuarial methods and assumptions used in the defined benefit pension and postemployment healthcare benefit plan valuation as of June 30, 2017 are as follows:

- (a) Actuarial cost method – Entry Age Normal Actuarial Cost Method. Any funding surplus or unfunded accrued liability is amortized over a closed 25-year period (established June 30, 2014) as a level percentage of payroll amount. State statutes allow the contribution rate to be determined on payroll for all members, defined benefit and defined contribution member payroll combined.
- (b) Valuation of assets – The actuarial asset value was reinitialized to equal fair value of assets as of June 30, 2014. Beginning in FY15, the asset value method recognizes 20% of the gain or loss each year for a period of five years. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from audited financial statements.
- (c) Valuation of medical benefits – Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods (i.e., medical claims, prescription drug claims, administrative costs, etc.). Separate analysis is limited by the availability and historic credibility of cost and enrollment data for each component of cost. This valuation reflects nonprescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.
- (d) Investment return – 8.00% per year (geometric), compounded annually, net of expenses.

State of Alaska
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Notes to Required Supplementary Information (Unaudited)

(In thousands)

- (e) Salary scale – Inflation 3.12% per year and productivity 0.50% per year.
- (f) Payroll growth – 3.62% per year (inflation + productivity).
- (g) Total inflation – Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 3.12% annually.
- (h) Mortality (pretermination) – Based on the 2010–2013 actual experience, 68% of male rates and 60% of female rates of post-termination mortality. Deaths are assumed to result from nonoccupational causes 85% of the time. The mortality assumptions include an allowance for expected future mortality improvement. The mortality table used was set in 2014 with an actual deaths to expected deaths ration of 109%.
- (i) Mortality (post-termination) – Based on the 2010–2013 actual experience, 94% of male and 97% of female rates of RP-2000, 2000 base year, projected to 2018 with Projection Scale BB, with a three-year setback for males and a four-year setback for females. The mortality assumptions include an allowance for expected future mortality improvement. The mortality table used was set in 2014 with an actual deaths to expected deaths ration of 109%.
- (j) Total turnover – Based upon the 2010–2013 actual withdrawal experience.
- (k) Disability – Incidence rates based on the 2010–2013 actual experience. Postdisability mortality in accordance with the RP-2000 Disabled Retiree Mortality Table, 2000 Base Year, projected to 2018 with Projection Scale BB.
- (l) Retirement – Retirement rates based on the 2010–2013 actual experience. Deferred vested members are assumed to retire at their earliest unreduced retirement date. The modified cash refund annuity is valued as a three-year certain and life annuity.
- (m) Marriage and age difference – Wives are assumed to be three years younger than husbands; 85% of male members and 75% of female members are assumed to be married.
- (n) Dependent children – Benefits for dependent children have been valued only for members currently covering their dependent children. These benefits are only valued through the dependent children's age 23 (unless the child is disabled).
- (o) Contribution refunds – 5% of terminating members with vested benefits are assumed to have their contributions refunded; 100% of those with nonvested benefits are assumed to have their contributions refunded.

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June 30, 2018

- (p) Imputed data – Data changes from the prior year, which are deemed to have an immaterial impact on liabilities and contribution rates, are assumed to be correct in the current year's client data. Nonvested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.
- (q) Active rehire assumption – The normal cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. The normal cost shown in the report includes the following percentage assumptions (which were developed based on the prior five years of rehire loss experience through June 30, 2015): Pension – 18.49% and Healthcare – 10.39%.
- (r) Active data adjustment – To reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date, participants who are listed as terminated in the June 30 census data file but active in the October 1 census data file are updated to active status as of June 30.
- (s) Cost of living allowance (COLA) – Of those benefit recipients who are eligible for the COLA, 60% are assumed to remain in Alaska and receive the COLA.
- (t) Sick leave – 4.5 days of unused sick leave for each year of service are assumed to be available to be credited once the member is retired, terminates, or dies.
- (u) Postretirement pension adjustment (PRPA) – 50.00% and 75.00% of assumed inflation, or 1.56% and 2.34%, respectively, is valued for the annual automatic PRPA as specified in the statute.
- (v) Expenses – The investment return assumption is net of all expenses.
- (w) Part-time status – Part-time members are assumed to earn 0.75 years of credited service per year.
- (x) Reemployment option – All reemployed retirees are assumed to return to work under the Standard Option.
- (y) Service – Total credited service is provided by the State. The actuary assumes that this service is the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes.
- (z) Final average earnings – Final average earnings is provided on the data for active members. This amount is used as a minimum in the calculation of the average earnings in the future.

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(In thousands)

- (aa) Per capita claims cost – Sample claims cost rates adjusted to age 65 for FY2018 medical and prescription drug benefits are shown below:

	Medical	Prescription drugs
Pre-Medicare	\$ 13,682	3,493
Medicare Parts A and B	1,485	3,706
Medicare Part B Only	4,722	3,706
Medicare Part D	N/A	659

- (bb) Third-party administrator fees – \$236 per person per year; assumed trend rate of 4% per year.
- (cc) Medicare Part B Only – For active employees and retirees not yet Medicare-eligible, participation is set based on whether the member/retiree will have 40 quarters of employment covered by Social Security after March 31, 1986 depending upon date of hire and/or rehire.
- (dd) Healthcare cost trend – The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 8.0% is applied to the FY2018 pre-Medicare medical claims costs to get the FY2019 medical claims costs:

	Medical Pre-65	Medical Post-65	Prescription drugs	RDS/ EGWP
FY18	8.0 %	5.5 %	9.0 %	6.5 %
FY19	7.5	5.5	8.5	6.2
FY20	7.0	5.4	8.0	6.0
FY21	6.5	5.4	7.5	5.7
FY22	6.3	5.4	7.1	5.5
FY23	6.1	5.4	6.8	5.4
FY24	5.9	5.4	6.4	5.2
FY25	5.8	5.4	6.1	5.0
FY26	5.6	5.4	5.7	4.8
FY27-FY40	5.4	5.4	5.4	4.7
FY41	5.2	5.2	5.2	4.6
FY42	5.1	5.1	5.1	4.5
FY43	5.0	5.0	5.0	4.5
FY44	4.8	4.8	4.8	4.4
FY45	4.7	4.7	4.7	4.3
FY46	4.5	4.5	4.5	4.2
FY47	4.4	4.4	4.4	4.2
FY48	4.3	4.3	4.3	4.1
FY49	4.1	4.1	4.1	4.0
FY50+	4.0	4.0	4.0	4.0

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June 30, 2018

For the June 30, 2014 valuations and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts that are projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska. The model was updated this year to use the newest version and incorporate recent trend survey information, which generated the updated trend rates shown above.

- (ee) The table below shows the amount each trend rate shown above was increased by to account for the CadillacTax.

	Pre-65	Post-65		Pre-65	Post-65
FY18-FY29	— %	— %	FY60	0.04 %	0.39 %
FY30	—	0.14	FY61	0.04	0.38
FY31	—	0.23	FY62	0.04	0.38
FY32	—	0.24	FY63	0.04	0.37
FY33	—	0.21	FY64	0.14	0.37
FY34	—	0.20	FY65	0.18	0.36
FY35	—	0.20	FY66	0.18	0.36
FY36	—	0.20	FY67	0.17	0.35
FY37	—	0.16	FY68	0.17	0.35
FY38	0.05	0.17	FY69	0.17	0.34
FY39	0.08	0.15	FY70	0.17	0.34
FY40	0.07	0.13	FY71	0.16	0.33
FY41	0.06	0.10	FY72	0.16	0.33
FY42	0.05	0.08	FY73	0.16	0.32
FY43	0.03	0.05	FY74	0.16	0.32
FY44	0.02	0.03	FY75	0.16	0.31
FY45	0.02	0.03	FY76	0.15	0.31
FY46	0.02	0.02	FY77	0.15	0.31
FY47	0.02	0.03	FY78	0.15	0.30
FY48	0.02	0.03	FY79	0.15	0.30
FY49	0.03	0.05	FY80	0.15	0.29
FY50	0.02	0.04	FY81	0.14	0.29
FY51	0.03	0.06	FY82	0.14	0.28
FY52	0.03	0.06	FY83	0.14	0.28
FY53	0.04	0.14	FY84	0.14	0.28
FY54	0.04	0.41	FY85	0.14	0.27
FY55	0.04	0.41	FY86	0.14	0.27
FY56	0.04	0.41	FY87	0.13	0.26
FY57	0.04	0.41	FY88	0.13	0.26
FY58	0.04	0.41	FY89	0.13	0.26
FY59	0.04	0.40	FY90	0.13	0.25

Financial Section

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(In thousands)

(ff) Aging factors:

Age	Medical	Prescription drugs
0-44	2.0 %	4.5 %
45-54	2.5	3.5
55-64	3.5	3.0
65-74	4.0	1.5
75-84	1.5	0.5
85-95	0.5	—
96+	—	—

Note that pre-65, the factor represents the percentage increase from the ages noted to the next age. However, post-65, the factor represents the percentage decrease from the ages noted up to age in the range. That is, 2.5% is used to adjust from 54 to 55, but 1.5% is used to adjust from age 83 back to age 84.

(gg) Retired member contributions for medical benefits – Currently, contributions are required for System members who are under age 60 and have less than 25 years of service. Eligible Tier 1 members are exempt from contribution requirements. Annual FY2018 contributions based on monthly rates shown below for calendar 2017 and 2018 are assumed based on the coverage category for current retirees. The composite rate shown is used for current active and inactive members in Tier 2 who are assumed to retire prior to age 60 with less than 25 years of service and who are not disabled. For dependent children, we value one-third of the annual retiree contribution to estimate the per-child rate based on the assumed number of children in rates where children are covered:

Coverage category	Calendar 2018		Calendar 2017
	Annual contribution	Monthly contribution	Monthly contribution
Retiree only	\$ 9,324	777	777
Retiree and spouse	18,648	1,554	1,554
Retiree and child(ren)	13,164	1,097	1,097
Retiree and family	22,500	1,875	1,875
Composite	13,848	1,154	1,154

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(hh) Trend rate for retired member contributions – The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 8.0% is applied to the FY2018 retired member medical contributions to get the FY2019 retired member medical contributions:

Fiscal year	Trend assumption
2018	8.0 %
2019	7.6
2020	7.2
2021	6.8
2022	6.5
2023	6.3
2024	6.0
2025	5.9
2050	4.0
2100	4.0

Graded trend rates for retired member medical contributions were reinitialized for the June 30, 2014 valuation and updated to the rates shown above for the June 30, 2017 valuation. Actual FY2018 retired member medical contributions are reflected in the valuation.

(ii) Healthcare participation – 100% of System-paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible; 10% of non-System-paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible.

The significant actuarial methods and assumptions used in the defined contribution occupational death and disability and retiree medical benefits plan valuation as of June 30, 2017 are as follows:

- (a) Actuarial cost method – Liabilities and contributions are computed using Entry Age Normal Actuarial Cost Method. Any funding surpluses or unfunded actuarial accrued liability is amortized over 25 years as a level percentage of expected payroll. However, in keeping with Governmental Accounting Standards Board (GASB) requirements in effect when the plan was adopted, the net amortization period will not exceed 30 years. Under the new accounting standards (GASB Statement Nos. 74 and 75), the GASB requirements will not directly control amortization periods used for funding of the plan.
- (b) Valuation of assets – Recognizes 20% of the investment gain or loss in each of the current and preceding four years. This method was phased in over five years. Fair value of assets was \$0 as of June 30, 2006. All

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(In thousands)

assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements. Valuation assets are constrained to a range of 80% to 120% of fair value of assets.

- (c) Valuation of retiree medical and prescription drug benefits – Due to the lack of experience for the DCR retiree medical plan only, base claims costs are based on those described in the actuarial valuation as of June 30, 2017 for the Defined Benefit (DB) retiree medical plan were used with some adjustments. The claims costs were adjusted to reflect the differences between the DCR medical plan and the DB medical plan. These differences include network steerage, different coverage levels, different Medicare coordination for medical benefits, and an indexing of the retiree out-of-pocket dollar amounts. To account for higher initial copays, deductibles, and out-of-pocket limits, upcoming FY2018 claims cost were reduced 2.1% for medical claims, and 10.4% for prescription drugs. In addition, to account for the difference in Medicare coordination, upcoming FY2018 medical claims costs for Medicare eligible retirees were further reduces 29.3%. The medical and prescription drug percentages mentioned above were reduced 0.2% in each future year for the DCR medical benefits to reflect the fact that the medical benefit to be offered to DCR members will have an annual indexing of member cost sharing features, such as deductibles and out-of-pocket amounts.

The State intends to transition to an Employer Group Waiver Program (EGWP) for this group in 2019. That impact is reflected in the valuation, but not in the base cost rates for 2017 or 2018. We estimated the impact of the EGWP plan by offsetting an amount equal to 160% of the RDS amount (a onetime adjustment trended at regular prescription drug thereafter) based upon Conduent's review of client and industry comparisons of subsidies under RDS and EGWP.

The estimate of the impact of the EGWP arrangement is a somewhat conservative estimate based on Actuarial experience with other similar implementations. EGWP subsidies are provided by three mechanisms: a capitation amount, a discount on brand name drugs, and catastrophic payment.

The greatest variation in our estimate comes from the capitation amount, which is dependent upon the risk score of the population. The risk score is a measure of how sick (or well) the population is, depending on such matters as age and diagnosis. The higher the risk score, the larger the capitation. On the other hand, the healthier the population, the lower the capitation. Relatively small variations in risk score result in large swings in the capitation. Employer retiree groups tend to be healthier than the Medicare population as a whole. The actuary's 60% estimate is meant to be conservative and is based on typical employer groups. Once a vendor is selected for the 2019 implementation of the EGWP arrangement, we will review an update estimate of EGWP subsidies from that vendor and update the next valuation accordingly.

- (d) Investment return – 8.00% per year (geometric), compounded annually, net of expenses.
- (e) Salary scale – Inflation 3.12% per year. Productivity 0.5% per year.

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- (f) Payroll growth – 3.62% per year (inflation + productivity).
- (g) Total inflation – Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 3.12% annually.
- (h) Mortality (pre-termination) – Based upon the 2010–2013 actual experience. 68% of male rates and 60% of female rates of post-termination mortality rates. Deaths are assumed to result from occupational causes 15% of the time. The mortality assumptions include an allowance for expected future mortality improvement. The mortality table used was set in 2014 with an actual deaths to expected deaths ratio of 110%.
- (i) Mortality (post-termination) – Based upon the 2010–2013 actual experience, 94% of male and 97% of female rates of RP-2000 Mortality Table, 2000 Base Year projected to 2018 with Projection Scale BB, with a three-year setback for males and a four-year setback for females. Disability mortality in accordance with the RP-2000 Disabled Retiree Mortality Table, 2000 Base Year projected to 2018 with projection scale BB. The mortality assumptions include an allowance for expected future mortality improvement. The mortality table used was set in 2014 with an Actual Deaths to Expected Deaths ratio of 110%.
- (j) Turnover – Select and ultimate rates based upon the 2010–2013 actual withdrawal experience.
- (k) Disability – Incidence rates based upon the 2010–2013 actual experience. Disabilities are assumed to result from occupational causes 15% of the time.
- (l) Retirement – Retirement rates based upon the 2010–2013 actual experience.
- (m) Marriage and age difference – Wives are assumed to be three years younger than husbands; 85% of male members and 75% of female members are assumed to be married at termination from active service.
- (n) Per capita claims cost – Sample claims cost rates (before base claims cost adjustments described below) adjusted to age 65 for FY2018 medical and prescription drug benefits are shown below:

	Medical	Prescription drugs
Pre-Medicare	\$ 13,682	3,493
Medicare Parts A and B	1,485	3,706
Medicare Part B Only	4,722	3,706
Medicare Part D	N/A	659

Members are assumed to attain Medicare eligibility at age 65.

- (o) Third-party administrator fees – \$236 per person per year; assumed trend rate of 4% per year.

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(In thousands)

- (p) Base claims cost adjustments – Due to higher initial copays, deductibles, out-of-pocket limits, and member cost sharing compared to the DB medical plan, the following cost adjustments are applied to the per capita claims cost rates: 0.979 for the medical plan, 0.686 for the medical plan and Medicare coordination method, and 0.896 for the prescription drug plan.
- (q) Imputed data – Data changes from the prior year, which are deemed to have an immaterial impact on liabilities and contribution rates, are assumed to be correct in the current year's client data. Nonvested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.
- (r) Active data adjustment – To reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date, participants who are listed as terminated on the June 30 client data but active in the October 1 client records are updated to active status.
- (s) Healthcare cost trend – The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 8.0% is applied to the FY2018 pre-Medicare medical claims cost to get the FY2019 medical claims cost:

	Medical Pre-65	Medical Post-65	Prescription drugs	RDS/ EGWP
FY18	8.0 %	5.5 %	9.0 %	6.5 %
FY19	7.5	5.5	8.5	6.2
FY20	7.0	5.4	8.0	6.0
FY21	6.5	5.4	7.5	5.7
FY22	6.3	5.4	7.1	5.5
FY23	6.1	5.4	6.8	5.4
FY24	5.9	5.4	6.4	5.2
FY25	5.8	5.4	6.1	5.0
FY26	5.6	5.4	5.7	4.8
FY27-FY40	5.4	5.4	5.4	4.7
FY41	5.2	5.2	5.2	4.6
FY42	5.1	5.1	5.1	4.5
FY43	5.0	5.0	5.0	4.5
FY44	4.8	4.8	4.8	4.4
FY45	4.7	4.7	4.7	4.3
FY46	4.5	4.5	4.5	4.2
FY47	4.4	4.4	4.4	4.2
FY48	4.3	4.3	4.3	4.1
FY49	4.1	4.1	4.1	4.0
FY50+	4.0	4.0	4.0	4.0

For the June 30, 2014 valuation and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts projected out for

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80 years. The model has been populated with assumptions that are specific to the State of Alaska. The model was updated this year to use the newest version and incorporate recent trend survey information, which generated the updated trend rates shown above.

(t) Aging factors:

Age	Medical	Prescription drugs
0-44	2.0 %	4.5 %
45-54	2.5	3.5
55-64	3.5	3.0
65-74	4.0	1.5
75-84	1.5	0.5
85-95	0.5	—
96+	—	—

(u) Retiree medical participation:

Decrement due to disability		Decrement due to retirement	
Age	Percent participation	Age	Percent participation
<56	73.00 %	55	40.00 %
56	77.50	56	50.00
57	79.75	57	55.00
58	82.00	58	60.00
59	84.25	59	65.00
60	86.50	60	70.00
61	88.75	61	75.00
62	91.00	62	80.00
63	93.25	63	85.00
64	95.50	64	90.00
65+	94.00	65+	
			Years of service
			<15
			15-19
			20-24
			25-29
			30+
			70.50 %
			75.20
			79.90
			89.30
			94.00

Participation rates reflect the expected plan election rate that varies by reason for decrement, duration that a member may pay full cost prior to Medicare eligibility, and availability of alternative and/or lower-cost options, particularly in the Medicare market. This assumption is based on observed trends in participation from a range of other plans.

State of Alaska
Teachers' Retirement System
(A Component Unit of the State of Alaska)

Notes to Required Supplementary Information (Unaudited)

(In thousands)

Changes in Actuarial Assumptions, Methods, and Benefits Since the Prior Valuation

Defined benefit pension and postemployment healthcare benefit plan

There have been no changes in the asset or valuation methods since the prior valuation.

The medical trend rate assumption was updated to reflect anticipated increases in costs based on recent survey data. An obligation for the Cadillac Tax was also added this year because it was no longer deemed immaterial due to the updated trend rates and the change to use chained CPI (which was part of the Tax Cut and Jobs Act passed in December 2017) to project the tax thresholds in future years.

Defined contribution occupational death and disability and retiree medical benefits plan

There have been no changes in the asset or valuation methods since the prior valuation.

The healthcare cost trend assumption was updated to reflect anticipated increases in costs based on recent survey data. Healthcare claim costs are updated annually. Minor updates were made to the factors used to adjust the DB plan costs to reflect DCR plan design differences.

There have been no changes in PERS OCR benefit provisions since the prior valuation other than the State's decision to defer the EGWP implementation date from January 1, 2018 to January 1, 2019.

SUPPLEMENTAL SCHEDULES

Financial Section

State of Alaska
Teachers' Retirement System
(A Component Unit of the State of Alaska)

Schedule of Administrative and Investment Deductions

Years ended June 30, 2018 and 2017

(In thousands)

	Administrative	Investment	Totals	
			2018	2017
Personal services:				
Wages	\$ 1,815	166	1,981	1,898
Benefits	1,291	74	1,365	942
Total personal services	<u>3,106</u>	<u>240</u>	<u>3,346</u>	<u>2,840</u>
Travel:				
Transportation	9	45	54	41
Per diem	2	7	9	7
Moving	—	—	—	3
Total travel	<u>11</u>	<u>52</u>	<u>63</u>	<u>51</u>
Contractual services:				
Management and consulting	5,736	3,669	9,405	9,401
Accounting and auditing	102	9	111	129
Data processing	516	357	873	924
Communications	42	20	62	45
Advertising and printing	22	1	23	21
Rentals/leases	144	38	182	172
Legal	133	33	166	126
Medical specialists	12	—	12	25
Repairs and maintenance	5	4	9	—
Transportation	59	1	60	31
Securities lending	—	224	224	87
Other professional services	49	14	63	74
Total contractual services	<u>6,820</u>	<u>4,370</u>	<u>11,190</u>	<u>11,035</u>
Patient Protection and Affordable Care Act:				
Transitional Reinsurance Program	—	—	—	238
Total Patient Protection and Affordable Care Act	<u>—</u>	<u>—</u>	<u>—</u>	<u>238</u>
Other:				
Equipment	19	17	36	26
Supplies	11	38	49	46
Total other	<u>30</u>	<u>55</u>	<u>85</u>	<u>72</u>
Total administrative and investment deductions	<u>\$ 9,967</u>	<u>4,717</u>	<u>14,684</u>	<u>14,236</u>

See accompanying independent auditors' report.

State of Alaska
Teachers' Retirement System
(A Component Unit of the State of Alaska)
Schedule of Payments to Consultants
Other than Investment Advisors
Years ended June 30, 2018 and 2017
(In thousands)

Firm	Services	2018	2017
Conduent Human Resource Services	Actuarial services	\$ 401	232
Health Management Systems	Auditing services	94	—
KPMG LLP	Auditing services	96	97
State Street Bank and Trust	Custodial banking services	411	461
Alaska IT Group	Data processing services	132	150
Applied Microsystems Incorporated	Data processing services	131	141
SHI International Corporation	Data processing services	171	169
Sungard Availability Services	Data processing services	13	10
State of Alaska, Department of Law	Legal services	156	119
The Segal Company Incorporated	Management consulting services	91	116
First Medical Advisory Group	Medical specialist and consulting	3	20
Health Care Cost Management	Medical specialist and consulting	—	20
		\$ 1,699	1,535

This schedule presents payments to consultants receiving greater than \$10,000.

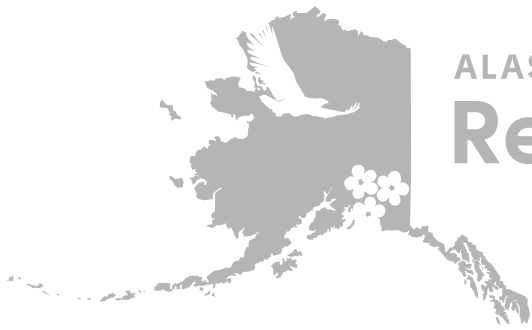
See accompanying independent auditors' report.



ALASKA DIVISION OF
**Retirement
and Benefits**



INVESTMENT SECTION



ALASKA DIVISION OF
**Retirement
and Benefits**



Callan Associates Inc.
1900 16th Street
Suite 1175
Denver, CO 80202



Main 303.861.1900
Fax 303.832.8230

www.callan.com

October 29, 2018

Alaska Retirement Management Board
State of Alaska, Department of Revenue
Treasury Division
333 Willoughby Avenue, 11th Floor
Juneau, Alaska 99801

Dear Board Members:

This letter reviews the investment performance of the Alaska Retirement Management Board (ARMB) for the fiscal year ended June 30, 2018.

Callan LLC (Callan) calculates time-weighted performance statistics based on underlying custodial data provided by the Board's custodian, State Street Bank and Trust Company. The performance calculations were made using a time-weighted return methodology based upon current market values. ARMB's real estate consultant, Townsend Group, calculates returns for the real estate segment of the portfolio. The Townsend data has been incorporated into ARMB's Total Fund returns.

Callan serves as the ARMB Board's (Board) independent general investment consultant and evaluates ARMB's performance in relation to market benchmarks, appropriate manager peer groups and other public pension systems. The performance calculations are made using a methodology broadly similar to the Global Investment Performance Standards.

ARMB purposely seeks to invest assets prudently, expertly, and according to governing law and industry practices. The objective of this approach is that assets under supervision be sufficient to pay promised benefits to members and beneficiaries. In pursuit of these objectives, the ARMB periodically evaluates liabilities, expected contributions and potential earnings. This analysis considers a wide range of potentially viable investment strategies. With thoughtful consideration of multiple factors, the Board selects a strategic investment policy that balances long-term growth potential and acceptable risk. A policy benchmark is constructed that mirrors the Board's strategic decision regarding asset allocation policy. The custom policy benchmark comprises equity, fixed income, real estate and other market indices weighted in proportions corresponding to the ARMB's investment policy.

2018 Fiscal Year Market Overview

Equity markets followed an extremely strong 2017 with further gains in fiscal year 2018. The Russell 3000 Index, a measure of broad U.S. equity, returned 14.78% in the period. Non-U.S. stocks trailed their U.S. counterparts as political developments including potential trade tariffs weighed on stocks outside of the U.S. International stocks, as measured by the MSCI ACWI ex-U.S. Index, gained 7.28% for the fiscal year. A broad measure of the total global equity market (MSCI All Country World Index) rose 10.73%.

Investment Section

Rising interest rates impaired fixed income performance. The Bloomberg U.S. Aggregate Bond Index, a widely-used gauge of the investment grade domestic bond market, fell 0.40% in the year after falling 0.31% the prior year. Absolute return strategies significantly trailed the equity markets; the Callan Absolute Return Hedge Fund-of-Funds Style median return was 5.30% (net-of-fees). Private real estate, as measured by the NCREIF Property Index, was positive for the eighth year in a row. In fiscal year 2018, the NCREIF Property Index returned 7.19%. Publicly traded real estate, as measured by the FTSE NAREIT All Equity Index, lagged the private markets but still gained 4.93%.

ARMB's actual asset groupings delivered the following one-year returns through June 30, 2018:

Domestic Stocks:	15.22%
Int'l Stocks:	9.02%
Opportunistic:	5.23%
Fixed Income:	(0.71%)
Real Assets:	7.59%
Private Equity:	26.65%
Absolute Return:	4.78%

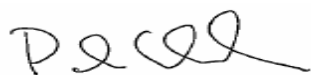
For the fiscal year ended 30 June 2018, the Public Employees Retirement System (PERS) had a time-weighted total return of 9.61%. The Teachers Retirement System (TRS) had a time-weighted total return of 9.62%. Both systems' gross return exceeded their strategic policy target return of 8.25% and the median return for Callan's Public Fund Sponsor database of 8.23%.

Over most trailing periods, PERS and TRS have outperformed their target index returns. Both funds' 5-year annualized return was 8.68% versus a benchmark of 8.10%. The seven-year annualized return for PERS was 7.99% and 8.02% for TRS. Both were above the 7-year target return of 7.64%. Over 26.75 years – the longest period for which we have data – PERS and TRS achieved annualized total returns of 7.79% and 7.84%, respectively, while the policy benchmark return was 7.71%.

Both systems are well diversified and currently have asset allocation policies that, in Callan's opinion, are consistent with achieving a long-term "real" (above inflation) return of 4.5%.

In summary, fiscal 2018 was the second year in a row during which the ARMB's asset class returns had strong showings. Only the fixed income composite posted a negative return. PERS and TRS produced returns well above the average public fund, both ranking in the 18th percentile within the Public Fund Sponsor peer group for the one-year period ended June 30, 2018.

Sincerely,



Paul Erlendson
Senior Vice President

Department of Revenue Treasury Division Staff As of June 30, 2018

Commissioner Sheldon Fisher	Chief Investment Officer Bob G. Mitchell	Investment Officers Casey Colton Emily Howard Josh McLin Kekama Tuiofu Kevin Buckland Kevin Liu Mackenzie Willems Mark Moon	Nicholas Orr Ross Alexander Sean Howard Shane Carson Stephanie Pham Stephen Sikes Steve Verschoor Victor Djajalie
Deputy Commissioner Mike Barnhill	Comptroller Scott Jones, CPA		
Director Pamela Leary, CPA	Cash Management Michelle M. Prebula, MBA, CPA, CCM		
	ARMB Liaison Officer Stephanie Alexander		

External Money Managers and Consultants

Domestic Equity Large Capitalization

Allianz Global Investors
San Francisco, CA
Barrow, Hanley, Mewhinney & Strauss
Dallas, TX
McKinley Capital Management, Inc.
Anchorage, AK
Quantitative Management Associates
Newark, NJ
State Street Global Advisors
San Francisco, CA

Domestic Equity Small Capitalization

ArrowMark Partners
Denver, CO
Barrow, Hanley, Mewhinney & Strauss
Dallas, TX
BMO Global Asset Management
Chicago, IL
Fidelity Investments
Smithfield, RI
Frontier Capital Management
Boston, MA
Jennison Associates LLC
New York, NY
Lord Abbett & Co.
Jersey City, NJ
State Street Global Advisors
San Francisco, CA
Sycamore Capital Management
Cincinnati, OH
T. Rowe Price Investment
Baltimore, MD

Domestic Equity Micro Capitalization

DePrince, Race & Zollo, Inc.
Winter Park, FL
Lord Abbett & Co.
Jersey City, NJ
Zebra Capital Management
Mitford, CT

International Small Capitalization

Mondrian Investment Partners
London, England
Schroders Investment Management NA
London, England

Emerging Market Income

Lazard Asset Management
New York, NY

International Equity – EAFE, Emerging Markets Non U.S., and Global Equity

Allianz Global Investors
San Francisco, CA
Arrowstreet Capital, LP
Boston, MA
BlackRock
San Francisco, CA
Baillie Gifford Overseas Ltd.
Edinburgh, Scotland
Brandes Investment Partners, L.P.
San Diego, CA
Capital Group Trust Co.
Los Angeles, CA
DePrince, Race & Zollo, Inc
Winter Park, FL
Lazard Asset Management
New York, NY
McKinley Capital Management, Inc.
Anchorage, AK
Parametric Clifton
Seattle, WA
State Street Global Advisors
San Francisco, CA

International Fixed Income

Lazard Asset Management
New York, NY
Mondrian Investment Partners
London, England
Schroders Investment Management NA
New York, NY

High Yield/Convertible Bond/Tactical Bond

Fidelity Investment Asset Management
Smithfield, RI
MacKay Shields LLC
New York, NY

Alternative Equity

Analytic Investors
Los Angeles, CA
Quantitative Management Associates
Newark, NJ
State Street Global Advisors
San Francisco, CA

Master Limited Partnerships

Advisory Research
St. Louis, MO
Tortoise Capital Advisors LLC
Leawood, KS

Investment Section

External Money Managers and Consultants (cont.)

Private Equity

Abbott Capital Management, L.P.

New York, NY

Angelo, Gordon & Co.

New York, NY

Advent International,

Boston, MA

Dyal Capital Partners

New York, NY

Glendon Capital

Santa Monica, CA

KKR Lending Partners

New York, NY

Lexington Partners

New York, NY

Merit Capital Partners

Chicago, IL

Neuberger Berman

New York, NY

New Mountain Partners

New York, NY

NGP

Irvine, TX

Onex

New York, NY

Pathway Capital Management, LLC

Irvine, CA

Summit Partners

Boston, MA

The Jordan Company

New York, NY

Warburg Pincus

New York, NY

Investment Consultants

Callan Associates, Inc.

Denver, CO

The Townsend Group

San Francisco, CA

Investment Advisory Council

Jerrold Mitchell

Wayland, MA

Robert Shaw

San Francisco, CA

William Jennings

Colorado Springs, CO

Independent Auditors

KPMG, LLP

Anchorage, AK

Actuaries

Conduent HR Consulting, LLC

Denver, CO

Gabriel Roeder Smith

Denver, CO

Taxable Municipal Bonds

Western Asset Management Company

Pasadena, CA

Tactical Fixed Income

Fidelity Investment Asset Management

Merrimack, NH

Global Master Custodian

State Street Bank & Trust Co.

Boston, MA

Absolute Return

Allianz Global Investors

New York, NY

Crestline Investors, Inc.

Fort Worth, TX

Global Assets Management Inc.

New York, NY

J.P. Morgan Asset Management

New York, NY

Man Group

London, UK

Prisma Capital

New York, NY

Zebra Capital Management

Stanford, CT

Supplemental Benefits System, Deferred Compensation Plan and Defined Contribution Plan

Allianz Global Investors

San Francisco, CA

BlackRock

San Francisco, CA

Brandes Investment Partners

San Diego, CA

Russell Investment Implementation Services

Seattle, WA

State Street Global Advisors

Boston, MA

T. Rowe Price Investment Services

Baltimore, MD

Real Assets – Real Estate Core Separate Accounts

LaSalle Investment Management

Chicago, IL

Sentinel Real Estate Corporation

New York, NY

UBS Realty Investors, LLC

Hartford, CT

Real Assets – Energy

EIG Global Energy Partners

Washington, DC

Real Assets – Infrastructure

Brookfield Investment Management

New York, NY

Industry Funds Management

New York, NY

JP Morgan Asset Management

New York, NY

Lazard Asset Management

New York, NY

Real Assets – Farmland and Timber

Hancock Agricultural Investment Group

Boston, MA

Hancock Timber Resource Group

Boston, MA

Timberland Investment Resources LLC

Atlanta, GA

UBS Farmland Investors, LLC

Hartford, CT

External Money Managers and Consultants (cont.)

Real Estate – Commingled Real Estate Funds

Almanac Realty Investors

New York, NY

Baring Real Estate Advisors

Hartford, CT

BlackRock Realty

New York, NY

Clarion Partners

New York, NY

Colony NorthStar Capital

Los Angeles, CA

Coventry Real Estate Fund II, LLC

New York, NY

J.P. Morgan Investment Management Inc.

New York, NY

KKR & Co.

New York, NY

LaSalle Investment Management

Chicago, IL

Lowe Hospitality Investment Partners, LLC

Los Angeles, CA

Silverpeak Real Estate Partners

New York, NY

Tishman Speyer Properties

New York, NY

UBS Realty Investors, LLC

Hartford, CT

Investment Section

Teachers' Retirement System Investment Report

INVESTMENTS

The investment goals of the State of Alaska Teachers' Retirement System (TRS) are the long-term return and sustainability of the pension funds under management. Annually, the Alaska Retirement Management Board (ARMB) sets its asset allocation strategy in order to reflect changes in the marketplace while still retaining an expected optimal risk/return level within the set constraints and objectives of the ARMB.

