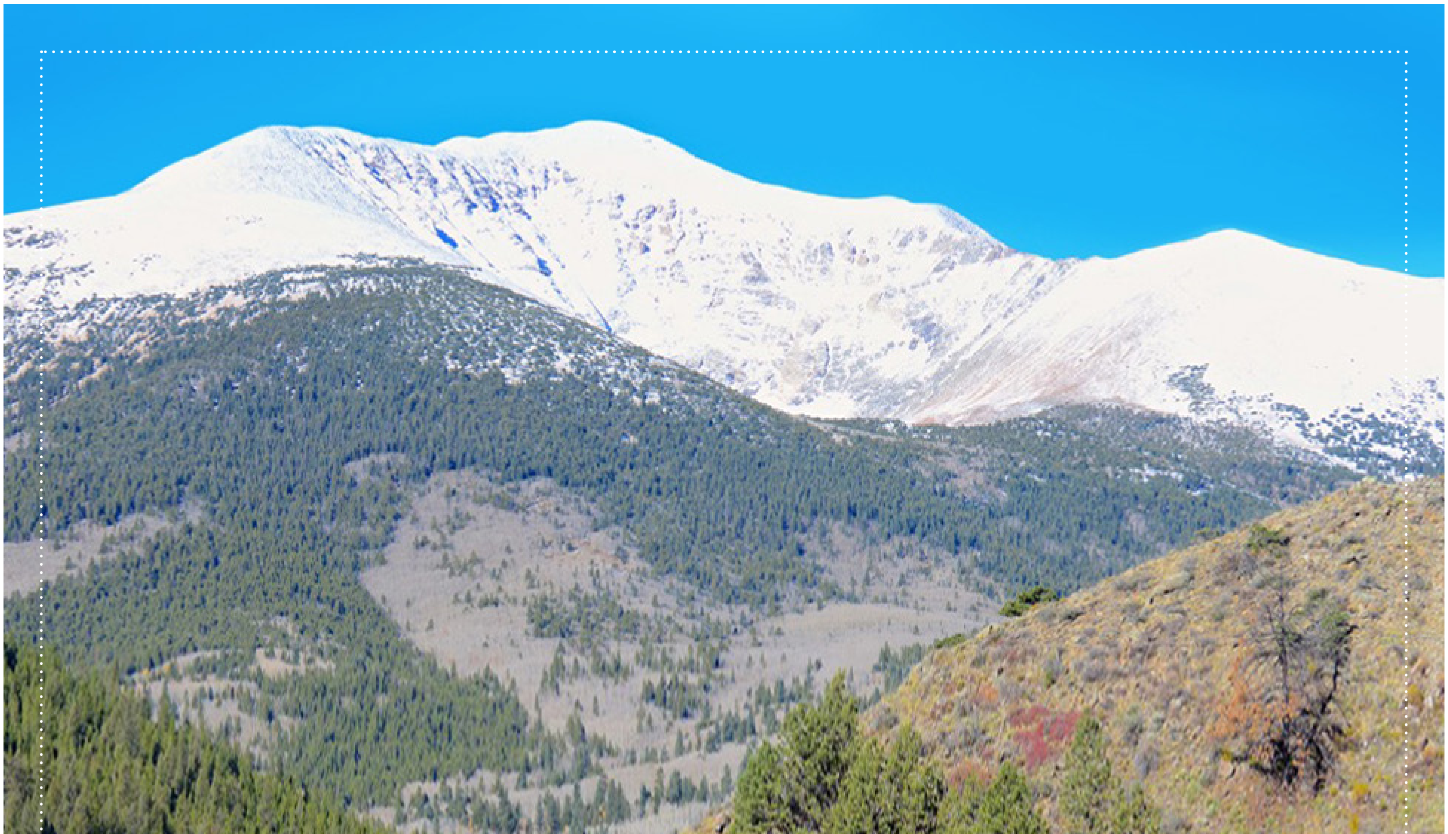


Commitment to Serve. Commitment to Colorado.

COLORADO PERA®

One of Colorado's Best Investments

Comprehensive Annual Financial Report

Colorado Public Employees' Retirement Association

For the Year Ended December 31, 2016

This *Comprehensive Annual Financial Report* honors PERA-affiliated employers by featuring the sometimes unrecognized duties their member employees perform every day. Also featured is data from the December 2016 *Colorado PERA Economic and Fiscal Impacts* study that reports on how, in retirement, members continue their support of the state after spending time in their careers serving Coloradans.

Cover
Photos are courtesy of the Colorado Department of Transportation; Colorado Department of Corrections; Colorado State Patrol; and Dennis V. Nix, a retiree from the Department of Corrections.

Introductory Section
Economic and Fiscal Impact numbers represent the Eastern region.

Photos are courtesy of the Washington-Yuma Counties Combined Communications Center; Lamar Utilities Board; Northeast Colorado Board of Cooperative Educational Services; and Anne Barela, a retiree from the St. Vrain School District RE1J.

Financial Section
Economic and Fiscal Impact numbers represent the Colorado Springs, Metro Denver, and Northern regions.

Photos are courtesy of the Colorado Division of Reclamation Mining and Safety; Colorado School for the Deaf and the Blind; Colorado State Patrol; and Louis Novak, a retiree from the Boulder Valley School District RE2.

Investment Section
Economic and Fiscal Impact numbers represent the Pueblo-Southern Mountains and San Luis Valley regions.

Photos are courtesy of the Colorado Mental Health Institute at Pueblo; Colorado Department of Corrections; Cucharas Sanitation and Water District; and Maverick Brooks Turner, an active member at the Colorado Department of Public Safety.

Actuarial Section
Economic and Fiscal Impact numbers represent the Mountain region.

Photos are courtesy of the Colorado Avalanche Information Center; SHSPhotography; Colorado Parks and Wildlife; and Cindy Kleh, an inactive member at the East Grand School District 2.

Statistical Section
Economic and Fiscal Impact numbers represent the Southwest Mountain and Western regions.

Photos are courtesy of the Grand Junction Regional Airport Authority; Veterans Community Living Center at Rifle; Colorado Housing and Finance Authority; and Marisa Marinac, an active member at the Jefferson County School District R-1.

To view the entire *Colorado PERA Economic and Fiscal Impacts* study (December 2016) prepared by Pacey Economics, please go to https://www.copera.org/sites/default/files/documents/pacey.pdf.

COLORADO PERA®

One of Colorado's Best Investments

Comprehensive Annual Financial Report

For the Year Ended December 31, 2016

Colorado Public Employees' Retirement Association

Prepared by Colorado PERA Staff

Contents

Introductory Section

Financial Section

Investment Section

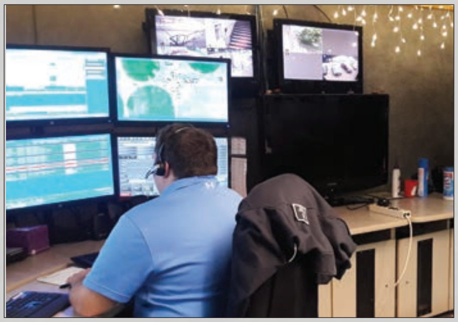
Actuarial Section

Statistical Section

INTRODUCTORY SECTION

Residents on the Eastern Plains depend on the Washington-Yuma Counties Combined Communications Center to answer 911 calls; the Lamar Utilities Board to make sure the lights stay on using both traditional and wind power; and the Northeast Colorado Board of Cooperative Educational Services to assist teachers with coordinating individual education plans for special education students.

From providing the basics to more specialized needs, PERA members and employers serve all Coloradans.



In the Eastern region, $125.4 million in benefits paid to members at retirement results in $144 million in total economic output and sustains 564 jobs.

LETTER OF TRANSMITTAL

COLORADO PERA®

June 23, 2017

Dear Colorado PERA Members, Benefit Recipients, Employers, and Members of the Board of Trustees:

Gregory W. Smith
Executive Director

I am pleased to present Colorado PERA's *Comprehensive Annual Financial Report (CAFR)* for the year ended December 31, 2016.

From the peaks to the plains, PERA members provide services essential to the state and all its citizens. Whether it's ensuring roads are safe, monitoring power, or testing water supplies, PERA members defend our safety, teach our children, and maintain our wilderness. They work to safeguard the fundamental needs of all Coloradans. In tribute to the thousands of public employees across Colorado, we are highlighting in this *CAFR* some of these members and employers who often go unrecognized and unnoticed for their tireless efforts to enhance the quality of life for all Colorado residents. There are more than 560,000 Coloradans who rely on PERA to be there for them in retirement. Thus it's critically important to pay attention to the viability and sustainability of PERA given the importance of PERA to the financial futures of our membership and their families.

Conditions continue to evolve that require PERA to be alert and ready to adapt. Throughout the past year, the PERA Board of Trustees (Board) embarked on a thorough and rigorous process in consultation with actuarial, economic, and investment experts about PERA's financial condition and the assumptions that serve as a foundation for measuring future obligations. While we had a very successful effort in 2010 with Senate Bill 1 to significantly impact PERA's funded status, the world is not static. To ensure our sustainability going forward, it is essential that we recognize and adapt to changes that impact PERA now and in the future.

Emerging from the Board's process were two key factors—life expectancies are increasing and financial markets remain challenging and uncertain. Because PERA is a long-term investor with a long-term outlook, we need to keep our eye on the future to project how conditions may change. When data shows that conditions are changing, PERA has to respond.

In recognition of these facts, the Board took two significant steps in November 2016 to ensure that assumptions remained appropriate. First, new mortality tables were adopted to reflect that people are living longer, which means PERA will be paying retirement benefits longer. The second step was to lower the assumed investment rate of return from 7.50 percent to 7.25 percent.

Both of these changes increased the time PERA needed to become fully funded, and therefore also increased the risk level of PERA's funding. PERA measures funding risk using a reporting methodology developed in 2014 and adopted by the State Legislature in 2015. This methodology was developed exclusively for Colorado and uses a "signal light" color framework that allows PERA to more simply categorize our funded status and communicate the current risk level experienced by the fund. Today, the majority of PERA divisions are in the orange category indicating that we should be formulating a plan to address and reduce that risk profile. The Board has directed PERA staff to undertake a statewide educational and outreach process to engage members, employers, taxpayers, policymakers, and others in a dialogue about the plan's funded status.

We are committed to providing accurate and fact-based information to PERA's stakeholders. We are receptive to all ideas to ensure we are best serving our members and the state of Colorado and I look forward to talking with our many stakeholders in communities across the state. The information we receive will then be consolidated and reviewed by the Board to inform any deliberations about changes to the PERA plan design.

The extended period of time for PERA to reach fully funded status increases the risk profile not only for our members, but for all taxpayers throughout the state of Colorado where our members live and work in our communities and support our economy. As noted in the 2016 *Colorado PERA Economic and Fiscal Impacts* report, PERA retirement distributions are a

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LETTER OF TRANSMITTAL

sustainable source of reliable, predictable income not only for PERA retirees, but for communities across Colorado. These distributions add critical value and stimulus to the economy. The report, prepared by economic and business analysis firm Pacey Economics, shows that the billions of dollars PERA pays in distributions to the more than 98,000 Colorado residents has a dramatic benefit to local economies in every corner of the state.

While PERA is an important driver in the Colorado economy, it is also a strong recruitment and retention tool for employers because of the value it offers to employees regardless of the length of time in a public workforce career. PERA has evolved to serve both long-service employees and those who only work for a short time in public employment.

We honor all of those who provide public service in Colorado—it is our privilege to work for them and ensure they have a sustainable retirement.

Report Contents and Structure

This *CAFR* is designed to comply with the reporting requirements under Title 24, Article 51, Section 204(8) of the Colorado Revised Statutes.

The compilation of this *CAFR* reflects the combined efforts of PERA staff and is the responsibility of PERA management. It is intended to provide complete and reliable information as a basis for making management decisions, determining compliance with legal provisions, and determining responsible stewardship of assets contributed by the members and their employers.

Overview of Colorado PERA

Established in 1931, PERA operates by authority of the Colorado General Assembly and is administered under Title 24, Article 51 of the Colorado Revised Statutes. Initially covering all State employees, PERA has expanded to include all Colorado school districts, the State's judicial system, and many municipalities and other local government entities.

Legislation

During the 2016 legislative session, two bills were introduced that would have impacted PERA, one of which was signed into law. The Board takes positions on legislation affecting PERA based on its fiduciary responsibility to act in the best interest of its membership.

House Bill 16-1284: Divest From Companies With Prohibitions Against Israel

This bill requires PERA to make its best efforts to identify all companies that have economic prohibitions against Israel and create a restricted company list by January 1, 2017. Once a company has been added to the list, PERA will notify the company that it is subject to divestment. If the company does not end its economic prohibitions against Israel within 180 days following PERA's first engagement, PERA is required to divest all direct holdings. If PERA does not already have any direct holdings with the company, PERA is prohibited from acquiring direct holdings during the time the company remains on the list. PERA is required to make information available regarding investments sold, redeemed, divested, or withdrawn in compliance with the bill.

The Board voted to oppose the bill; however, the bill was passed and signed into law by Governor Hickenlooper on March 18, 2016. The Board approved the restricted company list on November 18, 2016, which was effective December 31, 2016.

House Bill 16-1207: PERA Investments in Renewable Energy Companies

This bill would have required PERA to invest at least 1 percent of all moneys that are not already invested in renewable energy companies each year beginning January 1, 2017. If for any given calendar year, PERA was unable to meet this requirement, an explanation of why the condition was not met was required to be included in PERA's *CAFR*.

The Board voted to oppose the bill, and the bill was postponed indefinitely by the House Finance Committee.

Economic Condition and Outlook

The U.S. economy grew 1.6 percent year-over-year during 2016, principally driven by consumer spending, improving business investment, and inventory expansion. The unemployment rate ended the year at a 10-year low of 4.7 percent. With the economy nearing full employment, wage growth finally began to rise. Headline inflation firmed during the year led by a recovery in commodity prices and ended the year at 2.1 percent. Core inflation, which does not include the more volatile headline inflation components such as food and energy, was relatively stable around 2.2 percent. Manufacturing performance steadily accelerated in 2016 as American producers found relief in resilient domestic demand. The residential housing market continued to strengthen as housing prices rose, existing inventory fell, and housing construction increased. The Federal Reserve (Fed) raised the Fed Funds rate 25 basis points in December and indicated further increases in short-term rates would be dependent on the strength of the economy going forward.

The global economy grew an estimated 2.6 percent year-over-year during 2016. While the overall rate of growth was moderate, encouraging trends began to emerge. Euro area growth improved, inflation stabilized, and the United Kingdom has thus far weathered the potential fallout from their vote in June 2016 to exit the European Union. The recovery in commodity prices improved the economic outlook for many commodity exporting countries across the emerging world. The U.S. dollar strengthened during the fourth quarter, reflecting increased optimism regarding the path of monetary and fiscal policy going forward.

LETTER OF TRANSMITTAL

The Colorado economy continued to outperform the nation in 2016, ranking fourth among states in real gross domestic product growth with construction and technology leading the way. Only natural resources and agriculture registered reductions in growth during the year due to pricing pressure in both industries. The Colorado labor market improved as the unemployment rate of 3.0 percent at year-end was the lowest the state has registered since the late-1990s tech boom and was the fourth lowest nationally. Housing prices continued to appreciate as construction could not keep pace with population growth.

Investments

The Board's Investment Committee is responsible for assisting the Board in overseeing PERA's investment program.

Investment portfolio income is a significant source of revenue to PERA. In 2016, there was net investment income of $3.3 billion compared with total member contributions of $879 million and employer contributions of $1.5 billion.

For the year ended December 31, 2016, the defined benefit funds had a time-weighted rate of return of 7.3 percent net-of-fees on a market value basis. PERA's annualized, net-of-fees, time-weighted, rates of return over the last three and five years were 4.8 percent and 8.5 percent, respectively, and over the last 10 years it was 5.2 percent. The 35-year annualized, gross-of-fees rate of return for the pooled investment assets was 9.8 percent.

Prudent funding and healthy investment returns are important to the financial soundness of PERA. Changes in the composition of the portfolio are reflected in the Investment Summary on page 124.

An integral part of the overall investment policy is the strategic asset allocation policy. The targeted strategic asset allocation is designed to provide appropriate diversification and balance expected total rate of return with the volatility of expected returns. Specifically, the fund is to be broadly diversified across and within asset classes to limit the volatility of the total fund investment returns and to limit the impact of large losses on individual investments. Both traditional and nontraditional assets are incorporated into the asset allocation mix.

In addition to asset class targets, the Board sets ranges within which asset classes are maintained. The permissible ranges in effect at the end of 2016 were adopted by the Board on March 20, 2015. The interim and long-term targeted asset allocation mix and the specified ranges for each asset class are presented on page 121. All of the asset classes were within their specified ranges at year end.

PERA's investment policy is summarized in the Colorado PERA Report on Investment Activity on page 121.

Corporate Governance

PERA has maintained its commitment to corporate governance reform through its participation in the Council of Institutional Investors as well as several other coalitions of long-term shareholders. PERA continues to actively advocate for comprehensive improvements to shareholder rights, rigorous federal oversight, and reforms that foster trust in the integrity of the global capital markets.

In addition, PERA continues to be active in the securities litigation arena, fulfilling the Board's commitment to support corporate governance reforms such as transparency, accountability, and enforcement of shareholder's rights.

Financial Information and Management Responsibility

The financial statements of PERA have been prepared by management, which is responsible for the integrity and fairness of the data presented, including the many amounts which must, out of necessity, be based on estimates and judgments. The *CAFR* was prepared to conform to the accounting principles generally accepted in the United States of America. Financial information presented through the annual report is consistent with that which is displayed in the basic financial statements.

Ultimate responsibility for the basic financial statements and annual report rests with PERA management; the Board provides an oversight role. The Board is assisted in its responsibilities by the Audit Committee, which now consists of seven Board members and two outside members. The Audit Committee has the responsibility to oversee the adequacy and effectiveness of PERA's system of internal control and the accounting and financial reporting systems. A more detailed description of the role of the Audit Committee can be found in their report on pages 14–15.

Management is responsible for establishing and maintaining adequate internal control over financial reporting. PERA's internal control over financial reporting is designed to provide reasonable, but not absolute assurance, regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. The internal control over financial reporting include those policies and procedures that:

- Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of assets;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures are being made only in accordance with authorizations of management; and

LETTER OF TRANSMITTAL

- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of assets that could have a material effect on the financial statements.

Management has concluded that as of December 31, 2016, internal control over financial reporting is effective.

There are inherent limitations in the effectiveness of any system of internal control, including the possibility of human error, the circumvention or overriding of controls, and that the cost of a control should not exceed the benefits to be derived. Accordingly, even an effective internal control system may not prevent or detect misstatements and can provide only reasonable assurance with respect to financial statement preparation. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions or that the degree of compliance with the policies or procedures may deteriorate.

State law requires that the State Auditor conduct or cause to be conducted an annual audit of PERA. Pursuant to this requirement, the State Auditor selected CliftonLarsonAllen LLP to perform the independent audit of PERA. Under the direction of the State Auditor, CliftonLarsonAllen LLP audited PERA's 2016 basic financial statements in accordance with auditing standards generally accepted in the United States of America and Government Auditing Standards. This audit is described in the Report of the Independent Auditors on pages 23–25 of the Financial Section. Management has provided the auditors with full and unrestricted access to PERA's staff to discuss their audit and related findings to facilitate independent validation of the integrity of the plan's financial reporting and to consider the effectiveness of internal control.

The Financial Section of the *CAFR* also contains Management's Discussion and Analysis (MD&A) that serves as a narrative introduction, overview, and analysis of the basic financial statements (pages 27–55). This Letter of Transmittal is designed to complement the MD&A and should be read in conjunction with it.

PERA implemented the provisions of Governmental Accounting Standards Board (GASB) Statement No. 72, "Fair Value Measurement and Application" for the year ended December 31, 2016. GASB 72 provides guidance for determining a fair value measurement for financial reporting purposes and establishes a hierarchy of inputs to valuation techniques used to measure fair value. This Statement also provides guidance for applying fair value to certain investments and disclosures related to all fair value investments. Implementing this standard did not have a material impact on PERA's financial statements, but does require additional note disclosure. See Note 5 of the Notes to the Financial Statements in the Financial Section for disclosures related to GASB 72.

Actuarial Results

Actuarial valuations involve assumptions about the probability of events far into the future in order to estimate the financial and actuarial status of the defined benefit pension trust funds. Two types of actuarial valuations are required to be performed for PERA's five defined benefit pension trust funds: one for financial accounting and reporting purposes and the other for funding purposes. The results of both actuarial valuations are included in this *CAFR*. The actuarial valuation performed for financial accounting and reporting purposes is prepared in accordance with GASB Statement No. 67 which became effective for PERA for the year ended December 31, 2014. Liabilities and other pension-related amounts calculated under this standard emphasize the costs incurred by PERA-affiliated employers for providing pensions to their employees as part of the employment-exchange process. Assets are required to be stated at fair value and the liability, referred to as the net pension liability (NPL), is determined using a consistent, standardized methodology, which allows for transparency and the comparability of pension-related amounts across U.S. governmental defined benefit pension systems.

The actuarial valuation for funding purposes is prepared in accordance with Actuarial Standards of Practice and the Board's pension funding policy. Liabilities and other pension-related amounts are calculated for the purpose of determining a systematic approach to pre-funding costs of the five defined benefit pension plans, as well as, to access the adequacy of moneys that are available to pay pension benefits earned by the membership. Pre-funding future liabilities defrays the ultimate cost of providing pension benefits as dollars held in the pension trust funds generate investment returns. The amount of actuarial accrued liability (AAL) in excess over the actuarial value of assets is referred to as the unfunded actuarial accrued liability (UAAL). The ratio of assets to AAL represents the funded status of the plan.

Although some of the objectives and calculation methodology of the two actuarial valuations differ, the NPL and UAAL calculated for the five defined benefit pension trust funds under both valuations were similar in previous years. However, the liabilities calculated in each actuarial valuation for December 31, 2016, are dramatically different. The UAAL calculated for purposes of systematically funding the five defined benefit pension trust funds was $32.2 billion compared to the NPL calculated for accounting and financial reporting purposes of $50.8 billion, a difference of $18.6 billion. This difference can be mainly attributed to a provision of GASB 67 which requires that a lower discount rate be used in certain circumstances to calculate the value of liabilities in today's dollars for purposes of financial accounting and reporting. The discount rate determination for 2016 resulted in a lower rate for three out of the five defined benefit pension trust funds compared to the discount rate determination calculated in prior years. When calculating the AAL for purposes of funding, the discount rate used is equal to the long-term expected rate of return set by the Board.

LETTER OF TRANSMITTAL

Information on certain actuarial metrics that assess the moneys required to systematically fund the five defined benefit pension trust funds can be found in the MD&A on pages 36–38. A comprehensive discussion of the results of the actuarial valuation performed for financial accounting and reporting purposes can be found in the MD&A on pages 43–47, and, in Note 10 of the Notes to the Financial Statements on pages 90–94. A comprehensive discussion of the results of the actuarial valuation performed for funding purposes, as well as, other analysis utilized by PERA can be found below and also in the Actuarial Section on pages 145–175.

Funding

On December 31, 2016, the funded ratio for PERA's five defined benefit pension trust funds was 58.1 percent compared to 62.1 percent on December 31, 2015. The unfunded liability as of December 31, 2016, was $32.2 billion, an increase of approximately $5.4 billion from the previous year. The assumptions used to determine the funded ratio and unfunded liability are long-term assumptions and periodically need to be adjusted to reflect changes in demographics and market conditions.

Earlier in 2016, the Board's retained actuary, Cavanaugh Macdonald Consulting, LLC, completed an experience study and as a result, the Board adopted a number of revised actuarial assumptions including updated mortality tables to better reflect the past and continuing future expectation of increased longevity of PERA's membership. Although the actuarial analysis showed that members in all five divisions were living longer than currently expected, plan experience revealed greater longevity for benefit recipients in the School, Judicial, and DPS Divisions, than in the State and Local Government Divisions. The Board's actuary recommended that PERA use two different base mortality tables for retiree mortality to better align with the notable differences in the expected lifespans of certain members.

In addition, the Board lowered the assumed investment rate of return and discount rate from 7.50 percent to 7.25 percent to reflect the expectation that financial markets may not perform as well in the future as they have in the past. As a result of all the revised actuarial assumptions, the unfunded liability increased by $3.9 billion, which was predominantly attributable to the changes to the mortality tables and the lowering of the assumed investment rate of return and discount rate.

The development and ongoing review of a pension funding policy are responsibilities of the Board. PERA's current pension funding policy was adopted by the Board in March 2015 for the five defined benefit pension trust funds and the purpose of the policy is three-fold: (1) to define the overall funding benchmarks of the five defined benefit pension trust funds, (2) to assess the adequacy of the contribution rates which are set by the Colorado Legislature by comparing each division's statutorily set contribution rate to an actuarially determined contribution benchmark, and (3) to define the annual actuarial metrics which will assist in assessing the sustainability of the plan. The results of these three items are intended to help guide the Board when considering whether to pursue or support proposed contribution and benefit legislation.

One of the stated goals in the Board's funding policy is the achievement of a combined Division Trust Fund actuarial funded ratio equal to or greater than 110 percent.

Investment income is the most significant driver of the funded status in a defined benefit plan. To understand the significance of this assumption, a sensitivity analysis is included in the Actuarial Section on pages 167–168. Additional information on PERA's funded ratio, unfunded liabilities, and a complete list of revised actuarial assumptions may be found in the Actuarial Section starting on page 145.

Employer contributions are also a driver of the funded status. In 2016, actual employer contributions for the five defined benefit pension trust funds, as set in statute, were $330.8 million less than the actuarially determined contributions calculated by the actuaries. During the past 10 years, this shortfall in funding with adjustment for investment earnings totaled $2.9 billion.

The actuarial valuation is a valuable tool to help the Board assess the health of the system, but this is just a snapshot view on one day as of December 31, 2016. Another way of understanding PERA's financial condition was adopted by the Colorado General Assembly's Legislative Audit Committee in 2015. By using the "signal light" methodology, which was developed exclusively for PERA, the funded status may be categorized based on the spectrum of signal light colors ranging from green to red, with green indicating a well-funded position to red, indicating potential insolvency. This methodology is intended to assist the Board and the Colorado General Assembly in assessing any action to take to address potential or immediate issues and the time frame in which to do so.

PERA updates the signal light indicators each year, following the release of its *CAFR*. Last year, most of the divisions were in the yellow designation, meaning PERA should enhance its monitoring of the funded status. Following the Board's changes to various actuarial assumptions outlined above, all five of PERA's Division Trust Funds are now in the orange designation. According to the methodology, an orange designation means that a corrective action plan should be developed to reduce the period of time it will take to reach full funding.

PERA's actuaries also perform annual actuarial projections for each division based upon generating future valuations with the underlying actuarial assumptions. This year's projections show that each of the Division Trust Funds is projected to achieve full funding over varying periods of time. Based on the current fair value of assets as of December 31, 2016, and the assumptions

LETTER OF TRANSMITTAL

including anticipated growth in active membership, the actuaries project that the complete amortization of unfunded liabilities will occur in approximately 58 years for the State Division, 78 years in the School Division, 55 years in the Local Government Division, 54 years in the Judicial Division, and 56 years in the DPS Division. The number of years projected to completely amortize unfunded liabilities as of December 31, 2016, compared to December 31, 2015, increased 16 years for the State Division, 34 years for the School Division, 19 years in the Local Government Division, 20 years in the DPS Division, and decreased 19 years in the Judicial Division.

Although PERA remains stable and solvent and able to pay all benefits in perpetuity, changing economic and demographic conditions have extended the period until PERA reaches fully funded status, which increases the risk facing members, taxpayers, and Colorado. Therefore, the Board has directed staff to undertake a statewide educational and outreach process to engage members, employers, taxpayers, and policymakers in a dialogue about PERA's funded status and potential actions that would improve it. Starting in April 2017, this community outreach tour, branded as "PERAtour," includes ample opportunities for conversation, including community meetings held throughout the state, telephone town halls, and a dedicated website. Throughout the PERAtour, PERA will be gathering input on options and ideas which will then be consolidated and reviewed by the Board to inform any deliberations about changes to the PERA plan design.

PERAPlus 401(k)/457 and Defined Contribution Retirement Plans

PERA offers members opportunities to save for retirement through the PERAPlus 401(k), PERAPlus 457, and Defined Contribution (DC) Retirement Plans. As of December 31, 2016, there were a total of 159 employers who recognized the value of offering more choices in savings by affiliating into the PERAPlus 457 Plan since its inception. In addition, 18 PERA employers adopted the Roth option in 2016, which was added to the PERAPlus 401(k) and 457 Plans at the end of 2014. There are a total of 49 PERA employers who adopted the Roth option since its inception. The Roth option in these plans offers advantages over a Roth IRA, including higher contribution limits and no income-based contribution limitations.

The fiduciary net position of the PERAPlus 401(k) Plan, PERAPlus 457 and DC Plans increased for the year ended December 31, 2016. The PERAPlus 401(k), PERAPlus 457, and DC Retirement Plans earned $206.9 million, $51.4 million, and $12.6 million of investment income with a fiduciary net position of $2.8 billion, $751.7 million, and $167.4 million, respectively.

Colorado Mile High Fund

In October 2012, PERA introduced the Colorado Mile High Fund, an investment vehicle that makes millions of dollars available for qualifying opportunities within Colorado's business community. The creation of the Colorado Mile High Fund earmarks capital for businesses that have a nexus to Colorado. The primary focus of this fund is private equity and venture capital opportunities structured as co-investments with financial sponsors. The fund may also consider uniquely structured capital formation opportunities from private equity and venture capital firms targeting Colorado-based opportunities. PERA uses an external manager and adheres to the same investment and underwriting criteria for this fund as it uses in its overall private equity program.

PERA and its adviser have reviewed more than 60 investment opportunities resulting from an active deal sourcing effort that has included discussions with scores of representatives from prospective investment opportunities. As part of its community outreach, PERA has participated in events such as The Mountain Life Science Investor & Partnering Conference, Rocky Mountain Private Fund Advisers Summit, Boulder Business After Hours, Boulder Chamber's Esprit Event, the Silicon Flatirons Fall Private Equity Conference, and the Rocky Mountain Corporate Growth Conference.

At the end of 2016, the Colorado Mile High Fund had committed approximately 57 percent of the fund's total capital to six co-investments. Two co-investments have performed very well and were sold, generating gains in the portfolio. The four remaining co-investments are in the health care, industrial, and consumer discretionary sectors.

PERACare Health Benefits Program

The voluntary PERACare program has several plans providing health care, dental, and vision coverage to PERA members and retirees. PERA focuses on designing plans that are competitive, cost-effective, and valuable to members. PERA also participates in a number of value-based programs designed to support improving the patient experience of care, improving the health of populations, and reducing the per capita cost of health care (known as the "Triple Aim").

In April 2015, PERA introduced PERACare Select, a fixed-price hip and knee replacement benefit for Anthem pre-Medicare enrollees. For members who use PERACare Select providers and hospitals for their surgeries, PERACare Select waives the deductible and/or coinsurance depending on the plan. In 2016, 49 members used the benefit and paid nothing for their surgeries. PERA saved an average of $12,000 per PERACare Select surgery for a total of $580,000 in savings.

LETTER OF TRANSMITTAL

Total Compensation Philosophy

PERA recognizes that its people are its primary asset and its principal source of competitive advantage. PERA offers competitive compensation, performance recognition, disability benefits, and life insurance as well as comprehensive, affordable, and high-quality medical, dental, and vision care programs. PERA's Defined Benefit Plan along with two additional retirement savings options are an excellent affordable way for employees to reach their retirement security goals.

PERA strives to maintain a competitive total rewards package by partnering with consultants to stay abreast of current employment trends and analyzing relevant market data. Our total rewards programs are designed to attract, engage, and retain valued employees while motivating extraordinary performance.

Recognition of Achievements

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to PERA for its *CAFR* for the year ended December 31, 2015. This was the 31st consecutive year that PERA has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized *CAFR*. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current *CAFR* continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

The GFOA also awarded PERA an Award for Outstanding Achievement in Popular Annual Financial Reporting for its *Popular Annual Financial Report* for the year ended December 31, 2015. The Award for Outstanding Achievement in Popular Annual Financial Reporting is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government popular reports.

In order to receive an Award for Outstanding Achievement in Popular Annual Financial Reporting, a government unit must publish a Popular Annual Financial Report, whose contents conform to program standards of creativity, presentation, understandability, and reader appeal.

An award for Outstanding Achievement in Popular Annual Financial Reporting is valid for a period of one year only. PERA has received a Popular Award for the last 14 consecutive years. We believe our current report continues to conform to the Popular Annual Financial Reporting requirements, and we are submitting it to the GFOA.

PPCC Standards Award Program

The Public Pension Coordinating Council (PPCC) presented PERA with its Recognition Award for Administration for meeting professional standards in 2016 for plan administration as set forth in the Public Pension Standards. The PPCC is a coalition of three national associations that represent public retirement systems and administrators—the National Association of State Retirement Administrators, National Council on Teacher Retirement, and National Conference on Public Employee Retirement Systems. These three associations represent more than 500 of the largest pension plans in the U.S.

Employer Affiliation

On January 1, 2016, the Plum Creek Water Reclamation Authority (PCWRA) affiliated with PERA in the Local Government Division. PERA welcomes PCWRA and its employees.

Management Changes

In early 2017, two long-time executives retired from PERA: Karl Greve, Chief Financial Officer, and Jennifer Paquette, Chief Investment Officer.

Karl joined PERA in 1985 and in addition to his work at PERA, Karl was active on committees with the American Institute of CPAs, GFOA, the Colorado Society of CPAs, the Denver Chapter of the Association of Government Accountants, and the Public Pension Financial Forum (P2F2). Karl was a leader in public pension fund accounting and was also active on several task forces for the Governmental Accounting Standards Board.

Jennifer joined PERA in 1995 and in addition to her work at PERA, Jennifer has earned the right to use the Chartered Financial Analyst designation and is a member of the CFA Institute and the CFA Society of Colorado. During her tenure at PERA, Jennifer served on the boards of the CU Leeds Business School, Burridge Advisory Board, the Samaritan Institute, the Samaritan Foundation, and the Rwanda Village Makeover.

In February 2017, Lawrence Mundy was selected as Chief Financial Officer. He joined PERA in 2012 as an Accounting Reporting Manager. Lawrence is a licensed CPA in Colorado, serves on the Colorado Society of CPAs' Government Issues Committee, and is a member of the P2F2. He is also on the GFOA Committee on Retirement and Benefits Administration. As Chief Financial Officer, Lawrence is responsible for managing the operational cash flows and the systems to process, analyze, interpret, and report the financial information.

In March 2017, Amy McGarrity was selected as Chief Investment Officer. Before rejoining PERA in March 2017, Amy was a Global Equity Product Specialist at William Blair and Company, LLC. She originally joined PERA in 2010 after the merger of the Denver Public Schools Retirement System, where she served as the Chief

LETTER OF TRANSMITTAL

Investment Officer. Amy has earned the right to use the Chartered Financial Analyst designation and is a member of the CFA Institute, the CFA Society of Colorado, and the PCAOB Investment Advisory Group. As Chief Investment Officer, Amy is responsible for managing the investments in accordance with Board policies and state statutes.

In addition to Lawrence and Amy joining the PERA executive leadership team, Tara May was promoted to Chief Communications Officer in January 2017. Tara joined PERA in February 2016, as Director of Communications and External Affairs. Prior to joining PERA, Tara was an Executive Vice President and Denver General Manager of Ogilvy, an international public relations agency. Previously, she was a consultant to the U.S. Chamber of Commerce and several local United Way chapters. As Chief Communications Officer, Tara is responsible for PERA's strategic communication efforts, government affairs, member education, marketing, and public affairs engagements with a variety of stakeholders both locally and nationally.

Board Composition

PERA is governed by a 16-member Board of Trustees; 11 are elected by the membership for staggered four-year terms and serve without compensation except for necessary expenses. In addition, there are three Governor-appointed Trustees confirmed by the Senate who receive limited compensation. The State Treasurer serves as a voting ex officio Trustee, and the DPS Division seat serves as a non-voting ex officio Trustee.

In March 2016, Amy Grant was re-appointed to the DPS Division seat as she was the sole candidate for the seat which was up for election. She began serving a four-year term on July 1, 2016.

In June 2016, the following Trustees left the Board, all of whom did not seek re-election: Richard Delk, State Division; Amy L. Nichols, School Division; and the Hon. Brian T. Campbell, Judicial Division. On behalf of the PERA executive team, we thank all of these Trustees for their contributions and dedication to the PERA membership.

Beginning July 1, 2016, four new Trustees joined the Board following the election held in May 2016. David Hall was elected to a four-year term by State Division members and William N. Parker was elected to a four-year term by School Division members. Robert Lamb was elected to a two-year term by Local Government Division members after being appointed by the Board in 2015 to fill the then vacant seat in the Local Government Division. In addition, the Hon. Will Bain was elected to a three-year term by Judicial Division members.

In September 2016, Scott Noller resigned his position on the Board. On behalf of the PERA executive team, we thank him for his thoughtful insight and dedicated service to the PERA membership. To fill this vacant School Division seat, Guillermo Barriga was appointed to serve as a Trustee in the School Division as he was the runner-up in the May 2016 Board election. Trustee Barriga will serve until the next Board election.

In November 2016, in compliance with procedures established in PERA's Governance Manual, Trustees elected Timothy M. O'Brien as Chairman, and Karl Fisch as Vice Chairman. Both of these positions are two-year terms and official duties were assumed at the January 2017 Board meeting.

In December 2016, Trustee Maryann Motza retired from her position as the State's Social Security Administrator. On behalf of the PERA executive team, we will miss Dr. Motza's leadership and her passion for ensuring the retirement security of the PERA membership.

To fill this vacant State Division seat, the Board appointed Suzanne E. Kubec as she was the runner-up in the most recent Board election. Trustee Kubec assumed the seat at the March 2017 meeting and will serve until the next Board election.

In March 2017, Trustee Karl Fisch announced his upcoming retirement from Littleton Public Schools effective June 1, 2017. A replacement for this seat is pending the results of the May 2017 Board election. On behalf of the PERA executive team, we will miss Trustee Fisch's attention to detail and thoroughness in preparing for PERA Board meetings.

Acknowledgements

The cooperation of our affiliated employers is significant to the success of PERA—we thank the staff and management of these employers for their continuing support.

Copies of this *CAFR* are provided to all PERA-affiliated employers and other interested parties; a summary (*Popular Annual Financial Report*) will be sent to members and benefit recipients. An electronic version of both publications is available on the PERA website at www.copera.org.

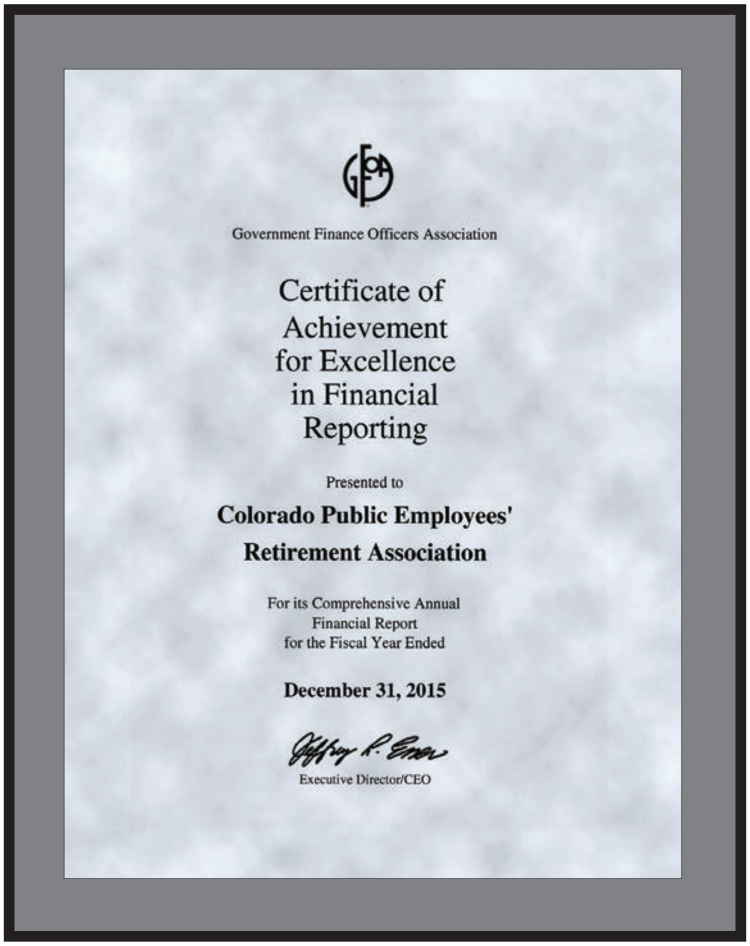
I also thank the PERA staff and Board of Trustees for their commitment and efforts to ensure that PERA meets the needs of all public servants in Colorado.

I am honored to serve our members and beneficiaries as Executive Director. I am proud to be a part of an organization with such a commitment to excellence.

Respectfully submitted,

Gregory W. Smith
Colorado PERA Executive Director
One of Colorado's Best Investments

PROFESSIONAL AWARDS



Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Colorado Public Employees' Retirement Association

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

December 31, 2015

Executive Director/CEO

Public Pension Coordinating Council

Recognition Award for Administration 2016

Presented to

Colorado Public Employees' Retirement Association

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

Presented by the Public Pension Coordinating Council, a confederation of

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

Alan H. Winkle
Program Administrator

BOARD CHAIRMAN'S REPORT

Timothy M. O'Brien
Board Chairman

June 23, 2017

Dear Colorado PERA Members, Benefit Recipients, and Employers:

On behalf of the Board of Trustees (Board), I am pleased to present Colorado PERA's *Comprehensive Annual Financial Report* for the year ended December 31, 2016. While this report focuses on the financial and actuarial status of your retirement system, it also highlights other changes and accomplishments that occurred during the year.

PERA's investments generated a return of 7.3 percent for 2016, which is in line with our 30-year assumed rate of return. While meeting investment assumptions is important to the overall funding, it is not the only element required to keep a pension plan on track.

The PERA Board is responsible for setting the investment rate of return, one of the most critical assumptions used to forecast and evaluate the health of the trust fund. In order to uphold its fiduciary duty, the Board undertakes a thorough annual review of investment assumptions.

Throughout much of 2016, the Board consulted with its investment consulting firm Aon Hewitt Investment Consulting, Inc., its retained actuarial firm, Cavanaugh Macdonald Consulting, LLC, and independent actuarial firm, Buck Consultants (now known as Conduent HR Services), which all provided research and insights to assist the Board on the development of long-term investment return assumptions. In November 2016, the Board voted to lower PERA's investment rate of return forecast to 7.25 percent from 7.50 percent to better reflect a changing market environment.

The Board is also responsible for evaluating and setting other assumptions, including those that deal with life expectancies of retirees. Changing demographics continue to be challenging for pension funds throughout the country, including PERA. Every four years, the Board conducts an experience study to compare current assumptions against the actual experience of the fund. This year, the study revealed that life expectancies were increasing across all divisions, but particularly in the School, Judicial, and DPS Divisions. The longer life expectancies mean that PERA will pay benefits for a longer period of time, and from an actuarial perspective, the new mortality tables have an effect of increasing the cost of the plan. As a result, the time period reflecting these longer life spans will increase the period required to reach full funding.

In recognition of differences across divisions, specific mortality tables were adopted for each division. This is the first time in PERA history that the Board has used different tables for the membership divisions and it reflects the ongoing commitment to fiscal discipline and acting in the best interests of members.

The Board also directed PERA staff to work with the Judicial Division employers and members to develop a solution in the 2017 legislative session that would address the changing demographics of the division. At the time Senate Bill 1 passed in 2010, the Judicial Division was the best funded division and therefore was exempt from contribution increases contained in the landmark reform legislation. New legislation designed to bring the Judicial Division contributions in line with those of the State Division (House Bill 17-1265: PERA Judicial Division Total Employer Contribution) was signed by Governor Hickenlooper on May 25, 2017. Beginning in January 2019, this legislation will increase the Amortization Equalization Disbursement (AED) and Supplemental Amortization Equalization Disbursement (SAED) for the Judicial Division to 3.40 percent of total payroll and it will require both the AED and SAED payments to increase by 0.4 percent of total payroll at the start of each of the following four calendar years through 2023. The contributions, the AED and SAED, were designed to address PERA's unfunded liability.

BOARD CHAIRMAN'S REPORT

The changes in assumptions adopted by the Board will lengthen the time it will take to reach full funding. In response, the Board has asked the Colorado General Assembly to allow PERA time to work with members, retirees, employers, and other stakeholders to develop recommendations to address the funded status and accelerate the time to reach full funding. Our goal is to ensure that all stakeholders have information that is accurate and understandable. While the period of time to reach full funding has been extended, PERA is sustainable and able to pay benefits in perpetuity. The Board believes that the time to act is now, before a crisis situation, and will do so in the months ahead.

In addition to these significant changes, the Board also revised and adopted its Proxy Voting Policy as well as maintained interest on member accounts at 3 percent for 2017.

During the course of the year, the Board recognized the departure of several Trustees.

- Karl Fisch retired in June 2017 after three years on the Board in a School Division seat.
- Maryann Motza retired in January 2017 after 11 years on the Board in a State Division seat.
- Richard Delk left in June 2016 after eight years on the Board in a State Division seat.
- Amy L. Nichols left in June 2016 after 16 years on the Board in a School Division seat.
- The Honorable Brian T. Campbell left in June 2016 after serving in the Judicial Division seat for the year.
- Scott Noller left in September 2016 after 15 years on the Board in a School Division seat.

On behalf of the Board, I extend my appreciation to all of these Trustees for their contributions and service to the PERA membership.

With these departures, the Board also welcomed new Trustees.

- The Honorable Will Bain was elected to the Judicial Division seat held by the Honorable Brian Campbell.
- William N. Parker was elected to the School Division seat held by Amy L. Nichols.
- Guillermo Barriga was appointed to the School Division seat after the resignation of Scott Noller as Guillermo was the runner-up in the last election.
- David Hall was elected to the State Division seat held by Richard Delk.
- Suzanne E. Kubec was appointed to the State Division seat after the retirement of Maryann Motza as Suzanne was the runner-up in the last election.

I express my gratitude to all of my fellow Trustees for their continued perseverance on the challenges before us as we guide PERA to be adaptive and innovative to the needs of our members, employers, and the state of Colorado.

On behalf of the Board, I also want to extend my appreciation to the entire PERA membership and other constituencies for their continued support of PERA. As Trustees, we are dedicated and committed to preserving the retirement system for all PERA members.

Sincerely,

Timothy M. O'Brien
Chairman, Colorado PERA Board of Trustees

REPORT OF THE COLORADO PERA AUDIT COMMITTEE

As described more fully in its Charter, the purpose of the Colorado PERA Audit Committee (Audit Committee) is to assist the Board of Trustees (Board) in fulfilling its fiduciary responsibilities as they relate to accounting policies and financial reporting, the system of internal control, PERA's *Standards of Professional and Ethical Conduct*, the internal audit process, and the practices of the Director of Internal Audit. Management is responsible for the preparation, presentation, and integrity of PERA's financial statements; accounting and financial reporting principles; internal control; and procedures designed to reasonably ensure compliance with accounting standards, applicable laws, and regulations. PERA has a full-time Internal Audit Division that reports functionally to the Audit Committee. The Internal Audit Division is responsible for independently and objectively reviewing and evaluating the effectiveness and efficiency of PERA's system of internal control.

CliftonLarsonAllen LLP, PERA's Independent Auditor, is responsible for performing an independent audit of PERA's financial statements in accordance with generally accepted auditing standards and the standards applicable to financial audits contained in Government Auditing Standards issued by the Comptroller General of the United States. In accordance with law, the State Auditor has ultimate authority and responsibility for selecting, evaluating, and, when appropriate, replacing PERA's Independent Auditor. In 2015, the State Auditor selected CliftonLarsonAllen LLP to perform the independent audit of PERA's annual financial statements, commencing with the year ended December 31, 2015.

The Audit Committee serves a Board-level oversight role in which it provides advice, counsel, and direction to management and to the Internal Audit function on the basis of the information it receives, discussions with management and Internal Audit, and the experience of the Audit Committee's members in business, financial, and accounting matters. In this role, the Audit Committee also reviews the audit plan of the Independent Auditor, the results of the audit, and the status of management's actions to implement recommendations from the audit.

The Audit Committee believes that a candid, substantive, and focused dialogue with the internal auditors and the Independent Auditor is fundamental to the Audit Committee's oversight responsibilities. To support this belief, the Audit Committee periodically meets separately with both the Director of Internal Audit and the Independent Auditor, without management present. In the course of its discussions in these meetings, the Audit Committee asked a number of questions intended to bring to light any areas of potential concern related to PERA's financial reporting and internal control. These questions include, but are not limited to:

- Are there any significant accounting judgments, estimates, or adjustments made by management in preparing the financial statements that would have been made differently had the Independent Auditor prepared and been responsible for the financial statements?
- Based on the Independent Auditors' experience, and their knowledge of PERA, do PERA's financial statements fairly present to users, with clarity and completeness, PERA's financial position and performance for the reporting period in accordance with generally accepted accounting principles?
- Based on the Independent Auditors' experience, and their knowledge of PERA, has PERA implemented internal control and internal audit procedures that are appropriate for PERA?
- Are the Independent Auditor and internal auditors getting the support they need from management to execute their duties?

Questions raised by the Audit Committee regarding these matters were answered to the Audit Committee's satisfaction.

The Audit Committee had an agenda for 2016 that included the following items:

- Recommending the *Comprehensive Annual Financial Report (CAFR)* to the Board for its approval;
- Reviewing and approving the plan and budget of the Internal Audit Division;
- Reviewing the adequacy of resources made available to the Internal Audit Division;

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REPORT OF THE COLORADO PERA AUDIT COMMITTEE

- Reviewing the scope, objectives, and timing of the annual external audit;
- Providing input into the Executive Director's annual performance evaluation of the Director of Internal Audit;
- Reviewing PERA's compliance with its *Standards of Professional and Ethical Conduct;*
- Conducting a search for an outside member of the Audit Committee and recommending the successful candidate to the Board for appointment;
- Meeting with the Independent Auditor separately, without management present;
- Meeting separately with the Executive Director, Director of Internal Audit, Chief Financial Officer, and General Counsel; and
- Meeting with the Director of Internal Audit and with management to discuss the effectiveness of PERA's internal control.

The Audit Committee has reviewed and discussed the audited financial statements for the year ended December 31, 2016, with management and the Independent Auditor. Management represented to the Audit Committee that PERA's audited financial statements were prepared in accordance with U.S. generally accepted accounting principles, and the Independent Auditor represented that their presentations to the Audit Committee included the matters required by auditing standards on auditor communication to be discussed with the Independent Auditor. This review included a discussion with management of the quality (not merely the acceptability) of PERA's accounting principles, the reasonableness of significant estimates and judgments, and the clarity of disclosure in PERA's financial statements, including the disclosures related to critical accounting estimates.

In reliance on these reviews and discussions, and the reports of the Independent Auditor, the Audit Committee has recommended to the Board, and the Board has approved PERA's *CAFR* for the year ended December 31, 2016.

Audit Committee as of June 23, 2017

Robert Lamb, Chairman
Tom Hall
Warren Malmquist
Susan G. Murphy
Timothy M. O'Brien
William N. Parker
Marcus Pennell
Hon. Walker Stapleton
Lynn E. Turner

BOARD OF TRUSTEES

By State law, the management of the public employees' retirement fund is vested in the Board of Trustees (Board). The Board is composed of the following 16 Trustees:

- Nine members elected by members from their respective Divisions to serve on the Board for four-year terms; four from the School Division, three from the State Division, one from the Local Government Division, and one from the Judicial Division.
- Two retirees elected by retirees to serve on the Board for four-year terms.
- Three Trustees appointed by the Governor and confirmed by the State Senate.
- The State Treasurer.
- One ex officio (non-voting) member or retiree elected by members and retirees of the Denver Public Schools (DPS) Division to serve on the Board for a four-year term.

If a Board member resigns, a new Trustee is appointed from the respective Division for the remainder of the year until the next election.

Timothy M. O'Brien
Chairman
Elected by Retirees
Retired Colorado State Auditor
Office of the State Auditor
Current term expires June 30, 2019

Karl Fisch
Vice Chairman
Elected by School Members
Director of Technology Littleton Public Schools
Retired June 2017
Term to expire June 30, 2018

Honorable Will Bain
Elected by Judicial Members
Judge
4th Judicial District
Current term expires June 30, 2019

Guillermo Barriga
Appointed to fill a vacancy in the School Division
Project Manager, Metro Migrant Education Program
Aurora Public Schools
Current term expires June 30, 2017

Honorable Brian T. Campbell
Elected by Judicial Members
Judge
Denver County Court
Term expired June 30, 2016

Richard Delk
Elected by State Members
Director of the Strategic Fiscal Planning
Office for the Colorado State Patrol
Term expired June 30, 2016

Jon Forbes
Deputy State Treasurer
Delegated Substitute for the State Treasurer
Resigned February 2017

Amy Grant
Non-voting, Ex officio member
Elected by DPS Division members and retirees
Former Chair of the Denver Public Schools Retirement System Board
Secretary
DPS JROTC Program
Current term expires June 30, 2020

BOARD OF TRUSTEES

David Hall
Elected by State Members
Sergeant and Legislative Liaison
Colorado State Patrol
Current term expires June 30, 2020

Roger P. Johnson
Appointed by the Governor
Current term expires July 10, 2020

Carolyn Jonas-Morrison
Elected by State Members
College Level Math Faculty
Pikes Peak Community College
Current term expires June 30, 2018

Suzanne E. Kubec
Reappointed to State Division seat
Liability Claims Manager
State Office of Risk Management
Current term expires June 30, 2021

Robert Lamb
Elected by Local Government Members
Finance Division Director
Boulder County
Current term expires June 30, 2018

Maryann Motza
Elected by State Members
Social Security Administrator for the State
Retired January 2017
Term to expire June 30, 2017

Susan G. Murphy
Appointed by the Governor
Current term expires July 10, 2017

Amy L. Nichols
Elected by School Members
Aurora Education Association President
Adams-Arapahoe 28J
Term expired June 30, 2016

Scott L. Noller
Elected by School Members
K-12 Special Projects Director
Colorado Springs School District #11
Resigned from the Board September 2016
Term to expire June 30, 2017

William N. Parker
Elected by School Members
International Baccalaureate Coordinator and Literacy Teacher
Brighton School District 27J
Current term expires June 30, 2020

Marcus Pennell
Elected by School Members
Physics Teacher
Jefferson County School District
Current term expires June 30, 2017

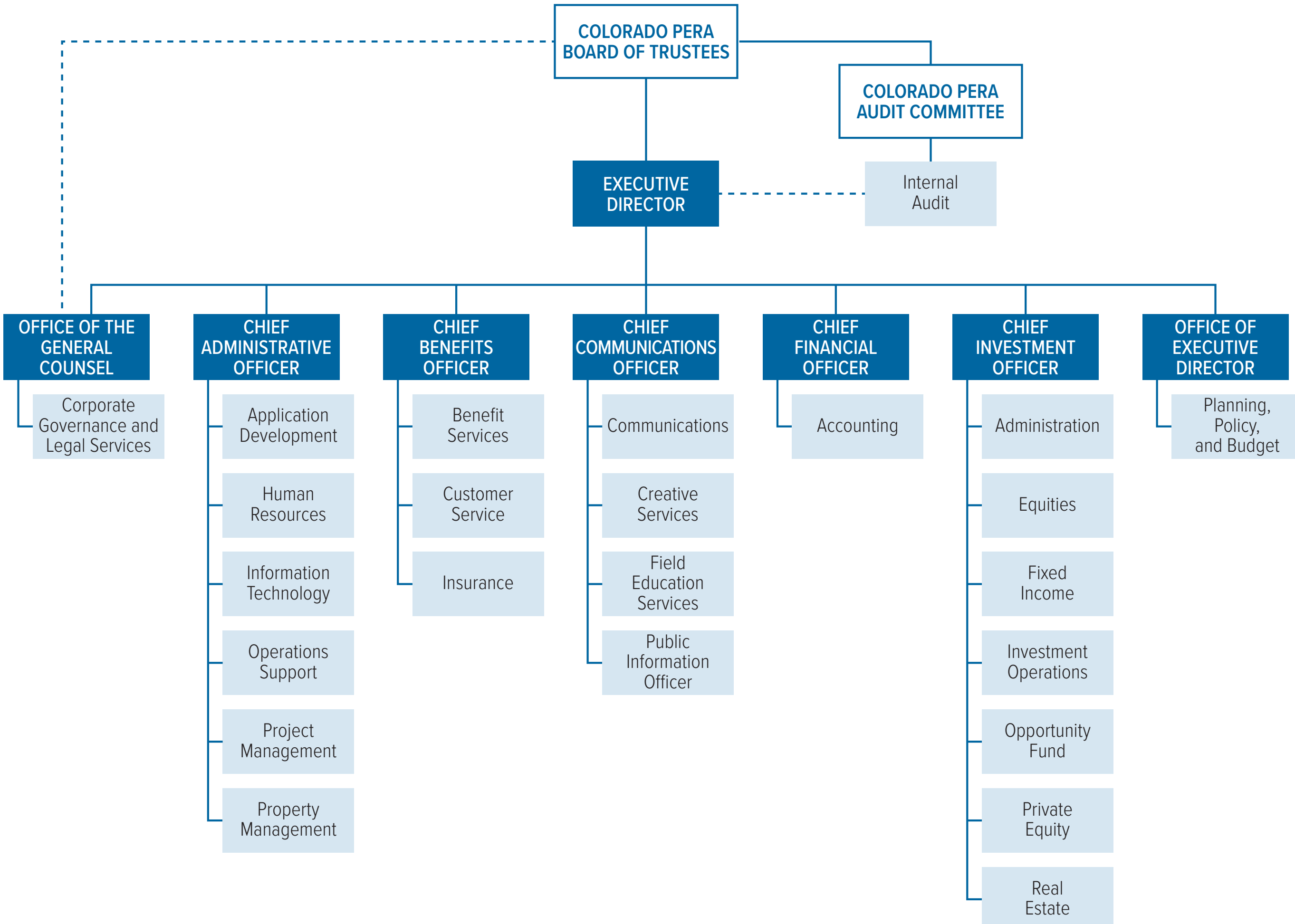
Honorable Walker Stapleton
Ex officio member
State Treasurer
Continuous term effective January 2011

Lynn E. Turner
Appointed by the Governor
Current term expires July 10, 2018

Carole Wright
Elected by Retirees
Retired Teacher
Aurora Public Schools
Current term expires June 30, 2017

ADMINISTRATIVE ORGANIZATIONAL CHART

As of June 1, 2017



COLORADO PERA EXECUTIVE MANAGEMENT

Gregory W. Smith—Executive Director

Ron Baker—*Chief Administrative Officer*
Donna Baros—*Chief Benefits Officer*
Adam Franklin—*General Counsel*
David Mather—*Director of Internal Audit*
Tara May—*Chief Communications Officer*
Amy McGarrity—*Chief Investment Officer*
Lawrence Mundy—*Chief Financial Officer*
Karl Paulson—*Director of Planning, Policy, and Budget*

Ron Baker—Chief Administrative Officer

Kevin Carpenter—*Director of Information Technology*
Jack Dillman—*Director of Facilities*
Rich Krough—*Director of Application Development*
Aubre Schneider—*Director of Operations Support*
Angela Setter—*Director of Human Resources*
Project Management Division

Donna Baros—Chief Benefits Officer

Lisa Bishop—*Director of Customer Service*
Matt Carroll—*Director of Benefit Services*
Jessica Linart—*Director of Insurance*

Adam Franklin—General Counsel

Luz Rodriguez—*Director of Corporate Governance and Legal Services*
Staff Attorneys

Tara May—Chief Communications Officer

Katie Kaufmanis—*Public Information Officer*
Madalyn Knudsen—*Director of Creative Services*
Kirsten Strausbaugh—*Director of Field Education Services*
Communications Division

Amy McGarrity—Chief Investment Officer

Tom Liddy—*Director of Investment Operations*
Jim Liptak—*Director of Equities*
C.H. Meili—*Director of Real Estate*
Tim Moore—*Director of Private Equity*
Gary Ratliff—*Director of Opportunity Fund*
Mark Walter—*Director of Fixed Income*

Lawrence Mundy—Chief Financial Officer

Accounting Division

CONSULTANTS

Governance Consultant
Cortex Applied Research, Inc.
2489 Bloor Street West
Suite 304
Toronto, ON M6S 1R6, Canada

Health Care Program Consultant
Denver Series of Lockton Companies, LLC
8100 East Union Avenue
Suite 700
Denver, CO 80237

Independent Auditors
CliftonLarsonAllen LLP
370 Interlocken Boulevard
Suite 500
Broomfield, CO 80021

Investment Performance Consultants
Aon Hewitt Investment Consulting, Inc.
200 East Randolph Street
Suite 1500
Chicago, IL 60601

The Northern Trust Company
50 South LaSalle Street
Chicago, IL 60603

Investments—Portfolio Consultant
Aon Hewitt Investment Consulting, Inc.
200 East Randolph Street
Suite 1500
Chicago, IL 60601

Investments—Real Estate Performance
Aon Hewitt Investment Consulting, Inc.
200 East Randolph Street
Suite 1500
Chicago, IL 60601

Master Custodian
The Northern Trust Company
50 South LaSalle Street
Chicago, IL 60603

Pension and Health Care Program Actuary
Cavanaugh Macdonald Consulting, LLC
3550 Busbee Parkway
Suite 250
Kennesaw, GA 30144

Pharmacy Benefits Consultants
Wilkinson Benefit Consultants
1812 West Burbank Boulevard
Suite 143
Burbank, CA 91506

Risk Management
IMA of Colorado
1705 17th Street
Suite 100
Denver, CO 80202

Voluntary Investment Program, Defined Contribution Retirement, and Deferred Compensation Plan Investment and Performance Consultant
RVK, Inc.
1211 SW 5th Avenue
Suite 900
Portland, OR 97204

Voluntary Investment Program, Defined Contribution Retirement, and Deferred Compensation Plan Service Provider
Voya Institutional Plan Services, LLC
30 Braintree Hill Office Park
Braintree, MA 02184

FINANCIAL SECTION

Education abounds in many forms throughout Colorado, and on the Front Range, the Colorado Division of Reclamation Mining and Safety promotes proper safety and rescue programs to members of the mining industry; the Colorado School for the Deaf and the Blind staffs Certified Orientation and Mobility Specialists to teach students independent travel skills; and the Colorado State Patrol educates the public on keeping law enforcement officers safe through the "Move Over" campaign.

Whether it's in a mine or in a traditional classroom, PERA members and employers are committed to educating Coloradans.

The $2.9 billion in retirement benefits paid to these and other Front Range members annually, results in more than $4.2 billion in total economic output and sustains more than 21,800 jobs in the region.

REPORT OF THE INDEPENDENT AUDITORS

CliftonLarsonAllen LLP
CLAconnect.com

INDEPENDENT AUDITORS' REPORT

Board of Trustees
Colorado Public Employees' Retirement Association
Denver, Colorado

Report on the Financial Statements

We have audited the accompanying financial statements of Colorado Public Employees' Retirement Association (Colorado PERA), as of and for the year ended December 31, 2016, and the related notes to the financial statements, which collectively comprise Colorado PERA's basic financial statements, as listed in the table of contents. We have also audited the financial statements of each individual fund of Colorado PERA as of and for the year ended December 31, 2016 as displayed in Colorado PERA's basic financial statements.

Management's Responsibility for the Financial Statements

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

Auditors' Responsibility

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

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the 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 opinions.

A member of Nexia International

REPORT OF THE INDEPENDENT AUDITORS

Board of Trustees
Colorado Public Employees' Retirement Association

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of Colorado PERA as of December 31, 2016, and the respective changes in its fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statements referred to previously present fairly, in all material respects, the respective fiduciary net position of each individual fund of Colorado PERA as of December 31, 2016, and the respective changes in fiduciary net position thereof for the year then ended in conformity with accounting principles generally accepted in the United States of America

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and the schedules of changes in net pension liability, net pension liability, employer contributions, investment returns, funding progress and contributions from employers and other contributing entities and related notes, as listed in the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary and Other Information

Our audit was conducted for the purpose of forming an opinion on Colorado PERA's basic financial statements. The schedules of administrative expenses, other additions, other deductions, investment expenses and payments to consultants (supplementary information) and the introductory, investment, actuarial and statistical sections, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements.

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

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

REPORT OF THE INDEPENDENT AUDITORS

Board of Trustees
Colorado Public Employees' Retirement Association

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated June 23, 2017 on our consideration of Colorado PERA's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Colorado PERA's internal control over financial reporting and compliance.

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Denver, Colorado
June 23, 2017

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

This Management's Discussion and Analysis (MD&A) section provides a narrative overview and analysis of the financial activities of the Colorado Public Employees' Retirement Association (PERA) for the year ended December 31, 2016. Please consider the information presented here in conjunction with additional information in the Letter of Transmittal starting on page 3 of this *Comprehensive Annual Financial Report (CAFR)* and with the basic financial statements of PERA on pages 56–59.

In addition to historical information, the MD&A includes forward-looking statements, which involve certain risks and uncertainties. PERA's actual results, performance, and achievements may differ materially from the results, performance, and achievements expressed or implied in such forward-looking statements, due to a wide range of factors, including changes in interest rates, changes in the capital markets, general economic conditions, and legislative changes, as well as other factors.

PERA administers the following plans:

Plan Name	Type of Plan
Defined Benefit Pension Plans (Division Trust Funds)	
State Division Trust Fund	Cost-sharing multiple-employer
School Division Trust Fund	Cost-sharing multiple-employer
Local Government Division Trust Fund	Cost-sharing multiple-employer
Judicial Division Trust Fund	Cost-sharing multiple-employer
Denver Public Schools (DPS) Division Trust Fund	Single-employer
Defined Benefit Other Postemployment Benefit Plans (Health Care Trust Funds)	
Health Care Trust Fund (HCTF)	Cost-sharing multiple-employer
Denver Public Schools Health Care Trust Fund (DPS HCTF)	Cost-sharing multiple-employer
Defined Contribution Plans	
Voluntary Investment Program	Multiple-employer
Defined Contribution Retirement Plan	Multiple-employer
Deferred Compensation Plan	
Deferred Compensation Plan	Multiple-employer
Private Purpose Trust Fund	
Life Insurance Reserve	Multiple-employer

The MD&A is organized into the following two sections: (1) Defined Benefit Funds and (2) Defined Contribution Pension and Deferred Compensation Trust Funds. The Defined Benefit Funds section includes the discussion and analysis of the Division Trust Funds, Health Care Trust Funds, and the Life Insurance Reserve. The Defined Contribution Pension and Deferred Compensation Trust Funds section includes discussion and analysis of the Voluntary Investment Program, the Defined Contribution Retirement Plan, and the Deferred Compensation Plan.

DEFINED BENEFIT FUNDS

Basic Retirement Equation
Investment Income + Contributions = Benefits Paid + Expenses
(I + C = B + E)

At the most basic level, in the long run, a retirement plan must balance the money coming in through investment earnings and contributions against the money going out through benefit and expense payments.

I + C = B + E

Where: I is investment income
C is contribution inflows
B is benefits paid
E is expenses

During any year in the life of a plan, one side of the equation will be greater than the other with the goal that they will balance in the long run. The Statements of Changes in Fiduciary Net Position on pages 58–59 detail the contributions, investment income, benefit payments, and expenses for all of the fiduciary funds PERA administers.

The results for the past 35 years (January 1, 1982, to December 31, 2016) show that the funds grew by $41,357,000. The breakdown of the change in fiduciary net position (FNP) is shown below for this 35-year period. During this time, the number of members and benefit recipients grew over 370 percent from 118,699 to 566,369.

CHANGE IN FIDUCIARY NET POSITION (35-YEAR PERIOD)

I	– Investment income	$60,025,000
C	– Contributions	39,528,000
C	– Plan transfers	2,764,000
	Subtotal	102,317,000
B	– Benefits	60,120,000
E	– Expenses	840,000
	Subtotal	60,960,000
	Change in fiduciary net position	**$41,357,000**

For the year ended December 31, 2016, the FNP of the defined benefit funds increased by $722,195 or 1.7 percent. The increase was principally due to modest growth in the financial markets where the total fund realized an annual return of 7.3 percent versus the total fund benchmark's annual return of 7.3 percent. The custom benchmark for the total fund comprises 53.5 percent of the Global Equity Custom Benchmark; 23.5 percent of the Fixed Income Custom Benchmark; 8.5 percent of the Private Equity Custom Benchmark; 8.5 percent of the Real Estate Custom Benchmark; 5.0 percent of the Opportunity Fund Benchmark; and 1.0 percent of the BofA Merrill Lynch U.S. 3-Month Treasury Bill Index. Benefits and expenses exceeded contributions by $2,315,831. The breakdown of the net change in FNP is shown on the next page for the year ended December 31, 2016.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

2016 CHANGE IN FIDUCIARY NET POSITION

I – Investment income	$3,038,026
C – Contributions	2,436,794
Subtotal	5,474,820
B – Benefits	4,693,117
E – Expenses	59,508
Subtotal	4,752,625
Change in fiduciary net position	**$722,195**

Financial Reporting Highlights

The FNP for all defined benefit funds administered by PERA increased $722,195 during calendar year 2016.

FIDUCIARY NET POSITION

Trust Fund	2016 Change Fiduciary Net Position	2016 Ending Fiduciary Net Position
State Division	$165,644	$13,626,180
School Division	428,278	22,581,046
Local Government Division	112,997	3,773,506
Judicial Division	11,553	288,904
DPS Division	18,648	3,125,977
HCTF	(16,277)	260,228
DPS HCTF	1,401	18,337
Life Insurance Reserve	(49)	16,691
Total	**$722,195**	**$43,690,869**

CHANGE IN FIDUCIARY NET POSITION

Trust Fund	(C) Contributions and Other Additions	+ (I) Net Investment Income	– (B) – (E) Benefits, Expenses, and Other Deductions	= Change in Fiduciary Net Position
State Division	$778,045	$947,981	$1,560,382	$165,644
School Division	1,199,330	1,569,026	2,340,078	428,278
Local Government Division	127,600	261,276	275,879	112,997
Judicial Division	14,861	19,783	23,091	11,553
DPS Division	75,187	218,415	274,954	18,648
HCTF	228,021	19,021	263,319	(16,277)
DPS HCTF	13,750	1,235	13,584	1,401
Life Insurance Reserve	—	1,289	1,338	(49)
2016 change in fiduciary net position	**$2,436,794**	**$3,038,026**	**$4,752,625**	**$722,195**
2015 change in fiduciary net position	**$2,289,511**	**$669,349**	**$4,563,650**	**($1,604,790)**
2014 change in fiduciary net position	**$2,313,846**	**$2,474,349**	**$4,337,188**	**$451,007**
2013 change in fiduciary net position	**$2,022,072**	**$6,091,243**	**$4,192,436**	**$3,920,879**
2012 change in fiduciary net position	**$1,927,278**	**$4,737,372**	**$3,995,663**	**$2,668,987**
2012–2016 change in fiduciary net position	**$10,989,501**	**$17,010,339**	**$21,841,562**	**$6,158,278**

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

Investment Highlights

Analysis of Investment Income
Basic Funding Equation: I + C = B + E

INVESTMENT INCOME

Trust Fund	Net Appreciation/ (Depreciation) in Fair Value	Interest and Dividends	Real Estate, Private Equity, and Oppty Fund Net Operating Inc	Investment Expenses	Net Securities Lending Income	Net Investment Income
State Division	$662,938	$252,400	$79,963	($50,496)	$3,176	$947,981
School Division	1,097,354	417,658	132,317	(83,558)	5,255	1,569,026
Local Government Division	182,772	69,515	22,022	(13,907)	874	261,276
Judicial Division	13,833	5,268	1,669	(1,054)	67	19,783
DPS Division	152,699	58,191	18,435	(11,642)	732	218,415
HCTF	13,325	5,044	1,598	(1,009)	63	19,021
DPS HCTF	867	325	103	(65)	5	1,235
Life Insurance Reserve	901	343	109	(69)	5	1,289
2016 Total	**$2,124,689**	**$808,744**	**$256,216**	**($161,800)**	**$10,177**	**$3,038,026**
2015 Total	**($216,959)**	**$807,322**	**$233,535**	**($165,392)**	**$10,843**	**$669,349**
2014 Total	**$1,563,843**	**$854,332**	**$205,078**	**($159,923)**	**$11,019**	**$2,474,349**
2013 Total	**$5,215,751**	**$806,954**	**$203,399**	**($145,422)**	**$10,561**	**$6,091,243**
2012 Total	**$3,854,770**	**$791,481**	**$225,967**	**($147,602)**	**$12,756**	**$4,737,372**

The largest inflow into a retirement plan over the long term comes from investment income. Over the past 35 years, even with the large losses in 2008, investment income represents 59 percent of the inflows into PERA, and over the past 10 years it represents 49 percent of the inflows.

Investment Performance

Money-Weighted Rate of Return

A money-weighted rate of return provides information about the performance on the pooled investment assets. This methodology considers the effect of timing of transactions that increase the amount of pension plan investments (such as contributions) and those that decrease the amount of pension plan investments (such as benefit payments). Additionally, the money-weighted rate of return provides information that is comparable with the long-term assumed rate of return on the pooled investment assets.

For the year ended December 31, 2016, the net-of-fees, money-weighted, rate of return on the pooled investment assets was 7.3 percent, which was slightly lower than the actuarial assumed rate in effect during 2016 of 7.50 percent.

Time-Weighted Rate of Returns

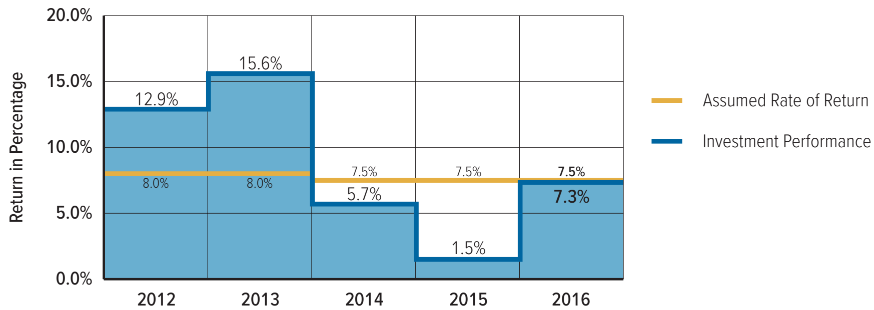
The time-weighted rate of return considers investment performance of a hypothetical dollar invested from the beginning of an investment period to the period's end. The effect of timing on varying amounts invested due to, for example, the receipt of contributions or the payments of benefits is not considered. This methodology allows PERA to compare its investment performance with relevant benchmark rates, as well as its performance with other pension plans, as shown on the next page.

For the year ended December 31, 2016, the net-of-fees, time-weighted, rate of return on the pooled investment assets was 7.3 percent compared to 1.5 percent for the year ended December 31, 2015. The net-of-fees, annualized rate of return for the pooled investment assets was 8.5 percent for the past five years and 5.2 percent for the past 10 years. The 35-year annualized, gross-of-fees, rate of return for the pooled investment assets was 9.8 percent. It is important to note that market returns and volatility will vary from year to year for the total fund and across various asset classes.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

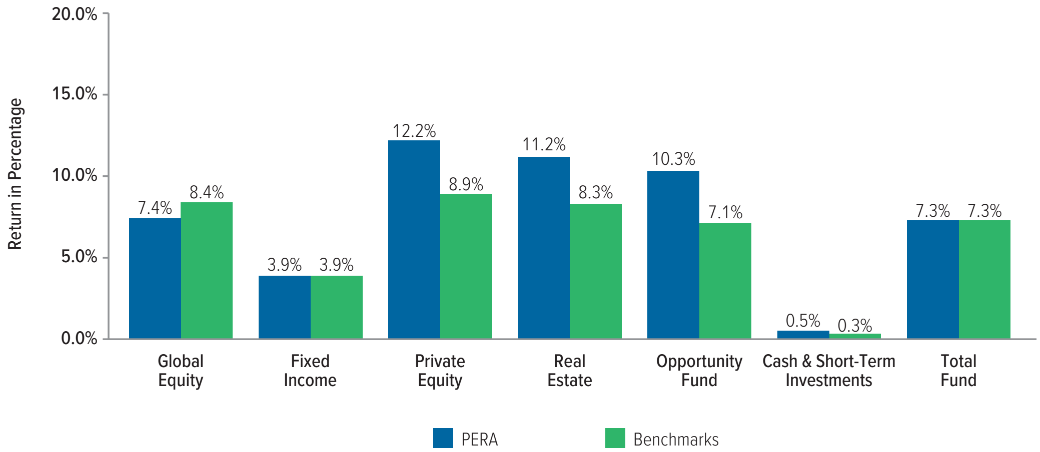
(Dollars in Thousands)

Actual Time-Weighted Return vs. Assumed Rate of Return[1]



[1] In November 2016, the assumed rate of return was lowered to 7.25 percent effective January 1, 2017.

2016 Actual Time-Weighted Returns vs. Benchmarks



Note: Aon Hewitt Investment Consulting, Inc., the Board's investment consultant, provides the investment returns based on data made available by PERA's custodian, The Northern Trust Company. Listed above are the one-year, net-of-fees, time-weighted rates of return for each asset class and their respective benchmarks.

As of April 1, 2004, PERA adopted a policy benchmark, which is a passive representation of the asset allocation policy. As of December 31, 2016, the policy benchmark is a combination of 53.5 percent of the Global Equity Custom Benchmark; 23.5 percent of the Fixed Income Custom Benchmark; 8.5 percent of the Private Equity Custom Benchmark; 8.5 percent of the Real Estate Custom Benchmark; 5.0 percent of the Opportunity Fund Benchmark; and 1.0 percent of the BofA Merrill Lynch U.S. 3-Month Treasury Bill Index. For more information, see the Schedule of Investment Results on page 125 and the Fund Performance Evaluation on pages 127–128.

The total fund performed in line with the policy benchmark for the year ended December 31, 2016. Private Equity, Real Estate, and the Opportunity Fund were the primary contributors to overall performance, while Global Equity was a detractor to overall performance. Asset allocation, or the variance in the actual weights of the various asset classes versus the target weights, produced a slight positive impact to the total fund.

For the year ended December 31, 2016, PERA's total fund returned 7.3 percent net-of-fees, compared to the BNY Mellon Performance and Risk Analytics' and Investment Metrics' Median Public Fund Universe return of 7.5 percent. As of December 31, 2016, the BNY Mellon Performance and Risk Analytics' and Investment Metrics' Median Public Fund Universe measure was comprised of 107 public pension funds with assets of approximately $1.5 trillion. PERA's total fund returned 4.8 percent and 8.5 percent on a three- and five-year annualized basis, respectively, compared with the BNY Mellon Performance and Risk Analytics' and Investment Metrics' Median Public Fund Universe returns of 4.3 percent and 7.9 percent, respectively.

The Board is responsible for setting the strategic asset allocation of the plan, which is believed to be the most important factor influencing long-term investment performance and asset volatility. Staff is responsible for execution of the strategic asset allocation, and uses a combination of active and passive investment management within the public asset classes (Global Equities and Fixed Income). While active management may underperform during various periods of time, PERA's experience has been that active management has added value (net-of-fees) over time. Staff believes that over PERA's long-term investment horizon, a combination of active and passive management remains an appropriate structure.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

Asset Allocation

The PERA Board of Trustees (Board) is responsible for the investment of PERA's funds with the following statutory limitations: the aggregate amount of moneys invested in corporate stocks and fixed income securities convertible into stock cannot exceed 65 percent of the then book value of the fund, no investment in common and/or preferred stock of any single corporation can exceed 5 percent of the then book value of the fund, and the fund cannot acquire more than 12 percent of the outstanding stock or bonds of any single corporation. As a fiduciary of the funds, the Board is responsible to carry out its investment functions solely in the interest of the PERA members and benefit recipients and for the exclusive purpose of providing benefits.

In 2014, the Board commissioned an Asset Liability Study prepared by Aon Hewitt Investment Consulting, Inc. (Aon Hewitt). The objective of the study was to determine the optimal strategic asset allocation policy that would ultimately allow PERA to meet its benefit obligations, while also ensuring that PERA incurs appropriate levels of risk. On March 20, 2015, the Board voted to change the strategic asset allocation policy of the fund effective July 1, 2015. This strategic asset allocation contains a long-term target allocation and specific ranges within which each asset class may operate. Because the long-term target allocation will be achieved over time, an initial interim target allocation was approved as of July 1, 2015. This interim target allocation was revised as of July 1, 2016. PERA staff and Aon Hewitt are responsible for annually recommending interim policy targets to the Board until the long-term target allocation is achieved.

ASSET ALLOCATION VS. TARGETS AND RANGES

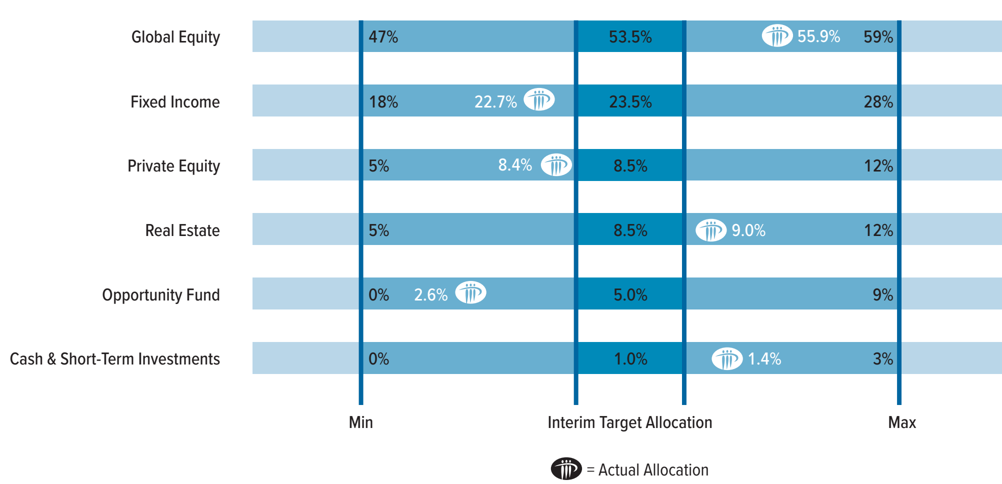
	Actual Asset Allocation As of 12/31/2015[1]	Interim Asset Allocation Target As of 12/31/2015	Target Range As of 12/31/2015	Actual Asset Allocation As of 12/31/2016[1]	Interim Asset Allocation Target Effective 7/1/2016	Long-Term Asset Allocation	Target Range During 2016
Global Equity	55.5%	55.0%	47.0% – 59.0%	**55.9%**	**53.5%**	**53.0%**	**47.0% – 59.0%**
Fixed Income	24.7%	24.0%	18.0% – 28.0%	**22.7%**	**23.5%**	**23.0%**	**18.0% – 28.0%**
Private Equity[2]	8.2%	7.5%	5.0% – 12.0%	**8.4%**	**8.5%**	**8.5%**	**5.0% – 12.0%**
Real Estate	8.6%	7.5%	5.0% – 12.0%	**9.0%**	**8.5%**	**8.5%**	**5.0% – 12.0%**
Opportunity Fund[3]	2.2%	5.0%	0.0% – 9.0%	**2.6%**	**5.0%**	**6.0%**	**0.0% – 9.0%**
Cash & Short-Term Investments	0.8%	1.0%	0.0% – 3.0%	**1.4%**	**1.0%**	**1.0%**	**0.0% – 3.0%**

[1] Asset allocation decisions are made based on the total holdings of the portfolios within each asset class. Therefore, the investment receivables, payables, accruals, and cash and short-term investments are allocated back to the investment portfolios that hold them for purposes of the table above and chart below.

[2] The Private Equity asset class has exposure to private equity limited partnership funds with various strategies including: buyout, venture capital, generalist debt, mezzanine debt, distressed debt, secondary funds, fund-of-funds, and energy-related strategies.

[3] As of December 31, 2016, the Opportunity Fund principally consists of investments in timber, risk-parity, tactical, credit, and other opportunistic strategies.

December 31, 2016, Asset Allocation Permissible Ranges vs. Actual Allocation



MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Sudan Divestment

Following the 2007 legislative session, former Governor Ritter signed into law House Bill (HB) 07-1184: Sudan Divestment by Public Pension Plans, which imposes targeted divestment from companies with active business operations in Sudan. As a result of this legislation, PERA is required to create a list of scrutinized companies at least every six months and to prohibit investments in these companies going forward. The establishment of the list requires PERA to engage the companies on the list to warn them of potential divestment and to encourage the companies to change their activities in Sudan. PERA must also engage the managers of actively managed indirect investments in companies on the list and request removal of scrutinized companies or ask the manager to create a similar fund that does not contain the identified companies. A similar request must be sent to the managers in PERA's defined contribution and deferred compensation trust funds. PERA also contacts its private equity managers to alert them of the Scrutinized Companies List. In 2016, PERA submitted its annual required report to elected officials on June 30, 2016.

More information regarding Sudan Divestment can be obtained from the PERA website at www.copera.org.

Anti-BDS Divestment

During the 2016 legislative session, Governor Hickenlooper signed into law HB 16-1284: Divest From Companies With Prohibitions Against Israel, which imposes divestment from companies engaging in actions that are politically motivated and are intended to penalize, inflict economic harm on, or otherwise limit commercial relations with Israel including, but not limited to, the boycott of, divestment from, or imposition of sanctions on the state of Israel. As a result of this legislation, PERA is required to create a list of restricted companies, review it on a biannual basis, and prohibit investments in these companies going forward. The law requires PERA to engage companies on the list to warn them of potential divestment. PERA is required to sell, redeem, divest, or withdraw all direct holdings within 12 months after the company's most recent appearance on the list of restricted companies.

At least annually, PERA is required to report on its website information regarding investments sold, redeemed, divested, or withdrawn in compliance with this law.

More information regarding Anti-BDS Divestment can be obtained from the PERA website at www.copera.org.

Iran-Related Investment Policy

On January 18, 2008, the Board adopted the Iran-related investment policy. This policy outlines a phased strategy to address PERA's direct public investments in foreign companies doing business in the Islamic Republic of Iran. The strategy addresses and includes a number of actions, up to and including possible divestment. PERA recognizes the federal government has sole responsibility for the conduct of American foreign policy. PERA is acting out of a fiduciary concern for the welfare of its members' assets, which requires a broad horizon and sensitivity to the potential risks posed by investment in Iran.

As part of this policy, PERA creates a list of public companies doing business in Iran that meet certain criteria. PERA engages with those companies to better understand their involvement in Iran and enacts a moratorium on direct public investments. PERA staff evaluates the companies' responses and determines if they have taken sufficient steps to minimize risk to PERA. Should adequate mitigation of risk not be possible, the Board will direct staff to divest current public investments in the companies.

More information regarding the Iran-related investment policy can be obtained from the PERA website at www.copera.org.

Commitments

As of December 31, 2016, PERA had commitments for future investments in Private Equity of $2,432,766, in Real Estate of $884,908, and in the Opportunity Fund of $700,749.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Contributions

Analysis of Contributions
Basic Funding Equation: I + C = B + E

Statutory Contributions

TOTAL CONTRIBUTIONS FOR DIVISION AND HEALTH CARE TRUST FUNDS

Trust Fund	Employer Contributions[1]	Member Contributions	Purchased Service	Retiree Health and Life Premiums	Federal Health Care Subsidies	Employer Disaffiliation Payment	Other	Total Contributions and Other
State Division	$521,804	$223,005	$24,528	$—	$—	$—	$8,708	$778,045
School Division	812,740	359,059	27,422	—	—	—	109	1,199,330
Local Government Division	75,132	48,470	3,981	—	—	—	17	127,600
Judicial Division	8,024	3,928	109	—	—	—	2,800	14,861
DPS Division	17,071	52,740	2,112	—	—	—	3,264	75,187
HCTF	80,825	—	—	138,021	—	—	9,175	228,021
DPS HCTF	6,723	—	—	6,738	—	—	289	13,750
2016 Total	**$1,522,319**	**$687,202**	**$58,152**	**$144,759**	**$—**	**$—**	**$24,362**	**$2,436,794**
2015 Total	**$1,409,632**	**$665,662**	**$61,383**	**$134,148**	**$—**	**$—**	**$18,686**	**$2,289,511**
2014 Total	**$1,306,596**	**$640,531**	**$53,040**	**$109,901**	**$—**	**$190,000**	**$13,778**	**$2,313,846**
2013 Total	**$1,203,725**	**$614,431**	**$50,963**	**$119,083**	**$16,294**	**$—**	**$17,576**	**$2,022,072**
2012 Total	**$1,093,193**	**$640,560**	**$49,795**	**$111,399**	**$14,686**	**$—**	**$17,645**	**$1,927,278**

[1] Employer contributions include the employer statutory rate, AED, and SAED, less an offset of 15.54 percent in 2016 for the DPS Division as required by C.R.S. § 24-51-412 *et seq.*

Member and employer contribution rates are set in statute and are thus determined by the Colorado General Assembly. See pages 222–227 for the Schedule of Contribution Rate History. Member contributions for the Division Trust Funds increased from $665,662 in 2015 to $687,202 in 2016. Over the past 35 years, member contributions represent 18 percent of the inflows into the Division Trust Funds.

Employer contributions for the Division Trust Funds, the HCTF, and the DPS HCTF increased from $1,409,632 in 2015 to $1,522,319 in 2016. Employer contributions increased due to increases in payroll and increases in the Amortization Equalization Disbursement (AED) and Supplemental Amortization Equalization Disbursement (SAED). Over the past 35 years, employer contributions represent 21 percent of the inflows into the Division Trust Funds, HCTF, and the DPS HCTF.

MEMBER CONTRIBUTION RATES FOR 2016

Trust Fund	January 1–December 31
State Division (except State Troopers)	**8.00%**
State Division (State Troopers)	**10.00%**
School Division	**8.00%**
Local Government Division	**8.00%**
Judicial Division	**8.00%**
DPS Division	**8.00%**
HCTF	**0.00%**
DPS HCTF	**0.00%**

EMPLOYER CONTRIBUTION RATES FOR 2016

Trust Fund	Actuarially Determined Contribution[1]	Actual Employer Contribution Rate	Health Care Contribution Rate	AED	SAED	DPS PCOP Offset	Contribution Rate Available for Funding
State Division (except State Troopers)	22.31%	10.15%	(1.02%)	4.60%	4.50%	—	18.23%
State Division (State Troopers)	22.31%	12.85%	(1.02%)	4.60%	4.50%	—	20.93%
School Division	22.36%	10.15%	(1.02%)	4.50%	4.50%	—	18.13%
Local Government Division	11.98%	10.00%	(1.02%)	2.20%	1.50%	—	12.68%
Judicial Division	22.07%	13.66%	(1.02%)	2.20%	1.50%	—	16.34%
DPS Division	10.46%	10.15%	(1.02%)	4.50%	4.50%	(15.54%)	2.59%
HCTF	1.09%	—	1.02%	—	—	—	1.02%
DPS HCTF	0.75%	—	1.02%	—	—	—	1.02%

[1] Actuarially determined contribution (ADC) rates for 2016 are based on the 2014 actuarial valuation.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

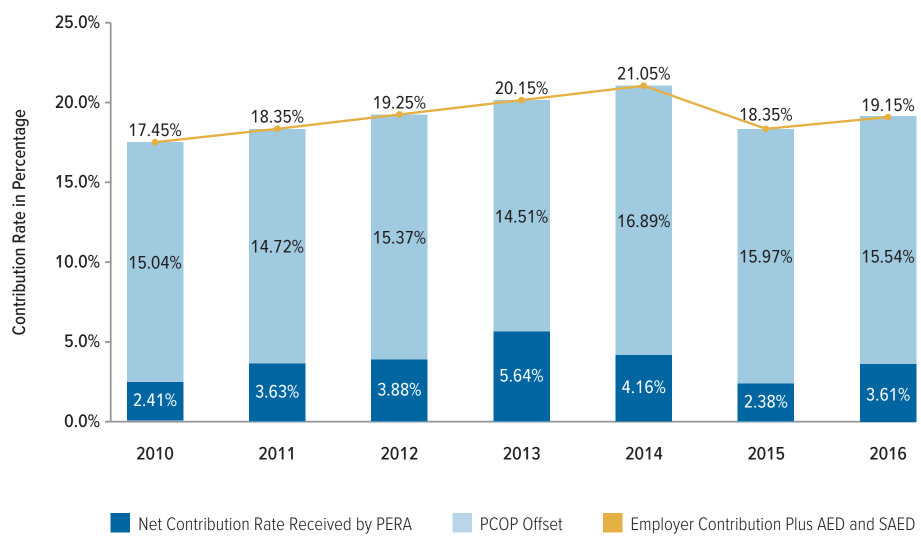
Colorado Revised Statutes (C.R.S.) § 24-51-412 *et seq.* provides for an offset to the DPS Division employer contribution rate. The offset, expressed as a percentage of payroll, is equal to the annual assumed payment obligations for pension certificates of participation (PCOPs) issued in 1997 and 2008, including subsequent refinancing by the Denver Public Schools at a fixed effective annual interest rate of 8.50 percent. At a minimum, the DPS Division employer contribution rate must be sufficient to fund the DPS HCTF (1.02 percent) and the Annual Increase Reserve (AIR) (1.00 percent) applicable to the DPS Division. The annual increase is a post-retirement, cost-of-living adjustment meeting certain criteria as described in Note 1 of the Notes to the Financial Statements. The staff of Denver Public Schools calculated the PCOP offset rate of 15.54 percent for 2016 and 14.56 percent for 2017.

C.R.S. § 24-51-401(1.7) (e) recognizes the effort to equalize the funded status of the DPS Division and the School Division of PERA over a 30-year period beginning January 1, 2010. The basis of the funded status for this purpose is represented by the ratio of unfunded actuarial accrued liability (UAAL) to payroll for each division. Beginning January 1, 2015, and every fifth year thereafter, the bill requires a true-up calculation and actuarial projection to confirm the equalization of the funded status of these two divisions. In the event a true-up calculation does not project equalization between these divisions over the 30-year period, the Board shall recommend an adjustment of the DPS Division employer contribution rate to the Colorado General Assembly. The PCOP offset in the DPS Division will be a significant contributor to lowering the funded ratio, until such time that the employer contribution rate is adjusted. An adjustment to the DPS Division employer contribution rate may result in a significant increase or decrease in the total contributions paid by the DPS Division employers.

As described above, C.R.S. § 24-51-401(1.7) created a mechanism to reduce the funded ratio of the DPS Division at its inclusion into PERA in 2010 to the funded ratio of the School Division by 2040. The funded ratio is the actuarial value of assets divided by actuarial accrued liabilities (AALs). This mechanism involves offsetting the employer contributions into the DPS Division Trust Fund by the amount of the PCOP payments. It is expected that the equalization will occur in approximately 23 years. The DPS Division had a funded ratio of 88.3 percent at its inclusion into PERA. As of December 31, 2016, the funded ratio of the DPS Division was 75.9 percent. This funded ratio is expected to continue to decrease as a result of the equalization effort.

Employer contribution rates, PCOP offset rates, and net contribution rates for the DPS Division are shown in the chart below.

DPS Employer Contribution Rates Plus AED, SAED, PCOP Contribution Offset and Net Contribution Rate (Includes DPS HCTF Contribution)



MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Prospective Contribution Information

The AED and the SAED are set to increase in future years for certain Division Trust Funds, as described in the table below. With the passage of Senate Bill (SB) 10-001, the AED and the SAED can be adjusted based on the year-end funded status within a particular Division Trust Fund. If a particular Division Trust Fund reaches a funded status of 103 percent, a decrease in the AED and SAED is mandated and if it subsequently falls below a funded status of 90 percent, an increase is mandated. For the Local Government and Judicial Divisions, if the funded ratio reaches 90 percent and subsequently falls below 90 percent, an increase in the AED and SAED is mandated. Increases cannot exceed the maximum allowable limitations shown in the table below.

FUTURE AED AND SAED RATES

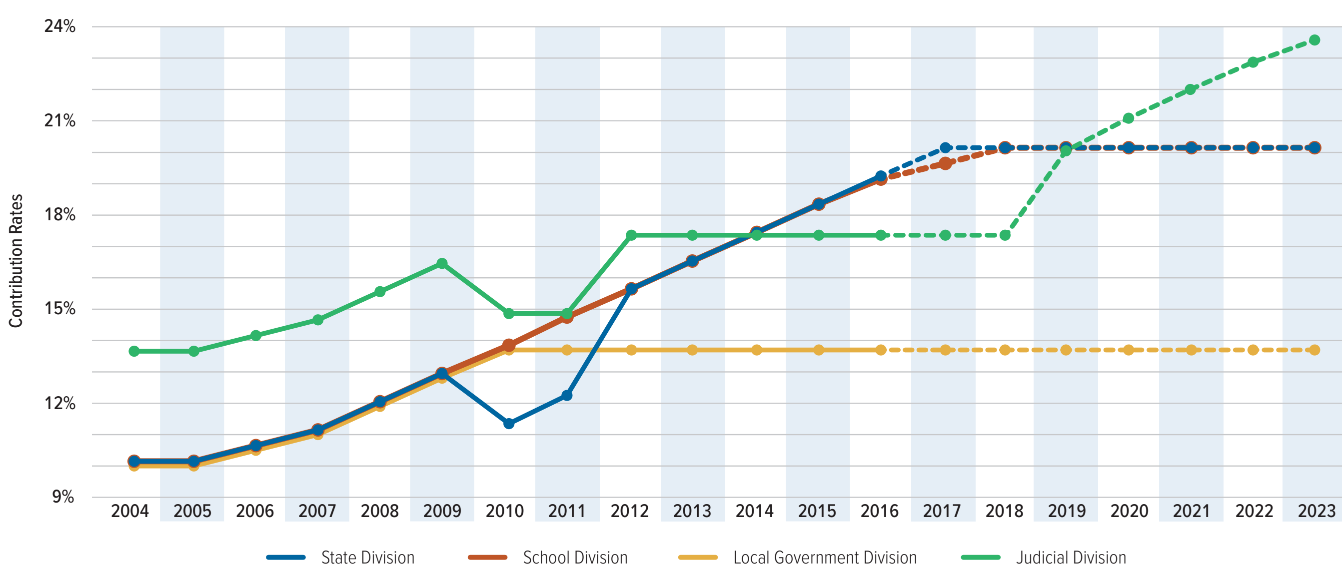
	State Division Trust Fund		School Division Trust Fund		Local Government Division Trust Fund		Judicial Division Trust Fund		DPS Division Trust Fund[1]	
Period	AED	SAED	AED	SAED	AED	SAED	AED	SAED	AED	SAED
1/1/2017—12/31/2017	5.00%	5.00%	4.50%	5.00%	2.20%	1.50%	2.20%	1.50%	4.50%	5.00%
1/1/2018—12/31/2018	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	2.20%	1.50%	4.50%	5.50%
1/1/2019—12/31/2019	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	3.40%	3.40%	4.50%	5.50%
1/1/2020—12/31/2020	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	3.80%	3.80%	4.50%	5.50%
1/1/2021—12/31/2021	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	4.20%	4.20%	4.50%	5.50%
1/1/2022—12/31/2022	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	4.60%	4.60%	4.50%	5.50%
1/1/2023—12/31/2023	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	5.00%	5.00%	4.50%	5.50%
Maximum allowable limitations	5.00%	5.00%	4.50%	5.50%	5.00%	5.00%	5.00%	5.00%	4.50%	5.50%

[1] DPS Division employers are permitted to reduce the AED and SAED by the PCOP offset, as specified in C.R.S. § 24-51-412 *et seq.*

Based on the current covered payroll for the State Division, the AED and SAED increase from 2016 to 2017 would cause contributions to grow annually by $24,396. Based on the current covered payroll for the School and DPS Divisions, the SAED increase from 2016 to 2017 would cause contributions to grow by $21,747 and $3,211, respectively. If the scheduled future increases in the AED and SAED are not made, it could result in significant underfunding of the plans and impact the ability to make future benefit payments.

Following the 2017 legislative session, Governor Hickenlooper signed into law HB 17-1265, which increases contribution rates for employers in the Judicial Division Trust Fund. For the calendar year beginning in 2019, this bill increases the AED for the Judicial Division to 3.40 percent of PERA-includable salary and requires the AED payment to increase by 0.4 percent of PERA-includable salary at the start of each of the following four calendar years through 2023. In addition, for the calendar year beginning in 2019, this bill increases the SAED for the Judicial Division to 3.40 percent of PERA-includable salary and requires the SAED payment to increase by 0.4 percent of PERA-includable salary at the start of each of the following four calendar years through 2023.

Employer Contribution Rates Plus AED and SAED (Includes HCTF Contributions)



Note: The 2010 and 2011 contributions for the State and Judicial Divisions include the 2.50 percent rate swap required by SB 10-146, and extended through June 30, 2012, by SB 11-076. Information on the DPS Division contribution rates can be found on page 34.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Contribution Analysis—Division Trust Funds

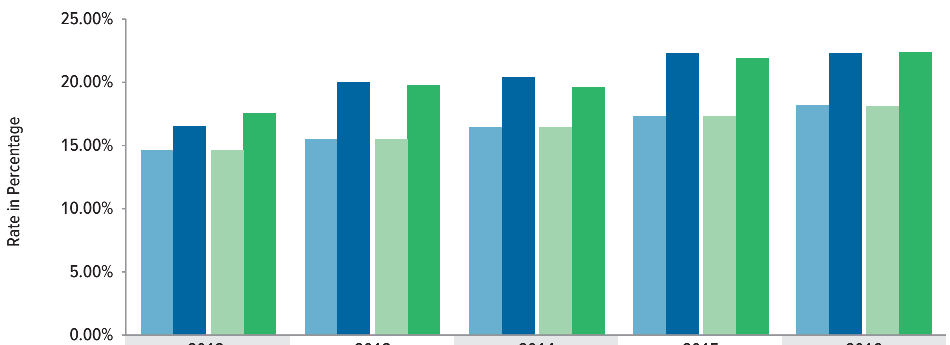
Funding Policy

The guidance under Governmental Accounting Standards Board (GASB) Statement No. 67 established a decided shift in financial disclosure requirements from a funding-based approach to an accounting-based approach. To accommodate the financial disclosure requirements promulgated by GASB 67, separate actuarial valuations are performed for funding and accounting purposes. The disclosure and use of the annual required contribution (ARC) as a funding benchmark is no longer a required reporting element. This philosophical shift necessitated the development and use of a plan-specific actuarially determined contribution (ADC) benchmark against which to gauge the adequacy of PERA's statutory contribution rates. In response to these changes, the Board adopted a revised pension funding policy in March 2015, with regard to the Division Trust Funds, which updated and replaced the funding policy dated November 2007. The purpose of the March 2015 funding policy is three-fold: (1) to define the overall funding benchmarks of the five defined benefit pension trust funds, (2) to assess the adequacy of the contribution rates which are set by the Colorado Legislature by comparing each division's statutorily set contribution rate to an ADC benchmark, and (3) to define the annual actuarial metrics which will assist the Board in assessing the sustainability of the plan. The results of these three items are intended to help guide the Board when considering whether to pursue or support proposed contribution and benefit legislation. Based on this policy, which considers a layered, 30-year closed amortization period, effective December 31, 2014, the ADC calculated in the 2016 actuarial valuation for funding purposes will be the benchmark to gauge the adequacy of 2018 contributions. More information about the funding policy can be found in the Actuarial Section on page 145.

Actuarially Determined Contribution (ADC)

History

State and School Divisions; Year-End Employer Contribution/ADC Comparison
(Contribution Includes AED and SAED Less HCTF Allocation)



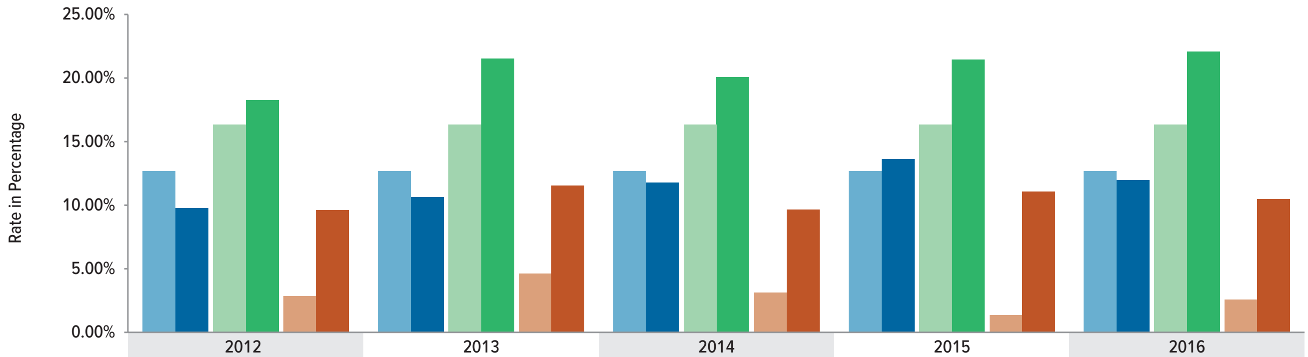
	2012	2013	2014	2015	2016
State Actual[1]	14.63%	15.53%	16.43%	17.33%	**18.23%**
State ARC/ADC[3,4]	16.52%[2]	20.01%	20.45%	22.35%	**22.31%**
School Actual	14.63%	15.53%	16.43%	17.33%	**18.13%**
School ARC/ADC[3,4]	17.60%	19.79%	19.65%	21.94%	**22.36%**

[1] Actual rates are for non-State Troopers.
[2] The rate includes the 2.50 percent reduction required by SB 10-146 and SB 11-076.
[3] The rates shown for years 2012 and 2013 reflect the ARC rates under GASB 25.
[4] ADC rates for 2014, 2015, and 2016 are based on the 2012, 2013, and 2014 actuarial valuations, respectively. The 2012 and 2013 actuarial valuations determined the ARC rates under the parameters promulgated by GASB 25.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Local Government, Judicial, and DPS Divisions; Year-End Employer Contribution/ADC Comparison
(Contribution Includes AED and SAED Less HCTF Allocation)



	2012	2013	2014	2015	2016
Local Govt Actual	12.68%	12.68%	12.68%	12.68%	**12.68%**
Local Govt ARC/ADC[2,3]	9.79%	10.62%	11.78%	13.62%	**11.98%**
Judicial Actual[1]	16.34%	16.34%	16.34%	16.34%	**16.34%**
Judicial ARC/ADC[2,3]	18.28%[1]	21.53%	20.07%	21.45%	**22.07%**
DPS Actual	2.86%	4.62%	3.14%	1.36%	**2.59%**
DPS ARC/ADC[2,3]	9.60%	11.53%	9.67%	11.06%	**10.46%**

[1] The rate includes the 2.50 percent reduction required by SB 10-146 and SB 11-076.
[2] The rates shown for years 2012 and 2013 reflect the ARC rates calculated under GASB 25.
[3] ADC rates for 2014, 2015, and 2016 are based on the 2012, 2013, and 2014 actuarial valuations, respectively. The 2012 and 2013 actuarial valuations determined the ARC rates under the parameters promulgated by GASB 25.

ADC Deficiency/(Excess)

GASB 67 requires the disclosure of the amount of contributions recognized by the pension plan, the ADC amount, and the difference between these two amounts as Required Supplementary Information (RSI). An ADC deficiency arises when actual contributions are less than the ADC. The ADC is calculated using the investment rate of return and discount rate assumptions according to the Board's funding policy. The ADC for 2016 was determined based on the results of the December 31, 2014, actuarial valuation. In 2016, the actual contributions, as set in statute, were $330.8 million less than the ADC as calculated by the actuaries. During the past 10 years, this shortfall in funding without adjustment for investment earnings to the Division Trust Funds totaled $2.9 billion. Even with SB 10-001, which resulted in a lower ADC deficiency since being signed into law, the ADC deficiency is expected to continue until statutory contribution changes are fully implemented and all membership falls under the revised benefit structure. The increase in the annual deficiency over the last few years is primarily due to the adoption of more conservative demographic and economic actuarial assumptions and the recognition of the actuarial losses resulting from less-than-expected investment returns and improving member longevity.

ADC DEFICIENCY/(EXCESS)[1]

(Dollars in Millions)

Trust Fund	2012	2013	2014	2015	2016	Cumulative Deficiency/(Excess) 2007–2016
State Division	$65.9	$102.0	$90.1	$117.9	$95.8	$1,148.3
School Division	107.7	165.7	125.4	190.7	177.6	1,661.3
Local Government Division	(32.5)	(9.1)	(188.9)[2]	8.6	0.7	(236.0)
Judicial Division	1.3	2.1	1.7	2.5	2.9	15.3
DPS Division	35.9	40.0	40.7	63.4	53.8	343.4[3]
Total	**$178.3**	**$300.7**	**$69.0**	**$383.1**	**$330.8**	**$2,932.3**

[1] A 10-year schedule showing the amount of contributions, the ADC amount, and the difference between these two amounts can be found in the RSI on pages 103–105.

[2] Includes the receipt of the disaffiliation payment of $186.0 for Memorial Health System. See Note 2, "2014 Changes in Assumptions or Other Inputs Since 2013" in the Notes to the RSI–Division Trust Funds for more information on the lawsuit resolution for Memorial Health System.

[3] The DPS Division was established January 1, 2010.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

Future ADC

Using the funding policy approved by the Board on March 20, 2015, and the 2015 actuarial funding valuation based on an assumed 7.50 percent investment rate of return and discount rate, the 2017 actuarially determined employer contributions needed to meet the layered, 30-year closed amortization period for the Division Trust Funds are as follows:

- State Division Trust Fund—22.71 percent
- School Division Trust Fund—22.54 percent
- Local Government Division Trust Fund—11.92 percent
- Judicial Division Trust Fund—22.54 percent
- DPS Division Trust Fund—10.28 percent

Additionally, using the funding policy approved by the Board on March 20, 2015, and the 2016 actuarial funding valuation based on an assumed 7.25 percent investment rate of return and discount rate, the 2018 actuarially determined employer contributions needed to meet the layered, 30-year closed amortization period for the Division Trust Funds are as follows:

- State Division Trust Fund—26.30 percent
- School Division Trust Fund—26.80 percent
- Local Government Division Trust Fund—14.27 percent
- Judicial Division Trust Fund—27.26 percent
- DPS Division Trust Fund—13.50 percent

Amortization of Unfunded Actuarial Accrued Liability

The following table to the right shows the amortization periods considering the future additional contributions of the AED and the SAED. The amortization periods do not include the full effect of the 2006 and 2010 legislation. The legislation includes plan changes that will lower the normal cost for future new hires, which will allow more of the employers' contribution to be used to amortize past service costs. The significant increase in the amortization periods from 2015 is primarily due to the adoption of updated mortality tables, which recognize the increased life expectancy of the membership, as well as the Board's adoption of a more conservative assumed long-term investment rate of return effective for the December 31, 2016, actuarial valuation. More information about the mortality tables used to determine the AAL for each Division and the Board's changes in actuarial assumptions can be found in the Actuarial Section on page 147. It should be noted that the results of the December 31, 2016, actuarial valuation reflect the increase in AED and SAED contributions required by HB 17-1265 for the Judicial Division. Additionally, no adjustment has been made to the DPS Division for the current PCOP offset. However, considering anticipated reductions in the future PCOP offset to DPS employer contribution requirements for the cost of certain PCOPs as currently structured, the realized amortization period is expected to be lower if the DPS Division's statutory employer contribution amounts are maintained at their current level. Colorado statutes call for a "true-up" in 2020 and every five years following, with the express purpose of adjusting the total DPS employer contribution rate to ensure equalization of the ratio of UAAL over payroll between the DPS and School Divisions at the end of the 30-year period beginning January 1, 2010.

Trust Fund	2015 Amortization Period With Future AED and SAED Increases	2016 Amortization Period With Future AED and SAED Increases
State Division	44 Years	65 Years
School Division	46 Years	128 Years
Local Government Division	28 Years	42 Years
Judicial Division	Infinite	Infinite
DPS Division	Infinite	Infinite

C.R.S. § 24-51-211 states that the amortization period of 30 years shall be deemed actuarially sound. At the end of 2016, given the current contribution rates, all the Division Trust Funds exceeded the 30-year amortization period.

As stated by Cavanaugh Macdonald Consulting, LLC (CMC), in the Actuary's Certification Letter on pages 139–143 in the Actuarial Section of the *CAFR:*

> "...The results of the December 31, 2016 funding valuation, combined with financial projections of all Division Trust Funds reflecting anticipated growth in active membership and a lower cost benefit structure for new members, indicate that the goal of funding 100% of the actuarial accrued liability under the PERA revised benefit structure created by SB 10-001, is not achievable within a projection period of 30 years. Absent favorable actuarial experience in the future, all Division Trust Funds are projected to take a longer period to reach full funding."

Contribution Analysis—Health Care Trust Funds

Funding Policy

The funding policy dated November 2007 remains in force for the two pre-funded retiree Health Care Trust Funds, the HCTF and DPS HCTF. The HCTF and DPS HCTF are other postemployment benefit (OPEB) plans and financial information is reported in accordance with GASB 43. More information about the November 2007 funding policy can be found on page 176.

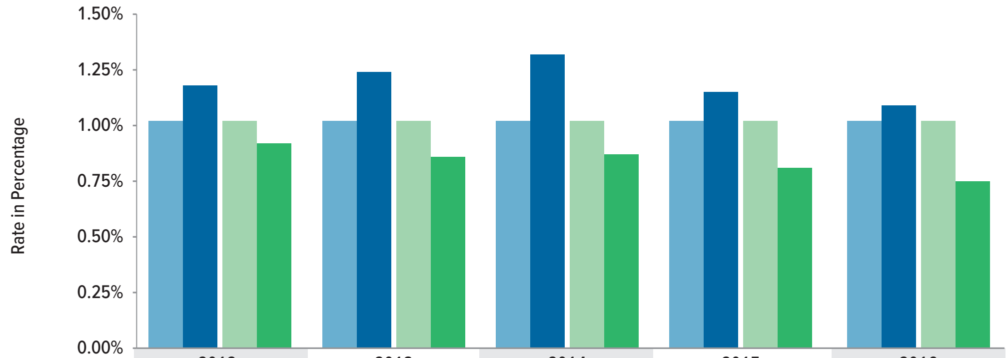
Contribution Deficiency/(Excess)

The ARC is calculated and reported in the annual actuarial valuations produced for funding purposes using the investment rate of return and discount rate assumptions in that valuation. The ARC calculation provides the rate effective two years from the date of valuation. In 2016, the actual contributions, as set in statute, were $1.4 million less than the ARC as calculated by the actuaries based on parameters promulgated by GASB 43. The table on the next page shows the yearly ARC shortfall (excess) for the past five years.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

HCTF and DPS HCTF;
Year-End Employer Contribution/ARC Comparison



	2012	2013	2014	2015	2016
HCTF Actual	1.02%	1.02%	1.02%	1.02%	**1.02%**
HCTF ARC	1.18%	1.24%	1.32%	1.15%	**1.09%**
DPS HCTF Actual	1.02%	1.02%	1.02%	1.02%	**1.02%**
DPS HCTF ARC	0.92%	0.86%	0.87%	0.81%	**0.75%**

YEARLY ARC DEFICIENCY/(EXCESS)

(Dollars in Millions)

Trust Fund	2012	2013	2014	2015	2016
HCTF	($7.0)	($10.4)	$15.6	$7.6	**$3.3**
DPS HCTF	(1.0)	(1.6)	(0.9)	(1.3)	**(1.9)**
Total	**($8.0)**	**($12.0)**	**$14.7**	**$6.3**	**$1.4**

For more detail on the ARC, see the Actuarial Section on page 176 and the Schedule of Contributions From Employers and Other Contributing Entities for the Health Care Trust Funds on page 111.

Future ARC

Using GASB 43 as a guide and the 2015 actuarial valuation based on an assumed 7.50 percent investment rate of return and discount rate, the 2017 annual required employer contributions needed to meet a 30-year amortization period are as follows:

- Health Care Trust Fund—1.08 percent
- DPS Health Care Trust Fund—0.68 percent

Additionally, using GASB 43 as a guide and the 2016 actuarial valuation based on an assumed 7.25 percent investment rate of return and discount rate, the 2018 annual required employer contributions needed to meet a 30-year amortization period are as follows:

- Health Care Trust Fund—1.12 percent
- DPS Health Care Trust Fund—0.67 percent

Annual Actuarial Valuation Statistics

As of December 31, 2016, the Funded Ratio, the UAAL, the ARC for 2018 as a percentage of covered payroll, and the amortization periods with current funding are shown in the table to the right. The results in this table are based on parameters set by GASB 43.

ACTUARIAL STATISTICS

Trust Fund	Funded Ratio	UAAL	ARC	ARC Amortization Period	Amortization Period Current Year Funding
HCTF	17.4%	$1,286,612	1.12%	30 Years	37 Years
DPS HCTF	26.0%	53,900	0.67%	30 Years	13 Years
Total[1]		$1,340,512			

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

For calculation of the ARC rate, the amortization period used is 30 years, which is the maximum period permitted by GASB 43. The amortization period is the number of years it will take to pay off the UAAL, given the plan's contribution structure, benefit provisions, and current actuarial assumptions. See the RSI and the accompanying notes on pages 110–114 for additional information.

C.R.S. § 24-51-211 states that the amortization period of 30 years shall be deemed actuarially sound. At the end of 2016, given the current contribution rates, the HCTF exceeded the 30-year amortization period.

As stated by CMC in the Actuary's Certification Letter on pages 139–143 in the Actuarial Section of the *CAFR:*

> "...The results of the December 31, 2016 funding valuation, combined with financial projections reflecting anticipated growth in active membership, indicate that the goal of funding 100% of the actuarial accrued liability of the HCTFs is achievable within a projection period of 30 years."

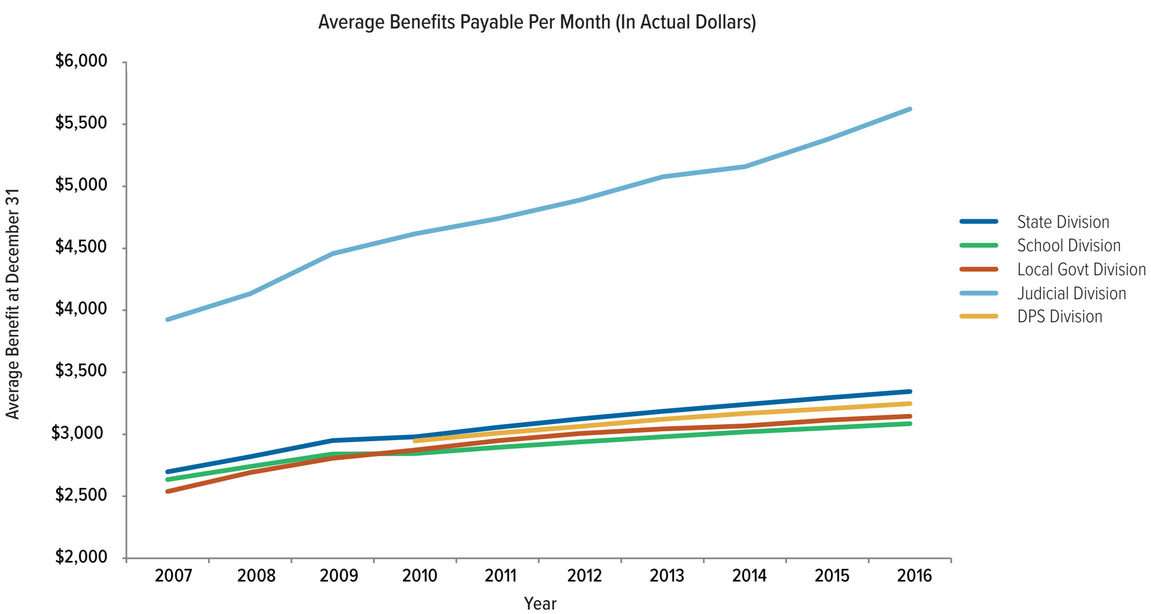
MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

Summary of Benefits and Expenses

Analysis of Benefits and Expenses
Basic Funding Equation: I + C = B + E

TOTAL DEDUCTIONS BY TRUST FUND

Trust Fund	Benefit Payments	Refunds	Disability Premiums	Administrative Expenses	Other	Total Deductions
State Division	$1,483,828	$60,137	$2,106	$11,271	$3,040	$1,560,382
School Division	2,231,475	65,715	3,454	21,991	17,443	2,340,078
Local Government Division	258,967	12,938	439	2,395	1,140	275,879
Judicial Division	22,734	109	45	81	122	23,091
DPS Division	263,152	8,521	398	2,754	129	274,954
HCTF	243,662	—	—	19,166	491	263,319
DPS HCTF	12,748	—	—	818	18	13,584
2016 Total	**$4,516,566**	**$147,420**	**$6,442**	**$58,476**	**$22,383**	**$4,751,287**
2015 Total	**$4,320,646**	**$162,172**	**$6,319**	**$56,656**	**$16,802**	**$4,562,595**
2014 Total	**$4,094,840**	**$170,882**	**$6,947**	**$51,177**	**$12,275**	**$4,336,121**
2013 Total	**$3,937,030**	**$185,313**	**$6,741**	**$46,960**	**$15,390**	**$4,191,434**
2012 Total	**$3,736,653**	**$195,742**	**$4,749**	**$42,730**	**$15,217**	**$3,995,091**



Note: The DPS Division was established January 1, 2010.

AVERAGE MONTHLY BENEFIT BY DIVISION[1, 2]

(In Actual Dollars)

Year Ended	State Division	School Division	Local Government Division	Judicial Division	DPS Division
2012	$3,124	$2,939	$3,007	$4,889	$3,064
2013	3,185	2,980	3,044	5,077	3,121
2014	3,241	3,019	3,067	5,158	3,169
2015	3,294	3,052	3,114	5,379	3,206
2016	**3,345**	**3,086**	**3,145**	**5,624**	**3,248**

[1] Most employees working for a PERA-affiliated employer do not earn Social Security benefits.

[2] Includes disability retirements, but not survivor benefits.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

PERA Benefit Payments

At the end of 2016, PERA was paying benefits to more than 114,000 retired public employees and their beneficiaries who received an average benefit of $3,161[1] per month. For benefit recipients, this may be the primary source of income in retirement as most PERA benefit recipients do not qualify for Social Security payments. The median monthly PERA benefit is $2,924 ($35,088 a year), which means that half of all monthly benefits paid are lower than $2,924 and half are higher than that amount.

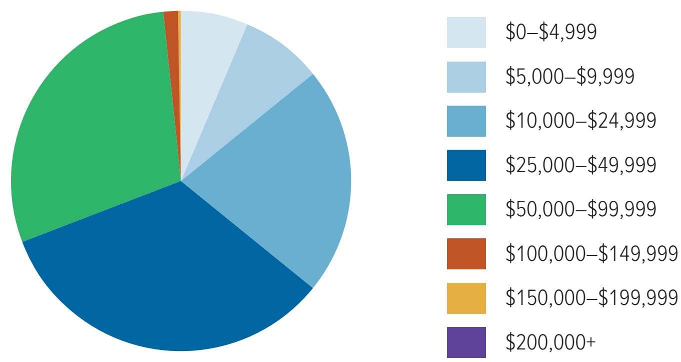
Approximately 69 percent of PERA benefit recipients receive less than $50,000 a year in retirement, as the graph below demonstrates. Slightly more than 1.4 percent (1,620) of PERA benefit recipients receive an annual benefit payment of $100,000 or more. Generally, these benefit recipients had high salaries and a significant number of years of service credit.

[1] Does not include benefits that ended in 2016 or retirements suspended in 2016. Includes only continuing benefits at the end of 2016, excluding amounts paid under the Replacement Benefit Arrangements.

PERA BENEFIT PAYMENTS BY DOLLAR AMOUNT OF ANNUAL BENEFIT/NUMBER OF BENEFIT RECIPIENTS

Benefit Range	Number of Benefit Recipients[1]
$0–$4,999	7,393
$5,000–$9,999	8,986
$10,000–$24,999	24,638
$25,000–$49,999	38,086
$50,000–$99,999	33,570
$100,000–$149,999	1,508
$150,000–$199,999	88
$200,000+	24
Total Benefit Recipients	114,293

[1] Does not include 316 deferred survivors.



RATIO OF ACTIVE MEMBERS TO RETIREES AND BENEFICIARIES

Year Ended	State Division	School Division	Local Government Division	Judicial Division	DPS Division
2012	1.61	2.14	2.05	1.02	2.17
2013	1.58	2.10	1.94	1.03	2.26
2014	1.54	2.06	1.87	1.01	2.30
2015	1.49	2.00	1.80	0.97	2.34
2016	**1.46**	**1.96**	**1.80**	**0.93**	**2.30**

The decline in the ratio of active members to retirees and beneficiaries is reflective of the aging population. By itself, a declining ratio of active members to retirees and beneficiaries does not pose a problem to a Division Trust Fund's actuarial condition. However, to the extent that a plan is underfunded, a low or declining ratio of active members to retirees and beneficiaries, coupled with increasing life expectancy, can complicate the Division Trust Fund's ability to move toward full funding, as fewer active, contributing members, relatively, are available to amortize the unfunded liability.

RATIO OF BENEFIT PAYMENTS TO CONTRIBUTIONS

					Ratio of Benefits/Contributions				
Trust Fund	Employer Contributions	Member Contributions	Total Contributions	Benefit Payments	2016	2015	2014	2013	2012
State Division	$521,804	$223,005	$744,809	$1,483,828	**2.0**	2.0	2.1	2.1	2.2
School Division	812,740	359,059	1,171,799	2,231,475	**1.9**	1.9	2.0	2.0	2.1
Local Government Division	75,132	48,470	123,602	258,967	**2.1**	2.1	2.1	2.0	1.4
Judicial Division	8,024	3,928	11,952	22,734	**1.9**	1.8	1.9	1.9	1.8
DPS Division	17,071	52,740	69,811	263,152	**3.8**	4.4	3.8	3.5	4.1

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

Other Changes—Defined Benefit Funds

Cash and Short-Term Investments

For the year ended December 31, 2016, PERA had cash and short-term investments of $990,778, an increase of $234,228 from 2015. The increase was primarily due to a need to have additional cash-on-hand for the purpose of funding new Opportunity Fund investments.

Securities Lending Collateral and Obligations

For the year ended December 31, 2016, PERA had securities lending collateral of $946,580 and securities lending obligations of $946,685, a decrease of $505,851 and $505,443, respectively from 2015. The securities lending collateral and obligations decreased due to a reduction in the overall amount of securities made available by PERA for lending through the lending agents.

Investment Settlements and Income Receivables

For the year ended December 31, 2016, PERA had receivables of $485,411, a decrease of $223,501 from 2015. The decrease was primarily due to lower pending settlement of fixed income investment sales at year-end.

Investment Settlements and Other Liabilities

For the year ended December 31, 2016, PERA had investment settlements and other liabilities of $469,372, a decrease of $275,031 from 2015. The decrease was primarily due to lower pending settlements of fixed income investment purchases at year-end.

Other Additions and Other Deductions—Division Trust Funds

For the year ended December 31, 2016, other additions increased by $6,506 and other deductions increased by $5,688. These changes are primarily due to recording interfund transfers at retirement as an addition for the State, Local Government, and Judicial Divisions and a deduction for the School and DPS Divisions. The amount of interfund transfers, and whether they are recorded as other additions or deductions, depends on the number of retirements where the member has earned service credit in more than one division.

Other Deductions—Health Care Trust Funds

For the year ended December 31, 2016, other deductions decreased $107. The decrease was primarily due to lower expenses for the Affordable Care Act's transitional reinsurance program in 2016 compared to 2015.

Life Insurance Premiums—Life Insurance Reserve

Life insurance premiums increased from $250 in 2015 to $306 in 2016. The increase was due to premium expenses which are based on covered lives, age, and the amount of insurance coverage. The premium expense increases as covered-participants age.

Administrative Expenses—Life Insurance Reserve

Administrative expenses increased from $805 in 2015 to $1,032 in 2016. The increase was primarily due to a correction in the billing calculation methodology by the life insurance company. This correction resulted in a $200 increase in administrative expenses for 2016. Additionally, there was a $27 increase due to the amount of costs allocated to this fund, which were based on customer service workload statistics and higher indirect costs.

House Bill 17-1176—PERA Retirees Employed By Rural School Districts

Following the 2017 legislative session, Governor Hickenlooper signed into law HB 17-1176, which modifies the current working after retirement provisions through June 30, 2023. Current provisions allow a service retiree from any division to work for a PERA employer for limited periods and to receive a salary without reduction in benefits under certain circumstances. This modification applies to service retirees who are teachers, school bus drivers, or school food service cooks hired by rural school districts in the School Division that are deemed to have a critical need to fill vacant positions. These retirees may receive salary without a reduction in benefits for any length of employment in a calendar year as long as certain criteria are met. Please see Note 12 in the Notes to the Financial Statements on page 96 for further details.

Actuarial Valuations: Accounting Versus Funding

Separate actuarial valuations are prepared for accounting and funding purposes for the Division Trust Funds. The purpose of the funding valuation is to guide the Board's actions necessary to ensure the long-term sustainability of the Division Trust Funds. The funding valuation aids this action by allowing PERA to assess the sufficiency of the current statutory contribution rates and analyze the sufficiency of future contributions to meet current and future benefit obligations. One of the key measurements in the funding valuation is the difference between the actuarial value of assets and AALs, known as the UAAL. Information pertaining to the funding valuation can be found in the Actuarial Section on pages 145–175. The actuarial valuation for accounting purposes emphasizes the obligation an employer incurs to employees through the employment-exchange process. The primary purpose of the valuation for accounting purposes is to provide a consistent, standardized methodology that allows comparability of amounts and increased transparency of the pension liability across U.S. pension plans complying with GASB 67. One of the key measurements in the accounting valuation is the difference between the FNP, which includes the fair value of assets and the total pension liability (TPL), known as the net pension liability (NPL).

The objectives of each actuarial valuation require different approaches for determining the NPL and the UAAL. The NPL is determined in accordance with GASB 67 and the UAAL is determined in accordance with Actuarial Standards of Practice (ASOPs) and the Board's funding policy, dated March 2015. One of the major differences between these two approaches is the rate used to discount projected benefit payments. In determination of the NPL, GASB 67 requires that the long-term expected rate of return on the investments of the pension plan should be applied only to available pension plan assets that are expected to be invested using a strategy to achieve that return. If there comes a point in the projections when plan FNP and contributions attributable to active and inactive employees are no longer projected to be greater than or equal to projected benefit payments related to those employees and administrative expenses (crossover point), then from that point forward the pension plan will be required to discount the projected benefit payments after the crossover point using a presumed borrowing rate. GASB 67 requires a tax-exempt, high-quality 20-year municipal general obligation bond index rate to be used for this purpose. In determination of the UAAL, ASOPs and the Board's funding policy require that the long-term expected rate of return is used to discount projected benefit payments. Another major difference between these two approaches is the measure of pension plan assets used to determine the NPL and UAAL. GASB 67 requires that pension plan assets are measured using the fair value of assets to determine the NPL. ASOPs permit the use of a market-related value, which smooths changes in the fair value over time to determine the UAAL. The Board's funding policy requires a four-year smoothed fair value of assets be utilized.

Actuarial Summary—Division Trust Funds

CMC prepared the December 31, 2016, actuarial valuations for the Division Trust Funds for purposes of complying with GASB 67. These actuarial valuations, based on a set of actuarial assumptions, examine each fund's assets as compared to actuarial liabilities, compare past and future trends, and determine the collective NPL for all PERA-affiliated employers participating in each of the five Division Trust Funds.

The actuarial valuations prepared for purposes of complying with GASB 67 were based on member data as of December 31, 2015. As permitted by GASB 67, appropriate actuarial procedures were applied to roll forward the TPL, based upon this member data, to December 31, 2016. The roll-forward procedures considered service cost associated with accruing benefits for the year, interest on the TPL, and benefits and refunds paid to recipients during the year. Additionally, the impact of actuarial experiences and changes in actuarial assumptions and other inputs were considered in the roll-forward calculation.

The Board studies all economic and demographic actuarial assumptions at least every five years and approves changes, as necessary, to those assumptions. Recently, the Board has reviewed the economic assumptions on a more frequent basis. The Board last completed an experience study in 2016, and the next planned experience study will be in 2020. Based on the 2016 experience analysis and the October 28, 2016, actuarial assumptions workshop, the following assumptions were adopted by the Board during the November 18, 2016, Board meeting. As the revised economic and demographic assumptions are effective December 31, 2016, these revised assumptions are reflected in the roll-forward calculation of the TPL from December 31, 2015, to December 31, 2016.

Economic Assumptions—Applicable to All Divisions/Benefit Structures

- Investment rate of return assumption decreased from 7.50 percent per year, compounded annually, net of investment expenses to 7.25 percent per year, compounded annually, net of investment expenses.
- Price inflation assumption decreased from 2.80 percent per year to 2.40 percent per year.
- Real rate of investment return assumption increased from 4.70 percent per year, net of investment expenses, to 4.85 percent per year, net of investment expenses.
- Wage inflation assumption decreased from 3.90 percent per year to 3.50 percent per year.

Demographic Assumptions—Applicable as Indicated

- Withdrawal (Termination) From Active Service
  - Select Period
    - Decreased first year withdrawal rates with slight rate increases for each remaining year in the select period for the State Division and the School and DPS Divisions.
    - Slightly increased withdrawal rates for each year in the select period for the Local Government Division.
    - Discontinued the application of a select period of withdrawal for the DPS benefit structure.
  - Ultimate Period
    - Increased withdrawal rates during the ultimate period for the State, School and DPS, and Local Government Divisions and the DPS benefit structure.
    - Decreased withdrawal rates during the ultimate period for the Judicial Division and State Troopers.
- Service Retirement From Active Service
  - Minor changes were made to the reduced early retirement rates for all members.
  - Decreased the unreduced retirement rates at first eligibility for State Troopers, made minor increases to the unreduced retirement rates for the remaining population, and extended the certain retirement age from 70 to 75 for all members except State Troopers.
- Disability From Active Service
  - Decreased disability rates at most ages for the State, School and DPS, and Judicial Divisions, State Troopers, and the DPS benefit structure.
  - Slightly increased disability rates for the Local Government Division.
- Pre-retirement healthy mortality for all divisions changed from the RP-2000 Combined Mortality Table projected with Scale AA to 2020, set back one year for males and set back two years

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

for females, incorporating a 55 percent factor to male rates and a 40 percent factor to female rates to the RP-2014 White Collar Employee Mortality Table, incorporating a 70 percent factor to male rates and a 55 percent factor to female rates.

- Post-retirement healthy mortality changed from the RP-2000 Combined Mortality Table projected with Scale AA to 2020, set back one year for males and set back two years for females, applicable to all divisions to the following distinct tables:
  - State and Local Government Divisions: The RP-2014 Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 73 percent factor applied to ages below 80 and a 108 percent factor applied to age 80 and above, projected to 2018, for males, and a 78 percent factor applied to ages below 80 and a 109 percent factor applied to age 80 and above, projected to 2020, for females.
  - School, Judicial, and DPS Divisions: The RP-2014 White Collar Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 93 percent factor applied to ages below 80 and a 113 percent factor applied to age 80 and above, projected to 2018, for males, and a 68 percent factor applied to ages below 80 and a 106 percent factor applied to age 80 and above, projected to 2020, for females.
- Post-retirement disabled mortality for all divisions changed from the RP-2000 Disability Mortality Table, set back two years for males and females to the RP-2014 Disabled Retiree Mortality Table, incorporating a 90 percent factor to both male rates and female rates.
- Estimated administrative expense load as a percentage of covered payroll increased from 0.35 percent to 0.40 percent.

STATUS OF COLORADO PERA DIVISION TRUST FUNDS

	12/31/2015	12/31/2016
State Division Trust Fund		
Total pension liability	$23,991,569	**$31,994,311**
Fiduciary net position	13,460,536	**13,626,180**
Net pension liability	**$10,531,033**	**$18,368,131**
Fiduciary net position as a percentage of the total pension liability	56.1%	**42.6%**
Discount rate	7.50%	**5.26%**
School Division Trust Fund		
Total pension liability	$37,447,062	**$52,354,913**
Fiduciary net position	22,152,768	**22,581,046**
Net pension liability	**$15,294,294**	**$29,773,867**
Fiduciary net position as a percentage of the total pension liability	59.2%	**43.1%**
Discount rate	7.50%	**5.26%**
Local Government Division Trust Fund		
Total pension liability	$4,762,090	**$5,123,847**
Fiduciary net position	3,660,509	**3,773,506**
Net pension liability	**$1,101,581**	**$1,350,341**
Fiduciary net position as a percentage of the total pension liability	76.9%	**73.6%**
Discount rate	7.50%	**7.25%**
Judicial Division Trust Fund		
Total pension liability	$461,245	**$543,150**
Fiduciary net position	277,351	**288,904**
Net pension liability	**$183,894**	**$254,246**
Fiduciary net position as a percentage of the total pension liability	60.1%	**53.2%**
Discount rate	5.73%	**5.18%**
DPS Division Trust Fund		
Total pension liability	$3,920,864	**$4,221,449**
Fiduciary net position	3,107,329	**3,125,977**
Net pension liability	**$813,535**	**$1,095,472**
Fiduciary net position as a percentage of the total pension liability	79.3%	**74.0%**
Discount rate	7.50%	**7.25%**
All Division Trust Funds[1]		
Total pension liability	$70,582,830	**$94,237,670**
Fiduciary net position	42,658,493	**43,395,613**
Net pension liability	**$27,924,337**	**$50,842,057**
Fiduciary net position as a percentage of the total pension liability	60.4%	**46.0%**

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	DPS Division Trust Fund	All Division Trust Funds[1]
2015 Net pension liability	$10,531,033	$15,294,294	$1,101,581	$183,894	$813,535	$27,924,337
Service cost	317,466	567,247	65,250	12,639	85,988	1,048,590
Interest	1,741,390	2,722,256	346,944	25,774	283,862	5,120,226
Changes of benefit terms	—	—	—	—	—	—
Differences between expected and actual experience	176,889	346,658	42,105	22,804	(2,839)	585,617
Changes of assumptions or other inputs	7,313,068[2]	13,572,334[3]	179,802[4]	43,576[5]	205,645[6]	21,314,425
Contributions—employer	(521,804)	(812,740)	(75,132)	(8,024)	(17,071)	(1,434,771)
Contributions—member	(247,533)	(386,481)	(52,451)	(4,037)	(54,852)	(745,354)
Net investment income	(947,981)	(1,569,026)	(261,276)	(19,783)	(218,415)	(3,016,481)
Administrative expense	11,271	21,991	2,395	81	2,754	38,492
Other	(5,668)	17,334	1,123	(2,678)	(3,135)	6,976
2016 Net pension liability	**$ 18,368,131**	**$29,773,867**	**$1,350,341**	**$254,246**	**$1,095,472**	**$50,842,057**

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

[2] Approximately $261,162 is attributable to changes in demographic assumptions, such as the application of updated active member, post-retirement, and disability retirement mortality and the recalibration of other decremental assumptions and $500,735 is attributable to the change in the assumed long-term rate of investment return from 7.50 percent to 7.25 percent, as adopted by the Board on November 18, 2016, including the changes in assumed rates of price and wage inflation. Recognizing that the changes in the demographic and economic assumptions also affected the determination of the discount rate, approximately $6,551,171 is attributable to the use of the resulting 5.26 percent blended discount rate, determined in accordance with GASB 67.

[3] Approximately $1,427,605 is attributable to changes in demographic assumptions, such as the application of updated active member, post-retirement, and disability retirement mortality and the recalibration of other decremental assumptions and $828,684 is attributable to the change in the assumed long-term rate of investment return from 7.50 percent to 7.25 percent, as adopted by the Board on November 18, 2016, including the changes in assumed rates of price and wage inflation. Recognizing that the changes in the demographic and economic assumptions also affected the determination of the discount rate, approximately $11,316,045 is attributable to the use of the resulting 5.26 percent blended discount rate, determined in accordance with GASB 67.

[4] Approximately $72,451 is attributable to changes in demographic assumptions, such as the application of updated active member, post-retirement, and disability retirement mortality and the recalibration of other decremental assumptions and $107,351 is attributable to the change in the assumed long-term rate of investment return from 7.50 percent to 7.25 percent, as adopted by the Board on November 18, 2016, including the changes in assumed rates of price and wage inflation and which is used for the discount rate for disclosure purposes.

[5] Approximately $16,943 is attributable to changes in demographic assumptions, such as the application of updated active member, post-retirement, and disability retirement mortality and the recalibration of other decremental assumptions. Recognizing that the changes in the demographic and economic assumptions, including the change in the assumed long-term rate of investment return from 7.50 percent to 7.25 percent, as adopted by the Board on November 18, 2016, also affected the determination of the discount rate, approximately $26,633 is attributable to the use of the resulting 5.18 percent blended discount rate, determined in accordance with GASB 67.

[6] Approximately $125,977 is attributable to changes in demographic assumptions, such as the application of updated active member, post-retirement, and disability retirement mortality and the recalibration of other decremental assumptions and $79,668 is attributable to the change in the assumed long-term rate of investment return from 7.50 percent to 7.25 percent, as adopted by the Board on November 18, 2016, including the changes in assumed rates of price and wage inflation and which is used for the discount rate for disclosure purposes.

SUMMARY OF THE RATIOS OF FIDUCIARY NET POSITION TO TOTAL PENSION LIABILITY[1, 2]

Trust Fund	2012	2013	2014	2015	2016
State Division	60.2%	61.0%	59.8%	56.1%	**42.6%**
School Division	63.3%	64.0%	62.8%	59.2%	**43.1%**
Local Government Division	75.9%	77.6%	80.7%	76.9%	**73.6%**
Judicial Division	74.3%	77.4%	66.9%	60.1%	**53.2%**
DPS Division	85.6%	86.3%	83.9%	79.3%	**74.0%**
Total Division Trust Funds[3]	**64.4%**	**65.2%**	**64.2%**	**60.4%**	**46.0%**

[1] The ratios for 2012 and 2013 are computed by dividing the total fair value of assets available to pay benefits by actuarial accrued liabilities. The ratios for 2014 through 2016 are computed by dividing the fiduciary net position by the total pension liability.

[2] The actuarial accrued liability for years 2012 and 2013 was based on actuarial valuations which used GASB 25 and the Board's funding policy dated November 2007 as guidance. The total pension liability for years 2014 through 2016 is based on the actuarial valuations prepared in accordance with GASB 67.

[3] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

The ratios listed on the previous page give an indication of a plan's ability to meet its current and future obligations in accordance with GASB 67. As an example, for every $1.00 of the TPL or earned benefits for the School Division Trust Fund as of December 31, 2016, approximately $0.43 of assets is available for payment based on the actual fair value of assets. These benefits earned will be payable over the life span of members after their retirement and therefore, it is not necessary that the TPL or earned benefits equal the fair value of assets at any given moment in time.

Sensitivity of Actuarial Valuation to Changes in Assumed Investment Rate of Return and Discount Rate

The most important long-run driver of a pension plan is investment income. Currently, the long-term expected rate of return assumption is 7.25 percent. The investment return assumption and the discount rate for liabilities, as mandated by GASB 67, are based on an estimated long-term investment return for the plan, with consideration given to the nature and mix of current and expected investments as long as projections of plan investments indicate that assets are available to pay benefit obligations. At the point in the projections when plan FNP and contributions related to active and inactive employees are no longer projected to be greater than or equal to projected benefit payments related to those employees and administrative expenses (crossover point), then from that point forward the pension plan is required to discount the projected benefit payments using a presumed borrowing rate. GASB 67 requires a tax-exempt, high-quality 20-year municipal general obligation bond index rate to be used for this purpose.