The ARMB categorizes its investments into eight asset classes: domestic equities, global equities ex-U.S., opportunistic, private equity, real assets, fixed income, absolute return, and cash equivalents. The performance of each asset class is compared with a benchmark comprised of one or more market indices. The performance for the total portfolio is compared

with its policy portfolio, determined by calculating the weighted performance of the underlying asset class benchmarks at the portfolio's target asset allocation. The asset class benchmarks are illustrated below:

Asset Class	Benchmark
Domestic Equity	Russell 3000 Index
Global Equities Ex-U.S.	MSCI All Country World Ex-U.S. Index
Opportunistic	60% Russell 1000 Index 40% Bloomberg Barclays Aggregate Index
Private Equity	1/3 S&P 500 Index 1/3 Russell 2000 Index 1/3 MSCI EAFE Index
Real Assets	31% NCREIF Total Property Index 25% NCREIF Farmland Index 10% NCREIF Timberland Index 17.5% S&P Global Infrastructure Index 12.5% Alerian MLP Index 4% FTSE NAREIT All Equity REIT Index
Fixed Income	Bloomberg Barclays Intermediate Treasury Index
Absolute Return	HFRI Fund of Funds Composite Index
Cash Equivalents	91 Day Treasury Bill

The target asset allocation is determined by the ARMB, utilizing capital market assumptions provided by its independent general investment consultant, Callan Associates. During the 2018 fiscal year, the ARMB's target asset allocation was 24% domestic equities, 22% global equities ex-U.S., 10% opportunistic, 9% private equity, 17% real assets, 10% fixed income, 7% absolute return, and 1% cash equivalents. Over the next 10 years, the target asset allocation is expected to generate a return of 6.6% with a standard deviation of 14.7%.

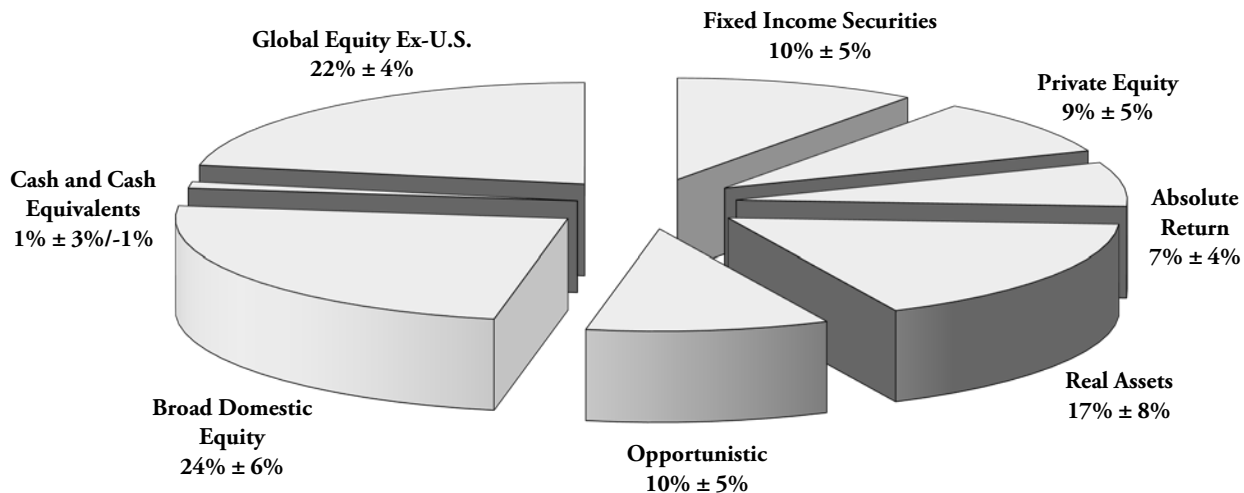
Teachers' Retirement System Schedule of Investment Results Fiscal Years Ended June 30							
	2014	2015	2016	2017	2018	Annualized	
						3 Year	5 Year
Total Fund							
TRS	18.46%	3.30%	(0.36%)	13.36%	9.62%	7.38%	8.68%
<i>Actuarial Earnings Rate</i>	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Broad Domestic Equity							
TRS	25.45	7.85	0.58	18.55	15.22	11.17	13.26
<i>Custom Composite Index</i>	25.22	7.29	2.14	18.51	14.78	11.58	13.29
Fixed Income							
TRS	5.14	(0.73)	5.15	2.91	(0.71)	2.42	2.32
<i>Custom Composite Index</i>	3.31	0.41	4.79	0.02	(0.76)	1.22	1.33
Opportunistic							
TRS	-	-	-	-	5.63	-	-
<i>Custom Composite Index</i>	-	-	-	-	8.39	-	-
Real Assets							
TRS	12.71	3.69	4.76	5.98	7.53	6.09	7.00
<i>Custom Composite Index</i>	10.98	7.99	8.87	5.66	4.29	6.25	7.53
Global Equity Ex-US							
TRS	23.41	(3.28)	(9.15)	20.42	7.95	5.70	7.11
<i>MSCI ACWI ex-US</i>	22.27	(4.85)	(9.80)	21.00	7.75	5.55	6.47
Private Equity							
TRS	24.19	13.77	4.71	17.04	26.65	15.79	17.01
<i>Custom Composite Index</i>	24.01	3.33	(4.41)	21.04	12.92	9.32	10.86
Absolute Return							
TRS	6.51	9.24	(3.09)	8.47	4.78	3.27	5.09
<i>3-month Treasury Bill +5%</i>	5.05	5.02	5.19	5.49	5.18	5.28	5.18
Alternative Equity							
TRS	24.55	(0.88)	3.41	11.38	-	-	-
<i>Custom Composite Index</i>	18.70	4.26	2.09	15.07	-	-	-
Cash Equivalents							
TRS	0.26	0.27	0.55	0.80	1.53	0.96	0.68
<i>3-month Treasury Bill</i>	0.05	0.02	0.19	0.49	1.36	0.68	0.42

MSCI ACWI =Morgan Stanley Capital International All Country World Index
Returns for periods longer than one year are reported on an annualized basis.
Basis of calculation: Time-Weighed rate of return based on the market rate of return.

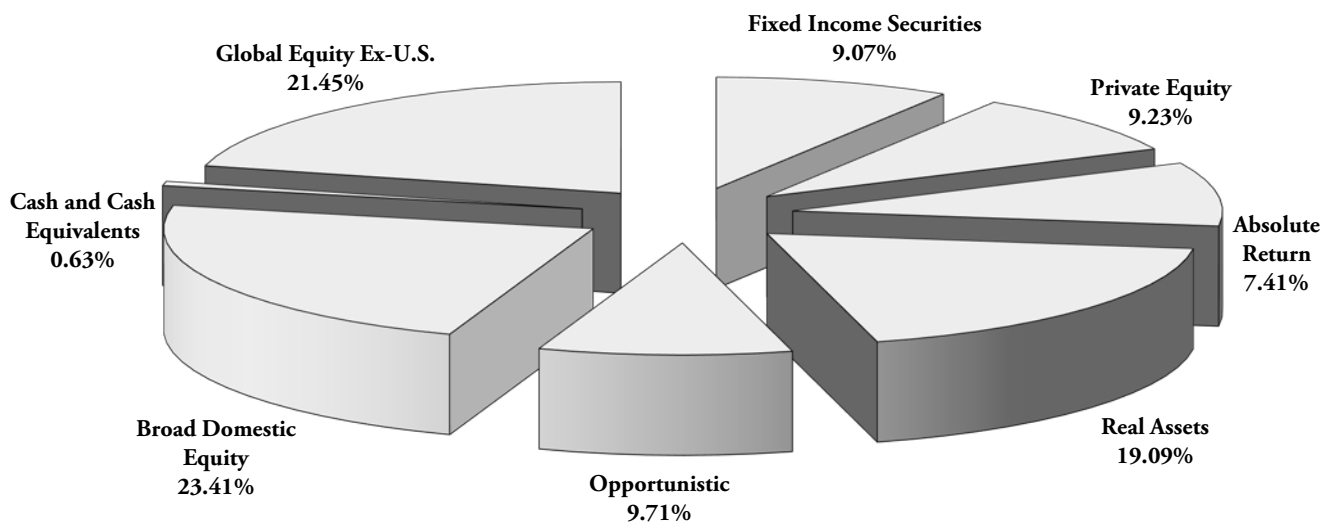
Investment Section

Teachers' Retirement System Asset Allocation June 30, 2018

Policy

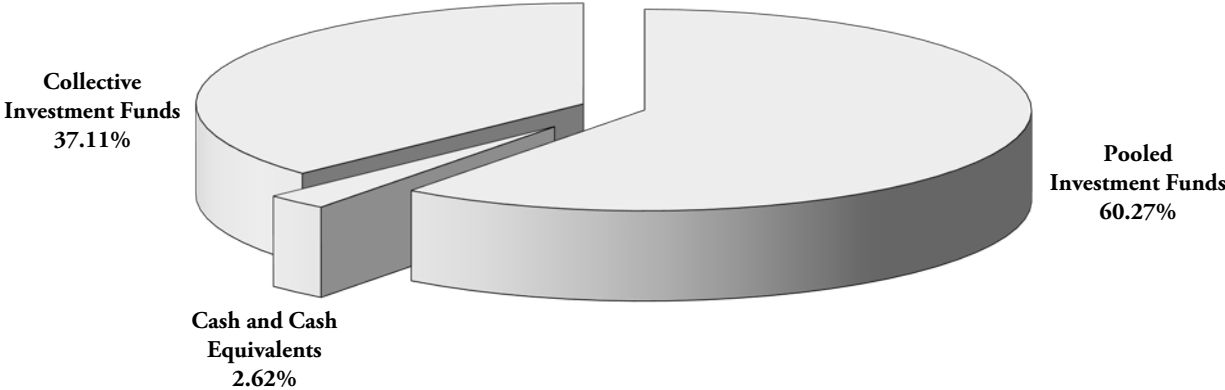


Actual — Defined Benefit Pension

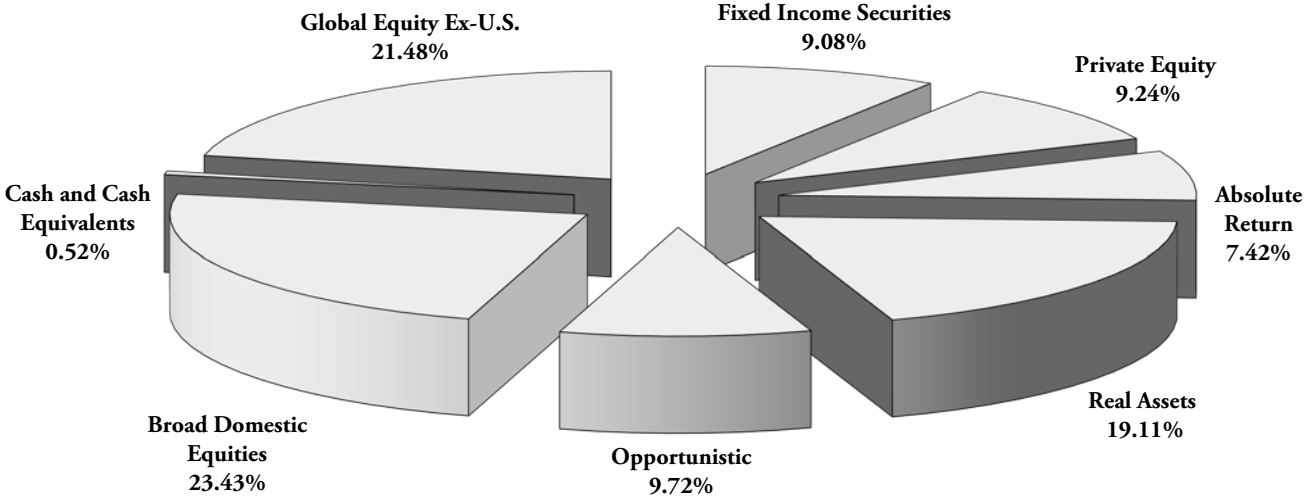


**Teachers' Retirement System
Asset Allocation
June 30, 2018**

Actual — Defined Contribution Participant Directed



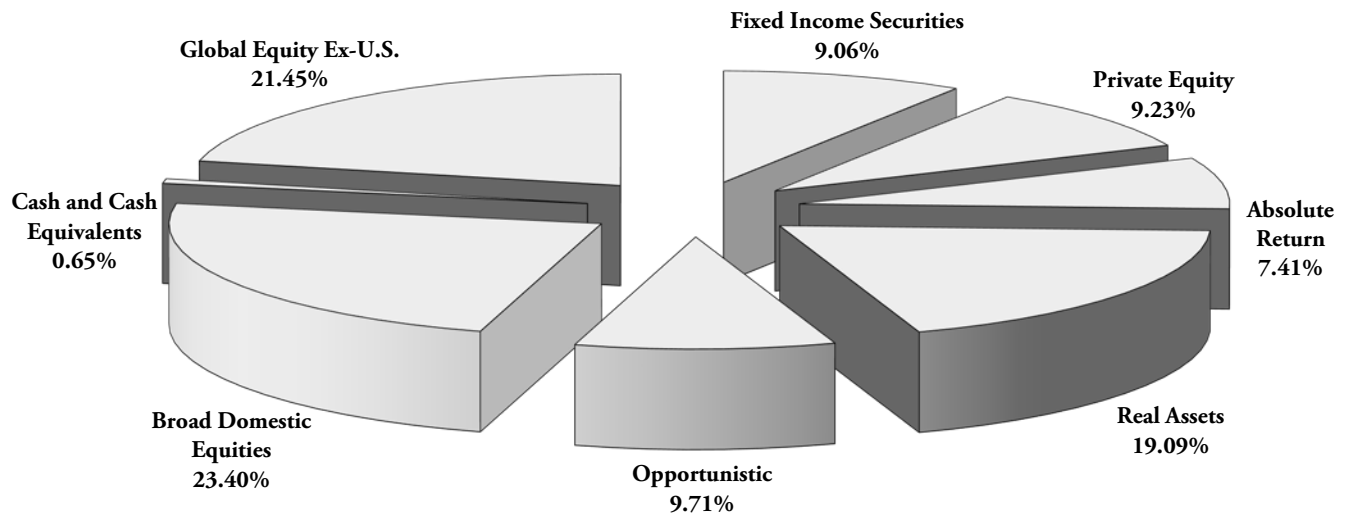
Actual — Defined Benefit Alaska Retiree Healthcare Trust



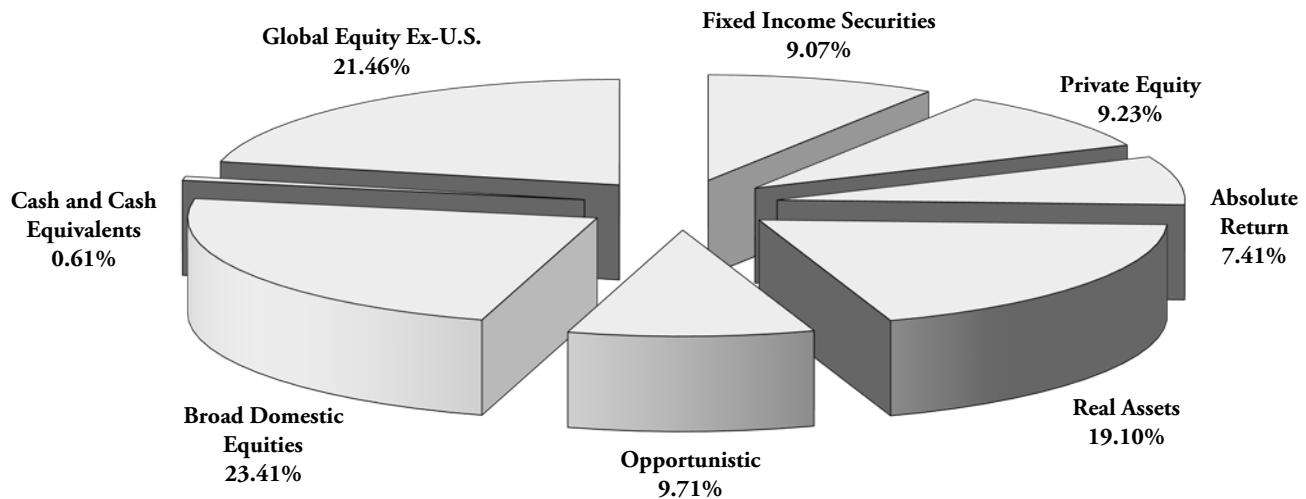
Investment Section

Teachers' Retirement System Asset Allocation June 30, 2018

Actual — Health Reimbursement Arrangement

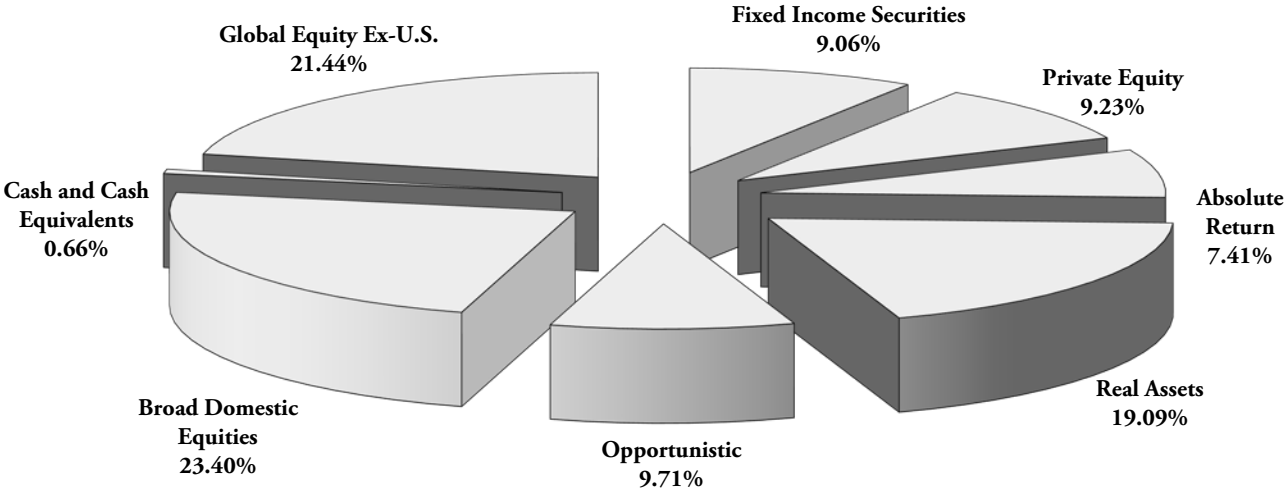


Actual — Occupational Death & Disability



Teachers' Retirement System
Asset Allocation
June 30, 2018

Actual — Retiree Medical Plan



Investment Section

Alaska Retirement Management Board Top Ten Holdings by Asset Type June 30, 2018

Invested assets under the fiduciary responsibility of the Alaska Retirement Management Board (ARMB) have been commingled in various investment pools to manage the overall cost of the program. Using investment pools increases investment efficiency in three ways. First, combining individual funds' cash inflows and outflows to offset each other reduces the amount of cash on hand needed to support daily operations. Second, pooling investments significantly reduces accounting, budgeting, and administrative costs. Finally, the ARMB can achieve economies of scale by making available investment options that could not otherwise be practically provided for smaller retirement funds. Below are the ten largest fixed income and equity holdings.

Fixed Income

<u>Rank</u>	<u>Largest Fixed Income Holdings</u>	<u>Fair Value</u>	<u>Par Value</u>
1	US Treasury 2.125% 12/31/2022	\$72,425,154	\$74,291,138
2	US Treasury 1.375% 8/31/2020	34,264,264	35,137,204
3	US Treasury 1.875% 4/30/2022	32,982,883	33,990,653
4	US Treasury 2.000% 8/15/2025	31,922,751	33,699,894
5	US Treasury 2.750% 5/31/2023	27,658,277	27,623,747
6	US Treasury 2.125% 5/15/2025	27,498,540	28,736,687
7	US Treasury 2.375% 8/15/2024	22,657,891	23,210,036
8	US Treasury 2.375% 5/15/2027	21,313,264	22,131,974
9	US Treasury 1.750% 2/28/2022	19,254,115	19,898,483
10	US Treasury 1.125% 7/31/2021	18,481,898	19,341,696

Equities

<u>Rank</u>	<u>Largest Equity Holdings</u>	<u>Market Value</u>	<u>Par Value</u>
1	Apple Inc.	\$53,026,477	\$286,459
2	Microsoft Corp.	44,482,132	451,091
3	Amazon.com Inc.	37,501,302	22,062
4	Exxon Mobil Corp.	27,467,053	332,008
5	Facebook Inc.	25,319,678	130,299
6	Alphabet, Inc.	22,840,805	20,228
7	Pfizer Inc.	21,322,240	587,713
8	Johnson & Johnson	19,861,011	163,681
9	Home Depot Inc.	19,257,613	98,706
10	Procter & Gamble Co./The	19,175,835	245,655

Additional investment information may be obtained from the Alaska Department of Revenue, Treasury Division, P.O. Box 110405, Juneau, Alaska 99811-0405.

Investment Section

Teachers' Retirement System Schedule of Investment Management Fees Year Ended June 30, 2018

	Total Fair Value	Fees
Opportunistic		
** Advent Capital Management Convertible Bond Fund	N/A	\$ 280,018
** Analytic Buy Write Account	\$ 8,714,967	140,557
** Analytic SSgA Index Account - Index Fund	226,268,216	13,241
** ARMB STOXX Min Var	195,357,963	28,273
** Columbia Threadneedle	N/A	149,670
** Eaton Vance High Yield	98,390	125,343
** Fidelity Institute Asset Management	65,691,281	170,499
** Fidelity Institute Asset Management High Yield	49,412,260	465,200
** Guggenheim Partners	N/A	58,927
** Lazard Emerging Income	53,280,611	414,435
** MacKay Shields	50,713,934	201,463
** Mondrian Investment Partners	31,909,682	203,125
** Quantitative Management Associates MPS	N/A	105,285
** Schroders Insurance Linked Securities	109,634,529	513,587
** SSgA Managed Volatility-Russell 1000	N/A	13,141
** Western Asset Management Company	34,593,588	89,677
Total Opportunistic	825,675,421	2,972,441
Broad Domestic Equity		
** Allianz Global Investors	N/A	119,686
** ARMB Equity Yield	116,375,858	3,472
** ARMB Russell 1000 Growth	505,979,485	22,723
** ARMB Russell 1000 Value	437,503,139	19,311
** ARMB Russell Top 200	124,917,002	7,394
** ARMB S&P 600	86,012,155	3,056
** ARMB S&P 500 Equal Weight	118,813,610	5,040
** ARMB Scientific Beta	120,742,717	65,037
** Arrowmark	28,212,209	114,326
** Barrow, Hanley, Mewhinney & Strauss (Large Cap)	N/A	202,565
** Barrow, Hanley, Mewhinney & Strauss (Small Cap)	N/A	143,953
** BMO DSCC	28,957,063	156,760
** DePrince, Race & Zollo Inc.	39,869,284	364,791
** Fidelity Institutional Asset Management Small Company	N/A	307,286
** Frontier Capital Management Company	54,488,061	442,674
** Jennison Associates	39,567,901	279,872
** Lazard Asset Management	107,136,138	251,688
** Lord Abbett Small Cap Growth	N/A	82,865
** Lord Abbett & Co. - Micro Cap	38,470,384	286,583
** McKinley Capital	N/A	172,962
** Portable Alpha	13,311,105	133,051
** Quantitative Management Associates	N/A	161,609
** SSgA Futures Large Cap	1,095,364	1,058
** SSgA Futures Small Cap	607,773	622
** SSgA Managed Volatility Russell 2000	51,553	17,556
** T.Rowe Small Cap Growth	24,958,512	52,854
** Victory Capital Management	65,156,148	396,129
** Zebra Capital Management, LLC	36,880,159	189,888
Total Broad Domestic Equity	1,989,105,620	4,004,811
Global Equity Ex-U.S.		
** Allianz Global Investors (International Large Cap)	325,611	255,010
** Arrowstreet Capital, Limited Partnership	124,543,572	580,644
** Baillie Gifford Overseas Limited	124,851,806	626,878
** BlackRock ACWI Ex-US IMI	200,985,806	102,158
** Brandes Investment Partners	261,028,981	850,784
** Capital Guardian Trust	185,700,317	718,607
** DePrince, Race, and Zollo (Emerging Markets)	88,850,924	43,636
** Eaton Vance (Emerging Markets)	28,075,691	1,076,268
** Lazard Asset Management (Emerging Markets)	129,455,237	1,153,795
** Lazard Asset Management (International Large Cap)	106,886,396	120,091
** McKinley Capital (International Large Cap)	117,146,039	835,614
** Mondrian Investment Partners, Ltd	62,811,203	436,944
** Schroder Investment Management	68,946,413	528,626
** State Street Global Advisors	323,941,402	197,644
Total Global Equity Ex-U.S.	1,823,549,398	7,526,699

Investment Section

Teachers' Retirement System Schedule of Investment Management Fees (continued) Year Ended June 30, 2018

	Total Fair Value	Fees
Private Equity		
Abbott Capital Management	303,634,573	709,921
Advent International GPE Fund VIII-B	4,161,352	122,556
Angelo, Gordon & Co.	N/A	3,056
Dyal Capital Partners III	7,146,799	326,638
Glendon Opportunities	12,062,169	204,234
KKR Lending Partners II	19,118,392	173,737
Lexington Capital Partners VII	8,052,425	107,562
Lexington Capital Partners VIII	9,225,620	129,455
Merit Capital Partners	4,561,147	32,272
Neuberger Berman Secondary Opportunities Fund III	9,765,714	114,409
Neuberger Berman Secondary Opportunities Fund IV	1,761,730	204,149
New Mountain Partners IV	7,250,930	23,400
New Mountain Partners V	3,988,507	219,041
NGP XI	15,905,561	228,864
Onex Partners III L.P.	4,471,001	34,256
Pathway Capital Management	337,141,321	921,154
Resolute Fund III	6,028,086	67,374
Warburg Pincus X	4,483,926	26,011
Warburg Pincus XI	8,994,979	60,107
Warburg Pincus XII	12,281,088	297,241
Total Private Equity	780,035,320	4,005,437
Absolute Return		
Allianz Global Investors (Absolute Return)	124,780,824	2,082,012
Crestline (Blue Glacier)	144,795,932	1,269,868
Crestline Specialty Fund	12,490,688	155,539
Crestline Specialty II	3,687,315	6,218
Global Asset Management (Glacier Bear)	428,376	18,905
JPM Systematic Alpha	59,028,868	154,022
KKR Apex Equity Fund	32,058,218	397,168
Man Group Alternative Risk Premia	69,986,494	447,141
Prisma Capital (Polar Bear)	137,871,527	891,937
Zebra Global Equity Advantage Fund	14,768,080	190,698
Zebra Global Equity Fund	30,204,061	363,539
Total Absolute Return	630,100,383	5,977,047
Real Assets		
Advisory Research MLP	156,871,063	447,812
Almanac Realty Securities V	728,678	17,914
Almanac Realty Securities VII, L.P.	9,913,833	157,654
ARMB REIT	65,630,063	5,814
** Brookfield Investment Management	34,495,795	235,618
Colony Investors VIII, L.P.	593,403	14,425
EIG Energy Fund XD	N/A	328
EIG Energy Fund XIV-A	3,713,598	189,595
EIG Energy Fund XV	9,482,958	149,260
EIG Energy Fund XVI	19,143,905	296,686
Hancock	86,262,788	722,853
Hancock Natural Resource Group	31,423,459	221,190
IFM Global Infrastructure Fund	127,981,418	740,654
ING Clarion Ventures IV, L.P.	7,018,423	40,059
JP Morgan	93,808,114	799,824
JPM Infrastructure Fund	38,089,368	323,201
KKR Real Estate Partners Americas II	671,301	15,366
KKR Real Estate Partners Americas	9,895,857	146,017
LaSalle Investment Management	63,513,750	363,279
** Lazard Asset Management Infrastructure Fund	48,824,202	318,020
Sentinel Separate Account	64,257,998	306,150
Silverpeak Real Estate Partners II (Lehman)	1,964,000	61,423
Silverpeak Real Estate Partners III (Lehman)	1,657,624	20,046
Timberland	88,901,242	705,643
Tishman Speyer Fund VI	7,087,893	52,195
Tishman Speyer Fund VII	399,582	21,736
** Tortoise MLP	170,935,216	642,797
UBS Agrinvest	186,117,978	1,497,282
UBS Realty Trumbull Property Fund	48,937,422	470,642
UBS Realty Separate Account	160,392,259	764,679
Total Real Assets	1,538,713,190	9,748,162
Custodian		
* State Street Bank		395,132
Investment Advisory		
* Callan Associates		68,621
* Investment Advisory Council		27,398
* Townsend Group		52,288
Total Investment Advisory		148,307
Investment Performance		
* Callan Associates		81,735
		\$ 34,859,771

*These fees are paid through the Integrated Resource Information System (IRIS)

**These fees are deducted from earnings by the fund manager and are not directly recorded in IRIS

N/A indicates a closed fund during the fiscal year or an immaterial balance at year-end.

Investment Section

Teachers' Retirement System Investment Summary Schedule June 30, 2018

Investments (at Fair Value)	Defined Benefit - Pension			% of Total Assets
	Asset Allocation		Fair Value	
	Policy	Range		
Cash and Cash Equivalents				
Short-Term Fixed Income Pool			\$ 33,401,577	
Securities Lending Income			44,559	
Total Cash and Cash Equivalents	1.00%	± 3% / - 1%	33,446,136	0.63%
Fixed Income Securities				
U.S. Treasury Fixed Income Pool			495,641,439	
Total Fixed Income Securities	10.00%	± 5%	495,641,439	9.07%
Opportunistic				
Alternative Equity Strategies			276,690,471	
Tactical Allocation Strategies			64,138	
Opportunistic Fixed Income			183,695,083	
Other Opportunities			70,515,505	
Convertible Bond Pool			(694)	
Total Opportunistic	10.00%	± 5%	530,964,503	9.71%
Broad Domestic Equity				
Large Cap Pool			1,075,693,911	
Small Cap Pool			203,689,889	
Total Broad Domestic Equity	24.00%	± 6%	1,279,383,800	23.41%
Global Equity Ex-U.S.				
International Equity Pool			929,668,893	
International Equity Small Cap Pool			84,744,787	
Emerging Markets Equity Pool			158,469,607	
Total Global Equity Ex-U.S.	22.00%	± 4%	1,172,883,287	21.45%
Private Equity				
Private Equity Pool			504,738,980	
Total Private Equity	9.00%	± 5%	504,738,980	9.23%
Absolute Return				
Absolute Return Pool			405,272,382	
Total Absolute Return	7.00%	± 4%	405,272,382	7.41%
Real Assets				
Real Estate Pool			345,064,184	
Real Estate Investment Trust Pool			42,212,404	
Infrastructure Private Pool			106,814,572	
Infrastructure Public Pool			53,590,339	
Master Limited Partnership Pool			210,840,741	
Energy Pool			20,800,965	
Farmland Pool			175,191,771	
Timber Pool			77,391,285	
Treasury Inflation Protected Securities Pool			11,820,200	
Total Real Assets	17.00%	± 8%	1,043,726,461	19.09%
Total Invested Assets	100.00%		\$ 5,466,056,988	100.00%

Investment Section

Teachers' Retirement System Investment Summary Schedule June 30, 2018

<u>Investments (at Fair Value)</u>	<u>Asset Allocation</u>		<u>Fair Value</u>	<u>% of Total Assets</u>
	<u>Policy</u>	<u>Range</u>		
Cash and Cash Equivalents				
Short-Term Fixed Income Pool	100.00%	0%	\$ 11,910,308	
Total Cash and Cash Equivalents			<u>11,910,308</u>	2.62%
Pooled Investment Funds (1)				
T. Rowe Price				
Alaska Balanced Trust			11,134,142	
Long-Term Balanced Fund			10,116,972	
Target 2010 Trust			709,583	
Target 2015 Trust			3,307,624	
Target 2020 Trust			9,809,618	
Target 2025 Trust			16,399,142	
Target 2030 Trust			19,647,768	
Target 2035 Trust			28,683,070	
Target 2040 Trust			30,269,871	
Target 2045 Trust			47,234,475	
Target 2050 Trust			65,690,351	
Target 2055 Trust			30,580,264	
Target 2060 Trust			162,851	
Total Pooled Investment Funds			<u>273,745,731</u>	60.27%
Collective Investment Funds (1)				
State Street Global Advisors				
Alaska Money Market			1,842,925	
SSgA Treasury Money Market Fund			711,876	
S&P Stock Index Fund			39,977,354	
Russell 3000 Index			3,489,922	
U.S. Real Estate Investment Trust Index			6,727,107	
World Equity Ex-U.S. Index			20,637,010	
Long U.S. Treasury Bond Index			306,677	
U.S. Treasury Inflation Protected Securities Index			5,260,981	
World Government Bond Ex-U.S. Index			2,745,524	
Barclays				
Government/Credit Bond Fund			19,894,058	
Intermediate Bond Fund			8,454,233	
Brandes Institutional				
Alaska International Equity Fund			19,679,815	
RCM				
Sustainable Core Opportunities Fund			4,626,584	
T. Rowe Price				
Small-Cap Stock Fund			34,181,779	
Total Collective Investment Funds			<u>168,535,845</u>	37.11%
Total Invested Assets			<u>\$ 454,191,884</u>	<u>100.00%</u>

(1) Pooled Investment Funds and Collective Investment Funds are participant directed and therefore are not subject to an asset allocation.

Teachers' Retirement System Investment Summary Schedule June 30, 2018

Investments (at Fair Value)	Defined Benefit - Alaska Retiree Health Care Trust			% of Total Assets
	Policy	Range	Fair Value	
Cash and Cash Equivalents				
Short-Term Fixed Income Pool			\$ 14,886,799	
Securities Lending Income			23,477	
Total Cash and Cash Equivalents	1.00%	± 3% / - 1%	14,910,276	0.52%
Fixed Income Securities				
U.S. Treasury Fixed Income Pool			261,743,688	
Total Fixed Income Securities	10.00%	± 5%	261,743,688	9.08%
Opportunistic				
Alternative Equity Strategies			146,117,695	
Tactical Allocation Strategies			33,871	
Opportunistic Fixed Income			97,007,685	
Other Opportunities			37,238,590	
Convertible Bond Pool			(367)	
Total Opportunistic	10.00%	± 5%	280,397,474	9.72%
Broad Domestic Equity				
Large Cap Pool			568,064,067	
Small Cap Pool			107,566,758	
Total Broad Domestic Equity	24.00%	± 6%	675,630,825	23.43%
Global Equity Ex-U.S.				
International Equity Pool			490,949,597	
International Equity Small Cap Pool			44,752,943	
Emerging Markets Equity Pool			83,686,343	
Total Global Equity Ex-U.S.	22.00%	± 4%	619,388,883	21.48%
Private Equity				
Private Equity Pool			266,548,016	
Total Private Equity	9.00%	± 5%	266,548,016	9.24%
Absolute Return				
Absolute Return Pool			214,020,620	
Total Absolute Return	7.00%	± 4%	214,020,620	7.42%
Real Assets				
Real Estate Pool			182,241,273	
Real Estate Investment Trust Pool			22,291,983	
Infrastructure Private Pool			56,407,794	
Infrastructure Public Pool			28,300,566	
Master Limited Partnership Pool			111,343,057	
Energy Pool			10,984,798	
Farmland Pool			92,517,164	
Timber Pool			40,869,626	
Treasury Inflation Protected Securities Pool			6,242,139	
Total Real Assets	17.00%	± 8%	551,198,400	19.11%
Total Invested Assets	100.00%		\$ 2,883,838,182	100.00%

Investment Section

Teachers' Retirement System Investment Summary Schedule June 30, 2018

Investments (at Fair Value)	Health Reimbursement Arrangement			% of Total Assets
	Asset Allocation		Fair Value	
	Policy	Range		
Cash and Cash Equivalents				
Short-Term Fixed Income Pool	1.00%	± 3% / - 1%	\$ 689,695	
Securities Lending Income			846	
Total Cash and Cash Equivalents			<u>690,541</u>	0.65%
Fixed Income Securities				
U.S. Treasury Fixed Income Pool			<u>9,577,302</u>	
Total Fixed Income Securities	10.00%	± 5%	<u>9,577,302</u>	9.06%
Opportunistic				
Alternative Equity Strategies			5,346,503	
Tactical Allocation Strategies			1,239	
Opportunistic Fixed Income			3,549,549	
Other Opportunities			1,362,574	
Convertible Bond Pool			(13)	
Total Opportunistic	10.00%	± 5%	<u>10,259,852</u>	9.71%
Broad Domestic Equity				
Large Cap Pool			20,785,683	
Small Cap Pool			<u>3,935,909</u>	
Total Broad Domestic Equity	24.00%	± 6%	<u>24,721,592</u>	23.40%
Global Equity Ex-U.S.				
International Equity Pool			17,964,035	
International Equity Small Cap Pool			1,637,527	
Emerging Markets Equity Pool			<u>3,062,115</u>	
Total Global Equity Ex-U.S.	22.00%	± 4%	<u>22,663,677</u>	21.45%
Private Equity				
Private Equity Pool			<u>9,753,094</u>	
Total Private Equity	9.00%	± 5%	<u>9,753,094</u>	9.23%
Absolute Return				
Absolute Return Pool			<u>7,831,097</u>	
Total Absolute Return	7.00%	± 4%	<u>7,831,097</u>	7.41%
Real Assets				
Real Estate Pool			6,668,278	
Real Estate Investment Trust Pool			815,672	
Infrastructure Private Pool			2,063,983	
Infrastructure Public Pool			1,035,529	
Master Limited Partnership Pool			4,074,085	
Energy Pool			401,938	
Farmland Pool			3,385,239	
Timber Pool			1,495,435	
Treasury Inflation Protected Securities Pool			<u>228,402</u>	
Total Real Assets	17.00%	± 8%	<u>20,168,561</u>	19.09%
Total Invested Assets	100.00%		<u>\$ 105,665,716</u>	100.00%

Teachers' Retirement System Investment Summary Schedule June 30, 2018

<u>Investments (at Fair Value)</u>	<u>Occupational Death and Disability</u>			<u>% of Total Assets</u>
	<u>Asset Allocation</u>		<u>Fair Value</u>	
	<u>Policy</u>	<u>Range</u>		
Cash and Cash Equivalents				
Short-Term Fixed Income Pool			\$ 23,084	
Securities Lending Income			31	
Total Cash and Cash Equivalents	1.00%	± 3% / - 1%	<u>23,115</u>	0.61%
Fixed Income Securities				
U.S. Treasury Fixed Income Pool			344,378	
Total Fixed Income Securities	10.00%	± 5%	<u>344,378</u>	9.07%
Opportunistic				
Alternative Equity Strategies			192,248	
Tactical Allocation Strategies			45	
Opportunistic Fixed Income			127,634	
Other Opportunities			48,995	
Total Opportunistic	10.00%	± 5%	<u>368,922</u>	9.71%
Broad Domestic Equity				
Large Cap Pool			747,406	
Small Cap Pool			141,526	
Total Broad Domestic Equity	24.00%	± 6%	<u>888,932</u>	23.41%
Global Equity Ex-U.S.				
International Equity Pool			645,946	
International Equity Small Cap Pool			58,882	
Emerging Markets Equity Pool			110,107	
Total Global Equity Ex-U.S.	22.00%	± 4%	<u>814,935</u>	21.46%
Private Equity				
Private Equity Pool			350,699	
Total Private Equity	9.00%	± 5%	<u>350,699</u>	9.23%
Absolute Return				
Absolute Return Pool			281,588	
Total Absolute Return	7.00%	± 4%	<u>281,588</u>	7.41%
Real Assets				
Real Estate Pool			239,776	
Real Estate Investment Trust Pool			29,330	
Infrastructure Private Pool			74,216	
Infrastructure Public Pool			37,235	
Master Limited Partnership Pool			146,495	
Energy Pool			14,453	
Farmland Pool			121,725	
Timber Pool			53,772	
Treasury Inflation Protected Securities Pool			8,213	
Total Real Assets	17.00%	± 8%	<u>725,215</u>	19.10%
Total Invested Assets	<u>100.00%</u>		<u>\$ 3,797,784</u>	<u>100.00%</u>

Investment Section

Teachers' Retirement System Investment Summary Schedule June 30, 2018

Investments (at Fair Value)	Retiree Medical Plan			% of Total Assets
	Policy	Range	Fair Value	
Cash and Cash Equivalents				
Short-Term Fixed Income Pool			\$ 234,607	
Securities Lending Income			291	
Total Cash and Cash Equivalents	1.00%	± 3% / - 1%	<u>234,898</u>	0.66%
Fixed Income Securities				
U.S. Treasury Fixed Income Pool			3,295,569	
Total Fixed Income Securities	10.00%	± 5%	<u>3,295,569</u>	9.06%
Opportunistic				
Alternative Equity Strategies			1,839,742	
Tactical Allocation Strategies			426	
Opportunistic Fixed Income			1,221,407	
Other Opportunities			468,865	
Convertible Bond Pool			(5)	
Total Opportunistic	10.00%	± 5%	<u>3,530,435</u>	9.71%
Broad Domestic Equity				
Large Cap Pool			7,152,395	
Small Cap Pool			1,354,354	
Total Broad Domestic Equity	24.00%	± 6%	<u>8,506,749</u>	23.40%
Global Equity Ex-U.S.				
International Equity Pool			6,181,460	
International Equity Small Cap Pool			563,476	
Emerging Markets Equity Pool			1,053,680	
Total Global Equity Ex-U.S.	22.00%	± 4%	<u>7,798,616</u>	21.44%
Private Equity				
Private Equity Pool			3,356,059	
Total Private Equity	9.00%	± 5%	<u>3,356,059</u>	9.23%
Absolute Return				
Absolute Return Pool			2,694,696	
Total Absolute Return	7.00%	± 4%	<u>2,694,696</u>	7.41%
Real Assets				
Real Estate Pool			2,294,568	
Real Estate Investment Trust Pool			280,674	
Infrastructure Private Pool			710,221	
Infrastructure Public Pool			356,327	
Master Limited Partnership Pool			1,401,901	
Energy Pool			138,308	
Farmland Pool			1,164,867	
Timber Pool			514,582	
Treasury Inflation Protected Securities Pool			78,594	
Total Real Assets	17.00%	± 8%	<u>6,940,042</u>	19.09%
Total Invested Assets	100.00%		\$ 36,357,064	100.00%

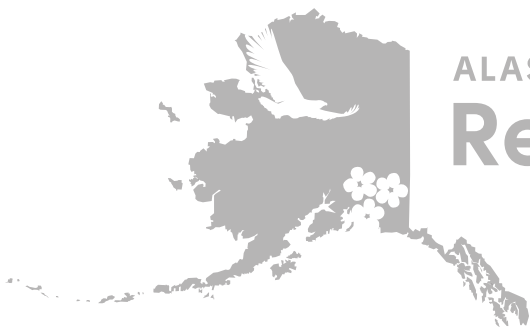
**Teachers' Retirement System
Recaptured Commission Fees
Year Ended June 30, 2018**

Fund	Broad Domestic Equity Pool	Global Equity Ex-U.S.	Total
Defined Benefit Plan – Pension	\$15,405	\$13,462	\$28,867
Postemployment Benefit – Alaska Retiree Healthcare Trust	7,969	6,971	14,940
Postemployment Benefit – Occupational Death & Disability	10	9	19
Postemployment Benefit – Retiree Medical Plan	91	81	172
Postemployment Benefit – Health Reimbursement Arrangement	263	232	495
Total Recapture Commission Fees	\$23,738	\$20,755	\$44,493

The ARMB's Commission Recapture program has been in place since 1995, first working with various brokers then switching to the State Street program in 2005. Under a commission recapture program a portion of the commissions and mark-ups on trades (placed through the State Street broker network) flow directly back to the fund.

The program allows managers to place trades for commission recapture purposes. The ARMB has established direction percentages for the managers to strive for, but is only requiring best efforts to meet them given their fiduciary obligation to achieve best execution of transactions.

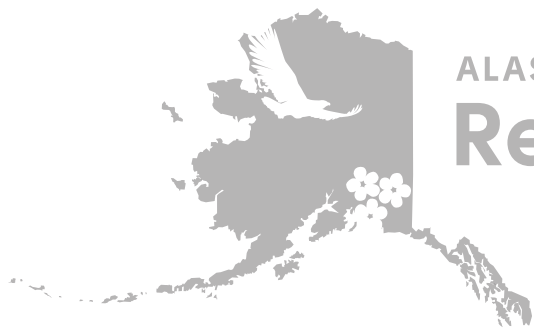
The current rebate arrangement with State Street Global Markets (SSGM) is: 90% of the commissions received in excess of executing the brokers' execution-only rates; 100% of commissions in excess of its execution-only rates for all trading directed through SSGM.



ALASKA DIVISION OF
**Retirement
and Benefits**



ACTUARIAL SECTION



ALASKA DIVISION OF
**Retirement
and Benefits**



June 5, 2018

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the annual actuarial valuation results of the State of Alaska Teachers' Retirement System (TRS) as of June 30, 2017 performed by Conduent HR Consulting, LLC (Conduent HR Consulting).

The actuarial valuation is based on financial information provided in the statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), all as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2017. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under TRS were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Conduent HR Consulting is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS as of June 30, 2017.

TRS is funded by Employer, State, and Member Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board) and as required by Alaska state statutes. The funding objective for TRS is to pay required contributions that remain level as a percent of total TRS compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percentage of total TRS compensation over a closed 25-year period and as required by Alaska state statutes. The closed 25-year period was established effective June 30, 2014.

Actuarial Section

The compensation used to determine required contributions is the total compensation of all active members in TRS, including those hired after July 1, 2006 who are members of the Defined Contribution Retirement (DCR) Plan. This objective is currently being met and is projected to continue to be met.

The Board and staff of the State of Alaska may use this report for the review of the operations of TRS. Use of this report, for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, you should ask Conduent HR Consulting to review any statement you wish to make on the results contained in this report. Conduent HR Consulting will not accept any liability for any such statement made without the review by Conduent HR Consulting.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2009 to June 30, 2013. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2014 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claim cost rates effective June 30, 2017 to better reflect expected future healthcare experience. Based on recent experience, the healthcare cost trend assumptions were also updated. A summary of the actuarial assumptions and methods used in this actuarial valuation are shown in Section 6.

Governmental Accounting Standards Board (GASB) Statement No. 67 (GASB 67) and Statement No. 74 (GASB 74) are effective for TRS during the fiscal year ending June 30, 2017, and separate GASB 67 and GASB 74 reports as of June 30, 2017 have been prepared. Section 3 of this report contains accounting information previously disclosed under GASB 25 for fiscal years 2007 through 2013 and accounting information previously disclosed under GASB 43 for fiscal years 2007 through 2016. We have also prepared the member data tables shown in Section 5 of this report for the Statistical Section of the CAFR, and the summary of actuarial assumptions, solvency test, and analysis of financial experience for the Actuarial Section of the CAFR. Please see our separate GASB 67 and GASB 74 reports for other information needed for the CAFR.

This report was prepared under my supervision and in accordance with all applicable Actuarial Standards of Practice. David Kershner is a Fellow of the Society of Actuaries, an Enrolled Actuary and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

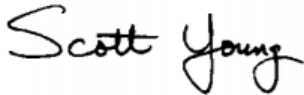
We are available to discuss this report with you at your convenience. David can be reached at 602-803-6174 and Scott can be reached at 216-682-7583.

Respectfully submitted,



David J. Kershner, FSA, EA, MAAA, FCA
Principal

The undersigned actuary is responsible for all assumptions related to the average annual per capita health claims cost and the health care cost trend rates, and hereby affirms his qualification to render opinions in such matters in accordance with the Qualification Standards of the American Academy of Actuaries.



Scott Young, FSA, EA, MAAA
Director

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The funding method used in this valuation was adopted by the Board in October 2006. Changes in the amortization of unfunded actuarial accrued liability were made in 2014. The asset smoothing method used to determine valuation assets was changed effective June 30, 2014.

Benefits valued are those delineated in Alaska state statutes as of the valuation date. Changes in state statutes effective after the valuation date are not taken into consideration in setting the assumptions and methods.

A. Actuarial Method – Entry Age Normal Cost

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method. Any funding surpluses or unfunded actuarial accrued liability are amortized over a closed 25-year period (established June 30, 2014) as a level percentage of payroll amount. State statutes allow the contribution rate to be determined on payroll for all members, defined benefit and defined contribution member payroll combined.

Projected pension and postemployment healthcare benefits were determined for all active members. Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year for pension benefits (constant dollar amount for healthcare benefits) from the assumed entry age to the assumed retirement age were applied to the projected benefits to determine the normal cost (the portion of the total cost of the plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for retired members and their beneficiaries currently receiving benefits, terminated vested members and disabled members not yet receiving benefits was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members. The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

B. Valuation of Assets

The actuarial asset value was reinitialized to equal Fair Value of Assets as of June 30, 2014. Beginning in FY15, the asset value method recognizes 20% of the gain or loss each year, for a period of 5 years. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP.

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C. Valuation of Retiree Medical and Prescription Drug Benefits

This section outlines the detailed methodology used to develop the initial per capita claims cost rates for TRS postemployment healthcare plan. Note that the methodology reflects the results of our annual experience rate update for the period from July 1, 2016 to June 30, 2017. Healthcare cost trend and retiree contribution increase assumptions for the period after June 30, 2017 were updated since the prior valuation.

Base claims cost rates are incurred healthcare costs expressed as a rate per member per year. Ideally, claims cost rates should be derived for each significant component of cost that can be expected to require differing projection assumptions or methods (i.e., medical claims, prescription drug claims, administrative costs, etc). Separate analysis is limited by the availability and historical credibility of cost and enrollment data for each component of cost. This valuation reflects non-prescription claims separated by Medicare status, including eligibility for free Part A coverage. Prescription costs are analyzed separately as in prior valuations. Administrative costs are assumed in the final per capita claims cost rates used for valuation purposes, as described below. Analysis to date on Medicare Part A coverage is limited since Part A claim data is not available by individual, nor is this status incorporated into historical claim data.

Benefits

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan and is available to employees of the State and subdivisions who meet retirement criteria based on the retirement plan tier in effect at their date of hire. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination for those Medicare-eligible. Dental, vision and audio claims (DVA) are excluded from data analyzed for this valuation because those are retiree-pay all benefits where rates are assumed to be self-supporting. Conduent HR Consulting relies upon rates set by a third-party for the DVA benefits. Conduent HR Consulting reviewed historical rate-setting information and views contribution rate adjustments made are not unreasonable.

Administration and Data Sources

The plan was administered by Wells Fargo Insurance Services (acquired by HealthSmart, in January 2012) from July 1, 2009 through December 31, 2013 and by Aetna effective January 1, 2014.

Claims incurred for the period from July 2015 through June 2017 (FY16 through FY17) were provided by the State of Alaska from reports extracted from their data warehouse, which separated claims by Medicare status. Monthly enrollment data for the same period was provided by Aetna.

Aetna also provided census information identifying Medicare Part B only participants. These participants are identified when hospital claims are denied by Medicare; Aetna then flags that participant as a Part B only participant. Conduent HR Consulting added newly identified participants to our list of Medicare Part B only participants. Conduent HR Consulting assumes that once identified as Part B only, that participant remains in that status until we are notified otherwise.

Aetna provided a snapshot file as of July 1, 2017 of retirees and dependents that included a coverage level indicator. The monthly enrollment data includes dual coverage participants. These are participants whereby both

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the retiree and spouse are retirees from the State and both are reflected with Couple coverage in the enrollment. In this case, such a couple would show up as four members in the monthly enrollment (each would be both a retiree and a spouse). As a result, the snapshot census file was used to adjust the total member counts in the monthly enrollment reports to estimate that number of unique participants enrolled in coverage. Based on the snapshot files from the last two valuations, the total member count in the monthly enrollment reports needs to be reduced by approximately 13% to account for the number of participants with dual coverage.

Aetna does not provide separate experience by Medicare status in standard reporting so the special reports mentioned above from the data warehouse were used this year to obtain that information and incorporate it into the per capita rate development for each year of experience (with corresponding weights applied in the final per capita cost).

Methodology

Conduent HR Consulting projected historical claim data to FY18 for retirees using the following summarized steps:

1. Develop historical annual incurred claim cost rates – an analysis of medical costs was completed based on claims information and enrollment data provided by the State of Alaska and Aetna for each year in the experience period of FY16 through FY17. (For this year's valuation, the Board approved reducing the number of experience periods from four years to two years.)
 - Costs for medical services and prescriptions were analyzed separately, and separate trend rates were developed to project expected future medical and prescription costs for the valuation year (e.g. from the experience period up through FY18).
 - Because the reports provided this year reflected incurred claims, no additional adjustment was needed (as it was in prior years) to determine incurred claims to be used in the valuation.
 - An offset for costs expected to be reimbursed by Medicare was incorporated beginning at age 65. Alaska retirees who do not have 40 quarters of Medicare-covered compensation do not qualify for Medicare Part A coverage free of charge. This is a relatively small and closed group. Medicare was applied to State employment for all employees hired after March 31, 1986. For the “no-Part A” individuals who are required to enroll in Medicare Part B, the State is the primary payer for hospital bills and other Part A services. Claim experience is not available separately for participants with both Medicare Parts A and B and those with Part B only. For Medicare Part B only participants, a lower average claims cost was applied to retirees covered by both Medicare Part A and B vs. retirees covered only by Medicare Part B based upon manual rate models that estimate the Medicare covered proportion of medical costs. To the extent that no-Part A claims can be isolated and applied strictly to the appropriate closed group, actuarial accrued liability will be more accurate.
 - Based on census data received from Aetna, less than 1% of the current retiree population was identified as having coverage only under Medicare Part B. For future retirees, we assume their Part A eligible status based on a combination of date of hire and/or re-hire, date of birth, tier, etc.

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- Based upon a reconciliation of valuation census data to the snapshot eligibility files provided by Aetna as of July 1, 2016, and July 1, 2017, Conduent HR Consulting adjusted member counts used for duplicate records where participants have dual coverage; i.e. primary coverage as a retiree and secondary coverage as the covered spouse of another retiree. This is to reflect the total cost per distinct individual/member which is then applied to distinct members in the valuation census.
 - Conduent HR Consulting understands that pharmacy claims reported do not reflect rebates. Based upon reported rebates in proportion to incurred claims for State of Alaska retiree plans, Conduent HR Consulting reduced reported pharmacy incurred claims by 9% to estimate the rebates for the retiree population for the FY16 claims and by 12% for FY17 claims. These estimates were based upon reported rebates for retirees from Aetna and Envision Rx.
2. Develop estimated Retiree Drug Subsidy reimbursement - actual subsidy payments to the State were received for claims incurred during the 2009 through 2016 calendar years. Conduent HR Consulting obtained this information based upon recorded and available information in the RDS Subsidy website and as provided by the State. The projected subsidy for FY18 was determined based on the historical ratio of subsidy received to claims incurred (adjusted for rebates), and then applied to the appropriate projection period. These amounts are applicable only to Medicare eligible participants.
 3. Adjust for claim fluctuation, anomalous experience, etc. – explicit adjustments are often made for anticipated large claims or other anomalous experience. Due to group size and demographics, we did not make any large claim adjustments. We do blend both Alaska plan-specific and national trend factors as described below. Conduent HR Consulting compared data utilized to lag reports and quarterly plan experience presentations provided by the State and Aetna to assess accuracy and reasonableness of data.
 4. Trend all data points to the projection period – project prior years' experience forward to FY18 for retiree benefits on an incurred claim basis. Trend factors derived from historical Alaska-specific experience and national trend factors are shown in the table in item 5 below.
 5. Apply credibility to prior experience – adjust prior year's data by assigning weight to recent periods, as shown at the right of the table below. The Board approved a change in the weighting of experience periods as outlined below. The prior valuation uses a weighting of 35%/35%/20%/10% for the previous four fiscal years of experience (most recent to oldest). Note also that we averaged projected plan costs using Alaska-specific trend factors and national trend factors, assigning 75% weight to Alaska-specific trends and 25% to national trends:

Experience Period	Alaska-Specific and National Average Weighted Trend from Experience Period to Valuation Year			Weighting Factors
	Medical	Prescription		
FY16 to FY17	5.3%	8.5%		50%
FY17 to FY18	7.0% Pre-Medicare / 4.5% Medicare	6.2%		50%

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Trend assumptions used for rate development are assessed annually and as additional/improved reporting becomes available, we will incorporate into rate development as appropriate. Based upon recent experience trending up, particularly for prescription drugs, the Board has approved our recommendation to update to the valuation healthcare cost trend assumption.

6. Develop separate administration costs – no adjustments were made for internal administrative costs. Third party retiree plan administration fees for FY18 are based upon rates in effect at the midpoint of the year, January 2018, as communicated by the State. We also ensured that these rates were consistent with the calculation of the 2018 budget and retiree contribution rates calculated by Segal. Included in the administration costs are medical and prescription fees of \$28.25 (\$27.70 for medical and \$0.55 for Rx check) PEPM, \$4.60 PPPM for retiree direct billing, \$0.71 PEPM for the Gaps in Care program (applicable to early retirees only) and a share of the HDMS fee for data analytics. The annual per participant per year administrative cost rate for medical and prescription benefits is \$236.
7. Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Conduent HR Consulting evaluated the impact of the following provisions; however, none of the impacts have been included in the valuation results except for the excise tax described below.
 - Because the State plan is retiree-only, and was in effect at the time the legislation was enacted, not all provisions of the health reform legislation apply to the State plan. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. We reviewed the impact of including these provisions, but there was no decision made to adopt them, and no requirement to do so.
 - Because Transitional Reinsurance fees are only in effect until 2016, we excluded these for valuation purposes.
 - The Plan will be subject to the high cost plan excise tax (Cadillac tax). Based upon guidance available at the valuation date, Conduent HR Consulting estimated the tax based upon a blended test of pre and post-Medicare projected costs and enrollment projections.
 - A blended test compares a weighted average per capita cost (based upon proportions of pre/post Medicare eligible enrollments) to the tax cost thresholds in each projection year. Projected enrollment was based upon the enrollment data provided by Aetna, and valuation headcount projections for future years.
 - We included administrative fees and applied Retiree Drug Subsidy reimbursements to the Medicare rates.
 - We assumed claim costs would increase according to valuation trend assumptions from the June 30, 2017 valuation, and that the tax cost thresholds would increase at 2.82% (the CPI assumption of 3.12% less 0.30% to estimate the impact of using the chained CPI as required by the Tax Cut and Jobs Act passed in December 2017). The first year increased at 3.82% to reflect the additional 1.0% over inflation assumption.

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- Conduent HR Consulting determined the impact to be approximately \$21.4 million of the projected June 30, 2017 healthcare actuarial accrued liability for the defined benefit plan.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax ("Cadillac Tax") to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

We have not identified any other specific provision of health care reform that would be expected to have a significant impact on the measured obligation. While the House of Representatives voted to pass the American Health Care Act (AHCA), which would have repealed many provisions of the Affordable Care Act (ACA), the bill was rejected by the Senate. We will continue to monitor legislative activity.

In accordance with actuarial standards, we note the following specific data sources and steps taken to value retiree medical benefits:

- The Division of Retirement and Benefits provided pension valuation census data, which for people currently in receipt of healthcare benefits was supplemented by coverage data from the healthcare claims administrator (Aetna).
- Certain adjustments and assumptions were made to prepare the data for valuation:
 - Some records provided on the Aetna data were associated with a participant social security number not listed on the RIN-to-SSN translation file. We did not add these records to the retiree medical valuation data as they were unable to tie with our pension valuation data (and therefore were unable to be associated with a specific plan or participant).
 - Some in pay participants and beneficiaries on the pension valuation data who were previously assumed to be receiving medical benefits were not listed on the provided Aetna data. We have updated these records to only be valued under the pension valuation.
 - Some records in the Aetna data were duplicates due to the dual coverage (i.e. coverage as a retiree and as a spouse of another retiree) allowed under the Plan. Records were changed for these members so that each member was only valued once. Any additional value of the dual coverage (due to coordination of benefits) is small and reflected in the per capita costs.
 - Covered children included in the Aetna data were valued until age 23, unless handicapped. We assumed that those dependents over 23 were only eligible and included due to being handicapped.

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- Conduent HR Consulting understands that retiree medical coverage/eligibility is in place while a pension benefit is payable. If a participant dies, dependent coverage is only assumed to continue if they have ongoing pension/survivor benefits.
- For individuals included in the pension data expecting a future pension, we valued health benefits starting at the same point that the pension benefit is assumed to start.
- Future retirees' level of coverage is estimated according to valuation assumptions regarding spousal coverage.
- Limitations on the use of the valuation results due to uncertainty about various aspects of the data: Excluded records due to file mismatches are noted above but not are expected to have a material impact on the results.

The chart below shows the basis of setting the per capita claims cost assumption, which includes both PERS and TRS.

	Medical		Prescription Drugs (Rx)		Total
	Pre-Medicare	Medicare	Pre-Medicare	Medicare	
A. Fiscal 2016					
1. Incurred Claims	\$ 237,116,614	\$ 65,703,369	\$ 67,176,175	\$ 146,089,568	\$ 516,085,726
2. Adjustments for Rx Rebates	-	-	(6,045,856)	(13,148,061)	(19,193,917)
3. Net incurred claims	\$ 237,116,614	\$ 65,703,369	\$ 61,130,319	\$ 132,941,507	\$ 496,891,809
4. Average Enrollment	24,439	36,151	24,439	36,151	60,591
5. Claim Cost Rate (3) / (4)	9,702	1,817	2,501	3,677	
6. Trend to Fiscal 2018	1.126	1.100	1.152	1.152	
7. Fiscal 2018 Incurred Cost Rate (5) x (6)	\$ 10,929	\$ 1,999	\$ 2,882	\$ 4,237	
B. Fiscal 2017					
1. Incurred Claims	\$ 231,784,641	\$ 71,323,054	\$ 64,788,957	\$ 161,532,441	\$ 529,429,093
2. Adjustments for Rx Rebates	-	-	(7,774,675)	(19,383,893)	(27,158,568)
3. Net incurred claims	\$ 231,784,641	\$ 71,323,054	\$ 57,014,282	\$ 142,148,548	\$ 502,270,525
4. Average Enrollment	23,342	38,502	23,342	38,502	61,844
5. Claim Cost Rate (3) / (4)	9,930	1,852	2,443	3,692	
6. Trend to Fiscal 2018	1.070	1.045	1.062	1.062	
7. Fiscal 2018 Incurred Cost Rate (5) x (6)	\$ 10,625	\$ 1,936	\$ 2,594	\$ 3,921	
C. Incurred Cost Rate by Fiscal Year					
1. Fiscal 2016 A. (7)	10,929	1,999	2,882	4,237	
2. Fiscal 2017 B. (7)	10,625	1,936	2,594	3,921	
D. Weighting by Fiscal Year					
1. Fiscal 2016	50%	50%	50%	50%	
2. Fiscal 2017	50%	50%	50%	50%	

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	Medical		Prescription Drugs (Rx)	
	Pre-Medicare	Medicare	Pre-Medicare	Medicare
E. Fiscal 2018 Incurred Cost Rate				
1. Rate at Average Age C x D	\$ 10,777	\$ 1,968	\$ 2,738	\$ 4,079
2. Average Aging Factor	0.788	1.305	0.784	1.101
3. Rate at Age 65 (1) / (2)	\$ 13,682	\$ 1,508	\$ 3,493	\$ 3,706
F. Development of Part A&B and Part B				
Only Cost from Pooled Rate Above				
1. Part A&B Average Enrollment		38,227		
2. Part B Only Average Enrollment		275		
3. Total Medicare Average Enrollment B(4)		38,502		
4. Cost ratio for those with Part B only to those with Part A&B		3.180		
5. Factor to determine cost for those with Parts A&B (2) / (3) x (4) + (1) / (3) x 1.00		1.016		
6. Medicare per capita cost for all participants: E(3)		\$ 1,508		
7. Cost for those eligible for Parts A&B: (6) / (5)		\$ 1,485		
8. Cost for those eligible for Part B only: (7) x (4)		\$ 4,722		

Following the development of total projected costs, a distribution of per capita claims cost was developed. This was accomplished by allocating total projected costs to the population census used in the valuation. The allocation was done separately for each of prescription drugs and medical costs for the Medicare eligible and pre-Medicare populations. The allocation weights were developed using participant counts by age and assumed morbidity and aging factors. Results were tested for reasonableness based on historical trend and external benchmarks for costs paid by Medicare.

Below are the results of this analysis:

**Distribution of Per Capita Claims Cost by Age
for the Period July 1, 2017 through June 30, 2018**

Age	Medical and Medicare Parts A & B	Medical and Medicare Part B Only	Prescription Drug	Medicare Retiree Drug Subsidy
45	\$ 7,577	\$ 7,577	\$ 1,843	\$ —
50	8,573	8,573	2,188	—
55	9,699	9,699	2,599	—
60	11,520	11,520	3,013	—
65	1,485	4,722	3,493	659
70	1,807	5,745	3,763	710
75	2,145	6,822	4,014	757
80	2,311	7,349	4,115	776

Changes in Methods Since the Prior Valuation

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There have been no changes in the asset or valuation methods since the prior valuation.

The demographic and economic assumptions used in the June 30, 2017 valuation are described below. Unless otherwise noted, these assumptions were adopted by the Board in December 2014 based on an experience study performed as of June 30, 2013.

1. Investment Return 8.00% per year (geometric), compounded annually, net of all expenses.
2. Salary Scale Inflation – 3.12% per year. Productivity – 0.50% per year. See Table 1 for salary scale rates.
3. Payroll Growth 3.62% per year. (Inflation + Productivity).
4. Total Inflation Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 3.12% annually.
5. Mortality
 (Pre-termination)¹ Based upon the 2010-2013 actual experience. (See Table 2). 68% of male rates and 60% of female rates of post-termination mortality. Deaths are assumed to result from non-occupational causes 85% of the time.
6. Mortality
 (Post-termination)¹ Based upon the 2010-2013 actual experience. (See Table 3). 94% of male and 97% of female rates of RP-2000, 2000 Base Year projection to 2018 with Projection Scale BB, with a 3-year setback for males and a 4-year setback for females.
7. Total Turnover Select and ultimate rates based upon the 2010-2013 actual withdrawal experience. (See Table 4).
8. Disability Incidence rates based upon the 2010-2013 actual experience, in accordance with Table 5. Post-disability mortality in accordance with the RP-2000 Disabled Retiree Mortality Table, 2000 Base Year, projected to 2018 with Projection Scale BB. (See Table 7).
9. Retirement Retirement rates based upon the 2010-2013 actual experience in accordance with Table 6. Deferred vested members are assumed to retire at their earliest unreduced retirement date. The modified cash refund annuity is valued as a three-year certain and life annuity.
10. Marriage and Age
 Difference Wives are assumed to be three years younger than husbands. 85% of male members and 75% of female members are assumed to be married.
11. Dependent Children Benefits for dependent children have been valued only for members currently covering their dependent children. These benefits are only valued through the dependent children's age 23 (unless the child is disabled).

¹ The mortality assumptions include an allowance for expected future mortality improvement. The mortality table used was set in 2014 with an Actual Deaths to Expected Deaths ratio of 109%.

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- | | |
|--|---|
| 12. Contribution Refunds | 5% of terminating members with vested benefits are assumed to have their contributions refunded. 100% of those with non-vested benefits are assumed to have their contributions refunded. |
| 13. Imputed Data | Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data. Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage. |
| 14. Active Rehire Assumption | The Normal Cost used for determining contribution rates and in the projections includes a rehire assumption to account for anticipated rehires. The Normal Cost shown in the report includes the following % assumptions (which were developed based on the 5 years of rehire loss experience through June 30, 2015): Pension 18.49%, Healthcare 10.39%. |
| 15. Active Data Assumption | To reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date, participants who are listed as terminated in the June 30 census data file but active in the October 1 census data file are updated to active status as of June 30. |
| 16. COLA | Of those benefit recipients who are eligible for the COLA, 60% are assumed to remain in Alaska and receive the COLA. |
| 17. Sick Leave | 4.5 days of unused sick leave for each year of service are assumed to be available to be credited once the member is retired, terminates or dies. |
| 18. Post-Retirement Pension Adjustment | 50% and 75% of assumed inflation, or 1.56% and 2.34% respectively, is valued for the annual automatic Postretirement Pension Adjustment (PRPA) as specified in the statute. |
| 19. Expenses | The investment return assumption is net of all expenses. |
| 20. Part-Time Status | Part-time employees are assumed to earn 0.75 years of credited service per year. |
| 21. Re-Employment Option | We assume all re-employed retirees return to work under the Standard Option. |
| 22. Service | Total credited service is provided by the State. The actuary assumes that this service is the only service that should be used to calculate benefits. Additionally, the State provides claimed service (including Bureau of Indian Affairs Service). Claimed service is used for vesting and eligibility purposes. |
| 23. Final Average Earnings | Final Average Earnings is provided on the data for active members. This amount is used as a minimum in the calculation of the average earnings in the future. |

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24. Per Capita Claims Cost Sample claims cost rates adjusted to age 65 for FY18 medical and prescription drugs are shown below:

		<u>Medical</u>		<u>Prescription drugs</u>
Pre-Medicare	\$	13,682	\$	3,493
Medicare Parts A & B		1,485		3,706
Medicare Part B Only		4,722		3,706
Medicare Part D		N/A		659

25. Third Party Administrator Fees \$236 per person per year; assumed trend rate of 4% per year.

26. Medicare Part B Only For actives and retirees not yet Medicare-eligible, participation is set based on whether the employee/retiree will have 40 quarters of employment after March 31, 1986, depending upon date of hire and/or re-hire.

27. Health Cost Trend The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 8.0% is applied to the FY18 pre-Medicare medical claims costs to get the FY19 medical claims costs.

<u>Fiscal year</u>	<u>Medical pre-65</u>	<u>Medical post-65</u>	<u>Prescription drugs</u>	<u>RDS / EGWP</u>
2018	8.0%	5.5%	9.0%	6.5%
2019	7.5	5.5	8.5	6.2
2020	7.0	5.4	8.0	6.0
2021	6.5	5.4	7.5	5.7
2022	6.3	5.4	7.1	5.5
2023	6.1	5.4	6.8	5.4
2024	5.9	5.4	6.4	5.2
2025	5.8	5.4	6.1	5.0
2026	5.6	5.4	5.7	4.8
2027-2040	5.4	5.4	5.4	4.7
2041	5.2	5.2	5.2	4.6
2042	5.1	5.1	5.1	4.5
2043	5.0	5.0	5.0	4.5
2044	4.8	4.8	4.8	4.4
2045	4.7	4.7	4.7	4.3
2046	4.5	4.5	4.5	4.2
2047	4.4	4.4	4.4	4.2
2048	4.3	4.3	4.3	4.1
2049	4.1	4.1	4.1	4.0
2050+	4.0	4.0	4.0	4.0

For the June 30, 2014 valuation and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts that are projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska. The

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model was updated this year to use the newest version and incorporate recent trend survey information, which generated the updated trend rates shown above.