Based on the projection test required by GASB, assets are available to pay all future benefit obligations of the Local Government and DPS Division Trust Funds. As a result, the discount rate used to determine the NPL equals the long-term expected rate of return assumption of 7.25 percent. The projection test indicates assets will be insufficient to cover a portion of future benefit obligations for the State, School, and Judicial Division Trust Funds. As a result, for 2016, the blended discount rates of 5.26 percent, 5.26 percent, and 5.18 percent were used to determine the NPL of the State, School, and Judicial Division Trust Funds, respectively. It should be noted that a discount rate of 7.50 percent, the previous long-term expected rate of return assumption, was used to determine the NPL of the State, School, Local Government, and the DPS Division Trust Funds for 2015. A blended discount rate of 5.73 percent was used to determine the NPL for the Judicial Division Trust Fund for 2015. There are a number of methods to assess the sufficiency of assets available to pay future benefits and the projection test required by GASB does not necessarily reflect a plan's actual ability or inability to cover future benefit obligations.

The long-term expected return on plan assets is reviewed as part of regular experience studies prepared every four to five years for PERA. Recently, this assumption has been reviewed more frequently. The most recent analyses regarding the long-term outlook on the expected rate of return were outlined in presentations to the Board by the retained actuary, the Board's investment consultant, and an additional external actuarial firm during the October 28, 2016, actuarial assumptions workshop. As a result of the October 28, 2016, workshop and the November 18, 2016, Board meeting, the Board decreased the long-term expected return on plan assets from 7.50 percent per year, compounded annually, net of investment expenses to 7.25 percent per year, compounded annually, net of investment expenses effective for the December 31, 2016, actuarial valuation. Several factors were considered in establishing the long-term rate of return assumption, including long-term historical data, estimates inherent in current market data, market forecasts from the Board's investment consultant, as well as the 2016 survey of capital market assumptions by Horizon Actuarial Services, LLC, and a log-normal distribution analysis in which best estimate ranges of expected future real rates of return (expected return, net of investment expense and inflation) were developed for each major asset class. These ranges were combined to estimate the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and then adding expected inflation. The mean overall investment rate of return based on this modeling process was 7.47 percent. The one standard deviation range around the mean was 5.71 percent to 9.26 percent, which represents 68.2 percent of the possible outcomes. The two standard deviations range around the mean was 4.03 percent to 11.02 percent, which represents 95.4 percent of the possible outcomes.

To understand the importance of the long-term assumed investment rate of return, which is used to determine the discount rate, a 1.0 percent fluctuation in the discount rate would change the ratio of FNP to TPL and NPL as shown in the tables on the next page.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

1.0 PERCENT DECREASE IN DISCOUNT RATE

Trust Fund	Discount Rate	Fiduciary Net Position as a Percentage of the Total Pension Liability	Net Pension Liability
State Division[1]	4.26%	37.5%	$22,750,067
School Division[1]	4.26%	37.6%	37,439,681
Local Government Division	6.25%	65.5%	1,991,016
Judicial Division[1]	4.18%	47.4%	320,189
DPS Division	6.25%	66.1%	1,602,208
Total Division Trust Funds[2]		**40.4%**	**$64,103,161**

[1] Reflects a blended discount rate as required by GASB 67.

[2] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

CURRENT DISCOUNT RATE

Trust Fund	Discount Rate	Fiduciary Net Position as a Percentage of the Total Pension Liability	Net Pension Liability
State Division[1]	**5.26%**	**42.6%**	**$18,368,131**
School Division[1]	**5.26%**	**43.1%**	**29,773,867**
Local Government Division	**7.25%**	**73.6%**	**1,350,341**
Judicial Division[1]	**5.18%**	**53.2%**	**254,246**
DPS Division	**7.25%**	**74.0%**	**1,095,472**
Total Division Trust Funds[2]		**46.0%**	**$50,842,057**

[1] Reflects a blended discount rate as required by GASB 67.

[2] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

1.0 PERCENT INCREASE IN DISCOUNT RATE

Trust Fund	Discount Rate	Fiduciary Net Position as a Percentage of the Total Pension Liability	Net Pension Liability
State Division[1]	6.26%	48.0%	$14,768,033
School Division[1]	6.26%	49.0%	23,530,339
Local Government Division	8.25%	82.2%	819,792
Judicial Division[1]	6.18%	59.3%	198,197
DPS Division	8.25%	82.2%	676,945
Total Division Trust Funds[2]		**52.0%**	**$39,993,306**

[1] Reflects a blended discount rate as required by GASB 67.

[2] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

Note: The time-weighted, net-of-fees, annualized rate of return for the pooled investment assets was 8.5 percent for the past five years and 5.2 percent for the past 10 years. The 35-year annualized gross-of-fees rate of return for the pooled investment assets was 9.8 percent.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

Actuarial Summary—Health Care Trust Funds

CMC prepared the December 31, 2016, actuarial valuations for the HCTF and DPS HCTF for purposes of complying with GASB 43 and the Board's funding policy dated November 2007. These actuarial valuations, based on a set of assumptions, examine each fund's assets as compared to actuarial liabilities, compare past and future trends, and determine the ARC rates required of each employer in order to pay current and future benefits in accordance with the main provisions of the plan and compare them to the statutory contribution rate. These actuarial valuations are based on member data as of December 31, 2016.

The Board studies all economic and demographic assumptions at least every five years and approves changes, as necessary, to those assumptions. Recently, the Board has reviewed the economic assumptions on a more frequent basis. The last experience study was completed in 2016 and the next planned experience study will be in 2020. Based on the 2016 experience analysis and the October 28, 2016, actuarial assumptions workshop, the changes in actuarial assumptions listed on page 149 were also adopted by the Board for the Health Care Trust Funds during the November 18, 2016, Board meeting and are effective for the December 31, 2016, actuarial valuations. In addition, the Board adopted the following actuarial assumptions on November 18, 2016, which are specific to the Health Care Trust Funds and are also effective for the December 31, 2016, actuarial valuations:

- Initial per capita health care costs for those PERACare enrollees under the PERA benefit structure who are age 65 and older and are not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2017 plan year.
- The assumed rates of inflation for health care costs for Medicare Part A premiums have been revised to reflect the current expectation of future increases.
- The health care participation rates were updated for the HCTF and the DPS HCTF.
- The Medicare plan assumed election rates for current pre-Medicare PERACare enrollees under the PERA benefit structure who are not eligible for premium-free Medicare Part A benefits were revised to reflect more closely actual experience.
- The assumed average number of years a covered male spouse is older than a covered female spouse was changed from a gender-neutral assumption of two years to a gender-specific assumption of three years for a male retiree and one year for a female retiree.
- For all divisions except the DPS Division, the percentage of eligible inactive members and future retirees, assumed to elect coverage for their spouse was reduced from 25 percent to 20 percent.
- The percentage of the disability retirees enrolled in PERACare assumed to qualify for the "No Part A" subsidy was increased from 5 percent to 10 percent.

The entry age normal cost method has historically been used to calculate AALs for the Health Care Trust Funds. Previously, the calculation of the normal cost was based upon total expected career service and was independent of compensation. In preparation of the future implementation of GASB 74, "Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans," it was recommended by CMC in the 2016 experience analysis, and adopted by the Board, to base normal cost on compensation, effective with the December 31, 2016, actuarial valuation.

Health Care Trust Fund Actuarial Liabilities

The HCTF and the DPS HCTF are cost-sharing multiple-employer defined benefit OPEB plans with the purpose of subsidizing PERACare, PERA's health benefits program. Participation in the HCTF and the DPS HCTF is voluntary pursuant to C.R.S. § 24-51-1201. Employer contributions and investment earnings on the assets of the plans pay for the costs. In addition, any employer, as defined by C.R.S. § 24-51-101 (20), may elect to provide health care coverage through PERACare for its employees who are members.

The HCTF and the DPS HCTF provide a health care premium subsidy based upon the benefit structure under which a member retires and the member's years of service credit. There is an allocation of the premium subsidy between the trust funds for members who retire with service credit in the DPS Division and one or more of the other divisions. The basis for the allocation of the premium subsidy is the percentage of the member contribution balance from each division as it relates to the total member contribution account balance.

In general, the AALs of the HCTF and the DPS HCTF consist of the following two types of benefits.

- A service-based monthly premium subsidy.
- A subsidy for members not eligible for premium-free Medicare Part A coverage.

C.R.S. § 24-51-1204 and § 24-51-1206 specify the eligibility for enrollment and the amount of subsidy available, respectively under the PERA benefit structure and DPS benefit structure. See Note 9 of the Notes to the Financial Statements on pages 87–89 for more detail on the benefit provisions available under the PERA benefit structure and DPS benefit structure. The plan actuary determines the costs relating to the subsidies provided by the HCTF and the DPS HCTF and the results are contained within the annual actuarial valuation report. Currently, all participating employers are statutorily required to contribute 1.02 percent of covered payroll to fund these benefits.

At December 31, 2016, and December 31, 2015, PERA had the following funded status for its Health Care Trust Funds as shown on the next page.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

FUNDED STATUS FOR COLORADO PERA HEALTH CARE TRUST FUNDS

	Fair Value of Assets		Actuarial Value of Assets[1]	
	12/31/2015	12/31/2016	12/31/2015	12/31/2016
HCTF				
Actuarial accrued liability[2]	$1,556,269	**$1,556,762**	$1,556,269	**$1,556,762**
Assets held to pay those liabilities	276,505	**260,228**	285,588	**270,150**
Unfunded actuarial accrued liability	**$1,279,764**	**$1,296,534**	**$1,270,681**	**$1,286,612**
Funded ratio	17.8%	**16.7%**	18.4%	**17.4%**
DPS HCTF				
Actuarial accrued liability[2]	$74,897	**$72,845**	$74,897	**$72,845**
Assets held to pay those liabilities	16,936	**18,337**	17,557	**18,945**
Unfunded actuarial accrued liability	**$57,961**	**$54,508**	**$57,340**	**$53,900**
Funded ratio	22.6%	**25.2%**	23.4%	**26.0%**
Total Health Care Trust Funds[3]				
Actuarial accrued liability[2]	$1,631,166	**$1,629,607**	$1,631,166	**$1,629,607**
Assets held to pay those liabilities[4]	293,441	**278,565**	303,145	**289,095**
Unfunded actuarial accrued liability	**$1,337,725**	**$1,351,042**	**$1,328,021**	**$1,340,512**
Funded ratio	18.0%	**17.1%**	18.6%	**17.7%**

[1] The actuarial value of assets is calculated by spreading any market gains or losses above or below the assumed rate of return over four years.

[2] The actuarial accrued liabilities as of December 31, 2015, are based upon an assumed rate of return on investments of 7.50 percent and an assumed rate of 7.50 percent to discount the liabilities to be paid in the future to a value as of December 31, 2015. The actuarial accrued liabilities as of December 31, 2016, are based upon an assumed rate of return on investments of 7.25 percent and an assumed rate of 7.25 percent to discount the liabilities to be paid in the future to a value as of December 31, 2016.

[3] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

[4] In aggregate, the fair value of the assets as of December 31, 2016, is $10,530 less than the value of assets calculated by the actuaries, as they are recognizing the gains and losses in value over four years, rather than in the year they occurred. The remaining gains and (losses) to be smoothed for 2014 are ($1,203), for 2015 are ($9,001), and for 2016 are ($326).

Actuarial Trend Information

Funded Ratio

The funded ratio is determined by dividing the actuarial value of assets by the AAL. The actuarial value of assets is not the current fair value, but a market-related value, as permitted by GASB 43, which smoothes changes in the fair value over four years. The actuarial value of assets as of December 31, 2016, was $289,095 compared to a fair value of assets of $278,565 and to the AAL of $1,629,607. The funded ratio for each of the funds, based on the actuarial value of assets, at December 31 for each of the last five years is shown below.

Trust Fund	2012	2013	2014	2015	2016
HCTF	16.5%	18.8%	19.4%	18.4%	**17.4%**
DPS HCTF	18.6%	20.2%	21.7%	23.4%	**26.0%**
Total Health Care Trust Funds[1]	**16.6%**	**18.9%**	**19.5%**	**18.6%**	**17.7%**

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

The funded ratios listed above give an indication of how well the funding objective has been met to date. A larger funded ratio indicates that a plan is better funded. As an example, for every $1.00 of the actuarially determined benefits earned for the HCTF as of December 31, 2016, approximately $0.17 of assets are available for payment based on the actuarial value of assets. These benefits earned will be payable over the life span of members after their retirement and therefore, it is not necessary that the actuarially determined benefits equal the actuarial value of assets at any given moment in time.

Sensitivity of Actuarial Valuation to Changes in Assumed Investment Rate of Return and Discount Rate

The most important long-run driver of an OPEB plan is investment income. The investment return assumption and the discount rate for liabilities, as mandated by GASB 43, should be based on an estimated long-term investment yield for the plan, with consideration given to the nature and mix of current and expected plan investments and the basis used to determine the actuarial value of assets.

The long-term expected return on plan assets is reviewed as part of regular experience studies prepared every four to five years for PERA. Recently, this assumption has been reviewed more frequently. The most recent analyses regarding the long-term outlook on the expected rate of return were outlined in presentations to the Board by the retained actuary, the Board's investment consultant, and an additional external actuarial firm during the October 28, 2016, actuarial assumptions workshop. As a result of the October 28, 2016, workshop and the November 18, 2016, Board meeting, the Board decreased the long-term expected return on plan assets from 7.50 percent per year, compounded annually, net of investment

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

expenses to 7.25 percent per year, compounded annually, net of investment expenses effective for the December 31, 2016, actuarial valuation. Several factors were considered in establishing the long-term rate of return assumption, including long-term historical data, estimates inherent in current market data, market forecasts from the Board's investment consultant, as well as the 2016 survey of capital market assumptions by Horizon Actuarial Services, LLC, and a log-normal distribution analysis in which best estimate ranges of expected future real rates of return (expected return, net of investment expense and inflation) were developed for each major asset class. These ranges were combined to estimate the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and then adding expected inflation.

The mean overall investment rate of return based on this modeling process was 7.47 percent. The one standard deviation range around the mean was 5.71 percent to 9.26 percent, which represents 68.2 percent of the possible outcomes. The two standard deviations range around the mean was 4.03 percent to 11.02 percent, which represents 95.4 percent of the possible outcomes.

To understand the importance of the long-term assumed investment rate of return, which is used to discount the actuarial liabilities, a 1.0 percent fluctuation in the investment rate of return and discount rate would change the funded ratio, UAAL, and ARC (for contributions for the fiscal year December 31, 2018) as shown on the tables below.

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 6.25 PERCENT

	Actuarial Value of Assets			Fair Value of Assets
Trust Fund	Funded Ratio	UAAL	ARC	UAAL
HCTF	15.7%	$1,448,464	1.17%	$1,458,385
DPS HCTF	23.7%	60,913	0.72%	61,521
Total Health Care Trust Funds[1]		$1,509,377		$1,519,906

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

CURRENT INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 7.25 PERCENT

	Actuarial Value of Assets			Fair Value of Assets
Trust Fund	Funded Ratio	UAAL	ARC	UAAL
HCTF	17.4%	$1,286,612	1.12%	$1,296,534
DPS HCTF	26.0%	53,900	0.67%	54,508
Total Health Care Trust Funds[1]		$1,340,512		$1,351,042

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 8.25 PERCENT

	Actuarial Value of Assets			Fair Value of Assets
Trust Fund	Funded Ratio	UAAL	ARC	UAAL
HCTF	19.0%	$1,148,683	1.06%	$1,158,605
DPS HCTF	28.3%	47,900	0.62%	48,508
Total Health Care Trust Funds[1]		$1,196,583		$1,207,113

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

Note: The time-weighted, net-of-fees, annualized rate of return for the pooled investment assets was 8.5 percent for the past five years and 5.2 percent for the past 10 years. The time-weighted 35-year gross-of-fees annualized rate of return for the pooled investment assets was 9.8 percent.

GASB OPEB Project

In June 2015, GASB issued Statement No. 74, "Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans." GASB 74 addresses reporting by OPEB plans that administer benefits on behalf of governments. The new OPEB standard parallels the pension standard issued in 2012—GASB Statement No. 67, "Financial Reporting for Pension Plans."

The Statement requires more extensive note disclosures and RSI related to the measurement of the OPEB liabilities for which assets have been accumulated. GASB 74 will be effective for periods beginning after June 15, 2016. PERA has chosen not to early adopt GASB 74 and has not yet determined the impact of this standard on its financial statements and disclosures.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

DEFINED CONTRIBUTION PENSION AND DEFERRED COMPENSATION TRUST FUNDS

Financial Reporting Highlights

FIDUCIARY NET POSITION

	2016 Change in Fiduciary Net Position	2016 Ending Fiduciary Net Position
Voluntary Investment Program	$185,564	$2,829,663
Defined Contribution Retirement Plan	26,380	167,406
Deferred Compensation Plan	60,006	751,682
Total	**$271,950**	**$3,748,751**

The FNP for the Voluntary Investment Program, the Defined Contribution Retirement Plan, and the Deferred Compensation Plan increased $271,950 for the year ended December 31, 2016. The increase in FNP for the three trust funds was principally due to positive investment returns arising from the global stock markets.

CHANGES IN FIDUCIARY NET POSITION

	(C) Contributions and Other Additions	+ (I) Net Investment Income (Loss)	– (B) – (E) Benefits Expenses, and Other Deductions	= Change in Fiduciary Net Position
Voluntary Investment Program	$136,819	$206,933	$158,188	$185,564
Defined Contribution Retirement Plan	23,534	12,601	9,755	26,380
Deferred Compensation Plan	52,123	51,372	43,489	60,006
2016 change in fiduciary net position	**$212,476**	**$270,906**	**$211,432**	**$271,950**
2015 change in fiduciary net position	**$208,613**	**($20,666)**	**$214,063**	**($26,116)**
2014 change in fiduciary net position	**$203,878**	**$227,077**	**$194,890**	**$236,065**
2013 change in fiduciary net position	**$190,844**	**$529,858**	**$187,310**	**$533,392**
2012 change in fiduciary net position	**$181,367**	**$295,165**	**$181,981**	**$294,551**
2012–2016 change in fiduciary net position	**$997,178**	**$1,302,340**	**$989,676**	**$1,309,842**

Investment Highlights

Voluntary Investment Program, the Defined Contribution Retirement Plan, and the Deferred Compensation Plan Investment Options

The current investment funds for the three plans are the PERAdvantage Capital Preservation Fund, PERAdvantage Fixed Income Fund, PERAdvantage Real Return Fund, PERAdvantage U.S. Large Cap Stock Fund, PERAdvantage International Stock Fund, PERAdvantage U.S. Small and Mid Cap Stock Fund, PERAdvantage Socially Responsible Investment Fund, PERAdvantage Income Fund, PERAdvantage 2020 Fund, PERAdvantage 2025 Fund, PERAdvantage 2030 Fund, PERAdvantage 2035 Fund, PERAdvantage 2040 Fund, PERAdvantage 2045 Fund, PERAdvantage 2050 Fund, PERAdvantage 2055 Fund, PERAdvantage 2060 Fund, and TD Ameritrade Self-Directed Brokerage Account. Each PERAdvantage option is made up of one or more underlying portfolios.

Cash and Short-Term Investments

For the year ended December 31, 2016, PERA had cash and short-term investments of $38,666, an increase of $8,703 from 2015. The increase was primarily due to the transition of a fixed income commingled fund investment to a separately managed fixed income account, which resulted in PERA's direct ownership in cash and short-term investments at year-end.

Total Liabilities

For the year ended December 31, 2016, the Defined Contribution Pension and Deferred Compensation Trust Funds had total liabilities of $34,803, an increase of $31,157 from 2015. The increase was primarily due to higher pending settlement of fixed income investment purchases at year-end.

Cash and Short-Term Investments, Global Equity, Fixed Income, and Multi-Asset Class Funds

To conform with current year presentation, a portion of the December 31, 2015, combined amounts for cash and short-term investments, fixed income, and global equity on the Statements of Fiduciary Net Position related to the Voluntary Investment Program, the Defined Contribution Retirement Plan, and the Deferred Compensation Plan were restated to multi-asset class funds. The restatements have no effect on the individual funds' FNP.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

COMPARATIVE FINANCIAL STATEMENTS

Defined Benefit Pension Trust Funds

The five defined benefit funds provide retirement, survivor, and disability benefits to the employees of affiliated State, School, Local Government, Judicial, and DPS employers. Benefits are funded by member and employer contributions and by earnings on investments.

DEFINED BENEFIT PENSION TRUST FUNDS FIDUCIARY NET POSITION

	December 31, 2016	December 31, 2015	% Change
Assets			
Cash and short-term investments	**$983,637**	$750,743	31.0%
Securities lending collateral	**939,759**	1,441,283	(34.8%)
Receivables	**608,206**	820,319	(25.9%)
Investments, at fair value	**42,201,694**	41,761,162	1.1%
Capital assets, net of accumulated depreciation	**15,038**	16,451	(8.6%)
Total assets	**44,748,334**	44,789,958	(0.1%)
Liabilities			
Investment settlements and other liabilities	**412,858**	690,483	(40.2%)
Securities lending obligations	**939,863**	1,440,982	(34.8%)
Total liabilities	**1,352,721**	2,131,465	(36.5%)
Fiduciary net position	**$43,395,613**	**$42,658,493**	**1.7%**

DEFINED BENEFIT PENSION TRUST FUNDS CHANGES IN FIDUCIARY NET POSITION

	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015	% Change
Additions			
Employer contributions	**$1,434,771**	$1,324,798	8.3%
Member contributions	**687,202**	665,662	3.2%
Purchased service	**58,152**	61,383	(5.3%)
Investment income	**3,016,481**	663,986	354.3%
Other	**14,898**	8,392	77.5%
Total additions	**5,211,504**	2,724,221	91.3%
Deductions			
Benefit payments	**4,260,156**	4,073,790	4.6%
Refunds	**147,420**	162,172	(9.1%)
Disability insurance premiums	**6,442**	6,319	1.9%
Administrative expenses	**38,492**	36,573	5.2%
Other	**21,874**	16,186	35.1%
Total deductions	**4,474,384**	4,295,040	4.2%
Change in fiduciary net position	**737,120**	(1,570,819)	146.9%
Fiduciary net position			
Beginning of year	**42,658,493**	44,229,312	(3.6%)
End of year	**$43,395,613**	**$42,658,493**	**1.7%**

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

Other Postemployment Benefit Funds

The HCTF and the DPS HCTF provide a health care premium subsidy to participating PERA benefit recipients and their eligible beneficiaries who choose to enroll in one of the PERA health care plans. They are funded by amounts contributed by employers during an employee's working life based on a percentage of pay and by earnings on investments.

OTHER POSTEMPLOYMENT BENEFIT FUNDS FIDUCIARY NET POSITION

	December 31, 2016	December 31, 2015	% Change
Assets			
Cash and short-term investments	$6,702	$5,481	22.3%
Securities lending collateral	6,402	10,522	(39.2%)
Receivables	38,058	34,976	8.8%
Investments, at fair value	287,521	304,876	(5.7%)
Total assets	338,683	355,855	(4.8%)
Liabilities			
Investment settlements and other liabilities	53,715	51,894	3.5%
Securities lending obligations	6,403	10,520	(39.1%)
Total liabilities	60,118	62,414	(3.7%)
Fiduciary net position	$278,565	$293,441	(5.1%)

OTHER POSTEMPLOYMENT BENEFIT FUNDS CHANGES IN FIDUCIARY NET POSITION

	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015	% Change
Additions			
Employer contributions	$87,548	$84,834	3.2%
Retiree health care premiums	144,759	134,148	7.9%
Investment income	20,256	5,061	300.2%
Other	9,464	10,294	(8.1%)
Total additions	262,027	234,337	11.8%
Deductions			
Benefit payments	256,410	246,856	3.9%
Administrative expenses	19,984	20,083	(0.5%)
Other	509	616	(17.4%)
Total deductions	276,903	267,555	3.5%
Change in fiduciary net position	(14,876)	(33,218)	55.2%
Fiduciary net position			
Beginning of year	293,441	326,659	(10.2%)
End of year	$278,565	$293,441	(5.1%)

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

Private Purpose Trust Fund

PERA offers an optional life insurance program where members can purchase varying amounts of coverage. The Life Insurance Reserve is an accumulation of dividends received in the past from the insurance company based upon plan experience. The investment income from the Life Insurance Reserve is used to pay the current administrative costs of the plan.

LIFE INSURANCE RESERVE FIDUCIARY NET POSITION

	December 31, 2016	December 31, 2015	% Change
Assets			
Cash and short-term investments	$439	$326	34.7%
Securities lending collateral	419	626	(33.1%)
Receivables	215	305	(29.5%)
Investments, at fair value	18,836	18,135	3.9%
Total assets	19,909	19,392	2.7%
Liabilities			
Investment settlements and other liabilities	2,799	2,026	38.2%
Securities lending obligations	419	626	(33.1%)
Total liabilities	3,218	2,652	21.3%
Fiduciary net position	$16,691	$16,740	(0.3%)

LIFE INSURANCE RESERVE CHANGES IN FIDUCIARY NET POSITION

	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015	% Change
Additions			
Investment income	$1,289	$302	326.8%
Total additions	1,289	302	326.8%
Deductions			
Life insurance premiums	306	250	22.4%
Administrative expenses	1,032	805	28.2%
Total deductions	1,338	1,055	26.8%
Change in fiduciary net position	(49)	(753)	93.5%
Fiduciary net position			
Beginning of year	16,740	17,493	(4.3%)
End of year	$16,691	$16,740	(0.3%)

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)
(Dollars in Thousands)

Defined Contribution Pension and Deferred Compensation Trust Funds

PERA administers two defined contribution pension trust funds and a deferred compensation trust fund. The Voluntary Investment Program and the Deferred Compensation Plan provide benefits at retirement to members of PERA who have voluntarily made contributions during their employment. The Defined Contribution Retirement Plan provides benefits at retirement to eligible employees who selected this plan. Eligibility applies to certain new employees of State agencies and departments, most community colleges, and the District Attorney within each Judicial District, and if authorized by the county and the District Attorney, the attorneys within each Judicial District.

DEFINED CONTRIBUTION PENSION AND DEFERRED COMPENSATION TRUST FUNDS FIDUCIARY NET POSITION

	December 31, 2016	December 31, 2015	% Change
Assets			
Cash and short-term investments	**$38,666**	$29,963[1]	29.0%
Receivables	**99,804**	89,418	11.6%
Investments, at fair value	**3,645,084**	3,361,066[1]	8.5%
Total assets	**3,783,554**	3,480,447	8.7%
Liabilities			
Liabilities	**34,803**	3,646	854.6%
Total liabilities	**34,803**	3,646	854.6%
Fiduciary net position	**$3,748,751**	**$3,476,801**	**7.8%**

[1] To conform with current year presentation, prior year amounts were restated. See Note 2 of the Notes to the Financial Statements for additional information.

DEFINED CONTRIBUTION PENSION AND DEFERRED COMPENSATION TRUST FUNDS CHANGES IN FIDUCIARY NET POSITION

	For the Year Ended December 31, 2016	For the Year Ended December 31, 2015	% Change
Additions			
Employer contributions	**$17,826**	$16,344	9.1%
Member contributions	**191,892**	189,539	1.2%
Investment income (loss)	**270,906**	(20,666)	1,410.9%
Other	**2,758**	2,730	1.0%
Total additions	**483,382**	187,947	157.2%
Deductions			
Refunds	**205,056**	207,579	(1.2%)
Administrative expenses	**4,503**	4,855	(7.3%)
Other	**1,873**	1,629	15.0%
Total deductions	**211,432**	214,063	(1.2%)
Change in fiduciary net position	**271,950**	(26,116)	1,141.3%
Fiduciary net position			
Beginning of year	**3,476,801**	3,502,917	(0.7%)
End of year	**$3,748,751**	**$3,476,801**	**7.8%**

STATEMENTS OF FIDUCIARY NET POSITION

As of December 31, 2016, with Comparative Combined Totals for 2015
(Dollars in Thousands)

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	Denver Public Schools Division Trust Fund	Total Defined Benefit Pension Plans
Assets						
Cash and short-term investments						
Cash and short-term investments	$308,448	$512,083	$85,640	$6,533	$70,933	$983,637
Securities lending collateral	294,690	489,240	81,819	6,241	67,769	939,759
Total cash and short-term investments	603,138	1,001,323	167,459	12,774	138,702	1,923,396
Receivables						
Benefit	58,163	54,006	6,274	1,608	5,612	125,663
Interfund	198	328	55	4	45	630
Investment settlements and income	151,118	250,885	41,957	3,201	34,752	481,913
Total receivables	209,479	305,219	48,286	4,813	40,409	608,206
Investments, at fair value						
Fixed income	2,995,483	4,973,071	831,685	63,442	688,861	9,552,542
Global equity	7,516,518	12,478,848	2,086,934	159,194	1,728,549	23,970,043
Private equity	1,139,324	1,891,495	316,329	24,130	262,006	3,633,284
Real estate	1,221,191	2,027,409	339,059	25,864	280,833	3,894,356
Opportunity fund	361,077	599,457	100,252	7,647	83,036	1,151,469
Multi-asset class funds	—	—	—	—	—	—
Self-directed brokerage	—	—	—	—	—	—
Total investments, at fair value	13,233,593	21,970,280	3,674,259	280,277	3,043,285	42,201,694
Capital assets, at cost, net of accumulated depreciation of $26,201 and $24,578 at December 31, 2016, and 2015, respectively	4,376	8,593	964	31	1,074	15,038
Total assets	14,050,586	23,285,415	3,890,968	297,895	3,223,470	44,748,334
Liabilities						
Investment settlements and other liabilities	129,684	215,075	35,633	2,749	29,717	412,858
Securities lending obligations	294,722	489,294	81,829	6,242	67,776	939,863
Interfund	—	—	—	—	—	—
Total liabilities	424,406	704,369	117,462	8,991	97,493	1,352,721
Commitments and contingencies (Note 7)						
Fiduciary net position restricted for pensions, and held in trust for deferred compensation benefits, other postemployment benefits, and private purpose trust fund participants	**$13,626,180**	**$22,581,046**	**$3,773,506**	**$288,904**	**$3,125,977**	**$43,395,613**
Fiduciary Net Position Restricted for:						
Defined benefit pension plan benefits	$13,626,180	$22,581,046	$3,773,506	$288,904	$3,125,977	$43,395,613
Defined contribution pension plan benefits	—	—	—	—	—	—
Deferred compensation plan benefits	—	—	—	—	—	—
Other postemployment benefits	—	—	—	—	—	—
Private purpose trust fund participants	—	—	—	—	—	—
Fiduciary net position restricted for pensions, and held in trust for deferred compensation benefits, other postemployment benefits, and private purpose trust fund participants	**$13,626,180**	**$22,581,046**	**$3,773,506**	**$288,904**	**$3,125,977**	**$43,395,613**

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

STATEMENTS OF FIDUCIARY NET POSITION

As of December 31, 2016, with Comparative Combined Totals for 2015
(Dollars in Thousands)

Voluntary Investment Program	Defined Contribution Retirement Plan	Deferred Compensation Plan	Health Care Trust Fund	Denver Public Schools Health Care Trust Fund	Life Insurance Reserve	COMBINED TOTAL	
						2016	2015
$25,286	$3,413	$9,967	$6,268	$434	$439	**$1,029,444**	$786,513
—	—	—	5,988	414	419	**946,580**	1,452,431
25,286	3,413	9,967	12,256	848	858	**1,976,024**	2,238,944
68,864	1,999	15,378	33,181	1,590	—	**246,675**	232,543
—	—	—	4	—	—	**634**	854
10,341	395	2,827	3,071	212	215	**498,974**	711,621
79,205	2,394	18,205	36,256	1,802	215	**746,283**	945,018
527,932	20,298	233,328	60,870	4,212	4,264	**10,403,446**	11,034,210
1,601,717	63,908	349,940	152,739	10,569	10,698	**26,159,614**	25,527,301
—	—	—	23,152	1,602	1,622	**3,659,660**	3,497,759
—	—	—	24,815	1,717	1,738	**3,922,626**	3,716,118
—	—	—	7,337	508	514	**1,159,828**	935,777
604,104	76,685	135,268	—	—	—	**816,057**	707,445
17,976	1,822	12,106	—	—	—	**31,904**	26,629
2,751,729	162,713	730,642	268,913	18,608	18,836	**46,153,135**	45,445,239
—	—	—	—	—	—	**15,038**	16,451
2,856,220	168,520	758,814	317,425	21,258	19,909	**48,890,480**	48,645,652
26,127	1,043	6,999	51,208	2,507	2,799	**503,541**	747,195
—	—	—	5,989	414	419	**946,685**	1,452,128
430	71	133	—	—	—	**634**	854
26,557	1,114	7,132	57,197	2,921	3,218	**1,450,860**	2,200,177
$2,829,663	**$167,406**	**$751,682**	**$260,228**	**$18,337**	**$16,691**	**$47,439,620**	**$46,445,475**
$—	$—	$—	$—	$—	$—	**$43,395,613**	$42,658,493
2,829,663	167,406	—	—	—	—	**2,997,069**	2,785,125
—	—	751,682	—	—	—	**751,682**	691,676
—	—	—	260,228	18,337	—	**278,565**	293,441
—	—	—	—	—	16,691	**16,691**	16,740
$2,829,663	**$167,406**	**$751,682**	**$260,228**	**$18,337**	**$16,691**	**$47,439,620**	**$46,445,475**

STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION

For the Year Ended December 31, 2016, with Comparative Combined Totals for 2015
(Dollars in Thousands)

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	Denver Public Schools Division Trust Fund	Total Defined Benefit Pension Plans
Additions						
Contributions						
Employers	$521,804	$812,740	$75,132	$8,024	$17,071	$1,434,771
Members	223,005	359,059	48,470	3,928	52,740	687,202
Purchased service	24,528	27,422	3,981	109	2,112	58,152
Retiree health care premiums	—	—	—	—	—	—
Total contributions	769,337	1,199,221	127,583	12,061	71,923	2,180,125
Investment income (loss)						
Net appreciation (depreciation) in fair value of investments	662,938	1,097,354	182,772	13,833	152,699	2,109,596
Interest	95,088	157,347	26,189	1,985	21,923	302,532
Dividends	157,312	260,311	43,326	3,283	36,268	500,500
Real estate, private equity, and opportunity fund net operating income	79,963	132,317	22,022	1,669	18,435	254,406
Less investment expense	(50,496)	(83,558)	(13,907)	(1,054)	(11,642)	(160,657)
Net income from investing activities	944,805	1,563,771	260,402	19,716	217,683	3,006,377
Securities lending income	3,527	5,836	971	74	813	11,221
Less securities lending expense	(351)	(581)	(97)	(7)	(81)	(1,117)
Net income from securities lending	3,176	5,255	874	67	732	10,104
Net investment income	947,981	1,569,026	261,276	19,783	218,415	3,016,481
Other additions	8,708	109	17	2,800	3,264	14,898
Total additions	1,726,026	2,768,356	388,876	34,644	293,602	5,211,504
Deductions						
Benefits						
Benefits paid to retirees/cobeneficiaries	1,469,595	2,216,831	256,706	22,424	261,570	4,227,126
Benefits paid to survivors	14,233	14,644	2,261	310	1,582	33,030
Benefits paid to health care participants	—	—	—	—	—	—
Total benefits	1,483,828	2,231,475	258,967	22,734	263,152	4,260,156
Refunds of contribution accounts, including match and interest	60,137	65,715	12,938	109	8,521	147,420
Disability and life insurance premiums	2,106	3,454	439	45	398	6,442
Administrative expenses	11,271	21,991	2,395	81	2,754	38,492
Other deductions	3,040	17,443	1,140	122	129	21,874
Total deductions	1,560,382	2,340,078	275,879	23,091	274,954	4,474,384
Net increase (decrease) in fiduciary net position	**165,644**	**428,278**	**112,997**	**11,553**	**18,648**	**737,120**
Fiduciary net position restricted for pensions, and held in trust for deferred compensation benefits, other postemployment benefits, and private purpose trust fund participants						
Beginning of year	13,460,536	22,152,768	3,660,509	277,351	3,107,329	42,658,493
End of year	$13,626,180	$22,581,046	$3,773,506	$288,904	$3,125,977	$43,395,613

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

STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION

For the Year Ended December 31, 2016, with Comparative Combined Totals for 2015

(Dollars in Thousands)

Voluntary Investment Program	Defined Contribution Retirement Plan	Deferred Compensation Plan	Health Care Trust Fund	Denver Public Schools Health Care Trust Fund	Life Insurance Reserve	COMBINED TOTAL 2016	COMBINED TOTAL 2015
$4,740	$13,060	$26	$80,825	$6,723	$—	$1,540,145	$1,425,976
129,909	10,382	51,601	—	—	—	879,094	855,201
—	—	—	—	—	—	58,152	61,383
—	—	—	138,021	6,738	—	144,759	134,148
134,649	23,442	51,627	218,846	13,461	—	2,622,150	2,476,708
176,296	11,619	43,568	13,325	867	901	2,356,172	(275,911)
5,216	230	3,299	1,900	122	129	313,428	310,195
28,860	955	5,408	3,144	203	214	539,284	539,940
—	—	—	1,598	103	109	256,216	233,535
(3,439)	(203)	(903)	(1,009)	(65)	(69)	(166,345)	(169,919)
206,933	12,601	51,372	18,958	1,230	1,284	3,298,755	637,840
—	—	—	70	5	5	11,301	11,977
—	—	—	(7)	—	—	(1,124)	(1,134)
—	—	—	63	5	5	10,177	10,843
206,933	12,601	51,372	19,021	1,235	1,289	3,308,932	648,683
2,170	92	496	9,175	289	—	27,120	21,416
343,752	36,135	103,495	247,042	14,985	1,289	5,958,202	3,146,807
—	—	—	—	—	—	4,227,126	4,041,266
—	—	—	—	—	—	33,030	32,524
—	—	—	243,662	12,748	—	256,410	246,856
—	—	—	243,662	12,748	—	4,516,566	4,320,646
154,202	8,932	41,922	—	—	—	352,476	369,751
—	—	—	—	—	306	6,748	6,569
2,814	726	963	19,166	818	1,032	64,011	62,316
1,172	97	604	491	18	—	24,256	18,431
158,188	9,755	43,489	263,319	13,584	1,338	4,964,057	4,777,713
185,564	**26,380**	**60,006**	**(16,277)**	**1,401**	**(49)**	**994,145**	**(1,630,906)**
2,644,099	141,026	691,676	276,505	16,936	16,740	46,445,475	48,076,381
$2,829,663	**$167,406**	**$751,682**	**$260,228**	**$18,337**	**$16,691**	**$47,439,620**	**$46,445,475**

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Note 1—Plan Description

Organization

Colorado PERA was established in 1931. The statute relating to PERA is Title 24, Article 51 of the Colorado Revised Statutes (C.R.S.). PERA administers the following plans:

Plan Name	Type of Plan
Defined Benefit Pension Plans (Division Trust Funds)	
State Division Trust Fund	Cost-sharing multiple-employer
School Division Trust Fund	Cost-sharing multiple-employer
Local Government Division Trust Fund	Cost-sharing multiple-employer
Judicial Division Trust Fund	Cost-sharing multiple-employer
Denver Public Schools (DPS) Division Trust Fund	Single-employer
Defined Benefit Other Postemployment Benefit Plans (Health Care Trust Funds)	
Health Care Trust Fund (HCTF)	Cost-sharing multiple-employer
Denver Public Schools Health Care Trust Fund (DPS HCTF)	Cost-sharing multiple-employer
Defined Contribution Plans	
Voluntary Investment Program	Multiple-employer
Defined Contribution Retirement Plan	Multiple-employer
Deferred Compensation Plan	
Deferred Compensation Plan	Multiple-employer
Private Purpose Trust Fund	
Life Insurance Reserve	Multiple-employer

Responsibility for the organization and administration of these plans rests with the PERA Board of Trustees (Board). The Board is composed of the following 16 Trustees:

- Nine members elected by members from their respective Divisions to serve on the Board for four–year terms; four from the School Division, three from the State Division, one from the Local Government Division, and one from the Judicial Division.
- Two retirees elected by retirees to serve on the Board for four-year terms.
- Three Trustees appointed by the Governor and confirmed by the State Senate.
- The State Treasurer.
- One ex officio (non-voting) member or retiree elected by members and retirees of the DPS Division to serve on the Board for a four-year term.

Listed below is the number of active participating employers for the five Division Trust Funds. Guidance under the Governmental Accounting Standards Board (GASB) Statement No. 67 classifies a primary government and its component units as one employer. In years prior to 2014, employer counts were based on separate units of government.

Division	As of December 31, 2016[1]
State	32
School	229
Local Government	141
Judicial	2
DPS	1
Total employers	**405**

[1] This employer count is presented for purposes of complying with GASB 67 only. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

Membership—Division Trust Funds-Defined Benefit Pension Plans

Benefit recipients and members of PERA consisted of the following as of December 31, 2016, with comparative combined totals for 2015:

	State Division	School Division	Local Government Division	Judicial Division	DPS Division	2016	2015
Retirees and beneficiaries	38,140	62,102	7,065	361	6,941	**114,609**	111,035
Terminated employees entitled to benefits but not yet receiving benefits	6,426	15,727	2,748	8	1,374	**26,283**	24,886
Inactive members	72,398	113,942	22,896	5	9,545	**218,786**	207,610
Active members							
Vested general employees	30,266	66,650	6,093	275	6,890	**110,174**	110,768
Vested State Troopers	653	—	—	—	—	**653**	640
Non-vested general employees	24,623	55,295	6,643	60	9,060	**95,681**	92,360
Non-vested State Troopers	183	—	—	—	—	**183**	201
Total active members	55,725	121,945	12,736	335	15,950	**206,691**	203,969
Total	**172,689**	**313,716**	**45,445**	**709**	**33,810**	**566,369**	**547,500**

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Membership—Voluntary Investment Program and Defined Contribution Retirement Plan

See Note 8.

Membership—Deferred Compensation Plan

See Note 8.

Membership—Health Care Trust Funds

See Note 9.

Benefit Provisions—Division Trust Funds

Plan benefits are specified in Title 24, Article 51 of the C.R.S. and applicable provisions of the federal Internal Revenue Code (IRC). Colorado State law provisions may be amended from time to time by the Colorado General Assembly.

Plan Eligibility

All employees of PERA employers who work in a position eligible for PERA membership must be covered by PERA, except for employees who are hired into a position that makes them eligible for a choice between enrolling in the PERA Defined Benefit Plan or the PERA Defined Contribution Retirement Plan (PERAChoice).

PERAChoice eligibility applies to certain new employees of State agencies and departments, most community colleges, and the District Attorney within each Judicial District. If authorized by the county and the District Attorney, the attorneys within that Judicial District may have access to PERAChoice. If an eligible employee does not make a choice of which plan he or she would like to participate in within 60 days of the starting date of employment, the employee is automatically enrolled in the PERA Defined Benefit Plan. Between month 13 and month 72 of participation in their original plan, employees may make a one-time, irrevocable election to switch to the other plan. After the 72nd month of participation, this option to switch plan participation no longer exists.

Some positions of PERA-affiliated employers are not eligible for PERA membership and may be covered by another separate retirement program.

Benefit Provisions

The Division Trust Funds have various benefit provisions depending upon the member's date of hire or upon the member's date of retirement. The differences in plan benefit provisions are detailed in the following pages in this note. On January 1, 2010, the Denver Public Schools Retirement System (DPSRS) merged with PERA. On that date, all liabilities and assets of DPSRS transferred to and became liabilities and assets of the DPS Division of PERA. The benefit provisions of DPSRS were incorporated into PERA as the DPS benefit structure. The benefit provisions of existing members of PERA on the merger date and all new hires post-merger date are identified as the PERA benefit structure.

Member Accounts

Members contribute 8 percent of their PERA-includable salary to their member accounts; State Troopers and Colorado Bureau of Investigation agents contribute 10 percent.

State law authorizes the Board to determine annually the interest to be credited to member accounts, but in no event may the Board specify a rate that exceeds 5 percent. Effective January 1, 2009, the rate was set at 3 percent and has been reconfirmed each November since adoption.

Service Credit

Members earn service credit for each month of work performed as an employee of a PERA-affiliated employer for which salary is earned for such services.

A full month of service credit is earned for each month of work where the salary earned by the employee is equal to or greater than 80 multiplied by the federal minimum hourly wage in effect for that month. Earned salary which is less than this amount results in a partial month of service credit.

Eligible members may purchase additional service credit based upon (1) other employment that is not covered by PERA or another retirement program or (2) the service credit forfeited as the result of a withdrawn PERA member account. Such service credit purchases are subject to limits in State and federal law. The amounts used to purchase service credit are credited to the member's account and may include tax-paid funds and eligible rollovers of tax-deferred funds. Such amounts are eligible for an interest accrual, but no match if the account is refunded in a lump-sum distribution.

Refund or Distribution Provisions

Upon termination of employment with all PERA employers, members have the following options concerning their member account:

- Leave the account invested in the Division Trust Funds for a future distribution or retirement benefit; however, a distribution must begin by April 1 following the year in which the member reaches age 70½.
- Request a distribution of the member account plus an applicable match. Such a distribution cancels the refunding member's service credit and any benefit entitlements associated with the account. The distribution may be taken as cash with the resulting tax consequences or as a rollover to an eligible qualified plan, 403(b) plan, 457 plan, or an Individual Retirement Account.

Matching Amounts

Members under the PERA benefit structure who withdraw their accounts on or after reaching retirement eligibility or age 65 receive their member account plus a 100 percent match on eligible amounts. Due to Senate Bill (SB) 10-001, as of January 1, 2011, members

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

under the PERA benefit structure who withdraw their accounts before reaching retirement eligibility must have five years of earned service credit in order to receive a 50 percent match. All contributions received prior to January 1, 2011, are eligible for the 50 percent match regardless of how much service credit the member has earned. However, contributions received after January 1, 2011, will not be eligible for the 50 percent match until the member earns five years of service credit.

Members under the DPS benefit structure who terminated employment on or after January 1, 2001, and withdraw their accounts on or after reaching retirement eligibility receive their member account plus a 100 percent match on eligible amounts. Members under the DPS benefit structure who withdraw their accounts before reaching retirement eligibility receive a refund of their member accounts, but do not receive any match.

Members have the option of leaving their accounts until retirement eligibility age. The member's account plus a 100 percent match on eligible amounts is then annuitized into a monthly benefit using PERA's expected rate of return.

Highest Average Salary

Plan benefits, described below, generally are calculated as a percentage of the member's three-year highest average salary (HAS). The following conditions apply to the HAS calculation:

- *For all members of the PERA benefit structure, except judges, who were eligible to retire as of January 1, 2011, who were hired before January 1, 2007, and who retire on or after January 1, 2009:* HAS is determined by the highest annual salaries associated with four periods of 12 consecutive months of service credit. The four 12-month periods selected do not have to be consecutive nor do they have to include the last four years of membership. The lowest of the four periods becomes a base year used as a starting point for a 15 percent cap on annual salary increases for the next three periods used to determine the applicable HAS. This salary cap applies regardless of when the annual salaries used in the HAS calculation occurred.

- *For all members of the PERA benefit structure, except judges, who were not eligible to retire as of January 1, 2011, or members of the PERA benefit structure who are hired on or after January 1, 2007, regardless of the date of retirement:* HAS is determined by the highest annual salaries associated with four periods of 12 consecutive months of service credit. The four 12-month periods selected do not have to be consecutive nor do they have to include the last four years of membership. The lowest of the four periods becomes a base year used as a starting point for an 8 percent cap on annual salary increases for the next three periods used to determine the applicable HAS. This salary cap applies regardless of when the annual salaries used in the HAS calculation occurred.

- *For members of the Judicial Division Trust Fund (judges) regardless of the date of hire or the date of retirement:* HAS is one-twelfth of the highest annual salary associated with one period of 12 consecutive months of service credit.

- *For members of the DPS benefit structure who are eligible to retire as of January 1, 2011:* HAS is the average monthly salary of the 36 months of earned service having the highest salaries.

- *For members of the DPS benefit structure who are not eligible to retire as of January 1, 2011:* HAS is determined by the highest annual salaries associated with four periods of 12 consecutive months of service credit. The four 12-month periods selected do not have to be consecutive nor do they have to include the last four years of membership. The lowest of the four periods becomes a base year used as a starting point for an 8 percent cap on annual salary increases for the next three periods used to determine the applicable HAS. This salary cap applies regardless of when the annual salaries used in the HAS calculation occurred.

Service Retirement Benefits—PERA Benefit Structure

Upon termination of PERA-covered employment and reaching eligibility for service retirement benefits, a member may begin receipt of benefits as shown below and on the next page.

Service Retirement Eligibility for Members
(Other Than State Troopers) Hired Before July 1, 2005,
With Five Years of Service Credit on January 1, 2011

Age Requirement (in years)	Service Credit Requirement (in years)
50	30
55	Age and Service = 80 or more
60	20
65	5
65	Less than 5 but 60 payroll postings[1]

[1] Retiring members who are age 65 and have less than five years of service credit and less than 60 payroll postings will receive a service retirement benefit under the Money Purchase Formula only

Service Retirement Eligibility for Members
(Other Than State Troopers) Hired On or After July 1, 2005,
But Before January 1, 2007,
With Five Years of Service Credit on January 1, 2011

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
55	Age and Service = 80 or more
60	20
65	5
65	Less than 5 but 60 payroll postings[1]

[1] Retiring members who are age 65 and have less than five years of service credit and less than 60 payroll postings will receive a service retirement benefit under the Money Purchase Formula only.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Service Retirement Eligibility for Members (Other Than State Troopers) Hired on or After January 1, 2007, But Before January 1, 2011, With Five Years of Service Credit on January 1, 2011

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
55	30
55	Age and Service = 85 or more
60	25
65	5
65	Less than 5 but 60 payroll postings[1]

[1] Retiring members who are age 65 and have less than five years of service credit and less than 60 payroll postings will receive a service retirement benefit under the Money Purchase Formula only.

Service Retirement Eligibility for Members (Other Than State Troopers) Hired Before January 1, 2011, With Less Than Five Years of Service Credit on January 1, 2011

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
55	30
55	Age and Service = 85 or more
60	25
65	5
65	Less than 5 but 60 payroll postings[1]

[1] Retiring members who are age 65 and have less than five years of service credit and less than 60 payroll postings will receive a service retirement benefit under the Money Purchase Formula only.

Service Retirement Eligibility for Members (Other Than State Troopers) Hired on or After January 1, 2011, But Before January 1, 2017, or Hired on or After January 1, 2017, Whose Most Recent 10 Years of Service are in the School or DPS Divisions

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
58	30
58	Age and Service = 88 or more
60	28
65	5
65	Less than 5 but 60 payroll postings[1]

[1] Retiring members who are age 65 and have less than five years of service credit and less than 60 payroll postings will receive a service retirement benefit under the Money Purchase Formula only.

Service Retirement Eligibility for Members (Other Than State Troopers) Hired on or After January 1, 2017, Whose Most Recent 10 Years of Service are not in the School or DPS Divisions

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
60	30
60	Age and Service = 90 or more
65	5
65	Less than 5 but 60 payroll postings[1]

[1] Retiring members who are age 65 and have less than five years of service credit and less than 60 payroll postings will receive a service retirement benefit under the Money Purchase Formula only.

Service Retirement Eligibility for State Troopers

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	30
50	25
55	20
60	Age and Service = 80 or more
65	5
65	Less than 5 but 60 payroll postings[1]

[1] Retiring members who are age 65 and have less than five years of service credit and less than 60 payroll postings will receive a service retirement benefit under the Money Purchase Formula only.

The service retirement benefit for all retiring members is the greater of the Defined Benefit Formula or the Money Purchase Formula as explained below:

- **Defined Benefit Formula**
  HAS multiplied by 2.5 percent and then multiplied by years of service credit.

- **Money Purchase Formula**
  Values the retiring member's account plus a 100 percent match on eligible amounts as of the member's retirement date. This amount is then annuitized into a monthly benefit using the retiring member's life expectancy, expected rates of return, and other actuarial factors.

In all cases, a service retirement benefit is limited to 100 percent of HAS and also cannot exceed the maximum benefit amount allowed by federal law.

Reduced Service Retirement—PERA Benefit Structure

Reduced service retirement benefits are calculated in the same manner as a service retirement benefit with a reduction for each month prior to the member's first eligible date for a service retirement. The benefit calculation reduction factors are specified in C.R.S. § 24-51-605.

Reduced Service Retirement Eligibility

Age Requirement (in years)		Service Credit Requirement (in years)
50		25
50	—(State Troopers only)—	20
55		20
60		5

SB 10-001 did not change the age and service requirements to be eligible for a reduced service retirement benefit nor did it change the reduced service retirement benefit for members who are eligible to retire as of January 1, 2011; for these members the current reduction factors found at C.R.S. § 24-51-605 will remain in place. The legislation did change the reduction factors used to calculate reduced benefits for those members not eligible to retire as of January 1, 2011. For these members, an actuarial equivalent reduction will be applied to the reduced service retirement benefit.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Service Retirement and Reduced Service Retirement Benefits—DPS Benefit Structure

Members in the DPS benefit structure are eligible to receive a monthly retirement benefit when they meet the age and service requirements listed below. If the member has less than five years of service credit under the DPS benefit structure, the member does not have the option to apply for a benefit and the member is only eligible for a refund of his or her account.

If the member has five years of service credit as of January 1, 2011, the following age and service requirements apply:

Service Retirement Benefit

Age Requirement (in years)	Service Credit Requirement (in years)
50	30
55	25[1]
65	5

[1] 15 years must be earned service credit

Reduced Service Retirement Benefit

Age Requirement (in years)	Service Credit Requirement (in years)
Less than 50	30
Less than 55	25
55	15

If the member does not have five years of service credit as of January 1, 2011, the following age and service requirements apply:

Service Retirement Benefit

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
55	30[1]
55	Age and Service = 85 or more[1]
60	25
65	5

[1] 20 years must be earned service credit

Reduced Service Retirement Benefit

Age Requirement (in years)	Service Credit Requirement (in years)
50	25
55	20
60	5

The service retirement benefit for all retiring members is the greater of the two calculations as explained below:

- HAS multiplied by 2.5 percent and then multiplied by years of service credit.
- $15 (actual dollars) times the first 10 years of service credit plus $20 (actual dollars) times service credit over 10 years plus a monthly amount equal to the annuitized member balance (which may include matching dollars if eligible) using the retiring member's life expectancy, expected rates of return, and other actuarial factors.

In all cases, a service retirement benefit is limited to 100 percent of HAS and also cannot exceed the maximum benefit amount allowed by federal law.

Disability Program

Eligible active members, other than judges, with five or more years of earned service credit are covered by the PERA Disability Program. Judges are immediately covered under the disability program. The earned service credit requirement may be waived for State Troopers who become disabled as the result of injuries in the line of duty.

Medical determinations for the disability program are outsourced to a separate disability program administrator, Unum. Applicants found to be disabled receive payments under one of two tiers:

- **Short-Term Disability:** Disability applicants are eligible for short-term disability payments if they are found to be mentally or physically incapacitated from performance of essential job duties after reasonable accommodation, and who are medically unable to earn at least 75 percent of their pre-disability earnings from any job, but who are not totally and permanently incapacitated from regular and substantial gainful employment. PERA's short-term disability program is an insurance product with PERA's disability program administrator and payments are made directly to the individual from PERA's disability program administrator. The maximum income replacement is 60 percent of the member's pre-disability PERA salary for up to 22 months.
- **Disability Retirement Benefits:** Disability applicants who are found to be totally and permanently mentally or physically incapacitated from regular and substantial gainful employment are eligible for disability retirement benefits. These benefits are paid by PERA for as long as the disability retiree remains disabled. The benefit is calculated as a percentage of the disabled member's HAS using accrued, and in some cases, projected service credit.

Benefit Options

Service retirees in the PERA benefit structure and all members in either the DPS benefit structure or the PERA benefit structure who meet the requirements of a disability retirement may elect to receive their retirement or disability retirement benefits in the form of a single-life benefit payable for the retiree's lifetime only, or one of two joint-life benefits payable for the lifetime of the retiree with a continuing benefit paid upon the retiree's death to the retiree's cobeneficiary. Such option designations may only be changed under limited conditions specified in State law. The options are as follows:

- *Option 1:* A single-life benefit payable for the life of the retiree and, upon the death of the retiree, no further monthly benefits are payable.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

- *Option 2:* A joint-life benefit payable for the life of the retiree and, upon the death of the retiree, one-half of the benefit becomes payable to the cobeneficiary of the retiree for life. Upon the death of the cobeneficiary prior to the death of the retiree, an Option 1 benefit becomes payable to the retiree.
- *Option 3:* A joint-life benefit payable for the life of the retiree and, upon the death of the retiree, the same benefit becomes payable to the cobeneficiary of the retiree for life. Upon the death of the cobeneficiary prior to the death of the retiree, an Option 1 benefit becomes payable to the retiree.

Options 2 and 3 are the actuarial equivalent of Option 1.

Service retirees in the DPS benefit structure have the following options:

- *Option A:* A single-life benefit payable for the life of the retiree and, upon the death of the retiree, no further monthly benefits are payable.
- *Option B:* A single-life benefit, reduced from an Option A benefit to provide benefits to designated beneficiaries for a fixed period of time after retirement. As part of the retirement calculation, a guaranteed payment period is determined and if the retiree dies before the guaranteed period ends, the benefit will continue to the Option B beneficiary(ies) for the remainder of the guaranteed period. If the death of the retiree occurs after the guaranteed period, the benefit ends.
- *Option P2:* A joint-life benefit payable for the life of the retiree and, upon the death of the retiree, one-half of the benefit becomes payable to the cobeneficiary of the retiree for life. Upon the death of the cobeneficiary prior to the death of the retiree, an Option A benefit becomes payable to the retiree.
- *Option P3:* A joint-life benefit payable for the life of the retiree and, upon the death of the retiree, the same benefit becomes payable to the cobeneficiary of the retiree for life. Upon the death of the cobeneficiary prior to the death of the retiree, an Option A benefit becomes payable to the retiree.

Options B, P2, and P3 are the actuarial equivalent of Option A.

Survivor Benefits Program—PERA Benefit Structure

Members who have at least one year of earned service credit are covered by the PERA survivor benefits program. This one-year requirement is waived if a member's death is job-incurred.

In the event of the covered member's death, monthly survivor benefits may be paid to the qualified survivors of the deceased. Qualified survivors generally include minor children, a surviving spouse, dependent parents, or a cobeneficiary (for deceased members who were eligible for retirement at the time of death).

Monthly benefits are specified in statute and vary based upon the deceased's HAS, years of service credit, the qualified survivor to whom benefits are to be paid, and the number of qualified survivors receiving benefits.

If at the time of death, a member has less than one year of earned service credit or with no qualified survivors, the deceased's named beneficiary or the estate receives a lump-sum payment of the deceased member's account plus a 100 percent match on eligible amounts.

Survivor Benefits Program—DPS Benefit Structure

Active members who have at least five years of continuous service under the DPS benefit structure prior to the date of death and DPS disability retirements (prior to age 65) are covered by the survivor benefits program applicable to the DPS benefit structure.

In the event of the covered member's death, the member's qualified survivors are eligible for survivor benefits as long as the named beneficiary(ies) waive their right to receive a refund of the member's contributions. Qualified survivors generally include minor children, a surviving spouse, or dependent parents.

Monthly benefits are specified in statute and vary based upon the deceased's HAS, years of service credit, the qualified survivor to whom benefits are to be paid, and the number of qualified survivors receiving benefits.

If at the time of death, a member has not met the eligibility requirements for the DPS benefit structure survivor benefits program that are specified in statute, the member's named beneficiary(ies) will receive a lump-sum payment of the deceased member's account without a match.

Annual Increases

On an annual basis, eligible benefit recipients receive post-retirement, cost-of-living adjustments called annual increases (AI). The AI payment month, eligibility, and amounts are determined by the date the retiree or deceased member began membership in PERA.

The AI provisions are explained below.

- For benefit recipients of the PERA benefit structure who began membership before January 1, 2007, and whose benefit is paid based on a retirement date prior to January 1, 2011, and benefit recipients of the DPS benefit structure whose benefit is paid based on a retirement date prior to January 1, 2011:
  - *Payment Month:* The AI is paid in July.
  - *Eligibility:* The benefit recipient has been receiving benefits for at least seven months immediately preceding the July in which the AI is to be paid.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

- *AI Amount:* The AI is 2 percent per year unless PERA has a negative investment year in which case, for the next three years, the AI becomes the lesser of 2 percent or the average of the monthly Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) amounts for the prior calendar year. The amount of the first AI will be prorated from the month of retirement to the first AI payment date.

• For benefit recipients of the PERA benefit structure who began membership before January 1, 2007, and whose benefit is paid based on a retirement date on or after January 1, 2011, and benefit recipients of the DPS benefit structure whose benefit is paid based on a retirement date on or after January 1, 2011, the following eligibility criteria is required:

- *Payment Month:* The AI is paid in July.

- *Eligibility:* For full service retirees, disability retirees, and reduced service retirees who are eligible to receive a benefit on January 1, 2011, and survivor benefit recipients, the benefit recipient has received benefit payments for the 12 months prior to the July in which the AI is to be paid.

  For reduced service retirees who are not eligible to retire as of January 1, 2011: A reduced service retiree is eligible to receive the AI in July of the year in which both of the following conditions are met: (1) the retiree has received benefit payments for 12 months prior to the July in which the AI is to be paid and (2) as of January 1 of the year the AI is paid, the retiree has either reached age 60 or the age and service Rule for unreduced service retirement applicable to the retiree's Plan.

- *AI Amount:* The AI is 2 percent per year unless PERA has a negative investment year in which case, for the next three years, the AI becomes the lesser of 2 percent or the average of the monthly CPI-W amounts for the prior calendar year.

• For benefit recipients of the PERA benefit structure who began membership on and after January 1, 2007:

- *Payment Month:* The AI is paid in July.

- *Eligibility:* For full service retirees, disability retirees, and survivor benefit recipients: The benefit recipient becomes eligible in July of the calendar year following the calendar year in which the benefit recipient has received 12 months of benefit payments.

  For reduced service retirees: A reduced service retiree is eligible to receive the AI in July of the year in which both of the following conditions are met: (1) as of January 1 of the year the AI is to be paid, the retiree has received 12 months of benefit payments in the prior calendar year and (2) as of January 1 of the year the AI is paid, the retiree has either reached age 60 or the age and service Rule for unreduced service retirement applicable to the retiree's Plan.

- *AI Amount:* The AI is the lesser of 2 percent or the average of the monthly CPI-W amounts for the prior calendar year. In no case can the sum of AIs paid to a Division's benefit recipients exceed 10 percent of the divisional Annual Increase Reserve (AIR).

Changes to the 2 Percent AI Cap: If PERA's overall funded status is at or above 103 percent, the AI cap of 2 percent will increase by 0.25 percent per year. If after PERA's overall funded status reaches 103 percent and it subsequently drops below 90 percent, the AI cap will decrease by 0.25 percent per year, but will never drop below 2 percent.

Indexing of Benefits
Under previous law, inactive members who were covered by the plan as of December 31, 2006, who have 25 or more years of service credit, but do not begin receiving monthly benefits, have their benefit amount increased by the applicable AI granted by PERA from their date of termination of membership to their effective date of retirement. SB 10-001 removed this provision for all members not eligible to retire as of January 1, 2011.

Suspending Benefits
If a retiree suspends retirement on or after January 1, 2011, returns to membership, and earns at least one year of service credit, a separate benefit will be earned. In this case, the retiree may opt to refund the contributions remitted with interest and an applicable match or receive a second, separate benefit. The original benefit will not be recalculated. Individuals who suspended retirement prior to January 1, 2011, are eligible to have their original benefit recalculated upon re-retirement.

If less than one year of service credit is earned during the return to membership, the retiree will be required to refund the contributions remitted with interest and an applicable match before the original benefit will resume.

Working After Retirement Without Suspending Benefits
• **Retiree Contributions:** With a few statutory exceptions, employers are required to remit employer contributions, Amortization Equalization Disbursement (AED), and Supplemental Amortization Equalization Disbursement (SAED) on salary earned by retirees who work for them, but do not suspend retirement and return to membership. Beginning January 1, 2011, working retirees are required to make contributions at a percentage equal to the member contribution rate. Under C.R.S. § 24-51-101 (53), working retiree contributions are nonrefundable and are not deposited into member accounts. PERA deposits these contributions into the employer reserve.

• **Limits on Working After Retirement:** With a few statutory exceptions, retirees may work up to 110 days/720 hours per calendar year for a PERA employer with no reduction in benefits. In addition, each employer assigned to the School Division Trust

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Fund, DPS Division Trust Fund, and each Higher Education Institution assigned to the State Division Trust Fund may designate on a calendar year basis, up to 10 service retirees who may work up to 30 additional days for a total of 140 days/916 hours in a calendar year. The employer contributions, AED, SAED, and working retiree contributions are due on all salary earned.

- **HB 17-1176—PERA Retirees Employed By Rural School Districts:** Following the 2017 legislative session, Governor Hickenlooper signed into law House Bill (HB) 17-1176, which modifies the current working after retirement provisions through June 30, 2023. This modification applies to service retirees who are teachers, school bus drivers, or school food service cooks hired by rural school districts in the School Division that are deemed to have a critical need to fill vacant positions. These retirees may receive salary without a reduction in benefits for any length of employment in a calendar year as long as certain criteria are met. Please see Note 12 on page 96 for further details.

Benefit Provisions—Voluntary Investment Program and Defined Contribution Retirement Plan

See Note 8.

Benefit Provisions—Deferred Compensation Plan

See Note 8.

Benefit Provisions—Health Care Trust Funds

See Note 9.

Life Insurance Reserve

PERA offers an optional life insurance program where members can purchase varying amounts of coverage. The Life Insurance Reserve is an accumulation of dividends received in the past from the insurance company based upon plan experience. The investment income from the Life Insurance Reserve is used to pay the current administrative costs of the plan.

Termination of PERA

If PERA is partially or fully terminated for any reason, C.R.S. § 24-51-217 provides that the rights of all members and benefit recipients to all benefits on the date of termination, to the extent then funded, will become nonforfeitable.

Note 2—Summary of Significant Accounting Policies

Reporting Entity

The Board oversees all funds included in the financial statements of PERA and has the ability to influence operations. The Board's responsibilities include designation of management, membership eligibility, investment of funds, and accountability for fiscal matters.

PERA is an instrumentality of the State of Colorado (State); it is not an agency of State government. In addition, it is not subject to administrative direction by any department, commission, board, bureau, or agency of the State. Accordingly, PERA's financial statements are not included in the financial statements of any other organization.

Basis of Presentation

The accompanying financial statements are prepared in accordance with accounting principles generally accepted in the United States of America that apply to governmental accounting for fiduciary funds.

PERA implemented the provisions of GASB Statement No. 72, "Fair Value Measurement and Application" for the year ended December 31, 2016. GASB 72 provides guidance for determining a fair value measurement for financial reporting purposes and establishes a hierarchy of inputs to valuation techniques used to measure fair value. This Statement also provides guidance for applying fair value to certain investments and disclosures related to all fair value measurements. Implementing this standard did not have a material impact on PERA's financial statements, but does require additional note disclosure. See Note 5 for disclosures related to GASB 72.

In June 2015, GASB issued Statement No. 74, "Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans." GASB 74 addresses reporting by other postemployment benefit (OPEB) plans that administer benefits on behalf of governments. The new OPEB standard parallels the pension standard issued in 2012—GASB Statement No. 67, "Financial Reporting for Pension Plans." The Statement requires more extensive note disclosures and RSI related to the measurement of the OPEB liabilities for which assets have been accumulated. GASB 74 will be effective for periods beginning after June 15, 2016. PERA has chosen not to early adopt GASB 74 and has not yet determined the impact of this standard on its financial statements and disclosures.

In January 2017, GASB issued Statement No. 84, "Fiduciary Activities." GASB 84 establishes criteria for identifying fiduciary activities and guidance on reporting those activities. This Statement provides guidance on four fiduciary funds that should be reported, if applicable: pension (and other employee benefit) trust funds, investment trust funds, private-purpose trust funds, and custodial funds. GASB 84 will be effective for periods beginning after December 15, 2018. PERA has chosen not to early adopt GASB 84 and has not yet determined the impact of this standard on its financial statements and disclosures.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

In March 2017, GASB issued Statement No. 85, "Omnibus 2017." GASB 85 addresses several different issues identified during the implementation and application of certain GASB pronouncements. Issues addressed in this new standard include, but are not limited to, the presentation of payroll-related measures in required supplementary information by OPEB plans and employers that provide OPEB; classifying employer-paid member contributions for OPEB; and accounting and financial reporting for OPEB provided through certain multiple-employer defined benefit OPEB plans. GASB 85 will be effective for periods beginning after June 15, 2017. PERA has chosen not to early adopt GASB 85 and has not yet determined the impact of this standard on its financial statements and disclosures.

To conform with current year presentation, a portion of the December 31, 2015, combined amounts for cash and short-term investments, fixed income and global equity on the Statements of Fiduciary Net Position related to the Voluntary Investment Program, the Defined Contribution Retirement Plan, and the Deferred Compensation Plan were restated to multi-asset class funds. The restatements have no effect on the individual funds' fiduciary net position (FNP).

Basis of Accounting

The accompanying financial statements for the defined benefit and defined contribution pension trust funds (DB and DC trust funds), the deferred compensation trust fund, the private purpose trust fund, the HCTF, and the DPS HCTF are prepared using the economic resources measurement focus and the accrual basis of accounting. The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires PERA to use estimates and assumptions that affect the accompanying financial statements and disclosures. Actual results could differ from those estimates. Member and employer contributions are recognized as revenues in the period in which the compensation becomes payable to the member and the employer is statutorily committed to pay these contributions to the DB and DC trust funds, the deferred compensation trust fund, the HCTF, and the DPS HCTF. Benefits and refunds are recognized when due and payable.

Fund Accounting

The financial activities of the State Division Trust Fund, the School Division Trust Fund, the Local Government Division Trust Fund, the Judicial Division Trust Fund, the DPS Division Trust Fund, the HCTF, the DPS HCTF, the Life Insurance Reserve, the Voluntary Investment Program, the Defined Contribution Retirement Plan, and the Deferred Compensation Plan are recorded in separate funds. The State, School, Local Government, Judicial, and DPS Division Trust Funds maintain separate accounts, and all actuarial determinations are made using separate division-based information.

The Division Trust Funds, the HCTF, the DPS HCTF, and the Life Insurance Reserve pool their investments into a combined investment portfolio. Investment value and earnings of the investment pool are allocated among the funds based on each fund's percentage ownership. As of December 31, 2016, the ownership percentages of each fund are shown in the table below.

Trust Fund	Ownership Percentages
State Division	31.13%
School Division	51.69%
Local Government Division	8.64%
Judicial Division	0.66%
DPS Division	7.16%
HCTF	0.64%
DPS HCTF	0.04%
Life Insurance Reserve	0.04%
Total	100.00%

The administrative activities and operating assets and liabilities are pooled and recorded in a Common Operating Fund. Expenses incurred and net operating assets are allocated from the Common Operating Fund to the Division Trust Funds based on administrative staff workload devoted to these funds and the ratio of the number of active and retired members in each division to the total for all the Division Trust Funds. Expenses are allocated to the HCTF and DPS HCTF based on administrative fees charged to participants. Expenses are allocated to the Voluntary Investment Program, the Defined Contribution Retirement Plan, and the Deferred Compensation Plan based on administrative staff workload and the ratio of FNP of each program or plan to the total for the program and plans. Expenses are allocated to the Life Insurance Reserve based on administrative staff workload.

Fair Value of Investments

Plan investments are presented at fair value in the Statements of Fiduciary Net Position. See Note 5 for additional information.