28. Aging Factors*

Age	Medical	Prescription drugs
0-44	2.0%	4.5%
45-54	2.5	3.5
55-64	3.5	3.0
65-74	4.0	1.5
75-84	1.5	0.5
85-95	0.5	—
96 +	—	—

* Note that the pre-65 factor represents the percentage increase from the ages noted to the next age. However, the post-65 factor represents the percentage decrease from the ages noted to the prior age. That is, 2.5% is used to adjust from 54 to 55, but 1.5% is used to adjust from age 84 back to age 83.

29. Retired Member
Contributions for
Medical Benefits

Currently contributions are required for TRS members who are under age 60 and have less than 25 years of service. Eligible Tier 1 members are exempt from contribution requirements. Annual FY18 contributions based on monthly rates shown below for calendar 2017 and 2018 are assumed based on the coverage category for current retirees. The composite rate shown is used for current active and inactive members in Tier 2 who are assumed to retire prior to age 60 with less than 25 years of service and who are not disabled. For dependent children, we value 1/3 of the annual retiree contribution to estimate the per child rate based upon the assumed number of children in rates where children are covered:

Coverage category	Calendar 2018		Calendar 2017
	Annual contribution	Monthly contribution	Monthly contribution
Retiree only	\$ 9,324	777	777
Retiree and spouse	18,648	1,554	1,554
Retiree and child(ren)	13,164	1,097	1,097
Retiree and family	22,500	1,875	1,875
Composite	13,848	1,154	1,154

30. Trend Rate for Retired
Member Medical
Contribution

The table below shows the rate used to project the retired member medical contributions from the shown fiscal year to the next fiscal year. For example, 8.0% is applied to the FY18 retired member medical contributions to get the FY19 retired member medical contributions.

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Fiscal year:	
2018	8.0%
2019	7.6
2020	7.2
2021	6.8
2022	6.5
2023	6.3
2024	6.0
2025	5.9
2050	4.0
2100	4.0

Graded trend rates for retired member medical contributions were reinitialized for the June 30, 2014 valuation and updated to the rates shown above for the June 30, 2017 valuation. Actual FY18 retired member medical contributions are reflected in the valuation.

31. Healthcare Participation 100% of system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible.
- 10% of non-system paid members and their spouses are assumed to elect healthcare benefits as soon as they are eligible.
32. Changes in Assumptions Since the Prior Valuation The healthcare cost trend assumption was updated as shown above to reflect anticipated increases in costs based on recent survey data. Healthcare claim costs are updated annually as described in Section 6.2 of the actuarial valuation.

State of Alaska
Teachers' Retirement System
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Summary of Actuarial Assumptions and Changes in Assumptions

Table 1
Alaska TRS
Salary Scale

Years of Service	Percent Increase
0	8.11%
1	7.51
2	6.91
3	6.41
4	6.11
5	6.11
6	5.90
7	5.69
8	5.55
9	5.40
10	5.26
11	5.11
12	4.96
13	4.84
14	4.72
15	4.60
16	4.49
17	4.37
18	4.27
19	4.17
20	4.07
21	3.97
22+	3.87

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Table 2
Alaska TRS
Mortality Table (Pre-termination)

Age	Male	Female	Age	Male	Female
20	0.000182	0.000098	53	0.001295	0.000855
21	0.000191	0.000101	54	0.001483	0.000908
22	0.000200	0.000104	55	0.001615	0.000985
23	0.000209	0.000105	56	0.001766	0.001054
24	0.000216	0.000105	57	0.001901	0.001132
25	0.000222	0.000106	58	0.002117	0.001221
26	0.000226	0.000107	59	0.002409	0.001344
27	0.000228	0.000109	60	0.002643	0.001501
28	0.000228	0.000111	61	0.002917	0.001659
29	0.000229	0.000114	62	0.003229	0.001837
30	0.000231	0.000118	63	0.003599	0.002080
31	0.000238	0.000123	64	0.004021	0.002367
32	0.000249	0.000130	65	0.004504	0.002723
33	0.000269	0.000137	66	0.005057	0.003118
34	0.000302	0.000146	67	0.005594	0.003582
35	0.000340	0.000169	68	0.006202	0.004036
36	0.000382	0.000193	69	0.007017	0.004546
37	0.000425	0.000217	70	0.007828	0.005130
38	0.000468	0.000240	71	0.008702	0.005696
39	0.000509	0.000262	72	0.009643	0.006297
40	0.000547	0.000283	73	0.010813	0.006959
41	0.000584	0.000305	74	0.011964	0.007841
42	0.000618	0.000330	75	0.013285	0.008701
43	0.000653	0.000357	76	0.014797	0.009678
44	0.000692	0.000389	77	0.016508	0.010757
45	0.000736	0.000427	78	0.018423	0.011923
46	0.000787	0.000470	79	0.020534	0.013163
47	0.000846	0.000517	80	0.022841	0.014502
48	0.000913	0.000567	81	0.025382	0.015972
49	0.000979	0.000620	82	0.028208	0.017607
50	0.001050	0.000674	83	0.031344	0.019438
51	0.001126	0.000731	84	0.035081	0.021486
52	0.001208	0.000791	85	0.039193	0.023782

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Summary of Actuarial Assumptions and Changes in Assumptions

Table 3
Alaska TRS
Mortality Table (Post-termination)

Age	Male	Female	Age	Male	Female
50	0.001544	0.001124	85	0.057637	0.039636
51	0.001656	0.001219	86	0.064248	0.043940
52	0.001777	0.001318	87	0.072770	0.048789
53	0.001904	0.001424	88	0.082264	0.054261
54	0.002181	0.001513	89	0.092884	0.060450
55	0.002375	0.001641	90	0.104794	0.068659
56	0.002597	0.001756	91	0.118129	0.077983
57	0.002795	0.001887	92	0.132941	0.088452
58	0.003113	0.002035	93	0.149196	0.100021
59	0.003543	0.002240	94	0.165479	0.112560
60	0.003887	0.002501	95	0.182705	0.125866
61	0.004289	0.002765	96	0.200693	0.139699
62	0.004749	0.003062	97	0.219249	0.153813
63	0.005293	0.003466	98	0.233940	0.164973
64	0.005913	0.003946	99	0.252821	0.178741
65	0.006624	0.004538	100	0.267022	0.188730
66	0.007436	0.005196	101	0.285888	0.201393
67	0.008227	0.005970	102	0.299408	0.209540
68	0.009121	0.006727	103	0.318102	0.220440
69	0.010318	0.007576	104	0.331094	0.226232
70	0.011511	0.008550	105	0.349384	0.237489
71	0.012798	0.009494	106	0.360058	0.246863
72	0.014180	0.010494	107	0.368483	0.258063
73	0.015902	0.011599	108	0.374013	0.270683
74	0.017595	0.013068	109	0.376000	0.284323
75	0.019536	0.014502	110	0.376000	0.298577
76	0.021760	0.016130	111	0.376000	0.313043
77	0.024276	0.017929	112	0.376000	0.327318
78	0.027093	0.019871	113	0.376000	0.340998
79	0.030198	0.021938	114	0.376000	0.353678
80	0.033590	0.024170	115	0.376000	0.364959
81	0.037326	0.026620	116	0.376000	0.374435
82	0.041482	0.029345	117	0.376000	0.381702
83	0.046095	0.032397	118	0.376000	0.386359
84	0.051589	0.035811	119	0.376000	0.388000

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Table 4
Alaska TRS
Turnover Assumptions

Select Rates of Turnover During the First 8 Years of Employment

Years of Service	Male	Female
0	0.204	0.170
1	0.204	0.170
2	0.168	0.140
3	0.144	0.120
4	0.120	0.100
5	0.108	0.090
6	0.090	0.075
7	0.072	0.060

Ultimate Rates of Turnover
After the First 8 Years of Employment

Age	Male	Female	Age	Male	Female
15	0.031209	0.037185	40	0.030159	0.036224
16	0.031170	0.037157	41	0.030085	0.036155
17	0.031138	0.037138	42	0.030010	0.036086
18	0.031107	0.037129	43	0.029866	0.035976
19	0.031091	0.037120	44	0.029721	0.035867
20	0.030847	0.036848	45	0.029577	0.035757
21	0.030831	0.036848	46	0.029432	0.035648
22	0.030799	0.036839	47	0.029288	0.035538
23	0.030776	0.036839	48	0.029046	0.035380
24	0.030736	0.036830	49	0.028805	0.035221
25	0.030705	0.036830	50	0.028563	0.035063
26	0.030673	0.036820	51	0.028248	0.034847
27	0.030642	0.036762	52	0.027878	0.034595
28	0.030610	0.041480	53	0.027468	0.034296
29	0.030579	0.046198	54	0.046305	0.059961
30	0.030555	0.050917	55	0.045414	0.059285
31	0.030540	0.055635	56	0.044334	0.058410
32	0.030516	0.060353	57	0.043012	0.057288
33	0.030500	0.055569	58	0.041567	0.056018
34	0.030455	0.050784	59	0.039826	0.054401
35	0.030431	0.046000	60	0.037868	0.052569
36	0.030407	0.041215	61	0.035694	0.050523
37	0.030383	0.036431	62	0.033170	0.048197
38	0.030308	0.036362	63	0.030294	0.045540
39	0.030234	0.036293	64	0.027176	0.042653
			65+	0.054000	0.066000

State of Alaska
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Summary of Actuarial Assumptions and Changes in Assumptions

Table 5
Alaska TRS Disability Table

Age	Unisex
20	0.000560
21	0.000563
22	0.000565
23	0.000574
24	0.000583
25	0.000593
26	0.000602
27	0.000611
28	0.000611
29	0.000612
30	0.000612
31	0.000613
32	0.000613
33	0.000622
34	0.000631
35	0.000641
36	0.000650
37	0.000659
38	0.000674
39	0.000689
40	0.000703
41	0.000718
42	0.000733
43	0.000770
44	0.000806
45	0.000843
46	0.000879
47	0.000916
48	0.000975
49	0.001034
50	0.001093
51	0.001152
52	0.001211
53	0.001356
54	0.001501

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State of Alaska
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Summary of Actuarial Assumptions and Changes in Assumptions

Table 6
Alaska TRS Retirement Table

Age at Retirement	Retirement Rate		
	Reduced	Unreduced	
	Unisex Rates	Male	Female
< 45	N/A	0.03	0.03
46	N/A	0.05	0.05
47	N/A	0.05	0.08
48	N/A	0.05	0.08
49	N/A	0.05	0.08
50	0.08	0.05	0.13
51	0.08	0.08	0.12
52	0.08	0.15	0.12
53	0.08	0.15	0.13
54	0.16	0.15	0.14
55	0.08	0.20	0.16
56	0.08	0.17	0.16
57	0.08	0.15	0.16
58	0.08	0.20	0.16
59	0.16	0.20	0.22
60	N/A	0.25	0.22
61	N/A	0.18	0.22
62	N/A	0.18	0.20
63	N/A	0.18	0.20
64	N/A	0.18	0.25
65	N/A	0.30	0.20
66	N/A	0.25	0.20
67	N/A	0.25	0.20
68	N/A	0.25	0.25
69	N/A	0.35	0.25
70	N/A	0.30	0.25
71	N/A	0.30	0.35
72	N/A	0.30	0.35
73	N/A	0.30	0.35
74	N/A	0.30	0.35
75-84	N/A	0.50	
85+	N/A	1.00	

State of Alaska
Teachers' Retirement System
Defined Benefit Retirement Plan
Summary of Actuarial Assumptions and Changes in Assumptions

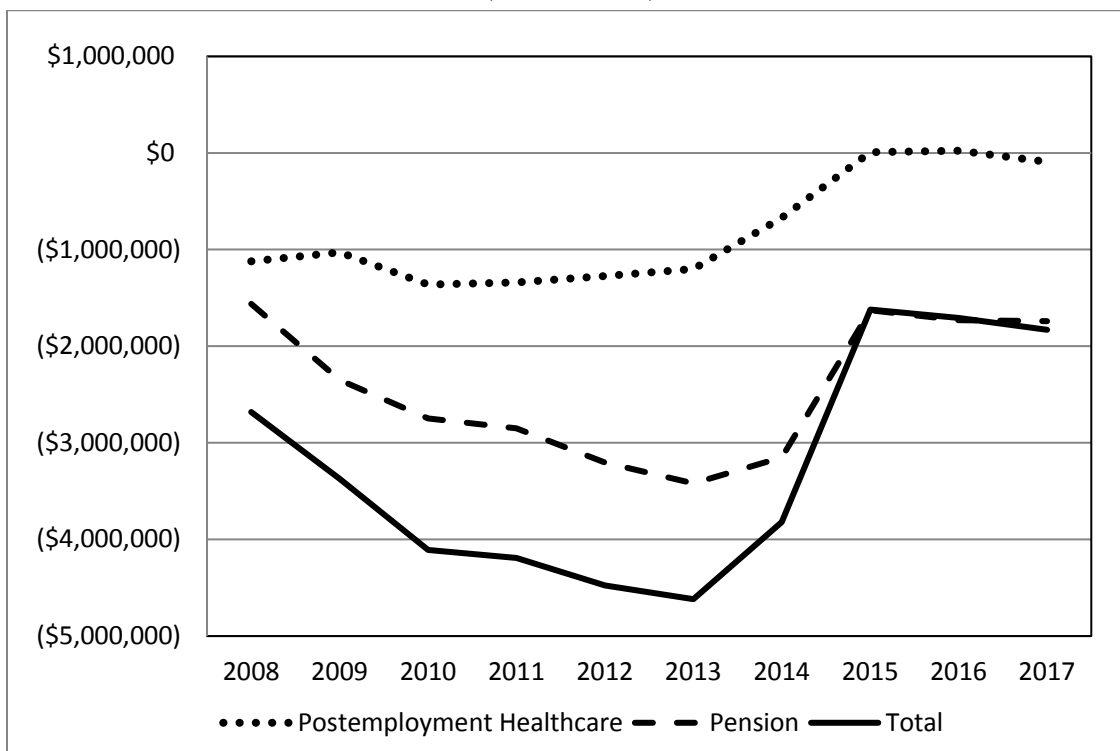
Table 7
Alaska TRS
Disabled Mortality Rates

Age	Male	Female	Age	Male	Female
≤45	0.0214	0.0071	80	0.0833	0.0582
46	0.0226	0.0078	81	0.0880	0.0621
47	0.0238	0.0085	82	0.0928	0.0662
48	0.0250	0.0093	83	0.0978	0.0707
49	0.0262	0.0101	84	0.1028	0.0755
50	0.0275	0.0109	85	0.1079	0.0806
51	0.0287	0.0118	86	0.1130	0.0862
52	0.0299	0.0127	87	0.1204	0.0921
53	0.0311	0.0137	88	0.1282	0.0985
54	0.0324	0.0144	89	0.1362	0.1054
55	0.0336	0.0151	90	0.1503	0.1148
56	0.0348	0.0158	91	0.1667	0.1249
57	0.0354	0.0164	92	0.1841	0.1359
58	0.0359	0.0171	93	0.2022	0.1475
59	0.0365	0.0176	94	0.2209	0.1611
60	0.0370	0.0182	95	0.2400	0.1745
61	0.0376	0.0188	96	0.2594	0.1877
62	0.0382	0.0194	97	0.2790	0.2003
63	0.0389	0.0204	98	0.2934	0.2084
64	0.0396	0.0214	99	0.3128	0.2192
65	0.0404	0.0226	100	0.3264	0.2250
66	0.0413	0.0238	101	0.3459	0.2362
67	0.0422	0.0252	102	0.3585	0.2455
68	0.0434	0.0267	103	0.3762	0.2613
69	0.0454	0.0284	104	0.3850	0.2741
70	0.0477	0.0303	105	0.3979	0.2931
71	0.0502	0.0323	106	0.4000	0.3078
72	0.0529	0.0345	107	0.4000	0.3227
73	0.0558	0.0368	108	0.4000	0.3374
74	0.0591	0.0393	109	0.4000	0.3515
75	0.0625	0.0420	110	0.4000	0.3646
76	0.0662	0.0449	111	0.4000	0.3762
77	0.0702	0.0479	112	0.4000	0.3860
78	0.0744	0.0511	113	0.4000	0.3935
79	0.0788	0.0546	114	0.4000	0.3983
			115+	0.4000	0.4000

Actuarial Section

Teachers' Retirement System Defined Benefit Retirement Plan Funding Excess/(Unfunded Liability) (In thousands)				
Actuarial Valuation Year Ended June 30	Postemployment Healthcare	Pension	Total Funding Excess/ (Unfunded Liability)	Funded Ratio
2008	\$ (1,120,634)	\$ (1,561,568)	\$ (2,682,202)	64.8%
2009	(1,026,288)	(2,348,268)	(3,374,556)	57.0
2010	(1,361,547)	(2,747,113)	(4,108,660)	53.6
2011	(1,340,703)	(2,850,155)	(4,190,858)	54.1
2012	(1,272,507)	(3,204,783)	(4,477,290)	52.1
2013	(1,198,791)	(3,419,240)	(4,618,031)	51.9
2014	(671,535)	(3,150,223)	(3,821,758)	61.2
2015	8,879	(1,629,073)	(1,620,194)	83.3
2016	23,868	(1,731,101)	(1,707,233)	82.8
2017	(90,291)	(1,740,690)	(1,830,981)	82.0

10-YEAR TREND OF UNFUNDED LIABILITY
(In thousands)



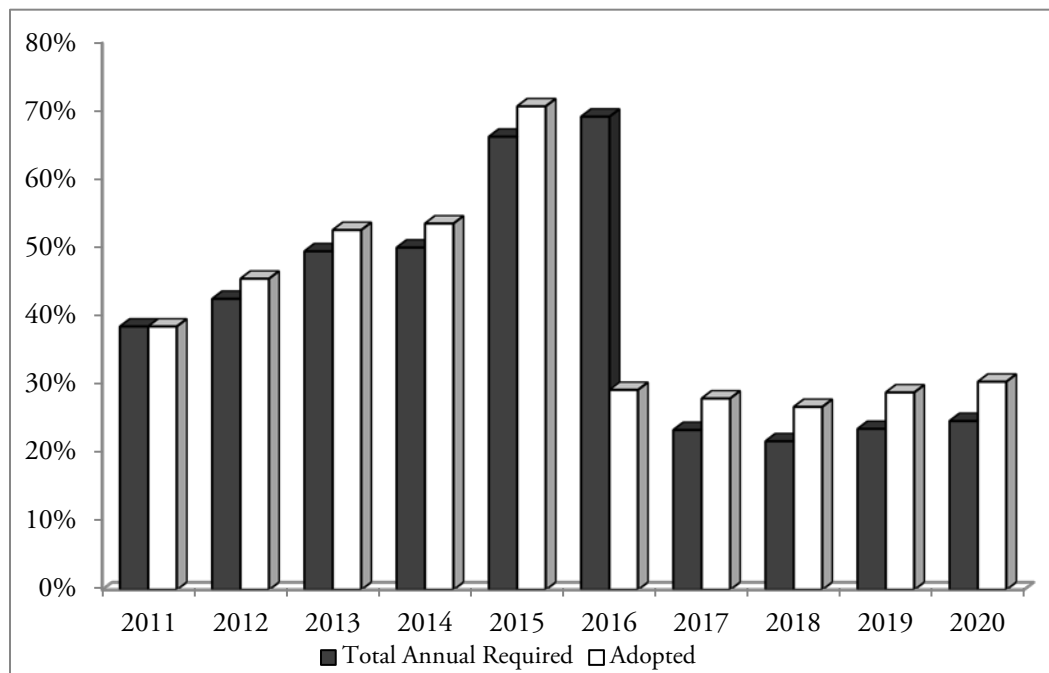
Teachers' Retirement System Defined Benefit Retirement Plan Employer Contribution Rates					
Year Ended June 30	Actuarially Determined				Adopted
	Actuarial Valuation Year Ended June 30	Normal Cost¹	Past Service	Total Annual Required	
2011	2008	7.56%	31.00%	38.56%	38.56%
2012	2009	6.57	36.04	42.61	45.55
2013	2010	7.47	42.09	49.56	52.67
2014	2011	6.59	43.51	50.10	53.62
2015	2012	6.40	59.91	66.31	70.75
2016	2013	5.70	63.54	69.24	29.27
2017	2014	4.63	18.77	23.40	28.02
2018	2015	3.99	17.76	21.75	26.78
2019	2016	5.29	18.27	23.56	28.90
2020	2017	5.14	19.58	24.72	30.47

¹ Also referred to as the consolidated rate.

Beginning with the June 30, 2014 valuation, contribution rates for FY17 and beyond are determined using new methodology in accordance with 2014 legislation under HB 385 and SB 119, 2014 Alaska Laws, which changed the amortization methodology to a closed 25-year period as a level percentage of pay, and eliminated the time lag on the contribution rate calculation by using a 2-year year "roll-forward" approach and assuming 0% population growth. Investment gains and losses are recognized over a 5-year period beginning in FY15.

Valuations are used to set contribution rates in future years.

10-YEAR COMPARISON OF AVERAGE EMPLOYER CONTRIBUTION RATES



Actuarial Section

Teachers' Retirement System Defined Benefit Retirement Plan Schedule of Active Member Valuation Data					
Valuation Date	Number	Annual Earnings (In thousands)	Annual Average Earnings	Percent Increase In Average Earnings	Number of Participating Employers
June 30, 2017	4,772	\$ 411,951	\$ 86,327	1.6%	57
June 30, 2016	5,123	435,222	84,954	2.4	58
June 30, 2015	5,502	456,636	82,995	2.4	58
June 30, 2014	5,861	474,873	81,023	2.1	58
June 30, 2013	6,352	504,260	79,386	2.6	58
June 30, 2012	6,845	529,468	77,351	3.6	58
June 30, 2011	7,303	545,155	74,648	3.5	58
June 30, 2010	7,832	564,887	72,125	6.5	58
June 30, 2009	8,226	557,026	67,715	5.2	58
June 30, 2008	8,531	549,148	64,371	5.8	58

Teachers' Retirement System Defined Benefit Retirement Plan Schedule of Pension Benefit Recipients Added to and Removed from Rolls								
Year Ended	Added to Rolls		Removed from Rolls		Rolls – End of Year		Percent Increase/ (Decrease) In Annual Pension Allowances	Average Annual Pension Allowances
	No.*	Annual Pension Allowances*	No.*	Annual Pension Allowances*	No.	Annual Pension Allowances		
June 30, 2017	487	\$ 17,151,684	230	\$ 7,736,025	12,983	\$	2.11%	\$ 35,084
June 30, 2016	530	18,364,581	222	6,144,109	12,726	446,083,775	2.82	35,053
June 30, 2015	888	34,120,658	220	3,531,501	12,418	433,863,303	7.59	34,938
June 30, 2014	226	5,964,256	181	(1,150,187)	11,750	403,274,146	1.80	34,321
June 30, 2013	576	19,387,542	172	1,652,575	11,705	396,159,703	4.69	33,845
June 30, 2012	473	17,104,564	188	(617,561)	11,301	378,424,736	4.91	33,486
June 30, 2011	564	19,546,369	146	1,464,766	11,016	360,702,611	5.28	32,744
June 30, 2010	533	16,980,817	190	5,495,399	10,598	342,621,008	3.47	32,329
June 30, 2009	368	9,788,639	139	(2,857,118)	10,255	331,135,590	3.97	32,290
June 30, 2008	481	14,265,236	133	806,945	10,026	318,489,833	4.41	31,766

*Numbers are estimated, and include other internal transfers.

Actuarial Section

Teachers' Retirement System Defined Benefit Retirement Plan Pension Solvency Test (In thousands)							
Valuation Date	Pension Actuarial Accrued Liability For:			Pension Valuation Assets	Portion of Actuarial Accrued Liabilities Covered by Assets:		
	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members (Employer-Financed Portion)		(1)	(2)	(3)
June 30, 2016	\$ 709,903	\$ 5,329,673	\$ 1,120,212	\$ 5,428,687	100.0%	88.5%	— %
June 30, 2015	714,422	5,192,935	1,144,367	5,442,651	100.00	90.7	—
June 30, 2014 ^{1 2}	718,694	5,042,250	1,160,418	3,771,139	100.0	60.5	—
June 30, 2013	726,139	4,726,282	1,137,132	3,170,313	100.0	51.7	—
June 30, 2012	727,435	4,532,982	1,139,360	3,194,994	100.0	54.4	—
June 30, 2011	717,819	4,352,035	1,126,250	3,345,949	100.0	60.4	—
June 30, 2010 ¹	716,675	4,153,119	1,137,187	3,259,868	100.0	61.2	—
June 30, 2009	692,105	3,815,020	956,862	3,115,719	100.0	63.5	—
June 30, 2008	654,662	3,700,812	876,180	3,670,086	100.0	81.5	—
June 30, 2007	638,420	3,567,894	837,134	3,441,867	100.0	78.6	—

¹ Change in Assumptions

² Change in Methods

³ The pension and postemployment healthcare valuation assets were allocated using a ratio of fair value of assets as of June 30, 2005

Actuarial Section

Teachers' Retirement System Defined Benefit Retirement Plan Postemployment Healthcare Solvency Test (In thousands)							
Valuation Date	Postemployment Healthcare Actuarial Accrued Liability For:			Post-Employment Healthcare Valuation Assets	Portion of Actuarial Accrued Liabilities Covered by Assets:		
	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members (Employer-Financed Portion)		(1)	(2)	(3)
June 30, 2016	\$ —	\$ 1,853,084	\$ 894,752	\$ 2,771,704	100.0%	100.0 %	100.0%
June 30, 2015	—	1,870,987	806,406	2,686,272	100.0	100.0	100.0
June 30, 2014 ^{1 2}	—	2,008,223	911,447	2,248,135	100.0	100.0	26.3
June 30, 2013	—	2,012,114	990,440	1,803,763	100.0	89.6	—
June 30, 2012	—	1,933,288	1,013,379	1,674,160	100.0	86.6	—
June 30, 2011	—	1,879,564	1,053,127	1,591,988	100.0	84.7	—
June 30, 2010 ¹	—	1,755,961	1,084,846	1,479,260	100.0	84.2	—
June 30, 2009	—	1,477,788	905,739	1,357,239	100.0	91.8	—
June 30, 2008 ¹	—	1,480,864	906,660	1,266,890	100.0	85.6	—
June 30, 2007	—	1,344,131	801,824	982,532	100.0	73.1	—

Healthcare liabilities are calculated using the funding assumptions (i.e., funding investment return and net of Medicare Part D subsidy).

¹ Change in Assumptions
² Change in Methods
³ The pension and postemployment healthcare valuation assets were allocated using a ratio of fair value of assets as of June 30, 2005

Actuarial Section

Teachers' Retirement System Defined Benefit Retirement Plan Analysis of Financial Experience					
Change in Employer/State Contribution Rate Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Five Fiscal Years Resulting From Differences Between Assumed Experience and Actual Experience					
Type of (Gain) or Loss	Change in Employer/State Contribution Rate During Fiscal Year				
	2017	2016	2015	2014	2013
Health Claims ⁽¹⁾	(2.75)%	(0.43)%	(4.07)%	(8.59)%	(1.21)%
Salary Experience	(0.39)	(0.42)	(0.34)	(0.43)	(0.30)
Investment Experience	1.99	2.07	0.62	(6.31)	2.44
Demographic Experience and Miscellaneous	(1.51)	(0.98)	(0.52)	1.75	0.38
Contribution Shortfall	(0.22)	—	—	1.24	1.62
(Gain) or Loss During Year From Experience	(2.88)	0.24	(4.31)	(12.34)	2.93
Assumption and Method Changes	4.04	3.19	—	(33.50)	—
System Benefit Changes	—	—	—	—	—
Composite (Gain) or Loss During Year	1.16	3.43	(4.31)	(45.84)	2.93
Beginning Total Employer/State Contribution Rate	23.56	21.75	23.40	69.24	66.31
Ending Valuation Year Total Employer/State Contribution Rate	<u>24.72%</u>	<u>25.18%</u>	<u>19.09%</u>	<u>23.40%</u>	<u>69.24%</u>
Fiscal Year Employer/State Contribution Rates	24.72%*	23.56%	21.75%	23.40%	24.48%
Fiscal Year for Which Rate Applies	FY20	FY19	FY18	FY17	FY16

* Expected. Actual Rate to be determined.

(1) Prior to 2017, the health claims percentages include the effects of healthcare demographic experience gains/losses.

NOTE: In the second session of the 28th Alaska legislature, the legislature changed the actuarial methodology from level dollar amortization to level percent of pay. The June 30, 2013 PERS actuarial valuation report was not updated for this change, but specific revisions for the amortization change were presented to reflect the change in amortization. The change in the amortization resulted in an adjusted FY16 employer/state contribution rate of 24.48%.

Actuarial Section

Teachers' Retirement System Defined Benefit Retirement Plan Analysis of Financial Experience						
Change in Employer/State Contribution Rate Due to (Gains) and Losses in Actuarial Accrued Liabilities During the Last Three Fiscal Years Resulting From Differences Between Assumed Experience and Actual Experience						
Type of (Gain) or Loss	Change in Employer/State Contribution Rate During Fiscal Year					
	Pension			Healthcare		
	2017	2016	2015	2017	2016	2015
Health Claims ⁽¹⁾	N/A	N/A	N/A	(2.75)%	(0.43)%	(4.07)%
Salary Experience	(0.39)%	(0.42)%	(0.34)%	N/A	N/A	N/A
Investment Experience	1.32	1.36	0.40	0.67	0.71	0.22
Demographic Experience and Miscellaneous	(0.98)	(0.98)	(0.52)	(0.53)	N/A	N/A
Contribution Shortfall	(0.09)	—	—	(0.13)	—	—
(Gain) or Loss During Year From Experience	(0.14)	(0.14)	(0.46)	(2.74)	0.28	(3.85)
Assumption and Method Changes	—	2.73	—	4.04	0.46	—
System Benefit Changes	—	—	—	—	—	—
Composite (Gain) or Loss During Year	(0.14)	(2.69)	(0.46)	1.30	0.74	(3.85)
Beginning Total Employer/State Contribution Rate	20.86	19.16	17.78	2.70	2.59	5.62
Ending Valuation Year Total Employer/State Contribution Rate	<u>20.72%</u>	<u>21.85%</u>	<u>17.32%</u>	<u>4.00%</u>	<u>3.33%</u>	<u>1.77%</u>
Fiscal Year Employer/State Contribution Rates	20.72%*	20.86%	19.16%	4.00%*	2.70%	2.59%
Fiscal Year for Which Rate Applies	FY20	FY19	FY18	FY20	FY19	FY18

*Expected. Actual Rate to be determined.

⁽¹⁾ Prior to 2017, the health claims percentages include the effects of healthcare demographic experience gains/losses.

State of Alaska
Teachers' Retirement System
Defined Benefit Retirement Plan
Summary of Plan Provisions and Changes in Plan Provisions

1. **Effective Date**

July 1, 1955, with amendments through June 30, 2017. Chapter 97, 1990 Session Laws of Alaska, created a two-tier retirement system. Members who were first hired under the TRS before July 1, 1990 (Tier 1) are eligible for different benefits than members hired after June 30, 1990 (Tier 2). Chapter 9, 2005 Session Laws of Alaska, closed the plan to new members hired after June 30, 2006.

2. **Administration of Plan**

The Commissioner of Administration or the Commissioner's designee is the administrator of the system. The Attorney General of the state is the legal counsel for the system and shall advise the administrator and represent the system in legal proceedings.

Prior to June 30, 2005, the Teachers' Retirement Board prescribed policies and adopted regulations and performed other activities necessary to carry out the provisions of the system. The Alaska State Pension Investment Board, Department of Revenue, Treasury Division was responsible for investing TRS funds.

On July 27, 2005, Senate Bill 141, enacted as Chapter 9, 2005 Session laws of Alaska, replaced the Teachers' Retirement Board and the Alaska State Pension Investment Board with the Alaska Retirement Management Board.

3. **Employers Included**

Currently, there are 57 employers participating in the TRS, including the State of Alaska, 53 school districts, and three other eligible organizations.

4. **Membership**

Membership in the Alaska TRS is mandatory for the following employees hired before July 1, 2006:

- certificated full-time and part-time elementary and secondary teachers, certificated school nurses, and certificated employees in positions requiring teaching certificates;
- positions requiring a teaching certificate as a condition of employment in the Department of Education and Early Development and the Department of Labor and Workforce Development;
- University of Alaska full-time and part-time teachers, and full-time administrative employees in positions requiring academic standing if approved by the TRS administrator;
- certain full-time or part-time teachers of Alaska Native language or culture who have elected to be covered under the TRS;
- members on approved sabbatical leave under AS 14.20.310;
- certain State legislators who have elected to be covered under the TRS; and

State of Alaska
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- a teacher who has filed for worker's compensation benefits due to an on-the-job assault and who, as a result of the physical injury, is placed on leave without pay.

Employees participating in the University of Alaska's Optional Retirement Plan or other retirement plans funded by the State are not covered by the TRS.

Employees who work half-time in the TRS and Public Employees' Retirement System (PERS) simultaneously are eligible for half-time TRS and PERS credit.

Senate Bill 141, signed into law on July 27, 2005, closes the plan effective July 1, 2006 to new members first hired on or after July 1, 2006.

5. Credited Service

TRS members receive a year of membership credit if they work a minimum of 172 days during the school year (July 1 through June 30 of the following year). Fractional credit is determined based on the number of days worked. Part-time members who work at least 50% of full-time receive membership credit for each day in proportion to full-time service. Credit is granted for all Alaskan public school service.

Members may claim other types of service, including:

- Outside teaching service in out-of-state schools or Alaska private schools (not more than ten years may be claimed);
- Military service (not more than five years of military service or ten years of combined outside and military service may be claimed);
- Alaska Bureau of Indian Affairs (BIA) service;
- Retroactive Alaskan service that was not creditable at the time it occurred, but later became creditable because of legislative change;
- Unused sick leave credit after members retire; and
- Leave of absence without pay.

Except for retroactive Alaska service that occurred before July 1, 1955, and unused sick leave, contributions are required for all claimed service.

Members receiving TRS disability benefits continue to earn TRS credit while disabled.

Survivors who are receiving occupational death benefits continue to earn TRS service credit while occupational survivor benefits are being paid.

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Summary of Plan Provisions and Changes in Plan Provisions

6. Employer Contributions

TRS employers contribute the amounts required, in addition to employees' contributions, to fund the benefits of the system.

The normal cost rate is a uniform rate for all participating employers (less the value of members' contributions).

The past service rate is a uniform rate for all participating employers to amortize the unfunded past service liability with payments that are a level percentage of payroll amount over a closed 25-year period starting June 30, 2014.

Employer rates cannot be less than the normal cost rate.

7. Additional State Contributions

Pursuant to AS14.25.070 effective July 1, 2008, the State shall contribute an amount (in addition to the State contribution as an employer) that when combined with the employer contribution (12.56%) will be sufficient to pay the total contribution rate adopted by The State of Alaska Retirement Management Board.

8. Member Contributions

Mandatory Contributions: Members are required to contribute 8.65% of their base salaries. Members' contributions are deducted from gross salaries before federal income taxes are withheld.

Contributions for Claimed Service: Member contributions are also required for most of the claimed service described in (5) above.

1% Supplemental Contributions: Members who joined the system before July 1, 1982 and elected to participate in the supplemental contributions provision are required to contribute an additional 1% of their salaries. Supplemental contributions are deducted from gross salaries after federal income taxes are withheld. Under the supplemental provision, an eligible spouse or dependent child will receive a survivor's allowance or spouse's pension if the member dies (see below). Supplemental contributions are only refundable upon death (see below).

Interest: Members' contributions earn 4.5% interest, compounded annually on June 30.

Refund of Contributions: Terminated members may receive refunds of their member contribution accounts which includes their mandatory contributions, indebtedness payments, and interest earned. Terminated members' accounts may be attached to satisfy claims under Alaska Statute 09.38.065, federal income tax levies, and valid Qualified Domestic Relations Orders.

Reinstatement of Contributions: Refunded accounts and the corresponding TRS service may be reinstated upon reemployment in TRS prior to July 1, 2010. Interest accrues on refunds until paid in full or members retire.

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9. Retirement Benefits

Eligibility:

- a. Members, including deferred vested members, are eligible for normal retirement at age 55 or early retirement at age 50 if they were hired before July 1, 1990 (Tier 1) and age 60 or early retirement at age 55 if they were hired on or after July 1, 1990 (Tier 2). Additionally, they must have at least:
 - i. eight years of paid-up membership service;
 - ii. 15 years of paid-up creditable service, the last five years of which are membership service, and they were first hired under the TRS before July 1, 1975;
 - iii. five years of paid-up membership service and three years of paid-up Alaska Bureau of Indian Affairs service;
 - iv. 12 years of combined part-time and full-time paid-up membership service
 - v. two years of paid-up membership service if they are vested in the Public Employees' Retirement System (PERS); or
 - vi. one year of paid-up membership service if they are retired from the PERS.
- b. Members may retire at any age when they have:
 - i. 25 years of paid-up creditable service, the last five years of which are membership service;
 - ii. 20 years of paid-up membership service;
 - iii. 20 years of combined paid-up membership and Alaska Bureau of Indian Affairs service, the last five years of which are membership service; or
 - iv. 20 years of combined paid-up part-time and full-time membership service.

10. Benefit Type

Lifetime benefits are paid to members. Eligible members may receive normal, unreduced benefits when they (1) reach normal retirement age and complete the service required; or (2) satisfy the minimum service requirements to retire at any age under (b) above. Members may receive early, actuarially reduced benefits when they reach early retirement age and complete the service required.

Members may select joint and survivor options and a last survivor option. Under those options and early retirement, benefits are actuarially adjusted so that members receive the actuarial equivalents of their normal benefit amounts.

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11. Benefit Calculation

Retirement benefits are calculated by multiplying the average base salary (ABS) times the total TRS service times the percentage multiplier. The ABS is determined by averaging the salaries earned during the three highest school years. Members must earn at least 115 days of credit in a school year to include it in the ABS calculation. TRS pays a minimum benefit of \$25.00 per month for each year of service when the calculated benefit is less.

The percentage multipliers are 2% for the first 20 years and 2.5% for all remaining service. Service before July 1, 1990 is calculated at 2%.

12. Indebtedness

Members who terminate and refund their TRS contributions are not eligible to retire unless they return to TRS employment and pay back their refunds plus interest or accrue additional service which qualifies them for retirement. TRS refunds must be paid in full if the corresponding service is to count toward the minimum service requirements for retirement. Refunded TRS service is included in total service for the purpose of calculating retirement benefits. However, when refunds are not completely paid before retirement, benefits are actuarially reduced for life. Indebtedness balances may also be created when a member purchases qualified claimed service.

13. Reemployment of Retired Members

Retirees who return to work in a permanent full-time or part-time TRS position after a Normal Retirement are eligible to return under the Standard Option.

Under the Standard Option, retirement and retiree healthcare benefits are suspended while retired members are reemployed under the TRS. During reemployment, members earn additional TRS service and contributions are withheld from their wages.

Members retired under the RIP who return to employment under the TRS, PERS, Judicial Retirement System (JRS) or the University of Alaska's Optional Retirement Plan will:

- a. forfeit the three years of incentive credits that they received;
- b. owe the TRS 110% of the benefits that they received under the RIP, which may include costs for health insurance, excluding amounts that they paid to participate; and
- c. be charged 7% interest from the date that they are reemployed until their indebtedness is paid in full or they retire again. If the indebtedness is not completely paid, future benefits will be actuarially reduced for life.

Employers make contributions to the unfunded liability of the plan on behalf of rehired retired members at the rate the employer is making contributions to the unfunded liability of the plan for other members.

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14. Postemployment Healthcare Benefits

When pension benefits begin, major medical benefits are provided by TRS to (1) all employees first hired before July 1, 1990 (Tier 1) and their surviving spouses and (2) members and their surviving spouses who have twenty-five years of membership service, are disabled or age sixty or older, regardless of their initial hire dates. Employees first hired after June 30, 1990 (Tier 2) and their surviving spouses may receive major medical benefits prior to age sixty by paying premiums.

Medical, prescription drug, dental, vision and audio coverage is provided through the AlaskaCare Retiree Health Plan. Health plan provisions do not vary by retirement tier or age, except for Medicare coordination. Participants in dental, vision, and audio coverage pay a full self-supporting rate and those benefits are not included in this valuation.

Surviving spouses continue coverage only if a pension payment form that provided survivor benefits was elected. Alternate payees (i.e. individuals who are the subject of a domestic relations order or DRO) are allowed to participate in the plan, but must pay the full cost.

Where premiums are required prior to age 60 (Tier 2), the valuation bases this payment upon the age of the retiree.

Participants in the defined benefit plan are covered under the following benefit design:

Plan Feature	Amount
Deductible (single/family)	\$150 / \$450
Coinsurance - most services	20%
Outpatient surgery/testing	0%
Maximum Out-of-Pocket (single/family, excl. deductible)	\$800 / \$2,400
Rx Copays (generic/brand/mail-order), does not apply to OOP max	\$4 / \$8 / \$0
Lifetime Maximum	\$2,000,000

The plan coordinates with Medicare on a traditional Coordination of Benefits Method.

15. Disability Benefits

Monthly disability benefits are paid to permanently disabled members until they die, recover or become eligible for normal retirement. To be eligible, members must have at least five years of paid-up membership service.

Disability benefits are equal to 50% of the member's base salary at the time of disability. The benefit is increased by 10% of the base salary for each minor child, up to a maximum of 40%. Members continue to earn TRS service until eligible for normal retirement.

Members are appointed to normal retirement on the first of the month after they become eligible.

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16. Death Benefits

Monthly death benefits may be paid to a spouse or dependent children upon the death of a member. If monthly benefits are not payable under the supplemental contributions provision or occupational and non-occupational death provisions, the designated beneficiary receives the lump sum benefit described below.

Occupational Death: When an active member dies from occupational causes, a monthly survivor's pension may be paid to the spouse, unless benefits are payable under the supplemental contributions provision (below). The pension equals 40% of the member's base salary on the date of death or disability, if earlier. If there is no spouse, the pension may be paid to the member's dependent children. On the member's normal retirement date, the benefit converts to a normal retirement benefit. The normal benefit is based on the member's average base salary on the date of death and service, including service accumulated from the date of the member's death to the normal retirement date.

Nonoccupational Death: When a vested member dies from non-occupational causes, the surviving spouse may elect to receive a monthly 50% joint and survivor benefit or a lump sum benefit, unless benefits are payable under the supplemental contributions provision (below). The monthly benefit is calculated on the member's average base salary and TRS service accrued at the time of death.

Lump Sum Benefit: Upon the death of an active member who has less than one year of service or an inactive member who is not vested, the designated beneficiary receives the member's contribution account, which includes mandatory contributions, indebtedness payments, and interest earned. Any supplemental contributions will also be refunded. If the member has more than one year of TRS service or is vested, the beneficiary also receives \$1,000 and \$100 for each year of TRS service, up to a maximum of \$3,000. An additional \$500 may be payable if the member is survived by dependent children.

Supplemental Contributions Provision: Members are eligible for supplemental coverage if they joined TRS before July 1, 1982, elected to participate in the supplemental provision, and made the required contributions. A survivor's allowance or spouse's pension (below) may be payable if the member made supplemental contributions for at least one year and dies while in membership service or while disabled under TRS. In addition, the allowance and pension may be payable if the member dies while retired or in deferred vested status if supplemental contributions were made for at least five years.

- a. **Survivor's Allowance:** If the member is survived by dependent children, the surviving spouse and dependent children are entitled to a survivor's allowance. The allowance for the spouse is equal to 35% of the member's base salary at the time of death or disability, plus 10% for each dependent child up to a maximum of 40%. The allowance terminates and a spouse's pension becomes payable when there is no longer an eligible dependent child.
- b. **Spouse's Pension:** The spouse's pension is equal to 50% of the retirement benefit that the deceased member was receiving or the unreduced retirement benefit that the deceased member would have received if retired at the time of death. The spouse's pension begins on the first of the month after the member's death or termination of the survivor's allowance.

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- c. **Death After Retirement:** If a joint and survivor option was selected at retirement, the eligible spouse receives continuing, lifetime monthly benefits after the member dies. A survivor's allowance or spouse's pension may be payable if the member participated in the supplemental contributions provision. If a joint and survivor option was not selected and benefits are not payable under the supplemental contributions provision, the designated beneficiary receives the member's contribution account, less any benefits already paid and the member's last benefit check.

17. Postretirement Pension Adjustments

Postretirement pension adjustments (PRPAs) are granted annually to eligible benefit recipients when the consumer price index (CPI) for urban wage earners and clerical workers for Anchorage increases during the preceding calendar year. PRPAs are calculated by multiplying the recipient's base benefit, including past PRPAs, excluding the Alaska COLA, times:

- a. 75% of the CPI increase in the preceding calendar year or 9%, whichever is less, if the recipient is at least age 65 or on TRS disability; or
- b. 50% of the CPI increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60, or under age 60 if the recipient has been receiving benefits for at least eight years.

Ad hoc PRPAs, up to a maximum of 4%, may be granted to eligible recipients who were first hired before July 1, 1990 (Tier 1) if the CPI increases and the funding ratio is at least 105%.

In a year where an Ad Hoc PRPA is granted, eligible recipients will receive the higher of the two calculations.

18. Alaska Cost of Living Allowance

Eligible benefit recipients who reside in Alaska receive an Alaska cost of living allowance (COLA) equal to 10% of their base benefits. The following benefit recipients are eligible:

- a. members who were first hired under the TRS before July 1, 1990 (Tier 1) and their survivors;
- b. members who were first hired under the TRS after June 30, 1990 (Tier 2) and their survivors if they are at least age 65; and
- c. all disabled members.

19. Changes in Benefit Provisions Since the Prior Valuation

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



June 5, 2018

State of Alaska
The Alaska Retirement Management Board
The Department of Revenue, Treasury Division
The Department of Administration, Division of Retirement and Benefits
P.O. Box 110203
Juneau, AK 99811-0203

Certification of Actuarial Valuation

Dear Members of The Alaska Retirement Management Board, The Department of Revenue and The Department of Administration:

This report summarizes the annual actuarial valuation results of the State of Alaska Teachers' Retirement System Defined Contribution Retirement (TRS DCR) Plan as of June 30, 2017 performed by Conduent HR Consulting, LLC (Conduent HR Consulting).

The actuarial valuation is based on financial information provided in the financial statements audited by KPMG LLP, member data provided by the Division of Retirement and Benefits, and medical enrollment data provided by the healthcare claims administrator (Aetna), as summarized in this report. The benefits considered are those delineated in Alaska statutes effective June 30, 2017. The actuary did not verify the data submitted, but did perform tests for consistency and reasonableness.

All costs, liabilities and other factors under TRS DCR were determined in accordance with generally accepted actuarial principles and procedures. An actuarial cost method is used to measure the actuarial liabilities which we believe is reasonable. Conduent HR Consulting is solely responsible for the actuarial data and actuarial results presented in this report. This report fully and fairly discloses the actuarial position of TRS DCR as of June 30, 2017.

TRS DCR is funded by Employer/State Contributions in accordance with the funding policy adopted by the Alaska Retirement Management Board (Board). The funding objective for TRS DCR is to pay required contributions that remain level as a percent of TRS DCR compensation. The Board has also established a funding policy objective that the required contributions be sufficient to pay the Normal Costs of active plan members, plan expenses, and amortize the Unfunded Actuarial Accrued Liability as a level percent of TRS DCR compensation over a closed layered 25-year period. This objective is currently being met and is projected to continue to be met as required by the Alaska state statutes.

Actuarial Section

The Board and staff of the State of Alaska may use this report for the review of the operations of TRS DCR. Use of this report, for any other purpose or by anyone other than the Board or staff of the State of Alaska may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods or inapplicability of the report for that purpose. Because of the risk of misinterpretation of actuarial results, you should ask Conduent HR Consulting to review any statement you wish to make on the results contained in this report. Conduent HR Consulting will not accept any liability for any such statement made without the review by Conduent HR Consulting.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. In particular, retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In our opinion, the actuarial assumptions used are reasonable, taking into account the experience of the plan and reasonable long-term expectations, and represent our best estimate of the anticipated long-term experience under the plan. The actuary performs an analysis of plan experience periodically and recommends changes if, in the opinion of the actuary, assumption changes are needed to more accurately reflect expected future experience. The last full experience analysis was performed for the period July 1, 2009 to June 30, 2013. Based on that experience study, the Board adopted new assumptions effective beginning with the June 30, 2014 valuation to better reflect expected future experience. Based on our annual analysis of recent claims experience, changes were made to the per capita claims cost rates effective June 30, 2017 to better reflect expected future healthcare experience. Based on recent experience, the health care cost trend assumptions were also updated. A summary of the actuarial assumptions and methods used in this actuarial valuation are shown in Sections 5.2 and 5.3.

Governmental Accounting Standards Board (GASB) Statement No. 74 (GASB 74) is effective for TRS DCR beginning with fiscal year ending June 30, 2017, and a separate GASB 74 report as of June 30, 2017 has been prepared. Section 3 of this report contains accounting information previously disclosed under GASB 25 for fiscal years 2007 through 2013 and accounting information previously disclosed under GASB 43 for fiscal years 2007 through 2016.

This report was prepared under my supervision and in accordance with all applicable Actuarial Standards of Practice. David Kershner is a Fellow of the Society of Actuaries, an Enrolled Actuary and a Member of the American Academy of Actuaries. I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

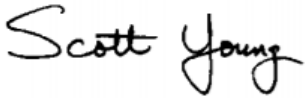
I am available to discuss this report with you at your convenience. I can be reached at 602-803-6174.

Respectfully submitted,



David J. Kershner, FSA, EA, MAAA, FCA
Principal

The undersigned actuary is responsible for all assumptions related to the average annual per capita health claims cost and the health care cost trend rates, and hereby affirms his qualification to render opinions in such matters in accordance with the Qualification Standards of the American Academy of Actuaries.

A handwritten signature in black ink that reads "Scott Young". The signature is written in a cursive, flowing style.

Scott Young, FSA, EA, MAAA
Director

Actuarial Section

State of Alaska Teachers' Retirement System Defined Contribution Retirement Plan Description of Actuarial Methods and Valuation Procedures

The funding method used in this valuation was adopted by the Board in October 2006. The asset smoothing method used to determine valuation assets was implemented effective June 30, 2006.

Benefits valued are those delineated in Alaska State statutes as of the valuation date. Changes in State statutes effective after the valuation date are not taken into consideration in setting the assumptions and methods.

Valuation of Liabilities

A. Actuarial Method – Entry Age Normal Cost

Liabilities and contributions shown in the report are computed using the Entry Age Normal Actuarial Cost Method. Any funding surpluses or unfunded actuarial accrued liability is amortized over 25 years as a level percentage of expected payroll. However, in keeping with GASB requirements in effect when the plan was adopted, the net amortization period will not exceed 30 years. Under the new accounting standards (GASB 74 and 75), the GASB requirements will not directly control amortization periods used for funding of the plan.

Cost factors designed to produce annual costs as a constant percentage of each member's expected compensation in each year for death and disability benefits (constant dollar amount for retiree medical benefits), from the assumed entry age to the last age with a future benefit were applied to the projected benefits to determine the normal cost (the portion of the total cost of the Plan allocated to the current year under the method). The normal cost is determined by summing intermediate results for active members and determining an average normal cost rate which is then related to the total DCR Plan payroll of active members. The actuarial accrued liability for active members (the portion of the total cost of the Plan allocated to prior years under the method) was determined as the excess of the actuarial present value of projected benefits over the actuarial present value of future normal costs.

The actuarial accrued liability for beneficiaries and disabled members currently receiving benefits (if any) was determined as the actuarial present value of the benefits expected to be paid. No future normal costs are payable for these members.

The actuarial accrued liability under this method at any point in time is the theoretical amount of the fund that would have been accumulated had annual contributions equal to the normal cost been made in prior years (it does not represent the liability for benefits accrued to the valuation date). The unfunded actuarial accrued liability is the excess of the actuarial accrued liability over the actuarial value of plan assets measured on the valuation date.

Under this method, experience gains or losses, i.e., decreases or increases in accrued liabilities attributable to deviations in experience from the actuarial assumptions, adjust the unfunded actuarial accrued liability.

B. Valuation of Assets

Effective June 30, 2006, the asset valuation method recognizes 20% of the investment gain or loss in each of the current and preceding four years. This method was phased in over five years. Fair Value of Assets was \$0 as of June 30, 2006. All assets are valued at fair value. Assets are accounted for on an accrued basis and are taken directly from financial statements audited by KPMG LLP. Valuation assets are constrained to a range of 80% to 120% of the fair value of assets.

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C. Valuation of Retiree Medical and Prescription Drug Benefits

The methodology used for the valuation of the retiree medical benefits is described in Section 6.2 of the State of Alaska Teachers' Retirement System Defined Benefit Plan Actuarial Valuation Report as of June 30, 2017.

Due to the lack of experience for the DCR retiree medical plan only, base claims costs are based on those described in the actuarial valuation as of June 30, 2017 for the Defined Benefit (DB) retiree medical plan covering TRS, PERS and others. The DB rates were used with some adjustments. The claims costs were adjusted to reflect the differences between the DCR medical plan and the DB medical plan. These differences include network steerage, different coverage levels, different Medicare coordination for medical benefits, and an indexing of the retiree out-of-pocket dollar amounts. To account for higher initial copays, deductibles and out-of-pocket limits, upcoming FY18 claims costs were reduced 2.1% for medical claims, and 10.4% for prescription drugs. In addition, to account for the difference in Medicare coordination, upcoming FY18 medical claims costs for Medicare eligible retirees were further reduced 29.3%. The medical and prescription drug percentages mentioned above were reduced 0.2% in each future year for the DCR medical benefits to reflect the fact that the medical benefit to be offered to DCR members will have annual indexing of member cost sharing features such as deductibles and out-of-pocket amounts.

No implicit subsidies are assumed. Employees projected to retire with 30 years of service prior to Medicare are valued with commencement deferred to Medicare eligibility, because those members will be required to pay the full plan premium prior to Medicare. Explicit subsidies for disabled and normal retirement are determined using the plan-defined percentages of age-related total projected plan costs, again with no implicit subsidy assumed.

The State intends to transition to an Employer Group Waiver Program (EGWP) for this group in 2019. That impact is reflected in the valuation, but not in the base cost rates for 2017 or 2018. We estimated the impact of the EGWP plan by offsetting an amount equal to 160% of the RDS amount (a one-time adjustment, trended at the rates shown in Section 5.3 thereafter) based upon Conduent HR Consulting's review last year of client and industry comparisons of subsidies under RDS and EGWP.

Because EGWP subsidies are dependent upon risk scores which have not previously been measured for the State retiree population, and because EGWP subsidies are highly leveraged, there is considerable uncertainty in the estimate.

The estimate of the impact of the EGWP arrangement is a somewhat conservative estimate based on our experience with other similar implementations. EGWP subsidies are provided by three mechanisms, a capitation amount, a discount on brand name drugs (provided by pharmaceutical manufacturers rather than the federal government but still through the administration of a pharmacy benefit manager), and catastrophic payment.

The greatest variation in our estimate comes from the capitation amount, which is dependent upon the risk score of the population. The risk score is a measure of how sick (or well) the population is, depending on such matters as age and diagnosis. The higher the risk score, the larger the capitation. On the other hand, the healthier the population, the lower the capitation. Relatively small variations in risk score result in large swings in the capitation. Employer retiree groups tend to be healthier than the Medicare population as a whole. Our 60% estimate is meant to be conservative and is based on typical employer groups. Once a vendor is selected for the 2019 implementation of the

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State of Alaska Teachers' Retirement System Defined Contribution Retirement Plan Description of Actuarial Methods and Valuation Procedures

EGWP arrangement, we will review an updated estimate of EGWP subsidies from that vendor and update the next valuation accordingly.

D. Healthcare Reform

Healthcare Reform legislation passed on March 23, 2010 included several provisions with potential implications for the State of Alaska Retiree Health Plan liability. Conduent HR Consulting evaluated the impact due to these provisions; however, only the Patient Centered Outcomes Research Institute fee impact has been included in the valuation results as part of administrative fee.

Because the State plan is retiree-only, not all provisions are required. Unlimited lifetime benefits and dependent coverage to age 26 are two of these provisions. The adopted DCR plan does not place lifetime limits on benefits, but does restrict dependent child coverage.

The Plan will be subject to the high cost plan excise tax (Cadillac tax) and the value of the Health Reimbursement Account must be included along with projected plan costs. The excise tax was originally to be effective for 2018; legislation passed in December 2015 delayed it to 2020, with further delay to 2022 passed in January 2018. Based upon guidance available at the time of the valuation, Conduent HR Consulting determined the impact on plan liabilities to be immaterial (approximately \$50,000 (0.15%)) based on a blend of projected pre-Medicare and Medicare retirees and related cost projections. Participants will be responsible for any tax to the extent they are reflected in retiree contributions.

The Tax Cuts and Jobs Act passed in December 2017 included the elimination of the individual mandate penalty and changed the inflation measure for purposes of determining the limits for the High Cost Excise Tax to use chained CPI. It is our understanding the law does not directly impact other provisions of the ACA. While the nullification of the ACA's individual mandate penalty does not directly impact employer group health plans, it could contribute to the destabilization of the individual market and increase the number of uninsured. Such destabilization could translate to increased costs for employers. We have considered this when setting our healthcare cost trend assumptions and will continue to monitor this issue.

We have not identified any other specific provisions of healthcare reform or its potential repeal that would be expected to have a significant impact on the measured obligation. While the House of Representatives voted to pass the American Health Care Act (AHCA), which would have repealed many provisions of the Affordable Care Act (ACA), the bill was rejected by the Senate. We will continue to monitor legislative activity.

E. Changes in Methods Since the Prior Valuation

There have been no changes in the asset or valuation methods since the prior valuation.

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Summary of Actuarial Assumptions and Changes in Assumptions

The demographic and economic assumptions used in the June 30, 2017 valuation are described below. Unless noted otherwise, these assumptions were adopted by the Board in December 2014. These assumptions were the result of an experience study performed for the TRS defined benefit plan as of June 30, 2013.

- | | | |
|-----|--|---|
| 1. | Investment Return | 8.00% per year (geometric), compounded annually, net of investment expenses. |
| 2. | Salary Scale | Inflation – 3.12% per year. Productivity – 0.50% per year. See Table 1 for salary scale rates. |
| 3. | Payroll Growth | 3.62% per year. (Inflation + Productivity). |
| 4. | Total Inflation | Total inflation as measured by the Consumer Price Index for urban and clerical workers for Anchorage is assumed to increase 3.12% annually. |
| 5. | Mortality
(Pre-termination) ¹ | Based upon the 2010-2013 actual experience (see Table 2) 68% of male rates and 60% of female rates of post-termination mortality rates.

Deaths are assumed to result from occupational causes 15% of the time. |
| 6. | Mortality
(Post-termination) ¹ | Based upon the 2010-2013 actual experience. (See Table 3).

94% of male and 97% of female rates of RP-2000, 2000 Base Year projected to 2018 with Projection Scale BB, with a 3-year setback for males and a 4-year setback for females.

Disability Mortality in accordance with the RP-2000 Disabled Retiree Mortality Table, 2000 Base Year, projected to 2018 with Projection Scale BB. |
| 7. | Turnover | Select and ultimate rates based upon the 2010-2013 actual withdrawal experience. (See Table 4). |
| 8. | Disability | Incidence rates based upon the 2010-2013 actual experience, in accordance with Table 5. Disabilities are assumed to result from occupational causes 15% of the time. |
| 9. | Retirement | Retirement rates based upon the 2010 - 2013 actual experience in accordance with Table 6. |
| 10. | Marriage and Age
Difference | Wives are assumed to be three years younger than husbands. 85% of male members and 75% of female members are assumed to be married at termination from active service. |

¹ The mortality assumptions include an allowance for expected future mortality improvement. The mortality table used was set in 2014 with an Actual Deaths to Expected Deaths ratio of 110%.

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11. Per Capita Claims Cost Sample claims cost rates (before base claims cost adjustments described below) adjusted to age 65 for FY18 medical benefits are shown below:

		Medical		Prescription drugs
Pre-Medicare	\$	13,682	\$	3,493
Medicare Parts A & B		1,485		3,706
Medicare Part B Only		4,722		3,706
Medicare Part D		N/A		659

Members are assumed to attain Medicare eligibility at age 65.

12. Third Party Administrator Fees \$236 per person per year; assumed trend rate of 4% per year.

13. Base Claims Cost Adjustments Due to higher initial copays, deductibles, out-of-pocket limits and member cost sharing compared to the DB medical plan, the following cost adjustments are applied to the per capita claims cost rates above:

- 0.979 for the pre-Medicare plan.
- 0.686 for both the Medicare medical plan and Medicare coordination method (2.1% reduction for the medical plan and 29.3% reduction for the coordination method).
- 0.896 for the prescription drug plan.

14. Imputed Data Data changes from the prior year which are deemed to have an immaterial impact on liabilities and contribution rates are assumed to be correct in the current year's client data. Non-vested terminations with appropriate refund dates are assumed to have received a full refund of contributions. Active members with missing salary and service are assumed to be terminated with status based on their vesting percentage.

15. Active Data Adjustment To reflect participants who terminate employment before the valuation date and are subsequently rehired after the valuation date, participants who are listed as terminated on the June 30 client data but active in the October 1 client records are updated to active status.

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16. Health Cost Trend

The table below shows the rate used to project the cost from the shown fiscal year to the next fiscal year. For example, 8.0% is applied to the FY18 pre-Medicare medical claims cost to get the FY19 medical claims cost.

Fiscal year	Medical pre-65	Medical post-65	Prescription drugs	RDS / EGWP
2018	8.0%	5.5%	9.0%	6.5%
2019	7.5	5.5	8.5	6.2
2020	7.0	5.4	8.0	6.0
2021	6.5	5.4	7.5	5.7
2022	6.3	5.4	7.1	5.5
2023	6.1	5.4	6.8	5.4
2024	5.9	5.4	6.4	5.2
2025	5.8	5.4	6.1	5.0
2026	5.6	5.4	5.7	4.8
2027-2040	5.4	5.4	5.4	4.7
2041	5.2	5.2	5.2	4.6
2042	5.1	5.1	5.1	4.5
2043	5.0	5.0	5.0	4.5
2044	4.8	4.8	4.8	4.4
2045	4.7	4.7	4.7	4.3
2046	4.5	4.5	4.5	4.2
2047	4.4	4.4	4.4	4.2
2048	4.3	4.3	4.3	4.1
2049	4.1	4.1	4.1	4.0
2050+	4.0	4.0	4.0	4.0

For the June 30, 2014 valuations and later, the updated Society of Actuaries' Healthcare Cost Trend Model is used to project medical and prescription drug costs. This model estimates trend amounts projected out for 80 years. The model has been populated with assumptions that are specific to the State of Alaska. The model was updated this year to use the newest version and incorporate recent trend survey information, which generated the updated trend rates shown above.

17. Aging Factors

Age	Medical	Prescription drugs
0-44	2.0%	4.5%
45-54	2.5	3.5
55-64	3.5	3.0
65-74	4.0	1.5
75-84	1.5	0.5
85-95	0.5	—
96+	—	—

Note that the pre-65 factor represents the percentage increase from the ages noted to the next age. However, the post-65 factor represents the percentage decrease from the ages noted to the prior age. That is, 2.5% is used to adjust from 54 to 55, but 1.5% is used to adjust from age 84 back to age 83.

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18. Retiree Medical Participation

<u>Decrement Due to Disability</u>		<u>Decrement Due to Retirement</u>	
<u>Age</u>	<u>Percent Participation</u>	<u>Age</u>	<u>Percent Participation</u>
< 56	73.00%	55	40.00%
56	77.50	56	50.00
57	79.75	57	55.00
58	82.00	58	60.00
59	84.25	59	65.00
60	86.50	60	70.00
61	88.75	61	75.00
62	91.00	62	80.00
63	93.25	63	85.00
64	95.50	64	90.00
65+	94.00	65+	
			<u>Years of Service</u>
			< 15
			15-19
			20-24
			25-29
			30+

Participation rates reflect the expected plan election rate that varies by reason for decrement, duration that a member may pay full cost prior to Medicare eligibility, and availability of alternative and/or lower cost options, particularly in the Medicare market. This assumption is based on observed trends in participation from a range of other plans.

19. Changes in Assumptions Since the Prior Valuation

The health care cost trend assumption was updated as shown above to reflect anticipated increases in costs based on recent survey data. Healthcare claim costs are updated annually as described in Section 5.2 of the actuarial valuation. Minor updates were made to the factors used to adjust the DB plan costs to reflect DCR plan design differences.

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Summary of Actuarial Assumptions and Changes in Assumptions

Table 1
Alaska TRS DCR Plan
Salary Scale

Years of Service	Percent Increase
0	8.11%
1	7.51
2	6.91
3	6.41
4	6.11
5	6.11
6	5.90
7	5.69
8	5.55
9	5.40
10	5.26
11	5.11
12	4.96
13	4.84
14	4.72
15	4.60
16	4.49
17	4.37
18	4.27
19	4.17
20	4.07
21	3.97
22+	3.87

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Table 2
Alaska TRS DCR Plan
Mortality Table (Pre-termination)

Age	Male	Female	Age	Male	Female
20	0.0182%	0.0098%	55	0.1615%	0.0985%
21	0.0191	0.0101	56	0.1766	0.1054
22	0.0200	0.0104	57	0.1901	0.1132
23	0.0209	0.0105	58	0.2117	0.1221
24	0.0216	0.0105	59	0.2409	0.1344
25	0.0222	0.0106	60	0.2643	0.1501
26	0.0226	0.0107	61	0.2917	0.1659
27	0.0228	0.0109	62	0.3229	0.1837
28	0.0228	0.0111	63	0.3599	0.2080
29	0.0229	0.0114	64	0.4021	0.2367
30	0.0231	0.0118	65	0.4504	0.2723
31	0.0238	0.0123	66	0.5057	0.3118
32	0.0249	0.0130	67	0.5594	0.3582
33	0.0269	0.0137	68	0.6202	0.4036
34	0.0302	0.0146	69	0.7017	0.4546
35	0.0340	0.0169	70	0.7828	0.5130
36	0.0382	0.0193	71	0.8702	0.5696
37	0.0425	0.0217	72	0.9643	0.6297
38	0.0468	0.0240	73	1.0813	0.6959
39	0.0509	0.0262	74	1.1964	0.7841
40	0.0547	0.0283	75	1.3285	0.8701
41	0.0584	0.0305	76	1.4797	0.9678
42	0.0618	0.0330	77	1.6508	1.0757
43	0.0653	0.0357	78	1.8423	1.1923
44	0.0692	0.0389	79	2.0534	1.3163
45	0.0736	0.0427	80	2.2841	1.4502
46	0.0787	0.0470	81	2.5382	1.5972
47	0.0846	0.0517	82	2.8208	1.7607
48	0.0913	0.0567	83	3.1344	1.9438
49	0.0979	0.0620	84	3.5081	2.1486
50	0.1050	0.0674	85	3.9193	2.3782
51	0.1126	0.0731			
52	0.1208	0.0791			
53	0.1295	0.0855			
54	0.1483	0.0908			

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Summary of Actuarial Assumptions and Changes in Assumptions

Table 3
Alaska TRS DCR Plan
Mortality Table (Post-termination)

Age	Male	Female	Age	Male	Female
50	0.1544%	0.1124%	85	5.7637%	3.9636%
51	0.1656	0.1219	86	6.4248	4.3940
52	0.1777	0.1318	87	7.2770	4.8789
53	0.1904	0.1424	88	8.2264	5.4261
54	0.2181	0.1513	89	9.2884	6.0450
55	0.2375	0.1641	90	10.4794	6.8659
56	0.2597	0.1756	91	11.8129	7.7983
57	0.2795	0.1887	92	13.2941	8.8452
58	0.3113	0.2035	93	14.9196	10.0021
59	0.3543	0.2240	94	16.5479	11.2560
60	0.3887	0.2501	95	18.2705	12.5866
61	0.4289	0.2765	96	20.0693	13.9699
62	0.4749	0.3062	97	21.9249	15.3813
63	0.5293	0.3466	98	23.3940	16.4973
64	0.5913	0.3946	99	25.2821	17.8741
65	0.6624	0.4538	100	26.7022	18.8730
66	0.7436	0.5196	101	28.5888	20.1393
67	0.8227	0.5970	102	29.9408	20.9540
68	0.9121	0.6727	103	31.8102	22.0440
69	1.0318	0.7576	104	33.1094	22.6232
70	1.1511	0.8550	105	34.9384	23.7489
71	1.2798	0.9494	106	36.0058	24.6863
72	1.4180	1.0494	107	36.8483	25.8063
73	1.5902	1.1599	108	37.4013	27.0683
74	1.7595	1.3068	109	37.6000	28.4323
75	1.9536	1.4502	110	37.6000	29.8577
76	2.1760	1.6130	111	37.6000	31.3043
77	2.4276	1.7929	112	37.6000	32.7318
78	2.7093	1.9871	113	37.6000	34.0998
79	3.0198	2.1938	114	37.6000	35.3678
80	3.3590	2.4170	115	37.6000	36.4959
81	3.7326	2.6620	116	37.6000	37.4435
82	4.1482	2.9345	117	37.6000	38.1702
83	4.6095	3.2397	118	37.6000	38.6359
84	5.1589	3.5811	119	100.0000	100.0000

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Summary of Actuarial Assumptions and Changes in Assumptions

Table 4
Alaska TRS DCR Plan
Turnover Assumptions

Select Rates of Turnover During the First 5 Years of Employment

Years of Service	Male	Female
0	20.70%	21.80%
1	19.55	18.70
2	16.10	15.40
3	13.80	13.20
4	11.50	11.00
5	7.32	8.05

Ultimate Rates of Turnover
After the First 5 Years of Employment

Age	Male	Female	Age	Male	Female
15	6.2959%	6.6811%	40	6.1753%	6.5647%
16	6.2959	6.6811	41	6.1604	6.5516
17	6.2959	6.6811	42	6.1455	6.5386
18	6.2959	6.6811	43	6.1081	6.5175
19	6.2959	6.6811	44	6.0706	6.4965
20	6.2959	6.6811	45	6.0332	6.4754
21	6.2959	6.6811	46	5.9957	6.4544
22	6.2959	6.6811	47	5.9583	6.4333
23	6.2903	6.6773	48	5.9053	6.3975
24	6.2847	6.6735	49	5.8522	6.3617
25	6.2791	6.6697	50	5.7992	6.3259
26	6.2735	6.6659	51	5.7461	6.2901
27	6.2679	6.6621	52	5.6931	6.2543
28	6.2623	6.6583	53	5.5800	6.1818
29	6.2567	6.6544	54	5.4670	6.1093
30	6.2512	6.6506	55	5.3539	6.0367
31	6.2456	6.6467	56	5.2409	5.9642
32	6.2400	6.6429	57	5.1278	5.8917
33	6.2360	6.6351	58	5.1711	6.0021
34	6.2320	6.6273	59	5.2144	6.1125
35	6.2280	6.6194	60	5.2578	6.2230
36	6.2240	6.6116	61	5.3011	6.3334
37	6.2200	6.6038	62	5.3444	6.4438
38	6.2051	6.5908	63	5.7296	6.6292
39	6.1902	6.5777	64	6.1148	6.8146
			65+	6.5000	7.0000