Health Care Trust Funds Specific Policies

See Note 9.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Note 3—Interfund Transfers and Balances

Interfund transfers of assets take place on a regular basis between the Division Trust Funds. The transfers occur upon the initiation of a retirement or survivor benefit where the member earned or purchased service in another Division Trust Fund in addition to the Fund that is paying the benefit. Transfers also occur from the Division Trust Funds to the Health Care Trust Funds to allocate a portion of the amount paid by members to purchase service credit. The transfers for the year ended December 31, 2016, consisted of the following amounts:

INTERFUND TRANSFERS

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	DPS Division Trust Fund	HCTF	DPS HCTF
Transfers in from other Funds for retirements	$26,879	$15,445	$7,011	$2,799	$7,530	$—	$—
Transfers out to other Funds for retirements	(18,178)	(29,918)	(7,291)	—	(4,277)	—	—
Transfers in from other Funds for survivor benefits	23	105	—	—	—	—	—
Transfers out to other Funds for survivor benefits	(105)	(22)	(1)	—	—	—	—
Transfers out to Health Care Trust Funds for purchased service credit	(2,740)	(2,998)	(850)	(122)	(128)	—	—
Transfers in to Health Care Trust Funds for purchased service credit	—	—	—	—	—	6,710	128

As of December 31, 2016, interfund balances existed between funds due to unreimbursed internal operating expenses. The interfund balances consisted of the following amounts:

INTERFUND BALANCES

Trust Fund	Amount
State Division	$198
School Division	328
Local Government Division	55
Judicial Division	4
DPS Division	45
Voluntary Investment Program	(430)
Defined Contribution Retirement Plan	(71)
Deferred Compensation Plan	(133)
HCTF	4

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Note 4—Contributions

Division Trust Funds—Defined Benefit Pension Plans

Members and employers are required to contribute to PERA at a rate set by Colorado statute. The contribution requirements of plan members and affiliated employers are established under C.R.S. § 24-51-401 *et seq.* Colorado State law provisions may be amended from time to time by the Colorado General Assembly.

Members are required to contribute 8 percent of their PERA-includable salary (State Troopers contribute 10 percent). PERA records these contributions in individual member accounts. Member contributions are tax-deferred for federal and Colorado income tax purposes, effective July 1, 1984, (January 1, 1986, for members of the DPS benefit structure) and January 1, 1987, respectively. Prior to those dates, contributions were on an after-tax basis. PERA-affiliated employers contribute a percentage of active member covered payrolls at employer rates ranging from 10.00 percent to 13.66 percent.

Employers that rehire a PERA retiree as an employee or under any other work arrangement (working retiree) are required to report and pay employer contributions on the amounts paid to the working retiree. In addition, effective January 1, 2011, working retirees are required to make contributions at a percentage of salary equal to the member contribution rate. However, under C.R.S. § 24-51-101 (53), these contributions are not member contributions, are not deposited into a member account, and therefore, are nonrefundable to the working retiree.

For purposes of deferring federal income tax imposed on salary, member contributions and working retiree contributions shall be treated as employer contributions pursuant to the provisions of 26 U.S.C. § 414 (h)(2), as amended. For all other purposes, these contributions shall be treated as member contributions and working retiree contributions as described above.

Beginning January 1, 2006, employers are required to pay the AED, and beginning January 1, 2008, employers are required to pay the SAED. The employers pay these amounts on the PERA-includable salary for all employees working for the employer who are members of PERA, or who are eligible to elect to become members of PERA on or after January 1, 2006, including any amounts paid in connection with the employment of a retiree by an employer. PERA uses these payments to help amortize the unfunded actuarial accrued liability (UAAL). The AED and SAED are set to increase in future years for certain Division Trust Funds, as described in the table on the next page. SB 10-001 provides for adjustment of the AED and SAED based on the year-end funded status within a particular division trust fund. If a particular division trust fund reaches a funded status of 103 percent, a decrease in the AED and SAED is mandated and if it subsequently falls below a funded status of 90 percent, an increase in the AED and SAED is mandated. For the Local Government and Judicial Divisions, if the funded ratio reaches 90 percent and subsequently falls below 90 percent, an increase in the AED and SAED is mandated. AED and SAED rates cannot exceed the maximums listed in the table on the next page.

C.R.S. § 24-51-412 permits a Pension Certificates of Participation (PCOP) offset to the DPS Division employer contribution rate. The offset, expressed as a percentage of covered payroll, is equal to the annual assumed payment obligations for PCOPs issued in 1997 and 2008, including subsequent refinancing, by the Denver Public Schools at a fixed effective annual interest rate of 8.50 percent. At a minimum, the DPS Division employer rate, after applying the PCOP offset, must be sufficient to fund the DPS HCTF and the AIR contribution rates applicable to the DPS Division. The staff of Denver Public Schools provided the PCOP offset rate of 15.54 percent for 2016, which is reviewed and analyzed by PERA staff.

C.R.S. § 24-51-401(1.7) (e) recognizes the effort to equalize the funded status of the DPS Division and the School Division, using the actuarial valuation for funding purposes as a basis. As of December 31, 2016, the funded ratio of the DPS Division is 75.9 percent and the funded ratio of the School Division is 56.3 percent. Beginning January 1, 2015, and every fifth year thereafter, the statute requires a true-up calculation to confirm the equalization of the funded status of these two divisions, which is based on the ratio of UAAL over payroll (currently 415.9 percent for the School Division and 159.7 percent for the DPS Division). The true-up calculation is an actuarial projection to assure the funded status of these divisions will be equal in 30 years from 2010. In the event a true-up calculation does not project equalization between these divisions over the 30-year period, the Board shall recommend an adjustment of the DPS Division employer contribution rate to the Colorado General Assembly. An adjustment to the DPS Division contribution rate may result in a significant increase or decrease in the total contributions paid by the DPS Division employers.

As described above, C.R.S. § 24-51-401(1.7) created a mechanism to reduce the funded ratio of the DPS Division from 88.3 percent at its inclusion into PERA in 2010 to the funded ratio of the School Division by 2040. The funded ratio is the actuarial value of assets divided by actuarial accrued liabilities (AALs). This mechanism involves offsetting the employer contributions into the DPS Division Trust Fund by the amount of the PCOP payments. It is expected that the equalization will occur in approximately 23 years.

PERA-affiliated employers forward the contributions to PERA for deposit. PERA transfers a portion of these contributions, equal to 1.02 percent of the reported salaries, into the HCTF or DPS HCTF for health care benefits. Beginning in 2007, the AIR was created within each division for the purpose of funding future benefit increases. Funding for this reserve comes from the employer contributions and is calculated at 1.0 percent of the salary reported for members

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

in the PERA benefit structure hired on or after January 1, 2007. Post-retirement benefit increases for these members are limited to a maximum of 2.0 percent compounded annually, subject to the availability of assets in the AIR for each division. As of December 31, 2016, the value of the AIR was $87,407 in the State Division, $115,658 in the School Division, $25,136 in the Local Government Division, $1,016 in the Judicial Division, and $17,744 in the DPS Division.

The remainder of these contributions is transferred into a trust fund established for each division for the purpose of meeting current benefit accruals and future benefit payments.

The combined employer contribution rates for retirement and health care benefits along with the member contribution rates from January 1, 2016, through December 31, 2016, are as follows below:

CONTRIBUTION RATES

Division Trust Fund	Membership	Employer Contribution Rate	AED	SAED	PCOP Offset	Total Contribution Rate Paid by Employer	Member Contribution Rate
State	All members (except State Troopers)	10.15%	4.60%	4.50%	—	19.25%	8.00%
State	State Troopers	12.85%	4.60%	4.50%	—	21.95%	10.00%
School	All members	10.15%	4.50%	4.50%	—	19.15%	8.00%
Local Government	All members	10.00%	2.20%	1.50%	—	13.70%	8.00%
Judicial	All members	13.66%	2.20%	1.50%	—	17.36%	8.00%
DPS	All members	10.15%	4.50%	4.50%	(15.54%)	3.61%	8.00%

FUTURE AED AND SAED RATES

	State Division Trust Fund		School Division Trust Fund		Local Government Division Trust Fund		Judicial Division Trust Fund		DPS Division Trust Fund[1]	
Period	AED	SAED	AED	SAED	AED	SAED	AED	SAED	AED	SAED
1/1/2017—12/31/2017	5.00%	5.00%	4.50%	5.00%	2.20%	1.50%	2.20%	1.50%	4.50%	5.00%
1/1/2018—12/31/2018	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	2.20%	1.50%	4.50%	5.50%
1/1/2019—12/31/2019	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	3.40%	3.40%	4.50%	5.50%
1/1/2020—12/31/2020	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	3.80%	3.80%	4.50%	5.50%
1/1/2021—12/31/2021	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	4.20%	4.20%	4.50%	5.50%
1/1/2022—12/31/2022	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	4.60%	4.60%	4.50%	5.50%
1/1/2023—12/31/2023	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	5.00%	5.00%	4.50%	5.50%
Maximum allowable limitations	5.00%	5.00%	4.50%	5.50%	5.00%	5.00%	5.00%	5.00%	4.50%	5.50%

[1] DPS Division employers are permitted to reduce the AED and SAED by the PCOP offset, as specified in C.R.S. § 24-51-412 *et seq.*

Following the 2017 legislative session, Governor Hickenlooper signed into law HB 17-1265, which increases contribution rates for employers in the Judicial Division Trust Fund. For the calendar year beginning in 2019, this bill increases the AED for the Judicial Division to 3.40 percent of PERA-includable salary and requires the AED payment to increase by 0.4 percent of PERA-includable salary at the start of each of the following four calendar years through 2023. In addition, for the calendar year beginning in 2019, this bill increases the SAED for the Judicial Division to 3.40 percent of PERA-includable salary and requires the SAED payment to increase by 0.4 percent of PERA-includable salary at the start of each of the following four calendar years through 2023.

Replacement Benefit Arrangements

IRC § 415 limits the amount of the benefit payable to a retiree or survivor in a defined benefit plan. In some cases, the IRC limit is lower than the benefit calculated under the plan provisions. IRC § 415(m) allows a government plan to set up a "qualified governmental excess benefit arrangement" to pay the difference to those retirees. To accomplish this, PERA has entered into agreements with the employers who last employed the affected retirees. Under the agreement, the employer pays the benefit difference to the retiree from a portion of the current employer contributions. In 2016, employers under these agreements used current employer contributions to pay retirees $2,643 in the State Division; $984 in the School Division; $1,738 in the Local Government Division; $0 in the Judicial Division, and $0 in the DPS Division.

Contributions—Voluntary Investment Program and Defined Contribution Retirement Plan

See Note 8.

Contributions—Deferred Compensation Plan

See Note 8.

Contributions—Health Care Trust Funds

See Note 9.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Note 5—Investments

Investment Authority

Under C.R.S. § 24-51-206, the Board has complete responsibility for the investment of PERA's funds, with the following investment limitations:

- The aggregate amount of moneys invested in corporate stocks or corporate bonds, notes, or debentures that are convertible into corporate stock or in investment trust shares cannot exceed 65 percent of the then book value of the fund.
- No investment of the fund in common or preferred stock (or both) of any single corporation can exceed 5 percent of the then book value of the fund.
- The fund cannot acquire more than 12 percent of the outstanding stock or bonds of any single corporation.
- The origination of mortgages or deeds of trust on real residential property is prohibited.

Additionally, C.R.S. § 24-54.8-101 imposes targeted divestment from companies with active operations in Sudan and C.R.S. § 24-54.8-202 imposes targeted divestment from companies that have economic prohibitions against Israel.

Colorado PERA Board's Statutory Fiduciary Responsibility

By State law, the management of PERA's retirement fund is vested in the Board who is held to the standard of conduct of fiduciaries in discharging their responsibilities. According to C.R.S. § 24-51-207(2), the Board, as fiduciaries, must carry out their functions solely in the interest of PERA members and benefit recipients and for the exclusive purpose of providing benefits.

Investment Committee

The Investment Committee is responsible for assisting the Board in overseeing the PERA investment program. Specific responsibilities include recommending to/advising the Board of the following:

- Written statements of investment policy and philosophy for the fund, and any amendments thereto.
- Strategies to achieve the investment goals and objectives of PERA.
- New investment mandates.
- Use of internal or external management for the investment mandates.
- On any other investment matters and make recommendations for Board action when necessary.

Overview of Investment Policy

PERA's investment policy is established and may be amended by a majority vote of the Board. The policy outlines the investment philosophy and guidelines within which the fund's investments will be managed, and includes the following:

- Strategic asset allocation is the most significant factor influencing long-term investment performance and asset volatility.
- The fund's liabilities are long-term and the investment strategy will therefore be long-term in nature.
- The asset allocation policy will be periodically re-examined to ensure its appropriateness to the then prevailing liability considerations.
- As a long-term investor, PERA will invest across a wide spectrum of investments in a prudent manner.
- Active management may be expected to add value over passive investment alternatives under appropriate conditions.

The Board determines the strategic asset allocation policy for the fund. In 2014, the Board commissioned an Asset Liability Study prepared by Aon Hewitt Investment Consulting, Inc. (Aon Hewitt). The objective of the study was to determine the optimal strategic asset allocation policy that would ultimately allow PERA to meet its benefit obligations, while also ensuring that PERA incurs appropriate levels of risk. On March 20, 2015, the Board voted to change the strategic asset allocation policy of the fund effective July 1, 2015. This strategic asset allocation contains a long-term target allocation and specific ranges within which each asset class may operate. Because the long-term target allocation will be achieved over time, an initial interim target allocation was approved as of July 1, 2015. This interim target allocation was revised as of July 1, 2016. PERA staff and Aon Hewitt are responsible for annually recommending interim policy targets to the Board until the long-term target allocation is achieved.

ASSET ALLOCATION TARGETS AND RANGES

	Interim Asset Allocation Target Effective July 1, 2016	Long-Term Asset Allocation	Target Range Effective July 1, 2015
Global Equity	53.5%	53.0%	47.0% – 59.0%
Fixed Income	23.5%	23.0%	18.0% – 28.0%
Private Equity[1]	8.5%	8.5%	5.0% – 12.0%
Real Estate	8.5%	8.5%	5.0% – 12.0%
Opportunity Fund[2]	5.0%	6.0%	0.0% – 9.0%
Cash and Short-Term Investments	1.0%	1.0%	0.0% – 3.0%

[1] The Private Equity asset class has exposure to private equity limited partnership funds with various strategies including: buyout, venture capital, generalist debt, mezzanine debt, distressed debt, secondary funds, fund-of-funds, and energy-related strategies.

[2] As of December 31, 2016, the Opportunity Fund principally consists of investments in timber, risk-parity, tactical, credit, and other opportunistic strategies.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

The Asset Liability Study considered expected investment returns, risks, and correlations of returns. The characteristics of the fund's liabilities were analyzed in conjunction with expected investment risks and returns. The targeted strategic asset allocation is designed to provide appropriate diversification and to balance the expected total rate of return with the volatility of expected returns. The asset allocation targets are adhered to through the implementation of a rebalancing policy. Investments are managed and monitored in a manner which seeks to balance return and risk within the asset/liability framework. The Chief Investment Officer is authorized to execute investment transactions on behalf of the Board. Assets are managed both internally and externally. In making investment decisions, the Board and staff utilize external experts in various fields including risk and performance analysis, portfolio construction, and other important investment functions and issues.

Investment Performance

For the year ended December 31, 2016, the net-of-fees, money-weighted rate of return on the pooled investment assets was 7.3 percent.

A money-weighted rate of return provides information about the performance on pooled investment assets. This methodology considers the effect of timing of transactions that increase the amount of pension plan investments (such as contributions) and those that decrease the amount of pension plan investments (such as benefit payments). Additionally, the money-weighted rate of return provides information that is comparable with the long-term assumed rate of return on the pooled investment assets.

Fair Value

Investments are measured at fair value in accordance with GASB 72. Fair value is defined as the amount for which an investment could be sold in an orderly transaction between market participants at the measurement date in the principal or most advantageous market of the investment. This Statement establishes a three-tier, hierarchal disclosure framework which prioritizes and ranks the level of market price observability used in measuring fair value. The hierarchy is based on the valuation inputs used to measure the fair value of the investment and gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). Inputs refer broadly to the assumptions that market participants would use in pricing the asset or liability, including assumptions about risk, for example, the risk inherent in a particular valuation technique used to measure fair value (such as a pricing model) and/or the risk inherent in the inputs to the valuation technique. The categorization of investments within the hierarchy is based upon the pricing transparency of the instrument and should not be perceived as the particular investment's risk. The three-tier framework is summarized below:

- **Level 1—**Unadjusted quoted prices for identical instruments in active markets.
- **Level 2—**Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.
- **Level 3—**Valuations derived from valuation techniques in which significant inputs are unobservable.

Investments in certain entities that calculate a net asset value (NAV) per share (or its equivalent) sometimes do not have a readily determinable fair value. For these investments, governmental accounting standards permit establishment of fair value using a practical expedient based on the NAV per share (or its equivalent).

The table on the next page presents PERA's investments within the hierarchal framework, as well as investments where fair value is determined using the practical expedient, as of December 31, 2016.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

INVESTMENTS MEASURED AT FAIR VALUE

		Fair Value Measurements Using		
Investments by Fair Value Level	12/31/2016	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Fixed Income				
U.S. corporate bonds	$2,461,020	$—	$2,458,111	$2,909
U.S. government mortgage-backed securities	2,334,595	16,292	2,317,379	924
U.S. government treasuries	2,246,716	2,246,716	—	—
Non-U.S. corporate bonds	628,099	—	627,531	568
Non-U.S. government/agency bonds	456,039	—	456,039	—
Implicit U.S. government agencies	158,182	—	158,182	—
Non-agency CMBS	158,007	—	157,917	90
U.S. municipal bonds	86,759	—	71,446	15,313
Fixed income mutual fund	7,524	7,524	—	—
Total fixed income investments	**8,536,941**	**2,270,532**	**6,246,605**	**19,804**
Global Equity				
Public market investments[1]				
Information technology	4,721,240	4,708,516	12,451	273
Financials	4,261,349	4,239,554	21,460	335
Consumer discretionary	3,410,120	3,392,583	17,426	111
Industrials	3,010,590	2,996,214	14,176	200
Health care	2,936,890	2,905,408	29,528	1,954
Consumer staples	2,223,117	2,216,043	7,027	47
Energy	1,569,468	1,565,641	3,818	9
Materials	1,087,345	1,079,700	7,614	31
Real estate	792,001	790,968	1,033	—
Telecommunication services	609,466	609,466	—	—
Utilities	560,867	560,867	—	—
Equity mutual funds	224,678	224,678	—	—
Non-public market investments and other	488	—	11	477
Total global equity investments	**25,407,619**	**25,289,638**	**114,544**	**3,437**
Real Estate	572,420	—	—	572,420
Self-directed brokerage	31,904	31,832	72	—
Total investments by fair value level	**$34,548,884**	**$27,592,002**	**$6,361,221**	**$595,661**
Investments Measured at the NAV				
Fixed income	1,473,637			
Global equity	751,995			
Multi-asset class funds	816,057			
Private equity	3,659,660			
Real estate	3,350,206			
Opportunity fund	1,159,828			
Total investments measured at the NAV	**11,211,383**			
Total investments measured at fair value	**$45,760,267**			

[1] Approximately $80,000 of public market investments are classified in Level 2 due to the election of fair value pricing for an international equity portfolio. This election employs the use of intra-day movements of the Russell 1000 index as a factor in pricing individual equities positions to ensure equitibility between participants in the PERA Advantage International Stock Fund.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

RECONCILIATION OF INVESTMENT LEVELING DISCLOSURE TO THE STATEMENTS OF FIDUCIARY NET POSITION

	Investments by Fair Value Level	Investments Measured at the NAV	Stable Value Fund[1]	Fixed Income Classified as Short-Term Investments	Statements of Fiduciary Net Position Combined Total
Fixed income	$8,536,941	$1,473,637	$428,279	($35,411)	$10,403,446
Global equity	25,407,619	751,995	—	—	26,159,614
Private equity	—	3,659,660	—	—	3,659,660
Real estate	572,420	3,350,206	—	—	3,922,626
Opportunity fund	—	1,159,828	—	—	1,159,828
Multi-asset class funds	—	816,057	—	—	816,057
Self-directed brokerage	31,904	—	—	—	31,904
Total	**$34,548,884**	**$11,211,383**	**$428,279**	**($35,411)**	**$46,153,135**

[1] The Stable Value Fund is the underlying investment in the PERAdvantage Capital Preservation Fund which is available to participants in the two defined contribution and the deferred compensation funds. The value of the investment is based on the contract value, which approximates fair value. Contract value represents what is owed to the plan participants and what the shares of the stable value fund are being bought and sold for.

Global equity investments classified in Level 1 of the hierarchal framework include securities which trade on a national or international exchange. These investments are primarily valued at the official closing price or last reported sales price of the instrument according to the rules of the exchange. Mutual funds classified in Level 1 of the hierarchal framework include instruments which trade on a national exchange and the fund's NAV is the basis for the fund's transactions. Fixed income securities classified as Level 1 include U.S. Treasuries and U.S. mortgage-backed securities purchased in the to-be-announced forward market. These securities are valued using the bid price, which is the price prospective buyer(s) are prepared to pay to purchase the security. Self-directed brokerage is an investment vehicle available to participants in PERA's Voluntary Investment Program, Defined Contribution Retirement Plan, and Deferred Compensation Plan. Equity investments contained in the self-directed brokerage accounts trade on an exchange, and therefore are classified in Level 1 of the hierarchal framework.

Global equity investments classified in Level 2 of the hierarchal framework include securities valued using a theoretical price which utilizes a standardized formula to derive a price from a related security or from the intra-day movement of a market index. Fixed income investments classified as Level 2 typically do not trade on a national or international exchange and their fair value is based on equivalent values of the same or of comparable securities with similar yield and risk, otherwise known as matrix pricing. Fixed income investments contained in the self-directed brokerage are typically valued using a matrix pricing approach, and therefore are classified in Level 2 of the hierarchal framework.

Global equity public market investments classified in Level 3 of the hierarchal framework are valued using one or more unobservable inputs. This includes instruments that have been delisted from an exchange, instruments where trading has been suspended, or the instrument lacks recent transaction information. Global equity non-public market investments are typically received as a distribution from PERA's private equity fund investments and are valued by the partnership at the time of distribution. Fixed income securities classified in Level 3 of the hierarchal framework include instruments that are in default and instruments whose values are estimated, out of necessity, using unobservable inputs due to lack of comparable securities in the market place. Real estate investments classified in Level 3 of the hierarchal framework were valued by an independent appraiser.

Typically, pricing information for public market investments is made available to PERA by independent, third-party pricing services and other third-party vendors.

The table on the next page presents PERA's unfunded commitments, the investment redemption frequency and redemption notice period as of December 31, 2016, for PERA investments measured at the NAV.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

INVESTMENTS MEASURED AT THE NET ASSET VALUE

	12/31/16	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Fixed income commingled funds	$1,473,637	$—	Daily	1–3 days
Global equity commingled funds	751,995	—	Daily	1–3 days
Multi-asset class commingled funds	816,057	—	Daily	1–3 days
Private equity partnerships	3,659,660	2,432,766	Not Eligible	N/A
Private real estate[1]				
Directly held joint ventures	516,977	79,745	Not Eligible	N/A
Real estate partnerships	938,138	422,615	Not Eligible	N/A
Commingled open-end funds	1,895,091	149,429	Daily, Monthly, Quarterly	30–90 days
Opportunity fund				
Opportunity fund partnerships	313,108	347,249	Not Eligible	N/A
Commingled open-end funds	846,720	353,500	Daily, Monthly, Biennial	5–180 days
Total investments measured at the NAV	**$11,211,383**	**$3,785,304**		

[1] In addition, PERA has $233,119 in unfunded commitments related to real estate presented in Level 3 of the hierarchal framework.

The fair value of the investments in fixed income, global equity, and multi-asset class commingled funds has been determined using NAV of the units held at December 31, 2016. Commingled funds are only offered to a limited group of investors, and the most significant element of the NAV is the fair value of the underlying investment holdings of the fund. Unit values are determined by dividing each fund's net assets by the number of units outstanding on the valuation date. Fixed income commingled funds include nine funds that seek results which correspond generally to the price and yield performance of a particular index or to produce returns in excess of the total rate of return of a particular benchmark. Global equity commingled funds include five funds which primarily consist of investments whose objective is to produce returns that either match or exceed the total rate of return of a particular benchmark. Multi-asset class commingled funds include 10 target date retirement funds which are broadly diversified across global asset classes, where asset allocations become more conservative over time with the objective of providing for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase. Additionally, this asset class also includes one fund whose objective is to produce returns that exceed inflation.

Private equity partnerships include 182 private equity limited partnership funds, with various strategies including: buyout, venture capital, generalist debt, mezzanine debt, distressed debt, secondary funds, fund-of-funds, and energy-related strategies. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of PERA's ownership interest in partners' capital. The most significant element of NAV is the fair value of the investment holdings. The valuation techniques vary based on investment type and involve a certain degree of expert judgment. These holdings are valued by the general partners in conjunction with management, investment advisers, and valuation specialists and are generally audited annually. These investments cannot be redeemed during the term of the partnership. Typically, private equity partnerships have an approximate life of 10 years, with the first four to six years typically deemed as the investment period where capital is deployed. The remaining years are typically the harvest period in which distributions are received through the liquidation of the underlying assets of the fund. The fair value for these investments could differ significantly if a ready market for these assets existed.

Private real estate includes 93 funds that invest primarily in U.S. institutional quality commercial real estate across a broad range of real estate asset types and locations. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of PERA's ownership interest in partners' capital. The most significant element of NAV is the fair value of the investment holdings. The valuation techniques vary based on investment type and involve a certain degree of expert judgment. These holdings are valued by the general partners in conjunction with management, investment advisers, and valuation specialists and are generally audited annually. There are 67 real estate limited partnership funds, which are considered illiquid as these investments cannot be redeemed during the term of the partnership. As a result, investors are subject to redemption restrictions which generally limit distributions and restrict the ability of limited partners to exit a partnership investment prior to dissolution. There are nine directly owned joint venture investments which consist of industrial, multifamily, office, and retail assets in various locations throughout the U.S. These investments are considered illiquid due to redemption restrictions. There are 17 real estate commingled open-ended funds which are considered liquid real estate funds by nature of the open-end structure of the fund. Open-end funds generally offer periodic distributions of net cash flow, which investors may elect to reinvest. Additionally, open-end funds generally offer daily and monthly redemption windows for requesting portions, or all, of PERA's investments. Two of the open-ended funds contain a two- and three-year lock-out period with respect to redemptions. Distributions from each fund will generally be received as the underlying investments of the funds are liquidated, but distributions are also generally made at the discretion of the general partner. The fair value for these investments could differ significantly if a ready market for these assets existed.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

The Opportunity Fund includes 12 funds that invest in timber, risk parity, tactical, credit, and other opportunistic strategies. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of PERA's ownership interest in partners' capital. The most significant element of NAV is the fair value of the investment holdings. The valuation techniques vary based on investment type and involve a certain degree of expert judgment. These holdings are valued by the general partners in conjunction with management, investment advisors, and valuation specialists and are generally audited annually. There are eight partnerships within the Opportunity Fund that are considered illiquid as these investments cannot be redeemed during the term of the partnership. Illiquid funds represent approximately 27 percent of the value of the Opportunity Fund. There are four investments within the Opportunity Fund that are considered liquid by nature of the open-end structure of the fund. Open-end funds generally offer periodic distributions of net cash flow, which investors may elect to reinvest. Additionally, open-end funds generally offer daily and monthly redemption windows for requesting portions, or all, of PERA's investments. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the underlying assets of the funds will be liquidated over the next two to nine years. The fair value for these investments could differ significantly if a ready market for these assets existed.

Cash and Short-Term Investments

Cash balances represent both operating cash accounts and investment cash on deposit held by banks. To maximize investment income, the float caused by outstanding checks is invested, thus causing a possible negative book balance. Negative book balances are reflected in the liabilities section of the Statements of Fiduciary Net Position.

The carrying value of cash and short-term investments at December 31, 2016, on the Statements of Fiduciary Net Position includes short-term fixed income securities of $35,411, pending foreign exchange contracts of ($234), and deposit and money market funds of $994,267 for a total of $1,029,444. PERA considers fixed income securities with a maturity of 12 months or less to be short-term investments. Pending foreign exchange contracts are considered to be Level 2 in the fair value hierarchal framework. Fair value is based on applicable currency exchange rates determined by an external pricing source.

The table below presents the PERA combined total deposits and money market funds as of December 31, 2016.

	Carrying Value	Bank Balance
Deposits with banks (fully insured)	$10,230	$9,923
Deposits held at bank (uncollateralized, held by PERA's agent in PERA's name)	7,510	7,510
Short-term investment funds held at bank (shares in commingled funds, held by PERA's agent in PERA's name)	976,527	976,527
Total deposits and money market funds	$994,267	$993,960

Securities Lending Transactions

C.R.S. § 24-51-206 and Board policies permit PERA to lend its securities to broker-dealers and other entities with a simultaneous agreement to return the collateral for the same securities in the future. PERA utilized two lending agents in 2016, its custodian, The Northern Trust Company (Northern Trust) and Deutsche Bank.

Northern Trust primarily lends international equity and fixed income securities for cash collateral. U.S. securities are loaned versus collateral valued at 102 percent of the fair value of the securities plus any accrued interest. Non-U.S. securities are loaned versus collateral valued at 105 percent of the fair value of the securities plus any accrued interest. Collateral is marked-to-market daily.

Northern Trust invests the cash collateral related to PERA's loaned securities in a separate account, the PERA Custom Fund, according to guidelines stipulated by PERA. As of December 31, 2016, the total fair value of securities on loan with Northern Trust cannot exceed $600,000. Northern Trust's Senior Credit Committee sets borrower credit limits.

Deutsche Bank is a third-party lending agent for PERA. Deutsche Bank invests the cash collateral related to PERA's loaned securities in a separate account according to guidelines stipulated by PERA. Deutsche Bank lends domestic and international equities for cash collateral. U.S. securities are loaned versus collateral valued at a minimum of 102 percent of the fair value of the securities. International securities are loaned versus collateral valued at a minimum of 105 percent of the fair value of the securities. Collateral is marked-to-market daily. As of December 31, 2016, the total market value of securities on loan with Deutsche Bank cannot exceed $600,000. Borrower credit limits are assigned by Deutsche Bank's Global Credit Risk Department.

As of December 31, 2016, the aggregate of the difference between the cash collateral investment value, including certain receivables and payables related to the securities lending program and the cash collateral received, was ($105).

The table on the next page details the balances relating to the securities lending transactions at December 31, 2016.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Securities Lent for Cash Collateral	Fair Value of Underlying Securities	Cash Collateral Received	Cash Collateral Investment Value
Cash and cash equivalents	$—	$—	$928,580
Fixed income	291,683	297,705	18,000
Global equity	630,850	648,980	—
Total	**$922,533**	**$946,685**	**$946,580**

As of December 31, 2016, the fair value of securities lent was $922,533, the value of associated cash collateral received was $946,685, and the cash collateral investment value, including certain receivables and payables related to the securities lending program was $946,580. PERA's income net of expenses from securities lending was $10,177 for the year ended December 31, 2016. Included in net securities lending income for the year ended December 31, 2016, is $149 from commingled funds.

As of December 31, 2016, PERA had no credit risk exposure to borrowers because the associated value of the collateral held exceeded the value of the securities loaned. The contracts with PERA's lending agents provide that the lending agents will indemnify PERA if loaned securities are not returned and PERA suffers direct losses due to a borrower's default or the lending agent's noncompliance with the contract. PERA had no losses on securities lending transactions resulting from the default of a borrower or the lending agent for the year ended December 31, 2016. PERA has limited the total fair value of securities outstanding to one borrower to 25 percent of the total fair value of all securities outstanding in the program.

PERA or the borrower may terminate any security loan on demand. Though every loaned security may be sold and reclaimed at any time from the borrower, the weighted average loan life of overall loans at Northern Trust was approximately 66 days and at Deutsche Bank was approximately 131 days as of December 31, 2016. At Northern Trust and Deutsche Bank, all loans were made on an overnight (one day) basis as of December 31, 2016. The PERA Custom Fund had a weighted average maturity of 5 days as of December 31, 2016. Deutsche Bank invests PERA's cash collateral in a separate account, which as of December 31, 2016, had a weighted average maturity of 12 days. The weighted average life of a security or instrument is, in the case of a fixed rate security or instrument, the date on which final payment is due or the principal amount may be recovered through demand (if applicable). In the case of a floating or variable rate security or instrument, weighted average life is the shorter of the period of time remaining until either the next readjustment of the interest rate or the principal amount may be recovered through demand (if applicable). Since the majority of securities loans are made on an overnight basis, there is usually a difference between the weighted average maturity of the investments made with the cash collateral provided by the borrower and the maturities of the securities loans.

As of December 31, 2016, reinvested securities lending collateral of $946,580 primarily consisted of repurchase agreements totaling $928,580 valued at par, and accordingly were not classified within the fair value hierarchal framework. At December 31, 2016, $18,000 of the $946,580 in reinvested securities lending collateral consisted of fixed income investments and were considered to be Level 2 investments in the fair value hierarchal framework. Fixed income investments classified as Level 2 typically do not trade on a national or international exchange and their fair value is based on equivalent values of the same or of comparable securities with similar yield and risk, otherwise known as matrix pricing.

Custodial Credit Risk

Governmental accounting standards limit the disclosure of custodial credit risk to investment securities that are uninsured, held in physical or book entry form, are not registered in PERA's name, and are held by either the counterparty or the counterparty's trust department or agent but not in PERA's name. Disclosure of custodial credit risk is also required when deposits are not covered by depository insurance and are uncollateralized, collateralized with securities held by the pledging financial institution, or collateralized with securities held by the pledging financial institution's trust department or agent but not in PERA's name.

To mitigate custodial credit risk, PERA's custodial credit risk policy has requirements governing how securities are held by the master custodian and for the effective management of cash balances. To further minimize custodial credit risk, periodic reviews are required to be completed on the master custodian's credit quality and capital levels. Additionally, assessments of counterparty risk are completed periodically using internal analysis and information obtained from third-party research and rating agency reports.

Northern Trust is the master custodian for the majority of PERA's securities. At December 31, 2016, there were no investments, or collateral securities subject to custodial credit risk. At December 31, 2016, there were $7,508 of foreign currency deposits held at Northern Trust, as well as, $119 cash collateral pledged that was deposited outside of Northern Trust. These deposits were uninsured and uncollateralized and, therefore, exposed to custodial credit risk.

Concentration of Credit Risk

Concentration of credit risk is the risk of loss that may be attributed to the magnitude of PERA's investment in a single issuer. C.R.S. § 24-51-206 (3) requires that no investment of the fund in common or preferred stock, or both, of any single corporation shall be of an amount which exceeds 5 percent of the then book value of the fund, nor shall the fund acquire more than 12 percent of the outstanding stock or bonds of any single corporation. The 12 percent requirement does not apply to governmental securities (U.S. Treasuries, sovereigns, etc.), Government Sponsored Enterprise securities (agencies including FNMA, FHLMC, etc.), mortgage-backed securities (agency or non-agency), commercial mortgage-backed securities (CMBS), asset-backed securities, or municipal

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

securities. There is no single issuer exposure that comprises 5 percent of the then book value of the fund and no holdings greater than 12 percent of the outstanding stock or bonds of any single corporation at December 31, 2016.

RECONCILIATION OF CREDIT AND INTEREST RATE RISK DISCLOSURES TO FINANCIAL STATEMENTS

	As of December 31, 2016
Fixed income	$10,403,446
Fixed income securities classified as short-term	35,411
Total fixed income securities	**$10,438,857**

Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligation. As of December 31, 2016, PERA held investments across the credit ratings spectrum, with the majority invested in investment grade issuers defined as having a minimum rating of Baa3/BBB-/BBB-, issued by Moody's, Standard and Poor's (S&P), and Fitch, respectively. PERA's credit risk policy is as follows: Fixed income portfolios generally have guidelines that establish limits on holdings within each credit rating category. Some investment grade managers are allowed to purchase below investment grade securities, but in general are limited to no more than 5 percent exposure to below investment grade securities, and are generally limited to Ba3/BB-/BB- or better. For portfolio managers that can invest in below investment grade securities, there are limits on investments in the lowest ratings categories. For some portfolios, securities rated below B3/B-/B- generally cannot exceed the portfolio's benchmark weighting of securities rated below B3/B-/B- plus 5 percent. In other portfolios, there is a floor of Caa3/CCC-/CCC- or better at the time of purchase. The table on the next page provides Moody's credit quality ratings for PERA's fixed income holdings as of December 31, 2016.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

CREDIT QUALITY RATING DISPERSION SCHEDULE

Quality Rating Moody's	Total	U.S. Corporate Bonds	U.S. Govt Mortgage-Backed Securities	Non-U.S. Corporate Bonds	Non-U.S. Govt/Agency Bonds	Stable Value Fund	Implicit U.S. Govt Agencies[1]	Non-Agency CMBS	U.S. Municipal Bonds
Aaa	$439,814	$17,438	$12,133	$658	$107,463	$—	$157,343	$136,231	$8,548
Aa1	32,448	21,797	—	—	4,907	—	—	651	5,093
Aa2	144,305	71,401	—	13,598	38,813	—	—	230	20,263
Aa3	105,077	49,352	—	28,111	3,177	—	—	9,389	15,048
A1	199,228	116,766	—	47,144	24,578	—	—	—	10,740
A2	182,799	140,239	—	24,986	8,912	—	—	664	7,998
A3	568,015	396,820	—	123,608	40,113	—	—	989	6,485
Baa1	431,143	402,639	—	27,683	821	—	—	—	—
Baa2	376,052	225,424	—	96,371	54,257	—	—	—	—
Baa3	400,033	274,947	—	46,131	78,955	—	—	—	—
Ba1	182,026	110,976	—	41,414	29,636	—	—	—	—
Ba2	103,499	43,845	—	40,070	19,584	—	—	—	—
Ba3	167,230	139,778	—	27,256	196	—	—	—	—
B1	142,291	121,094	—	9,716	11,481	—	—	—	—
B2	113,377	86,624	—	26,753	—	—	—	—	—
B3	146,864	109,665	—	30,830	6,369	—	—	—	—
Caa1	97,218	89,337	—	7,881	—	—	—	—	—
Caa2	22,479	19,196	—	3,283	—	—	—	—	—
Caa3	7,620	4,201	—	—	3,419	—	—	—	—
Not rated[2]	2,530,641	19,481	2,003,641	32,606	23,358	428,279	839	9,853	12,584
Subtotal	$6,392,159	$2,461,020	$2,015,774	$628,099	$456,039	$428,279	$158,182	$158,007	$86,759
U.S. govt treasuries	2,246,716								
Explicit U.S. govt agencies[3]	318,821								
Fixed income commingled funds[2,4]	1,473,637								
Fixed income mutual funds[2]	7,524								
Total	**$10,438,857**								

[1] Includes bonds issued by Federal Home Loan Bank, Federal Home Loan Mortgage Corporation, Federal National Mortgage Association, and other government-sponsored agencies.

[2] Not rated by Moody's.

[3] Bonds issued by the Government National Mortgage Association (GNMA).

[4] The fair value and average fund credit quality ratings as reported by the commingled fund managers are as follows: $901,944—Aaa; $81,544—Aa2; $81,332—A1; and $408,817—A3.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. PERA's policy is to manage its exposure to fair value losses arising from changes in interest rates by requiring that the duration of individual portfolios stays within defined bands of the duration of each portfolio's benchmark. PERA utilizes effective duration as the primary measure of interest rate risk within its fixed income investments. Duration estimates the sensitivity of a bond's price to interest rate changes. Effective duration makes assumptions regarding the most likely timing and amounts of variable cash flows arising from such investments as callable bonds, mortgage-backed securities, and variable-rate debt.

Effective duration for PERA's fixed income holdings as of December 31, 2016, is shown in the table below:

INTEREST RATE RISK—EFFECTIVE DURATION

	Fair Value Total	Fair Value Duration Not Available	Fair Value Duration Available	Effective Weighted Duration in Years
U.S. corporate bonds	$2,461,020	$16,782	$2,444,238	6.62
U.S. government mortgage-backed securities	2,334,595	1,026	2,333,569	4.55
U.S. government treasuries	2,246,716	—	2,246,716	6.37
Fixed income commingled funds	1,473,637	—	1,473,637	5.71
Non-U.S. corporate bonds	628,099	4,575	623,524	5.26
Non-U.S. government/agency bonds	456,039	339	455,700	5.26
Stable value fund	428,279	—	428,279	4.00
Implicit U.S. government agencies	158,182	—	158,182	3.40
Non-agency CMBS	158,007	—	158,007	6.41
U.S. municipal bonds	86,759	10,177	76,582	12.15
Fixed income mutual fund	7,524	—	7,524	5.52
Total	**$10,438,857**	**$32,899**	**$10,405,958**	**5.71**

Mortgage-Backed Securities

PERA invests in residential and commercial mortgage-backed securities which are reported at fair value in the Statements of Fiduciary Net Position under Investments at fair value, fixed income. PERA invests in mortgage-backed securities for diversification and to enhance fixed income returns.

A residential mortgage-backed security depends on the underlying pool of single-family mortgage loans to provide the cash flow to make principal and interest payments on the security. Mortgage-backed securities are subject to credit risk, the risk that the borrower will be unable to meet its obligations. In many cases, the payment of principal and interest is guaranteed by an agency of the U.S. Government, or a Government Sponsored Enterprise. While these guarantees reduce credit risk, residential mortgage-backed securities are also subject to prepayment risk as the timing of principal and interest payments remains uncertain. A decline in interest rates can result in call risk as prepayments accelerate, which reduces the weighted average life of the security. Alternatively, an increase in interest rates can result in extension risk as prepayment rates decline, which may cause the weighted average life of a mortgage investment to be longer than anticipated.

CMBS depend on underlying pools of commercial real estate loans to provide the cash flow to make principal and interest payments on the security. These loans are typically for a fixed term, cannot be repaid early by the borrower without penalty and, accordingly, have lower prepayment risk than residential mortgage-backed securities.

To reduce PERA's counterparty credit risk while trading residential mortgage-backed securities, PERA has entered into Master Securities Forward Transaction Agreements with some counterparties which require margin collateral to be pledged or received when the change in net value of unsettled trades exceeds an agreed-upon threshold. As of December 31, 2016, collateral in the amount of $179 was pledged to counterparties.

As of December 31, 2016, the fair value of residential and commercial mortgage-backed securities was $2,237,070 and $255,532, respectively, which excludes the fair value of mortgage-backed securities held in commingled funds.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment or a deposit. PERA's currency risk exposure resides primarily within the Global Equity asset class. In accordance with governmental accounting standards, this disclosure is limited to investments denominated in non-U.S. dollars. There may be additional foreign currency risk in investments that contain underlying securities or business operations exposed to a foreign currency. PERA's formal policy regarding foreign currency risk is to evaluate the risk as part of the fund's periodic Asset Liability Study and to consider it in determining the total fund asset allocation. At December 31, 2016, PERA did not have a currency hedging program at the total fund level. However, at the manager level, hedging currency risk may be allowed and certain managers may actively manage currency exposure. PERA monitors currency risk at the total fund, asset class, and portfolio levels.

PERA's exposure to foreign currency risk as of December 31, 2016, is shown in the following table.

FOREIGN CURRENCY RISK

Currency	Total	Global Equity	Private Equity	Real Estate	Income Receivable	Cash and Short-Term Investments	Corporate Bonds	Pending Trades	Pending Foreign Exchange Trades
Euro	$2,691,284	$2,395,920	$285,595	$3,283	$6,327	$159	$—	$276	($276)
Japanese yen	1,874,723	1,870,502	—	—	4,129	92	—	(136)	136
British pound sterling	1,689,103	1,583,411	100,998	—	4,024	670	—	(4,121)	4,121
Canadian dollar	730,711	728,419	—	—	1,361	1,052	—	138	(259)
Swiss franc	615,051	604,743	—	—	10,308	—	—	—	—
Hong Kong dollar	451,280	450,913	—	—	26	307	—	(484)	518
Australian dollar	407,906	407,177	—	—	612	117	—	1,303	(1,303)
South Korean won	288,000	285,166	—	—	2,815	19	—	—	—
Swedish krona	277,036	276,958	—	—	74	4	—	—	—
New Taiwan dollar	230,371	227,122	—	—	—	3,249	—	—	—
Indian rupee	225,962	225,955	—	—	—	7	—	—	—
Singapore dollar	147,392	146,906	—	—	385	1	—	(16)	116
South African rand	113,141	112,863	—	—	2	276	—	—	—
Danish krone	98,475	96,955	—	—	1,519	1	—	—	—
Brazilian real	77,384	76,210	—	—	472	131	162	409	—
Norwegian krone	71,671	71,671	—	—	—	—	—	—	—
Mexican peso	67,814	66,198	—	1,605	—	11	—	—	—
Thai baht	54,981	54,932	—	—	45	4	—	—	—
Malaysian ringgit	46,094	45,704	—	—	10	408	—	—	(28)
Indonesian rupiah	37,357	37,287	—	—	—	70	—	—	—
New Israeli shekel	23,155	22,628	—	—	39	488	—	—	—
Philippine peso	20,937	20,923	—	—	—	14	—	—	—
Turkish lira	20,613	20,192	—	—	1	420	—	—	—
New Zealand dollar	16,222	16,220	—	—	—	2	—	—	—
United Arab Emirates dirham	13,658	13,657	—	—	—	1	—	—	—
Polish zloty	13,237	13,237	—	—	—	—	—	—	—
Czech koruna	9,660	9,654	—	—	—	6	—	—	—
Qatari riyal	9,401	9,401	—	—	—	—	—	—	—
Hungarian forint	6,568	6,568	—	—	—	—	—	—	—
Chilean peso	2,427	2,427	—	—	—	—	—	—	—
Total	**$10,331,614**	**$9,899,919**	**$386,593**	**$4,888**	**$32,149**	**$7,509**	**$162**	**($2,631)**	**$3,025**

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Note 6—Derivative Instruments

PERA reports derivative instruments at fair value. These derivative instruments involve, to varying degrees, elements of market risk to the extent of future market movements in excess of amounts recognized in the Statements of Fiduciary Net Position. For accounting purposes, derivative instruments are considered to be investments and not hedges.

The following table summarizes the derivative instruments outstanding as of December 31, 2016. These instruments are recorded in cash and short-term investments, investment receivables, and investments at fair value in the Statements of Fiduciary Net Position. The changes in fair value includes all derivative instrument activity and are included in investment income in the Statements of Changes in Fiduciary Net Position. Investments in limited partnerships and commingled funds include derivative instruments that are not reported in the following disclosure.

DERIVATIVE INSTRUMENTS—DEFINED BENEFIT PLAN

	Changes in Fair Value		Fair Value at December 31, 2016	
Investment Derivatives	Classification	Amount	Classification	Amount
Foreign currency forwards	Investment income	($4,654)	Cash and short-term investments	($264)
Rights/warrants	Investment income	2,495	Global equity	245
Equity futures	Investment income	18,524	Investment receivables	3
Total		$16,365	Total	($16)

DERIVATIVE INSTRUMENTS—DEFINED CONTRIBUTION AND DEFERRED COMPENSATION PLANS (SEPARATELY MANAGED ACCOUNTS)

	Changes in Fair Value		Fair Value at December 31, 2016	
Investment Derivatives	Classification	Amount	Classification	Amount
Foreign currency forwards	Investment income	$69	Cash and short-term investments	$—
Rights/warrants	Investment income	103	Global equity	—
Total		$172	Total	$—

Foreign Currency Forward Contracts

A foreign currency forward is a contractual agreement between two parties to pay or receive specific amounts of foreign currency at a future date in exchange for another currency at an agreed upon exchange rate. The settlement date for these contracts is three business days or more after the trade date. Forward commitments are not standardized and carry credit risk due to the possible nonperformance by one of the counterparties. The maximum potential loss is the aggregate face value in U.S. dollars at the time the contract was opened; however, the likelihood of such loss is remote. No losses related to counterparty default occurred in 2016. Foreign currency forward contracts are usually traded over-the-counter. These transactions are entered into in order to manage risks from exposure to foreign currency rate fluctuation and to facilitate foreign currency investment activity. Foreign currency forwards carry risk resulting from adverse fluctuations in foreign exchange rates. Recognition of realized gain or loss depends on whether the currency exchange rate has moved favorably or unfavorably to the contract holder upon termination of the contract. Prior to termination of the contract, PERA records the unrealized currency translation gain or loss based on the applicable forward currency exchange rates which are determined by an external pricing service.

At December 31, 2016, PERA's defined benefit plans had outstanding foreign currency forward contracts to purchase foreign currencies with a fair value of $27,036 and outstanding contracts to sell foreign currencies with a fair value of ($27,300). PERA's defined contribution plans and deferred compensation plan had an outstanding foreign currency forward contract to purchase a foreign currency with a fair value of $30 and an outstanding contract to sell foreign currency with a fair value of ($30).

Outstanding foreign currency forward contracts which have a fair value greater than or equal to $1 or a fair value less than or equal to ($1) are disclosed in detail on the next page.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

OUTSTANDING FOREIGN CURRENCY FORWARD CONTRACTS—DEFINED BENEFIT PLAN

As of December 31, 2016

Objective[1]	Notional Amount Buy (Sell)		Effective Date	Maturity Date	Terms	Fair Value	Index Counterparty	Counterparty Credit Rating[2]
Facilitate foreign currency investment activity	167 (115)	SGD USD	12/28/2016	1/3/2017	Exchange U.S. dollars for Singapore dollars	$1	The Northern Trust Company	A+ / A2 / AA-
Facilitate foreign currency investment activity	26,285 (225)	JPY USD	12/30/2016	1/6/2017	Exchange U.S. dollars for Japanese yen	1	Bank of New York Mellon	AA- / Aa2 / AA
Hedge risk from exposure to rate fluctuations	13,948 (1,450,268)	USD JPY	10/12/2016	1/17/2017	Exchange Japanese yen for U.S. dollars	1,504	State Street Bank and Trust Company	AA- / Aa3 / AA
Hedge risk from exposure to rate fluctuations	1,450,268 (14,213)	JPY USD	11/9/2016	1/17/2017	Exchange U.S. dollars for Japanese yen	(1,770)	State Street Bank and Trust Company	AA- / Aa3 / AA
Total						($264)		

[1] Outstanding currency transactions related to foreign currency investment activity are included in this disclosure according to how Northern Trust defines currency forward and currency spot transactions.

[2] Ratings are listed in order of S&P, Moody's, and Fitch. If the counterparty legal entity does not have a public rating, the parent company rating is disclosed.

Rights/Warrants

Rights provide the holder with the right, but not the obligation, to buy a company's common stock at a predetermined price, the subscription price. A right permits the investor to buy at a price that may be below the actual market price for that stock. A warrant is an option to buy an underlying equity security at a predetermined price for a finite period of time. For both rights and warrants, if the predetermined price is less than the actual market price for the equity security, each have intrinsic value. Both rights and warrants potentially have intrinsic value until their expiration date.

Investment in rights/warrants exposes PERA to limited market risk. In the event the market price of the company's common stock falls below the subscription or predetermined price, the amount of loss recognized is equal to the cost to acquire the investment. PERA records rights/warrants with global equity in the Statements of Fiduciary Net Position. As of December 31, 2016, PERA's defined benefit plans had outstanding rights/warrants with a total fair value of $245 and a total cost of $0.

OUTSTANDING RIGHTS/WARRANTS—DEFINED BENEFIT PLAN

As of December 31, 2016

Security Type	Fair Value
Warrants	$71
Rights	174
Total	$245

Equity Futures

Equity futures represent contracts between two parties to purchase or sell securities and other financial instruments at a future date for a specified price. PERA utilized equity futures to replicate exposure to various stock market indexes for a limited period of time during 2016. Futures contracts trade on organized exchanges. Upon entering into a futures contract, PERA is required to pledge an amount of cash or securities (known as an initial margin deposit) equal to a percentage of the contract amount. Recognition of investment income, with a corresponding change to the amount of investment receivables or liabilities, occurred on a daily basis according to the fluctuation of value of the futures contract. Payments were received or made to settle the fluctuation of the contract's value on a periodic basis. There were no losses due to counterparty default during 2016. As of December 31, 2016, PERA did not directly own any futures contracts. The investment receivable balance of $3 represents interest earned and not yet received on past balances related to the fluctuation of value of futures contracts.

Note 7—Commitments and Contingencies

As of December 31, 2016, PERA had commitments for future investments in Private Equity of $2,432,766, Real Estate of $884,908, and the Opportunity Fund of $700,749.

Pending or Threatened Litigation

PERA is involved in various lawsuits or threatened legal proceedings arising in the normal course of business. In the opinion of management, the ultimate resolution of these other matters will not have a material effect on the financial condition of PERA.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Note 8—Voluntary Investment Program, Defined Contribution Retirement Plan, and Deferred Compensation Plan

PERA administers the Voluntary Investment Program, the Defined Contribution Retirement Plan, and the Deferred Compensation Plan (collectively, Plans). The Voluntary Investment Program (PERAPlus 401(k) Plan) and Defined Contribution Retirement Plan (DC Plan) are both defined contribution plans. The Deferred Compensation Plan (PERAPlus 457 Plan) is a deferred compensation plan. The Board has the authority to establish and amend the Plans pursuant to C.R.S. § 24-51-1401, C.R.S. § 24-51-1501, and C.R.S. § 24-51-1601, respectively. The complete provisions of the PERAPlus 401(k) Plan and the DC Plan are incorporated into *PERA's 401(k) and Defined Contribution Plan and Trust Document.* The complete provisions of the PERAPlus 457 Plan are incorporated into *The PERA Deferred Compensation Plan Document.*

All Plans

The following investment, distribution, and fee provisions are the same under all three Plans.

- Participants have the choice of contributing to 18 different investment options. In addition, participants may also make transfers, at any time, among the following listed investment options:
  - PERAdvantage Capital Preservation Fund
  - PERAdvantage Fixed Income Fund
  - PERAdvantage Real Return Fund
  - PERAdvantage U.S. Large Cap Fund
  - PERAdvantage International Stock Fund
  - PERAdvantage U.S. Small and Mid-Cap Stock Fund
  - PERAdvantage Socially Responsible Investment (SRI) Fund
  - PERAdvantage Income Fund
  - PERAdvantage 2020 Fund
  - PERAdvantage 2025 Fund
  - PERAdvantage 2030 Fund
  - PERAdvantage 2035 Fund
  - PERAdvantage 2040 Fund
  - PERAdvantage 2045 Fund
  - PERAdvantage 2050 Fund
  - PERAdvantage 2055 Fund
  - PERAdvantage 2060 Fund
  - TD Ameritrade Self-Directed Brokerage Account
- The participant's entire account balance becomes available for distribution upon termination from all PERA-affiliated and/or PERAPlus 457-affiliated employers. All distributions are in accordance with the Plan documents and IRC requirements.
- Voya Institutional Plan Services, LLC, administers the recordkeeping for all participant transactions. The custodian is Northern Trust for all PERAdvantage investments except for the Great-West Stable Value Fund, an investment within the PERAdvantage Capital Preservation Fund, and the TD Ameritrade Self-Directed Brokerage Account.
- TD Ameritrade, Inc. provides brokerage services for the Self-Directed Brokerage Account. The TD Ameritrade Self-Directed Brokerage Account, which consists of common stock, corporate bonds, and mutual funds, is presented at fair value.
- The Great-West Stable Value Fund is offered through a group fixed and variable deferred annuity contract issued by Great-West Life & Annuity Insurance Company. As of December 31, 2016, the value of the variable deferred annuity contract including interest receivable and pending trade payable is $428,258. Fair value as of December 31, 2016, was $423,149.
- Cash balances represent both operating cash accounts and investment cash on deposit held by the custodians.
- Plan administration expenses are paid through a monthly administrative fee charged to participant accounts and an asset-based fee paid directly from each PERAdvantage fund and/or self-directed brokerage account. In addition, the underlying investment portfolio managers within each PERAdvantage fund charge an investment management fee, which is paid directly from investment proceeds.

PERAPlus 401(k) Plan

The PERAPlus 401(k) Plan was established January 1, 1985, and is an IRC § 401(k) plan that allows for voluntary participation to provide additional benefits at retirement for PERA members. All employees working for a PERA-affiliated employer may contribute to the PERAPlus 401(k) Plan. There were 405 employers eligible to participate in 2016 (see Note 1). The employer count is presented for purposes of complying with GASB 67 only. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

In 2016, participants could contribute the lesser of $18,000 (actual dollars) or 100 percent of compensation less PERA member contributions. Catch-up contributions up to $6,000 (actual dollars) in 2016 were allowed for participants who had attained age 50 before the close of the plan year, subject to the limitations of IRC § 414(v). Employer matching and discretionary contributions are allowable with total participant and employer contributions limited to $53,000 (actual dollars) per participant in 2016.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Provisions of the PERAPlus 401(k) Plan permit in-service withdrawals by participants while employed with a PERA-affiliated employer through loans, hardship withdrawals, or by a trustee-to-trustee transfer to the PERA defined benefit plan to purchase service credit. The balance of outstanding loans as of December 31, 2016, is $62,092 and is recorded as a benefit receivable on the Statements of Fiduciary Net Position. As of December 31, 2016, there were 68,752 participants with balances. Of the participants with balances, 25,263 made contributions within the last three months of the year, including 780 retirees. There were 12,726 terminated participants and 17,424 non-contributing retirees with balances. During 2016, the PERAPlus 401(k) Plan had a total of 2,381 terminated participants take full distributions of their accounts.

DC Plan

The DC Plan was established January 1, 2006, and is an IRC § 401(a) governmental profit-sharing plan. Its purpose is to offer a defined contribution alternative to the PERA defined benefit plan. Participation is available to certain new employees of State agencies and departments, most community college employees, and the District Attorney within each Judicial District, and if authorized by the county and the District Attorney, the attorneys within that Judicial District. The eligible employees have the option to choose the PERA defined benefit plan or the DC Plan. There were 23 employers eligible to participate in 2016. The employer count is presented for purposes of complying with GASB 67 only. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

Between month 13 and month 72 of participation in the DC Plan, eligible participants may elect to terminate membership in the DC Plan and become a member of the PERA defined benefit plan. Similarly, an eligible employee of the PERA defined benefit plan may elect, between month 13 and month 72 of membership, to terminate membership in the PERA defined benefit plan and become a participant of the DC Plan. Either election is irrevocable.

Participants in the DC Plan are required to contribute 8.00 percent and employers are required to contribute 10.15 percent of includable salary (for State Troopers and Colorado Bureau of Investigation agents, the participant and employer rates are 10.00 percent and 12.85 percent, respectively). In addition, employers contribute the 4.60 percent AED and 4.50 percent SAED to the State Division Trust Fund (see Note 4). DC Plan participants immediately vest in 50 percent of their employer contributions, together with accumulated investment earnings on the vested portion. For each full year of participation, vesting increases by 10 percent. Contribution requirements are established under C.R.S. § 24-51-1505.

Provisions of the DC Plan allow for the transfer of DC funds to the PERAPlus 401(k) Plan if a participant is still a PERA member but not active in the DC Plan. Additionally, the election to purchase service is available to those who are eligible and who are members of the PERA defined benefit plan with an existing DC Plan account. As of December 31, 2016, the DC Plan had 5,761 participants with balances. Of the participants with balances, 2,373 made contributions within the last three months of the year, including 10 retirees. There were 2,787 terminated participants and 21 non-contributing retirees with balances. During the year, 401 participants took full distributions of their accounts.

PERAPlus 457 Plan

On July 1, 2009, PERA assumed the administrative and fiduciary responsibilities for the State of Colorado Deferred Compensation Plan previously administered under C.R.S. Part 1 of Article 52 of Title 24, as said part existed prior to its repeal in 2009.

The PERAPlus 457 Plan is an IRC § 457 plan that allows for voluntary participation to provide additional benefits at retirement. All employees working for a PERA employer affiliated with the PERAPlus 457 Plan may contribute to the PERAPlus 457 Plan. All employers that were affiliated with the State 457 Plan prior to July 1, 2009, including those that are not PERA-affiliated employers, remained affiliated with the PERAPlus 457 Plan and their employees remained eligible to contribute. In 2016, participants could defer the lesser of $18,000 (actual dollars) or 100 percent of compensation less PERA member contributions. Catch-up deferrals, up to the greater of $6,000 (actual dollars) for participants who had attained age 50 before the close of the plan year or the limits of the special section 457 plan catch-up, were allowed in 2016, subject to the limitations of IRC § 414(v) and § 457(b).

Provisions of the PERAPlus 457 Plan permit in-service withdrawals by participants while employed with a PERAPlus 457 Plan-affiliated employer through loans, unforeseen emergency withdrawals, de minimis distributions, or by a trustee-to-trustee transfer to the PERA defined benefit plan to purchase service. The balance of outstanding loans as of December 31, 2016, is $11,846 and is recorded as a benefit receivable on the Statements of Fiduciary Net Position. As of December 31, 2016, there were 17,921 participants with balances. Of the participants with balances, 9,107 made contributions within the last three months of the year, including 222 retirees. There were 2,607 terminated participants and 3,860 non-contributing retirees with balances. During the year, the PERAPlus 457 Plan had a total of 744 terminated participants take full distributions of their accounts.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Note 9—Health Care Trust Funds—Cost-Sharing Multiple-Employer Defined Benefit Health Care Plans

PERA offers two cost-sharing multiple-employer defined benefit OPEB health care plans to benefit recipients and retirees. The HCTF and the DPS HCTF were created under C.R.S. § 24-51-1201 (1) and (2), respectively. These funds provide a health care premium subsidy to participating PERA benefit recipients and retirees who choose to enroll in one of the PERA health care plans, however, the subsidy is not available if only enrolled in the dental and/or vision plan(s). The health care premium subsidy is based upon the benefit structure under which the member retires and the member's years of service credit. For members who retire having service credit with employers in the DPS Division and one or more of the other four divisions, the premium subsidy is allocated between the two Health Care Trust Funds. The basis for the amount of the premium subsidy funded by each trust fund is the percentage of the member contribution account balance from each division as it relates to the total member contribution account balance from which the retirement benefit is paid.

PERA Board Authority

Title 24, Article 51, Part 12 of the C.R.S., as amended, sets forth a framework that grants authority to the Board to contract, self-insure, and authorize disbursements necessary in order to carry out the purposes of the PERACare program, including the administration of the premium subsidies. PERA contracts with a national insurance carrier to administer claims for the self-insured health care plans, with a national prescription benefit manager to administer a pharmacy benefit for the self-insured plans, and with health insurance companies to provide fully insured health care plans providing services within Colorado.

Plan Description and Benefit Provisions

C.R.S. § 24-51-1202 *et seq.* specifies the eligibility for enrollment in the health care plans offered by PERA and the amount of the premium subsidy. The law governing a benefit recipient's eligibility for the subsidy and the amount of the subsidy differs slightly depending under which benefit structure the benefits are calculated. All benefit recipients under the PERA benefit structure and all retirees under the DPS benefit structure are eligible for a premium subsidy, if enrolled in a health care plan under PERACare. Upon the death of a DPS benefit structure retiree, no further subsidy is paid.

Membership

Enrollment in the PERACare health care program is voluntary and available to the following eligible individuals:

- Benefit recipients and their dependents.
- Guardians of children receiving PERA survivor benefits if the children are enrolled in the health care program.
- Surviving spouses of deceased retirees who chose single-life annuity options, if the surviving spouse was enrolled in the program when the retiree's death occurred.
- Divorced spouses of retirees who are not receiving PERA benefits, but were enrolled in the program when the divorce occurred.
- Members while receiving short-term disability program payments.
- Members whose employers have elected to provide coverage through the health care program and such members' dependents.

Available Health Care Premium Subsidy

PERA Benefit Structure

The maximum service-based premium subsidy is $230 (actual dollars) per month for benefit recipients who are under 65 years of age and who are not entitled to Medicare; the maximum service-based subsidy is $115 (actual dollars) per month for benefit recipients who are 65 years of age or older or who are under 65 years of age and entitled to Medicare. The basis for the maximum service-based subsidy, in each case, is for benefit recipients with retirement benefits based on 20 or more years of service credit. There is a 5 percent reduction in the subsidy for each year less than 20. The benefit recipient pays the remaining portion of the premium to the extent the subsidy does not cover the entire amount.

For benefit recipients who have not participated in Social Security and who are not otherwise eligible for premium-free Medicare Part A for hospital-related services, C.R.S. § 24-51-1206(4) provides an additional subsidy. According to the statute, PERA cannot charge premiums to benefit recipients without Medicare Part A that are greater than premiums charged to benefit recipients with Part A for the same plan option, coverage level, and service credit. Currently, for each individual PERACare enrollee, the total premium for Medicare coverage is determined assuming plan participants have both Medicare Part A and Part B and the difference in premium cost is paid by the HCTF or the DPS HCTF on behalf of benefit recipients not covered by Medicare Part A.

DPS Benefit Structure

The maximum service-based premium subsidy is $230 (actual dollars) per month for retirees who are under 65 years of age and who are not entitled to Medicare; the maximum service-based subsidy is $115 (actual dollars) per month for retirees who are 65 years of age or older or who are under 65 years of age and entitled to Medicare. The basis for the maximum subsidy, in each case, is for retirees with retirement benefits based on 20 or more years of service credit. There is a 5 percent reduction in the subsidy for each year less than 20. The retiree pays the remaining portion of the premium to the extent the subsidy does not cover the entire amount.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

For retirees who have not participated in Social Security and who are not otherwise eligible for premium-free Medicare Part A for hospital-related services, the HCTF or the DPS HCTF pays an alternate service-based premium subsidy. Each individual retiree meeting these conditions receives the maximum $230 (actual dollars) per month subsidy reduced appropriately for service less than 20 years, as described above. Retirees who do not have Medicare Part A pay the difference between the total premium and the monthly subsidy.

Medicare Prescription Drugs

The Medicare Prescription Drug, Improvement, and Modernization Act of 2003 established prescription drug coverage for Medicare beneficiaries under Medicare Part D. Beginning January 1, 2014, PERACare's prescription drug coverage for the self-insured Medicare supplement plans was moved to Employer Group Waiver Plan (EGWP) Medicare Part D prescription drug coverage, administered by Express Scripts, Inc. The EGWP provides three types of anticipated subsidies which the HCTF and DPS HCTF use to reduce the required premiums collected from the enrollees. Each fund pays for the full claims during the year and recoups the additional cost offsetting claims expense when the subsidies are received from Express Scripts, Inc.

The subsidies provided by the EGWP include the following:

- A monthly direct subsidy based on the number of enrollees in the plan.
- A quarterly Coverage Gap Discount Program which is funded by pharmaceutical manufacturers and reimburses the funds a portion of the cost of certain drugs retirees have filled.
- An annual Catastrophic Coverage Federal Reinsurance which reimburses a portion of drug costs for retirees who reach a certain level of drug costs in a year.

The following amounts were recognized by the funds in 2016:

Subsidy	HCTF	DPS HCTF
Monthly direct subsidy	$5,239	$198
Quarterly Coverage Gap Discount	9,991	374
Annual Federal Reinsurance	13,355	494
Total	$28,585	$1,066

Contributions

Contribution requirements are established by statute under C.R.S. § 24-51-208. Colorado State law provisions may be amended from time to time by the Colorado General Assembly. Affiliated employers, as defined by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable the employer's affiliation agreement with PERA, must submit contributions for all PERA members equal to 1.02 percent of covered salaries.

Affiliated employers of the State Division, School Division, Local Government Division, and Judicial Division contribute to the HCTF. Affiliated employers of the DPS Division contribute to the DPS HCTF. The number of participating employers for each division, as presented for purposes of complying with GASB 67, can be found in Note 1.

Employer contributions and investment earnings on the assets pay for the cost of the premium subsidies and the administrative costs incurred by the funds.

Plan Data

As of December 31, 2016, there were 206,691 PERA members in active service who were earning a potential future subsidy benefit if they retire from PERA and enroll in a health care plan through PERACare. This total represents 15,950 active members in the DPS Division and 190,741 active members in the other four divisions. There were 26,283 inactive members who had accrued five or more years of service and who had accumulated a potential subsidy benefit, but were not yet receiving benefits. This total includes 1,374 in the DPS Division and 24,909 in the other four divisions.

PARTICIPATION IN THE HEALTH CARE PLANS FOR RETIREES AND SURVIVORS CURRENTLY RECEIVING BENEFITS

	HCTF	DPS HCTF	Total
Enrolled in PERACare			
Under age 65	13,057	554	13,611
Age 65 and older	42,732	3,331	46,063
	55,789	3,885	59,674
Not enrolled in PERACare			
Under age 65	15,192	589	15,781
Age 65 and older	36,687	2,467	39,154
	51,879	3,056	54,935
Total retirees and survivors currently receiving benefits	107,668	6,941	114,609

PERA offers two general types of health plans: fully insured plans offered through a health care organization and self-insured plans administered by third-party vendors. The plan designs offered include HMO, PPO, Medicare Supplement, Medicare Advantage, and Medicare Cost plans. PERA also offers fully insured dental and self-insured dental and vision plans.

Summary of HCTF and DPS HCTF Specific Significant Accounting Policies

The Health Care Trust Funds apply the measurement requirements of GASB 43 to determine the AALs, the annual required contribution (ARC) of the employer, and the annual OPEB cost.

Premiums collected and payments made are reported in two ways, depending on whether or not the funds bear any level of risk with regard to the health coverage. When the health care plan bears risk, all premiums collected are reported as contributions and all claims paid are reported as benefit payments. When there is no transfer of risk to the funds, the premiums collected are reported as a liability and the liability is relieved when the premiums are paid to the health insurance company that provides the fully insured health plan. When there is no health coverage risk, the only benefit payment reported

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

is the subsidy benefit which is equal to the difference between the premiums collected from the enrollees and the full premium due to the health insurance company.

The health care plan that involves risk is the self-insured plan administered by Anthem. PERA uses an outside consultant to determine the premiums required to cover anticipated health claims. The cost to the enrollee is reduced by the amount of the enrollee's calculated subsidy, if applicable. Implicit in this process is the risk that actual claims experience and the subsidies received from Express Scripts, Inc. could be different from the estimates resulting in either a gain or a loss to the funds.

Dental and Vision Plans

Dental and vision plans are also available to benefit recipients. PERA offers fully insured and self-insured dental plans and self-insured vision plans. The funds provide no subsidy and the participants pay the full premiums for dental and vision coverage. For the fully insured dental plan, premiums collected are reported as a liability and the liability is relieved when the premiums are paid to the insurance company who provides the coverage. For this plan, the risk is borne by the insurance company contracted to provide the coverage. The premiums collected for the self-insured dental and vision plans are recorded as contributions and claims paid are recorded as benefit payments. PERA uses an outside consultant to determine the premiums required to cover anticipated claims. The risk by these plans is that actual claims experience could be different from the estimates resulting in either a gain or loss to the funds. As of December 31, 2016, there were 58,237 participants enrolled in the dental plans and 45,942 participants enrolled in the vision plans in both the HCTF and the DPS HCTF.

PERA-Affiliated Employer Program Participation

In addition, fully insured pre-Medicare health plans offered through Anthem and Kaiser Permanente are available to any PERA-affiliated employer who voluntarily elects to provide health care coverage through the health care plan for its employees who are PERA members. The program acts as a purchaser of private insurance to obtain economies of scale for the employers that elect to join in the joint purchasing arrangement. As of December 31, 2016, there were 16 employers in the program with 163 active members enrolled.

Fully insured dental and vision plans are also available to eligible employees of employers who have elected to provide health care coverage through PERA. As of December 31, 2016, there were 207 participants enrolled in the dental plans and 228 participants enrolled in the vision plans.

The insurance companies, who provide coverage through the program, set the rates for each employer group. There is no transfer of risk to the funds, PERA, or between the participating employers. The funds provide no subsidy and the insurance companies providing the benefits bear the risk for the plans. The participants and/or employers pay the full premiums for the coverage. PERA collects the premiums and remits them to the insurance companies who provide the coverage.

There are no employers in the program from the DPS Division.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Note 10—Net Pension Liability of the Division Trust Funds

The components of the net pension liability (NPL) for participating employers for each Division Trust Fund as of December 31, 2016, are as follows:

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Total pension liability	$31,994,311	$52,354,913	$5,123,847	$543,150	$4,221,449
Plan fiduciary net position	13,626,180	22,581,046	3,773,506	288,904	3,125,977
Net pension liability	**$18,368,131**	**$29,773,867**	**$1,350,341**	**$254,246**	**$1,095,472**
Plan fiduciary net position as a percentage of the total pension liability	42.59%	43.13%	73.65%	53.19%	74.05%

Actuarial Methods and Assumptions

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future. Actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future. A Schedule of Net Pension Liability is included in the RSI, which follows the Notes to the Financial Statements. It presents multi-year trend information about whether the FNP is increasing or decreasing over time relative to the total pension liability (TPL). Calculations are based on the benefits provided under the terms of the substantive plan in effect at the time of each pension actuarial valuation and on the pattern of sharing of costs between employers of each Division Trust Fund and/or plan members to that point. Actuarial calculations reflect a long-term perspective.

The TPL for the Division Trust Funds was determined by actuarial valuations as of December 31, 2015, and accepted actuarial procedures were applied to roll forward the TPL to December 31, 2016. The following actuarial cost method and key actuarial assumptions and other inputs were used to determine the TPL as of December 31, 2015:

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Actuarial cost method	Entry age	Entry age	Entry age	Entry age	Entry age
Price inflation	2.80%	2.80%	2.80%	2.80%	2.80%
Real wage growth	1.10%	1.10%	1.10%	1.10%	1.10%
Wage inflation	3.90%	3.90%	3.90%	3.90%	3.90%
Salary increases, including wage inflation	3.90%–9.57%	3.90%–10.10%	3.90%–10.85%	4.40%–5.40%	3.90%–10.10%
Long-term investment rate of return, net of pension plan investment expenses, including price inflation	7.50%	7.50%	7.50%	7.50%	7.50%
Discount rate	7.50%	7.50%	7.50%	5.73%	7.50%
Post-retirement benefit increases:					
PERA benefit structure hired prior to 1/1/07 and DPS benefit structure	2.00% compounded annually	2.00% compounded annually	2.00% compounded annually	2.00% compounded annually	2.00% compounded annually
PERA benefit structure hired after 12/31/06	Financed by the AIR[1]	Financed by the AIR[1]	Financed by the AIR[1]	Financed by the AIR[1]	Financed by the AIR[1]

[1] Post-retirement benefit increases are provided by the AIR, accounted separately within each Division Trust Fund, and subject to moneys being available; therefore, liabilities related to increases for members of these benefit tiers can never exceed available assets.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Based on the 2016 experience analysis and the October 28, 2016, actuarial assumptions workshop, revised economic and demographic assumptions were adopted by the Board during the November 18, 2016, Board meeting and were effective as of December 31, 2016. These revised assumptions shown below were reflected in the roll-forward calculation of the TPL from December 31, 2015, to December 31, 2016:

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Actuarial cost method	Entry age	Entry age	Entry age	Entry age	Entry age
Price inflation	2.40%	2.40%	2.40%	2.40%	2.40%
Real wage growth	1.10%	1.10%	1.10%	1.10%	1.10%
Wage inflation	3.50%	3.50%	3.50%	3.50%	3.50%
Salary increases, including wage inflation	3.50%–9.17%	3.50%–9.70%	3.50%–10.45%	4.00%–5.00%	3.50%–9.70%
Long-term investment rate of return, net of pension plan investment expenses, including price inflation	7.25%	7.25%	7.25%	7.25%	7.25%
Discount rate	5.26%	5.26%	7.25%	5.18%	7.25%
Post-retirement benefit increases:					
PERA benefit structure hired prior to 1/1/07 and DPS benefit structure	2.00% compounded annually	2.00% compounded annually	2.00% compounded annually	2.00% compounded annually	2.00% compounded annually
PERA benefit structure hired after 12/31/06	Financed by the AIR[1]	Financed by the AIR[1]	Financed by the AIR[1]	Financed by the AIR[1]	Financed by the AIR[1]

[1] Post-retirement benefit increases are provided by the AIR, accounted separately within each Division Trust Fund, and subject to moneys being available; therefore, liabilities related to increases for members of these benefit tiers can never exceed available assets.

Mortality rates used in the December, 31, 2015, valuations were based on the RP-2000 Combined Mortality Table for Males or Females, as appropriate, with adjustments for mortality improvements based on a projection of Scale AA to 2020 with males set back one year and females set back two years. Active member mortality was based upon the same mortality rates but adjusted to 55 percent of the base rate for males and 40 percent of the base rate for females. For disabled retirees, the RP-2000 Disabled Mortality Table (set back two years for males and set back two years for females) was assumed.

The actuarial assumptions used in the December 31, 2015, valuations were based on the results of an actuarial experience study for the period January 1, 2008 – December 31, 2011, adopted by the Board on November 13, 2012, and an economic assumptions study adopted by the Board on November 15, 2013, and January 17, 2014.

As a result of the 2016 experience analysis and the October 28, 2016, actuarial assumptions workshop, revised economic and demographic actuarial assumptions including withdrawal rates, retirement rates for early reduced and unreduced retirement, disability rates, administrative expense load, and pre- and post-retirement and disability mortality rates were adopted by the Board on November 18, 2016, to more closely reflect PERA's actual experience. As the revised economic and demographic assumptions are effective as of the measurement date, December 31, 2016, these revised assumptions were reflected in the TPL roll-forward procedures.

Healthy mortality assumptions for active members reflect the RP-2014 White Collar Employee Mortality Table, a table specifically developed for actively working people. To allow for an appropriate margin of improved mortality prospectively, the mortality rates incorporate a 70 percent factor applied to male rates and a 55 percent factor applied to female rates.

Healthy, post-retirement mortality assumptions for State and Local Government Divisions reflect the RP-2014 Healthy Annuitant Mortality Table, adjusted as follows:

- **Males:** Mortality improvement projected to 2018 using the MP-2015 projection scale, a 73 percent factor applied to rates for ages less than 80, a 108 percent factor applied to rates for ages 80 and above, and further adjustments for credibility.
- **Females:** Mortality improvement projected to 2020 using the MP-2015 projection scale, a 78 percent factor applied to rates for ages less than 80, a 109 percent factor applied to rates for ages 80 and above, and further adjustments for credibility.

Healthy, post-retirement mortality assumptions for School, Judicial, and DPS Divisions reflect the RP-2014 White Collar Healthy Annuitant Mortality Table, adjusted as follows:

- **Males:** Mortality improvement projected to 2018 using the MP-2015 projection scale, a 93 percent factor applied to rates for ages less than 80, a 113 percent factor applied to rates for ages 80 and above, and further adjustments for credibility.
- **Females:** Mortality improvement projected to 2020 using the MP-2015 projection scale, a 68 percent factor applied to rates for ages less than 80, a 106 percent factor applied to rates for ages 80 and above, and further adjustments for credibility.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

For disabled retirees, the mortality assumption was changed to reflect 90 percent of the RP-2014 Disabled Retiree Mortality Table.

The long-term expected return on plan assets is reviewed as part of regular experience studies prepared every four or five years for PERA. Recently, this assumption has been reviewed more frequently. The most recent analyses were outlined in presentations to the Board on October 28, 2016. As a result of the October 28, 2016, actuarial assumptions workshop and the November 18, 2016, Board meeting, the economic assumptions changed, effective December 31, 2016, as follows:

- Investment rate of return assumption decreased from 7.50 percent per year, compounded annually, net of investment expenses to 7.25 percent per year, compounded annually, net of investment expenses.
- Price inflation assumption decreased from 2.80 percent per year to 2.40 percent per year.
- Real rate of investment return assumption increased from 4.70 percent per year, net of investment expenses, to 4.85 percent per year, net of investment expenses.
- Wage inflation assumption decreased from 3.90 percent per year to 3.50 percent per year.

Several factors were considered in evaluating the long-term rate of return assumption, including long-term historical data, estimates inherent in current market data, and a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected return, net of investment expense and inflation) were developed for each major asset class. These ranges were 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 then adding expected inflation. The capital market assumptions may cover a shorter investment horizon and may not be useful in setting the long-term rate of return for funding pension plans which covers a longer time frame. The assumption is intended to be a long-term assumption and is not expected to change absent a significant change in the asset allocation, a change in the inflation assumption, or a fundamental change in the market that alters expected returns in future years.

As of the most recent adoption of the long-term rate of return by the Board, the target asset allocation and best estimates of geometric real rates of return for each major asset class are summarized in the table as follows:

Asset Class	Target Allocation	30-Year Expected Geometric Real Rate of Return
U.S. Equity – Large Cap	21.20%	4.30%
U.S. Equity – Small Cap	7.42%	4.80%
Non-U.S. Equity – Developed	18.55%	5.20%
Non-U.S. Equity – Emerging	5.83%	5.40%
Core Fixed Income	19.32%	1.20%
High Yield	1.38%	4.30%
Non-U.S. Fixed Income – Developed	1.84%	0.60%
Emerging Market Debt	0.46%	3.90%
Core Real Estate	8.50%	4.90%
Opportunity Fund	6.00%	3.80%
Private Equity	8.50%	6.60%
Cash	1.00%	0.20%
Total	**100.00%**	

Note: In setting the long-term expected rate of return for the plan, projections employed to model future returns provide a range of expected long-term returns that, including expected inflation, ultimately support a long-term expected rate of return assumption of 7.25 percent.

Discount Rate/Single Equivalent Interest Rate

The projection of cash flows used to determine the discount rate was performed in accordance with GASB 67. In addition to the actuarial cost method and assumptions of the December 31, 2015, actuarial valuation presented earlier, the projection of cash flows applied the following methods and assumptions:

- Updated economic and demographic actuarial assumptions adopted by the Board on November 18, 2016.
- Total covered payroll for the initial projection year consists of the covered payroll of the active membership present on the valuation date and the covered payroll of future plan members assumed to be hired during the year. In subsequent projection years, total covered payroll was assumed to increase annually at a rate of 3.50 percent.
- Employee contributions were assumed to be made at the current member contribution rate. Employee contributions for future plan members were used to reduce the estimated amount of total service costs for future plan members.
- Employer contributions were assumed to be made at rates equal to the fixed statutory rates specified in law and effective as of the measurement date, including current and estimated future AED and SAED, until the Actuarial Value Funding Ratio reaches 103 percent, at which point, the AED and SAED will each drop 0.50 percent every year until they are zero. Additionally, estimated employer contributions included reductions for the funding of the AIR and retiree health care benefits. For future plan members, employer contributions were further reduced by the estimated amount of total service costs for future plan members not financed by their member contributions.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

- Employer contributions and the amount of total service costs for future plan members were based upon a process used by the plan to estimate future actuarially determined contributions assuming an analogous future plan member growth rate.
- The AIR balance was excluded from the initial FNP, as, per statute, AIR amounts cannot be used to pay benefits until transferred to either the retirement benefits reserve or the survivor benefits reserve, as appropriate. As the ad hoc post-retirement benefit increases financed by the AIR are defined to have a present value at the long-term expected rate of return on plan investments equal to the amount transferred for their future payment, AIR transfers to the FNP and the subsequent AIR benefit payments have no impact on the Single Equivalent Interest Rate (SEIR) determination process when the timing of AIR cash flows is not a factor (i.e., the plan's FNP is not projected to be depleted). When AIR cash flow timing is a factor in the SEIR determination process (i.e., the plan's FNP is projected to be depleted), AIR transfers to the FNP and the subsequent AIR benefit payments were estimated and included in the projections.
- Benefit payments and contributions were assumed to be made at the end of the month.

Based on those methods and assumptions and the GASB 67 projection test methodology, the following table displays the discount rates used to measure the TPL for the prior measurement date (December 31, 2015) and the measurement date (December 31, 2016). In the determination of the discount rate applicable to the measurement date, this table also shows the crossover point where the division's FNP is projected to be depleted and the rates used to discount the projected benefit payments back to the measurement date for those periods:

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Discount rate (SEIR)					
Prior measurement date	7.50%	7.50%	7.50%	5.73%	7.50%
Measurement date	5.26%	5.26%	7.25%	5.18%	7.25%
Discount of projected benefit payments					
Long-term expected rate of return[1]	7.25%	7.25%	7.25%	7.25%	7.25%
Period rate was applied	Through 2039	Through 2041	All periods	Through 2036	All periods
Municipal bond index rate[2, 3]	3.86%	3.86%	N/A	3.86%	N/A
Period rate was applied	On and after 2039	On and after 2041	N/A	On and after 2036	N/A

1 As of the prior measurement date, the long-term expected rate of return was 7.50 percent.

2 The municipal bond index rate is the December average of the Bond Buyer General Obligation 20-year Municipal Bond Index published weekly by the Board of Governors of the Federal Reserve System.

3 As of the prior measurement date, the municipal bond index rate was 3.57 percent.

The results of the GASB 67 projection test methodology and development of the discount rate do not necessarily indicate the fund's ability to make benefit payments in the future.

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

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

The following presents the NPL for participating employers for each plan using the current discount rate, as well as what the plan's NPL 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:

Trust Fund	1.0 Percent Decrease Discount Rate	Net Pension Liability
State Division	4.26%	$22,750,067
School Division	4.26%	37,439,681
Local Government Division	6.25%	1,991,016
Judicial Division	4.18%	320,189
DPS Division	6.25%	1,602,208

Trust Fund	Current Discount Rate	Net Pension Liability
State Division	**5.26%**	**$18,368,131**
School Division	**5.26%**	**29,773,867**
Local Government Division	**7.25%**	**1,350,341**
Judicial Division	**5.18%**	**254,246**
DPS Division	**7.25%**	**1,095,472**

Trust Fund	1.0 Percent Increase Discount Rate	Net Pension Liability
State Division	6.26%	$14,768,033
School Division	6.26%	23,530,339
Local Government Division	8.25%	819,792
Judicial Division	6.18%	198,197
DPS Division	8.25%	676,945

As shown, if there is a significant deviation, over a long period, in the actual rate of return from the assumed discount rate, the measurement of the NPL could be materially under- or over-reported as of December 31, 2016. Further, funding the TPL assumes the current statutory contributions by employers and members in the future will be made on a timely basis. Any significant reduction in contributions would have an impact on the ability of the plan to make benefit payments in the future.

Note 11—Funded Status and Funding Progress of the Health Care Trust Funds

The funded status of each plan as of December 31, 2016, the most recent actuarial valuation date, is as follows:

	HCTF	DPS HCTF
Actuarial value of assets (a)	$270,150	$18,945
Actuarial accrued liability (b)	1,556,762	72,845
Unfunded actuarial accrued liability (UAAL) (b-a)	**$1,286,612**	**$53,900**
Funded ratio (a/b)	17.4%	26.0%
Covered payroll	$7,716,894	$642,177
UAAL as a percentage of covered payroll	16.7%	8.4%

Actuarial Methods and Assumptions

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future. Actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future. A Schedule of Funding Progress is included in the RSI, which follows the Notes to the Financial Statements. It presents multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the AAL for benefits. Calculations are based on the benefits provided under the terms of the substantive plan in effect at the time of each valuation and on the pattern of sharing of costs between employers of each fund and plan members to that point. Actuarial calculations reflect a long-term perspective. In addition, consistent with that perspective, the actuarial methods and assumptions used include techniques designed to reduce short-term volatility in AALs and the actuarial value of assets.

The AAL is based on a variety of assumptions, with the most significant assumption being the assumed rate of return on investments and related discount rate. As of December 31, 2016, PERA has estimated the rate of return on investments and discount rate will be 7.25 percent for a period equal to the remaining lives of current active members and benefit recipients. The actuarial assumptions and methods in the following table reflect the revised assumptions adopted by the Board on November 18, 2016, as a result of the 2016 experience analysis and the October 28, 2016, actuarial assumptions workshop.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

	HCTF	DPS HCTF
Valuation date	12/31/2016	12/31/2016
Actuarial cost method	Entry age	Entry age
Amortization method	Level percent, Open	Level percent, Open
Remaining amortization period used in ARC calculation	30 years	30 years
Remaining amortization period with current funding	37 years	13 years
Asset valuation method	4-year smoothed market	4-year smoothed market
Actuarial assumptions:		
Investment rate of return and discount rate[1]	7.25%	7.25%
Projected salary increases[1]	3.50% in aggregate	3.50% in aggregate
Health care inflation factor		
Service-based premium subsidy	0.00%	0.00%
Medicare Part A premiums	3.00% Initial 4.25% Ultimate	N/A
Health care plan premiums	5.00%	N/A

[1] Includes inflation at 2.40 percent.

Sensitivity of the Unfunded Actuarial Accrued Liability to Changes in Assumed Investment Rate of Return and Discount Rate

The most important long-term driver of a postemployment benefit plan is investment income. The long-term expected rate of return on investments and discount rate assumptions, as required by GASB, should be based on an estimated long-term investment yield for the plan, with consideration given to the nature and mix of current and expected plan investments and the basis used to determine the actuarial value of assets.

Management and the Board periodically monitor the long-term expected rate of return on investments and discount rate assumptions and as a result, the Board makes changes as appropriate. On November 18, 2016, as a result of the 2016 experience analysis and the October 28, 2016, actuarial assumptions workshop, the Board revised the economic and demographic assumptions. The changes included decreasing the investment rate of return and the discount rate assumptions from 7.50 percent to 7.25 percent, the price inflation assumption from 2.80 percent to 2.40 percent, and the wage inflation assumption from 3.90 percent to 3.50 percent. In addition, the Board followed the actuaries' recommendations regarding the demographic assumptions and revised the assumed rates of withdrawal (termination), disability, retirement, and mortality to more closely reflect past experience and anticipated increased longevity. A 10-year history of changes in plan provisions is included in the Notes to the RSI.

To understand the importance of the long-term assumed investment rate of return, which is used to discount the actuarial liabilities, a 1.0 percent fluctuation in the investment rate of return and discount rate would change the funded ratio, UAAL, and ARC (for contributions for the fiscal year December 31, 2018) as shown in the table below.

	1.0 Percent Decrease 6.25 Percent	Current Assumption 7.25 Percent	1.0 Percent Increase 8.25 Percent
Funded Ratio			
HCTF	15.7%	**17.4%**	19.0%
DPS HCTF	23.7%	**26.0%**	28.3%
Unfunded Actuarial Accrued Liability			
HCTF	$1,448,464	**$1,286,612**	$1,148,683
DPS HCTF	60,913	**53,900**	47,900
Annual Required Contribution			
HCTF	1.17%	**1.12%**	1.06%
DPS HCTF	0.72%	**0.67%**	0.62%

NOTES TO THE FINANCIAL STATEMENTS
(Dollars in Thousands)

Note 12—Subsequent Events

Legislation Impacting Future Years

During the 2017 legislative session, two bills that affect Colorado PERA were passed by the Legislature and signed into law.

House Bill 17-1176: PERA Retirees Employed By Rural School Districts

Current law allows a service retiree from any division to work for a PERA employer for limited periods and to receive a salary without reduction in benefits under certain circumstances. Signed by Governor Hickenlooper on June 6, 2017, this bill modifies the current working after retirement provisions, through June 30, 2023, for certain retirees hired by an employer in the School Division if:

- The employer that hires the service retiree is a rural school district as determined by the Department of Education based on certain criteria and the school district enrolls 6,500 students or fewer in kindergarten through 12th grade;
- The school district hires the service retiree for the purpose of providing classroom instruction or school bus transportation to students enrolled by the district or for the purpose of being a school food services cook; and
- The school district determines that there is a critical shortage of qualified teachers, school bus drivers, or school food services cooks, as applicable, and that the service retiree has specific experience, skills, or qualifications that would benefit the district.

A service retiree who is a teacher, a school bus driver, or a school food services cook and who is hired by an employer in the School Division that satisfies the criteria above may receive salary without a reduction in benefits for any length of employment in a calendar year if the service retiree has not worked for any PERA employer during the month of the effective date of retirement. This bill also contains the following provisions concerning employment for the service retiree:

- Is not required to resume PERA membership upon termination of employment.
- Will not have a benefit recalculation reflecting additional service credit or any increase in HAS.
- Will not receive a PERA health care premium subsidy during employment.
- May not be employed by the school district from which he or she retired until two years after retirement if he or she retired without a full service retirement benefit.
- May not receive salary without reduction in benefits and without limitation in a calendar year for more than six consecutive years.

In addition, this bill requires the employer that hires the service retiree to provide full payment of all PERA employer contributions, disbursements, and working retiree contributions. PERA submitted a fiscal note to the Legislature estimating the increase to the UAAL for the School Division Trust Fund would be $85,300.

House Bill 17-1265: PERA Judicial Division Total Employer Contribution

Signed by Governor Hickenlooper on May 25, 2017, this bill increases the AED and SAED for the Judicial Division. In 2004 and 2006, the Colorado General Assembly enacted legislation that required employers to make additional contributions to PERA. In 2010, the General Assembly capped the AED and the SAED for the Judicial Division at the 2010 levels, which was 2.20 percent for the AED and 1.50 percent for the SAED.

For the calendar year beginning in 2019, this bill increases the AED for the Judicial Division to 3.40 percent of PERA-includable salary and requires the AED payment to increase by 0.4 percent of PERA-includable salary at the start of each of the following four calendar years through 2023. In addition, for the calendar year beginning in 2019, this bill increases the SAED for the Judicial Division to 3.40 percent of PERA-includable salary and requires the SAED payment to increase by 0.4 percent of PERA-includable salary at the start of each of the following four calendar years through 2023.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY[1]—STATE DIVISION

For the Years Ended December 31

	2016	2015	2014
Total pension liability			
Service cost at end of year	**$317,466**	$309,351	$285,311
Interest	**1,741,390**	1,700,903	1,663,542
Changes of benefit terms	**—**	—	—
Difference between expected and actual experience	**176,889**	237,147	(1,069)
Changes of assumptions or other inputs	**7,313,068**	(192,776)	—
Benefit payments, refunds, and disability premiums	**(1,546,071)**	(1,483,517)	(1,415,754)
Net change in total pension liability	**8,002,742**	571,108	532,030
Total pension liability – beginning	**23,991,569**	23,420,461	22,888,431
Total pension liability – ending (a)	**$31,994,311**	**$23,991,569**	**$23,420,461**
Plan fiduciary net position			
Contributions – employer	**$521,804**	$484,005	$444,372
Contributions – active member (includes purchased service)	**247,533**	244,926	234,056
Net investment income	**947,981**	210,337	780,762
Benefit payments, refunds, and disability premiums	**(1,546,071)**	(1,483,517)	(1,415,754)
Administrative expense	**(11,271)**	(10,779)	(10,067)
Other additions and deductions	**5,668**	1,617	118
Net change in plan fiduciary net position	**165,644**	(553,411)	33,487
Plan fiduciary net position – beginning	**13,460,536**	14,013,947	13,980,460
Plan fiduciary net position – ending (b)	**$13,626,180**	**$13,460,536**	**$14,013,947**
Net pension liability – ending (a)-(b)	**$18,368,131**	**$10,531,033**	**$9,406,514**

[1] Information is not available prior to 2014. In future reports, additional years will be added until 10 years of historical data are presented.

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS
(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY[1]—SCHOOL DIVISION
For the Years Ended December 31

	2016	2015	2014
Total pension liability			
Service cost at end of year	**$567,247**	$548,358	$511,059
Interest	**2,722,256**	2,652,731	2,582,865
Changes of benefit terms	**—**	—	—
Difference between expected and actual experience	**346,658**	278,464	(1,387)
Changes of assumptions or other inputs	**13,572,334**	(298,005)	—
Benefit payments, refunds, and disability premiums	**(2,300,644)**	(2,208,452)	(2,113,547)
Net change in total pension liability	**14,907,851**	973,096	978,990
Total pension liability – beginning	**37,447,062**	36,473,966	35,494,976
Total pension liability – ending (a)	**$52,354,913**	**$37,447,062**	**$36,473,966**
Plan fiduciary net position			
Contributions – employer	**$812,740**	$754,182	$686,323
Contributions – active member (includes purchased service)	**386,481**	372,378	356,520
Net investment income	**1,569,026**	344,000	1,274,862
Benefit payments, refunds, and disability premiums	**(2,300,644)**	(2,208,452)	(2,113,547)
Administrative expense	**(21,991)**	(20,865)	(19,290)
Other additions and deductions	**(17,334)**	(9,082)	(4,264)
Net change in plan fiduciary net position	**428,278**	(767,839)	180,604
Plan fiduciary net position – beginning	**22,152,768**	22,920,607	22,740,003
Plan fiduciary net position – ending (b)	**$22,581,046**	**$22,152,768**	**$22,920,607**
Net pension liability – ending (a)-(b)	**$29,773,867**	**$15,294,294**	**$13,553,359**

[1] Information is not available prior to 2014. In future reports, additional years will be added until 10 years of historical data are presented.

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY[1]—LOCAL GOVERNMENT DIVISION

For the Years Ended December 31

	2016	2015	2014
Total pension liability			
Service cost at end of year	$65,250	$63,005	$58,676
Interest	346,944	338,616	329,156
Changes of benefit terms	—	—	—
Difference between expected and actual experience	42,105	14,930	(322)
Changes of assumptions or other inputs	179,802	(36,449)	—
Benefit payments, refunds, and disability premiums	(272,344)	(265,789)	(256,972)
Net change in total pension liability	361,757	114,313	130,538
Total pension liability – beginning	4,762,090	4,647,777	4,517,239
Total pension liability – ending (a)	$5,123,847	$4,762,090	$4,647,777
Plan fiduciary net position			
Contributions – employer	$75,132	$70,415	$68,719
Contributions – employer disaffiliation	—	—	186,006
Contributions – active member (includes purchased service)	52,451	51,986	49,290
Net investment income	261,276	56,328	200,394
Benefit payments, refunds, and disability premiums	(272,344)	(265,789)	(256,972)
Administrative expense	(2,395)	(2,253)	(2,091)
Other additions and deductions	(1,123)	(1,646)	(2,190)
Net change in plan fiduciary net position	112,997	(90,959)	243,156
Plan fiduciary net position – beginning	3,660,509	3,751,468	3,508,312
Plan fiduciary net position – ending (b)	$3,773,506	$3,660,509	$3,751,468
Net pension liability – ending (a)-(b)	$1,350,341	$1,101,581	$896,309

[1] Information is not available prior to 2014. In future reports, additional years will be added until 10 years of historical data are presented.

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY[1]—JUDICIAL DIVISION

For the Years Ended December 31

	2016	2015	2014
Total pension liability			
Service cost at end of year	**$12,639**	$10,813	$9,024
Interest	**25,774**	25,005	24,820
Changes of benefit terms	**—**	—	—
Difference between expected and actual experience	**22,804**	7,289	(5)
Changes of assumptions or other inputs	**43,576**	21,485	21,294
Benefit payments, refunds, and disability premiums	**(22,888)**	(21,200)	(19,903)
Net change in total pension liability	**81,905**	43,392	35,230
Total pension liability – beginning	**461,245**	417,853	382,623
Total pension liability – ending (a)	**$543,150**	**$461,245**	**$417,853**
Plan fiduciary net position			
Contributions – employer	**$8,024**	$7,702	$7,070
Contributions – active member (includes purchased service)	**4,037**	4,197	4,296
Net investment income	**19,783**	4,149	15,299
Benefit payments, refunds, and disability premiums	**(22,888)**	(21,200)	(19,903)
Administrative expense	**(81)**	(77)	(72)
Other additions and deductions	**2,678**	3,081	156
Net change in plan fiduciary net position	**11,553**	(2,148)	6,846
Plan fiduciary net position – beginning	**277,351**	279,499	272,653
Plan fiduciary net position – ending (b)	**$288,904**	**$277,351**	**$279,499**
Net pension liability – ending (a)-(b)	**$254,246**	**$183,894**	**$138,354**

[1] Information is not available prior to 2014. In future reports, additional years will be added until 10 years of historical data are presented.

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY[1]—DPS DIVISION

For the Years Ended December 31

	2016	2015	2014
Total pension liability			
Service cost at end of year	**$85,988**	$82,079	$76,564
Interest	**283,862**	281,752	274,862
Changes of benefit terms	**—**	—	—
Difference between expected and actual experience	**(2,839)**	45,767	(174)
Changes of assumptions or other inputs	**205,645**	(113,772)	—
Benefit payments, refunds, and disability premiums	**(272,071)**	(263,323)	(255,434)
Net change in total pension liability	**300,585**	32,503	95,818
Total pension liability – beginning	**3,920,864**	3,888,361	3,792,543
Total pension liability – ending (a)	**$4,221,449**	**$3,920,864**	**$3,888,361**
Plan fiduciary net position			
Contributions – employer	**$17,071**	$8,494	$18,478
Contributions – active member (includes purchased service)	**54,852**	53,558	49,409
Net investment income	**218,415**	49,172	182,823
Benefit payments, refunds, and disability premiums	**(272,071)**	(263,323)	(255,434)
Administrative expense	**(2,754)**	(2,599)	(2,377)
Other additions and deductions	**3,135**	(1,764)	(1,547)
Net change in plan fiduciary net position	**18,648**	(156,462)	(8,648)
Plan fiduciary net position – beginning	**3,107,329**	3,263,791	3,272,439
Plan fiduciary net position – ending (b)	**$3,125,977**	**$3,107,329**	**$3,263,791**
Net pension liability – ending (a)-(b)	**$1,095,472**	**$813,535**	**$624,570**

[1] Information is not available prior to 2014. In future reports, additional years will be added until 10 years of historical data are presented.

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF NET PENSION LIABILITY[1]

For the Years Ended December 31

State Division	2016	2015	2014	2013
Total pension liability	**$31,994,311**	$23,991,569	$23,420,461	$22,888,431
Plan fiduciary net position	**13,626,180**	13,460,536	14,013,947	13,980,460
Net pension liability	**$18,368,131**	**$10,531,033**	**$9,406,514**	**$8,907,971**
Plan fiduciary net position as a percentage of the total pension liability	**42.59%**	56.11%	59.84%	61.08%
Covered payroll	**$2,710,651**	$2,641,867	$2,564,670	$2,474,965
Net pension liability as a percentage of covered payroll	**677.63%**	398.62%	366.77%	359.92%

School Division	2016	2015	2014	2013
Total pension liability	**$52,354,913**	$37,447,062	$36,473,966	$35,494,976
Plan fiduciary net position	**22,581,046**	22,152,768	22,920,607	22,740,003
Net pension liability	**$29,773,867**	**$15,294,294**	**$13,553,359**	**$12,754,973**
Plan fiduciary net position as a percentage of the total pension liability	**43.13%**	59.16%	62.84%	64.07%
Covered payroll	**$4,349,320**	$4,235,290	$4,063,236	$3,938,650
Net pension liability as a percentage of covered payroll	**684.56%**	361.12%	333.56%	323.84%

Local Government Division	2016	2015	2014	2013
Total pension liability	**$5,123,847**	$4,762,090	$4,647,777	$4,517,239
Plan fiduciary net position	**3,773,506**	3,660,509	3,751,468	3,508,312
Net pension liability	**$1,350,341**	**$1,101,581**	**$896,309**	**$1,008,927**
Plan fiduciary net position as a percentage of the total pension liability	**73.65%**	76.87%	80.72%	77.66%
Covered payroll	**$608,223**	$561,518	$540,468	$529,003
Net pension liability as a percentage of covered payroll	**222.01%**	196.18%	165.84%	190.72%

Judicial Division	2016	2015	2014	2013
Total pension liability	**$543,150**	$461,245	$417,853	$382,623
Plan fiduciary net position	**288,904**	277,351	279,499	272,653
Net pension liability	**$254,246**	**$183,894**	**$138,354**	**$109,970**
Plan fiduciary net position as a percentage of the total pension liability	**53.19%**	60.13%	66.89%	71.26%
Covered payroll	**$48,700**	$46,870	$42,977	$39,942
Net pension liability as a percentage of covered payroll	**522.07%**	392.35%	321.93%	275.32%

DPS Division	2016	2015	2014	2013
Total pension liability	**$4,221,449**	$3,920,864	$3,888,361	$3,792,543
Plan fiduciary net position	**3,125,977**	3,107,329	3,263,791	3,272,439
Net pension liability	**$1,095,472**	**$813,535**	**$624,570**	**$520,104**
Plan fiduciary net position as a percentage of the total pension liability	**74.05%**	79.25%	83.94%	86.29%
Covered payroll	**$642,177**	$621,115	$584,319	$547,660
Net pension liability as a percentage of covered payroll	**170.59%**	130.98%	106.89%	94.97%

[1] Information is not available prior to 2013. In future reports, additional years will be added until 10 years of historical data are presented.

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF EMPLOYER CONTRIBUTIONS

For the Years Ended December 31

State Division	2016	2015	2014	2013	2012
Actuarially determined contribution rate (a)	**22.31%**	22.35%	20.45%	20.01%	16.52%
Covered payroll (b)	**$2,710,651**	$2,641,867	$2,564,670	$2,474,965	$2,384,934
Annual Increase Reserve contribution (c)	**12,838**	11,400	9,984	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	**617,584**	601,857	534,459	495,241	393,991
Contributions in relation to the actuarially determined contribution	**521,804**	484,005	444,372	393,218	328,055
Annual contribution deficiency	**$95,780**	**$117,852**	**$90,087**	**$102,023**	**$65,936**
Actual contributions as a percentage of covered payroll	**19.25%**	18.32%	17.33%	15.89%	13.76%

	2011	2010	2009	2008	2007
Actuarially determined contribution rate (a)	13.63%	18.93%	17.91%	18.45%	17.23%
Covered payroll (b)	$2,393,791	$2,392,080	$2,384,137	$2,371,639	$2,236,518
Annual Increase Reserve contribution (c)	N/A	N/A	N/A	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	326,274	452,821	426,999	437,567	385,352
Contributions in relation to the actuarially determined contribution	277,122	282,640	293,234	267,533	231,909
Annual contribution deficiency	**$49,152**	**$170,181**	**$133,765**	**$170,034**	**$153,443**
Actual contributions as a percentage of covered payroll	11.58%	11.82%	12.30%	11.28%	10.37%

School Division	2016	2015	2014	2013	2012
Actuarially determined contribution rate (a)	**22.36%**	21.94%	19.65%	19.79%	17.60%
Covered payroll (b)	**$4,349,320**	$4,235,290	$4,063,236	$3,938,650	$3,819,066
Annual Increase Reserve contribution (c)	**17,868**	15,648	13,280	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	**990,376**	944,871	811,706	779,459	672,156
Contributions in relation to the actuarially determined contribution	**812,740**	754,182	686,323	613,738	564,444
Annual contribution deficiency	**$177,636**	**$190,689**	**$125,383**	**$165,721**	**$107,712**
Actual contributions as a percentage of covered payroll	**18.69%**	17.81%	16.89%	15.58%	14.78%

	2011	2010	2009	2008	2007
Actuarially determined contribution rate (a)	15.73%	18.75%	16.56%	17.18%	16.06%
Covered payroll (b)	$3,821,603	$3,900,662	$3,922,175	$3,804,927	$3,618,258
Annual Increase Reserve contribution (c)	N/A	N/A	N/A	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	601,138	731,374	649,512	653,686	581,092
Contributions in relation to the actuarially determined contribution	534,230	512,391	474,872	426,786	374,386
Annual contribution deficiency	**$66,908**	**$218,983**	**$174,640**	**$226,900**	**$206,706**
Actual contributions as a percentage of covered payroll	13.98%	13.14%	12.11%	11.22%	10.35%

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF EMPLOYER CONTRIBUTIONS

For the Years Ended December 31

Local Government Division	2016	2015	2014	2013	2012
Actuarially determined contribution rate (a)	**11.98%**	13.62%	11.78%	10.62%	9.79%
Covered payroll (b)	**$608,223**	$561,518	$540,468	$529,003	$523,668
Annual Increase Reserve contribution (c)	**2,969**	2,522	2,180	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	**75,834**	79,001	65,847	56,180	51,267
Contributions in relation to the actuarially determined contribution	**75,132**	70,415	254,725[1]	65,329	83,816
Annual contribution deficiency (excess)	**$702**	**$8,586**	**($188,878)**	**($9,149)**	**($32,549)**
Actual contributions as a percentage of covered payroll	**12.35%**	12.54%	47.13%	12.35%	16.01%

	2011	2010	2009	2008	2007
Actuarially determined contribution rate (a)	8.98%	12.31%	11.14%	11.95%	11.21%
Covered payroll (b)	$718,169	$705,265	$705,097	$718,902	$680,442
Annual Increase Reserve contribution (c)	N/A	N/A	N/A	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	64,492	86,818	78,548	85,909	76,278
Contributions in relation to the actuarially determined contribution	89,536	87,731	82,986	78,291	68,254
Annual contribution deficiency (excess)	**($25,044)**	**($913)**	**($4,438)**	**$7,618**	**$8,024**
Actual contributions as a percentage of covered payroll	12.47%	12.44%	11.77%	10.89%	10.03%

[1] Contributions include the disaffiliation payment of $186,006 for Memorial Health System. See Note 2, "2014 Changes in Assumptions or Other Inputs since 2013" in the Notes to the Required Supplementary Information—Division Trust Funds for more information on the lawsuit resolution for Memorial Health System.

Judicial Division	2016	2015	2014	2013	2012
Actuarially determined contribution rate (a)	**22.07%**	21.45%	20.07%	21.53%	18.28%
Covered payroll (b)	**$48,700**	$46,870	$42,977	$39,942	$39,045
Annual Increase Reserve contribution (c)	**164**	141	116	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	**10,912**	10,195	8,741	8,599	7,137
Contributions in relation to the actuarially determined contribution	**8,024**	7,702	7,070	6,494	5,840
Annual contribution deficiency	**$2,888**	**$2,493**	**$1,671**	**$2,105**	**$1,297**
Actual contributions as a percentage of covered payroll	**16.48%**	16.43%	16.45%	16.26%	14.96%

	2011	2010	2009	2008	2007
Actuarially determined contribution rate (a)	16.30%	18.63%	17.08%	17.66%	15.33%
Covered payroll (b)	$39,033	$37,412	$37,583	$35,937	$31,150
Annual Increase Reserve contribution (c)	N/A	N/A	N/A	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	6,362	6,970	6,419	6,346	4,775
Contributions in relation to the actuarially determined contribution	5,356	5,605	5,749	5,078	4,211
Annual contribution deficiency	**$1,006**	**$1,365**	**$670**	**$1,268**	**$564**
Actual contributions as a percentage of covered payroll	13.72%	14.98%	15.30%	14.13%	13.52%

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF EMPLOYER CONTRIBUTIONS

For the Years Ended December 31

DPS Division[1]	2016	2015	2014	2013	2012
Actuarially determined contribution rate (a)	**10.46%**	11.06%	9.67%	11.53%	9.60%
Covered payroll (b)	**$642,177**	$621,115	$584,319	$547,660	$510,872
Annual Increase Reserve contribution (c)	**3,685**	3,186	2,633	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	**70,857**	71,881	59,137	63,145	49,044
Contributions in relation to the actuarially determined contribution	**17,071**	8,494	18,478	23,104	13,145
Annual contribution deficiency	**$53,786**	**$63,387**	**$40,659**	**$40,041**	**$35,899**
Actual contributions as a percentage of covered payroll	**2.66%**	1.37%	3.16%	4.22%	2.57%

	2011	2010
Actuarially determined contribution rate (a)	11.85%	14.61%
Covered payroll (b)	$491,646	$470,774
Annual Increase Reserve contribution (c)	N/A	N/A
Actuarially determined contribution (a) x (b) + (c)	58,260	68,780
Contributions in relation to the actuarially determined contribution	11,722	5,733
Annual contribution deficiency	**$46,538**	**$63,047**
Actual contributions as a percentage of covered payroll	2.38%	1.22%

[1] The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of the Denver Public Schools Retirement System (DPSRS).

SCHEDULE OF INVESTMENT RETURNS[1]

For the Years Ended December 31

	2016	2015	2014
Annual money-weighted rate of return, net of investment expenses	**7.3%**	1.6%	5.8%

[1] Information is not available prior to 2014. In future reports, additional years will be added until 10 years of historical data are presented.

The accompanying notes are an integral part of the Required Supplementary Information.

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

Note 1—Significant Changes in Plan Provisions Affecting Trends in Actuarial Information

2016 Changes in Plan Provisions Since 2015

- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the pension certificates of participation (PCOPs) issued in 1997 and 2008 and refinanced thereafter.

2015 Changes in Plan Provisions Since 2014

- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.
- As required under Colorado Revised Statutes § 24-51-401(1.7)(e), PERA calculated and provided to the Colorado General Assembly an adjustment to the DPS Division's employer contribution rate to assure the equalization of the School Division's and the DPS Division's ratios of unfunded actuarial accrued liability (UAAL) to payroll as of December 31, 2039. Subsequently, the Colorado General Assembly passed House Bill 15-1391, reducing the employer contribution rate of the DPS Division from 13.75 percent to 10.15 percent, effective January 1, 2015.

2014 Changes in Plan Provisions Since 2013

- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2013 Changes in Plan Provisions Since 2012

- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2012 Changes in Plan Provisions Since 2011

- The valuation reflects the disaffiliation of Memorial Health System (Memorial), formerly the largest employer of the Local Government Division, as of October 1, 2012. For the purposes of the December 31, 2012, actuarial valuation, liabilities were determined assuming no additional benefit accruals for the disaffiliated membership of Memorial that had not refunded their PERA member contribution accounts. Additionally, no additional incoming dollars were assumed added to the Local Government Division Trust Fund, as there is ongoing litigation regarding the potential dollars owed to the Local Government Division Trust Fund due to the disaffiliation.
- Pursuant to Senate Bill (SB) 11-076, there was a short-term contribution "swap" between employers and active members in the State and Judicial Divisions covering the period July 1, 2011, through June 30, 2012. Active member contributions for the period were increased by 2.5 percent of pensionable payroll and employer contributions were reduced by that amount.
- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2011 Changes in Plan Provisions Since 2010

- Pursuant to SB 10-146, there was a short-term contribution "swap" between employers and active members in the State and Judicial Divisions covering the period July 1, 2010, through June 30, 2011. The enactment of SB 11-076 extended the contribution swap an additional year, from July 1, 2011, through June 30, 2012. Active member contributions for both periods were increased by 2.5 percent of pensionable payroll and employer contributions were reduced by that amount.
- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2010 Changes in Plan Provisions Since 2009

- The valuation reflects the addition of the DPS benefit structure as a result of the merger of DPSRS into PERA as a separate division, effective January 1, 2010. Major plan provisions adopted as part of the merger legislation (SB 09-282) include:
  - Transfers from the DPS Division to other Divisions may build upon a DPS benefit structure benefit within those Divisions.
  - Hourly and part-time employees of Denver Public Schools become members of the DPS Division as of January 1, 2010, with no past service credit.
  - Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008. Colorado statutes call for a "true-up" in 2015, and every five years following, with the expressed purpose of adjusting the total DPS contribution rate to ensure equalization of the ratio of UAAL over payroll between the DPS and School Divisions at the end of the 30-year period beginning January 1, 2010.
- Pursuant to SB 10-146, there was a short-term contribution "swap" between employers and active members in the State and Judicial Divisions covering the period July 1, 2010, through June 30, 2011. Active member contributions for this period were increased by 2.5 percent of pensionable payroll and employer contributions were reduced by that amount.

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

2009 Changes in Plan Provisions Since 2008

- The following changes were made to the plan provisions as part of SB 10-001:
  - For the State Division, the Amortization Equalization Disbursement (AED) continues to increase by 0.4 percent per year to a total rate of 5.0 percent by 2017. In addition, the Supplemental Amortization Equalization Disbursement (SAED) continues to increase by 0.5 percent per year to a total rate of 5.0 percent by 2017. However, if the funding ratio reaches 103 percent, the AED and SAED will be reduced by 0.5 percent of pay each.
  - For the School Division, the AED will continue to increase by 0.4 percent per year from 2013 through 2015 and by 0.3 percent in 2016 for a total rate of 4.5 percent. In addition, the SAED will continue to increase by 0.5 percent per year to a total rate of 5.5 percent by 2018. Also, the 0.4 percent increase in the statutory employer contribution rate in 2013 was eliminated. However, if the funding ratio reaches 103 percent, the AED and SAED will be reduced by 0.5 percent of pay each.
  - For the Local Government and Judicial Divisions, the AED is frozen at the 2010 level of 2.20 percent. In addition, the SAED is frozen at the 2010 level of 1.50 percent. However, if the funding ratio reaches 103 percent, the AED and SAED will be reduced by 0.5 percent of pay each.
  - For benefit recipients of the PERA benefit structure based upon a membership date before January 1, 2007, or for benefit recipients of the DPS benefit structure, future post-retirement benefit increases (AI) were reduced to an amount equal to 2 percent (the lesser of that or the annual Consumer Price Index for Urban Wage Earners and Clerical Workers [CPI-W] increase for 2010). However, if the investment return for the prior year is negative, then the AI is an amount equal to the annual CPI-W increase with a cap of 2 percent. The 2 percent cap may be adjusted based upon the year-end funded status, with increases mandated when the funded status reaches 103 percent and decreases mandated when the funded status subsequently falls below 90 percent. The cap will not be reduced below 2 percent. In addition, the AI is first paid on the July 1st that is at least 12 months after retirement for those members who retire on or after January 1, 2011. Members not eligible to retire as of January 1, 2011, who retire with a reduced service retirement allowance must reach age 60 or the age and service requirements for unreduced service retirement to be eligible for the AI.
  - Effective January 1, 2011, other than in the Judicial Division, for all active members who are not eligible for retirement on January 1, 2011, the annual salary increase cap in determination of highest average salary was lowered from 15 percent to 8 percent for PERA benefit structure members and for DPS benefit structure members, a change from the average of salaries of the highest 36 months of earned service to the PERA benefit structure method with an annual salary increase cap of 8 percent.
  - Effective January 1, 2011, a new requirement was added that PERA benefit structure members must have five years of earned service credit in order to receive a 50 percent match on a refund.
  - Effective January 1, 2011, the reduction factors for a reduced service retirement benefit for members not eligible to retire as of January 1, 2011, were changed to an actuarial equivalent basis.
  - Effective January 1, 2011, a modified Rule of 85 for service retirement eligibility was implemented for members with less than 5 years of service credit as of January 1, 2011 (this rule does not apply to State Troopers).
  - Effective January 1, 2011, a modified Rule of 88 with a minimum age of 58 for service retirement eligibility was implemented for members hired on or after January 1, 2011, but before January 1, 2017 (this rule does not apply to State Troopers).
  - Effective January 1, 2011, a modified Rule of 90 with a minimum age of 60 for service retirement eligibility was implemented for members hired on or after January 1, 2017 (this rule does not apply to State Troopers and to participants whose last 10 years of service were in the School or DPS Divisions).

2008 Changes in Plan Provisions Since 2007

- The Board approved a reduction to the interest rate credited on member contribution accounts from 5 percent to 3 percent.

2007 Changes in Plan Provisions Since 2006

- No material changes to plan provisions.

Note 2—Significant Changes in Assumptions or Other Inputs Affecting Trends in Actuarial Information

2016 Changes in Assumptions or Other Inputs Since 2015

- The investment return assumption was lowered from 7.50 percent to 7.25 percent.
- The price inflation assumption was lowered from 2.80 percent to 2.40 percent.
- The wage inflation assumption was lowered from 3.90 percent to 3.50 percent.
- The post-retirement mortality assumption for healthy lives for the State and Local Government Divisions was changed to the RP-2014 Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 73 percent factor applied to ages below 80 and a 108 percent factor applied to age 80 and above, projected to 2018, for males, and a 78 percent factor applied to ages below 80 and a 109 percent factor applied to age 80 and above, projected to 2020, for females.

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

- The post-retirement mortality assumption for healthy lives for the School, Judicial, and DPS Divisions was changed to the RP-2014 White Collar Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 93 percent factor applied to ages below 80 and a 113 percent factor applied to age 80 and above, projected to 2018, for males, and a 68 percent factor applied to ages below 80 and a 106 percent factor applied to age 80 and above, projected to 2020, for females.
- For disabled retirees, the mortality assumption was changed to reflect 90 percent of RP-2014 Disabled Retiree Mortality Table.
- The mortality assumption for active members was changed to RP-2014 White Collar Employee Mortality Table, a table specifically developed for actively working people. To allow for an appropriate margin of improved mortality prospectively, the mortality rates incorporate a 70 percent factor applied to male rates and a 55 percent factor applied to female rates.
- The rates of retirement, withdrawal, and disability were revised to reflect more closely actual experience.
- The estimated administrative expense as a percentage of covered payroll was increased from 0.35 percent to 0.40 percent.
- The single equivalent interest rate (SEIR) for the State and School Divisions was lowered from 7.50 percent to 5.26 percent to reflect the changes to the projection's valuation basis, a projected year of depletion of the fiduciary net position (FNP), and the resulting application of the municipal bond index rate.
- The SEIR for the Local Government Division was lowered from 7.50 percent to 7.25 percent, reflecting the change in the long-term expected rate of return.
- The SEIR for the Judicial Division was lowered from 5.73 percent to 5.18 percent to reflect the changes to the projection's valuation basis, the FNP's projected year of depletion, and the municipal bond index rate from 3.57 percent on the prior measurement date to 3.86 percent on the measurement date.
- The SEIR for the DPS Division was lowered from 7.50 percent to 7.25 percent, reflecting the change in the long-term expected rate of return.

2015 Changes in Assumptions or Other Inputs Since 2014

- The discount rate or SEIR for the Judicial Division was lowered from 6.14 percent to 5.73 percent to reflect the changes to the projection's valuation basis, the FNP's projected year of depletion, and the municipal bond index from 3.70 percent on the prior measurement date to 3.57 percent on the measurement date.
- The following programming changes were made:
  - Valuation of the full survivor benefit without any reduction for possible remarriage.
  - Reflection of the employer match on separation benefits for all eligible years.
  - Reflection of one year of service eligibility for survivor annuity benefit.
  - Refinement of the 18-month AI timing.
  - Refinements to directly value certain and life, modified cash refund and pop-up benefit forms.
- The following methodology changes were made:
  - Recognition of merit salary increases in the first projection year.
  - Elimination of the assumption that 35 percent of future disabled members elect to receive a refund.
  - Removal of the negative value adjustment for liabilities associated with refunds of future terminating members.
  - Adjustments to the timing of the normal cost and UAAL payment calculations to reflect contributions throughout the year.

2014 Changes in Assumptions or Other Inputs Since 2013

- The discount rate or SEIR for the Judicial Division was lowered from 6.66 percent to 6.14 percent to reflect the change in the municipal bond index from 4.73 percent on the prior measurement date to 3.70 percent on the measurement date.
- In 2012, a lawsuit was initiated to determine the amount owed to PERA by Memorial Health System (Memorial) and the City of Colorado Springs (City) for Memorial's departure from PERA. In September 2014, PERA and the City agreed to resolve the lawsuit. The agreement provided for the City to pay PERA $190,000 for the liabilities associated with the retirement and health care benefits already earned by 7,666 Memorial employees for the work that they performed before Memorial ceased to be a PERA employer. On October 3, 2014, PERA received a disaffiliation payment from the City, which was allocated to the Local Government Division Trust Fund and the Health Care Trust Fund in the amount of $186,006 and $3,994, respectively.

2013 Changes in Assumptions or Other Inputs Since 2012

- The investment return assumption was lowered from 8.00 percent to 7.50 percent.
- The price inflation assumption was lowered from 3.50 percent to 2.80 percent.
- The wage inflation assumption was lowered from 4.25 percent to 3.90 percent.

2012 Changes in Assumptions or Other Inputs Since 2011

- The price inflation assumption was lowered from 3.75 percent to 3.50 percent.
- The wage inflation assumption was lowered from 4.50 percent to 4.25 percent.

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

- The rates of retirement, withdrawal, mortality and disability were revised to more closely reflect actual experience.
- The post-retirement mortality tables used were changed to the RP-2000 Combined Mortality tables projected with Scale AA to 2020, set back one year for males and two years for females.
- The investment return assumption was changed to be only net of investment expenses to better represent the investment consultant's assumptions and predictions and also to better align with recent changes in GASB accounting and reporting requirements. An ongoing estimated administrative expense of 0.35 percent of pensionable payroll was added to the normal cost beginning with the December 31, 2012, actuarial valuation.
- To reflect the short-term contribution "swap" between employers and active members covering the period July 1, 2010, through June 30, 2012, the actuarially determined contribution (ADC) has been adjusted in the State and Judicial Divisions.

2011 Changes in Assumptions or Other Inputs Since 2010

- To reflect the short-term contribution "swap" between employers and active members covering the period July 1, 2010, through June 30, 2012, the ADC has been adjusted in the State and Judicial Division.

2010 Changes in Assumptions or Other Inputs Since 2009

- Assumptions were supplemented to provide for the valuation of the DPS benefit structure added as a result of the merger of DPSRS into PERA as a separate division, effective January 1, 2010.
- To reflect the short-term contribution "swap" between employers and active members covering the period July 1, 2010, through June 30, 2012, the ADC has been adjusted in the State and Judicial Division.

2009 Changes in Assumptions or Other Inputs Since 2008

- The investment return assumption was lowered from 8.50 percent to 8.00 percent.
- The withdrawal rates, pre-retirement mortality rates, disability rates and retirement rates were revised to more closely reflect the actual experience of PERA.
- The post-retirement mortality tables used for service retirements and dependents of deceased pensioners were changed to the 1994 Group Annuity Mortality Table set back three years for males and set back two years for females.
- The deferral period for deferred vested members was revised to more closely reflect the actual experience of PERA.

2008 Changes in Assumptions or Other Inputs Since 2007

- The assumed interest rate credited on member contribution accounts was reduced from 5 percent to 3 percent, reflecting the change to the Board approved rate.

2007 Changes in Assumptions or Other Inputs Since 2006

- For the AIR established on January 1, 2007, the AIR balance is excluded from both assets and liabilities in the determination of the ADC rate as a percentage of pensionable payroll.

Note 3—Methods and Assumptions Used in Calculations of ADC

The ADC rates, as a percentage of covered payroll, used to determine the ADC amounts in the Schedule of Employer Contributions are calculated as of December 31, two years prior to the end of the year in which ADC amounts are reported. The following actuarial methods and assumptions (from the December 31, 2014, actuarial valuation) were used to determine contribution rates reported in that schedule for the year ending December 31, 2016:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll
Amortization period	30 years, closed, layered
Asset valuation method	4-year smoothed market
Price inflation	2.80 percent
Real wage growth	1.10 percent
Wage inflation	3.90 percent
Salary increases, including wage inflation	3.90 to 10.85 percent
Long-term investment rate of return, net of pension plan investment expense, including price inflation	7.50 percent
Future post-retirement benefit increases	
PERA benefit structure hired prior to 1/1/07 and DPS benefit structure	2.00 percent
PERA benefit structure hired after 12/31/06	0.00 percent, as financed by the AIR

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF FUNDING PROGRESS

For the Years Ended December 31

Health Care Trust Fund	2016	2015	2014	2013	2012
Actuarial valuation date	**12/31/2016**	12/31/2015	12/31/2014	12/31/2013	12/31/2012
Actuarial value of assets (a)	**$270,150**	$285,588	$297,377	$293,556	$285,097
Actuarial accrued liability (b)	**1,556,762**	1,556,269	1,534,461	1,557,406	1,723,495
Unfunded actuarial accrued liability (UAAL) (b-a)	**$1,286,612**	**$1,270,681**	**$1,237,084**	**$1,263,850**	**$1,438,398**
Funded ratio (a/b)	**17.4%**	18.4%	19.4%	18.8%	16.5%
Covered payroll	**$7,716,894**	$7,485,545	$7,211,351	$6,982,560	$6,766,713
UAAL as a percentage of covered payroll	**16.7%**	17.0%	17.2%	18.1%	21.3%

	2011	2010	2009	2008	2007
Actuarial valuation date	12/31/2011	12/31/2010	12/31/2009	12/31/2008	12/31/2007
Actuarial value of assets (a)	$282,228	$288,193	$260,341	$255,976	$258,775
Actuarial accrued liability (b)	1,710,790	1,642,993	1,763,241	1,368,633	1,303,594
Unfunded actuarial accrued liability (UAAL) (b-a)	**$1,428,562**	**$1,354,800**	**$1,502,900**	**$1,112,657**	**$1,044,819**
Funded ratio (a/b)	16.5%	17.5%	14.8%	18.7%	19.9%
Covered payroll	$6,972,596	$7,035,419	$7,048,992	$6,931,405	$6,566,368
UAAL as a percentage of covered payroll	20.5%	19.3%	21.3%	16.1%	15.9%

DPS Health Care Trust Fund[1]	2016	2015	2014	2013	2012
Actuarial valuation date	**12/31/2016**	12/31/2015	12/31/2014	12/31/2013	12/31/2012
Actuarial value of assets (a)	**$18,945**	$17,557	$16,502	$15,482	$14,443
Actuarial accrued liability (b)	**72,845**	74,897	76,026	76,636	77,669
Unfunded actuarial accrued liability (UAAL) (b-a)	**$53,900**	**$57,340**	**$59,524**	**$61,154**	**$63,226**
Funded ratio (a/b)	**26.0%**	23.4%	21.7%	20.2%	18.6%
Covered payroll	**$642,177**	$621,115	$584,319	$547,660	$510,872
UAAL as a percentage of covered payroll	**8.4%**	9.2%	10.2%	11.2%	12.4%

	2011	2010
Actuarial valuation date	12/31/2011	12/31/2010
Actuarial value of assets (a)	$14,448	$14,086
Actuarial accrued liability (b)	77,475	78,513
Unfunded actuarial accrued liability (UAAL) (b-a)	**$63,027**	**$64,427**
Funded ratio (a/b)	18.6%	17.9%
Covered payroll	$491,646	$470,774
UAAL as a percentage of covered payroll	12.8%	13.7%

[1] The Denver Public Schools Health Care Trust Fund (DPS HCTF) was established on January 1, 2010, and received the balance of the Denver Public Schools Retiree Health Benefit Trust.

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CONTRIBUTIONS FROM EMPLOYERS AND OTHER CONTRIBUTING ENTITIES

For the Years Ended December 31

Health Care Trust Fund	2016	2015	2014	2013	2012
Dollar amount of annual required contribution (ARC)	**$84,114**	$86,084	$95,190	$86,584	$79,847
ARC[1]	**1.09%**	1.15%	1.32%	1.24%	1.18%
% ARC contributed by Employer	**96%**	91%	84%	84%	91%
% ARC contributed by Medicare	**—**	—	—	18%	18%

[1] As a percent of covered payroll. ARC is based on the annual actuarial valuation two years prior to the current year.

	2011	2010	2009[1]	2008[1]	2007[1]
Dollar amount of annual required contribution (ARC)	$89,249	$78,797	$78,949	$76,939	$78,140
ARC[2]	1.28%	1.12%	1.12%	1.11%	1.19%
% ARC contributed by Employer	82%	94%	94%	94%	88%
% ARC contributed by Medicare	16%	18%	17%	18%	16%

[1] Information restated in 2010 to reflect a 12-month delay from the actuarial valuation date to the beginning of the calendar year in which each annual required contribution rate became effective.

[2] As a percent of covered payroll. ARC is based on the annual actuarial valuation two years prior to the current year.

DPS Health Care Trust Fund[1]	2016	2015	2014	2013	2012
Dollar amount of annual required contribution (ARC)	**$4,816**	$5,031	$5,084	$4,710	$4,700
ARC[2]	**0.75%**	0.81%	0.87%	0.86%	0.92%
% ARC contributed by Employer	**140%**	127%	118%	118%	112%
% ARC contributed by Medicare	**—**	—	—	12%	10%

	2011	2010
Dollar amount of annual required contribution (ARC)	$4,523	$4,465
ARC[2]	0.92%	0.95%
% ARC contributed by Employer	111%	107%
% ARC contributed by Medicare	11%	12%

[1] The DPS HCTF was established on January 1, 2010, and received the balance of the Denver Public Schools Retiree Health Benefit Trust.

[2] As a percent of covered payroll. ARC is based on the annual actuarial valuation two years prior to the current year.

The accompanying notes are an integral part of the Required Supplementary Information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

Note 1—Significant Changes in Plan Provisions Affecting Trends in Actuarial Information

2016 Changes in Plan Provisions Since 2015

- The following methodology change was made:
  - The Entry Age Normal actuarial cost method allocation basis has been changed from a level dollar amount to a level percentage of pay.
- The following changes were made to the actuarial assumptions:
  - The investment rate of return assumption decreased from 7.50 percent to 7.25 percent.
  - The price inflation assumption decreased from 2.80 percent to 2.40 percent.
  - The wage inflation assumption decreased from 3.90 percent to 3.50 percent.
  - The assumed rates of withdrawal, disability, retirement, and mortality have been adjusted to more closely reflect experience.
  - The assumed rates of PERACare participation have been revised to reflect more closely actual experience.
  - Initial per capita health care costs for those PERACare enrollees under the PERA benefit structure who are age 65 and older and are not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2017 plan year.
  - The assumed rates of PERACare coverage option elections for those PERACare enrollees under the PERA benefit structure who, in the future, will be age 65 or older and are assumed not to be eligible for premium-free Medicare Part A benefits have been revised to reflect more closely actual experience.
  - The percentage of disabled PERACare enrollees who are assumed to not qualify for premium-free Medicare Part A coverage has been revised to reflect more closely actual experience.
  - The assumed rates of inflation for health care costs for Medicare Part A premiums have been revised to reflect the current expectation of future increases.
  - The rate of PERACare coverage election for spouses of eligible inactive members and future retirees of all divisions, except the DPS Division, was revised to reflect more closely actual experience.
  - The assumed age differences between future retirees and their participating spouses have been revised to reflect more closely actual experience.

2015 Changes in Plan Provisions Since 2014

- The following methodology change was made:
  - Rates of morbidity to model the growth in assumed claims as a PERACare enrollee ages have been added to the process used to project per capita health care costs of those PERACare enrollees under the PERA benefit structure who are age 65 and older and are not eligible for premium-free Medicare Part A benefits.
- The following changes were made to the actuarial assumptions:
  - The percentage of PERACare enrollees who will become age 65 and older and are assumed to not qualify for premium-free Medicare Part A coverage have been revised to more closely reflect actual experience.
  - Initial per capita health care costs for those PERACare enrollees under the PERA benefit structure who are age 65 and older and are not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2016 plan year.
  - The assumed rates of inflation for health care costs for Medicare Part A premiums have been revised to reflect the current expectation of future increases.

2014 Changes in Plan Provisions Since 2013

- The following changes were made to the actuarial assumptions:
  - Initial health care costs for PERACare enrollees who are age 65 and older and do not have Medicare Part A have been updated to reflect the change in costs for the 2015 plan year.

2013 Changes in Plan Provisions Since 2012

- The following changes were made to the actuarial assumptions:
  - The investment rate of return assumption decreased from 8.00 percent to 7.50 percent per annum.
  - The price inflation assumption decreased from 3.50 percent to 2.80 percent per annum.
  - The wage inflation assumption decreased from 4.25 percent to 3.90 percent per annum.
  - Effective January 1, 2014, PERACare no longer participates in the Centers for Medicare & Medicaid Services' (CMS) Retiree Drug Subsidy (RDS) program. PERACare enrollees participating in the self-insured Medicare supplement plans and the Medicare HMO plan offered by Rocky Mountain Health Plans now receive their prescription drug benefits through a Medicare Prescription Drug Plan. The liability associated with the RDS has been eliminated.
  - Initial health care costs for PERACare enrollees who are age 65 and older and do not have Medicare Part A have been updated to reflect the change in costs for the 2014 plan year.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

- The assumed rates of inflation for health care costs for Medicare Part A premiums have been revised to reflect the current expectation of future increases.
- The utilization rates for the No Part A subsidy of both retirees and their spouses have been revised.

2012 Changes in Plan Provisions Since 2011

• The following changes were made to the actuarial assumptions:

- The rates of participation in PERACare for current participants of the PERA Divisions and the DPS Division, future participants of the PERA Divisions and the DPS Division, and DPS Division deferred vested members have been revised to more closely reflect actual experience.
- The percentage of PERACare enrollees who will become age 65 and older and are assumed to not qualify for premium-free Medicare Part A coverage have been revised to more closely reflect actual experience.
- The average age difference between covered male and female spouses has been updated to reflect actual experience.
- Initial per capita health care costs for PERACare enrollees under the PERA benefit structure who are age 65 and older and not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2013 plan year.
- The initial per capita payments estimated to be made by CMS under the RDS program have been updated based upon the most recent attestation of actuarial equivalence.
- The assumed rates of inflation for health care costs for Medicare Part A premiums and RDS payments have been revised to reflect the current expectation of future increases.
- The last year in which the prescription drug benefit provided to those members eligible for Medicare Part D is deemed to be Actuarially Equivalent has been increased to 2023.
- The price inflation assumption decreased from 3.75 percent to 3.50 percent.
- The wage inflation assumption decreased from 4.50 percent to 4.25 percent.
- Withdrawal rates from active service for each division were revised to more closely reflect actual experience.
- The rates of post-retirement deaths for healthy lives changed to the RP-2000 Combined Mortality Table rates projected with Scale AA to 2020 (set back one year for males and two years for females).
- The rates of pre-retirement mortality (deaths in active service) were revised to match the post-retirement mortality table. However, the percentages of the post-retirement mortality tables reflected on active member lives were changed to 55 percent for males and 40 percent for females.
- The rates of disability from active service decreased slightly to more closely reflect actual experience.
- The RP-2000 Disability Mortality Table was retained. The setback applied to the male disability mortality rates remains unchanged at two years, however, the setback applied to the female mortality rates changed from five years to two years.
- The rates of early, reduced retirement for all divisions decreased and the rates for unreduced retirements increased to more closely reflect actual experience.

2011 Changes in Plan Provisions Since 2010

• The following changes were made to the actuarial assumptions:

- Initial per capita health care costs for PERACare enrollees under the PERA structure who are age 65 and older and not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2012 plan year.
- The initial per capita payments estimated to be made by CMS under the RDS have been updated based upon the most recent attestation of actuarial equivalence.
- The assumed rates of inflation for health care costs for Medicare Part A premiums and RDS payments have been revised to reflect the current expectation of future increases.
- The last year in which the prescription drug benefit provided to those members eligible for Medicare Part D is deemed to be Actuarially Equivalent has been increased to 2019.

2010 Changes in Plan Provisions Since 2009

• The following changes were made to the actuarial assumptions:

- DPS HCTF was created on January 1, 2010, to provide health care subsidies for DPS retirees participating in PERACare.
- Initial health care costs for PERACare enrollees who are age 65 and older and not eligible for premium-free Medicare Part A have been updated to reflect the change in costs for the 2011 plan year.
- PERACare funding rates are used to determine the health care costs for participants enrolled in the self-insured plans who are age 65 and older and not eligible for premium-free Medicare Part A.
- The starting per capita payments estimated to be made by the CMS under the RDS have been updated based upon the most recent attestation of actuarial equivalence.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

- The assumed rates of inflation for health care costs for Medicare Part A premiums and RDS payments have been revised to reflect the current expectation of future increases.
- The percentage of PERACare enrollees who are projected to be age 65 and older, and estimated to not be eligible for premium-free Medicare Part A has been revised to reflect plan experience.
- The last year in which the prescription drug benefit provided to those members eligible for Medicare Part D is deemed to be Actuarially Equivalent has been increased to 2018.
- Liabilities for those members represented under both the PERA benefit structure and the DPS benefit structure have been allocated based upon member contribution account balances.

2009 Changes in Plan Provisions Since 2008

- The following changes were made to the actuarial assumptions:
  - The investment rate of return decreased from 8.50 percent to 8.00 percent per annum.
  - The withdrawal rates, pre-retirement mortality rates, disability rates, and retirement rates for all divisions have been revised to more closely reflect the actual experience of PERA.
  - The post-retirement mortality tables used for service retirements and dependents of deceased pensioners have been changed to the 1994 Group Annuity Mortality Table set back three years for males and set back two years for females.
  - The rates of participation in PERACare for current members, future members, deferred vested members, and spouses have been revised to more closely reflect the actual experience of PERA.
  - Initial health care costs for participants who are age 65 and older and not eligible for premium-free Medicare Part A have been updated to reflect their change in costs for the 2010 plan year.
  - The starting per capita payments estimated to be made by CMS under the RDS Program have been updated based upon the most recent attestation of actuarial equivalence.
  - The assumed rates of inflation for health care costs have been revised to reflect the expectation of future increases.
  - The last year in which the prescription drug benefit provided to those members eligible for Medicare Part D is deemed to be actuarially equivalent has been reduced to 2017.

2008 Changes in Plan Provisions Since 2007

- The following changes were made to the actuarial assumptions:
  - Expected costs for retirees who are age 65 and older and not eligible for premium-free Medicare Part A, and who participate in the Kaiser Permanente, Rocky Mountain Health Plans, and Secure Horizons plans, have been updated to reflect their change in costs for the 2009 plan year.
  - The starting per capita payments estimated to be made by CMS under the RDS have been updated based upon the most recent attestation of actuarial equivalence.
  - The assumed level of spousal participation was updated to better match plan experience.
  - The year in which the prescription drug benefit provided to those members eligible for Medicare Part D ceases to be actuarially equivalent, by failing the net test component of the Actuarial Equivalency Attestation, was extended to 2018 based upon the most recent attestation of actuarial equivalence.
  - The premium payable to CMS for Medicare Part A coverage was updated to reflect the change in cost for 2009.

2007 Changes in Plan Provisions Since 2006

- The following changes were made to the actuarial assumptions:
  - Future plan election rates for retirees age 65 and older have been adjusted to reflect recent election patterns, incorporating the addition of the Secure Horizons (HMO) option.
  - Expected inpatient hospital claims cost for retirees age 65 and older, who do not have Medicare Part A, have been updated to better reflect anticipated changes in the various coverage categories, based on the most recent "no Medicare Part A" report presented to the Board of Trustees in March 2008.

SUPPLEMENTARY SCHEDULES

(Dollars in Thousands)

SCHEDULE OF ADMINISTRATIVE EXPENSES

For the Years Ended December 31

	2016	2015
Personnel Services		
Salaries	$30,402	$28,364
Employee benefits	10,705	9,950
Total personnel services	41,107	38,314
Professional Services		
Actuarial contracts	555	652
Audits	205	258
Investment services	2,278	2,472
Legal and legislative counsel	3,235	2,882
Computer services and consulting	1,241	1,272
Management consulting	1,446	1,137
Health care consulting	349	311
Other	1,033	713
Total professional services	10,342	9,697
Miscellaneous		
Equipment rental and services	1,648	1,459
Memberships	390	355
Publications and subscriptions	65	69
Travel and local expense	790	749
Auto expense	17	18
Telephone	210	215
Postage	1,535	1,505
Insurance	458	529
Printing	504	481
Office supplies	763	690
Building rent, supplies, and utilities	958	974
Total miscellaneous	7,338	7,044
Direct Expense		
Life Insurance Reserve	928	729
Health Care Trust Fund	16,726	16,854
DPS Health Care Trust Fund	657	660
Voluntary Investment Program	1,443	1,729
Defined Contribution Retirement Plan	361	455
Deferred Compensation Plan	600	734
Total direct expense	20,715	21,161
Depreciation expense	473	1,078
Tenant and other expense	991	1,269
Internal investment manager expense	(16,955)	(16,247)
Total administrative expense	$64,011	$62,316
Allocation of Administrative Expense		
State Division Trust Fund	$11,271	$10,779
School Division Trust Fund	21,991	20,865
Local Government Division Trust Fund	2,395	2,253
Judicial Division Trust Fund	81	77
DPS Division Trust Fund	2,754	2,599
Voluntary Investment Program	2,814	3,010
Defined Contribution Retirement Plan	726	774
Deferred Compensation Plan	963	1,071
Health Care Trust Fund	19,166	19,261
DPS Health Care Trust Fund	818	822
Life Insurance Reserve	1,032	805
Total administrative expense	$64,011	$62,316

Note: The ratio of administrative expenses to fiduciary net position for the Division Trust Funds is nine basis points (0.09 percent) for 2016 and 2015.

See accompanying Independent Auditors' Report.