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Table 5
Alaska TRS DCR Plan
Disability Table

Age	Unisex
< 19	0.0560%
20	0.0560
21	0.0563
22	0.0565
23	0.0574
24	0.0583
25	0.0593
26	0.0602
27	0.0611
28	0.0611
29	0.0612
30	0.0612
31	0.0613
32	0.0613
33	0.0622
34	0.0631
35	0.0641
36	0.0650
37	0.0659
38	0.0674
39	0.0689
40	0.0703
41	0.0718
42	0.0733
43	0.0770
44	0.0806
45	0.0843
46	0.0879
47	0.0916
48	0.0975
49	0.1034
50	0.1093
51	0.1152
52	0.1211
53	0.1356
54	0.1501

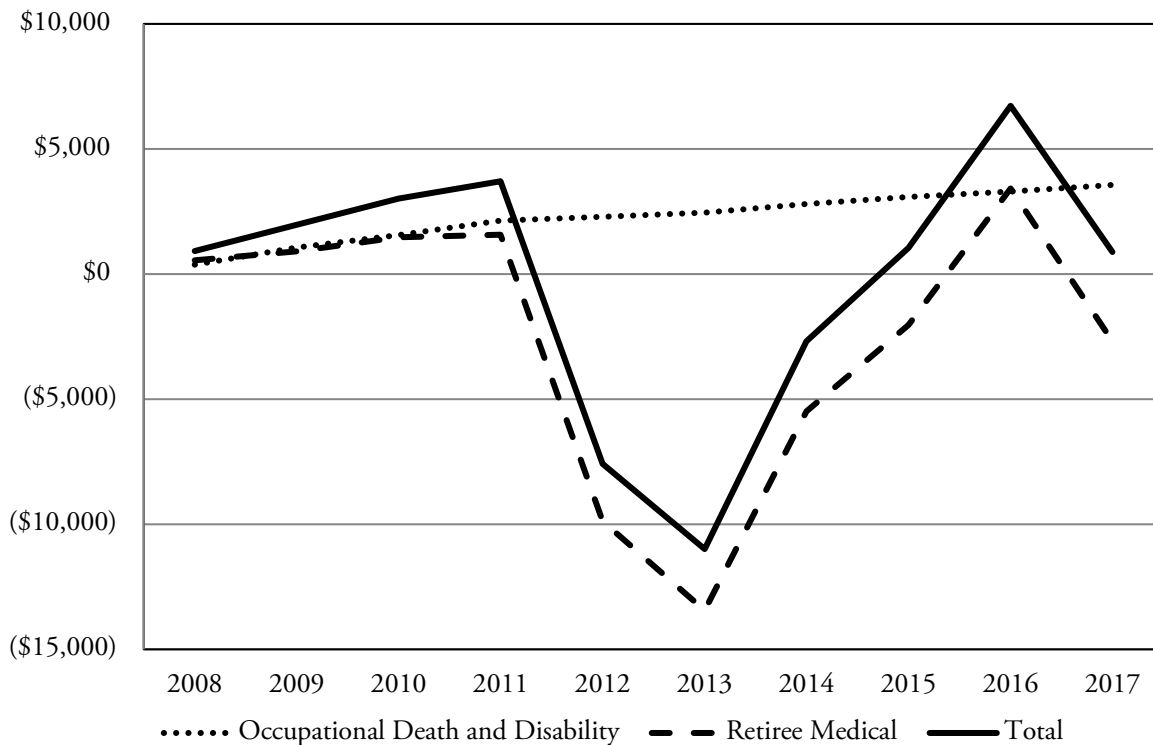
State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Summary of Actuarial Assumptions and Changes in Assumptions

Table 6
Alaska TRS DCR Plan
Retirement Table

Age	Unisex Rate
< 54	2.00%
55	3.00
56	3.00
57	3.00
58	3.00
59	3.00
60	5.00
61	5.00
62	10.00
63	5.00
64	5.00
65	25.00
66	25.00
67	25.00
68	20.00
69	20.00
> 70	100.00

Teachers' Retirement System Defined Contribution Retirement Plan Occupational Death and Disability and Retiree Medical Benefits Funding Excess/(Unfunded Liability) (In thousands)				
Actuarial Valuation Year Ended June 30	Occupational Death and Disability	Retiree Medical	Total Funding Excess/ (Unfunded Liability)	Funded Ratio
2008	\$ 376	\$ 551	\$ 927	215.73%
2009	1,057	907	1,964	234.5
2010	1,559	1,465	3,024	223.5
2011	2,136	1,572	3,708	196.1
2012	2,285	(9,874)	(7,589)	55.0
2013	2,452	(13,444)	(10,992)	50.3
2014	2,797	(5,482)	(2,685)	83.5
2015	3,085	(2,035)	(1,050)	105.3
2016	3,304	3,422	6,726	130.6
2017	3,562	(2,683)	879	102.6

10-YEAR TREND OF FUNDING EXCESS/(UNFUNDED) LIABILITY
(In thousands)



Actuarial Section

Teachers' Retirement System Defined Contribution Retirement Plan Occupational Death and Disability and Retiree Medical Benefits Employer Contribution Rates					
Fiscal Year	Actuarial Valuation Year Ended June 30	Occupational Death and Disability	Retiree Medical	Total Annual Required	Adopted
2011	2008	0.28%	0.68%	0.96%	0.96%
2012	2009	—	0.58	0.58	0.58
2013	2010	—	0.49	0.49	0.49
2014	2011	—	0.47	0.47	0.47
2015	2012	—	2.04	2.04	2.04
2016	2013	—	2.04	2.04	2.04
2017	2014	—	1.05	1.05	1.05
2018	2015	—	0.91	0.91	0.91
2019	2016	0.08	0.79	0.87	0.87
2020	2017	0.08	1.09	1.17	1.17

Valuations are used to set contribution rates in future years.

Teachers' Retirement System Defined Contribution Retirement Plan Occupational Death and Disability and Retiree Medical Benefits Schedule of Active Member Valuation Data					
Valuation Date	Number	Annual Earnings (In thousands)	Annual Average Earnings	Percent Increase/ (Decrease) in Average Earnings	Number of Participating Employers
June 30, 2017	4,694	\$ 312,347	\$ 66,542	2.0%	57
June 30, 2016	4,383	285,854	65,219	2.5	58
June 30, 2015	4,095	260,584	63,635	2.7	58
June 30, 2014	3,547	219,701	61,940	2.4	58
June 30, 2013	3,272	197,944	60,496	3.5	58
June 30, 2012	3,057	178,761	58,476	4.7	58
June 30, 2011	2,708	151,269	55,860	5.6	58
June 30, 2010	2,246	118,813	52,900	5.7	58
June 30, 2009	1,792	89,708	50,061	6.4	58
June 30, 2008	1,198	56,369	47,053	6.2	58
Total and average annual earnings ("valuation pay") are the annualized earnings for the fiscal year ending on the valuation date.					

Actuarial Section

Teachers' Retirement System Defined Contribution Retirement Plan Occupational Death and Disability Solvency Test (In thousands)							
Valuation Date	Occupational Death and Disability Actuarial Accrued Liability For:			Occupational Death and Disability Valuation Assets	Portion of Actuarial Accrued Liability Covered by Assets:		
	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members (Employer-Financed Portion)		(1)	(2)	(3)
June 30, 2016	\$ —	\$ —	\$ 19	\$ 3,323	100.0%	100.0%	100.0%
June 30, 2015	—	—	29	3,114	100.0	100.0	100.0
June 30, 2014 ¹	—	—	23	2,820	100.0	100.0	100.0
June 30, 2013	—	—	80	2,532	100.0	100.0	100.0
June 30, 2012	—	—	63	2,348	100.0	100.0	100.0
June 30, 2011	—	—	57	2,193	100.0	100.0	100.0
June 30, 2010 ¹	—	—	18	1,577	100.0	100.0	100.0
June 30, 2009 ¹	—	—	14	1,071	100.0	100.0	100.0
June 30, 2008	—	—	44	420	100.0	100.0	100.0
June 30, 2007	—	—	16	—	100.0	100.0	—

¹ Change in Assumptions

Teachers' Retirement System Defined Contribution Retirement Plan Retiree Medical Solvency Test (In thousands)							
Valuation Date	Retiree Medical Actuarial Accrued Liability For:			Retiree Medical Valuation Assets	Portion of Actuarial Accrued Liability Covered by Assets:		
	(1) Active Member Contributions	(2) Inactive Members	(3) Active Members (Employer-Financed Portion)		(1)	(2)	(3)
June 30, 2016	\$ —	\$ —	\$ 21,988	\$ 25,410	100.0%	100.0%	100.0%
June 30, 2015	—	—	19,768	17,733	100.0	100.0	89.7
June 30, 2014 ¹	—	—	16,273	10,791	100.0	100.0	66.3
June 30, 2013	—	—	22,058	8,614	100.0	100.0	39.1
June 30, 2012 ¹	—	—	16,811	6,937	100.0	100.0	41.3
June 30, 2011	—	—	3,801	5,373	100.0	100.0	100.0
June 30, 2010 ¹	—	—	2,430	3,895	100.0	100.0	100.0
June 30, 2009 ¹	—	—	1,446	2,353	100.0	100.0	100.0
June 30, 2008 ¹	—	—	757	1,308	100.0	100.0	100.0
June 30, 2007	—	—	358	597	100.0	100.0	100.0

Retiree medical liabilities are calculated using the funding assumptions (i.e., funding investment return and net of Medicare Part D subsidy).

¹ Change in Assumptions

Actuarial Section

State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Summary of Plan Provisions and Changes in Plan Provisions

1. Effective Date

July 1, 2006, with amendments through June 30, 2017.

2. Administration of Plan

The Commissioner of Administration or the Commissioner's designee is the administrator of the Plan. The Attorney General of the state is the legal counsel for the Plan and shall advise the administrator and represent the Plan in legal proceedings.

The Alaska Retirement Management Board prescribes policies, adopts regulations, invests the funds, and performs other activities necessary to carry out the provisions of the Plan.

3. Employers Included

Currently there are 57 employers participating in TRS DCR, including the State of Alaska, 53 school districts, and three other eligible organizations.

4. Membership

An employee of a participating employer who first enters service on or after July 1, 2006, or a member of the defined benefit plan who works for an employer who began participation on or after July 1, 2006, and meets the following criteria is a member in the Plan:

- Permanent full-time or part-time elementary or secondary teachers, school nurses, or a person in a position requiring a teaching certificate as a condition of hire in a public school of the State of Alaska, the Department of Education and Early Development or in the Department of Labor and Workforce Development.
- Full-time or part-time teachers at the University of Alaska or persons occupying full-time administrative positions requiring academic standing who are not in the University's Optional Retirement Plan.

Members can convert to TRS DCR if they are an eligible non-vested member of the TRS defined benefit plan whose employer consents to transfers to the defined contribution plan and they elect to transfer his or her account balance to TRS DCR.

5. Member Contributions

Other than the member-paid premiums discussed later in this section, there are no member contributions for the occupational death & disability and retiree medical benefits.

State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Summary of Plan Provisions and Changes in Plan Provisions

6. Retiree Medical Benefits

- Member must retire directly from the plan to be eligible for retiree medical coverage. Normal retirement eligibility is the earlier of a) 30 years of service or b) Medicare eligible and 10 years of service.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's and any covered dependent premium is 100% until the member is Medicare eligible. Upon the member's Medicare-eligibility, the required contribution will follow the service-based schedule shown below.
- Coverage cannot be denied except for failure to pay premium.
- Members who are receiving disability benefits or survivors who are receiving monthly survivor benefits are not eligible until the member meets, or would have met if he/she had lived, the normal retirement eligibility requirements.
- The following is a summary of the medical benefit design adopted in July 2016. The plan description below is used for valuation purposes and indicates participant cost-sharing. Please refer to the benefit handbook for more details.

Plan Design Feature	In-Network⁽¹⁾	Out-of-Network⁽¹⁾⁽²⁾
Deductible (single/family)	\$300 / \$600	\$300 / \$600
Medical services (participant share)	20%	40%
Emergency Room Copay (non-emergent use)	\$100	\$100
Medical Out-of-Pocket Maximum (single/family, after deductible)	\$1,200 / \$2,400	\$2,400 / \$4,800
Medicare Coordination	Exclusion	Exclusion
Pharmacy	No Deductible	No Deductible
Retail Generic (per 30-day fill)	20% \$10 min / \$50 max	
Retail Non-Formulary Band (per 30-day fill)	25% \$25 min / \$75 max	40%
Retail Formulary Brand (per 30-day fill)	35% \$80 min / \$150 max	
Mail-Order Generic	\$20 copay	
Mail-Order Non-Formulary Brand	\$50 copay	40%
Mail-Order Formulary Brand	\$100 copay	
Pharmacy Out-of-Pocket Max (single/family)	\$1,000 / \$2,000	\$1,000 / \$2,000
Medicare Pharmacy Arrangement	Retiree Drug Subsidy / Employer Group Waiver Plan Effective 1/1/2019	
Wellness/Preventative	100%, Not subject to deductible	

⁽¹⁾ Assumed to increase annually to mitigate impact of healthcare cost trend

⁽²⁾ OON applies only to non-Medicare eligible participants.

- Conduent HR Consulting used its manual rate models to determine relative plan values for the defined benefit (DB) retiree medical plan and the adopted DCR retiree medical plan outlined above. We applied the ratio of the DCR retiree medical plan value to the DB retiree medical plan value to the per capita costs determined for each of pre/post-Medicare medical and pharmacy benefits to estimate corresponding values

State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Summary of Plan Provisions and Changes in Plan Provisions

for the adopted DCR retiree medical plan design. These factors are noted in Section 5.3. We further adjusted the Medicare medical manual rate to reflect the Medicare coordination method adopted. The RDS subsidy offset in 2019 was increased by 60% to reflect estimated Medicare reimbursements under the Employer Group Waiver Plan (EGWP) arrangement. We reflect estimated discounts and pharmacy rebates in the defined benefit medical cost assumptions, so no further adjustment was needed for the DCR retiree medical plan. The medical network differential is reflected in the relative plan value adjustments.

- The retiree medical plan's coverage is supplemental to Medicare. Medicare coordination is described in the 2016 DCR Plan Handbook, referred to in the industry as exclusion coordination: Medicare payment is deducted from the Medicare allowable expense and plan parameters are applied to the remaining amount. Starting in 2019, the prescription drug coverage will be through a Medicare Part D EGWP arrangement.
- The premium for Medicare-eligible retirees will be based on the member's years of service. The percentage of premium paid by the member is as follows:

<u>Years of Service</u>	<u>Percent of Premium Paid by Member</u>
Less than 15 years	30.00%
15 – 19	25.00
20 – 24	20.00
25 – 29	15.00
30 years or more	10.00

- The premium for dependents who are not eligible for Medicare aligns with the member's subsidy. While a member is not Medicare-eligible, premiums are 100% of the estimated cost. As per discussion with the State, reflects our understanding of statute regarding retiree contribution requirements and employer subsidies.
- Members have a separate defined contribution Health Reimbursement Arrangement account, which is not reflected in this valuation, that can be used to pay for premiums or other medical expenses.
- For valuation purposes, retiree premiums were assumed to equal the percentages outlined in the table above times the age-related plan costs. Future premiums calculated and charged to DCR participants will need to be determined reflecting appropriate adjustments to the defined benefit (DB) plan data because current DB premiums were determined using information based upon enrollment with dual coverage members.
- Coverage will continue for surviving spouses of covered retired members.

7. Occupational Disability Benefits

- Benefit is 40% of salary at date of disability.
- Disability Benefit Adjustment: The disability benefit is increased by 75% of the cost of living increase in the preceding calendar year or 9%, whichever is less.

State of Alaska
Teachers' Retirement System
Defined Contribution Retirement Plan
Summary of Plan Provisions and Changes in Plan Provisions

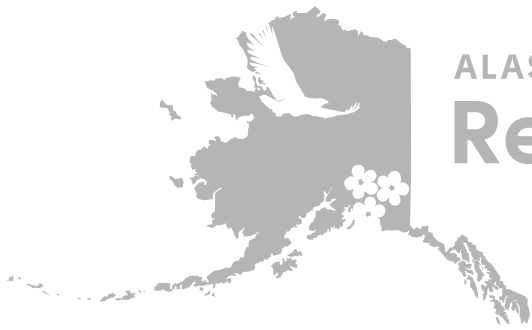
- Member earns service while on occupational disability.
- Benefits cease when the member becomes eligible for normal retirement at Medicare-eligible age and 10 years of service, or at any age with 30 years of service.
- No subsidized retiree medical benefits are provided until normal retirement eligibility. The member's premium is 100% of the estimated cost until they are Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

8. Occupational Death Benefits

- Benefit is 40% of salary.
- Survivor's Pension Adjustment: A survivor's pension is increased by 50% of the cost of living increase in the preceding calendar year or 6%, whichever is less, if the recipient is at least age 60 on July 1, or under age 60 if the recipient has been receiving TRS benefits for at least 8 years as of July 1.
- Benefits cease when the member would have become eligible for normal retirement.
- The period during which the survivor is receiving benefits is counted as service credit toward retiree medical benefits.
- No subsidized retiree medical benefits are provided until the member would have been eligible for normal retirement. The surviving spouse's premium is 100% of the estimated cost until the member would have been Medicare eligible. Medicare-eligible premiums follow the service-based schedule above.

9. Changes Since the Prior Valuation

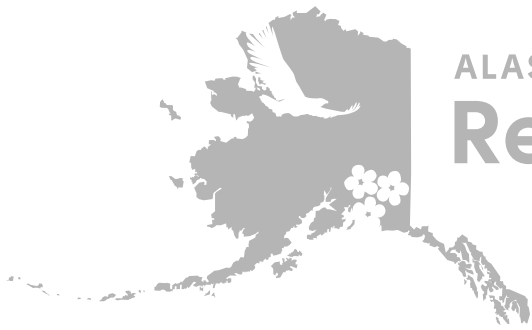
- There have been no changes in TRS DCR benefit provisions since the prior valuation other than the State's decision to defer the EGWP implementation date from January 1, 2018 to January 1, 2019.



ALASKA DIVISION OF
**Retirement
and Benefits**



STATISTICAL SECTION



ALASKA DIVISION OF
**Retirement
and Benefits**

STATISTICAL SECTION OVERVIEW

The statistical section of the Teachers' Retirement System (System) comprehensive annual financial report provides additional detail in the form of financial trends, operating statistics and demographic information. This data is provided to enhance the reader's understanding of the System.

Financial Trends 168-173

These schedules contain financial trend information utilizing a multi-year presentation so the reader can better understand how the System's financial performance has changed over time. Financial information is presented on an accrual basis.

Operating Information 174-185

These schedules contain detailed benefit payment information to provide the reader a better understanding of the pension benefits provided by the Division.

Demographic Information..... 186-191

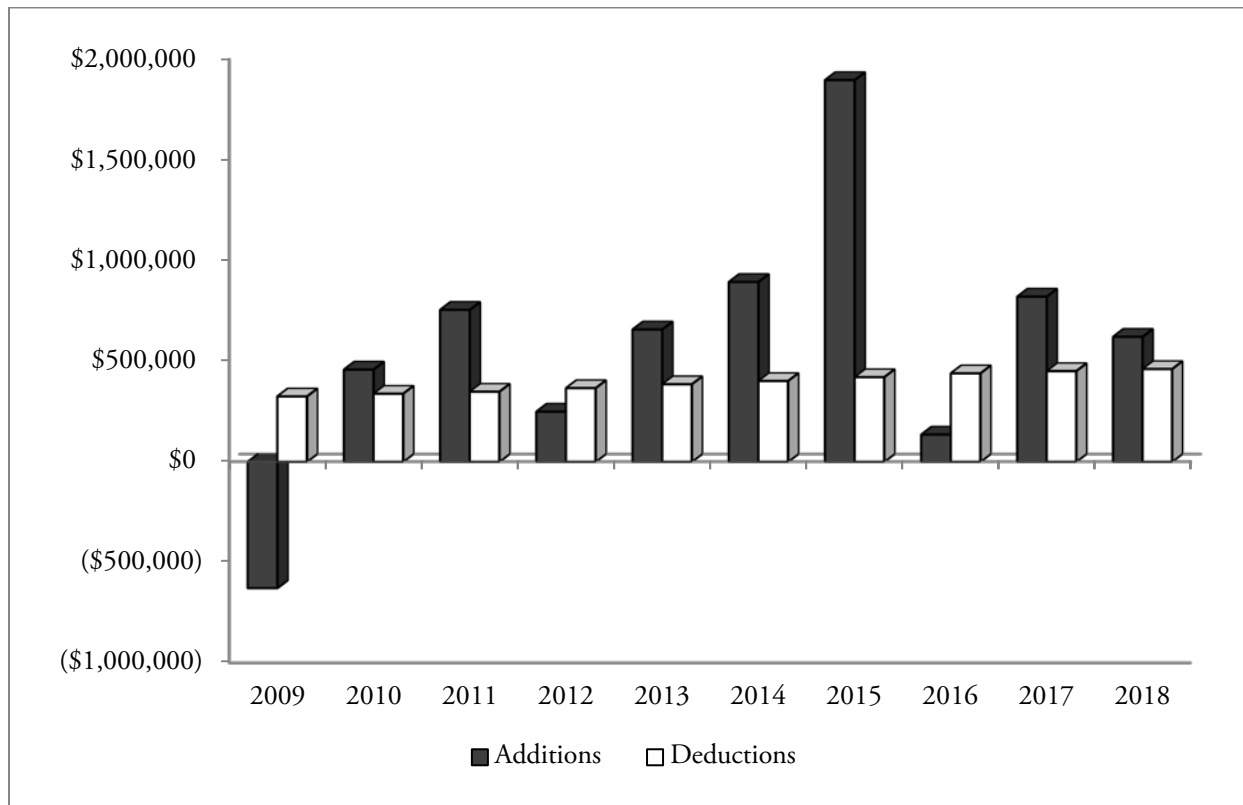
These schedules contain detailed demographic data to provide the reader a better understanding of the membership and employer participation in the System.

Statistical Section

Teachers' Retirement System Defined Benefit Pension Changes in Fiduciary Net Position (In thousands)

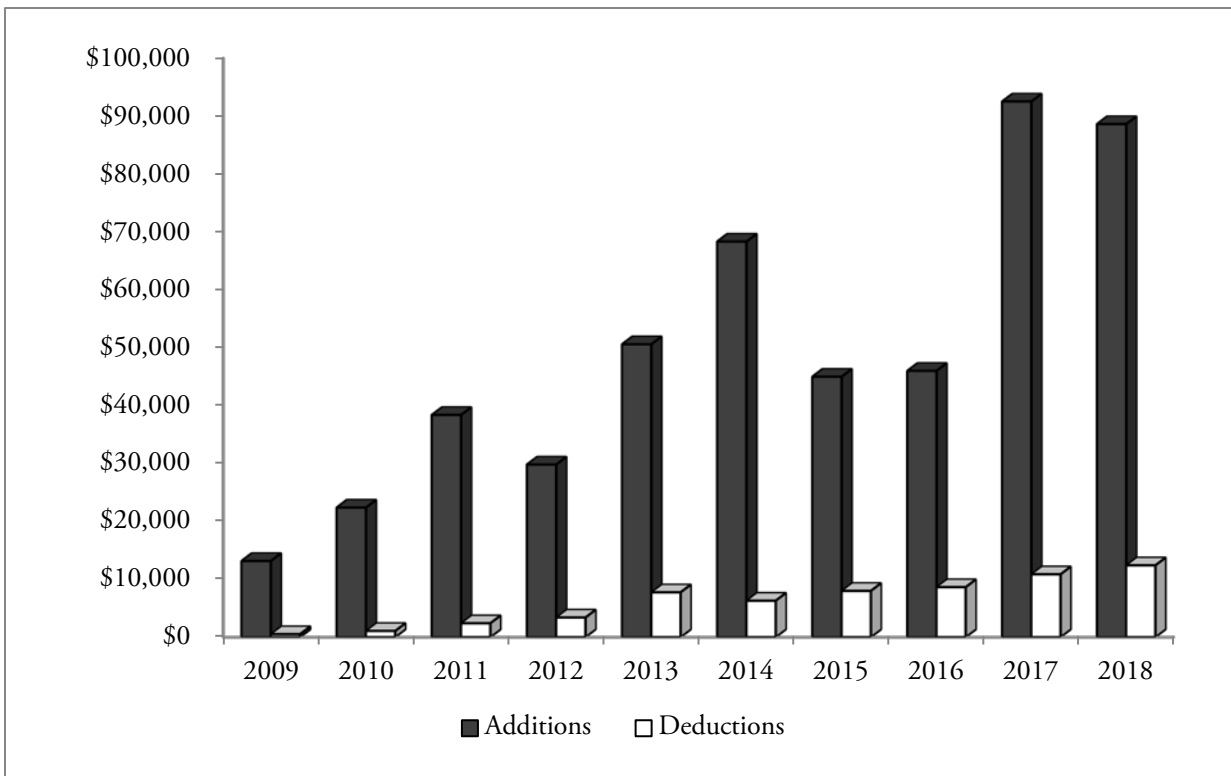
Year Ended June 30	Fiduciary Net Position, Beginning of Year	Additions	Deductions	Increase / (Decrease) in Fiduciary Net Position	Fiduciary Net Position, End of Year
2009	\$ 3,550,798	\$ (629,058)	\$ 325,307	\$ (954,365)	\$ 2,596,433
2010	2,596,433	458,984	338,860	120,124	2,716,557
2011	2,716,557	755,768	348,795	406,973	3,123,530
2012	3,123,530	249,803	366,686	(116,883)	3,006,647
2013	3,006,647	658,405	385,922	272,483	3,279,130
2014	3,279,130	894,170	402,161	492,009	3,771,139
2015	3,771,139	1,897,150	421,334	1,475,816	5,246,955
2016	5,246,955	135,476	440,230	(304,754)	4,942,201
2017	4,942,201	821,406	451,312	370,094	5,312,295
2018	5,312,295	621,993	461,561	160,432	5,472,727

10-YEAR COMPARISON OF ADDITIONS AND DEDUCTIONS (In thousands)



Teachers' Retirement System Defined Contribution Retirement Participant Directed Changes in Fiduciary Net Position (In thousands)					
Year Ended June 30	Fiduciary Net Position, Beginning of Year	Additions	Deductions	Increase / (Decrease) in Fiduciary Net Position	Fiduciary Net Position, End of Year
2009	\$ 14,054	\$ 13,132	\$ 498	\$ 12,634	\$ 26,688
2010	26,688	22,359	1,053	21,306	47,994
2011	47,994	38,355	2,377	35,978	83,972
2012	83,972	29,791	3,374	26,417	110,389
2013	110,389	50,560	7,715	42,845	153,234
2014	153,234	68,315	6,281	62,034	215,268
2015	215,268	44,952	7,972	36,980	252,248
2016	252,248	45,965	8,615	37,350	289,598
2017	289,598	92,527	10,833	81,694	371,292
2018	371,292	88,621	12,383	76,238	447,530

**10-YEAR COMPARISON OF ADDITIONS AND DEDUCTIONS
(In thousands)**

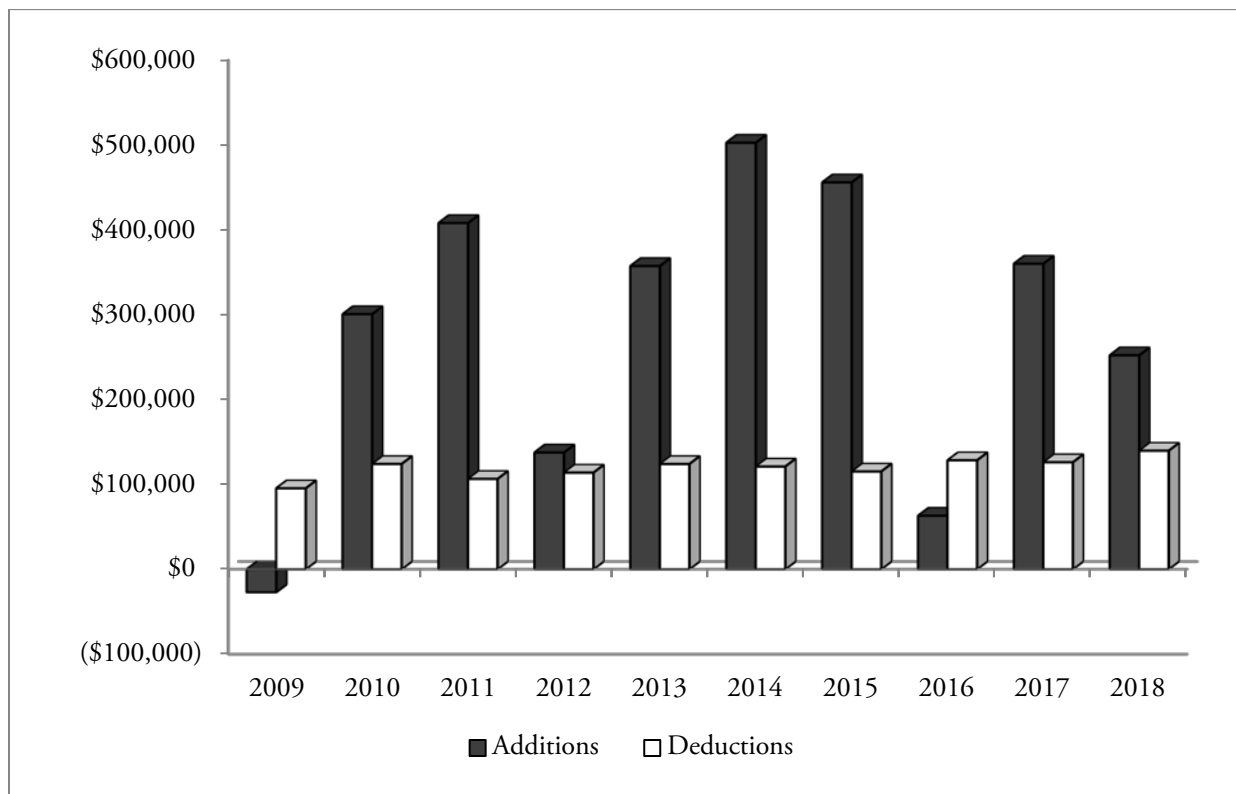


Statistical Section

Teachers' Retirement System Defined Benefit Alaska Retiree Healthcare Trust Changes in Fiduciary Net Position (In thousands)

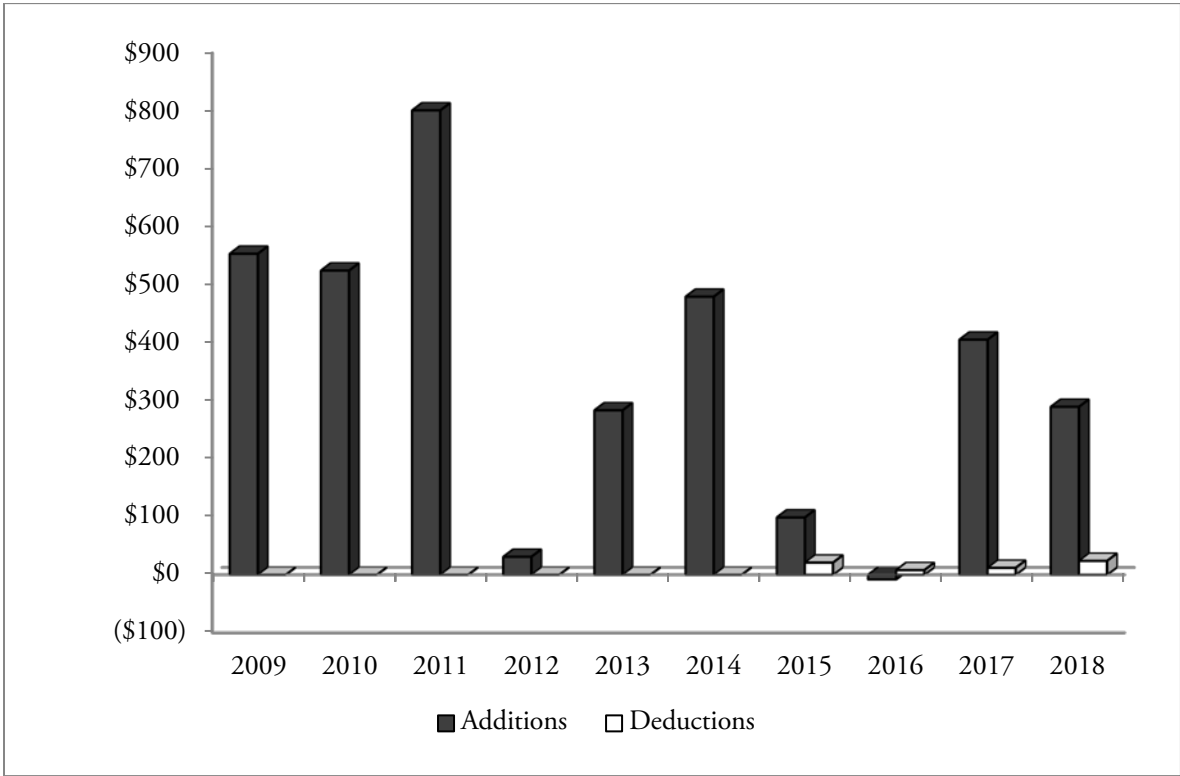
Year Ended June 30	Fiduciary Net Position, Beginning of Year	Additions	Deductions	Increase / (Decrease) in Fiduciary Net Position	Fiduciary Net Position, End of Year
2009	\$ 1,253,573	\$ (27,157)	\$ 95,383	\$ (122,540)	\$ 1,131,033
2010	1,131,033	300,736	124,133	176,603	1,307,636
2011	1,307,636	408,179	106,485	301,694	1,609,330
2012	1,609,330	137,594	113,883	23,711	1,633,041
2013	1,633,041	357,454	124,074	233,380	1,866,421
2014	1,866,421	502,833	121,119	381,714	2,248,135
2015	2,248,135	456,055	115,224	340,831	2,588,966
2016	2,588,966	63,079	128,465	(65,386)	2,523,580
2017	2,523,580	360,197	126,145	234,052	2,757,632
2018	2,757,632	252,219	139,716	112,503	2,870,135

10-YEAR COMPARISON OF ADDITIONS AND DEDUCTIONS (In thousands)



Teachers' Retirement System Defined Contribution Retirement Occupational Death & Disability Changes in Fiduciary Net Position (In thousands)					
Year Ended June 30	Fiduciary Net Position, Beginning of Year	Additions	Deductions	Increase / (Decrease) in Fiduciary Net Position	Fiduciary Net Position, End of Year
2009	\$ 400	\$ 554	\$ —	\$ 554	\$ 954
2010	954	525	—	525	1,479
2011	1,479	801	—	801	2,280
2012	2,280	31	—	31	2,311
2013	2,311	284	—	284	2,595
2014	2,595	480	—	480	3,075
2015	3,075	99	21	78	3,153
2016	3,153	(8)	8	(16)	3,137
2017	3,137	406	12	394	3,531
2018	3,531	290	24	266	3,797

10-YEAR COMPARISON OF ADDITIONS AND DEDUCTIONS
(In thousands)