SUPPLEMENTARY SCHEDULES

(Dollars in Thousands)

SCHEDULE OF OTHER ADDITIONS

For the Years Ended December 31

	State Division Trust Fund	School Division Trust Fund	Local Govt. Division Trust Fund	Judicial Division Trust Fund	DPS Division Trust Fund	Voluntary Investment Program	Defined Contribution Retirement Plan	Deferred Compensation Plan	HCTF	DPS HCTF	Life Insurance Reserve	TOTAL 2016	TOTAL 2015
Administrative fee income	$—	$—	$—	$—	$—	$—	$—	$—	$2,440	$161	$—	**$2,601**	$2,569
Revenue sharing	—	—	—	—	—	112	8	43	—	—	—	**163**	153
Participant loan interest	—	—	—	—	—	2,048	—	446	—	—	—	**2,494**	2,563
Interfund transfers at retirement	8,619	—	—	2,799	3,253	—	—	—	—	—	—	**14,671**	8,181
Purchase service transfer to health care	—	—	—	—	—	—	—	—	6,710	128	—	**6,838**	7,686
Settlement income	46	76	13	1	11	—	—	—	1	—	—	**148**	145
Miscellaneous	43	33	4	—	—	10	84	7	24	—	—	**205**	119
Total other additions	$8,708	$109	$17	$2,800	$3,264	$2,170	$92	$496	$9,175	$289	$—	**$27,120**	$21,416

SCHEDULE OF OTHER DEDUCTIONS

For the Years Ended December 31

	State Division Trust Fund	School Division Trust Fund	Local Govt. Division Trust Fund	Judicial Division Trust Fund	DPS Division Trust Fund	Voluntary Investment Program	Defined Contribution Retirement Plan	Deferred Compensation Plan	HCTF	DPS HCTF	Life Insurance Reserve	TOTAL 2016	TOTAL 2015
Interfund transfers at retirement	$—	$14,390	$281	$—	$—	$—	$—	$—	$—	$—	$—	**$14,671**	$8,181
Purchase service transfer to health care	2,740	2,998	850	122	128	—	—	—	—	—	—	**6,838**	7,686
Miscellaneous	300	55	9	—	1	1,172	97	604	491	18	—	**2,747**	2,564
Total other deductions	$3,040	$17,443	$1,140	$122	$129	$1,172	$97	$604	$491	$18	$—	**$24,256**	$18,431

See accompanying Independent Auditors' Report.

SUPPLEMENTARY SCHEDULES

(Dollars in Thousands)

SCHEDULE OF INVESTMENT EXPENSES

For the Years Ended December 31

	2016	2015
External Manager Expenses		
Fixed income	$4,488	$5,034
Global equity	30,694	34,650
Private equity	50,760	48,304
Real estate	46,104	48,695
Opportunity fund	9,353	8,086
Short-term investments	512	461
Total external manager expenses	141,911	145,230
Internal manager expenses	16,955	16,247
Other investment expenses and custody fees	2,934	3,915
Defined contribution and deferred compensation plan investment expenses	4,545	4,527
Total investment expenses	$166,345	$169,919

SCHEDULE OF PAYMENTS TO CONSULTANTS

For the Years Ended December 31

	2016	2015
Professional Contracts		
Actuarial	$555	$652
Audits	205	258
Legal and legislative counsel	3,235	2,882
Computer services and consulting	1,241	1,272
Management consulting	1,446	1,137
Health care consulting	349	311
Other	1,033	713
Total payments to consultants[1]	$8,064	$7,225

[1] Excludes investment advisers.

See accompanying Independent Auditors' Report.

INVESTMENT SECTION

On any given day, Colorado PERA employers provide critical services. In the Southern region, the Colorado Mental Health Institute at Pueblo conducts one-on-one and group therapy sessions to help patients understand the context of their illnesses; the Colorado State Penitentiary assesses whether offenders are ready to re-enter society; and the Cucharas Sanitation and Water District installs new sewer and water systems.

PERA members and employers provide services that are critical and sometimes overlooked but ensure the well-being of all Coloradans.

At retirement, the $373.2 million in benefits paid to 10,400 members in the Southern region continues to serve fundamental services through the generation of $18.5 million in tax revenue.

COLORADO PERA REPORT ON INVESTMENT ACTIVITY

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds

State Law

State law gives complete responsibility for the investment of Colorado PERA's funds to the PERA Board of Trustees (Board), with some stipulations including:

- The aggregate amount of moneys invested in corporate stocks or corporate bonds, notes, or debentures, which are convertible into corporate stock or in investment trust shares cannot exceed 65 percent of the then book value of the fund.
- No investment of the fund in common or preferred stock, or both, of any single corporation can exceed 5 percent of the then book value of the fund.
- The fund cannot acquire more than 12 percent of the outstanding stock or bonds of any single corporation.
- The origination of mortgages or deeds of trust on real residential property is prohibited.

Additionally, Colorado Revised Statutes (C.R.S.) § 24-54.8-101 imposes targeted divestment from companies with active operations in Sudan and C.R.S. § 24-54.8-202 imposes targeted divestment from companies that have economic prohibitions against Israel.

Colorado PERA Board's Statutory Fiduciary Responsibility

By State law, the management of PERA's retirement fund is vested in the Board who is held to the standard of conduct of fiduciaries in discharging their responsibilities. According to C.R.S. § 24-51-207(2), the Board, as fiduciaries, must carry out their functions solely in the interest of PERA members and benefit recipients and for the exclusive purpose of providing benefits.

Goal

The function of PERA is to provide present and future retirement or survivor benefits for its members. The investment function is managed in a manner to promote long-term financial security for our membership while maintaining the stability of the fund.

Overview of Investment Policy

PERA's investment policy outlines the investment philosophy and guidelines within which the fund's investments will be managed, and includes the following:

- Strategic asset allocation is the most significant factor influencing long-term investment performance and asset volatility.
- The fund's liabilities are long-term and the investment strategy will therefore be long-term in nature.
- The asset allocation policy will be periodically re-examined to ensure its appropriateness to the then-prevailing liability considerations.
- As a long-term investor, PERA will invest across a wide spectrum of investments in a prudent manner.
- Active management may be expected to add value over passive investment alternatives under appropriate conditions.

The Board determines the strategic asset allocation policy for the fund. In 2014, the Board commissioned an Asset Liability Study prepared by Aon Hewitt Investment Consulting, Inc. (Aon Hewitt). The objective of the study was to determine the optimal strategic asset allocation policy that would ultimately allow PERA to meet its benefit obligations, while also ensuring that PERA incurs appropriate levels of risk. On March 20, 2015, the Board voted to change the strategic asset allocation policy of the fund effective July 1, 2015. This strategic asset allocation contains a long-term target allocation and specific ranges within which each asset class may operate. Because the long-term target allocation will be achieved over time, an initial interim target allocation was approved as of July 1, 2015. This interim target allocation was revised as of July 1, 2016. PERA staff and Aon Hewitt are responsible for annually recommending interim policy targets to the Board until the long-term target allocation is achieved.

ASSET ALLOCATION TARGETS AND RANGES

	Interim Asset Allocation Target Effective July 1, 2016	Long-Term Asset Allocation	Target Range Effective July 1, 2015
Global Equity	53.5%	53.0%	47.0% – 59.0%
Fixed Income	23.5%	23.0%	18.0% – 28.0%
Private Equity[1]	8.5%	8.5%	5.0% – 12.0%
Real Estate	8.5%	8.5%	5.0% – 12.0%
Opportunity Fund[2]	5.0%	6.0%	0.0% – 9.0%
Cash and Short-Term Investments	1.0%	1.0%	0.0% – 3.0%

[1] The Private Equity asset class has exposure to private equity limited partnership funds with various strategies including: buyout, venture capital, generalist debt, mezzanine debt, distressed debt, secondary funds, fund-of-funds, and energy-related strategies.

[2] As of December 31, 2016, the Opportunity Fund principally consists of investments in timber, risk-parity, tactical, credit, and other opportunistic strategies.

The Asset Liability Study considered expected investment returns, risks, and correlations of returns. The characteristics of the fund's liabilities were analyzed in conjunction with expected investment risks and returns. The targeted strategic asset allocation is designed to provide appropriate diversification and to balance the expected total rate of return with the volatility of expected returns. The asset allocation targets are adhered to through the implementation of a rebalancing policy. Investments are managed and monitored in a manner which seeks to balance return and risk within the asset/liability framework. The Chief Investment Officer is authorized to execute investment transactions on behalf of the Board. Assets are managed both internally and externally. In making investment decisions, the Board and staff utilize external experts in various fields including risk and performance analysis, portfolio construction, and other important investment functions and issues.

COLORADO PERA REPORT ON INVESTMENT ACTIVITY
Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds

Basis of Presentation

Aon Hewitt, the Board's Investment Performance consultant, provides the investment returns for the fund based on data made available by the fund's custodian, The Northern Trust Company (Northern Trust). Performance calculations were prepared using time-weighted rates of return and are net-of-fees unless otherwise indicated. Returns for periods longer than one year are annualized.

Corporate Governance

General Policy

Although PERA is not subject to the Employee Retirement Income Security Act of 1974 (ERISA), the Board complies with the position taken by the U.S. Department of Labor (DOL) in February 1988. The DOL has stated that the right to vote shares of stock owned by a pension plan is, in itself, an asset of the plan, and therefore the fiduciary's responsibility to manage the assets includes proxy voting. PERA regularly works with various member organizations and federal oversight and legislative committees to promote and support national standards of corporate governance that protect long-term investor interests.

Colorado PERA Board's Shareholder Responsibility Committee

To assist the Board in carrying out its fiduciary responsibilities in voting proxies, the Board established a Shareholder Responsibility Committee. PERA's General Counsel serves as an adviser to the Committee. The Board and the Shareholder Responsibility Committee have delegated to its staff in the Corporate Governance and Legal Services Division the authority to execute and vote all proxies according to PERA's Proxy Voting Policy. Proxy issues are reviewed by staff on a case-by-case basis and then voted according to guidelines established by PERA's Proxy Voting Policy. PERA retains proxy advisers to assist in the proxy voting process.

Proxy Voting Policy

PERA's Proxy Voting Policy sets forth directives on a broad range of issues. The voting of proxy ballots for all domestic and non-U.S. stocks is accomplished by PERA's Corporate Governance and Legal Services Department. PERA regularly reviews and revises the Proxy Voting Policy to keep it up to date with established corporate governance standards. PERA's Proxy Voting Policy can be viewed on PERA's website at www.copera.org.

(The Colorado PERA Report on Investment Activity was prepared by internal staff.)

INVESTMENT BROKERS/ADVISERS (INTERNALLY MANAGED ASSETS)

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds

Abel/Noser Corp.
Amherst Pierpont
Baird (Robert W.) & Co., Incorporated
Bank of America Merrill Lynch
Barclays Capital Inc.
BNP Paribas Securities Corp.
BNY Mellon
Calyon Securities (USA), Inc.
Cantor Fitzgerald & Co.
Citigroup Global Markets Inc.
Credit Suisse Securities (USA) LLC
CRT Capital Group LLC
Davidson (D.A.) & Co. Inc.
Deutsche Bank Securities Inc.
FTN Financial Services Corp.
Goldman Sachs & Co.
HSBC Securities (USA) Inc.
J.P. Morgan Securities, Inc.
Jefferies & Co., Inc.
Keybanc Capital Markets, Inc.
Liquidnet, Inc.
Loop Capital Markets LLC
MarketAxess Corp.
Merrill Lynch, Pierce, Fenner & Smith Inc.
Mizuho Securities USA, Inc.
Morgan Stanley & Co. Inc.
Nomura Securities International, Inc.
Piper Jaffray & Co.
RBC Capital Markets Corporation
RBS Securities, Inc.
Sanford C. Bernstein & Co., LLC
Sidoti & Company, LLC
Sterne Agee & Leach, Inc
Stifel, Nicolaus & Company Incorporated
Susquehanna International Group, LLC
TD Securities (USA) LLC
The Northern Trust Company
Themis Trading LLC
U.S. Bancorp
UBS Securities, LLC
Wells Fargo Securities, LLC

SCHEDULE OF COMMISSIONS (INTERNALLY MANAGED ASSETS)

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds
For the Year Ended December 31, 2016
(Dollars in Thousands)

Asset Class	2016 Value
Fixed Income[1]	$13,961
Global Equity	2,127
Total commissions	**$16,088**

[1] Fixed income commissions are estimated.

INVESTMENT SUMMARY

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds
(Dollars in Thousands)

	Fair Value Per Financial Statement December 31, 2016	Reallocation[1]	Fair Value Per Investment Portfolio December 31, 2016	Interim Asset Allocation Target Eff. July 1, 2016[2]	Percent of Total Fair Value 2016	2015	2014
Global Equity	$24,144,049	$257,528	$24,401,577	53.5%	**55.9%**	55.5%	56.5%
Fixed Income	9,621,888	274,388	9,896,276	23.5%	**22.7%**	24.7%	24.9%
Private Equity	3,659,660	5,177	3,664,837	8.5%	**8.4%**	8.2%	7.8%
Real Estate	3,922,626	(11,785)	3,910,841	8.5%	**9.0%**	8.6%	7.4%
Opportunity Fund	1,159,828	—	1,159,828	5.0%	**2.6%**	2.2%	2.5%
Cash and Short-Term Investments							
Operating Cash	509	(509)	—				
Investment Cash and Short-Term	990,269	(374,775)	615,494	1.0%	**1.4%**	0.8%	0.9%
Net Investment Receivables and Payables	150,533	(150,533)	—				
Total Investments	$43,649,362	($509)	$43,648,853	100.0%	100.0%	100.0%	100.0%

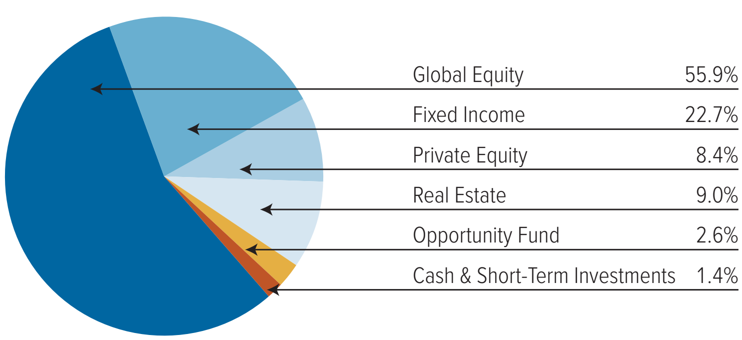
[1] Investment receivables, payables, accruals, and cash and short-term have been reallocated back to the investment portfolios that hold them.

[2] See page 121 for more information about the strategic asset allocation policy of the fund.

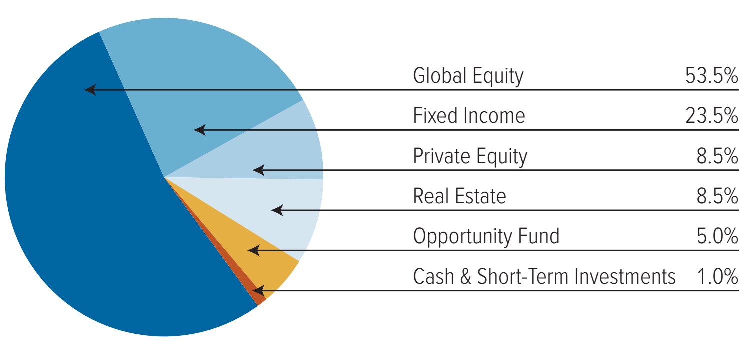
Asset Allocation at Fair Value

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds
As of December 31, 2016

Asset Allocation at Fair Value



Interim Target Allocation



SCHEDULE OF INVESTMENT RESULTS

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds
As of December 31, 2016

Aon Hewitt provides the investment returns for the fund based on data made available by Northern Trust. Listed below are the annualized one-, three-, five-, and ten-year net-of-fees time-weighted rates of return for each asset class and their respective benchmarks.

	2016	3–Year	5–Year	10–Year
PERA Total Portfolio	**7.3%**	4.8%	8.5%	5.2%
Total Fund Policy Benchmark[1]	**7.3%**	4.5%	8.5%	5.2%
Median Plan (BNY Mellon Performance and Risk Analytics' and Investment Metrics' Median Public Fund Universe)	**7.5%**	4.3%	7.9%	4.9%
Global Equity	**7.4%**	3.6%	10.1%	4.7%
Global Equity Custom Benchmark[1]	**8.4%**	3.2%	9.8%	4.4%
Fixed Income	**3.9%**	3.4%	2.9%	4.9%
Fixed Income Custom Benchmark[1]	**3.9%**	3.3%	2.8%	4.6%
Private Equity	**12.2%**	9.5%	11.4%	8.4%
Private Equity Custom Benchmark[2]	**8.9%**	9.9%	16.6%	9.7%
Real Estate	**11.2%**	13.9%	13.2%	5.6%
Real Estate Custom Benchmark[3]	**8.3%**	11.5%	11.7%	5.7%
Opportunity Fund	**10.3%**	3.1%	2.8%	—
Opportunity Fund Benchmark[4]	**7.1%**	2.8%	3.6%	—
Cash	**0.5%**	0.2%	0.1%	0.9%
BofA Merrill Lynch U.S. 3-Month Treasury Bill Index	**0.3%**	0.1%	0.1%	0.8%

Note: Performance calculations were prepared using net-of-fees time-weighted rates of return.

[1] The PERA Board adopted benchmarks beginning April 1, 2004, for each of the various asset classes. The adopted benchmarks have changed over time and, accordingly, the benchmark returns presented represent a blend, as follows:

- The Total Fund Policy Benchmark—A combination of 53.5 percent of the Global Equity Custom Benchmark; 23.5 percent of the Fixed Income Custom Benchmark; 8.5 percent of the Private Equity Custom Benchmark; 8.5 percent of the Real Estate Custom Benchmark; 5.0 percent of the Opportunity Fund Benchmark; and 1.0 percent of the BofA Merrill Lynch U.S. 3-Month Treasury Bill Index. Beginning July 2015 and prior to July 2016, a combination of 55 percent of the Global Equity Custom Benchmark; 24 percent of the Fixed Income Custom Benchmark; 7.5 percent of the Real Estate Custom Benchmark; 7.5 percent of the Private Equity Custom Benchmark, 5 percent of the Opportunity Fund Benchmark; and 1 percent of the BofA Merrill Lynch U.S. 3-Month Treasury Bill Index. Beginning January 2012 and prior to July 2015, a combination of 56 percent of the Global Equity Custom Benchmark; 25 percent of the Fixed Income Custom Benchmark; 7 percent of the Real Estate Custom Benchmark; 7 percent of the Private Equity Custom Benchmark, and 5 percent of the Opportunity Fund Benchmark. Beginning January 2011 and prior to January 2012, a combination of 56 percent of the Global Equity Custom Benchmark; 25 percent of the Fixed Income Custom Benchmark; 7 percent of the Real Estate Custom Benchmark; 7 percent of the Private Equity Custom Benchmark, and 5 percent of the Public Markets Benchmark. Beginning January 2009 and prior to January 2011, a combination of 58 percent of the Global Equity Custom Benchmark; 25 percent of the Fixed Income Custom Benchmark; 7 percent of the Real Estate Custom Benchmark; 7 percent of the Private Equity Custom Benchmark, and 3 percent of the Public Markets Benchmark. For 2008, a combination of 43 percent of the Dow Jones Wilshire 5000 Stock Index; 15 percent of the MSCI ACWI ex-U.S. Index; 25 percent of the Barclays Capital Universal Bond Index; 7 percent of the Real Estate Custom Benchmark; 7 percent of the Private Equity Custom Benchmark, and 3 percent of the Public Markets Benchmark. Prior to January 1, 2008, the weight for the DJ Wilshire 5000 was 45 percent and the NCREIF Timber Index (which was replaced by the Public Markets Benchmark in 2008) was 1 percent.
- Global Equity Custom Benchmark—The MSCI ACWI IMI. Prior to February 1, 2013, 52.0 percent DJ U.S. Total Stock Market Index and 48.0 percent MSCI ACWI ex-U.S. Index. Prior to October 1, 2012, 58.0 percent DJ U.S. Total Stock Market Index and 42.0 percent MSCI ACWI ex-U.S. Index. Prior to April 2012, 64.0 percent DJ U.S. Total Stock Market Index and 36.0 percent MSCI ACWI ex-U.S. Index. Prior to October 1, 2011, 69.0 percent DJ U.S. Total Stock Market Index and 31.0 percent MSCI ACWI ex-U.S. Index. Prior to April 1, 2011, 74.1 percent DJ U.S. Total Stock Market Index (replaced the DJ Wilshire 5000 in 2009) and 25.9 percent MSCI ACWI ex-U.S. Index. Prior to January 1, 2008, 75 percent DJ Wilshire 5000 and 25 percent MSCI ACWI ex-U.S. Index.
- Fixed Income Custom Benchmark—The Bloomberg Barclays U.S. Universal Bond Index. Beginning July 1, 2010 and prior to July 1, 2015, 98 percent of the Bloomberg Barclays Capital Universal Bond Index and 2 percent of the Bloomberg Barclays Capital Long Government/Credit Index. Prior to July 1, 2010, Bloomberg Barclays Capital Universal Bond Index.

[2] The Burgiss Time Weighted Rate of Return Benchmark. Prior to January 1, 2015, the DJ U.S. Total Stock Market Index plus 250 basis points annually. Prior to January 1, 2012, DJ U.S. Total Stock Market Index (replaced the DJ Wilshire 5000 in 2009) plus 300 basis points annually.

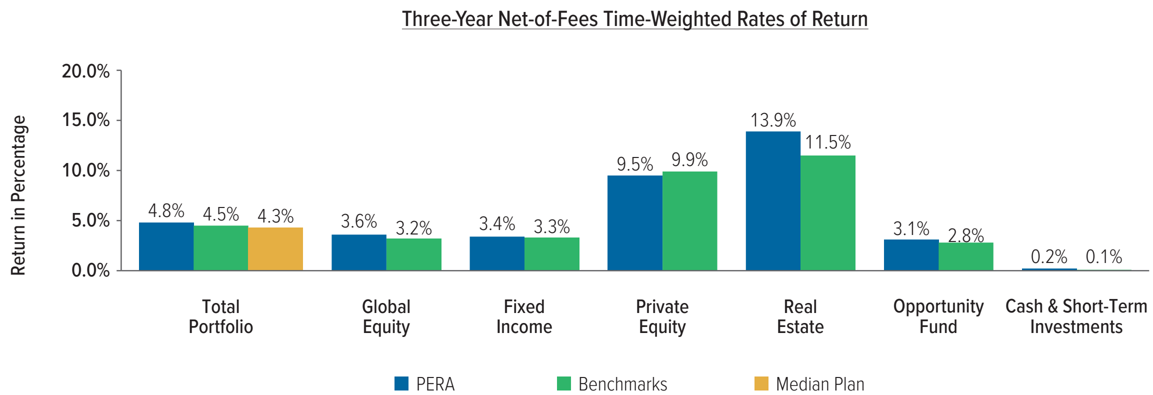
[3] NCREIF Open End Diversified Core Equity Index (NFI-ODCE) plus 50 basis points annually. Prior to January 1, 2012, the NFI-ODCE plus 100 basis points annually.

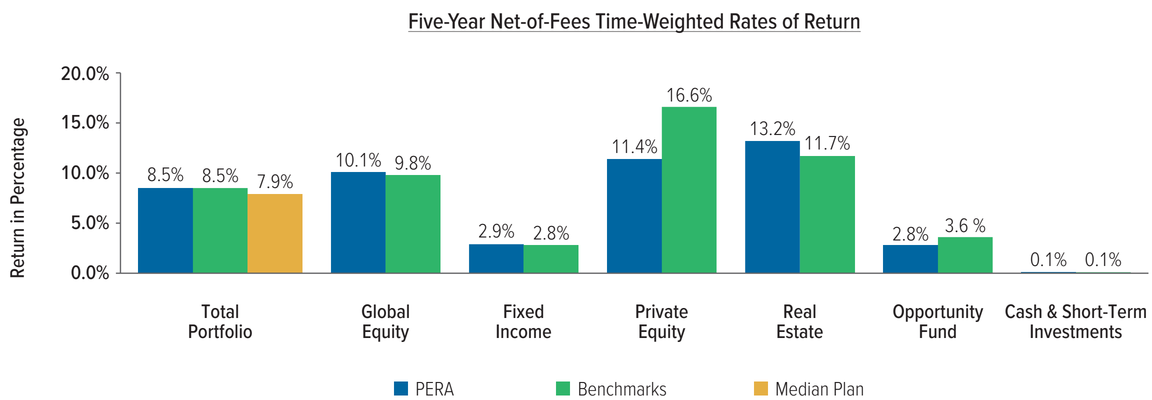
[4] A market value weighted aggregate of the benchmarks of the individual strategies included in the Opportunity Fund. Prior to January 2012, a combination of 69.1 percent of the Global Equity Custom Benchmark and 30.9 percent of the Fixed Income Custom Benchmark. Beginning January 1, 2008 and prior to January 2011, a combination of 51.8 percent DJ U.S. Total Stock Market Index (replaced the DJ Wilshire 5000 in 2009), 18.1 percent MSCI ACWI ex-U.S. Index, and 30.1 percent Fixed Income Custom Benchmark.

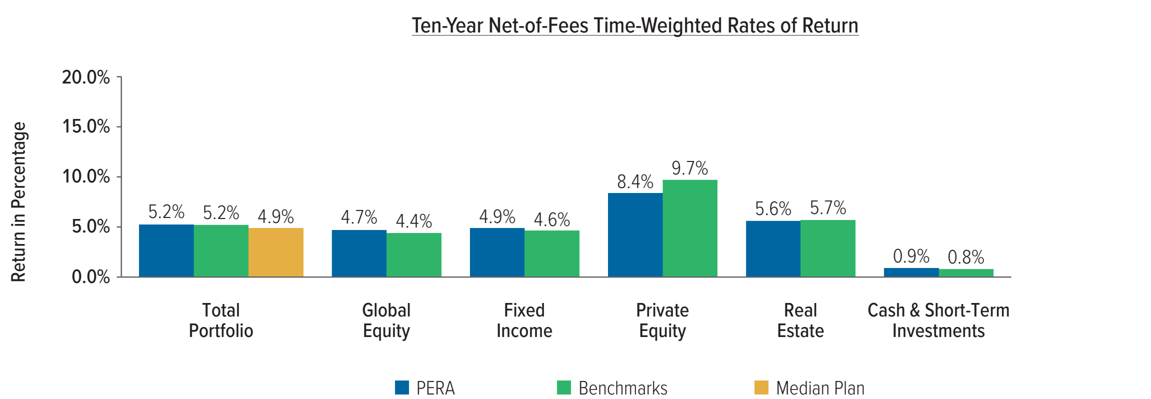
SCHEDULE OF INVESTMENT RESULTS

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds
As of December 31, 2016

Listed below are the three-, five-, and ten-year net-of-fees time-weighted rates of return for the total fund and each asset class and their respective benchmarks.







FUND PERFORMANCE EVALUATION

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds
(Performance returns are net-of-fees unless otherwise indicated)

Evaluation

Aon Hewitt and Northern Trust are retained by PERA to evaluate fund performance. Aon Hewitt is also used for the Real Estate portfolio performance evaluation and industry comparisons. In their analysis, Aon Hewitt and Northern Trust include all investments within the portfolio, including cash and accrued income. They also compute the annual rates of return. In order to provide fund returns inclusive of all asset classes, performance calculations are prepared using time-weighted rates of return and are annualized for periods greater than one year.

Asset Allocation

PERA's long-term strategic asset allocation policy sets forth specific portfolio targets. Interim asset allocation targets effective at the end of 2016, approved by the Board in 2016, are as follows: Global Equity 53.5 percent, Fixed Income 23.5 percent, Private Equity 8.5 percent, Real Estate 8.5 percent, Opportunity Fund 5.0 percent, and Cash 1.0 percent.

Total Portfolio Results

For the year ended December 31, 2016, PERA's total fund returned 7.3 percent, which was in line with the policy benchmark return of 7.3 percent. PERA adopted a policy benchmark, which is a passive representation of the asset allocation policy, as of April 1, 2004. The total fund has performed in line with the policy benchmark on the one-, five-, and ten-year time periods and has outperformed the policy benchmark over the three-year time period.

For the year ended December 31, 2016, the total fund returned 7.3 percent, compared to the BNY Mellon Performance and Risk Analytics' and Investment Metrics' Median Public Fund Universe return of 7.5 percent. As of December 31, 2016, the BNY Mellon Performance and Risk Analytics' and Investment Metrics' Median Public Fund Universe measure was comprised of 107 public pension funds with assets of approximately $1.5 trillion. The total fund has performed better than the BNY Mellon Performance and Risk Analytics' and Investment Metrics' Median Public Fund Universe over the three-, five-, and ten-year time periods.

Global Equity

The global equity markets overcame a poor start in 2016 to post solid positive returns for the full year. Early in the year, a slide in China's stock market and the weakening yuan sparked selling around the globe, as investors grew concerned about the impact of a slowdown in the world's second largest economy. However, investors shook off these shocks, including other concerns such as Britain's vote to leave the European Union (Brexit). A rebound in corporate earnings, accelerating U.S. economic growth, and stabilizing oil prices helped stoke investor interest in stocks. The November election of Donald Trump as U.S. president extended the rally as investors anticipated the new administration would usher in business friendly policies such as tax cuts, looser regulations, and fiscal stimulus. In general, a stronger U.S. dollar hurt performance for U.S.-based equity investors due to unhedged foreign exchange exposure.

In 2016, PERA's Global Equity portfolio returned 7.4 percent, underperforming its custom benchmark's return of 8.4 percent. The Global Equity portfolio has outperformed its custom benchmark over the three-, five-, and ten-year periods.

Fixed Income

Fixed income markets were buffeted by global monetary policy developments, commodity market volatility, and political change during 2016. After the Federal Reserve (Fed) hiked interest rates in December 2015, the market began the year anticipating as many as four rate hikes during 2016. However, commodity prices were still in decline and U.S. and global growth was slowing, leading to significantly wider credit spreads and lower interest rates. In response to the deteriorating outlook, the Fed adopted a more dovish stance, indicating they were unlikely to take aggressive tightening actions, and the European Central Bank expanded its asset purchase program to include corporate bonds. Credit spreads recovered quickly, while interest rates continued to move lower as the U.S. offered an attractive yield relative to increasingly negative government bond yields available in other developed markets. In June, the Brexit vote shocked the markets and drove Treasury yields down to 1.4 percent, the low for the cycle. Central banks again soothed markets by maintaining their accommodative monetary policies. By late summer, economic growth and commodity prices improved, leading inflation expectations and interest rates higher. In November, the election of a new administration in Washington D.C. unleashed a rally in risky assets and accelerated the rise in interest rates. Despite the volatility, interest rates ended the year only modestly higher, while high yield, emerging markets, and corporate credit delivered exceptional returns.

During 2016, PERA's Fixed Income portfolio performed in line with its custom benchmark, returning 3.9 percent versus its custom benchmark return of 3.9 percent. The portfolio has outperformed its custom benchmark over the three-, five-, and ten-year time periods.

Private Equity

Private equity activity declined in 2016 relative to the prior two years; however, new deal levels continued to be above historical averages. Competition from corporate strategic acquirers continued to contribute to higher company valuations. High purchase pricing as well as concerns related to value creation and growth prospects were contributing factors to the decrease in activity in 2016. Buy-and-build strategies continued to be a growing trend as private

FUND PERFORMANCE EVALUATION

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds
(Performance returns are net-of-fees unless otherwise indicated)

equity managers sought to take advantage of synergistic cost savings as a means to help offset higher pricing. Although pricing remained high, debt levels have decreased slightly while additional equity contributions helped bridge the pricing gap. Private equity exit activity continued to be strong in 2016 and was only marginally below that of 2015's record activity and well above historical averages. Despite strong overall exit activity in merger and acquisition and sponsor-to-sponsor transactions, 2016 saw the fewest private equity-backed initial public offerings since 2009.

Private equity fundraising in 2016 was slightly down from the prior three years, yet remained relatively strong. Median fund sizes increased from prior years as smaller funds accounted for less share of the capital raised during the year. Several limited partners have made efforts to scale down the number of managers in their private equity portfolios which had the effect of concentrating capital in quality managers, many of whom have increased fund sizes relative to prior vintages. Moreover, a greater proportion of funds that closed in 2016 hit their fundraising targets, doing so in less time, on average, than in years past.

Venture capital activity decreased year-over-year but continued to be relatively robust. The emergence of venture-backed investments valued at greater than $1 billion, or "unicorn" companies, created both excitement and concern due to the uncertain outcome of what has become a substantial market of highly valued, long duration assets.

Portfolio cash flow for the year was positive due to significant activity throughout the year. The portfolio paid $596 million in capital calls and received $851 million in cash and stock distributions for the year.

PERA's Private Equity portfolio returned 12.2 percent in 2016 compared with its custom benchmark return of 8.9 percent. The portfolio outperformed its custom benchmark over the one-year time frame, but underperformed its custom benchmark over the three-, five-, and ten-year time frames. The portfolio's since inception net internal rate of return as of December 31, 2016, was 10.4 percent compared to its custom benchmark's since inception internal rate of return of 10.3 percent.

Real Estate

Institutional real estate continued to perform well as investors sought stability in the wake of financial market volatility. This trend resulted in further price divergence with most core assets continuing to recognize stable if not appreciating valuations. In 2016, U.S. investment sales volume declined by 10.7 percent to $489.0 billion from the prior year. The slowdown was mainly due to a 30.2 percent decline in portfolio and entity-level transactions year-over-year, although single asset trades were almost unchanged. Many investors scaled back on buying activity in 2016, especially for large portfolio transactions.

The industrial sector's expansion has been the longest on record with accelerating rent growth driven largely by e-commerce and international trade. Multifamily effective rent growth moderated to 2.0 percent, the lowest since 2010. Likely driven by recent levels of construction, overall vacancy remained near all-time lows. The national office vacancy rate remained flat at 13 percent. Retail demand in community and neighborhood centers remained strong as retailers focused on driving foot traffic in response to continued pressure from e-commerce.

Debt markets remained active and liquid. Origination volume shifted to primarily non-bank lenders such as life insurance companies as well as mortgage funds. Commercial mortgage-backed securities issuance remained muted relative to mid-2000 levels.

In 2016, the Real Estate portfolio had a total return of 11.2 percent, compared to its custom benchmark of 8.3 percent. The Real Estate portfolio outperformed its custom benchmark over the one-, three-, and five-year periods and slightly underperformed its custom benchmark over the ten-year period.

Opportunity Fund

Within the Opportunity Fund, 2016 was a year when most strategies contributed positively to performance. The market environment was supported by a recovery in commodity prices and a post-election rally in growth assets such as equities, high yield credit, and real estate. Despite expectations of rising interest rates and a late year sell-off in long-term government bonds, risk parity strategies delivered strong performance for the year due to positive returns from equities, inflation-sensitive assets, currencies, and high quality corporate credit. Although distressed investment managers faced a challenging environment for deploying capital, their existing investments continued to benefit from improving fundamentals and low default rates. Tactical managers continued to be active in various idiosyncratic opportunities that arose from regulatory changes and reduced liquidity in certain sectors of the credit market.

In 2016, PERA's Opportunity Fund portfolio returned 10.3 percent compared to its custom benchmark return of 7.1 percent. The Opportunity Fund has outperformed its custom benchmark over the one- and three-year periods, and underperformed its custom benchmark over the five-year periods. Ten-year performance is not available due to the inception of the Opportunity Fund being 2008.

INVESTMENT SECTION SCHEDULES

Does Not Include the Two Defined Contribution Pension and Deferred Compensation Trust Funds
(Dollars in Thousands)

PROFILE OF INVESTMENTS IN COLORADO

As of December 31, 2016

	Fair Value
Public equity of companies headquartered in Colorado	$149,911
Private placements	10,177
Real estate	33,783
Portion of general partnerships investing in Colorado companies[1]	174,090
Portion of Colorado-based general partnerships or funds—committed to future funding	74,637
Bonds and notes of companies headquartered in Colorado	53,086
Total	**$495,684**

[1] Private equity partnership investments domiciled in Colorado.

LARGEST EQUITY HOLDINGS BY FAIR VALUE[1]

As of December 31, 2016

	Shares	Fair Value
Apple Inc.	3,739,518	$433,111
Microsoft Corp.	6,252,748	388,546
Alphabet Inc.	383,863	304,192
Amazon.com, Inc.	314,065	235,508
JP Morgan Chase & Co.	2,449,495	211,367
Chevron Corp.	1,477,504	173,902
Facebook Inc.	1,382,845	159,096
Accenture Plc.	1,321,851	154,828
Visa Inc.	1,890,553	147,501
Merck & Co. Inc.	2,488,166	146,478

[1] The top ten holdings do not include commingled funds.

Note: A complete list of holdings is available upon request.

LARGEST FIXED INCOME HOLDINGS BY FAIR VALUE[1]

As of December 31, 2016

	Par Value	Income Rate	Maturity Date	Fair Value
US Treasury Notes	$200,000	1.875%	10/31/22	$197,344
GNMA Pool #MA4068	174,328	3.000%	11/20/46	176,763
US Treasury Notes	168,000	2.750%	2/15/24	173,512
US Treasury Notes	165,000	2.625%	8/15/20	170,607
US Treasury Notes	165,000	1.625%	7/31/19	166,154
US Treasury Notes	145,000	1.375%	2/29/20	144,309
FNMA Pool #AL7936	105,815	4.500%	9/1/45	114,823
US Treasury Notes	105,000	1.375%	2/28/19	105,295
FHLMC Pool #G08669	98,314	4.000%	9/1/45	103,297
FNMA Pool #AS7736	92,994	3.000%	8/1/46	92,483

[1] The top ten holdings do not include commingled funds.

Note: A complete list of holdings is available upon request.

VOLUNTARY INVESTMENT PROGRAM, DEFINED CONTRIBUTION RETIREMENT PLAN, AND DEFERRED COMPENSATION PLAN (PLANS) REPORT ON INVESTMENT ACTIVITY

(Dollars in Thousands)

Overview

PERA established the Voluntary Investment Program (PERAPlus 401(k) Plan) on January 1, 1985, under Section 401(k) of the Internal Revenue Code (IRC). The Defined Contribution Retirement Plan (DC Plan) was established January 1, 2006, as an IRC § 401(a) governmental profit-sharing plan. On July 1, 2009, PERA assumed the administrative and fiduciary responsibility for the State of Colorado Deferred Compensation Plan, now known as the PERAPlus 457 Plan. PERA publishes an Annual Report for the PERAPlus 401(k), the DC Plan, and the PERAPlus 457 Plan and distributes it to all plan participants.

The PERAPlus 401(k) Plan includes voluntary contributions made by employees of PERA-affiliated employers in the State, School, Local Government, Judicial, and Denver Public Schools Division Trust Funds. These contributions are entirely separate from those that members make to the defined benefit plan each month. On December 31, 2016, the PERAPlus 401(k) Plan had a fiduciary net position (FNP) of $2,829,663 and 68,752 accounts, representing an increase of 7.02 percent in the FNP and a 0.06 percent decrease in the number of accounts from December 31, 2015.

The DC Plan offers a defined contribution alternative to the PERA defined benefit plan for certain new employees of State agencies and departments, most community colleges, and the District Attorney within each Judicial District, and if authorized by the county and the District Attorney, the attorneys within each Judicial District. On December 31, 2016, the DC Plan had a FNP of $167,406 and 5,761 accounts, representing increases of 18.71 percent in the FNP and 6.63 percent in the number of accounts from December 31, 2015.

The PERAPlus 457 Plan includes voluntary contributions made by employees working for a PERA-affiliated employer that have also affiliated with the PERAPlus 457 Plan. The employees of some employers that had affiliated with the State of Colorado Deferred Compensation Plan prior to July 1, 2009, and were not affiliated with PERA, remain eligible to contribute. On December 31, 2016, the PERAPlus 457 Plan had a FNP of $751,682 and 17,921 accounts, representing increases of 8.68 percent in the FNP and 0.60 percent in the number of accounts from December 31, 2015.

PERAPLUS 401(K) PLAN YEAR-END STATISTICS

Year	Fiduciary Net Position	Number of Accounts	Actively Contributing Participants[1]
2007	$1,730,930	72,832	39,242
2008	1,303,807	72,353	36,646
2009	1,674,861	75,819	36,270
2010	1,902,325	73,860	33,740
2011	1,891,347	71,620	28,859
2012	2,105,675	69,559	26,406
2013	2,509,750	68,691	26,022
2014	2,682,000	68,270	25,481
2015	2,644,099	68,791	25,726
2016	**2,829,663**	**68,752**	**25,263**

[1] Defined as contributing within the last three months of the year.

DC PLAN YEAR-END STATISTICS

Year	Fiduciary Net Position	Number of Accounts	Actively Contributing Participants[1]
2007	$2,547	489	308
2008	4,996	864	532
2009	37,475	3,039	1,716
2010	53,384	3,479	1,850
2011	63,597	4,029	2,080
2012	83,267	4,362	2,099
2013	113,500	4,719	2,216
2014	131,466	5,046	2,261
2015	141,026	5,403	2,357
2016	**167,406**	**5,761**	**2,373**

[1] Defined as contributing within the last three months of the year.

PERAPLUS 457 PLAN YEAR-END STATISTICS

Year	Fiduciary Net Position	Number of Accounts	Actively Contributing Participants[1]
2009	$393,352	18,007	9,057
2010	458,881	18,215	9,916
2011	483,965	17,821	10,004
2012	544,518	17,469	9,469
2013	643,602	17,462	9,469
2014	689,451	17,738	9,551
2015	691,676	17,814	9,323
2016	**751,682**	**17,921**	**9,107**

[1] Defined as contributing within the last three months of the year.

VOLUNTARY INVESTMENT PROGRAM, DEFINED CONTRIBUTION RETIREMENT PLAN, AND DEFERRED COMPENSATION PLAN (PLANS) REPORT ON INVESTMENT ACTIVITY
(Dollars in Thousands)

Outline of Investment Policies

Objectives

The Board is responsible for approving an appropriate range of investments that addresses the needs of the participants in the Plans. The objectives of selecting the investment options under each Plan are to:

- Provide a wide range of investment opportunities in various asset classes so as to allow for diversification and to cover a wide risk/return spectrum.
- Maximize returns within reasonable and prudent levels of risk.
- Provide returns comparable to returns for similar investment options.
- Control administrative and management costs to the plan and participants.

Responsibilities

The Investment Advisory Committee (IAC), a committee of internal management staff, monitors and evaluates the investment asset classes and the underlying portfolio asset mix and allocation range for each investment option. The IAC also monitors and evaluates the portfolio managers and other service providers. RVK, Inc. serves as consultant to the IAC and the Benefits Committee.

Recommendations of the IAC are presented to PERA's Executive Director and Chief Investment Officer. Upon their concurrence, the recommendations are presented to the Board for consideration if required by the investment policy.

The Board is responsible for:

- The oversight of the Plans and portfolio composition.
- Approving changes to the plan documents.
- Approving the investment policies and amendments thereto.
- Accepting or rejecting the IAC's recommendations with regard to policies, objectives, specific investment options, and service providers.

PERAdvantage Investment Options

The PERAdvantage investments provide diversification within each of the six primary funds, one additional specialized fund, and ten target retirement date funds. The PERAdvantage investments simplify choices, increase diversification, and help participants identify investments based on how the fund invests the money rather than name familiarity. In addition, the Plans also provide a self-directed brokerage account for participants to select their own investments.

Participants invest assets in one or more of the following investments:

Primary Investment Options

PERAdvantage Capital Preservation Fund

The fund seeks to provide consistent investment income with a stable net asset value primarily by investing in a portfolio of high-quality, medium-term fixed income securities. This fund invests in securities issued by the U.S. Government or one of its agencies, including agency mortgage bonds, as well as high-grade corporate bonds. Since the underlying fixed income investments fluctuate in market value with changes in the market, the portfolio is paired with one or more insurance contracts offered by high-quality insurance companies to provide a more stable return and to offer participants the ability to withdraw or transfer their funds subject to plan rules without any market value risk or other penalty for premature withdrawal. The fund is managed by GW Capital Management, LLC.

PERAdvantage Fixed Income Fund

The fund seeks to generate income, preserve capital, and provide long-term capital appreciation by investing in a diversified portfolio of fixed-income instruments of varying maturities. The fund objective is to combine actively managed core and passive core styles. The fund is managed by BlackRock (targeted at 50 percent of the portfolio) and Wells Fargo Asset Management (targeted at 50 percent of the portfolio). See 2016 changes on the next page.

PERAdvantage Real Return Fund

The fund seeks to provide broad exposure to real assets and U.S. Treasury Inflation Protected Securities (TIPS) and to produce a return over a full market cycle that exceeds the rate of inflation. The fund invests in U.S. TIPS, Real Estate Investment Trusts (REITs), global commodity and natural resource stocks, and commodities. State Street Global Advisors manages the fund.

PERAdvantage U.S. Large Cap Stock Fund

The fund seeks to provide long-term capital appreciation and dividend income primarily by investing in the common stock of companies located in the United States with large market capitalizations similar to those found in the Russell 1000™ Index. The fund combines core, growth, and value investment styles,

VOLUNTARY INVESTMENT PROGRAM, DEFINED CONTRIBUTION RETIREMENT PLAN, AND DEFERRED COMPENSATION PLAN (PLANS) REPORT ON INVESTMENT ACTIVITY
(Dollars in Thousands)

and active and passive management styles. The fund is managed by PERA (targeted at 70 percent of the portfolio), LSV Asset Management (targeted at 15 percent of the portfolio), and Winslow Capital Management (targeted at 15 percent of the portfolio).

PERAdvantage International Stock Fund

The fund seeks to provide long-term capital appreciation and dividend income primarily by investing in the common stock of companies located outside the United States. The fund invests in a wide array of non-U.S. stocks similar to those found in the MSCI All Countries World Index (ACWI) ex-U.S. Index. The fund combines growth and value investment styles, and active and passive management styles. The fund is managed by Harding Loevner (targeted at 35 percent of the portfolio), Dodge & Cox (targeted at 35 percent of the portfolio), and BlackRock (targeted at 30 percent of the portfolio).

PERAdvantage U.S. Small and Mid Cap Stock Fund

The fund seeks to provide long-term capital appreciation and dividend income primarily by investing in the common stock of companies located in the United States with small and mid-market capitalizations similar to the securities included in the Russell 2500™ Index. The fund combines growth and value investment styles and active and passive management styles. The fund is managed by TimesSquare Capital Management (targeted at 35 percent of the portfolio), Dimensional Fund Advisors (targeted at 35 percent of the portfolio), and BlackRock (targeted at 30 percent of the portfolio).

Additional Investment Options

PERAdvantage Target Retirement Date Funds

There are ten funds with varying asset mixes and risk levels based on expected retirement date. Each of the funds is invested in the corresponding BlackRock LifePath® Index Target Retirement Date Fund. These funds use passive management strategies and become more conservative as the retirement date approaches. BlackRock manages the funds.

PERAdvantage Socially Responsible Investment (SRI) Fund

The fund seeks to invest in a portfolio of developed market stocks screened on environmental, social, and governance (ESG) factors, and U.S. government fixed income securities. The equity portion seeks to replicate the return of the MSCI World ESG Index. The fixed income portion invests in U.S. Government securities, and may invest a significant portion or all of its assets in mortgage-backed securities. The fund is managed by Northern Trust Investments (targeted at 60 percent of the portfolio), and J.P. Morgan Asset Management (targeted at 40 percent of the portfolio).

TD Ameritrade Self-Directed Brokerage Account

This account allows selection from numerous mutual funds and other types of securities, such as stocks and bonds, for an additional fee. Investment in the self-directed brokerage account is offered through TD Ameritrade, a Division of TD Ameritrade, Inc.

2016 Changes

Effective December 1, 2016, the portion of the PERAdvantage Fixed Income Fund managed by Wells Fargo Asset Management (targeted at 50 percent of the portfolio) transitioned from a commingled fund to a separately managed account.

Loans

Participants in the PERAPlus 401(k) and PERAPlus 457 Plans may access their funds through loans as allowed under plan policy and the Internal Revenue Service. The DC Plan prohibits participant loans.

Administrative Fees

Plan administrative fees pay for recordkeeping, custodial services, consulting, and internal PERA administrative expenses.

The administrative fee consists of a flat $1.00 per month per participant per plan and an asset-based fee of up to 0.11 percent on each underlying PERAdvantage portfolio. There is a 0.03 percent plan administrative fee on the self-directed brokerage account. Investments with revenue sharing reduce the asset-based administrative fee by the amount of such revenue sharing.

(The Colorado PERA Report on Investment Activity was prepared by internal staff.)

VOLUNTARY INVESTMENT PROGRAM, DEFINED CONTRIBUTION RETIREMENT PLAN, AND DEFERRED COMPENSATION PLAN (PLANS) SCHEDULE OF INVESTMENT RESULTS

Fund/Benchmark	2016	3-Year	5-Year
PERAdvantage Capital Preservation Fund	1.9%	1.8%	1.9%
Hueler Stable Value Index (Equal Wtd Avg)	1.8%	1.8%	1.9%
PERAdvantage Fixed Income Fund	2.6%	2.8%	2.9%
Bloomberg Barclays U.S. Aggregate Bond Index	2.7%	3.0%	2.2%
PERAdvantage Real Return Fund	11.1%	(0.1%)	0.1%
70% SSgA Real Asset Strategy[1]/30% Bloomberg Barclays U.S. TIPS Index	11.4%	0.1%	0.4%
PERAdvantage U.S. Large Cap Stock Fund	10.1%	7.7%	14.2%
Russell 1000™ Index	12.1%	8.6%	14.7%
PERAdvantage International Stock Fund	6.5%	(0.6%)	6.9%
MSCI ACWI Ex-US Index	4.5%	(1.8%)	5.0%
PERAdvantage U.S. Small and Mid Cap Stock Fund	16.7%	5.1%	14.3%
Russell 2500™ Index	17.6%	6.9%	14.5%
PERAdvantage SRI Fund	5.1%	3.4%	7.1%
SRI Fund Custom Index[2]	4.9%	3.3%	7.0%
PERAdvantage Income Fund	6.1%	3.2%	4.9%
BlackRock LifePath® Retirement Index	6.2%	3.4%	5.1%
PERAdvantage 2020 Fund	6.6%	3.4%	6.1%
BlackRock LifePath® 2020 Index	6.6%	3.6%	6.3%
PERAdvantage 2025 Fund	7.2%	3.6%	6.9%
BlackRock LifePath® 2025 Index	7.2%	3.8%	7.1%
PERAdvantage 2030 Fund	7.7%	3.8%	7.6%
BlackRock LifePath® 2030 Index	7.6%	3.9%	7.7%
PERAdvantage 2035 Fund	8.2%	4.0%	8.2%
BlackRock LifePath® 2035 Index	8.1%	4.1%	8.3%
PERAdvantage 2040 Fund	8.6%	4.1%	8.7%
BlackRock LifePath® 2040 Index	8.4%	4.2%	8.8%
PERAdvantage 2045 Fund	8.8%	4.1%	9.2%
BlackRock LifePath® 2045 Index	8.7%	4.2%	9.3%
PERAdvantage 2050 Fund	8.9%	4.2%	9.6%
BlackRock LifePath® 2050 Index	8.7%	4.3%	9.7%
PERAdvantage 2055 Fund	8.9%	4.2%	10.0%
BlackRock LifePath® 2055 Index	8.7%	4.3%	10.1%
PERAdvantage 2060 Fund	8.8%	N/A	N/A
BlackRock LifePath® 2060 Index	8.7%	N/A	N/A

Note: Performance is net of management and administrative fees. Performance is calculated using time-weighted net asset values (NAV). All performance is calculated by RVK, Inc.

[1] Until February 29, 2016, the SSgA Real Asset Strategy Index consisted of 30 percent Bloomberg Barclays U.S. TIPS Index; 15 percent Dow Jones U.S. Select REIT Index; 25 percent Bloomberg Roll Select Commodity Index; and 30 percent S&P Global LargeMidCap Commodity and Resources Index. After February 29, 2016, the Index consists of 25 percent Bloomberg Barclays U.S. TIPS Index; 15 percent Dow Jones U.S. Select REIT Index; 25 percent Bloomberg Roll Select Commodity Index; 25 percent S&P Global LargeMidCap Commodity and Resources Index; and 10 percent S&P Global Infrastructure Index.

[2] The SRI Fund Custom Index consists of 60 percent MSCI World ESG Index (Net) and 40 percent Bloomberg Barclays U.S. Government Bond Index.

VOLUNTARY INVESTMENT PROGRAM INVESTMENT SUMMARY

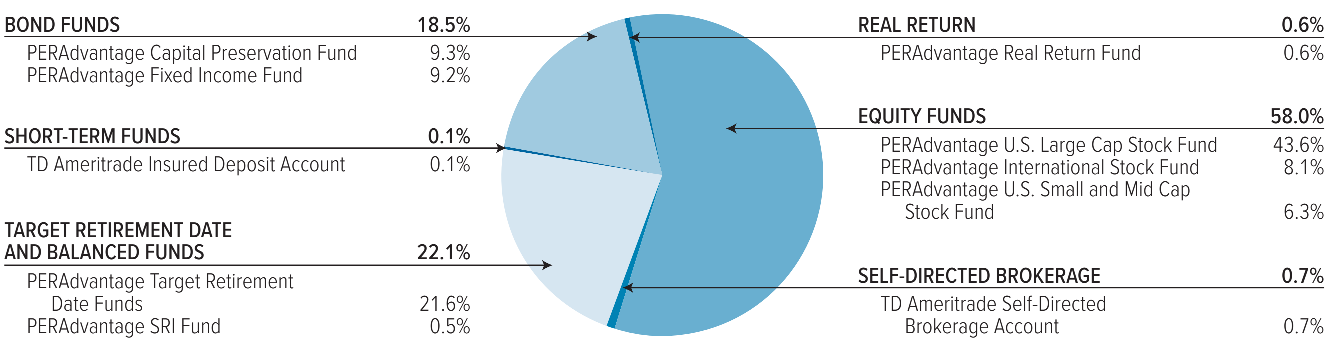
(Dollars in Thousands)

	Fair Value December 31, 2016	Percent of Total Fair Value 2016
PERAdvantage Capital Preservation Fund[1]	$254,899	9.3%
PERAdvantage Fixed Income Fund	252,511	9.2%
PERAdvantage Real Return Fund	15,616	0.6%
PERAdvantage U.S. Large Cap Stock Fund	1,206,182	43.6%
PERAdvantage International Stock Fund	222,644	8.1%
PERAdvantage U.S. Small and Mid Cap Stock Fund	172,606	6.3%
PERAdvantage SRI Fund	13,765	0.5%
PERAdvantage Income Fund	121,515	4.4%
PERAdvantage 2020 Fund	106,288	3.9%
PERAdvantage 2025 Fund	104,253	3.8%
PERAdvantage 2030 Fund	84,072	3.1%
PERAdvantage 2035 Fund	72,053	2.6%
PERAdvantage 2040 Fund	44,874	1.6%
PERAdvantage 2045 Fund	28,027	1.0%
PERAdvantage 2050 Fund	18,241	0.7%
PERAdvantage 2055 Fund	12,026	0.4%
PERAdvantage 2060 Fund	1,678	0.1%
TD Ameritrade Insured Deposit Account	3,473	0.1%
TD Ameritrade Self-Directed Brokerage Account	17,976	0.7%

[1] The Stable Value Fund in the PERAdvantage Capital Preservation Fund is reported at contract value.

Asset Allocation for Voluntary Investment Program (PERAPlus 401 (k) Plan)

As of December 31, 2016

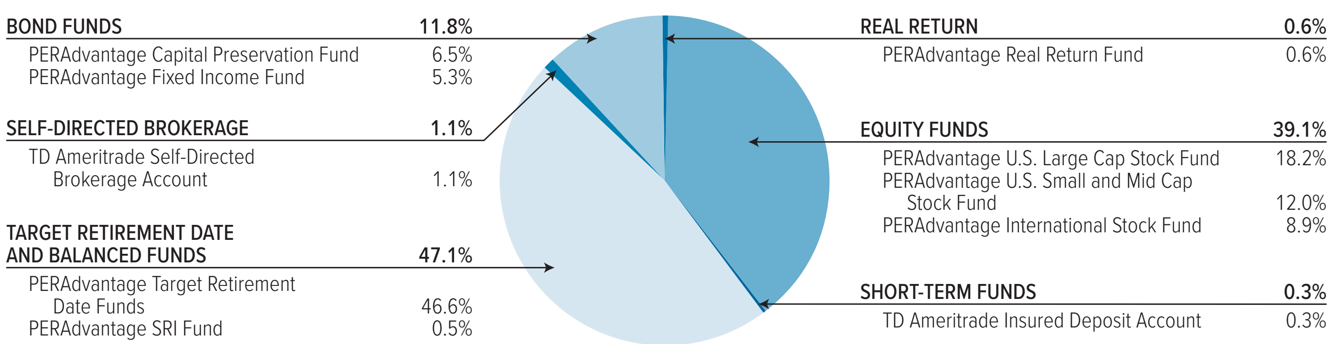


DEFINED CONTRIBUTION RETIREMENT PLAN INVESTMENT SUMMARY
(Dollars in Thousands)

	Fair Value December 31, 2016	Percent of Total Fair Value 2016
PERAdvantage Capital Preservation Fund[1]	$10,642	6.5%
PERAdvantage Fixed Income Fund	8,638	5.3%
PERAdvantage Real Return Fund	960	0.6%
PERAdvantage U.S. Large Cap Stock Fund	29,690	18.2%
PERAdvantage International Stock Fund	14,570	8.9%
PERAdvantage U.S. Small and Mid Cap Stock Fund	19,557	12.0%
PERAdvantage SRI Fund	803	0.5%
PERAdvantage Income Fund	6,197	3.8%
PERAdvantage 2020 Fund	5,945	3.6%
PERAdvantage 2025 Fund	5,876	3.6%
PERAdvantage 2030 Fund	7,993	4.9%
PERAdvantage 2035 Fund	8,492	5.2%
PERAdvantage 2040 Fund	9,912	6.1%
PERAdvantage 2045 Fund	14,774	9.1%
PERAdvantage 2050 Fund	11,651	7.1%
PERAdvantage 2055 Fund	4,661	2.9%
PERAdvantage 2060 Fund	507	0.3%
TD Ameritrade Insured Deposit Account	466	0.3%
TD Ameritrade Self-Directed Brokerage Account	1,822	1.1%

[1] The Stable Value Fund in the PERAdvantage Capital Preservation Fund is reported at contract value.

Asset Allocation for Defined Contribution Retirement Plan (DC Plan)
As of December 31, 2016



DEFERRED COMPENSATION PLAN INVESTMENT SUMMARY

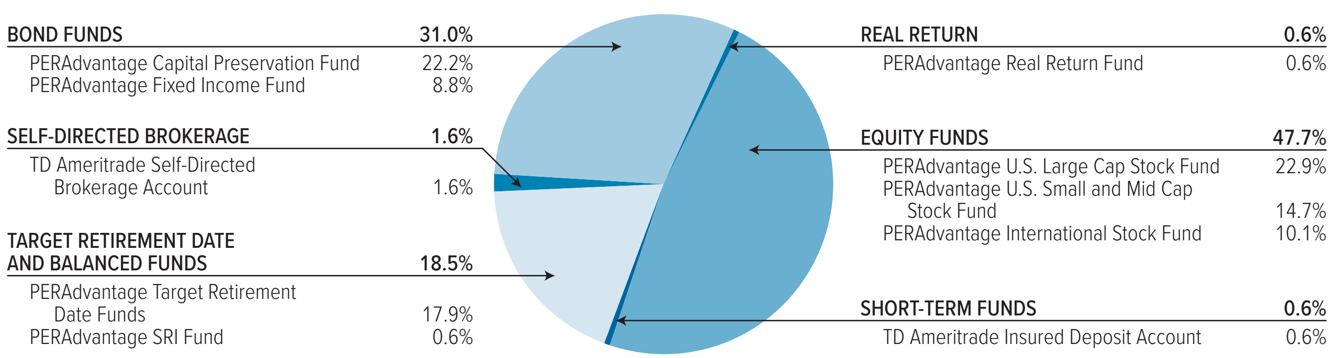
(Dollars in Thousands)

	Fair Value December 31, 2016	Percent of Total Fair Value 2016
PERAdvantage Capital Preservation Fund[1]	$162,717	22.2%
PERAdvantage Fixed Income Fund	64,621	8.8%
PERAdvantage Real Return Fund	4,517	0.6%
PERAdvantage U.S. Large Cap Stock Fund	167,526	22.9%
PERAdvantage International Stock Fund	73,862	10.1%
PERAdvantage U.S. Small and Mid Cap Stock Fund	108,178	14.7%
PERAdvantage SRI Fund	4,114	0.6%
PERAdvantage Income Fund	25,853	3.5%
PERAdvantage 2020 Fund	22,273	3.0%
PERAdvantage 2025 Fund	26,670	3.6%
PERAdvantage 2030 Fund	17,909	2.4%
PERAdvantage 2035 Fund	16,466	2.2%
PERAdvantage 2040 Fund	10,075	1.4%
PERAdvantage 2045 Fund	5,699	0.8%
PERAdvantage 2050 Fund	3,459	0.5%
PERAdvantage 2055 Fund	3,068	0.4%
PERAdvantage 2060 Fund	623	0.1%
TD Ameritrade Insured Deposit Account	4,706	0.6%
TD Ameritrade Self-Directed Brokerage Account	12,106	1.6%

[1] The Stable Value Fund in the PERAdvantage Capital Preservation Fund is reported at contract value.

Asset Allocation for Deferred Compensation Plan (PERAPlus 457 Plan)

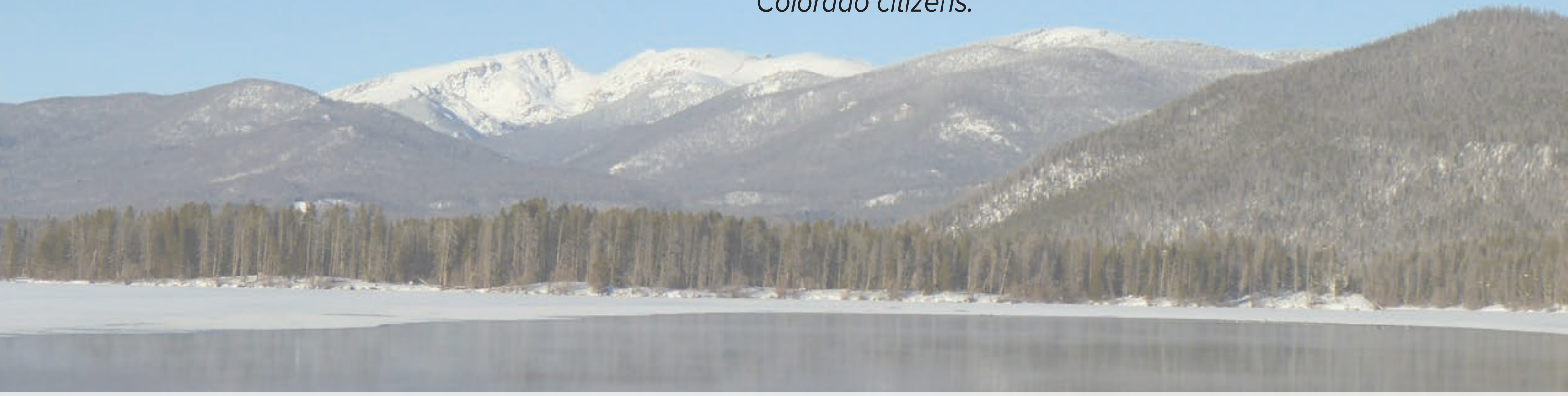
As of December 31, 2016



ACTUARIAL SECTION

To keep people safe and resources sustainable in the Rocky Mountains means the Colorado Avalanche Information Center reports on when conditions are likely to trigger dangerous snowpack conditions; school districts use properly chained school bus tires while transporting students on treacherous mountain roads; and Colorado Parks and Wildlife manages fish and wildlife populations and patrols land and water areas.

From peaks to plains, PERA members and employers are vital in enhancing the quality of life for all Colorado citizens.



The retirement benefits paid to the 3,412 Mountain region members results in $158 million in total economic output, 653 jobs, and $6 million in tax revenue.

ACTUARY'S CERTIFICATION LETTER

Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

June 15, 2017

Board of Trustees
Public Employees' Retirement Association of Colorado
1301 Pennsylvania Street
Denver, CO 80203-2386

RE: ACTUARIAL CERTIFICATION OF PERA DIVISION AND HEALTH CARE TRUST FUNDS

Dear Members of the Board:

Per the "Colorado PERA Defined Benefit Pension Plan Funding Policy", adopted by the Board on March 20, 2015, the main funding objectives of the Public Employees' Retirement Association of Colorado (PERA) are:

- Preservation of the defined benefit plan structure,
- Demonstration of transparency and accountability,
- Achievement of a funded ratio greater than or equal to 110%,
- Balance of contribution rate stability and intergenerational equity,
- Reduction of Unfunded Actuarial Accrued Liabilities, and
- Recognition of beneficial elements of pooled risk.

With these goals in mind, an annual actuarial valuation is as performed as a measure of the progress towards these goals. The most recent valuations are based on the plan provisions and assumptions in effect on December 31, 2016. The valuation reflects the funding changes made to the Judicial Division resulting from HB 17-1265, the Judicial (AED and SAED restart) Funding Bill that was signed into law on May 25, 2017. In completing the valuation of the five defined benefit pension plans, referred to as the Division Trust Funds, and the two defined benefit Other Post-employment Benefit plans, referred to as the Health Care Trust Funds (HCTFs), Cavanaugh Macdonald Consulting, LLC (CMC) relied on membership and financial data provided by PERA. We have reviewed this data for reasonableness, and made some general edit checks to impute certain information that may not have been provided with the original employee data. We have not audited this data, but we have reconciled the data used in the prior year's valuation with this current valuation data.

This valuation reflects some changes from the prior valuation including:

- Method Change
  - For the HCTFs, the Entry Age Normal actuarial cost method allocation basis has been changed from a level dollar amount to a level percentage of pay.

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ACTUARY'S CERTIFICATION LETTER

Board of Trustees
Public Employees' Retirement Association of Colorado
June 15, 2017
Page 2

- Assumption Changes
  - Investment Rate of Return changed assumed rate from 7.50% to 7.25%
  - Price Inflation changed assumed rate from 2.80% to 2.40%
  - Wage Inflation changed assumed rate from 3.90% to 3.50%
  - Assumed rates of Withdrawal, Disability, Retirement, and Mortality have been adjusted to more closely reflect experience.
  - Beyond the revised economic and demographic assumptions described above, the following additional changes have been made to certain methods and assumptions since the previous valuation of the HCTFs:
    - The assumed rates of PERACare participation have been revised to reflect more closely actual experience.
    - Initial per capita health care costs for those PERACare enrollees under the PERA Benefit Structure who are expected to be age 65 and older and are not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2017 plan year.
    - The assumed rates of PERACare coverage option elections for those PERACare enrollees under the PERA Benefit Structure who, in the future, will be age 65 or older and are assumed not to be eligible for premium-free Medicare Part A benefits have been revised to reflect more closely actual experience.
    - The percentage of Disabled PERACare enrollees who are assumed to not qualify for premium-free Medicare Part A coverage have been revised to reflect more closely actual experience.
    - The assumed rates of inflation for health care costs for Medicare Part A premiums have been revised to reflect the current expectation of future increases.
    - The rate of PERACare coverage election for spouses of eligible inactive members and future retirees of the State, School (other than Denver Public Schools), Local Government, and Judicial Divisions was revised to reflect more closely actual experience.
    - The assumed age differences between future retirees and their participating spouses have been revised to reflect more closely actual experience.

In our opinion, the assumptions are individually reasonable, taking into account the experience of the Division Trust Funds and the HCTFs and reasonable expectations, internally consistent, and, in combination, offer our best estimate of anticipated experience affecting the Division Trust Funds and the HCTFs. We also believe the assumptions and actuarial methods of the HCTFs meet the requirements of Governmental Accounting Standards Board (GASB) Statements No. 43.

Future actuarial results may differ significantly from the current results presented herein due to factors such as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in actuarial assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost of contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Since the potential impact of such factors is outside the scope of a normal actuarial valuation, an analysis of the range of potential results is not presented herein.

ACTUARY'S CERTIFICATION LETTER

Board of Trustees
Public Employees' Retirement Association of Colorado
June 15, 2017
Page 3

CMC provided the following schedules for the December 31, 2016, CAFR:

FINANCIAL SECTION

- Yearly ARC Deficiency – HCTFs Only
- Yearly ADC and 10-Year Cumulative Deficiency – Division Trust Funds Only
- Average Monthly Benefit – Division Trust Funds Only
- Actuarial Statistics – HCTFs Only
- Required Discount Rate Sensitivity Information for the **Division Trust Funds** providing the ratio of the Fiduciary Net Position to Total Pension Liability and the Net Pension Liability at a discount rate that is one percentage point lower and one percentage point higher than the discount rate at Measurement Date.
- Discount Rate Sensitivity Information for the **HCTFs** providing the Funded Ratio, Unfunded Actuarial Accrued Liability and Annual Required Contributions using 6.25%, 7.25%, and 8.25% investment assumptions
- Summary of the Ratios FNP to TPL – Division Trust Funds Only
- Funded Ratios – HCTFs Only
- Required Supplementary Information – Schedule of Changes in Net Pension Liability – Division Trust Funds Only
- Required Supplementary Information – Schedule of the Net Pension Liability – Division Trust Funds Only
- Required Supplementary Information – Schedule of Employer Contributions – Division Trust Funds Only
- Notes to Required Supplementary Information
- Required Supplementary Information – Schedule of Funding Progress – HCTFs Only
- Required Supplementary Information – Schedule of Employer Contributions and Other Contributing Entities – HCTFs Only

ACTUARIAL SECTION

- Schedule of Retirees and Beneficiaries Added to and Removed from the Benefit Payroll
- Member – Retiree Comparison – Division Trust Funds Only
- Schedule of Members in Valuation
- Solvency Test
- Schedule of Funding Progress
- Schedule of Gains and Losses in Accrued Liabilities
- Changes in Unfunded Actuarial Accrued Liabilities – Division Trust Funds Only
- Schedule of Computed Employer Contribution Rates for the 2018 Fiscal Year
- Actuarial Statistics – Division Trust Funds Only
- Funded Ratios – Division Trust Funds Only
- Funded Ratio, Unfunded Actuarial Accrued Liability and Actuarially Determined Contributions using 5.75%, 6.75%, 7.25%, 7.75% and 8.75% investment return assumptions
- Actuarially Determined Contributions for the **Division Trust Funds** using 25-year, 20-year and 15-year amortization periods.
- Schedule of Active Member Actuarial Valuation Data

ACTUARY'S CERTIFICATION LETTER

Board of Trustees
Public Employees' Retirement Association of Colorado
June 15, 2017
Page 4

STATISTICAL SECTION (DIVISION TRUST FUNDS ONLY)

- Member and Benefit Recipient Statistics
- Schedule of Average Retirement Benefits Payable
- PERA Benefit Payments
    - Benefit Payments by Benefit Range
- Benefit Payments by Decile
- Current Average Monthly Benefit by Year of Retirement
- Schedule of Retirees and Survivors by Types of Benefits
- Schedule of Average Benefit Payments

In aggregate, the Division Trust Funds have a funded ratio of 58% based on the Actuarial Value of Assets and 56% based on the Market Value of Assets. For the HCTFs combined, the funded ratios are 18% on an Actuarial Value of Assets basis and 17% on a Market Value of Assets basis.

The employer contribution rate, combined with anticipated future employee growth and service purchase transfers, is, eventually, sufficient to finance the HCTFs' benefits in accordance with GASB 43 and 45.

The results of the valuation indicate the current combined employer and member statutory contribution rates, net of the amounts required to be used to fund the Annual Increase Reserve of each Division Trust Fund and finance the HCTFs within what are currently reasonable amortization periods, are sufficient to fund the normal costs of the Division Trust Funds for all members. However, based on a snapshot measurement of the Division Trust Funds that assumes no change in either the normal cost rate or the Unfunded Actuarial Accrued Liability (UAAL) contribution rate, current statutory contributions are not sufficient to finance each Division Trust Fund's UAAL within a reasonable amortization period.

It should be noted that the results of the December 31, 2016 funding valuation, combined with financial projections of all Division Trust Funds reflecting anticipated growth in active membership and a lower cost benefit structure for new members, indicate that the goal of funding 100% of the actuarial accrued liability under the PERA revised benefit structure created by SB 10-001, is not achievable within a projection period of 30 years. Absent favorable actuarial experience in the future, all Division Trust Funds are projected to take a longer period to reach full funding. The projected periods are as follows:

Division Trust Fund	Years Until 100% Funded
State Division	58 years
School Division	78 years
Local Government Division	55 years
Judicial Division	54 years
Denver Public Schools (DPS) Division	56 years

The results of the December 31, 2016 funding valuation, combined with financial projections reflecting anticipated growth in active membership, indicate that the goal of funding 100% of the actuarial accrued liability of the HCTFs is achievable within a projection period of 30 years. It must be noted that projections provide general trends in financial measurements, not absolute results.

ACTUARY'S CERTIFICATION LETTER

Board of Trustees
Public Employees' Retirement Association of Colorado
June 15, 2017
Page 5

Actuarial computations presented in the December 31, 2016 actuarial valuation report are for purposes of determining the actuarially determined contribution rates and evaluating the funding of the Division Trust Funds and HCTFs. Determinations for purposes other than meeting these requirements may be significantly different from the results shown in the December 31, 2016 actuarial valuation.

We also prepared actuarial computations as of December 31, 2016 for purposes of fulfilling financial accounting requirements for PERA under Governmental Accounting Standards Board (GASB) Statement No. 67. The actuarial assumptions used in the funding report were also used for GASB 67 reporting, with the exception of the discount rate used to determine the Total Pension Liability for the State, School and Judicial Divisions. In addition, the entry age normal actuarial cost method, which is required to be used under GASB 67, is also used in the funding valuation report. The actuarial assumptions used in both the funding and the GASB 67 accounting reports meet the parameters set by Actuarial Standards of Practice (ASOPs), as issued by the Actuarial Standards Board, and generally accepted accounting principles (GAAP) applicable in the United States of America as promulgated by the Governmental Accounting Standards Board.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this information is complete and accurate and that the valuation was performed in accordance with standards of practice and by qualified actuaries as prescribed by the American Academy of Actuaries and the Actuarial Standards Board. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. All of the consultants listed below have experience in performing valuations for large statewide public retirement systems.

Sincerely,

Edward A. Macdonald, ASA, FCA, MAAA
President

Patrice A Beckham, FSA, FCA, EA, MAAA
Principal and Consulting Actuary

Edward J. Koebel, FCA, EA, MAAA
Principal and Consulting Actuary

Eric H. Gary, FSA, FCA, MAAA
Principal and Chief Health Actuary

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DIVISION TRUST FUNDS—PENSION

Introduction

The standards promulgated by the Governmental Accounting Standards Board (GASB) Statement No. 67, require the need to prepare two actuarial valuations—one for funding purposes and one for accounting and financial reporting purposes. Unless otherwise noted, this Division Trust Funds subsection reports the results of the actuarial valuation performed for funding purposes, but also includes information on specific differences between the two actuarial valuations.

The Colorado PERA Board of Trustees (Board) is responsible for maintaining a pension funding policy applicable to PERA's five Division Trust Funds. The pension funding policy was last revised and adopted by the Board on March 20, 2015, effective for the December 31, 2014, funding actuarial valuation. The revised funding policy adopted an actuarially determined contribution (ADC) for each of the five Division Trust Funds. The ADC assesses the adequacy of the statutory contribution rate of each Division Trust Fund. The ADC will be determined in accordance with pension plan provisions, as described in Note 1 of the Notes to the Financial Statements found in the Financial Section.

Actuarial Methods and Assumptions

Actuarial Methods

The Board is responsible for the actuarial methods and assumptions used in the actuarial valuations in accordance with Colorado Revised Statutes (C.R.S.) § 24-51-204(5). The Board retains an external actuary, currently Cavanaugh Macdonald Consulting, LLC (CMC), to perform annual actuarial valuations and sustainability projections as well as periodic experience studies to review the actuarial assumptions and actual experience of the plan. Through formal action, the Board updates, replaces, or adopts new methods and assumptions as is deemed necessary. In addition to annual actuarial valuations and periodic assumption reviews, the Board established the practice of conducting actuarial audits every three to five years; the last one was performed by Milliman during 2014.

The ultimate cost that a defined benefit retirement plan, such as PERA, incurs is equal to the benefits paid plus expenses. Contributions to the plan and investment earnings on the assets of the plan pay for the ultimate cost.

Using the plan's schedule of benefits, the member data, and the carefully selected actuarial assumptions, the plan's actuary annually estimates the cost of the benefits to be paid. Following the Actuarial Standards of Practice (ASOPs) and the Board-adopted funding policy, the actuary allocates these costs and determines a systematic manner to fund future plan benefits.

Entry Age Normal Cost Method

For PERA (as well as most public sector plans), one important funding policy objective is to fund the plan in a manner that keeps contribution rates approximately level from generation to generation. The funding method best designed to keep annual costs level as a percent of covered payroll is the Entry Age Normal (EAN) cost method. It is for this reason that the EAN cost method was selected by the Board to be used in the actuarial valuation. Under the EAN cost method, early and service retirement, termination (including the possibility of refunds), disability, and death benefits are projected for all active members. Cost factors, which are developed to produce level annual costs in each year from the age at hire (entry age) to the assumed retirement age, are applied to the projected benefits to determine the normal cost. The normal cost is the portion of the total cost of the plan allocated to the current year. Normal cost is determined only for active members currently accruing benefits. Those in receipt of benefits, terminated or beyond assumed retirement age have no allocated normal cost. The actuarial accrued liability (AAL) for active members is the portion of the total cost of the plan allocated to prior years. The total AAL for the plan includes the AAL for active members and the present value of the expected benefit payments to members currently receiving benefits and inactive members entitled to future benefits. The excess of the total AAL over the actuarial value of plan assets is the unfunded actuarial accrued liability (UAAL).

The effect of differences between the actuarial assumptions and the actual experience of the plan is calculated each year when the annual actuarial valuation is performed. These differences produce actuarial gains or losses that result in an adjustment of the UAAL.

Amortization Method

Under the funding policy, an ADC is determined by adding the normal cost and the cost to amortize, over defined, closed periods, any existing UAAL or new UAAL, including the impact of any experience actuarial gains and losses, actuarial assumption changes, and changes in plan provisions. Implementing a layered amortization approach requires each amortized item to be tracked over the closed period defined for that category.

The legacy UAAL as of December 31, 2014, will be recognized over a closed 30-year period from that date. All gains, losses, and changes in actuarial methods and assumptions on and after January 1, 2015, will be recognized each year over a closed 30-year period. The impact of any changes in plan provisions will be recognized over a closed period relating to the demographics of the group affected and/or the duration of the enhancement provided, not to exceed 25 years. If any future actuarial valuation indicates a division has a negative UAAL, the ADC shall be set equal to the normal cost until such time as the funded ratio equals or exceeds 120 percent. At that time, the ADC shall be equal to the normal cost less an amount equal to 15 year amortization of the portion of the negative UAAL above the 120 percent funded ratio.

Once determined, the ADC is then expressed as a level percentage of assumed future covered payroll and compared, as a benchmark, against the current statutory employer contribution rate under each division.

DIVISION TRUST FUNDS—PENSION

Asset Valuation Method

In 1992, the Board adopted a method for valuing assets that recognizes a smoothed market value of assets. The smoothed market value of assets recognizes the differences between actual and expected investment experience for each year in equal amounts over a four–year period. The smoothed market value of assets excludes the Annual Increase Reserve (AIR). Note, the term "market value" is used in the Board's pension funding policy regarding the description of the determination of the asset valuation method used for funding purposes and is used consistently throughout the Actuarial Section, which has the identical meaning of the term "fair value" as is used in other sections of this *CAFR*.

Actuarial Assumptions

The determination of the AAL includes recognition of a number of economic and non-economic assumptions in addition to the applied actuarial methods described above. Unless otherwise noted, it can be assumed that the economic and demographic actuarial assumptions applied to the actuarial valuation for funding purposes also were applied to the actuarial valuation for accounting and financial reporting purposes.

Economic Assumptions

Periodically, the Board participates in an actuarial assumptions workshop to ensure understanding and to provide for the retention or adoption of all economic assumptions under the guidance provided by ASOP No. 27, *Selection of Economic Assumptions for Measuring Pension Obligations,* as prescribed by the Actuarial Standards Board. The most recent workshop took place on October 28, 2016. Presentations were given to the Board by the retained actuary, CMC, which included a detailed description of the results of the 2016 experience analysis, review of long-term historical data, as well as the 2016 survey of capital market assumptions by Horizon Actuarial Services, LLC, and a log-normal distribution analysis. The Board's investment consultant, Aon Hewitt Investment Consulting, Inc. (Aon Hewitt), and other actuarial and investment experts also provided their economic and market outlooks. In addition, the Board reviewed a variety of current and projected economic and financial information prior to the meeting.

As a result of the October 28, 2016, actuarial assumptions workshop and the November 18, 2016, Board meeting, the following economic assumptions changed effective for the December 31, 2016, actuarial valuation:

- Investment rate of return assumption decreased from 7.50 percent per year, compounded annually, net of investment expenses to 7.25 percent per year, compounded annually, net of investment expenses.
- Price inflation assumption decreased from 2.80 percent per year to 2.40 percent per year.
- Real rate of investment return assumption increased from 4.70 percent per year, net of investment expenses, to 4.85 percent per year, net of investment expenses.
- Wage inflation assumption decreased from 3.90 percent per year to 3.50 percent per year.

Exhibits A, B, C, D, and E show sample pay increase assumptions for individual members effective with the December 31, 2016, actuarial valuation.

Annually, the Board reviews the rate at which interest is credited to member accounts. The Board originally adopted the general policy regarding the annual review during 2006, with slight revisions to the policy details since adoption. In November 2016, the Board voted to continue the annual interest rate at 3.00 percent for interest earned during 2017.

Non-Economic Assumptions

ASOP No. 35, *Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations,* is followed for the selection and adoption of appropriate demographic assumptions. As a result of the 2016 experience analysis and the October 28, 2016, actuarial assumptions workshop, revised demographic assumptions including withdrawal rates, retirement rates for early reduced and unreduced retirement, disability rates, and pre- and post-retirement and disability mortality rates, for all divisions, were adopted as of November 18, 2016, to more closely reflect PERA's actual experience. The revised demographic assumptions are effective as of the December 31, 2016, actuarial valuation.

Beginning in 1986, PERA has used a select and ultimate approach, for all members except State Troopers and members of the Judicial Division, in applying rates of withdrawal or termination when estimating the number of members who will leave service prior to retirement. This approach recognizes the fact that regardless of age, a significant number of members leave PERA-covered employment within the first five years of service. The results of the 2016 experience analysis indicated a need to decrease the first year withdrawal assumption and increase the rates for the remaining years within the five-year select period for the State Division and the School and DPS Divisions. The results for the Local Government Division indicated a need to increase the rates of withdrawal for each year within the select period. Since more than five years has passed since the merger of the Denver Public School Retirement System into PERA, the application of a select period was discontinued for the members in the DPS benefit structure. The ultimate withdrawal rates were increased for the State, School and DPS, and Local Government Divisions as well as for the DPS benefit structure, but decreased for the Judicial Division and State Troopers. The revised withdrawal assumptions are effective as of the December 31, 2016, actuarial valuation.

DIVISION TRUST FUNDS—PENSION

The results of the 2016 experience analysis supported the current assumption for the refund of member accounts; that 35 percent of the vested members who terminate will elect to withdraw their accounts while the remaining 65 percent will elect to leave their accounts in the plan to be eligible for a benefit at their retirement date. This assumption was last revised and adopted in 2009, for all non-Judicial Division members in both the PERA and DPS benefit structures. As a result, the actuary did not recommend adjustments to this assumption for these members. The same assumption for members of the Judicial Division also was retained, which assumes that 100 percent of vested members who terminate elect to leave their contributions in the plan in order to be eligible for a benefit at their retirement date.

The results of the 2016 experience analysis indicated that there were fewer early retirements for all divisions than expected at ages below 55, but higher than expected at ages above 60. As a result, minor changes were made to the reduced early retirement rates applicable to all members to better reflect this experience. The study also indicated many unreduced retirements are occurring at either the earliest unreduced retirement age (around age 50) or at later ages (above age 65) with many members choosing to work past age 70. Therefore, based on CMC recommendations, the Board adopted minor increases in all the rates of unreduced retirement and an extension of the certain retirement age from age 70 to age 75 for all members except State Troopers. The revised reduced and unreduced retirement assumptions are effective as of the December 31, 2016, actuarial valuation.

Based on the results of the 2016 experience analysis, the rates of disability from active service were decreased at most ages for the State, School and DPS, and Judicial Divisions, State Troopers, and the DPS benefit structure and slightly increased for the Local Government Division. The revised disability assumptions are effective as of the December 31, 2016, actuarial valuation.

The probabilities of withdrawal from service (rates for the ultimate period) and disability are shown for sample ages in Exhibits A, B, C, D, and E. Exhibit F shows the select rates of withdrawal applicable to certain members in the first four years of employment (rates for the select period, if applicable). The probabilities of age and service retirements are shown in Exhibits G and H.

As a result of the 2016 experience analysis, CMC recommended a change to more recently published mortality tables, adjusted to reflect PERA's experience and to provide a reasonable margin for improved mortality in the future. Therefore, effective with the December 31, 2016, actuarial valuation, healthy mortality assumptions for pre-retirement reflect the RP-2014 White Collar Employee Mortality Table, a table specifically developed for pre-retirement mortality for actively working people. To allow for an appropriate margin of improved mortality prospectively, the mortality rates incorporate a 70 percent factor applied to male rates and a 55 percent factor applied to female rates.

Based on the results of the 2016 experience analysis, which showed greater longevity for benefit recipients in the School, DPS, and Judicial Divisions than in the State and Local Government Divisions, it was recommended that PERA use two different base mortality tables for healthy post-retirement mortality. Effective with the December 31, 2016, actuarial valuation, the following tables were adopted:

- For the State and Local Government Divisions: The RP-2014 Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 73 percent factor applied to ages below 80 and a 108 percent factor applied to age 80 and above, projected to 2018, for males, and a 78 percent factor applied to ages below 80 and a 109 percent factor applied to age 80 and above, projected to 2020, for females.
- For the School, DPS, and Judicial Divisions: The RP-2014 White Collar Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 93 percent factor applied to ages below 80 and a 113 percent factor applied to age 80 and above, projected to 2018, for males, and a 68 percent factor applied to ages below 80 and a 106 percent factor applied to age 80 and above, projected to 2020, for females.

The results of the 2016 experience analysis indicated that assumptions regarding mortality after disability retirement also should be updated. Effective with the December 31, 2016, actuarial valuation, the RP-2014 Disabled Retiree Mortality Table was implemented with a 90 percent factor applied to both male and female mortality rates.

The recently revised pre- and post-retirement and disability retirement mortality assumptions appropriately reflect PERA's recent and anticipated plan experience and are used to estimate the value of expected future benefit payments. Exhibits A, B, C, D, and E list the healthy pre-retirement mortality rates at sample ages and Exhibit I lists all the healthy post-retirement mortality rates and values at sample ages.

The element of the normal cost for each division, referred to as the administrative expense load, was first adopted by the Board effective with the December 31, 2012, actuarial valuation, resulting from a recommendation from CMC within the 2012 experience analysis. Based on the results of the 2016 experience analysis, the estimated administrative expense as a percentage of covered payroll was increased from 0.35 percent to 0.40 percent, effective with the December 31, 2016, actuarial valuation.

Annual Increase Assumptions

For PERA benefit structure members with a membership date prior to January 1, 2007, and DPS benefit structure members, it is assumed that retirement, disability, and survivor benefits increase at a rate of 2.0 percent per year after payments begin and eligibility requirements for payment of the annual increase (AI) have been met. This assumption was adopted as of the December 31, 2009, actuarial valuation in recognition of changes made to the AI by Senate Bill (SB) 10-001.

DIVISION TRUST FUNDS—PENSION

For members in the PERA benefit structure hired on or after January 1, 2007, an AIR was established for each Division Trust Fund to provide AIs, to the extent affordable, once benefits become payable for these members. From the employer statutory contributions submitted for these members, an amount equal to one percent of covered payroll and a certain percentage of reinstatement of service purchase dollars are transferred into the AIR to fund the current and future increases related to the AIR provisions. Pursuant to C.R.S. § 24-51-1009(4), the maximum AI that may be awarded by the Board equals the lesser of 2.0 percent or the average of the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) for each of the months during the prior calendar year. The total amount of increases paid in any year cannot exceed 10.0 percent of the total funds available in the AIR in the division from which they retire or decease. Therefore, the actuarial assumption applied to these members assumes that benefits do not increase with respect to the annual assessment of actuarial liability associated with the Division Trust Funds, since they receive AIs only to the extent affordable in accordance with C.R.S. § 24-51-1009. This assumption was adopted as of the December 31, 2007, actuarial valuation in recognition of AI provisions enacted in 2006.

Held within the trust and accounted for separately for each division, the dollars within each AIR are excluded from the division trust fund assets for purposes of the annual funding actuarial valuation. The AIR is subject to a separate annual actuarial calculation to determine the extent of the payment, if any, of AIs each year to eligible individuals.

Actuarial Studies

Accumulated investment income is a significant contributor to the success of a defined benefit plan, often providing between 50 to 80 percent of the total inflows over the life of a plan. The financial market's major decline in 2008 prompted the Board to pursue additional actuarial studies over the last few years to evaluate the appropriateness of PERA's investment return assumption in concert with other pertinent economic assumptions. Following their adopted governance procedures and practices, the Board performs periodic asset/liability modeling studies, actuarial audits, and actuarial experience analyses approximately every three to five years.

At the March 21, 2014, Board meeting, the Board approved an asset/liability modeling study to be conducted by Aon Hewitt. Based on the study, the Board adopted a new Asset Allocation policy on March 20, 2015, as described in Note 5 in the Financial Section.

In 2016, the Board requested an experience analysis covering plan experience for the four-year period from 2012 through 2015, to provide an updated view of all economic and demographic assumptions. CMC completed the experience analysis in October 2016, for purposes of discussion at the actuarial assumption workshop held October 28, 2016. Based on CMC's plan experience analysis and presentations from CMC and other experts, the Board adopted updated economic and demographic assumptions at the November 18, 2016, Board meeting to be effective as of the December 31, 2016, actuarial valuation.

In 2014, the Board engaged Milliman, an independent actuarial firm, to conduct an actuarial audit. The primary focus of the audit was to ensure independence, accuracy, and conformity with the accepted ASOPs with regard to results of the annual actuarial valuation and the appropriateness of the actuarial assumptions used to calculate those results. Milliman's findings were favorable toward CMC's work product concluding, overall, the calculations were reasonable. During the replication of the December 31, 2013, actuarial valuation, Milliman was able to come within a 1 percent margin of CMC's calculated AALs and closely matched each division's normal cost rates applying the same methods as used by CMC. Milliman determined that the data used by CMC were reasonable, were able to closely match benefit and valuation asset amounts, and determined that the actuarial methods and assumptions applied were in conformity with the ASOPs. Milliman found no grounds on which to suggest a revision of the previous year's actuarial valuation, but recommended a few changes in methodologies to be considered for future actuarial valuations as listed below.

- Apply mid-year timing of contributions used in normal cost rate calculation.
- Make a technical change in the amortization calculation.
- Make slight adjustments to certain liability calculations.
- Include merit increases in first year compensation amounts.
- Add further disclosure of assumptions and methods in the actuarial valuation report.

CMC evaluated each of Milliman's recommendations as well as internally reviewed all programming and actuarial procedures. The assessment resulted in the adoption of revised procedures reflecting Milliman's suggestions as well as some additional procedural and/or programming refinements. All of the changes were first incorporated into the December 31, 2014, valuation results and have continued to be applied in subsequent valuations.

Milliman found no grounds on which to suggest a revision of the most recent experience study, but recommended a few changes in methodologies to be considered for future experience studies.

- Increase margin for mortality assumption.
- Modify assumed timing of AI for active members.

Pursuant to C.R.S. § 24-51-1010, passed into law in 2006, prior to any increase in benefits, the Legislature is responsible for contracting an actuary or actuarial firm to conduct an actuarial assessment of the impact of such increase. Since there has not been a proposed increase in benefits since the passage of this legislation, the Legislature has not been required to contract for such a study.

Changes Since Last Actuarial Valuation

Changes in Actuarial Methods

There are no actuarial method changes reflected in the December 31, 2016, actuarial valuation since the last actuarial valuation as of December 31, 2015.

DIVISION TRUST FUNDS—PENSION

Changes in Actuarial Assumptions

Below is a summary of the economic and demographic actuarial assumption changes adopted as of November 18, 2016, and incorporated into the actuarial valuation as of December 31, 2016.

Economic Assumptions—Applicable to All Divisions/Benefit Structures

- Investment rate of return assumption decreased from 7.50 percent per year, compounded annually, net of investment expenses to 7.25 percent per year, compounded annually, net of investment expenses.
- Price inflation assumption decreased from 2.80 percent per year to 2.40 percent per year.
- Real rate of investment return assumption increased from 4.70 percent per year, net of investment expenses, to 4.85 percent per year, net of investment expenses.
- Wage inflation assumption decreased from 3.90 percent per year to 3.50 percent per year.

Demographic Assumptions—Applicable as Indicated

- Withdrawal (Termination) From Active Service
  - Select Period
    - » Decreased first year withdrawal rates with slight rate increases for each remaining year in the select period for the State Division and the School and DPS Divisions.
    - » Slightly increased withdrawal rates for each year in the select period for the Local Government Division.
    - » Discontinued the application of a select period of withdrawal for the DPS benefit structure.
  - Ultimate Period
    - » Increased withdrawal rates during the ultimate period for the State, School and DPS, and Local Government Divisions and the DPS benefit structure.
    - » Decreased withdrawal rates during the ultimate period for the Judicial Division and State Troopers.
- Service Retirement From Active Service
  - Minor changes were made to the reduced early retirement rates for all members.
  - Decreased the unreduced retirement rates at first eligibility for State Troopers, made minor increases to the unreduced retirement rates for the remaining population, and extended the certain retirement age from 70 to 75 for all members except State Troopers.
- Disability From Active Service
  - Decreased disability rates at most ages for the State, School and DPS, and Judicial Divisions, State Troopers, and the DPS benefit structure.
  - Slightly increased disability rates for the Local Government Division.
- Pre-retirement healthy mortality for all divisions changed from the RP-2000 Combined Mortality Table projected with Scale AA to 2020, set back one year for males and set back two years for females, incorporating a 55 percent factor to male rates and a 40 percent factor to female rates to the RP-2014 White Collar Employee Mortality Table, incorporating a 70 percent factor to male rates and a 55 percent factor to female rates.
- Post-retirement healthy mortality changed from the RP-2000 Combined Mortality Table projected with Scale AA to 2020, set back one year for males and set back two years for females, applicable to all divisions to the following distinct tables:
  - State and Local Government Divisions: The RP-2014 Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 73 percent factor applied to ages below 80 and a 108 percent factor applied to age 80 and above, projected to 2018, for males, and a 78 percent factor applied to ages below 80 and a 109 percent factor applied to age 80 and above, projected to 2020, for females.
  - School, DPS, and Judicial Divisions: The RP-2014 White Collar Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 93 percent factor applied to ages below 80 and a 113 percent factor applied to age 80 and above, projected to 2018, for males, and a 68 percent factor applied to ages below 80 and a 106 percent factor applied to age 80 and above, projected to 2020, for females.
- Post-retirement disabled mortality for all divisions changed from the RP-2000 Disability Mortality Table, set back two years for males and females to the RP-2014 Disabled Retiree Mortality Table, incorporating a 90 percent factor to both male rates and female rates.
- Estimated administrative expense load as a percentage of covered payroll increased from 0.35 percent to 0.40 percent.

Changes in Plan Provisions

The following legislative change in the structure of employer contributions for the Judicial Division is the only change in plan provisions reflected in the December 31, 2016, actuarial valuation since the last actuarial valuation as of December 31, 2015:

- Following the 2017 legislative session, Governor Hickenlooper signed into law House Bill (HB) 17-1265, which increases contribution rates for employers in the Judicial Division Trust Fund. For the calendar year beginning in 2019, this bill increases the Amortization Equalization Disbursement (AED) for the Judicial Division to 3.40 percent of PERA-includable salary and requires the AED payment to increase by 0.4 percent of PERA-includable salary at the start of each of the following four calendar years through 2023. In addition, for the calendar year beginning in 2019, this bill increases the Supplemental Amortization Equalization Disbursement (SAED) for the Judicial Division to 3.40 percent

DIVISION TRUST FUNDS—PENSION

of PERA-includable salary and requires the SAED payment to increase by 0.4 percent of PERA-includable salary at the start of each of the following four calendar years through 2023.

The following legislative change in the return to work provisions, although also adopted in 2017, is not reflected in the December 31, 2016, actuarial valuation. This change will be recognized in the December 31, 2017, actuarial valuation:

- Following the 2017 legislative session, Governor Hickenlooper signed into law HB 17-1176, which modifies the current working after retirement provisions through June 30, 2023. Current provisions allow a service retiree from any division to work for a PERA employer for limited periods and to receive a salary without reduction in benefits under certain circumstances. This modification applies to service retirees who are teachers, school bus drivers, or school food service cooks hired by rural school districts in the School Division that are deemed to have a critical need to fill vacant positions. These retirees may receive salary without a reduction in benefits for any length of employment in a calendar year as long as certain criteria are met.

Please see Note 12 in the Notes to the Financial Statements in the Financial Section for further details.

Significant Events

There were no significant events during 2016.

Differences in Actuarial Valuation Methods and Assumptions

- The actuarial valuation for funding purposes was performed as of December 31, 2016. The actuarial valuation for accounting and financial reporting purposes was performed as of December 31, 2015, and the total pension liability (TPL) was rolled forward to the measurement date as of December 31, 2016.

- Census data used for the actuarial valuation for funding purposes reflects membership data as of December 31, 2016, and the census data used for the actuarial valuation for accounting and financial reporting purposes reflects membership data as of December 31, 2015. Therefore, all summaries and schedules, regarding actuarial valuation results for funding purposes, shown in the Actuarial Section, reflect census data as of December 31, 2016.

- The actuarial valuation for funding purposes for the State Division used a discount rate of 7.50 percent as of December 31, 2015, and a discount rate of 7.25 percent as of December 31, 2016. The actuarial valuation for accounting and financial reporting purposes for the State Division used a discount rate of 7.50 percent and 5.26 percent as of December 31, 2015, and December 31, 2016, respectively.

- The actuarial valuation for funding purposes for the School Division used a discount rate of 7.50 percent as of December 31, 2015, and a discount rate of 7.25 percent as of December 31, 2016. The actuarial valuation for accounting and financial reporting purposes for the School Division used a discount rate of 7.50 percent and 5.26 percent as of December 31, 2015, and December 31, 2016, respectively.

- The actuarial valuation for funding purposes for the Judicial Division used a discount rate of 7.50 percent as of December 31, 2015, and a discount rate of 7.25 percent as of December 31, 2016. The actuarial valuation for accounting and financial reporting purposes for the Judicial Division used a discount rate of 5.73 percent and 5.18 percent as of December 31, 2015, and December 31, 2016, respectively.

- The actuarial valuation for funding purposes applies an asset valuation method that recognizes a four-year smoothed market value of assets for purposes of determining the UAAL. The actuarial valuation for accounting and financial reporting purposes applies the fair value of assets to determine the net pension liability.

- The actuarial valuation for funding purposes does not apply an AI assumption for members of the PERA benefit structure hired on or after January 1, 2007, in the determination of the AAL. Therefore, the ADC established by the funding valuation does not consider future increases for this member group and the assets attributable to the AIR are not included in the actuarial value of assets. A separate annual actuarial valuation is performed on the AIR to determine the applicable AI payable to eligible members after benefit commencement. AIR plan provisions are deemed substantively automatic, ad hoc cost-of-living adjustments. Liabilities associated with the AIR statutorily can never exceed available assets. As a result, the actuarial valuation for accounting and financial reporting purposes includes the balance of the AIR both in the plan assets, at fair value, and in the TPL of the applicable division.

- The actuarial valuation for funding purposes as of December 31, 2016, reflects the revised AED and SAED contribution structure for the Judicial Division under HB 17-1265 as described above. The actuarial valuation for accounting and financial reporting purposes does not reflect these scheduled increases in AED and SAED contributions as this legislation was passed into law after the December 31, 2016, measurement date.

DIVISION TRUST FUNDS—PENSION

Actuarial Assumptions: Exhibits A–I

Exhibit A: Separations from Employment Before Retirement and Individual Pay Increase Assumptions—State Division

	Percent of Members Separating Within the Next Year						Pay Increase Assumptions for an Individual Member		
	Ultimate Withdrawal[1]		Death[2]		Disability		Merit and Seniority	Inflation and Productivity	Total Increase (Next Year)
Sample Ages	Male	Female	Male	Female	Male	Female			
State Members *(Other Than State Troopers)*									
20	30.00%	20.00%	0.020%	0.008%	0.01%	0.01%	5.67%	3.50%	9.17%
25	10.00%	14.50%	0.024%	0.008%	0.01%	0.01%	3.75%	3.50%	7.25%
30	7.00%	10.00%	0.022%	0.010%	0.01%	0.01%	2.80%	3.50%	6.30%
35	6.00%	7.50%	0.026%	0.013%	0.03%	0.03%	2.05%	3.50%	5.55%
40	5.00%	6.75%	0.031%	0.018%	0.05%	0.05%	1.50%	3.50%	5.00%
45	4.25%	5.50%	0.048%	0.031%	0.09%	0.09%	0.85%	3.50%	4.35%
50	4.25%	5.25%	0.083%	0.051%	0.20%	0.20%	0.50%	3.50%	4.00%
55	4.25%	5.25%	0.137%	0.078%	0.27%	0.27%	0.10%	3.50%	3.60%
60	4.25%	5.25%	0.230%	0.113%	0.30%	0.30%	0.00%	3.50%	3.50%
65	4.25%	5.25%	0.406%	0.172%	0.30%	0.30%	0.00%	3.50%	3.50%
70	4.25%	5.25%	0.720%	0.299%	0.30%	0.30%	0.00%	3.50%	3.50%
State Troopers									
20	8.00%	8.00%	0.020%	0.008%	0.01%	0.01%	5.50%	3.50%	9.00%
25	6.00%	6.00%	0.024%	0.008%	0.02%	0.02%	3.75%	3.50%	7.25%
30	4.00%	4.00%	0.022%	0.010%	0.04%	0.04%	2.80%	3.50%	6.30%
35	3.75%	3.75%	0.026%	0.013%	0.06%	0.06%	2.05%	3.50%	5.55%
40	3.00%	3.00%	0.031%	0.018%	0.10%	0.10%	1.50%	3.50%	5.00%
45	3.00%	3.00%	0.048%	0.031%	0.25%	0.25%	1.20%	3.50%	4.70%
50	3.00%	3.00%	0.083%	0.051%	0.30%	0.30%	0.80%	3.50%	4.30%
55	3.00%	3.00%	0.137%	0.078%	0.30%	0.30%	0.40%	3.50%	3.90%
60	3.00%	3.00%	0.230%	0.113%	0.30%	0.30%	0.00%	3.50%	3.50%
65	3.00%	3.00%	0.406%	0.172%	0.30%	0.30%	0.00%	3.50%	3.50%
70	3.00%	3.00%	0.720%	0.299%	0.30%	0.30%	0.00%	3.50%	3.50%

[1] There are no select withdrawal assumptions for State Troopers.

[2] Rates are shown for active members. Separate post-retirement and disability mortality tables are used for retirees.

Exhibit B: Separations from Employment Before Retirement and Individual Pay Increase Assumptions—School Division and Denver Public Schools (DPS) Division—PERA Benefit Structure

	Percent of Members Separating Within the Next Year						Pay Increase Assumptions for an Individual Member		
	Ultimate Withdrawal		Death[1]		Disability		Merit and Seniority	Inflation and Productivity	Total Increase (Next Year)
Sample Ages	Male	Female	Male	Female	Male	Female			
20	20.00%	14.50%	0.020%	0.008%	0.01%	0.01%	6.20%	3.50%	9.70%
25	10.00%	12.00%	0.024%	0.008%	0.01%	0.01%	4.10%	3.50%	7.60%
30	6.50%	8.00%	0.022%	0.010%	0.01%	0.01%	2.95%	3.50%	6.45%
35	5.25%	6.50%	0.026%	0.013%	0.02%	0.02%	2.50%	3.50%	6.00%
40	4.25%	5.00%	0.031%	0.018%	0.04%	0.04%	1.95%	3.50%	5.45%
45	4.00%	5.00%	0.048%	0.031%	0.06%	0.06%	1.35%	3.50%	4.85%
50	4.00%	5.00%	0.083%	0.051%	0.09%	0.09%	0.80%	3.50%	4.30%
55	4.00%	5.00%	0.137%	0.078%	0.15%	0.15%	0.35%	3.50%	3.85%
60	4.00%	5.00%	0.230%	0.113%	0.21%	0.21%	0.00%	3.50%	3.50%
65	4.00%	5.00%	0.406%	0.172%	0.21%	0.21%	0.00%	3.50%	3.50%
70	4.00%	5.00%	0.720%	0.299%	0.21%	0.21%	0.00%	3.50%	3.50%

[1] Rates are shown for active members. Separate post-retirement and disability mortality tables are used for retirees.

DIVISION TRUST FUNDS—PENSION

Exhibit C: Separations from Employment Before Retirement and Individual Pay Increase Assumptions—Local Government Division

	Percent of Members Separating Within the Next Year						Pay Increase Assumptions for an Individual Member		
	Ultimate Withdrawal		Death[1]		Disability		Merit and	Inflation and	Total Increase
Sample Ages	Male	Female	Male	Female	Male	Female	Seniority	Productivity	(Next Year)
20	13.00%	16.00%	0.020%	0.008%	0.01%	0.01%	6.95%	3.50%	10.45%
25	12.00%	16.00%	0.024%	0.008%	0.01%	0.01%	4.30%	3.50%	7.80%
30	8.00%	11.00%	0.022%	0.010%	0.01%	0.01%	2.64%	3.50%	6.14%
35	6.00%	9.00%	0.026%	0.013%	0.03%	0.03%	1.72%	3.50%	5.22%
40	5.25%	6.50%	0.031%	0.018%	0.04%	0.04%	1.23%	3.50%	4.73%
45	4.50%	6.50%	0.048%	0.031%	0.11%	0.11%	0.99%	3.50%	4.49%
50	4.50%	6.00%	0.083%	0.051%	0.15%	0.15%	0.79%	3.50%	4.29%
55	4.50%	6.00%	0.137%	0.078%	0.17%	0.17%	0.60%	3.50%	4.10%
60	4.50%	6.00%	0.230%	0.113%	0.25%	0.25%	0.25%	3.50%	3.75%
65	4.50%	6.00%	0.406%	0.172%	0.25%	0.25%	0.00%	3.50%	3.50%
70	4.50%	6.00%	0.720%	0.299%	0.25%	0.25%	0.00%	3.50%	3.50%

[1] Rates are shown for active members. Separate post-retirement and disability mortality tables are used for retirees.

Exhibit D: Separations from Employment Before Retirement and Individual Pay Increase Assumptions—Judicial Division

	Percent of Members Separating Within the Next Year						Pay Increase Assumptions for an Individual Member		
	Withdrawal[1]		Death[2]		Disability		Merit and	Inflation and	Total Increase
Sample Ages	Male	Female	Male	Female	Male	Female	Seniority[3]	Productivity	(Next Year)
30	1.65%	1.65%	0.022%	0.010%	0.01%	0.01%	1.50%	3.50%	5.00%
35	1.65%	1.65%	0.026%	0.013%	0.02%	0.02%	1.50%	3.50%	5.00%
40	1.65%	1.65%	0.031%	0.018%	0.04%	0.04%	0.67%	3.50%	4.17%
45	1.65%	1.65%	0.048%	0.031%	0.08%	0.08%	0.50%	3.50%	4.00%
50	1.65%	1.65%	0.083%	0.051%	0.10%	0.10%	0.50%	3.50%	4.00%
55	1.65%	1.65%	0.137%	0.078%	0.20%	0.20%	0.50%	3.50%	4.00%
60	1.65%	1.65%	0.230%	0.113%	0.30%	0.30%	0.50%	3.50%	4.00%
65	1.65%	1.65%	0.406%	0.172%	0.30%	0.30%	0.50%	3.50%	4.00%
70	1.65%	1.65%	0.720%	0.299%	0.30%	0.30%	0.50%	3.50%	4.00%

[1] There are no select withdrawal assumptions for members in the Judicial Division.

[2] Rates are shown for active members. Separate post-retirement and disability mortality tables are used for retirees.

[3] Pay raises are subject to legislative approval. Percentages shown are based on prior experience.

Exhibit E: Separations from Employment Before Retirement and Individual Pay Increase Assumptions— All Division Trust Funds—DPS Benefit Structure

	Percent of Members Separating Within the Next Year						Pay Increase Assumptions for an Individual Member		
	Withdrawal[1]		Death[2]		Disability		Merit and	Inflation and	Total Increase
Sample Ages	Male	Female	Male	Female	Male	Female	Seniority	Productivity	(Next Year)
20	8.00%	10.00%	0.020%	0.008%	0.01%	0.01%	3.50%	3.50%	7.00%
25	8.00%	10.00%	0.024%	0.008%	0.01%	0.01%	3.50%	3.50%	7.00%
30	7.00%	9.00%	0.022%	0.010%	0.01%	0.01%	3.20%	3.50%	6.70%
35	7.00%	8.00%	0.026%	0.013%	0.02%	0.02%	2.76%	3.50%	6.26%
40	5.75%	6.50%	0.031%	0.018%	0.05%	0.05%	2.12%	3.50%	5.62%
45	5.00%	4.50%	0.048%	0.031%	0.09%	0.09%	1.34%	3.50%	4.84%
50	4.50%	4.50%	0.083%	0.051%	0.20%	0.20%	0.80%	3.50%	4.30%
55	4.25%	4.50%	0.137%	0.078%	0.24%	0.24%	0.42%	3.50%	3.92%
60	4.25%	4.50%	0.230%	0.113%	0.38%	0.38%	0.20%	3.50%	3.70%
65	4.25%	4.50%	0.406%	0.172%	0.40%	0.40%	0.00%	3.50%	3.50%
70	4.25%	4.50%	0.720%	0.299%	0.40%	0.40%	0.00%	3.50%	3.50%

[1] There are no select withdrawal assumptions for members in the DPS benefit structure.

[2] Rates are shown for active members. Separate post-retirement and disability mortality tables are used for retirees.

DIVISION TRUST FUNDS—PENSION

Exhibit F: Select Rates of Separation Assumptions—State Division, School and DPS Divisions, and Local Government Division

Percent of Members With Less Than Five Years of Service Withdrawing from Employment Next Year[1]

Completed	State Division		School and DPS Divisions[2]		Local Government Division	
Years of Service	Male	Female	Male	Female	Male	Female
0	41.5%	41.5%	37.0%	34.0%	41.0%	39.0%
1	20.5%	21.5%	21.0%	20.0%	24.0%	23.0%
2	14.5%	16.0%	16.0%	15.0%	17.0%	18.0%
3	11.5%	13.0%	12.0%	12.0%	12.0%	14.0%
4	9.5%	11.5%	11.0%	11.0%	10.0%	11.0%

[1] There are no select withdrawal assumptions for State Troopers or Judicial Division members.

[2] Rates shown are for PERA benefit structure members in the School or DPS Divisions. Effective December 31, 2016, a select withdrawal period is no longer applied to members in the DPS benefit structure.

Exhibit G: Percent of Members Eligible for Reduced Retirement Benefits Retiring Next Year

Retirement	State Division		State	School and DPS Divisions[1]		Local Government Division		Judicial	DPS Benefit Structure[2]	
Ages	Male	Female	Troopers	Male	Female	Male	Female	Division	Male	Female
50	9.5%	10.0%	10.0%	8.0%	8.0%	8.0%	9.0%	6.0%	8.0%	5.0%
51	9.5%	10.0%	10.0%	8.0%	8.0%	8.0%	9.0%	6.0%	8.0%	5.0%
52	9.5%	10.0%	10.0%	8.0%	8.0%	8.0%	9.0%	6.0%	8.0%	5.0%
53	9.5%	10.0%	10.0%	8.0%	8.0%	8.0%	9.0%	6.0%	8.0%	10.0%
54	9.5%	10.0%	10.0%	10.0%	10.0%	8.0%	9.0%	6.0%	11.0%	10.0%
55	9.5%	10.0%	5.0%	10.0%	10.0%	8.0%	12.0%	6.0%	11.0%	10.0%
56	9.5%	10.0%	5.0%	10.0%	11.0%	8.0%	12.0%	6.0%	11.0%	10.0%
57	9.5%	10.0%	5.0%	10.0%	11.0%	8.0%	12.0%	6.0%	11.0%	10.0%
58	9.5%	10.0%	5.0%	10.0%	11.0%	8.0%	12.0%	6.0%	11.0%	10.0%
59	9.5%	10.0%	5.0%	10.0%	11.0%	10.0%	11.5%	6.0%	15.0%	12.0%
60	9.5%	10.0%	10.0%	10.0%	11.0%	11.0%	11.5%	8.0%	15.0%	15.0%
61	9.5%	10.0%	10.0%	12.0%	11.0%	11.0%	11.5%	8.0%	17.0%	15.0%
62	9.5%	10.0%	10.0%	12.0%	11.0%	11.0%	11.5%	8.0%	17.0%	15.0%
63	9.5%	10.0%	10.0%	12.0%	11.0%	11.0%	11.5%	8.0%	17.0%	15.0%
64	9.5%	10.0%	10.0%	12.0%	11.0%	11.0%	11.5%	8.0%	17.0%	15.0%
65 and Over	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

[1] Rates shown are for PERA benefit structure members in the School or DPS Divisions.

[2] Rates shown are for DPS benefit structure members in any division.

DIVISION TRUST FUNDS—PENSION

Exhibit H: Percent of Members Eligible for Unreduced Retirement Benefits Retiring Next Year

Retirement	State Division		State	School and DPS Divisions[2]		Local Government Division		Judicial	DPS Benefit Structure[3]	
Ages	Male	Female	Troopers[1]	Male	Female	Male	Female	Division	Male	Female
50	60%	55%	40%	55%	60%	60%	60%	6%	40%	40%
51	50%	40%	32%	48%	54%	46%	52%	6%	40%	40%
52	42%	36%	32%	46%	48%	30%	40%	6%	35%	30%
53	38%	34%	32%	42%	42%	25%	40%	6%	35%	30%
54	32%	26%	32%	40%	40%	22%	40%	6%	30%	30%
55	25%	25%	32%	28%	29%	22%	28%	6%	30%	30%
56	20%	24%	32%	25%	25%	25%	30%	6%	20%	25%
57	20%	20%	32%	25%	25%	22%	21%	6%	24%	25%
58	18%	18%	32%	22%	22%	20%	21%	6%	22%	20%
59	20%	18%	32%	22%	22%	20%	21%	6%	25%	24%
60	20%	21%	32%	25%	25%	22%	21%	8%	22%	30%
61	18%	18%	32%	25%	24%	22%	20%	8%	20%	28%
62	22%	19%	32%	24%	27%	24%	27%	8%	25%	30%
63	20%	19%	32%	24%	24%	25%	22%	8%	40%	30%
64	20%	19%	32%	24%	24%	25%	22%	8%	20%	30%
65	24%	22%	100%	27%	26%	25%	25%	15%	30%	35%
66	26%	26%	100%	28%	28%	30%	25%	15%	30%	35%
67	25%	24%	100%	25%	25%	20%	30%	15%	30%	32%
68	22%	25%	100%	24%	22%	25%	20%	15%	30%	30%
69	22%	24%	100%	24%	22%	25%	20%	15%	30%	30%
70	25%	25%	100%	22%	25%	25%	24%	40%	30%	30%
71	25%	25%	100%	22%	23%	25%	24%	40%	30%	30%
72	25%	25%	100%	22%	23%	25%	24%	40%	30%	30%
73	25%	25%	100%	22%	23%	25%	24%	40%	30%	30%
74	25%	25%	100%	22%	23%	25%	24%	40%	30%	30%
75 and Over	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

[1] For State Troopers prior to age 50, it is assumed that 40 percent of the eligible members will retire at each age from age 45 through age 49.

[2] Rates shown are for PERA benefit structure members in the School or DPS Divisions.

[3] Rates shown are for DPS benefit structure members in any division.

DIVISION TRUST FUNDS—PENSION

Exhibit I: Rates of Post-Retirement Mortality and Single Life Retirement Values[1]

(In Actual Dollars)

MORTALITY ASSUMPTIONS—STATE AND LOCAL GOVERNMENT DIVISIONS

Sample	Percent of Retirees Deceasing Within the Next Year		Present Value of $1 Monthly for Life		Present Value of $1 Monthly Increasing 2.0% Annually		Future Life Expectancy in Years	
Attained Ages	Male	Female	Male	Female	Male	Female	Male	Female
40	0.031%	0.018%	$159.33	$161.37	$204.66	$208.57	43.92	46.29
45	0.048%	0.031%	154.77	157.53	196.08	200.96	39.00	41.34
50	0.297%	0.198%	148.50	152.23	185.30	191.34	34.11	36.41
55	0.458%	0.277%	142.13	146.36	174.39	180.92	29.67	31.80
60	0.635%	0.393%	134.41	138.72	161.84	168.30	25.40	27.26
65	0.831%	0.595%	124.54	128.88	146.83	153.16	21.22	22.84
70	1.185%	0.965%	111.83	116.53	128.84	135.42	17.14	18.59
75	1.830%	1.627%	95.82	101.49	107.74	115.19	13.21	14.58
80	3.824%	3.123%	76.84	84.09	84.36	93.22	9.59	10.92
85	7.940%	6.061%	59.12	66.51	63.54	72.11	6.77	7.89

MORTALITY ASSUMPTIONS—SCHOOL, DPS, AND JUDICIAL DIVISIONS

Sample	Percent of Retirees Deceasing Within the Next Year		Present Value of $1 Monthly for Life		Present Value of $1 Monthly Increasing 2.0% Annually		Future Life Expectancy in Years	
Attained Ages	Male	Female	Male	Female	Male	Female	Male	Female
40	0.031%	0.018%	$159.92	$162.72	$205.76	$211.31	44.51	48.05
45	0.048%	0.031%	155.60	159.46	197.50	204.49	39.58	43.10
50	0.257%	0.130%	149.69	154.97	187.12	195.88	34.70	38.18
55	0.397%	0.181%	143.43	149.57	176.29	185.98	30.19	33.44
60	0.544%	0.257%	135.67	142.39	163.61	173.77	25.83	28.76
65	0.728%	0.422%	125.61	132.99	148.31	158.96	21.55	24.18
70	1.117%	0.690%	112.71	120.96	130.04	141.33	17.38	19.74
75	1.849%	1.191%	96.88	105.82	109.11	120.67	13.44	15.50
80	3.630%	2.537%	78.48	87.79	86.27	97.70	9.84	11.59
85	7.332%	5.320%	60.30	69.46	64.83	75.54	6.91	8.34

[1] Rates are shown for healthy members. Separate disability mortality tables are used for disabled retirees.

DIVISION TRUST FUNDS—PENSION

Summary of Funding Progress

The PERA funding objective is to be able to pay long-term benefit promises through contributions that remain approximately level from year to year as a percent of covered payroll earned by PERA members. The information in this section provides an overview of funding progress:

- The solvency test shows the degree to which existing liabilities are funded, including prior history.
- A schedule of funding progress shows the UAAL as a percentage of annual covered payroll, including prior history.
- Schedules detailing actuarial gains and losses, by source, including prior history and a reconciliation of UAAL considering the total of all five Division Trust Funds, over the past five years.
- The scheduled contribution requirements for the year immediately following the reporting period, including any legislatively scheduled employer contribution increments, AED and SAED in future years.

Consideration of the plans' current funded ratio, the unfunded liabilities in relation to annual covered payroll, historic trends, including significant gains and losses, and the schedule of future contributions should provide sufficient information to appropriately measure funding progress.

Solvency Test

The solvency test is one means of checking PERA's funding progress. In this test, the retirement plan's valuation assets are compared with: (A) member contributions (with interest) on deposit, (B) the liabilities for future benefits to persons who have retired, died or become disabled, and to those who have terminated service with the right to a future benefit, and (C) the liabilities for service already rendered by active members. In a system that has been following the discipline of level contribution rate financing, the liabilities for member contributions on deposit (liability A) and the liabilities for future benefits to present retirees (liability B) are fully covered by present valuation assets, except in certain circumstances.

The actuarial valuation of December 31, 2016, shows that liability A is fully covered by PERA assets. In addition, the remainder of present valuation assets covers a large portion of the liabilities for future benefits to persons who have retired or terminated service with the right to a future benefit (liability B). Generally, if the system continues to use level contribution rate financing, the funded portion of liability B and C will increase over time.

DIVISION TRUST FUNDS—PENSION

SOLVENCY TEST

(Dollars in Thousands)

	Aggregate Accrued Liabilities				Portion of Actuarial Accrued Liabilities Covered by Valuation Assets		
Valuation Date	Active Member Contributions (A)[1]	Retirees, Beneficiaries, and Inactive Members (B)	Employer-Financed Portion of Active Members (C)	Valuation Assets	Liability (A)	Liability (B)	Liability (C)
State Division							
12/31/2007	$2,527,091	$12,118,948	$4,744,257	$14,220,681	100.0%	96.5%	0.0%
12/31/2008	2,566,620	12,999,235	4,932,813	13,914,371	100.0%	87.3%	0.0%
12/31/2009	2,568,287	12,660,958	4,747,972	13,382,736	100.0%	85.4%	0.0%
12/31/2010	2,569,046	13,149,658	4,637,472	12,791,946	100.0%	77.7%	0.0%
12/31/2011	2,629,640	13,710,393	4,486,510	12,010,045	100.0%	68.4%	0.0%
12/31/2012	2,668,942	14,191,469	4,331,084	12,538,675	100.0%	69.5%	0.0%
12/31/2013	2,675,469	15,296,368	4,871,888	13,129,460	100.0%	68.3%	0.0%
12/31/2014	2,688,514	15,846,200	4,873,607	13,523,488	100.0%	68.4%	0.0%
12/31/2015	2,685,014	16,470,370	4,930,287	13,882,820	100.0%	68.0%	0.0%
12/31/2016	**2,678,312**	**17,933,227**	**5,058,377**	**14,026,332**	**100.0%**	**63.3%**	**0.0%**
School Division							
12/31/2007	$3,596,453	$18,039,390	$7,605,585	$22,070,769	100.0%	100.0%	5.7%
12/31/2008	3,695,995	19,416,006	7,888,201	21,733,329	100.0%	92.9%	0.0%
12/31/2009	3,769,100	18,830,712	7,813,003	21,054,910	100.0%	91.8%	0.0%
12/31/2010	3,779,760	19,658,749	7,901,245	20,321,736	100.0%	84.1%	0.0%
12/31/2011	3,783,336	20,666,021	7,536,842	19,266,110	100.0%	74.9%	0.0%
12/31/2012	3,823,348	21,466,078	7,329,607	20,266,574	100.0%	76.6%	0.0%
12/31/2013	3,881,145	23,301,641	8,254,526	21,369,380	100.0%	75.1%	0.0%
12/31/2014	3,915,705	24,247,868	8,222,959	22,143,356	100.0%	75.2%	0.0%
12/31/2015	4,003,251	25,133,168	8,540,734	22,871,661	100.0%	75.1%	0.0%
12/31/2016	**4,108,961**	**27,922,423**	**9,321,584**	**23,263,344**	**100.0%**	**68.6%**	**0.0%**
Local Government Division							
12/31/2007	$661,272	$1,707,349	$1,194,578	$2,892,847	100.0%	100.0%	43.9%
12/31/2008	675,174	1,949,108	1,213,801	2,933,296	100.0%	100.0%	25.5%
12/31/2009	678,519	1,963,925	1,208,377	2,932,628	100.0%	100.0%	24.0%
12/31/2010	657,847	2,180,451	1,167,268	2,926,045	100.0%	100.0%	7.5%
12/31/2011	666,794	2,330,543	1,162,678	2,882,691	100.0%	95.1%	0.0%
12/31/2012	528,029	2,750,956	878,636	3,098,721	100.0%	93.4%	0.0%
12/31/2013	533,003	2,991,177	978,102	3,291,298	100.0%	92.2%	0.0%
12/31/2014	534,695	3,114,436	961,836	3,629,400	100.0%	99.4%	0.0%
12/31/2015	533,262	3,275,093	972,343	3,777,161	100.0%	99.0%	0.0%
12/31/2016	**545,507**	**3,573,344**	**1,094,201**	**3,879,197**	**100.0%**	**93.3%**	**0.0%**
Judicial Division							
12/31/2007	$49,445	$152,073	$62,692	$231,228	100.0%	100.0%	47.4%
12/31/2008	54,593	160,475	72,990	230,967	100.0%	100.0%	21.8%
12/31/2009	52,754	165,904	77,038	228,714	100.0%	100.0%	13.1%
12/31/2010	53,742	171,904	78,193	227,814	100.0%	100.0%	2.8%
12/31/2011	54,688	186,420	78,329	221,515	100.0%	89.5%	0.0%
12/31/2012	57,762	193,774	75,361	238,807	100.0%	93.4%	0.0%
12/31/2013	59,348	208,236	84,014	256,800	100.0%	94.8%	0.0%
12/31/2014	60,973	214,541	95,739	270,866	100.0%	97.8%	0.0%
12/31/2015	60,118	232,303	109,545	286,891	100.0%	97.6%	0.0%
12/31/2016	**58,119**	**273,416**	**115,582**	**297,888**	**100.0%**	**87.7%**	**0.0%**
DPS Division[2]							
12/31/2010	$317,442	$2,370,217	$645,155	$2,961,720	100.0%	100.0%	42.5%
12/31/2011	333,550	2,435,504	673,473	2,804,706	100.0%	100.0%	5.3%
12/31/2012	348,739	2,479,706	667,104	2,936,695	100.0%	100.0%	16.2%
12/31/2013	364,126	2,672,260	749,486	3,075,895	100.0%	100.0%	5.3%
12/31/2014	379,240	2,665,352	771,501	3,151,456	100.0%	100.0%	13.9%
12/31/2015	394,306	2,732,879	778,055	3,207,327	100.0%	100.0%	10.3%
12/31/2016	**402,849**	**2,999,767**	**843,814**	**3,220,935**	**100.0%**	**93.9%**	**0.0%**

Please see page 158 for footnote references.

DIVISION TRUST FUNDS—PENSION

SOLVENCY TEST (CONTINUED)

(Dollars in Thousands)

	Aggregate Accrued Liabilities				Portion of Actuarial Accrued Liabilities Covered by Valuation Assets		
Valuation Date	Active Member Contributions (A)[1]	Retirees, Beneficiaries, and Inactive Members (B)	Employer-Financed Portion of Active Members (C)	Valuation Assets	Liability (A)	Liability (B)	Liability (C)
All Division Trust Funds[3, 4]							
12/31/2007	$6,834,261	$32,017,760	$13,607,112	$39,415,525	100.0%	100.0%	4.1%
12/31/2008	6,992,382	34,524,824	14,107,805	38,811,963	100.0%	92.2%	0.0%
12/31/2009	7,068,660	33,621,499	13,846,390	37,598,988	100.0%	90.8%	0.0%
12/31/2010	7,377,837	37,530,979	14,429,333	39,229,261	100.0%	84.9%	0.0%
12/31/2011	7,468,008	39,328,881	13,937,832	37,185,067	100.0%	75.6%	0.0%
12/31/2012	7,426,820	41,081,983	13,281,792	39,079,472	100.0%	77.0%	0.0%
12/31/2013	7,513,091	44,469,682	14,938,016	41,122,833	100.0%	75.6%	0.0%
12/31/2014	7,579,127	46,088,397	14,925,642	42,718,566	100.0%	76.2%	0.0%
12/31/2015	7,675,951	47,843,813	15,330,964	44,025,860	100.0%	76.0%	0.0%
12/31/2016	**7,793,748**	**52,702,177**	**16,433,558**	**44,687,696**	**100.0%**	**70.0%**	**0.0%**

[1] Includes accrued interest on member contributions.

[2] The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of the Denver Public Schools Retirement System (DPSRS).

[3] Results prior to December 31, 2010, do not include the DPS Division.

[4] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

DIVISION TRUST FUNDS—PENSION

Unfunded Actuarial Accrued Liability

UAALs are the difference between actuarially calculated liabilities for service already rendered and the valuation assets of the retirement fund. It is common for unfunded liabilities to exist in a defined benefit retirement plan.

In 2015, the ratio of PERA's valuation assets to accrued liabilities was 62.1 percent and decreased to 58.1 percent by the end of 2016.

The following factors resulted in higher liabilities (or losses) to PERA during 2016:

- Reduction in the investment rate of return assumption and other changes in the underlying economic assumptions.
- Adoption of revised mortality tables to recognize extended member longevity.
- Lower investment returns than assumed in 2014, 2015, and 2016.
- Fewer members terminated PERA-covered employment and withdrew their accounts than expected.
- More service and disability retirements were experienced than expected.
- Current retirees are living longer than expected.
- Higher number of survivor benefits were granted than anticipated.
- New PERA members had some service resulting in accrued liabilities.
- Actual contributions were less than the determined ADC.

The following factors resulted in lower liabilities (or gains) during 2016:

- Changes to various demographic actuarial assumptions to recognize member behaviors.
- Higher investment return than assumed in 2013.
- Member pay increases were lower than expected.

Since 2000, PERA's funded ratio has declined from a high of 105.2 percent to the current funded status of 58.1 percent at the end of 2016. In response to the declining funded ratio, legislation was enacted in 2004 and 2006, with the specific purpose of strengthening PERA's future funded status. Among other cost-saving measures, the AED and the SAED were created and implemented. The 2008 global financial crisis further necessitated major pension reform. The enactment of SB 10-001 significantly affected benefit and eligibility provisions, the payment structure of AIs, and employer funding mechanisms with the intent to return PERA to a 100 percent funded ratio within the next 30 years.

Liabilities for members are based on service rendered toward their retirement benefits payable in the future. UAALs exist because liabilities for such service by members exceed assets currently on hand for such future benefits. The Solvency Test shows that benefits to all PERA retirees are funded at 70.0 percent.

Since inflation decreases the dollar's value, it is important to examine more than basic actuarial metrics and data when assessing the plan's financial status. The ratio of UAAL dollars divided by member salary dollars can provide a meaningful index. The lower the ratio, the greater is the strength of the system. Observation of this relative index over a period of years will give an indication of the financial strength of the system. The significant increase in this ratio for the periods 2008 through 2011 was primarily a result of the four-year smoothing of the large investment loss from 2008. The increase in this ratio for 2013 was predominantly attributable to the increase in liability due to the reduction in the investment rate of return assumption as well as the changes in the underlying economic assumptions effective for the December 31, 2013, actuarial valuation. The decrease in this ratio for 2014 and 2015 mainly is attributable to investment gains on the actuarial value of assets, reflecting the strong investment performance in 2012 and 2013, and changes to certain actuarial methods incorporated into the 2014 actuarial valuation as a result of the 2014 actuarial audit. This ratio again increased in 2016, which mainly was attributable to an increase in liability due to the reduction in the investment rate of return assumption and changes in the underlying economic assumptions as well as the adoption of revised mortality tables, effective for the December 31, 2016, actuarial valuation.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF FUNDING PROGRESS

(Dollars in Thousands)

(A) Valuation Date	(B) Actuarial Value of Plan Assets	(C) Actuarial Accrued Liabilities	(D) Unfunded Actuarial Accrued Liabilities (UAAL) (C) – (B)	(E) Funded Ratio (B)/(C)	(F) Annual Covered Payroll	(G) UAAL As a % of Covered Payroll (D)/(F)
State Division						
12/31/2007	$14,220,681	$19,390,296	$5,169,615	73.3%	$2,236,518	231.1%
12/31/2008	13,914,371	20,498,668	6,584,297	67.9%	2,371,639	277.6%
12/31/2009	13,382,736	19,977,217	6,594,481	67.0%	2,384,137	276.6%
12/31/2010	12,791,946	20,356,176	7,564,230	62.8%	2,392,080	316.2%
12/31/2011	12,010,045	20,826,543	8,816,498	57.7%	2,393,791	368.3%
12/31/2012	12,538,675	21,191,495	8,652,820	59.2%	2,384,934	362.8%
12/31/2013	13,129,460	22,843,725	9,714,265	57.5%	2,474,965	392.5%
12/31/2014	13,523,488	23,408,321	9,884,833	57.8%	2,564,670	385.4%
12/31/2015	13,882,820	24,085,671	10,202,851	57.6%	2,641,867	386.2%
12/31/2016	**14,026,332**	**25,669,916**	**11,643,584**	**54.6%**	**2,710,651**	**429.5%**
School Division						
12/31/2007	$22,070,769	$29,241,428	$7,170,659	75.5%	$3,618,258	198.2%
12/31/2008	21,733,329	31,000,202	9,266,873	70.1%	3,804,927	243.5%
12/31/2009	21,054,910	30,412,815	9,357,905	69.2%	3,922,175	238.6%
12/31/2010	20,321,736	31,339,754	11,018,018	64.8%	3,900,662	282.5%
12/31/2011	19,266,110	31,986,199	12,720,089	60.2%	3,821,603	332.8%
12/31/2012	20,266,574	32,619,033	12,352,459	62.1%	3,819,066	323.4%
12/31/2013	21,369,380	35,437,312	14,067,932	60.3%	3,938,650	357.2%
12/31/2014	22,143,356	36,386,532	14,243,176	60.9%	4,063,236	350.5%
12/31/2015	22,871,661	37,677,153	14,805,492	60.7%	4,235,290	349.6%
12/31/2016	**23,263,344**	**41,352,968**	**18,089,624**	**56.3%**	**4,349,320**	**415.9%**
Local Government Division						
12/31/2007	$2,892,847	$3,563,199	$670,352	81.2%	$680,442	98.5%
12/31/2008	2,933,296	3,838,083	904,787	76.4%	718,902	125.9%
12/31/2009	2,932,628	3,850,821	918,193	76.2%	705,097	130.2%
12/31/2010	2,926,045	4,005,566	1,079,521	73.0%	705,265	153.1%
12/31/2011	2,882,691	4,160,015	1,277,324	69.3%	718,169	177.9%
12/31/2012	3,098,721	4,157,621	1,058,900	74.5%	523,668	202.2%
12/31/2013	3,291,298	4,502,282	1,210,984	73.1%	529,003	228.9%
12/31/2014	3,629,400	4,610,967	981,567	78.7%	540,468	181.6%
12/31/2015	3,777,161	4,780,698	1,003,537	79.0%	561,518	178.7%
12/31/2016	**3,879,197**	**5,213,052**	**1,333,855**	**74.4%**	**608,223**	**219.3%**
Judicial Division						
12/31/2007	$231,228	$264,210	$32,982	87.5%	$31,150	105.9%
12/31/2008	230,967	288,058	57,091	80.2%	35,937	158.9%
12/31/2009	228,714	295,696	66,982	77.3%	37,583	178.2%
12/31/2010	227,814	303,839	76,025	75.0%	37,412	203.2%
12/31/2011	221,515	319,437	97,922	69.3%	39,033	250.9%
12/31/2012	238,807	326,897	88,090	73.1%	39,045	225.6%
12/31/2013	256,800	351,598	94,798	73.0%	39,942	237.3%
12/31/2014	270,866	371,253	100,387	73.0%	42,977	233.6%
12/31/2015	286,891	401,966	115,075	71.4%	46,870	245.5%
12/31/2016	**297,888**	**447,117**	**149,229**	**66.6%**	**48,700**	**306.4%**

Please see page 161 for footnote references.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF FUNDING PROGRESS (CONTINUED)

(Dollars in Thousands)

(A) Valuation Date	(B) Actuarial Value of Plan Assets	(C) Actuarial Accrued Liabilities	(D) Unfunded Actuarial Accrued Liabilities (UAAL) (C) – (B)	(E) Funded Ratio (B)/(C)	(F) Annual Covered Payroll	(G) UAAL As a % of Covered Payroll (D)/(F)
DPS Division[1]						
12/31/2010	$2,961,720	$3,332,814	$371,094	88.9%	$470,774	78.8%
12/31/2011	2,804,706	3,442,527	637,821	81.5%	491,646	129.7%
12/31/2012	2,936,695	3,495,549	558,854	84.0%	510,872	109.4%
12/31/2013	3,075,895	3,785,872	709,977	81.2%	547,660	129.6%
12/31/2014	3,151,456	3,816,093	664,637	82.6%	584,319	113.7%
12/31/2015	3,207,327	3,905,240	697,913	82.1%	621,115	112.4%
12/31/2016	**3,220,935**	**4,246,430**	**1,025,495**	**75.9%**	**642,177**	**159.7%**
All Division Trust Funds[2, 3]						
12/31/2007	$39,415,525	$52,459,133	$13,043,608	75.1%	$6,566,368	198.6%
12/31/2008	38,811,963	55,625,011	16,813,048	69.8%	6,931,405	242.6%
12/31/2009	37,598,988	54,536,549	16,937,561	68.9%	7,048,992	240.3%
12/31/2010	39,229,261	59,338,149	20,108,888	66.1%	7,506,193	267.9%
12/31/2011	37,185,067	60,734,721	23,549,654	61.2%	7,464,242	315.5%
12/31/2012	39,079,472	61,790,595	22,711,123	63.2%	7,277,585	312.1%
12/31/2013	41,122,833	66,920,789	25,797,956	61.5%	7,530,220	342.6%
12/31/2014	42,718,566	68,593,166	25,874,600	62.3%	7,795,670	331.9%
12/31/2015	44,025,860	70,850,728	26,824,868	62.1%	8,106,660	330.9%
12/31/2016	**44,687,696**	**76,929,483**	**32,241,787**	**58.1%**	**8,359,071**	**385.7%**

[1] The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of DPSRS.

[2] Results prior to December 31, 2010, do not include the DPS Division.

[3] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

Note: For a history of contributions by Division Trust Fund, the actuarially determined contribution compared to the actual employer contributions paid, including the deficiency (or excess), for each of the last ten years, is shown in the Schedule of Employer Contributions, found on pages 103–105, in the Required Supplementary Information (RSI) in the Financial Section.

DIVISION TRUST FUNDS—PENSION

Actuarial Gains and Losses

ANALYSIS OF FINANCIAL EXPERIENCE
(Dollars in Millions)

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Amounts					
From differences between assumed and actual experience on liabilities					
Age and service retirements[1]	$45.1	$68.3	$9.9	$2.1	$13.6
Disability retirements[2]	10.8	8.3	1.9	(0.1)	1.4
Deaths[3]	11.4	72.3	(1.8)	1.3	(3.3)
Withdrawals[4]	64.0	136.3	21.5	0.5	(16.4)
New members[5]	75.5	85.8	18.8	2.4	30.5
Pay increases[6]	(97.9)	(210.4)	25.1	2.1	6.1
Other[7]	26.8	46.5	3.7	0.6	(9.4)
Subtotal	135.7	207.1	79.1	8.9	22.5
From differences between assumed and actual experience on assets	72.7	121.6	24.3	1.8	15.9
From changes in plan assumptions and methods	956.7	2,521.6	218.8	21.3	228.9
From changes in plan provisions	—	—	—	—	—
Total actuarial (gains)/losses on 2016 activities	**$1,165.1**	**$2,850.3**	**$322.2**	**$32.0**	**$267.3**
Total actuarial (gains)/losses on 2015 activities	**($15.2)**	**$70.2**	**$3.3**	**$10.4**	**($40.9)**

[1] *Age and service retirements:* If members retire at older ages than assumed, there is a gain. If members retire at younger ages than assumed, there is a loss.

[2] *Disability retirements:* If disability claims are lower than assumed, there is a gain. If disability claims are higher than assumed, there is a loss.

[3] *Deaths:* If survivor claims are lower than assumed, there is a gain. If survivor claims are higher than assumed, there is a loss. If retirees die sooner than assumed, there is a gain. If retirees live longer than assumed, there is a loss.

[4] *Withdrawal from employment:* If more members terminate and more liabilities are released by withdrawals than assumed, there is a gain. If fewer liabilities are released by terminations than assumed, there is a loss.

[5] *New members:* If new members entering the plan have prior service, there is a loss.

[6] *Pay increases:* If there are smaller salary increases than assumed, there is a gain. If greater salary increases occur than assumed, there is a loss.

[7] *Other:* Miscellaneous gains and losses result from changes in the actuary's valuation software, data adjustments, timing of financial transactions, etc.

DIVISION TRUST FUNDS—PENSION

The table below identifies the components that contributed to the growth in the underfunded status of the Division Trust Funds for the period 2012 to 2016.

SCHEDULE OF GAINS AND LOSSES IN ACCRUED LIABILITIES AND RECONCILIATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES

(Dollars in Millions)

	$ (Gain) or Loss for Years Ended December 31					
Type of Activity	2012	2013	2014	2015	2016	2012–2016
UAAL beginning of year	$23,549.6	$22,711.2	$25,798.0	$25,874.6	**$26,824.9**	$23,549.6
Experience (gains) and losses						
Age and service retirements	49.0	32.7	180.4	132.1	**139.0**	533.2
Disability retirements	(9.9)	24.2	23.9	22.7	**22.3**	83.2
Deaths	5.2	70.4	67.1	68.5	**79.9**	291.1
Withdrawal from employment	(44.1)	122.4	204.1	172.7	**205.9**	661.0
New members	160.0	215.3	176.0	149.9	**213.0**	914.2
Pay increases	(385.3)	(230.2)	(52.6)	(64.4)	**(275.0)**	(1,007.5)[1]
Investment income	(1,062.4)	(1,139.1)	(579.1)	(418.0)	**236.3**	(2,962.3)[2]
Other	68.6	(11.4)	(52.0)	(35.7)	**68.2**	37.7
Experience (gain)/loss during year	(1,218.9)	(915.7)	(32.2)	27.8	**689.6**	(1,449.4)
Non-recurring items						
Change in plan assumptions and methods	(663.7)	3,140.3[3]	(636.9)	—	**3,947.3[4]**	5,787.0
Change in plan provisions	—	—	—	—	—	—
Non-recurring items	(663.7)	3,140.3	(636.9)	—	**3,947.3**	5,787.0
Contribution deficiency	157.3	301.7	55.3	380.9	**249.6**	1,144.8[5]
Expected change in UAAL	886.9	560.5	690.4	541.6	**530.4**	3,209.8[6]
Total (gain)/loss for year	**(838.4)**	**3,086.8**	**76.6**	**950.3**	**5,416.9**	**8,692.2**
UAAL end of year	**$22,711.2**	**$25,798.0**	**$25,874.6**	**$26,824.9**	**$32,241.8**	**$32,241.8**

The previous schedule shows where gains and losses occurred over the five-year period compared to what was expected or assumed. These include the following significant gains and losses:

[1] $1.0 billion cumulative gain due to lower pay increases than expected.

[2] $3.0 billion cumulative gain due to the higher than assumed investment returns.

[3] $3.1 billion loss, in 2013, primarily due to the reduction of the long-term expected investment rate of return assumption from 8.00 percent to 7.50 percent.

[4] $3.9 billion loss, in 2016, primarily due to the reduction of the long-term expected investment rate of return assumption from 7.50 percent to 7.25 percent and the adoption of revised mortality tables to recognize extended member longevity.

[5] $1.1 billion cumulative loss resulting from contribution deficiencies; occurring when actual contributions flowing into the plans are less than the determined ADC (previous to 2014, GASB's annual required contribution).

[6] $3.2 billion cumulative loss indicating the five-year difference between each prior year's UAAL and the expected current year UAAL considering the normal cost earned, less the required employer contributions all of which is adjusted for interest.

DIVISION TRUST FUNDS—PENSION

Actuarial Valuation Results

Contribution rates for the year ending December 31, 2018, are derived from the results of the December 31, 2016, annual actuarial valuation and are determined in advance for purposes of budgeting and consideration of any necessary legislative action.