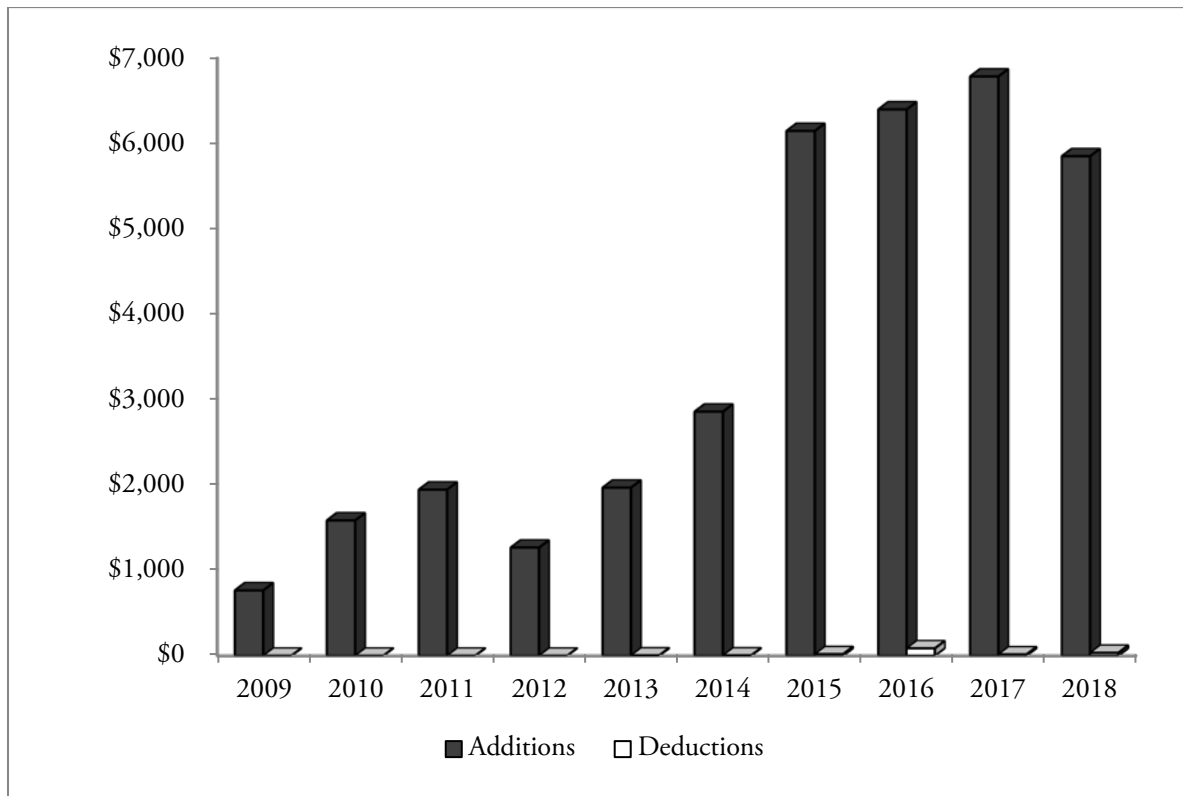


Statistical Section

Teachers' Retirement System Defined Contribution Retirement Medical Plan Changes in Fiduciary Net Position (In thousands)

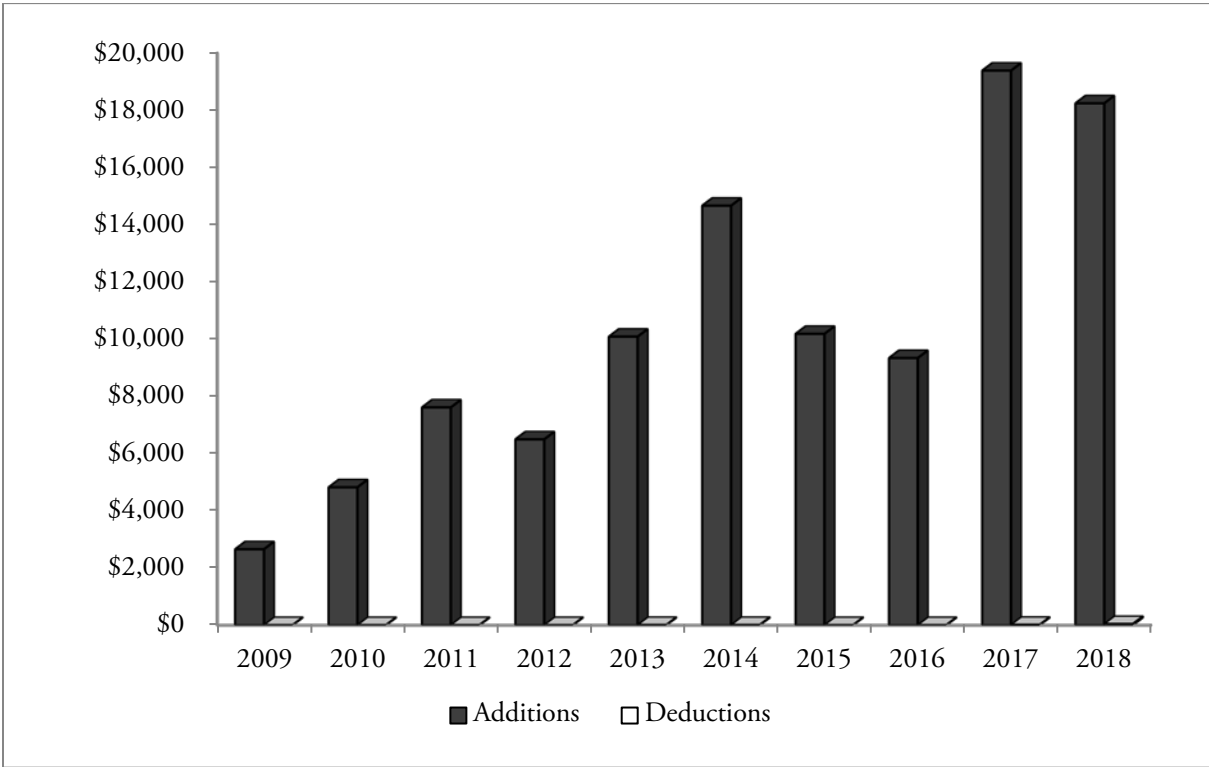
Year Ended June 30	Fiduciary Net Position, Beginning of Year	Additions	Deductions	Increase / (Decrease) in Fiduciary Net Position	Fiduciary Net Position, End of Year
2009	\$ 1,246	\$ 766	\$ —	\$ 766	\$ 2,012
2010	2,012	1,586	—	1,586	3,598
2011	3,598	1,947	—	1,947	5,545
2012	5,545	1,267	—	1,267	6,812
2013	6,812	1,970	3	1,967	8,779
2014	8,779	2,861	3	2,858	11,637
2015	11,637	6,147	18	6,129	17,766
2016	17,766	6,399	86	6,313	24,079
2017	24,079	6,784	15	6,769	30,848
2018	30,848	5,851	34	5,817	36,665

10-YEAR COMPARISON OF ADDITIONS AND DEDUCTIONS (In thousands)



Teachers' Retirement System Defined Contribution Retirement Health Reimbursement Arrangement Changes in Fiduciary Net Position (In thousands)					
Year Ended June 30	Fiduciary Net Position, Beginning of Year	Additions	Deductions	Increase / (Decrease) in Fiduciary Net Position	Fiduciary Net Position, End of Year
2009	\$ 3,176	\$ 2,650	\$ —	\$ 2,650	\$ 5,826
2010	5,826	4,814	—	4,814	10,640
2011	10,640	7,606	—	7,606	18,246
2012	18,246	6,491	—	6,491	24,737
2013	24,737	10,079	3	10,076	34,813
2014	34,813	14,662	3	14,659	49,472
2015	49,472	10,178	—	10,178	59,650
2016	59,650	9,332	—	9,332	68,982
2017	68,982	19,387	7	19,380	88,362
2018	88,362	18,243	37	18,206	106,568

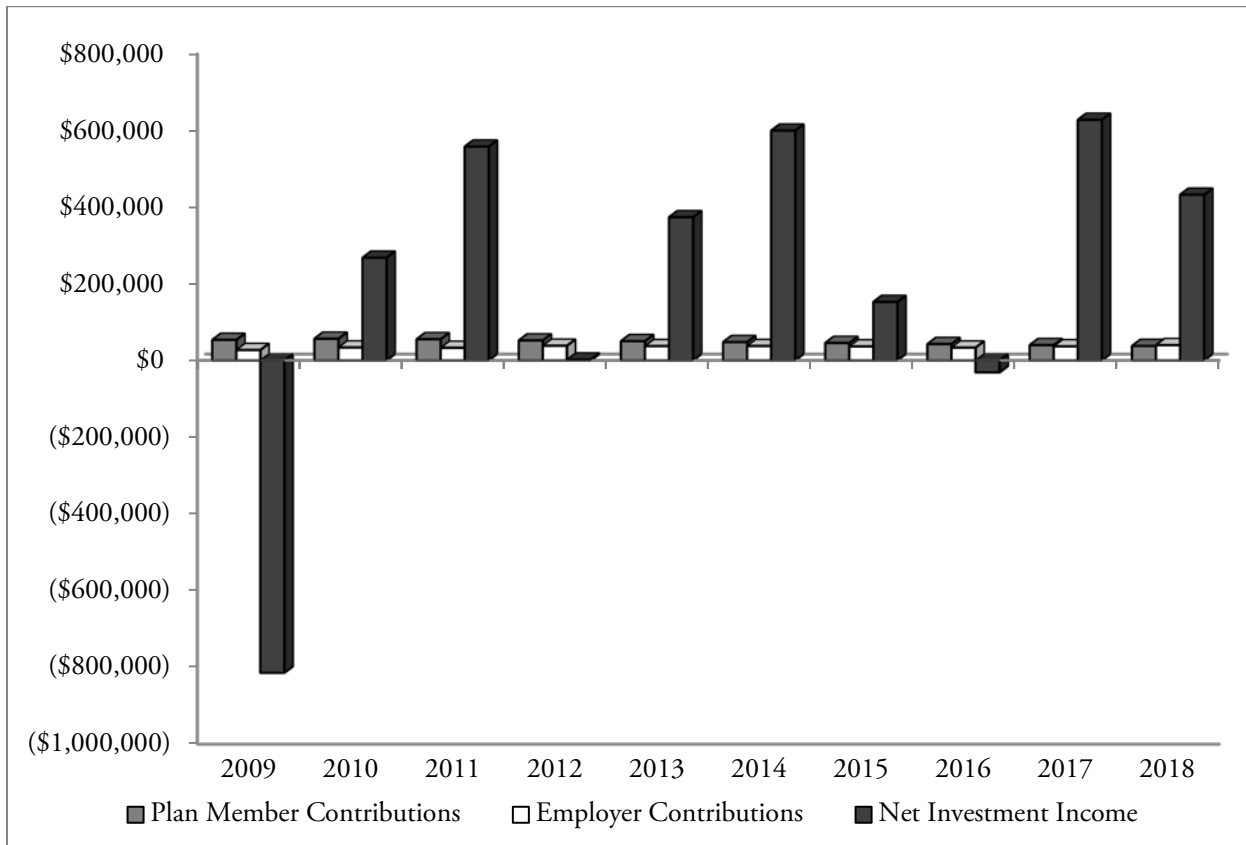
**10-YEAR COMPARISON OF ADDITIONS AND DEDUCTIONS
(In thousands)**



Statistical Section

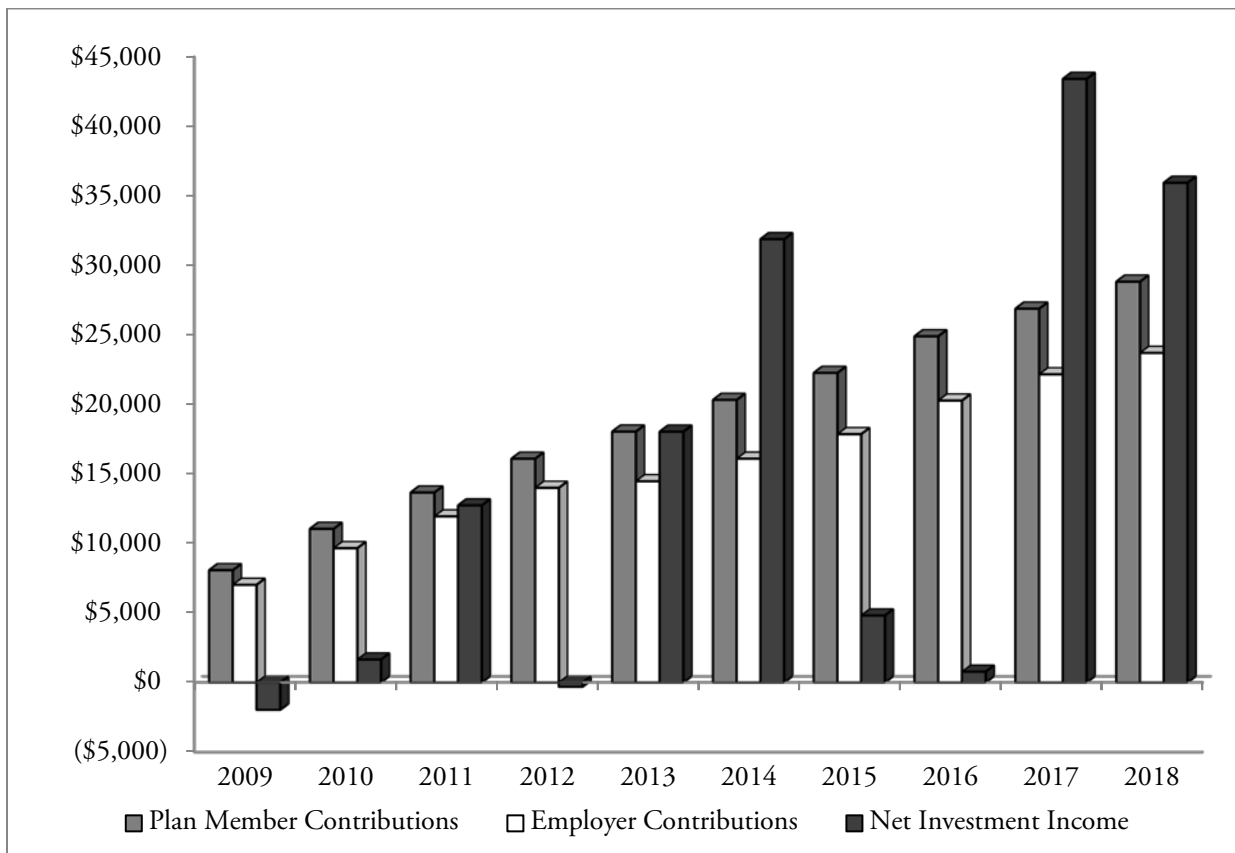
Teachers' Retirement System Defined Benefit Pension Additions by Source (In thousands)						
Year Ended June 30	Plan Member Contributions	Employer Contributions	State of Alaska	Net Investment Income (Loss)	Other	Total
2009	\$ 53,544	\$ 27,110	\$ 104,423	\$ (814,138)	\$ 3	\$ (629,058)
2010	56,554	33,800	100,475	268,146	9	458,984
2011	55,347	32,804	109,343	558,220	54	755,768
2012	52,020	38,189	157,387	2,190	17	249,803
2013	50,201	37,372	196,945	373,868	19	658,405
2014	47,724	37,571	208,890	599,958	27	894,170
2015	45,506	36,374	1,662,700	152,561	9	1,897,150
2016	42,654	33,478	90,589	(31,340)	95	135,476
2017	39,878	36,634	116,700	628,184	10	821,406
2018	37,674	39,835	111,757	432,543	184	621,993

**10-YEAR COMPARISON OF ADDITIONS BY SOURCE
(In thousands)**



Teachers' Retirement System Defined Contribution Retirement Participant Directed Additions by Source (In thousands)					
Year Ended June 30	Plan Member Contributions	Employer Contributions	Net Investment Income (Loss)	Other	Total
2009	\$ 8,077	\$ 7,023	\$ (1,968)	\$ —	\$ 13,132
2010	11,051	9,658	1,650	—	22,359
2011	13,665	11,943	12,742	5	38,355
2012	16,095	14,003	(307)	—	29,791
2013	18,044	14,474	18,040	2	50,560
2014	20,326	16,098	31,887	4	68,315
2015	22,269	17,863	4,820	—	44,952
2016	24,904	20,280	773	8	45,965
2017	26,888	22,165	43,417	57	92,527
2018	28,831	23,710	35,946	134	88,621

10-YEAR COMPARISON OF ADDITIONS BY SOURCE
(In thousands)

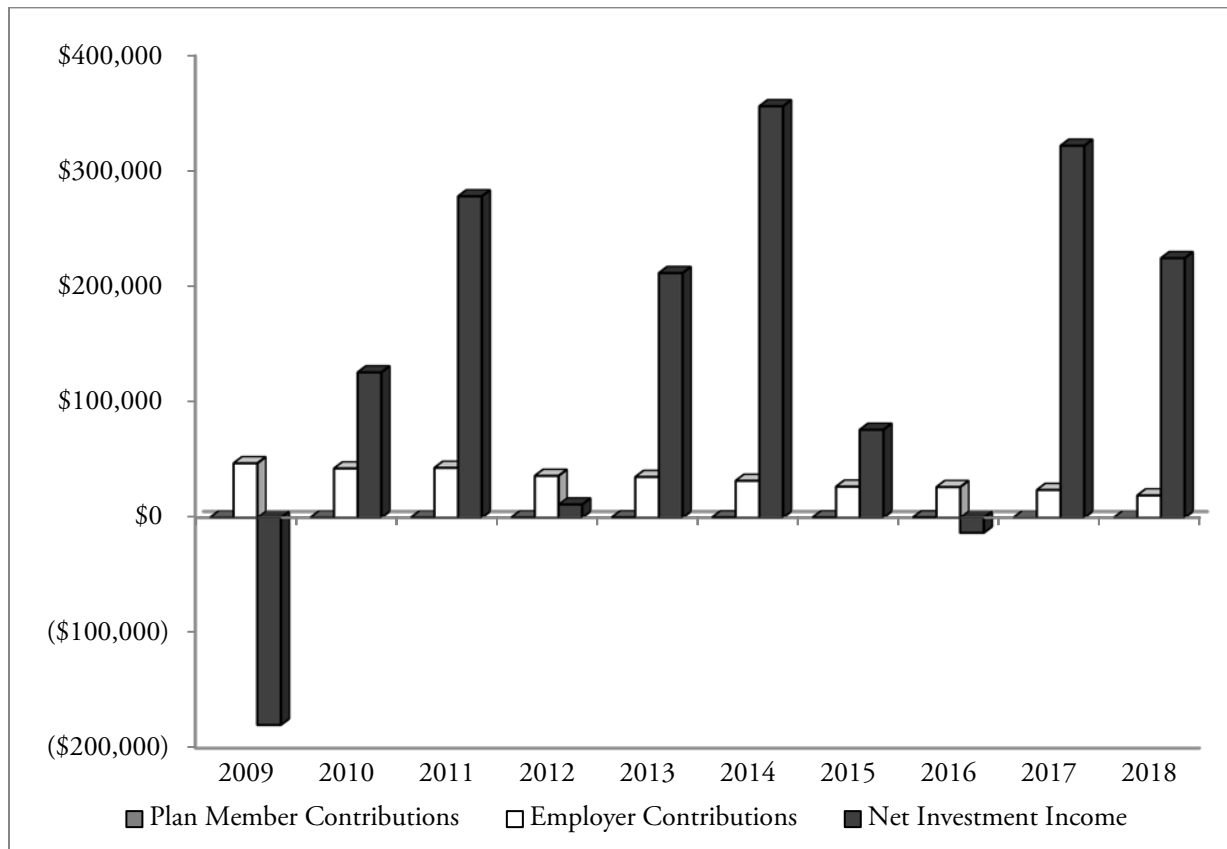


Statistical Section

Teachers' Retirement System Defined Benefit Alaska Retiree Healthcare Trust Additions by Source (In thousands)

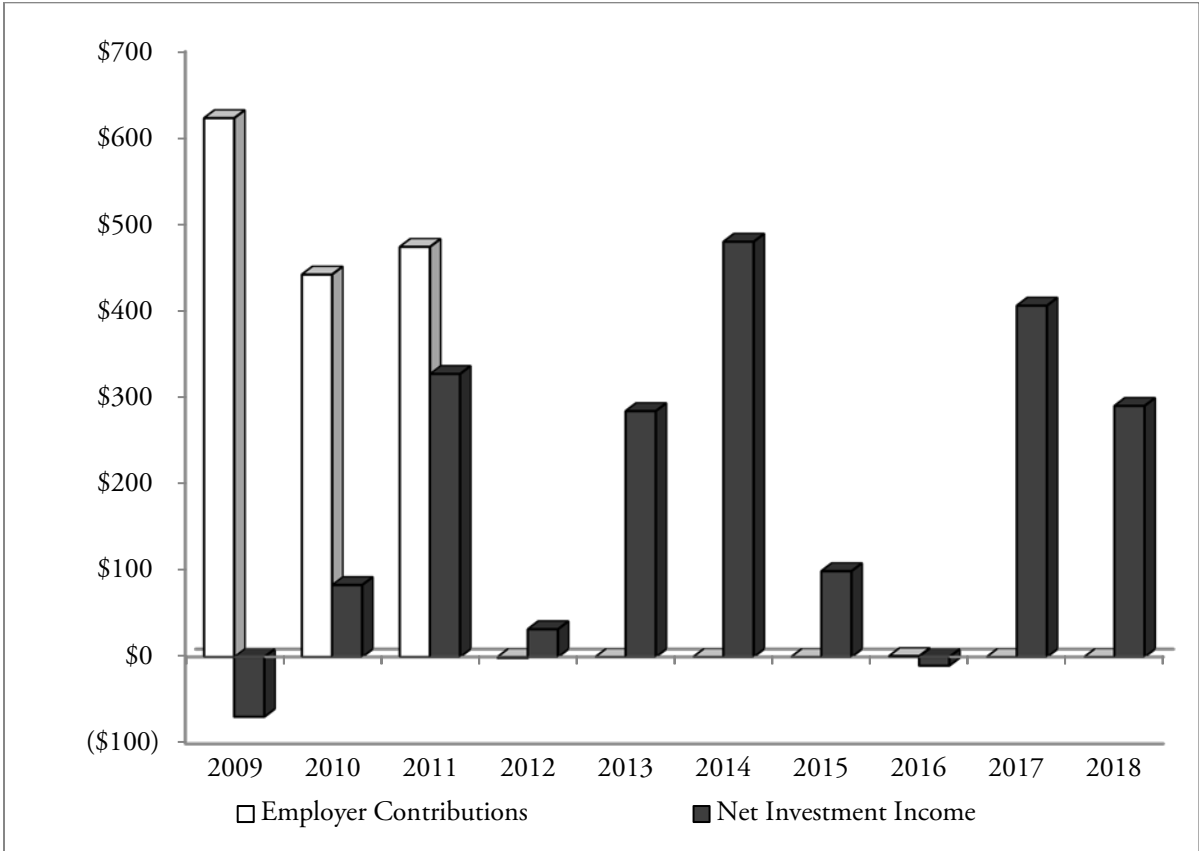
Year Ended June 30	Plan Member Premiums	Employer Contributions	State of Alaska	Net Investment Income (Loss)	Other	Total
2009	\$ 116	\$ 47,174	\$ 101,877	\$ (179,919)	\$ 3,595	\$ (27,157)
2010	117	42,694	72,987	125,903	59,035	300,736
2011	138	43,217	81,507	278,366	4,951	408,179
2012	183	36,281	77,130	11,465	12,535	137,594
2013	250	35,293	105,832	211,927	4,152	357,454
2014	263	31,980	107,956	356,411	6,223	502,833
2015	227	26,922	337,300	76,174	15,432	456,055
2016	306	26,580	39,519	(13,070)	9,744	63,079
2017	—	24,069	—	322,219	13,909	360,197
2018	—	19,305	—	224,820	8,094	252,219

10-YEAR COMPARISON OF ADDITIONS BY SOURCE
(In thousands)



Teachers' Retirement System Defined Contribution Retirement Occupational Death & Disability Additions by Source (In thousands)				
Plan Ended June 30	Employer Contributions	Net Investment Income (Loss)	Other	Total
2009	\$ 623	\$ (69)	\$ —	\$ 554
2010	442	83	—	525
2011	474	327	—	801
2012	(1)	32	—	31
2013	—	284	—	284
2014	—	480	—	480
2015	—	99	—	99
2016	1	(10)	1	(8)
2017	—	406	—	406
2018	—	290	—	290

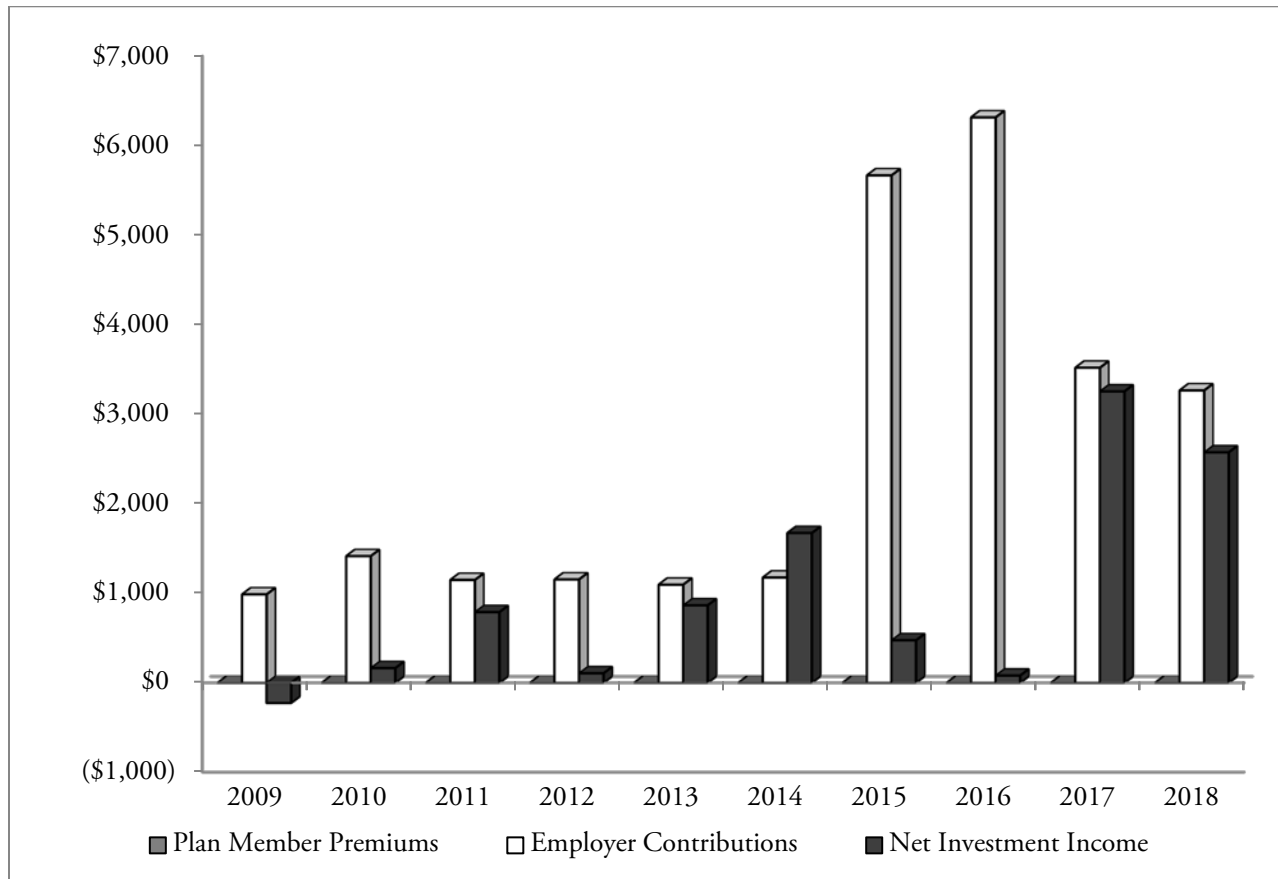
10-YEAR COMPARISON OF ADDITIONS BY SOURCE
(In thousands)



Statistical Section

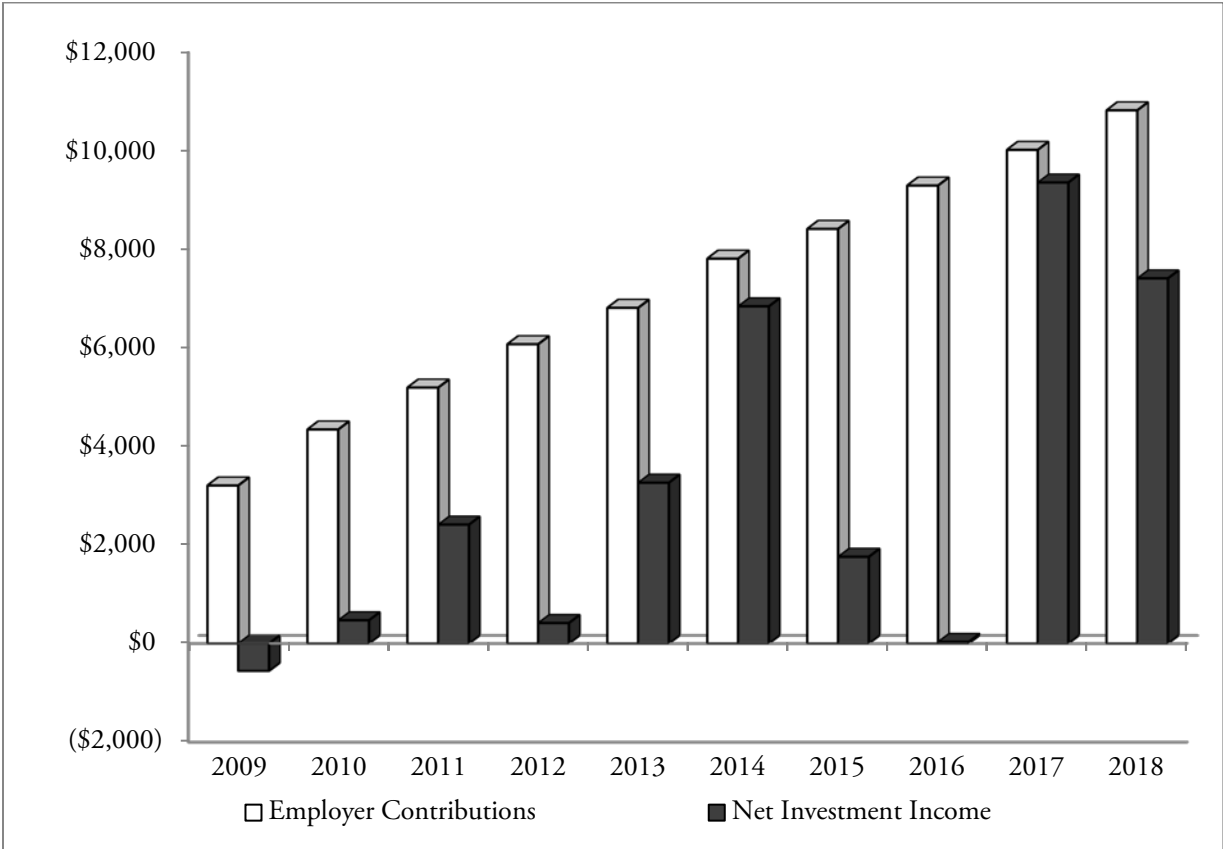
Teachers' Retirement System Defined Contribution Retirement Retiree Medical Plan Additions by Source (In thousands)				
Plan Ended June 30	Plan Member Premiums	Employer Contributions	Net Investment Income (Loss)	Total
2009	\$ —	\$ 992	\$ (226)	\$ 766
2010	—	1,421	165	1,586
2011	—	1,154	793	1,947
2012	—	1,160	107	1,267
2013	—	1,101	869	1,970
2014	—	1,181	1,680	2,861
2015	—	5,670	477	6,147
2016	—	6,317	82	6,399
2017	—	3,524	3,260	6,784
2018	—	3,271	2,580	5,851

10-YEAR COMPARISON OF ADDITIONS BY SOURCE
(In thousands)



Teachers' Retirement System Defined Contribution Retirement Health Reimbursement Arrangement Additions by Source (In thousands)			
Plan Ended June 30	Employer Contributions	Net Investment Income (Loss)	Total
2009	\$ 3,206	\$ (556)	\$ 2,650
2010	4,344	470	4,814
2011	5,195	2,411	7,606
2012	6,077	414	6,491
2013	6,816	3,263	10,079
2014	7,816	6,846	14,662
2015	8,420	1,758	10,178
2016	9,301	31	9,332
2017	10,026	9,361	19,387
2018	10,829	7,414	18,243

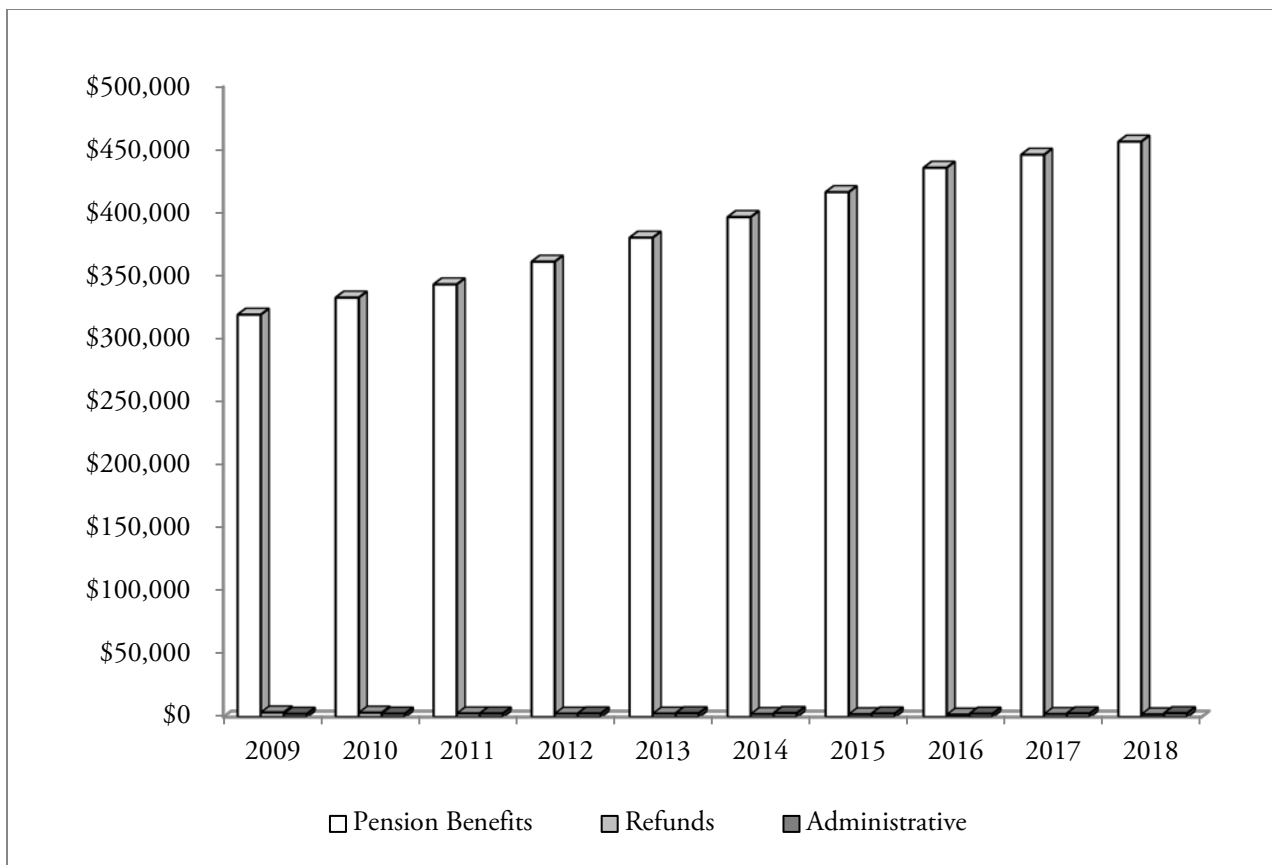
10-YEAR COMPARISON OF ADDITIONS BY SOURCE
(In thousands)



Statistical Section

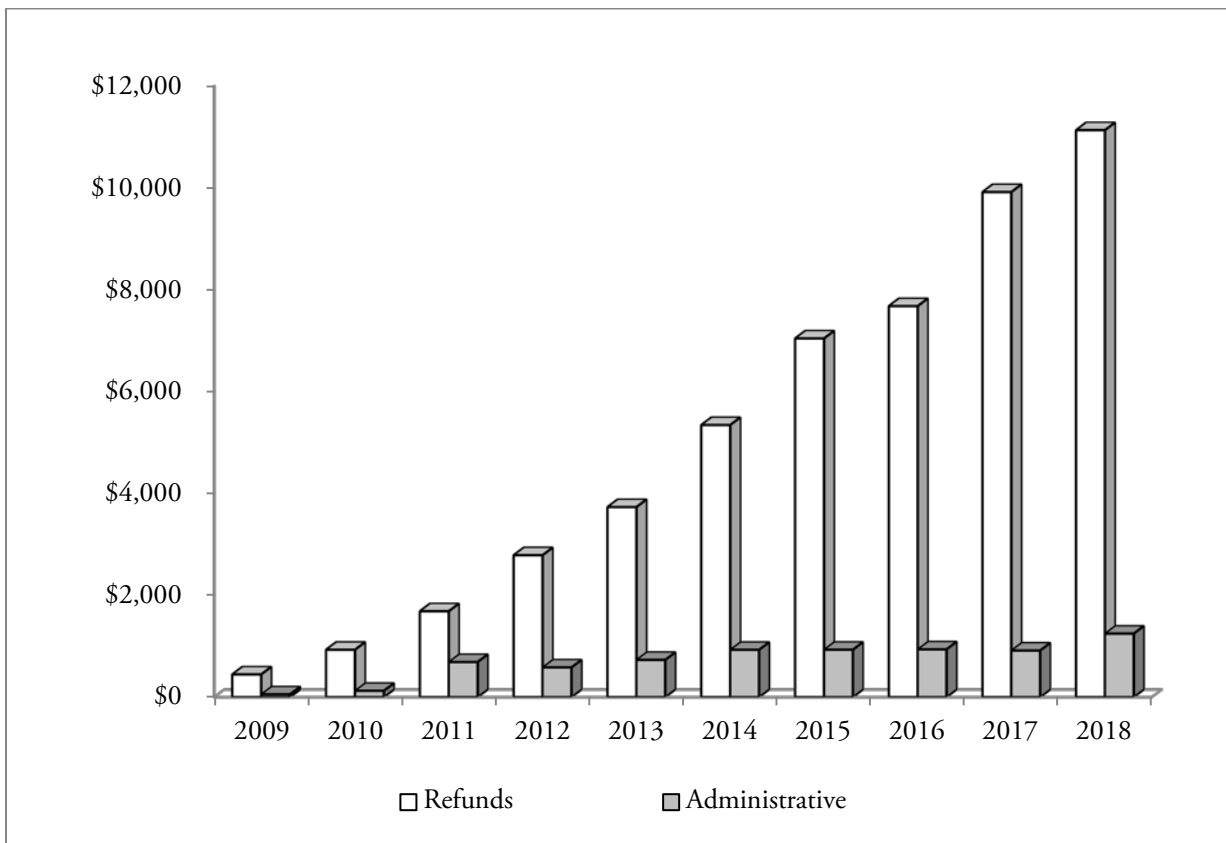
Teachers' Retirement System Defined Benefit Pension Deductions by Type (In thousands)				
Year Ended June 30	Pension Benefits	Refunds of Contributions	Administrative	Total
2009	\$ 319,148	\$ 3,622	\$ 2,537	\$ 325,307
2010	332,690	3,472	2,698	338,860
2011	343,191	2,798	2,806	348,795
2012	361,202	2,637	2,847	366,686
2013	380,265	2,668	2,989	385,922
2014	396,614	2,387	3,160	402,161
2015	416,354	2,191	2,789	421,334
2016	435,699	1,883	2,648	440,230
2017	446,044	2,378	2,890	451,312
2018	456,427	2,084	3,050	461,561

**10-YEAR COMPARISON OF DEDUCTIONS BY TYPE
(In thousands)**



Teachers' Retirement System Defined Contribution Retirement Participant Directed Deductions by Type (In thousands)				
Plan Ended June 30	Refund of Contributions	Administrative	Prior Year Forfeiture Payable Adjustment	Total
2009	\$ 445	\$ 53	\$ —	\$ 498
2010	930	123	—	1,053
2011	1,688	689	—	2,377
2012	2,791	583	—	3,374
2013	3,737	731	3,247	7,715
2014	5,352	929	—	6,281
2015	7,041	931	—	7,972
2016	7,677	938	—	8,615
2017	9,918	915	—	10,833
2018	11,135	1,248	—	12,383

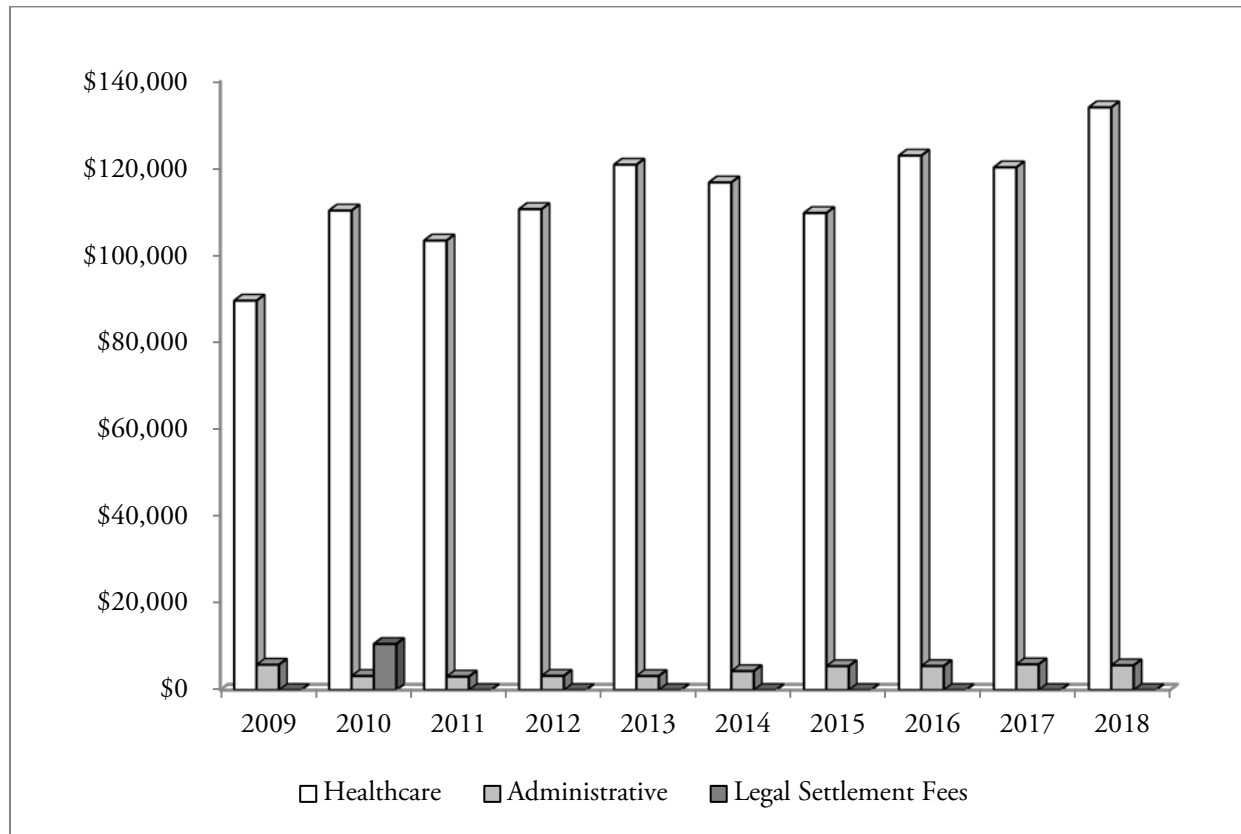
**10-YEAR COMPARISON OF DEDUCTIONS BY TYPE
 (In thousands)**



Statistical Section

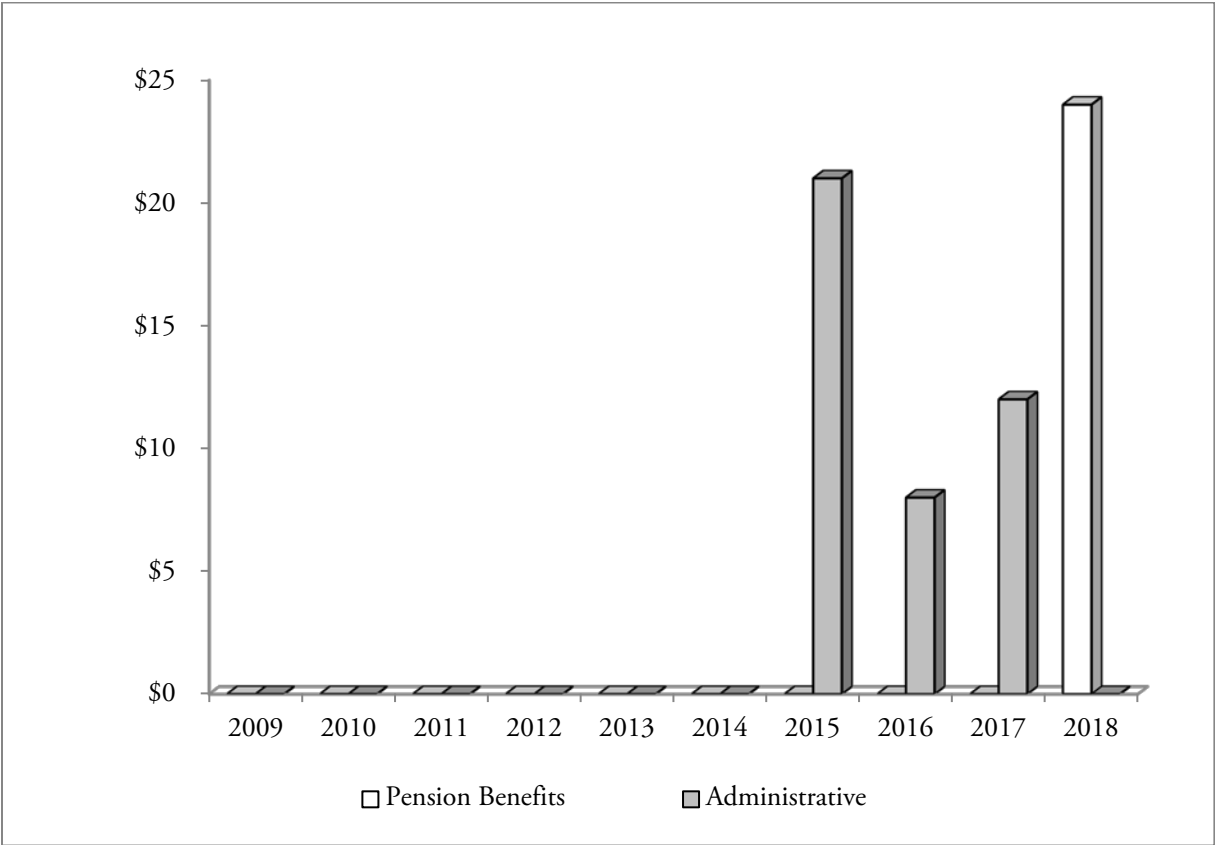
Teachers' Retirement System Defined Benefit Alaska Retiree Healthcare Trust Deductions by Type (In thousands)				
Plan Ended June 30	Healthcare	Administrative	Legal Settlement Fees	Total
2009	\$ 89,571	\$ 5,812	\$ —	\$ 95,383
2010	110,313	3,228	10,592	124,133
2011	103,405	3,080	—	106,485
2012	110,632	3,251	—	113,883
2013	120,855	3,219	—	124,074
2014	116,781	4,338	—	121,119
2015	109,740	5,484	—	115,224
2016	122,954	5,511	—	128,465
2017	120,237	5,908	—	126,145
2018	134,051	5,665	—	139,716

**10-YEAR COMPARISON OF DEDUCTIONS BY TYPE
(In thousands)**



Teachers' Retirement System Defined Contribution Retirement Occupational Death & Disability Deductions by Type (In thousands)			
Plan Ended June 30	Pension Benefits	Administrative	Total
2009	\$ —	\$ —	\$ —
2010	—	—	—
2011	—	—	—
2012	—	—	—
2013	—	—	—
2014	—	—	—
2015	—	21	21
2016	—	8	8
2017	—	12	12
2018	24	—	24

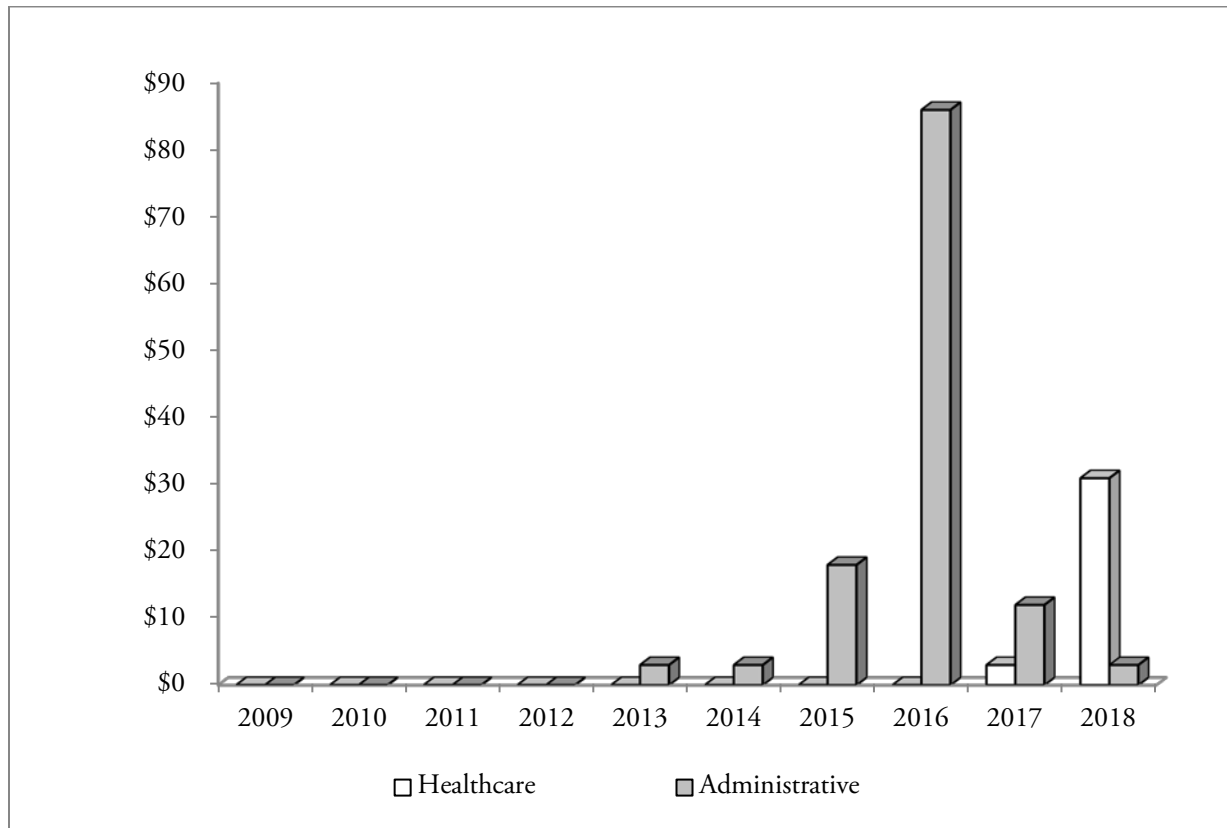
10-YEAR COMPARISON OF DEDUCTIONS BY TYPE
(In thousands)



Statistical Section

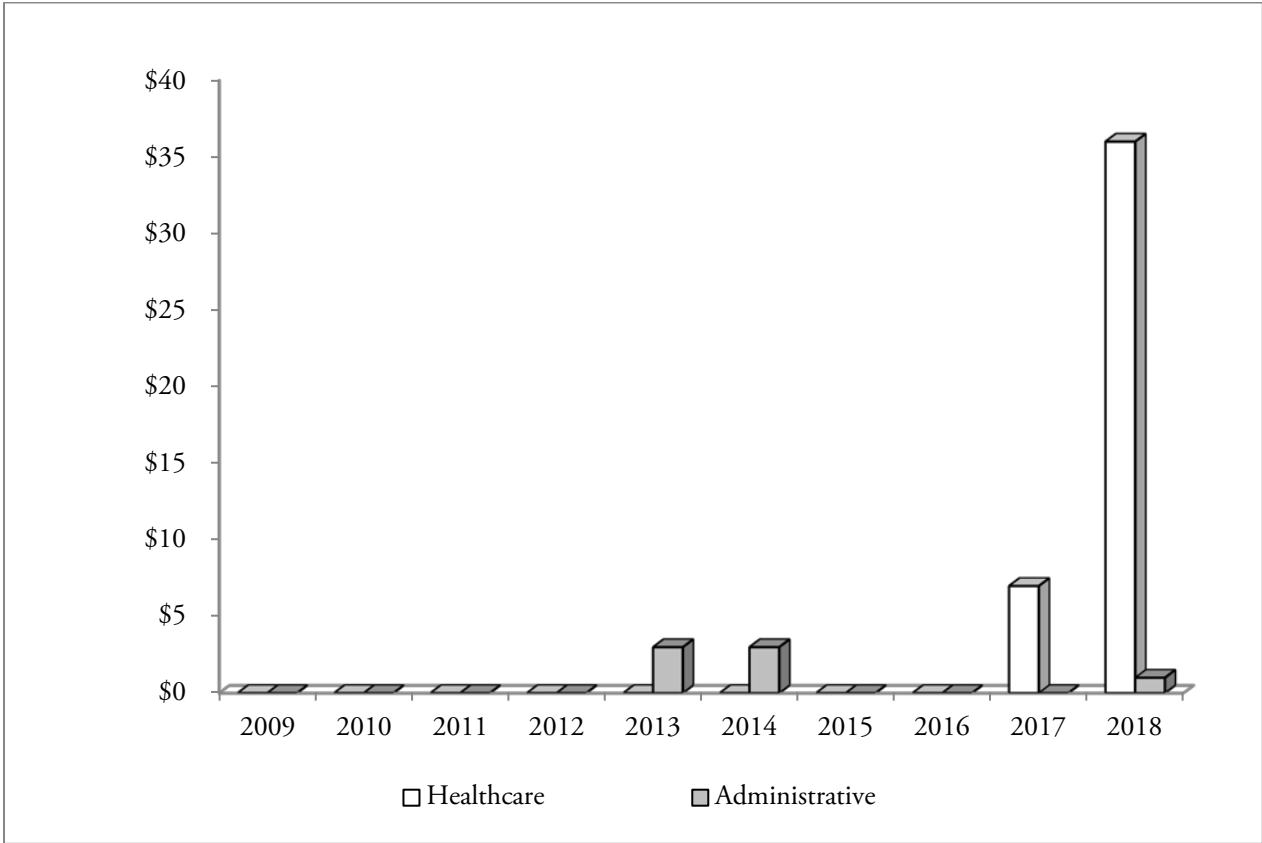
Teachers' Retirement System Defined Contribution Retirement Medical Plan Deductions by Type (In thousands)			
Plan Ended June 30	Healthcare	Administrative	Total
2009	\$ —	\$ —	\$ —
2010	—	—	—
2011	—	—	—
2012	—	—	—
2013	—	3	3
2014	—	3	3
2015	—	18	18
2016	—	86	86
2017	3	12	15
2018	31	3	34

**10-YEAR COMPARISON OF DEDUCTIONS BY TYPE
(In thousands)**



Teachers' Retirement System Defined Contribution Retirement Health Reimbursement Arrangement Deductions by Type (In thousands)			
Plan Ended June 30	Healthcare	Administrative	Total
2009	\$ —	\$ —	\$ —
2010	—	—	—
2011	—	—	—
2012	—	—	—
2013	—	3	3
2014	—	3	3
2015	—	—	—
2016	—	—	—
2017	7	—	7
2018	36	1	37

**10-YEAR COMPARISON OF DEDUCTIONS BY TYPE
(In thousands)**

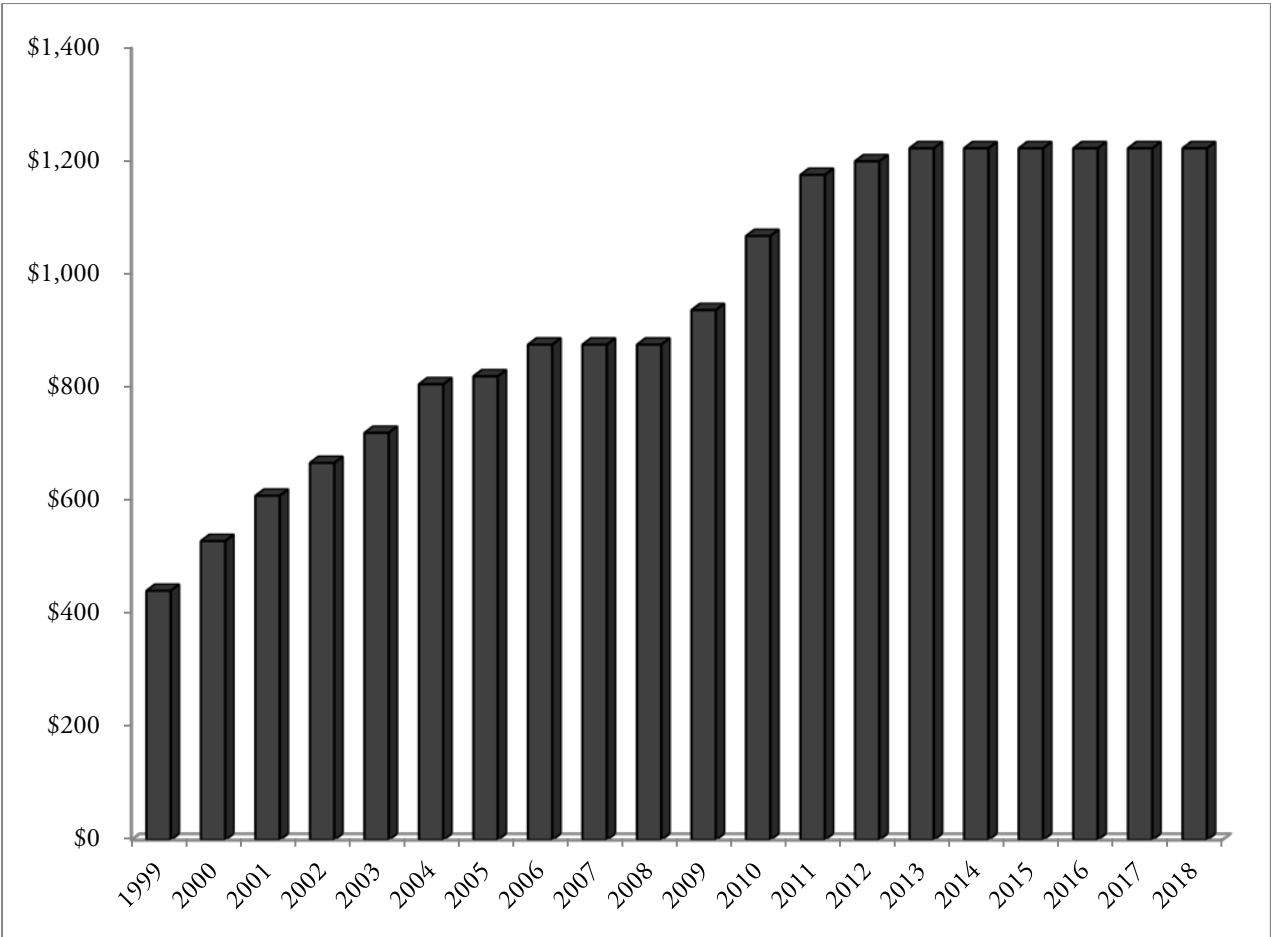


Statistical Section

Teachers' Retirement System Schedule of Average Pension Benefit Payments New Benefit Recipients							
	Years of Credited Service						
	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+
Period 7/1/11 - 6/30/12 ⁽¹⁾ :							
Average Monthly Benefit	\$353	\$1,064	\$1,512	\$2,241	\$3,276	\$4,320	\$5,739
Number of Recipients	11	43	62	61	118	81	58
Period 7/1/12 - 6/30/13 ⁽¹⁾ :							
Average Monthly Benefit	\$253	\$1,030	\$1,496	\$2,450	\$3,281	\$4,384	\$6,052
Number of Recipients	10	57	67	90	101	79	64
Period 7/1/13 - 6/30/14 ⁽¹⁾ :							
Average Monthly Benefit	\$235	\$904	\$1,435	\$2,398	\$3,016	\$4,073	\$7,485
Number of Recipients	8	31	31	28	22	18	12
Period 7/1/14 - 6/30/15 ⁽¹⁾ :							
Average Monthly Benefit	\$349	\$1,041	\$1,342	\$2,205	\$3,267	\$4,220	\$5,900
Number of Recipients	11	33	70	67	137	125	94
Period 7/1/15 - 6/30/16 ⁽¹⁾ :							
Average Monthly Benefit	\$245	\$1,002	\$1,535	\$2,540	\$3,445	\$4,472	\$6,168
Number of Recipients	11	31	82	69	105	74	54
Period 7/1/16 - 6/30/17 ⁽¹⁾ :							
Average Monthly Benefit	\$426	\$795	\$1,626	\$2,433	\$3,549	\$4,536	\$6,351
Number of Recipients	10	22	60	75	100	64	48
<p>“Average Monthly Benefit” includes post-retirement pension adjustments and cost-of-living increases.</p> <p>⁽¹⁾ Does not include beneficiaries</p>							

Teachers' Retirement System Schedule of Pension and Healthcare Benefits Deductions by Type (In thousands)						
Year Ended June 30	Service	Disability	Survivor	Dependent	Healthcare	Total
2009	\$ 306,748	\$ 1,692	\$ 10,688	\$ 20	\$ 103,093	\$ 422,241
2010	319,109	1,757	11,787	37	117,556	450,246
2011	329,308	1,337	12,499	47	133,152	476,343
2012	346,538	1,222	13,398	45	146,309	507,512
2013	364,387	1,377	14,467	34	160,337	540,602
2014	379,594	1,231	15,703	86	166,631	563,245
2015	398,280	1,211	16,781	82	109,740	526,094
2016	415,963	1,279	18,360	97	122,954	558,653
2017	425,059	1,306	19,609	70	120,248	566,292
2018	434,783	1,226	20,372	70	134,118	590,569

20-YEAR COMPARISON OF RETIREE MONTHLY COMPOSITE MEDICAL PREMIUMS



Statistical Section

Teachers' Retirement System Schedule of Pension Benefit Recipients by Type of Pension Benefit and Option Elected Valuation as of June 30, 2017

Amount of Monthly Pension Benefit	Number of Recipients	Type of Pension Benefit			Option Selected			
		1	2	3	1	2	3	4
\$ 1 - 300	223	157	66	—	136	44	37	6
301 - 600	394	280	114	—	204	81	88	21
601 - 900	680	534	146	—	360	140	143	37
901 - 1,200	809	650	159	—	454	172	147	36
1,201 - 1,500	734	576	158	—	395	163	152	24
1,501 - 1,800	713	570	143	—	371	160	154	28
1,801 - 2,100	719	597	122	—	351	161	182	25
2,101 - 2,400	849	747	102	—	369	206	247	27
2,401 - 2,700	1020	934	85	1	446	240	300	34
2,701 - 3,000	1008	956	49	3	407	247	326	28
3,001 - 3,300	957	914	36	7	369	206	354	28
3,301 - 3,600	885	861	19	5	344	181	337	23
3,601 - 3,900	806	783	17	6	294	168	313	31
3,901 - 4,200	673	665	6	2	264	121	276	12
over \$4,200	2513	2492	18	3	866	414	1154	79
Totals	12,983	11,716	1,240	27	5,630	2,704	4,210	439

Type of Pension Benefit

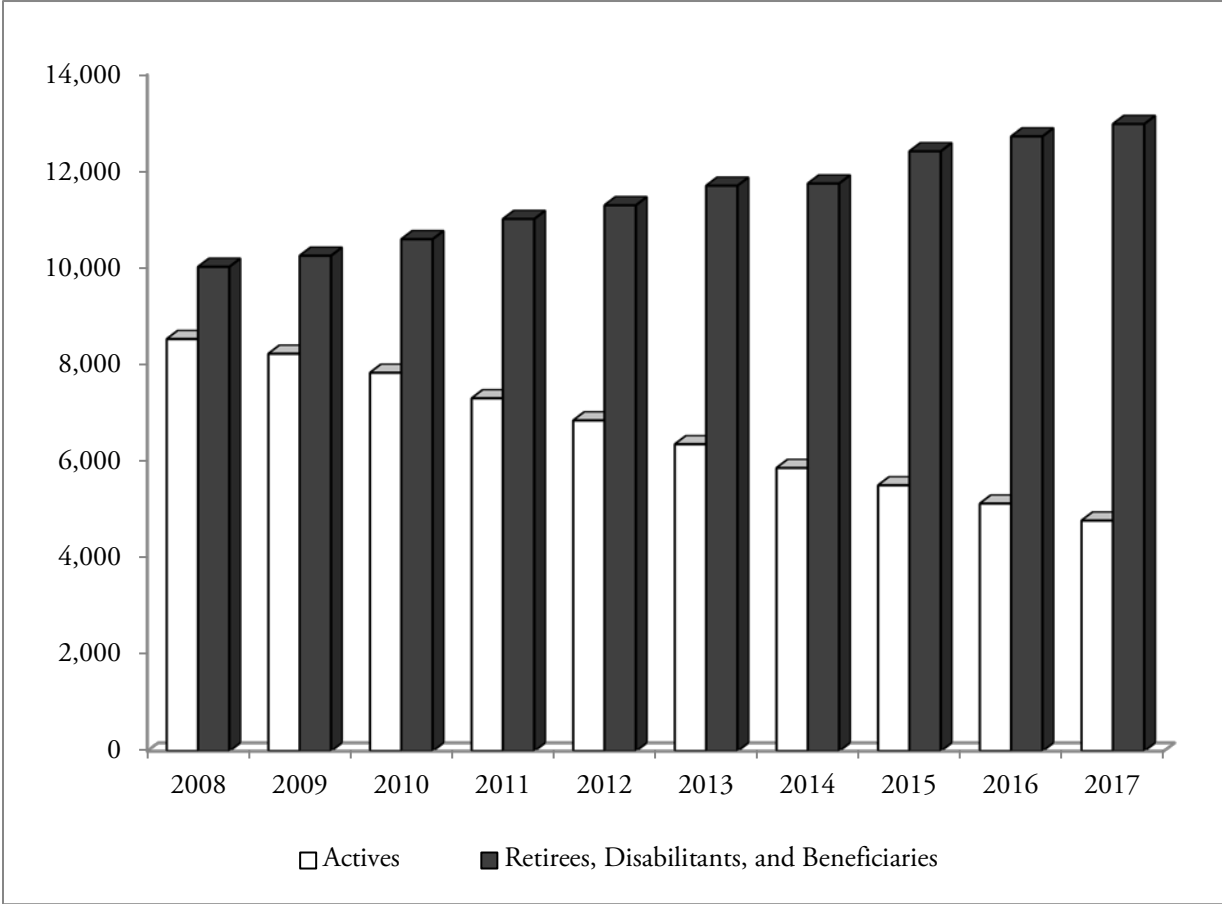
- 1 - Regular retirement
- 2 - Survivor payment
- 3 - Disability

Option Selected

- 1 - Whole Life Annuity
- 2 - 75% Joint and Contingent Annuity
- 3 - 50% Joint and Contingent Annuity
- 4 - 66 2/3% Joint and Survivor Annuity

Teachers' Retirement System System Membership by Status					
Year Ended June 30	Active	Retirees Disabilitants & Beneficiaries	Vested Terminations	Nonvested Terminations w/Balance	Total
2008	8,531	10,026	873	2,971	22,401
2009	8,226	10,255	884	2,830	22,195
2010	7,832	10,598	840	2,789	22,059
2011	7,303	11,016	852	2,675	21,846
2012	6,845	11,301	868	2,559	21,573
2013	6,352	11,705	906	2,448	21,411
2014	5,861	11,750	1,274	2,328	21,213
2015	5,502	12,418	890	2,218	21,028
2016	5,123	12,726	875	2,103	20,827
2017	4,772	12,983	876	1,994	20,625

**10-YEAR COMPARISON OF ACTIVE MEMBERS AND RETIREES,
DISABILITANTS, AND BENEFICIARIES**



Statistical Section

Teachers' Retirement System Principal Participating Employers June 30, 2018			
Employer	Non-retired Members	Rank	Percentage of Total Non-retired Members
Anchorage School District	4,976	1	32.29%
Matanuska-Susitna Borough School District	1,619	2	10.51
Fairbanks North Star Borough School District	<u>1,343</u>	3	<u>8.72</u>
Total	<u>7,938</u>		<u>51.52%</u>

Teachers' Retirement System Participating Employers June 30, 2018

Alaska Department of Education	Kuspuk School District
Alaska Gateway School District	
Aleutian Region School District	Lake and Peninsula Borough School District
Aleutians East Borough School District	Lower Kuskokwim School District
Anchorage School District	Lower Yukon School District
Annette Island School District	
	Matanuska-Susitna Borough School District
Bering Strait School District	
Bristol Bay Borough School District	Nenana City School District
	Nome City School District
Chatham School District	North Slope Borough School District
Chugach School District	Northwest Arctic Borough School District
Copper River School District	
Cordova City School District	Pelican City School District
Craig City School District	Petersburg City School District
	Pribilof School District
Delta-Greely School District	
Denali Borough School District	Saint Mary's School District
Dillingham City School District	Sitka Borough School District
	Skagway City School District
Fairbanks North Star Borough School District	Southeast Island School District
	Southeast Regional Resource Center
Galena City School District	Southwest Region School District
	Special Education Service Agency
Haines Borough School District	
Hoonah City School District	Tanana School District
Hydaburg City School District	
	Unalaska City School District
Iditarod Area School District	University of Alaska
Juneau School District, City and Borough of	Valdez City School District
Kake City School District	Wrangell Public School District
Kashunamiut School District	
Kenai Peninsula Borough School District	Yakutat School District
Ketchikan Gateway Borough School District	Yukon Flats School District
Klawock City School District	Yukon-Koyukuk School District
Kodiak Island Borough School District	Yupit School District



STATE OF ALASKA • DEPARTMENT OF ADMINISTRATION

• *Division of Retirement and Benefits* •

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