SCHEDULE OF COMPUTED EMPLOYER CONTRIBUTION RATES FOR THE 2018 FISCAL YEAR

	Expressed as a Percentage of Covered Payroll				
	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Contributions					
Service retirement benefits	7.45%	8.75%	6.99%	15.66%	8.81%
Disability retirement benefits	0.38%	0.24%	0.28%	0.78%	0.32%
Survivor benefits	0.16%	0.13%	0.16%	0.51%	0.13%
Termination withdrawals	1.66%	1.90%	1.65%	1.05%	1.87%
Refunds	0.82%	0.80%	0.88%	0.10%[1]	1.36%
Administrative expense load	0.40%	0.40%	0.40%	0.40%	0.40%
Total normal cost	10.87%	12.22%	10.36%	18.50%	12.89%
Less member contributions	(8.05%)[2]	(8.00%)	(8.00%)	(8.00%)	(8.00%)
Employer normal cost	**2.82%**	**4.22%**	**2.36%**	**10.50%**	**4.89%**
Percentage available to amortize unfunded actuarial accrued liabilities	15.89%	14.49%	9.80%	5.48%	0.00%
Amortization period	65 years	128 years	42 years	Infinite	Infinite
Total employer contribution rate for actuarially funded benefits	10.22%[2]	10.15%	10.00%	13.66%	10.15%
Amortization Equalization Disbursement	5.00%	4.50%	2.20%	2.20%	4.50%
Supplemental Amortization Equalization Disbursement	5.00%	5.50%	1.50%	1.50%	5.50%
Less Health Care Trust Fund	(1.02%)	(1.02%)	(1.02%)	(1.02%)	(1.02%)
Less Annual Increase Reserve	(0.49%)	(0.42%)	(0.52%)	(0.36%)	(0.59%)
Less PCOP Credit	—	—	—	—	(14.70%)[3]
Employer contribution rate for defined benefit plan	**18.71%**	**18.71%**	**12.16%**	**15.98%**	**3.84%**

[1] Assumes no judge will elect a refund of contributions made for the 17th through the 20th year of service.

[2] Weighted average of more than one statutory rate.

[3] An offset to the DPS Division rate is provided for under C.R.S. § 24-51-412. See Note 4 of the Notes to the Financial Statements in the Financial Section.

The AED and SAED are set to increase in future years as shown below. With the passage of SB 10-001, the AED and the SAED can be adjusted based on the year-end funded status within a particular Division Trust Fund. If a particular Division Trust Fund reaches a funded status of 103 percent, a decrease in the AED and SAED is mandated and if it subsequently falls below a funded status of 90 percent, an increase is mandated. For the Local Government and Judicial Divisions, if the funded ratio reaches 90 percent and subsequently falls below 90 percent, an increase in the AED and SAED is mandated. Increases cannot exceed the maximum allowable limitations shown below.

FUTURE AED AND SAED RATES

	State Division Trust Fund		School Division Trust Fund		Local Government Division Trust Fund		Judicial Division Trust Fund		DPS Division Trust Fund[1]	
Period	AED	SAED	AED	SAED	AED	SAED	AED	SAED	AED	SAED
1/1/2018 — 12/31/2018	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	2.20%	1.50%	4.50%	5.50%
1/1/2019 — 12/31/2019	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	3.40%	3.40%	4.50%	5.50%
1/1/2020 — 12/31/2020	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	3.80%	3.80%	4.50%	5.50%
1/1/2021 — 12/31/2021	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	4.20%	4.20%	4.50%	5.50%
1/1/2022 — 12/31/2022	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	4.60%	4.60%	4.50%	5.50%
1/1/2023 — 12/31/2023	5.00%	5.00%	4.50%	5.50%	2.20%	1.50%	5.00%	5.00%	4.50%	5.50%
Maximum allowable limitations	5.00%	5.00%	4.50%	5.50%	5.00%	5.00%	5.00%	5.00%	4.50%	5.50%

[1] DPS Division employers are permitted to reduce the AED and SAED by the PCOP offset, as specified in C.R.S. § 24-51-412 *et seq.*

Note: For a history of contributions by Division Trust Fund, the actuarially determined contribution compared to the actual employer contributions paid, including the deficiency (or excess), for each of the last ten years, is shown in the Schedule of Employer Contributions, found on pages 103–105, in the RSI in the Financial Section.

DIVISION TRUST FUNDS—PENSION

Annual Actuarial Valuation Statistics

As of December 31, 2016, the Funded Ratio, the UAAL, the ADC for 2018 as a percentage of covered payroll, and the amortization period considering current funding and future increases of the AED and the SAED, for each Division Trust Fund, are shown in the following table. The results in this table are based on the actuarial valuation for funding purposes, which does not consider the impact of reduced benefits for those hired in the future as provided for in Colorado law.

ACTUARIAL STATISTICS
(Dollars in Thousands)

Trust Fund	Funded Ratio	UAAL	ADC[1]	Amortization Period Considering Future AED and SAED Increases
State Division	54.6%	$11,643,584	26.30%	65 Years
School Division	56.3%	18,089,624	26.80%	128 Years
Local Government Division	74.4%	1,333,855	14.27%	42 Years
Judicial Division	66.6%	149,229	27.26%	Infinite
DPS Division	75.9%	1,025,495	13.50%	Infinite
All Division Trust Funds[2]		$32,241,787		

[1] Determined considering the 30-year target amortization period defined in the revised pension funding policy, adopted March 20, 2015, for purposes of funding benchmarks and RSI reporting as shown in the Financial Section.

[2] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

Pursuant to the pension funding policy revised March 20, 2015, for reporting purposes, alternative ADCs also are determined by applying the layered amortization methodology as previously described. Under the target and alternative calculations, the legacy UAAL as of December 31, 2014, was amortized using a 30-year period, but the alternative ADCs use a 25-year closed period, a 20-year closed period, and a 15-year closed period, in lieu of the 30-year period, for amortization of any "new" UAAL recognized on and after January 1, 2015. The 2018 target and alternative ADCs, by division, are displayed below:

	Target ADC	Alternative ADCs		
Trust Fund	30-Year[1]	25-Year[2]	20-Year[2]	15-Year[2]
State Division	26.30%	26.56%	26.95%	27.62%
School Division	26.80%	27.21%	27.84%	28.91%
Local Government Division	14.27%	14.57%	15.04%	15.83%
Judicial Division	27.26%	27.76%	28.53%	29.86%
DPS Division	13.50%	13.70%	14.00%	14.50%

[1] Refers to the amortization period used to amortize the legacy UAAL as of December 31, 2014, and any "new" UAAL recognized on and after January 1, 2015.

[2] Refers to the amortization period used to amortize any "new" UAAL recognized on and after January 1, 2015.

Funded Ratio

(Dollars in Thousands)

The funded ratio for the plan is determined by dividing the actuarial value of assets by the AAL. The actuarial value of assets is not the current market value but a market-related value, which recognizes the differences between actual and expected investment experience for each year in equal amounts over a four-year period. The actuarial value of the assets as of December 31, 2016, was $44,687,696 compared to a market value of assets of $43,148,650, and to the AAL of $76,929,483. The funded ratio for each of the funds, based on the actuarial value of assets, at December 31 for each of the last five years is shown below.

Trust Fund	2012	2013	2014	2015	2016
State Division	59.2%	57.5%	57.8%	57.6%	**54.6%**
School Division	62.1%	60.3%	60.9%	60.7%	**56.3%**
Local Government Division	74.5%	73.1%	78.7%	79.0%	**74.4%**
Judicial Division	73.1%	73.0%	73.0%	71.4%	**66.6%**
DPS Division	84.0%	81.2%	82.6%	82.1%	**75.9%**
All Division Trust Funds[1]	63.2%	61.5%	62.3%	62.1%	**58.1%**

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

DIVISION TRUST FUNDS—PENSION

The Board's pension funding policy, revised as of March 20, 2015, states that the targeted actuarial funded ratio is greater than or equal to 110 percent on a combined division trust fund basis. The funded ratios listed on the previous page give an indication of progress made toward achieving the stated objective. A larger funded ratio indicates that a plan is better funded. As an example, for every $1.00 of the actuarially determined benefits earned for the School Division Trust Fund as of December 31, 2016, approximately $0.56 of assets are available for payment based on the actuarial value of assets. These benefits earned will be payable over the life span of members after their retirement and therefore, it is not imperative that the AAL equal the actuarial value of assets at any given moment in time.

At December 31, 2016, and December 31, 2015, PERA had the following funded status for all of its Division Trust Funds.

FUNDED STATUS FOR THE DIVISION TRUST FUNDS

(Dollars in Thousands)

	Market Value of Assets[1]		Actuarial Value of Assets[2]	
	12/31/2015	12/31/2016	12/31/2015	12/31/2016
State Division Trust Fund				
Actuarial accrued liability[3]	$24,085,671	**$25,669,916**	$24,085,671	**$25,669,916**
Assets held to pay those liabilities	13,391,398	**13,538,772**	13,882,820	**14,026,332**
Unfunded actuarial accrued liability	**$10,694,273**	**$12,131,144**	**$10,202,851**	**$11,643,584**
Funded ratio	55.6%	**52.7%**	57.6%	**54.6%**
School Division Trust Fund				
Actuarial accrued liability[3]	$37,677,153	**$41,352,968**	$37,677,153	**$41,352,968**
Assets held to pay those liabilities	22,062,124	**22,465,388**	22,871,661	**23,263,344**
Unfunded actuarial accrued liability	**$15,615,029**	**$18,887,580**	**$14,805,492**	**$18,089,624**
Funded ratio	58.6%	**54.3%**	60.7%	**56.3%**
Local Government Division Trust Fund				
Actuarial accrued liability[3]	$4,780,698	**$5,213,052**	$4,780,698	**$5,213,052**
Assets held to pay those liabilities	3,639,914	**3,748,369**	3,777,161	**3,879,197**
Unfunded actuarial accrued liability	**$1,140,784**	**$1,464,683**	**$1,003,537**	**$1,333,855**
Funded ratio	76.1%	**71.9%**	79.0%	**74.4%**
Judicial Division Trust Fund				
Actuarial accrued liability[3]	$401,966	**$447,117**	$401,966	**$447,117**
Assets held to pay those liabilities	276,563	**287,888**	286,891	**297,888**
Unfunded actuarial accrued liability	**$125,403**	**$159,229**	**$115,075**	**$149,229**
Funded ratio	68.8%	**64.4%**	71.4%	**66.6%**
DPS Division Trust Fund				
Actuarial accrued liability[3]	$3,905,240	**$4,246,430**	$3,905,240	**$4,246,430**
Assets held to pay those liabilities	3,094,339	**3,108,233**	3,207,327	**3,220,935**
Unfunded actuarial accrued liability	**$810,901**	**$1,138,197**	**$697,913**	**$1,025,495**
Funded ratio	79.2%	**73.2%**	82.1%	**75.9%**
All Division Trust Funds[4]				
Actuarial accrued liability[3]	$70,850,728	**$76,929,483**	$70,850,728	**$76,929,483**
Assets held to pay those liabilities[5]	42,464,338	**43,148,650**	44,025,860	**44,687,696**
Unfunded actuarial accrued liability	**$28,386,390**	**$33,780,833**	**$26,824,868**	**$32,241,787**
Funded ratio	59.9%	**56.1%**	62.1%	**58.1%**

[1] The market value of assets is the fair value of the investments.

[2] The actuarial value of assets is calculated by spreading any market gains or losses above or below the assumed rate of return over four years.

[3] Based upon an assumed rate of return on investments of 7.50 percent and an assumed rate of 7.50 percent to discount the liabilities to be paid in the future to a value as of December 31, 2015, and an assumed rate of return on investments of 7.25 percent and an assumed rate of 7.25 percent to discount the liabilities to be paid in the future to a value as of December 31, 2016.

[4] The data in this table is aggregated for information purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

[5] In aggregate, the market value of the assets as of December 31, 2016, is $1,539,046 less than the actuarial value of assets calculated by the actuaries, as they are recognizing the gains and losses in value over four years, rather than only in the year they occurred. The remaining gains and (losses) to be smoothed for 2014 are ($187,745), for 2015 are ($1,278,820), and for 2016 are ($72,481).

DIVISION TRUST FUNDS—PENSION

Sensitivity of Actuarial Valuation to Changes in Assumed Investment Rate of Return and Discount Rate

The most important long-term driver of a pension plan is investment income. The investment return assumption and the discount rate for liabilities should be based on an estimated long-term investment yield for the plan, considering the nature and mix of current and expected plan investments and the basis used to determine the actuarial value of assets.

To understand the importance of the investment rate of return, which is used to discount the actuarial liabilities of PERA, a one and one-half, and one-half percent fluctuation in the investment rate of return and discount rate would change the funded ratio, UAAL, and ADC (for contributions for the fiscal year ended December 31, 2018) as shown on the tables below and on the next page.

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 5.75 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ADC	UAAL
State Division	46.1%	$16,417,785	34.57%	$16,905,344
School Division	46.9%	26,292,017	36.65%	27,089,973
Local Government Division	62.0%	2,377,308	23.88%	2,508,135
Judicial Division	56.9%	226,088	38.21%	236,088
DPS Division	63.7%	1,837,160	22.69%	1,949,863
All Division Trust Funds[1]		$47,150,358		$48,689,403

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 6.75 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ADC	UAAL
State Division	51.7%	$13,089,135	28.89%	$13,576,695
School Division	53.1%	20,562,190	29.85%	21,360,146
Local Government Division	70.2%	1,648,373	17.32%	1,779,201
Judicial Division	63.3%	172,862	30.72%	182,862
DPS Division	71.7%	1,269,768	16.33%	1,382,470
All Division Trust Funds[1]		$36,742,328		$38,281,374

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

CURRENT INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 7.25 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ADC	UAAL
State Division	**54.6%**	**$11,643,584**	**26.30%**	**$12,131,144**
School Division	**56.3%**	**18,089,624**	**26.80%**	**18,887,580**
Local Government Division	**74.4%**	**1,333,855**	**14.27%**	**1,464,683**
Judicial Division	**66.6%**	**149,229**	**27.26%**	**159,229**
DPS Division	**75.9%**	**1,025,495**	**13.50%**	**1,138,197**
All Division Trust Funds[1]		$32,241,787		$33,780,833

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

DIVISION TRUST FUNDS—PENSION

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 7.75 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ADC	UAAL
State Division	57.6%	$10,322,805	23.86%	$10,810,364
School Division	59.5%	15,839,296	23.94%	16,637,252
Local Government Division	78.7%	1,047,696	11.35%	1,178,524
Judicial Division	70.1%	127,348	23.93%	137,348
DPS Division	80.0%	803,506	10.85%	916,208
All Division Trust Funds[1]		**$28,140,651**		**$29,679,696**

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 8.75 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ADC	UAAL
State Division	63.7%	$8,003,974	19.24%	$8,491,533
School Division	66.1%	11,911,088	18.61%	12,709,044
Local Government Division	87.6%	548,314	5.75%	679,141
Judicial Division	77.1%	88,260	17.66%	98,260
DPS Division	88.5%	416,595	5.95%	529,297
All Division Trust Funds[1]		**$20,968,231**		**$22,507,275**

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

Note: The time-weighted, net-of-fees annualized rate of return for the pooled investment assets was 8.5 percent for the past five years and 5.2 percent for the past 10 years. The 35-year annualized gross-of-fees rate of return for the pooled investment assets was 9.8 percent.

DIVISION TRUST FUNDS—PENSION

Plan Data

SCHEDULE OF RETIREES, BENEFICIARIES, AND SURVIVORS ADDED TO AND REMOVED FROM THE BENEFIT PAYROLL

(In Actual Dollars)

	Added to Payroll		Removed from Payroll		Payroll—End of Year		Average	Increase
Valuation Date	No.[1]	Annual Benefits	No.[1]	Annual Benefits	No.[1]	Annual Benefits	Average Annual Benefits	Increase in Average Benefits
State Division[2]								
12/31/2007					29,648	$947,151,132	$31,947	—
12/31/2008	1,579	$56,570,160	713	$13,388,088	30,514	1,020,023,424	33,428	4.6%
12/31/2009	1,550	58,001,148	734	16,212,468	31,330	1,095,394,056	34,963	4.6%
12/31/2010	1,705	63,012,492	668	15,870,416	32,367	1,142,735,232	35,306	1.0%
12/31/2011	1,477	52,575,840	767	18,206,208	33,077	1,198,047,252	36,220	2.6%
12/31/2012	1,753	60,313,800	835	17,053,956	33,995	1,259,715,132	37,056	2.3%
12/31/2013	1,472	49,314,648	621	15,343,872	34,846	1,316,530,332	37,781	2.0%
12/31/2014	1,688	70,625,718	728	17,912,280	35,806	1,369,243,770	38,241	1.2%
12/31/2015	1,862	92,808,306	803	20,891,508	36,865	1,441,160,568	39,093	2.2%
12/31/2016	**1,953**	**90,963,480**	**805**	**22,828,296**	**38,013**	**1,509,295,752**	**39,705**	**1.6%**
School Division[2]								
12/31/2007					43,886	$1,371,661,740	$31,255	—
12/31/2008	2,663	$84,572,232	795	$14,103,468	45,754	1,487,330,100	32,507	4.0%
12/31/2009	2,432	75,857,232	727	14,333,928	47,459	1,599,048,372	33,693	3.6%
12/31/2010	3,002	94,587,504	717	15,977,299	49,744	1,677,950,928	33,732	0.1%
12/31/2011	2,783	83,582,412	809	17,059,212	51,718	1,776,539,052	34,350	1.8%
12/31/2012	3,044	87,700,656	985	18,719,640	53,777	1,876,340,508	34,891	1.6%
12/31/2013	2,744	79,704,816	713	17,081,472	55,808	1,974,615,348	35,382	1.4%
12/31/2014	3,016	111,392,724	843	19,419,540	57,981	2,066,588,532	35,643	0.7%
12/31/2015	2,990	130,162,524	1,027	23,409,984	59,944	2,173,341,072	36,256	1.7%
12/31/2016	**3,023**	**123,292,224**	**1,027**	**25,461,636**	**61,940**	**2,271,171,660**	**36,667**	**1.1%**
Local Government Division[2]								
12/31/2007					4,088	$122,322,048	$29,922	—
12/31/2008	367	$14,246,328	82	$1,380,000	4,373	139,012,452	31,789	6.2%
12/31/2009	373	12,911,052	75	1,444,056	4,671	154,915,224	33,165	4.3%
12/31/2010	463	18,211,380	82	1,560,317	5,052	171,596,184	33,966	2.4%
12/31/2011	332	11,254,980	88	1,645,992	5,296	184,500,768	34,838	2.6%
12/31/2012	687	23,576,376	105	1,892,688	5,878	209,260,764	35,601	2.2%
12/31/2013	345	10,330,380	76	1,456,248	6,147	221,838,300	36,089	1.4%
12/31/2014	392	13,412,585	93	2,018,928	6,446	233,231,957	36,182	0.3%
12/31/2015	408	18,760,927	97	2,215,488	6,757	249,777,396	36,966	2.2%
12/31/2016	**388**	**15,843,636**	**100**	**2,491,764**	**7,045**	**263,129,268**	**37,350**	**1.0%**
Judicial Division[2]								
12/31/2007					277	$12,786,492	$46,161	—
12/31/2008	7	$543,828	3	$105,720	281	13,659,096	48,609	5.3%
12/31/2009	19	1,376,436	9	189,624	291	15,290,100	52,543	8.1%
12/31/2010	10	876,804	8	234,040	293	15,935,640	54,388	3.5%
12/31/2011	21	1,224,480	3	103,752	311	17,320,980	55,694	2.4%
12/31/2012	19	1,089,288	11	337,308	319	18,331,992	57,467	3.2%
12/31/2013	9	740,508	6	156,468	322	19,219,128	59,687	3.9%
12/31/2014	16	1,068,823	8	368,520	330	19,919,431	60,362	1.1%
12/31/2015	20	2,111,405	6	323,940	344	21,706,896	63,101	4.5%
12/31/2016	**28**	**2,406,072**	**12**	**287,580**	**360**	**23,825,388**	**66,182**	**4.9%**
DPS Division[2, 3]								
12/31/2010	6,199	$216,886,500	—	$—	6,199	$216,886,500	$34,987	—
12/31/2011	252	7,977,360	155	4,143,396	6,296	224,954,832	35,730	2.1%
12/31/2012	274	8,333,292	168	3,949,860	6,402	232,858,044	36,373	1.8%
12/31/2013	284	9,255,936	135	3,704,628	6,551	242,733,072	37,053	1.9%
12/31/2014	306	12,537,532	171	5,065,860	6,686	250,204,744	37,422	1.0%
12/31/2015	295	14,799,992	178	5,884,980	6,803	259,119,756	38,089	1.8%
12/31/2016	**322**	**14,412,348**	**190**	**5,854,992**	**6,935**	**267,677,112**	**38,598**	**1.3%**

Please see page 170 for footnote references.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF RETIREES, BENEFICIARIES, AND SURVIVORS ADDED TO AND REMOVED FROM THE BENEFIT PAYROLL (CONTINUED)

(In Actual Dollars)

	Added to Payroll		Removed from Payroll		Payroll—End of Year		Average	Increase
Valuation Date	No.[1]	Annual Benefits	No.[1]	Annual Benefits	No.[1]	Annual Benefits	Annual Benefits	in Average Benefits
All Division Trust Funds[2, 4]								
12/31/2007					77,899	$2,453,921,412	$31,501	—
12/31/2008	4,616	$155,932,548	1,593	$28,977,276	80,922	2,660,025,072	32,871	4.3%
12/31/2009	4,374	148,145,868	1,545	32,180,076	83,751	2,864,647,752	34,204	4.1%
12/31/2010	11,379[5]	393,574,680	1,475	33,642,072	93,655[5]	3,225,104,484	34,436	0.7%
12/31/2011	4,865	156,615,072	1,822	41,158,560	96,698	3,401,362,884	35,175	2.1%
12/31/2012	5,777	181,013,412	2,104	41,953,452	100,371	3,596,506,440	35,832	1.9%
12/31/2013	4,854	149,346,288	1,551	37,742,688	103,674	3,774,936,180	36,412	1.6%
12/31/2014	5,418	209,037,382	1,843	44,785,128	107,249	3,939,188,434	36,729	0.9%
12/31/2015	5,575	258,643,154	2,111	52,725,900	110,713	4,145,105,688	37,440	1.9%
12/31/2016	**5,714**	**246,917,760**	**2,134**	**56,924,268**	**114,293**	**4,335,099,180**	**37,930**	**1.3%**

[1] The number does not include deferred survivors.

[2] Amounts derived on an accrual basis.

[3] The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of DPSRS.

[4] Data prior to December 31, 2010, does not include the DPS Division.

[5] Includes the addition of 6,199 beneficiaries due to the DPSRS merger.

The number of persons receiving monthly retirement benefits has grown steadily in relation to membership. This trend will likely continue for many years into the future. The retirement benefit disbursements shown in the right-hand column include cost-of-living increases paid in years since 1970. Prior to 1981, figures are for years ended June 30.

MEMBER-RETIREE COMPARISON—ALL DIVISION TRUST FUNDS[1]

(In Actual Dollars)

Year	Number of Retiree Accounts on 12/31	Number of Member Accounts on 12/31[2]	Retiree Accounts as % of Members on 12/31	Total Benefits Paid–Year Ended 12/31
1940	93	3,715	2.5%	$72,588
1945	171	5,585	3.1%	137,442
1950	280	11,853	2.4%	237,866
1955	747	21,185	3.5%	745,679
1960	1,775	33,068	5.4%	2,055,139
1965	3,631	49,701	7.3%	5,486,225
1970	6,308	65,586	9.6%	13,115,234
1975	11,650	84,781	13.7%	32,820,433
1980	17,301	96,473	17.9%	71,289,456
1985	24,842	101,409	24.5%	192,456,029
1990	32,955	115,350	28.6%	350,398,094
1995	41,909	203,102	20.6%	639,501,796
2000	53,015	248,104	21.4%	1,093,779,068
2005	69,416	306,139	22.7%	1,973,240,491
2010	91,412	378,264	24.2%	3,161,773,781
2015	108,426	436,465	24.8%	4,073,789,897
2016	**111,975**	**451,760**	**24.8%**	**4,260,156,437**

[1] Amounts derived on a cash basis. Data prior to 2010 does not include the DPS Division.

[2] Includes inactive member accounts.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF MEMBERS IN ACTUARIAL VALUATION

By Attained Age and Years of Service as of December 31, 2016

(In Actual Dollars)

State Division

For State Division members (excluding State Troopers) the average age was 45.7 years, the average service was 8.8 years, and the average expected remaining service life was 8.4 years. For State Troopers the average age was 41.7 years, the average service was 12.4 years, and the average expected remaining service life was 10.8 years.

	Years of Service to Valuation Date							Total	
Attained Age	0–4	5–9	10–14	15–19	20–24	25–29	30+	No.	Annual Valuation Payroll
Up to 20	151	—	—	—	—	—	—	151	$768,273
20 – 24	1,614	3	—	—	—	—	—	1,617	34,215,519
25 – 29	4,089	362	8	—	—	—	—	4,459	150,263,700
30 – 34	4,099	1,579	298	13	—	—	—	5,989	252,478,639
35 – 39	3,201	1,703	1,131	293	4	—	—	6,332	301,468,997
40 – 44	2,433	1,479	1,202	983	197	7	—	6,301	328,879,536
45 – 49	3,874	1,605	1,251	1,172	797	300	13	9,012	470,825,005
50 – 54	1,817	1,257	1,187	1,040	772	643	226	6,942	388,693,639
55 – 59	1,559	1,171	1,185	1,098	730	578	349	6,670	365,239,624
60	298	228	197	214	145	97	57	1,236	65,922,830
61	283	215	208	167	125	96	66	1,160	61,778,104
62	218	223	175	157	117	78	56	1,024	55,856,903
63	187	168	183	166	91	69	61	925	49,389,738
64	197	159	162	142	94	56	55	865	43,917,755
65	144	126	137	101	76	70	44	698	36,808,872
66	135	109	91	96	58	38	37	564	27,838,030
67	101	86	68	54	41	29	24	403	19,887,954
68	99	62	64	42	28	16	23	334	15,565,231
69	59	46	40	35	22	15	18	235	10,715,049
70+	248	145	124	104	55	52	80	808	30,137,167
Total	**24,806**	**10,726**	**7,711**	**5,877**	**3,352**	**2,144**	**1,109**	**55,725**	**$2,710,650,565**

School Division

For School Division members the average age was 44.5 years, the average service was 8.4 years, and the average expected remaining service life was 8.8 years.

	Years of Service to Valuation Date							Total	
Attained Age	0–4	5–9	10–14	15–19	20–24	25–29	30+	No.	Annual Valuation Payroll
Up to 20	793	—	—	—	—	—	—	793	$4,327,800
20 – 24	4,335	32	—	—	—	—	—	4,367	73,674,372
25 – 29	10,008	1,044	37	—	—	—	—	11,089	316,198,135
30 – 34	7,339	4,206	876	30	—	—	—	12,451	422,290,671
35 – 39	6,595	3,406	3,827	693	13	—	—	14,534	544,576,909
40 – 44	6,393	3,026	3,083	2,872	388	6	—	15,768	620,489,593
45 – 49	7,848	3,319	2,994	2,684	2,062	396	13	19,316	744,474,336
50 – 54	4,195	2,617	2,940	2,383	1,656	1,432	222	15,445	636,009,704
55 – 59	3,381	2,195	2,677	2,569	1,574	1,060	506	13,962	536,014,080
60	552	331	434	450	271	170	100	2,308	87,374,649
61	504	323	343	358	221	116	91	1,956	69,370,369
62	452	231	314	341	206	130	77	1,751	63,549,011
63	390	220	266	261	185	110	53	1,485	52,404,229
64	353	221	225	171	168	100	56	1,294	43,500,665
65	325	192	202	152	114	75	53	1,113	36,294,504
66	300	135	126	131	66	50	23	831	24,296,881
67	281	116	98	86	42	37	20	680	18,318,123
68	216	110	79	67	43	25	25	565	14,896,877
69	197	90	80	43	23	19	15	467	10,630,529
70 +	838	392	235	132	62	53	58	1,770	30,628,346
Total	**55,295**	**22,206**	**18,836**	**13,423**	**7,094**	**3,779**	**1,312**	**121,945**	**$4,349,319,783**

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF MEMBERS IN ACTUARIAL VALUATION (CONTINUED)

By Attained Age and Years of Service as of December 31, 2016

(In Actual Dollars)

Local Government Division

For Local Government Division members the average age was 44.5 years, the average service was 7.6 years, and the average expected remaining service life was 7.7 years.

	Years of Service to Valuation Date							Total	
Attained Age	0–4	5–9	10–14	15–19	20–24	25–29	30+	No.	Annual Valuation Payroll
Up to 20	465	—	—	—	—	—	—	465	$2,069,669
20 – 24	666	6	—	—	—	—	—	672	10,592,279
25 – 29	925	93	6	—	—	—	—	1,024	34,677,549
30 – 34	840	225	89	6	—	—	—	1,160	51,701,001
35 – 39	768	317	215	66	4	—	—	1,370	70,061,895
40 – 44	570	302	294	134	56	—	—	1,356	76,441,628
45 – 49	746	267	353	196	109	53	3	1,727	95,720,558
50 – 54	483	264	311	187	168	83	55	1,551	94,197,242
55 – 59	428	230	302	210	157	110	67	1,504	88,562,596
60	73	47	49	38	26	21	14	268	15,345,641
61	79	37	40	30	27	12	15	240	12,311,272
62	63	35	34	33	16	9	8	198	10,827,904
63	67	31	29	28	17	11	4	187	9,505,372
64	63	35	36	22	14	17	4	191	9,324,618
65	56	30	28	17	12	5	9	157	8,202,908
66	54	17	18	11	8	8	2	118	4,407,536
67	40	21	26	10	3	2	2	104	4,157,185
68	35	12	13	6	3	5	1	75	2,572,886
69	38	10	7	5	3	—	4	67	1,939,697
70 +	184	48	31	20	13	4	2	302	5,603,173
Total	**6,643**	**2,027**	**1,881**	**1,019**	**636**	**340**	**190**	**12,736**	**$608,222,609**

Judicial Division

For Judicial Division members the average age was 55.9 years, the average service was 13.8 years, and the average expected remaining service life was 9.6 years.

	Years of Service to Valuation Date							Total	
Attained Age	0–4	5–9	10–14	15–19	20–24	25–29	30+	No.	Annual Valuation Payroll
Up to 20	—	—	—	—	—	—	—	—	$—
20 – 24	—	—	—	—	—	—	—	—	—
25 – 29	—	—	—	—	—	—	—	—	—
30 – 34	3	—	—	—	—	—	—	3	152,795
35 – 39	9	3	—	—	—	—	—	12	1,167,133
40 – 44	11	5	2	2	—	—	—	20	2,618,569
45 – 49	7	11	11	3	1	1	—	34	4,803,559
50 – 54	11	22	19	8	8	6	1	75	11,396,307
55 – 59	11	17	13	12	7	11	3	74	11,176,793
60	—	—	4	1	3	2	—	10	1,556,095
61	4	3	—	2	1	1	—	11	1,635,278
62	—	1	4	—	3	—	1	9	1,271,185
63	1	5	2	1	—	3	1	13	1,986,041
64	—	4	5	3	2	3	1	18	2,608,226
65	—	1	2	—	1	1	2	7	1,057,339
66	1	2	1	2	1	1	3	11	1,705,950
67	—	2	2	—	—	4	1	9	1,412,368
68	—	1	4	1	1	1	2	10	1,214,672
69	1	—	1	2	3	—	1	8	1,145,741
70 +	1	1	2	2	—	1	4	11	1,791,480
Total	**60**	**78**	**72**	**39**	**31**	**35**	**20**	**335**	**$48,699,531**

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF MEMBERS IN ACTUARIAL VALUATION (CONTINUED)

By Attained Age and Years of Service as of December 31, 2016

(In Actual Dollars)

DPS Division

For DPS Division members the average age was 40.4 years, the average service was 5.9 years, and the average expected remaining service life was 9.3 years.

	Years of Service to Valuation Date							Total	
Attained Age	0–4	5–9	10–14	15–19	20–24	25–29	30+	No.	Annual Valuation Payroll
Up to 20	73	—	—	—	—	—	—	73	$904,562
20 – 24	891	9	—	—	—	—	—	900	17,914,172
25 – 29	2,321	211	3	—	—	—	—	2,535	82,617,999
30 – 34	1,741	806	65	2	—	—	—	2,614	107,087,680
35 – 39	1,567	749	248	31	1	—	—	2,596	108,882,844
40 – 44	733	536	284	177	23	2	—	1,755	80,832,718
45 – 49	568	477	223	212	92	13	1	1,586	74,876,600
50 – 54	402	344	178	169	107	83	9	1,292	61,791,683
55 – 59	329	315	142	174	100	78	40	1,178	52,497,560
60	59	81	15	26	17	7	9	214	8,095,881
61	54	57	24	29	14	13	7	198	8,946,428
62	41	61	20	23	18	3	6	172	7,417,255
63	53	41	24	18	16	12	8	172	7,050,888
64	27	39	17	17	13	6	4	123	5,638,281
65	36	26	8	10	10	8	2	100	3,757,621
66	26	32	5	11	7	4	—	85	3,290,778
67	24	25	4	6	5	2	1	67	2,341,755
68	18	22	7	2	3	5	2	59	2,047,085
69	15	18	—	1	—	1	1	36	1,063,284
70 +	83	73	10	9	8	4	8	195	5,122,084
Total	**9,061**	**3,922**	**1,277**	**917**	**434**	**241**	**98**	**15,950**	**$642,177,158**

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF ACTIVE MEMBER ACTUARIAL VALUATION DATA

As of December 31

(In Actual Dollars)

Year	Number of Participating Employers[1]	Number of Active Members	Annual Payroll for Active Members	Average Annual Pay for Active Members	% Increase (Decrease) in Average Annual Pay
State Division					
2007	69	53,324	$2,236,517,828	$41,942	—
2008	69	54,441	2,371,638,806	43,563	3.86%
2009	70	54,333	2,384,136,844	43,880	0.73%
2010	70	54,977	2,392,080,128	43,511	(0.84%)
2011	70	54,956	2,393,791,402	43,558	0.11%
2012	70	54,804	2,384,933,961	43,518	(0.09%)
2013	70	55,354	2,474,965,482	44,712	2.74%
2014	32	55,300	2,564,669,718	46,377	3.72%
2015	32	55,291	2,641,866,650	47,781	3.03%
2016	**32**	**55,725**	**2,710,650,565**	**48,643**	**1.80%**
School Division					
2007	197	116,245	$3,618,258,368	$31,126	—
2008	197	118,547	3,804,926,777	32,096	3.12%
2009	196	119,390	3,922,175,230	32,852	2.36%
2010	271[2]	116,486	3,900,661,576	33,486	1.93%
2011	275[2]	114,820	3,821,603,410	33,283	(0.61%)
2012	281[2]	115,294	3,819,065,598	33,125	(0.47%)
2013	294[2]	117,727	3,938,649,818	33,456	1.00%
2014	224	119,618	4,063,235,757	33,968	1.53%
2015	227	120,239	4,235,290,282	35,224	3.70%
2016	**229**	**121,945**	**4,349,319,783**	**35,666**	**1.25%**
Local Government Division					
2007	137	16,977	$680,442,121	$40,080	—
2008	141	17,379	718,901,763	41,366	3.21%
2009	139	16,166	705,097,035	43,616	5.44%
2010	142	16,144	705,265,331	43,686	0.16%
2011	145	16,065	718,169,015	44,704	2.33%
2012	143	12,097	523,668,446	43,289	(3.17%)
2013	146	11,954	529,003,436	44,253	2.23%
2014	141	12,084	540,468,037	44,726	1.07%
2015	140	12,176	561,518,205	46,117	3.11%
2016	**141**	**12,736**	**608,222,609**	**47,756**	**3.55%**
Judicial Division					
2007	6	296	$31,150,228	$105,237	—
2008	6	317	35,937,094	113,366	7.72%
2009	6	317	37,582,661	118,557	4.58%
2010	6	317	37,412,139	118,019	(0.45%)
2011	6	329	39,033,369	118,642	0.53%
2012	6	329	39,045,008	118,678	0.03%
2013	6	332	39,941,730	120,306	1.37%
2014	2	334	42,976,979	128,674	6.96%
2015	2	334	46,869,730	140,329	9.06%
2016	**2**	**335**	**48,699,531**	**145,372**	**3.59%**

Please see page 175 for footnote references.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF ACTIVE MEMBER ACTUARIAL VALUATION DATA (CONTINUED)

As of December 31

(In Actual Dollars)

Year	Number of Participating Employers[1]	Number of Active Members	Annual Payroll for Active Members	Average Annual Pay for Active Members	% Increase (Decrease) in Average Annual Pay
DPS Division[3]					
2010	28[2]	13,171	$470,773,746	$35,743	—
2011	27[2]	13,571	491,646,251	36,228	1.36%
2012	29[2]	13,911	510,872,366	36,724	1.37%
2013	31[2]	14,816	547,659,912	36,964	0.65%
2014	1	15,414	584,319,269	37,908	2.55%
2015	1	15,929	621,114,573	38,993	2.86%
2016	**1**	**15,950**	**642,177,158**	**40,262**	**3.25%**
All Division Trust Funds[4]					
2007	409	186,842	$6,566,368,545	$35,144	—
2008	413	190,684	6,931,404,440	36,350	3.43%
2009	411	190,206	7,048,991,770	37,060	1.95%
2010	517[2]	201,095	7,506,192,920	37,327	0.72%
2011	523[2]	199,741	7,464,243,447	37,370	0.12%
2012	529[2]	196,435	7,277,585,379	37,048	(0.86%)
2013	547[2]	200,183	7,530,220,378	37,617	1.54%
2014	400	202,750	7,795,669,760	38,450	2.21%
2015	402	203,969	8,106,659,440	39,745	3.37%
2016	**405**	**206,691**	**8,359,069,646**	**40,442**	**1.75%**

[1] Prior to 2014, employer counts were based on separate units of government. Effective in 2014, GASB 67 classifies a primary government and its component units as one employer. Employer counts for the years 2014 and beyond are presented for purposes of complying with GASB 67 only. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

[2] Includes charter schools operating within the School and DPS Divisions.

[3] The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of DPSRS.

[4] Data prior to 2010 does not include the DPS Division.

HEALTH CARE TRUST FUNDS—OPEB

Introduction

This Health Care Trust Funds subsection reports the results of PERA's other postemployment benefit (OPEB) actuarial valuation, which was performed for both funding and accounting and financial reporting purposes. The actuarial valuation complies with the accounting requirements required by GASB Statement 43. PERA has chosen not to early adopt the requirements of GASB Statement 74, and has not yet determined the impact of that standard on its actuarial valuation, or financial reporting.

The Health Care Trust Fund (HCTF) and the DPS Health Care Trust Fund (DPS HCTF) are defined benefit OPEB plans, with the purpose of subsidizing PERACare, PERA's health benefits program. Participation in the HCTF and the DPS HCTF is voluntary pursuant to C.R.S. § 24-51-1201. Employer contributions and investment earnings on the assets of the plans pay for the costs.

The HCTF and the DPS HCTF provide a health care premium subsidy based upon the benefit structure under which a member retires and the member's years of service credit. There is an allocation of the premium subsidy between the trust funds for members who retire with service credit in the DPS Division and one or more of the other divisions, as set forth in C.R.S. § 24-51-1206.5. The basis for the allocation of the premium subsidy is the percentage of the member contribution balance from each division as it relates to the total member contribution account balance.

The Board is responsible for maintaining a funding policy applicable to PERA's OPEB funds. The OPEB funding policy was last revised and adopted by the Board on November 16, 2007. The OPEB funds are subject to GASB 43 accounting standards, including the determination of an annual required contribution (ARC). The ARC is determined in accordance with the OPEB plan provisions, as described in Note 9 of the Notes to the Financial Statements found in the Financial Section. The ARC rate for each of the funds is compared to the associated statutory contribution rate.

The Board has the authority to contract, self-insure, and authorize disbursements necessary in order to carry out the purposes of the PERACare program including the administration of the health care subsidies.

Actuarial Methods and Assumptions

Actuarial Methods

The Board also is responsible for the actuarial methods and assumptions used in the OPEB actuarial valuations in accordance with C.R.S. § 24-51-204(5). The Board retains an external actuary, currently CMC, to perform annual actuarial valuations and projections as well as periodic experience studies to review the actuarial assumptions and actual experience.

In general, the AALs of the HCTF and the DPS HCTF consist of the following two types of benefits:

- A service-based, monthly premium subsidy.
- A subsidy for members not eligible for premium-free Medicare Part A coverage.

The plan's actuary determines the costs relating to the subsidies provided by the HCTF and the DPS HCTF. Currently, all participating employers are statutorily required to contribute 1.02 percent of covered compensation to fund these benefits.

The actuary followed ASOP No. 6, *Measuring Retiree Group Benefit Obligations*, for purposes of recommending appropriate OPEB-specific assumptions. Although many of the economic and demographic assumptions used to determine pension liabilities apply in the determination of OPEB liabilities, additional assumptions typically are required. All actuarial methods and assumptions necessary to assess OPEB liabilities, in addition to those already provided on previous pages, are described and/or listed below.

Entry Age Normal Cost Method

The EAN cost method used for the determination of the pension liabilities also applies to the calculation of the OPEB liabilities. Previously for OPEB liabilities, the calculation of the normal cost was based upon total expected career service and was independent of compensation. In preparation of the future implementation of GASB 74, it was recommended by CMC in the 2016 experience analysis, and adopted by the Board, to base normal cost on compensation, effective with the December 31, 2016, actuarial valuation.

Amortization Method

As provided under GASB 43 reporting standards, the ARC for each health care plan is determined by adding the normal cost and the cost to amortize the UAAL over an open 30-year period based on level percent of pay. The ARC is then expressed as a level percentage of assumed future covered payroll and compared, as a benchmark, against the current statutory employer contribution rate.

Asset Valuation Method

The method for valuing assets is a smoothed market value of assets. The smoothed value of assets recognizes the differences between actual and expected investment experience for each year in equal amounts over a four–year period. Note, the term "market value" is used in the Board's health care funding policy regarding the description of the determination of the asset valuation method used for funding purposes and is used consistently throughout the Actuarial Section, but has the identical meaning of the term "fair value" as is used in the other sections of this *CAFR.*

Actuarial Assumptions

The determination of the AAL includes recognition of a number of economic and non-economic assumptions in addition to the applied actuarial methods described above.

HEALTH CARE TRUST FUNDS—OPEB

Economic Assumptions

The economic assumptions for price inflation, investment rate of return, and wage inflation used in the determination of the pension liabilities also apply to the OPEB plans. In addition to these economic assumptions, initial per capita health care costs, morbidity rates, and health care cost trend rates are needed to project the future costs associated with providing benefits to those PERACare enrollees under the PERA benefit structure who are not eligible for premium-free Medicare Part A.

Exhibit J contains the assumptions used in determining the additional liability for PERACare enrollees under the PERA benefit structure who are age 65 or older and who are not eligible for premium-free Medicare Part A. Shown are the monthly costs/premiums assumed for 2017, which are subject to the morbidity rates and health care cost trend rates. The morbidity rates were first adopted for use for the December 31, 2015, actuarial valuation, and the health care cost trend rates are reviewed and updated annually. All cost/premiums and morbidity and trend assumptions are displayed in the adjacent tables.

Exhibit K contains the dollar subsidy amounts used in determining the additional liability for PERACare enrollees under the DPS benefit structure who are age 65 or older and who are not eligible for premium-free Medicare Part A.

Effective January 1, 2014, PERACare enrollees participating in the self-insured Medicare supplement plans and the Medicare HMO plan offered by Rocky Mountain Health Plans receive their prescription drug benefits through a Medicare Prescription Drug Plan (PDP).

As the service-based premium subsidy does not increase over time, PERACare enrollees are required to pay the entire increase in annual health care costs each year, resulting in monthly contributions that increase more rapidly over time than the total cost of coverage.

Non-Economic Assumptions

Current PERACare participants are assumed to maintain their current health care benefit elections in perpetuity. For active members retiring directly from covered employment, Exhibit L provides the assumed participation rates. The participation of current PERACare enrollees and members retiring directly from active service is adjusted to reflect the increasing rate of participation with age, as described in Exhibit L. The health care participation rates were updated and effective with the December 31, 2016, actuarial valuation based on the results of the 2016 experience analysis. These assumptions are reviewed annually and adjusted as necessary.

Survivors of retirees under the PERA benefit structure electing health care coverage are eligible to receive the subsidy. To anticipate future liabilities driven by these survivors, it is assumed that 70 percent of the current members assumed to elect PERACare coverage will choose a joint and survivor optional payment and thus, their survivors will qualify for the subsidy. This assumption was determined from actual census data and current plan elections of current benefit recipients. This assumption was supported by the results of the 2016 experience analysis and remains in effect as of the December 31, 2016, actuarial valuation for all divisions. The assumed average number of years a covered male spouse is older than a covered female spouse is three years for a male retiree and one year for a female retiree. These assumptions were determined from actual census data and were revised from the previous non-gender specific assumptions used in prior actuarial valuations. The age difference assumptions were based on the results of the 2016 experience analysis and are effective as of the December 31, 2016, actuarial valuation.

For eligible inactive members, the current assumption that 25 percent are assumed to elect health care coverage upon commencement of their monthly benefit was supported by the 2016 experience analysis. For spousal participation, actual census data and current plan elections of current benefit recipients were used. Based on the results of the 2016 experience analysis, the assumed percentage of eligible inactive members and future retirees electing coverage for their spouses was reduced from 25 percent to 20 percent for all divisions except the DPS Division, which remains at 15 percent, effective with the December 31, 2016, actuarial valuation.

For eligible inactive members, an average age at which health benefits are to begin must be assumed. Here, the assumed age of initial benefit receipt is determined using the same approach used for terminating active members who are assumed to leave their contributions in the plan in order to be eligible for a pension benefit at their retirement date. This assumption varies from age 50 to age 65 depending on benefit structure and years of service. This approach was effective with the December 31, 2015, actuarial valuation and was supported by the results of the 2016 experience analysis.

Exhibit M shows the assumed plan elections for current and future Medicare-eligible retirees who are not eligible for premium-free Medicare Part A. The assumptions effective with the December 31, 2015, actuarial valuation were supported by the results of the 2016 experience analysis. However, these assumptions are reviewed annually and most recently were adjusted effective for the December 31, 2016, actuarial valuation.

For those current PERACare enrollees who are age 65 and older, the premium-free Medicare Part A eligibility status is provided by PERA and is assumed to be maintained in perpetuity. For current PERACare enrollees not yet age 65, estimated to have been hired prior to April 1, 1986, and not assumed eligible for premium-free Medicare Part A coverage through their spouse, and for those active employees hired prior to April 1, 1986, Exhibit N lists the percentage, by estimated age at hire, of PERACare enrollees assumed to not qualify for premium-free Medicare Part A benefits, thus qualifying for the applicable "No Part A" subsidy. These assumptions are reviewed annually and adjusted as necessary. The current assumptions were last revised and effective for the December 31, 2015, actuarial

HEALTH CARE TRUST FUNDS—OPEB

valuation and were supported by the results of the 2016 experience analysis with one exception. Effective for the December 31, 2016, actuarial valuation, the percentage of disability retirees enrolled in PERACare assumed to qualify for the "No Part A" subsidy was increased from 5 percent to 10 percent. Regarding spousal coverage, of the PERACare enrollees assumed to receive the "No Part A" subsidy from the PERA benefit structure, 10 percent are assumed to cover a spouse. This assumption was supported by the 2016 experience analysis and remains in effect as of the December 31, 2016, actuarial valuation.

The revised pre- and post-retirement and disability retirement mortality assumptions described in the Division Trust Funds subsection of this Actuarial Section appropriately reflect PERA's recent and anticipated plan experience and are used to estimate the value of expected future subsidy payments. Exhibits A, B, C, D, and E in the Division Trust Funds subsection of this Actuarial Section, list the healthy pre-retirement mortality rates at sample ages and Exhibit I lists the healthy post-retirement mortality rates and values at sample ages.

Annual Increase Assumptions

As the service-based premium subsidy does not increase over time, there is no need for an assumption regarding increasing benefit amounts.

Actuarial Studies

All actuarial studies described in the Division Trust Funds subsection of this Actuarial Section titled, Actuarial Methods and Assumptions, Actuarial Studies, incorporated a review and analysis of actuarial methods and assumptions pertaining to the HCTF and the DPS HCTF.

Changes Since Last Actuarial Valuation

Changes in Actuarial Methods

Listed below is the actuarial method change incorporated into the December 31, 2016, actuarial valuation:

- The basis for the calculation of the EAN normal cost was changed from total expected career service to compensation.

Changes in Actuarial Assumptions

In addition to the "Changes in Actuarial Assumptions" noted in the Division Trust Funds subsection of this Actuarial Section, listed below are the actuarial assumption changes incorporated into the December 31, 2016, actuarial valuation specific to the HCTF and the DPS HCTF:

- Initial per capita health care costs for those PERACare enrollees under the PERA benefit structure who are age 65 and older and are not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2017 plan year.
- The assumed rates of inflation for health care costs for Medicare Part A premiums have been revised to reflect the current expectation of future increases.
- The health care participation rates were updated for the HCTF and the DPS HCTF.
- The Medicare plan assumed election rates for current pre-Medicare PERACare enrollees under the PERA benefit structure who are not eligible for premium-free Medicare Part A benefits were revised to reflect more closely actual experience.
- The assumed average number of years a covered male spouse is older than a covered female spouse was changed from a gender-neutral assumption of two years to a gender-specific assumption of three years for a male retiree and one year for a female retiree.
- For all divisions except the DPS Division, the percentage of eligible inactive members and future retirees assumed to elect coverage for their spouse was reduced from 25 percent to 20 percent.
- The percentage of the disability retirees enrolled in PERACare assumed to qualify for the "No Part A" subsidy was increased from 5 percent to 10 percent.

Changes in Plan Provisions

There are no changes in plan provisions reflected in the December 31, 2016, actuarial valuation since the last actuarial valuation as of December 31, 2015.

Significant Events

There were no significant events during 2016.

HEALTH CARE TRUST FUNDS—OPEB

Actuarial Assumptions: Exhibits J–N

The following exhibits (Exhibits J through N) show the actuarial assumptions employed to determine the actuarial valuation results. The basic economic and demographic actuarial assumptions as detailed in Exhibits A through I, in the Division Trust Funds subsection of the Actuarial Section, also were applied, as applicable, for purposes of determining OPEB liabilities.

Exhibit J: Initial Health Care Costs, Age-Related Morbidity, and Trend Rate Assumptions—PERA Benefit Structure

INITIAL HEALTH CARE COSTS

(In Actual Dollars)

	For Members Without Medicare Part A		
Plan	Monthly Cost	Monthly Premium	Monthly Cost Adjusted to Age 65
Self-Funded Medicare Supplement Plans	$725	$362	$285
Kaiser Permanente Medicare Advantage HMO	582	231	290
Rocky Mountain Health Plans Medicare HMO	601	236	276
UnitedHealthcare Medicare HMO	686	181	428

2017 Monthly Medicare Part A Premium — $413

AGE-RELATED MORBIDITY ASSUMPTIONS

Participant Age	Annual Increase
65–69	3.0%
70–74	2.5%
75–79	2.0%
80–84	1.0%
85–89	0.5%
90 and older	0.0%

HEALTH CARE COST TREND RATE ASSUMPTIONS[1]

Year	PERACare Medicare Plans	Medicare Part A Premiums
2017	5.00%	3.00%
2018	5.00%	3.25%
2019	5.00%	3.50%
2020	5.00%	3.75%
2021	5.00%	4.00%
2022	5.00%	4.00%
2023+	5.00%	4.25%

[1] Applies only to PERACare enrollees who are age 65 or older and who are not eligible for premium-free Medicare Part A.

Exhibit K: Additional Premium Subsidy Assumptions—DPS Benefit Structure[1]

Years of Service	Monthly Subsidy for Members Without Medicare Part A	Years of Service	Monthly Subsidy for Members Without Medicare Part A
20+	$115.00	10	$57.50
19	109.25	9	51.75
18	103.50	8	46.00
17	97.75	7	40.25
16	92.00	6	34.50
15	86.25	5	28.75
14	80.50	4	23.00
13	74.75	3	17.25
12	69.00	2	11.50
11	63.25	1	5.75

[1] Health care assumptions for future PERACare enrollees who are age 65 or older and who are assumed to not be eligible for premium-free Medicare Part A.

HEALTH CARE TRUST FUNDS—OPEB

Exhibit L: Health Care Participation Rate Assumptions

Attained Age(s)	Percent Electing Health Care Coverage: Other Divisions	Percent Electing Health Care Coverage: DPS Division	Attained Age(s)	Percent Electing Health Care Coverage: Other Divisions	Percent Electing Health Care Coverage: DPS Division
15 – 48	20%	20%	61	50%	60%
49	25%	25%	62	55%	60%
50	25%	25%	63	55%	60%
51	35%	35%	64	55%	60%
52	35%	35%	65	55%	60%
53	40%	40%	66	55%	60%
54	40%	50%	67	55%	60%
55	40%	50%	68	55%	60%
56	45%	50%	69	55%	60%
57	45%	50%	70	55%	60%
58	50%	55%	71	55%	60%
59	50%	55%	72+	60%	65%
60	50%	55%			

Exhibit M: Medicare Health Care Plan Election Rate Assumptions

Medicare plan elections for future retirees who are not eligible for premium-free Medicare Part A are assumed as follows:

Medicare Plan	Percent Electing Medicare Plan: Other Divisions	Percent Electing Medicare Plan: DPS Division
Self-Funded Medicare Supplement Plans[1]	60%	40%
Kaiser Permanente Medicare Advantage HMO	25%	35%
Rocky Mountain Health Plans Medicare HMO	10%	5%
UnitedHealthcare Medicare HMO	5%	20%

[1] Eighty (80) percent of those PERACare enrollees participating in the self-funded plans are assumed to elect MS #1, 17 percent MS #2, and 3 percent MS #3.

Medicare plan elections for current, pre-Medicare retirees who are not eligible for premium-free Medicare Part A are assumed as follows:

Medicare Plan	Percent Electing Medicare Plan: Pre-Medicare Anthem Plans	Percent Electing Medicare Plan: Pre-Medicare Kaiser Plans
Self-Funded Medicare Supplement Plans[1]	88%	2%
Kaiser Permanente Medicare Advantage HMO	1%	92%
Rocky Mountain Health Plans Medicare HMO	6%	2%
UnitedHealthcare Medicare HMO	5%	4%

[1] Eighty (80) percent of those PERACare enrollees participating in the self-funded plans are assumed to elect MS #1, 17 percent MS #2, and 3 percent MS #3.

Exhibit N: Percent Qualifying for "No Part A" Subsidy Assumptions

Hire Age	Percent Qualifying for "No Part A" Subsidy: HCTF[1, 2]	Percent Qualifying for "No Part A" Subsidy: DPS HCTF[2]
0 – 24	17%	17%
25 – 29	11%	11%
30+	4%	4%

[1] Of the PERACare enrollees assumed to qualify for the "No Part A" subsidy from the PERA benefit structure, 10 percent are assumed to cover a spouse.

[2] Of the PERACare enrollees receiving health care benefits as a result of disability retirement, 10 percent are assumed to qualify for the "No Part A" subsidy. One-hundred (100) percent of eligible inactive (or deferred vested) members enrolled in PERACare are assumed to obtain the 40 or more quarters of Medicare-covered employment required for premium-free Medicare Part A coverage as a result of their subsequent employment.

HEALTH CARE TRUST FUNDS—OPEB

Summary of Funding Progress

The PERA funding objective is to be able to pay long-term benefit promises through contributions that remain approximately level from year to year as a percent of salaries earned by PERA members. The following information in this section provides an overview of funding progress:

- The solvency test shows the degree to which existing liabilities are funded, including prior history.
- A schedule of funding progress shows the UAAL as a percentage of annual covered payroll, including prior history.
- A schedule detailing actuarial gains and losses, by source, for the current year.
- The scheduled contribution requirements for the year immediately following the reporting period.

Consideration of the plans' current funded ratio, the unfunded liabilities in relation to annual covered payroll, historic trends, including significant gains and losses, and the schedule of future contributions should provide sufficient information to appropriately measure funding progress.

Solvency Test

The solvency test is one means of checking funding progress. In this test, the plan's valuation assets typically are compared with: (A) member contributions (with interest) on deposit, (B) the liabilities for future benefits to persons who have retired, died or become disabled, and to those who have terminated service with the right to a future benefit, and (C) the liabilities for service already rendered by active members. Since the HCTF and the DPS HCTF are funded only through employer contributions, there are no member contribution accounts (liability A). Each table below and on the next page shows the funded level of the liabilities for future benefits to current retirees (liability B) and the unfunded liabilities associated with service already rendered by active members (liability C).

SOLVENCY TEST

(Dollars in Thousands)

	Aggregate Accrued Liabilities				Portion of Actuarial Accrued Liabilities Covered by Valuation Assets		
Valuation Date	Active Member Contributions (A)	Retirees, Beneficiaries, and Inactive Members (B)	Employer-Financed Portion of Active Members (C)	Valuation Assets	Liability (A)	Liability (B)	Liability (C)
HCTF							
12/31/2007	N/A	$926,180	$377,414	$258,775	N/A	27.9%	0.0%
12/31/2008	N/A	969,288	399,345	255,976	N/A	26.4%	0.0%
12/31/2009	N/A	1,241,349	521,892	260,341	N/A	21.0%	0.0%
12/31/2010	N/A	1,179,809	463,184	288,193	N/A	24.4%	0.0%
12/31/2011	N/A	1,251,579	459,211	282,228	N/A	22.5%	0.0%
12/31/2012	N/A	1,259,557	463,938	285,097	N/A	22.6%	0.0%
12/31/2013	N/A	1,092,438	464,968	293,556	N/A	26.9%	0.0%
12/31/2014	N/A	1,085,995	448,466	297,377	N/A	27.4%	0.0%
12/31/2015	N/A	1,099,045	457,224	285,588	N/A	26.0%	0.0%
12/31/2016	**N/A**	**1,153,015**	**403,747**	**270,150**	**N/A**	**23.4%**	**0.0%**
DPS HCTF[1]							
12/31/2010	N/A	$58,432	$20,081	$14,086	N/A	24.1%	0.0%
12/31/2011	N/A	57,093	20,382	14,448	N/A	25.3%	0.0%
12/31/2012	N/A	54,727	22,942	14,443	N/A	26.4%	0.0%
12/31/2013	N/A	52,106	24,530	15,482	N/A	29.7%	0.0%
12/31/2014	N/A	50,998	25,028	16,502	N/A	32.4%	0.0%
12/31/2015	N/A	49,891	25,006	17,557	N/A	35.2%	0.0%
12/31/2016	**N/A**	**51,357**	**21,488**	**18,945**	**N/A**	**36.9%**	**0.0%**

Please see page 182 for footnote references.

HEALTH CARE TRUST FUNDS—OPEB

SOLVENCY TEST (CONTINUED)

(Dollars in Thousands)

	Aggregate Accrued Liabilities				Portion of Actuarial Accrued Liabilities Covered by Valuation Assets		
Valuation Date	Active Member Contributions (A)	Retirees, Beneficiaries, and Inactive Members (B)	Employer-Financed Portion of Active Members (C)	Valuation Assets	Liability (A)	Liability (B)	Liability (C)
Total of Health Care Trust Funds[2, 3]							
12/31/2007	N/A	$926,180	$377,414	$258,775	N/A	27.9%	0.0%
12/31/2008	N/A	969,288	399,345	255,976	N/A	26.4%	0.0%
12/31/2009	N/A	1,241,349	521,892	260,341	N/A	21.0%	0.0%
12/31/2010	N/A	1,238,241	483,265	302,279	N/A	24.4%	0.0%
12/31/2011	N/A	1,308,672	479,593	296,676	N/A	22.7%	0.0%
12/31/2012	N/A	1,314,284	486,880	299,540	N/A	22.8%	0.0%
12/31/2013	N/A	1,144,544	489,498	309,038	N/A	27.0%	0.0%
12/31/2014	N/A	1,136,993	473,494	313,879	N/A	27.6%	0.0%
12/31/2015	N/A	1,148,936	482,230	303,145	N/A	26.4%	0.0%
12/31/2016	**N/A**	**1,204,372**	**425,235**	**289,095**	**N/A**	**24.0%**	**0.0%**

[1] The DPS HCTF was established on January 1, 2010, and received the balance of the Denver Public Schools Retiree Health Benefit Trust.

[2] Results prior to December 31, 2010, do not include the DPS HCTF.

[3] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

HEALTH CARE TRUST FUNDS—OPEB

Unfunded Actuarial Accrued Liability

UAALs are the difference between actuarially calculated liabilities for service already rendered and the valuation assets of the retirement fund. It is natural for unfunded liabilities to exist in a defined benefit OPEB plan.

The following factors resulted in higher liabilities (or losses) during 2016:

- Reduction in the investment rate of return assumption and other changes in the underlying economic assumptions.
- Adoption of revised mortality tables to recognize extended member longevity.
- Lower investment returns than assumed in 2014, 2015, and 2016.
- Fewer members terminated PERA-covered employment than expected.
- More service and disability retirements were experienced than expected.
- Retirees lived longer than expected.
- New members had some service resulting in accrued liabilities.
- Unfavorable claims experience.

The following factors resulted in lower liabilities (or gains) during 2016:

- Change in the EAN actuarial cost method to base normal cost on compensation.
- Changes to various demographic actuarial assumptions to recognize member behaviors.
- Higher investment return than assumed in 2013.
- Favorable benefit utilization.

SCHEDULE OF FUNDING PROGRESS

(Dollars in Thousands)

(A) Valuation Date	(B) Actuarial Value of Plan Assets	(C) Actuarial Accrued Liabilities	(D) Unfunded Actuarial Accrued Liabilities (UAAL) (C)–(B)	(E) Funded Ratio (B)/(C)	(F) Annual Covered Payroll	(G) UAAL As a % of Covered Payroll (D)/(F)
HCTF						
12/31/2007	$258,775	$1,303,594	$1,044,819	19.9%	$6,566,368	15.9%
12/31/2008	255,976	1,368,633	1,112,657	18.7%	6,931,405	16.1%
12/31/2009	260,341	1,763,241	1,502,900	14.8%	7,048,992	21.3%
12/31/2010	288,193	1,642,993	1,354,800	17.5%	7,035,419	19.3%
12/31/2011	282,228	1,710,790	1,428,562	16.5%	6,972,596	20.5%
12/31/2012	285,097	1,723,495	1,438,398	16.5%	6,766,713	21.3%
12/31/2013	293,556	1,557,406	1,263,850	18.8%	6,982,560	18.1%
12/31/2014	297,377	1,534,461	1,237,084	19.4%	7,211,351	17.2%
12/31/2015	285,588	1,556,269	1,270,681	18.4%	7,485,545	17.0%
12/31/2016	**270,150**	**1,556,762**	**1,286,612**	**17.4%**	**7,716,894**	**16.7%**
DPS HCTF[1]						
12/31/2010	$14,086	$78,513	$64,427	17.9%	$470,774	13.7%
12/31/2011	14,448	77,475	63,027	18.6%	491,646	12.8%
12/31/2012	14,443	77,669	63,226	18.6%	510,872	12.4%
12/31/2013	15,482	76,636	61,154	20.2%	547,660	11.2%
12/31/2014	16,502	76,026	59,524	21.7%	584,319	10.2%
12/31/2015	17,557	74,897	57,340	23.4%	621,115	9.2%
12/31/2016	**18,945**	**72,845**	**53,900**	**26.0%**	**642,177**	**8.4%**
Total of Health Care Trust Funds[2, 3]						
12/31/2007	$258,775	$1,303,594	$1,044,819	19.9%	$6,566,368	15.9%
12/31/2008	255,976	1,368,633	1,112,657	18.7%	6,931,405	16.1%
12/31/2009	260,341	1,763,241	1,502,900	14.8%	7,048,992	21.3%
12/31/2010	302,279	1,721,506	1,419,227	17.6%	7,506,193	18.9%
12/31/2011	296,676	1,788,265	1,491,589	16.6%	7,464,242	20.0%
12/31/2012	299,540	1,801,164	1,501,624	16.6%	7,277,585	20.6%
12/31/2013	309,038	1,634,042	1,325,004	18.9%	7,530,220	17.6%
12/31/2014	313,879	1,610,487	1,296,608	19.5%	7,795,670	16.6%
12/31/2015	303,145	1,631,166	1,328,021	18.6%	8,106,660	16.4%
12/31/2016	**289,095**	**1,629,607**	**1,340,512**	**17.7%**	**8,359,071**	**16.0%**

[1] The DPS HCTF was established on January 1, 2010, and received the balance of the Denver Public Schools Retiree Health Benefit Trust.

[2] Results prior to December 31, 2010, do not include the DPS HCTF.

[3] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

HEALTH CARE TRUST FUNDS—OPEB

Actuarial Gains and Losses

ANALYSIS OF FINANCIAL EXPERIENCE
(Dollars in Millions)

	HCTF	DPS HCTF
Amounts		
From differences between assumed and actual experience on liabilities		
Age and service retirements[1]	$1.5	$0.1
Disability retirements[2]	0.3	0.0
Deaths[3]	1.0	0.0
Withdrawals[4]	2.7	(0.1)
New members[5]	2.3	0.2
Other[6]	(6.5)	(0.8)
Subtotal	1.3	(0.6)
From differences between assumed and actual experience on assets	0.2	0.1
From change in plan assumptions	31.9	1.2
From change in actuarial methods	(39.0)	(2.8)
Total actuarial (gains)/losses on 2016 activities	**($5.6)**	**($2.1)**
Total actuarial (gains)/losses on 2015 activities	**$12.4**	**($1.5)**

[1] *Age and service retirements:* If members retire at older ages than assumed, there is a gain. If members retire at younger ages than assumed, there is a loss.

[2] *Disability retirements:* If disability claims are lower than assumed, there is a gain. If disability claims are higher than assumed, there is a loss.

[3] *Deaths:* If survivor claims are lower than assumed, there is a gain. If survivor claims are higher than assumed, there is a loss. If retirees die sooner than assumed, there is a gain. If retirees live longer than assumed, there is a loss.

[4] *Withdrawal from employment:* If more members terminate and more liabilities are released by withdrawals than assumed, there is a gain. If fewer liabilities are released by terminations than assumed, there is a loss.

[5] *New members:* If new members entering the plan have prior service, there is a loss.

[6] *Other:* Miscellaneous gains and losses result from purchased service transfers, claims experience, benefit utilization, changes in the actuary's valuation software, data adjustments, timing of financial transactions, etc.

Actuarial Valuation Results

Contribution rates for the year ending December 31, 2018, are derived from the results of the December 31, 2016, annual actuarial valuation and are determined in advance for purposes of budgeting and consideration of any necessary legislative action.

SCHEDULE OF COMPUTED EMPLOYER CONTRIBUTION RATES FOR THE 2018 FISCAL YEAR

	Expressed as a Percentage of Member Payroll	
	HCTF	DPS HCTF
Contributions		
Service retirement benefits	0.19%	0.19%
Disability retirement benefits	0.01%	0.01%
Survivor benefits	0.00%	0.00%
Separation benefits	0.04%	0.03%
Total normal cost	0.24%	0.23%
Less member contributions	(0.00%)	(0.00%)
Employer normal cost	**0.24%**	**0.23%**
Percentage available to amortize unfunded actuarial accrued liabilities	0.78%	0.79%
Amortization period	37 years	13 years
Total employer contribution rate for actuarially funded benefits	**1.12%**	**0.67%**

HEALTH CARE TRUST FUNDS—OPEB

Sensitivity of Actuarial Valuation to Changes in Assumed Investment Rate of Return and Discount Rate

The most important long-term driver of an OPEB plan is investment income. The investment return assumption and the discount rate for liabilities, as mandated by GASB, should be based on an estimated long-term investment yield for the plan, considering the nature and mix of current and expected plan investments and the basis used to determine the actuarial value of assets.

To understand the importance of the investment rate of return, which is used to discount the actuarial liabilities, a one and one-half, and one-half percent fluctuation in the investment rate of return and discount rate would change the funded ratio, UAAL, and ARC (for contributions for the fiscal year ended December 31, 2018) as shown on the tables below and on the next page.

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 5.75 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ARC	UAAL
HCTF	14.9%	$1,540,039	1.20%	$1,549,960
DPS HCTF	22.6%	64,870	0.76%	65,477
Total Health Care Trust Funds[1]		$1,604,909		$1,615,437

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 6.75 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ARC	UAAL
HCTF	16.5%	$1,364,233	1.14%	$1,374,154
DPS HCTF	24.9%	57,267	0.69%	57,875
Total Health Care Trust Funds[1]		$1,421,500		$1,432,029

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

CURRENT INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 7.25 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ARC	UAAL
HCTF	**17.4%**	**$1,286,612**	**1.12%**	**$1,296,534**
DPS HCTF	**26.0%**	**53,900**	**0.67%**	**54,508**
Total Health Care Trust Funds[1]		$1,340,512		$1,351,042

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

HEALTH CARE TRUST FUNDS—OPEB

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 7.75 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ARC	UAAL
HCTF	18.2%	$1,214,954	1.09%	$1,224,876
DPS HCTF	27.2%	50,786	0.64%	51,394
Total Health Care Trust Funds[1]		$1,265,740		$1,276,270

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 8.75 PERCENT

(Dollars in Thousands)

	Actuarial Value of Assets			Market Value of Assets
Trust Fund	Funded Ratio	UAAL	ARC	UAAL
HCTF	19.9%	$1,087,289	1.05%	$1,097,210
DPS HCTF	29.5%	45,222	0.60%	45,829
Total Health Care Trust Funds[1]		$1,132,511		$1,143,039

[1] The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

Note: The time-weighted, net-of-fees annualized rate of return for the pooled investment assets was 8.5 percent for the past five years and 5.2 percent for the past 10 years. The 35-year annualized gross-of-fees rate of return for the pooled investment assets was 9.8 percent.

HEALTH CARE TRUST FUNDS—OPEB

Plan Data

SCHEDULE OF RETIREES, BENEFICIARIES, AND SURVIVORS ADDED TO AND REMOVED FROM THE BENEFIT PAYROLL

(In Actual Dollars)

	Added to Payroll		Removed from Payroll		Payroll—End of Year		Average	Increase in
Valuation Date	No.	Annual Benefits	No.	Annual Benefits	No.	Annual Benefits	Annual Benefits	Average Benefits
HCTF[1]								
12/31/2007					43,119	$75,263,268	$1,745	—
12/31/2008	3,479	$7,960,047	1,713	$2,767,245	44,885	78,323,211	1,745	0.0%
12/31/2009	3,435	7,886,217	1,582	2,442,462	46,738	81,765,552	1,749	0.2%
12/31/2010	3,633	8,290,281	1,653	2,623,104	48,718	85,247,016	1,750	0.1%
12/31/2011	3,399	7,638,162	1,900	2,999,430	50,217	86,755,011	1,728	(1.3%)
12/31/2012	3,489	7,844,610	2,040	3,548,532	51,666	90,123,660	1,744	0.9%
12/31/2013	3,256	7,098,720	1,881	3,383,139	53,041	91,009,965	1,716	(1.6%)
12/31/2014	3,231	6,954,234	2,196	3,945,282	54,076	91,222,002	1,687	(1.7%)
12/31/2015	3,271	6,998,325	2,255	3,920,028	55,092	91,545,543	1,662	(1.5%)
12/31/2016	**3,217**	**6,921,114**	**2,520**	**4,463,334**	**55,789**	**91,567,554**	**1,641**	**(1.3%)**
DPS HCTF[1, 2]								
12/31/2010	3,944	$6,446,394	—	$—	3,944	$6,446,394	$1,634	—
12/31/2011	203	411,792	189	292,905	3,958	6,296,871	1,591	(2.6%)
12/31/2012	168	340,929	165	258,957	3,961	6,086,352	1,537	(3.4%)
12/31/2013	198	428,532	164	241,845	3,995	6,098,082	1,526	(0.7%)
12/31/2014	184	368,943	217	346,587	3,962	5,961,324	1,505	(1.4%)
12/31/2015	174	360,111	206	330,648	3,930	5,829,741	1,483	(1.5%)
12/31/2016	**156**	**322,230**	**201**	**302,220**	**3,885**	**5,703,954**	**1,468**	**(1.0%)**
Total of Health Care Trust Funds[1, 3]								
12/31/2007					43,119	$75,263,268	$1,745	—
12/31/2008	3,479	$7,960,047	1,713	$2,767,245	44,885	78,323,211	1,745	0.0%
12/31/2009	3,435	7,886,217	1,582	2,442,462	46,738	81,765,552	1,749	0.2%
12/31/2010	7,577[4]	14,736,675	1,653	2,623,104	52,662[4]	91,693,410	1,741	(0.5%)
12/31/2011	3,602	8,049,954	2,089	3,292,335	54,175	93,051,882	1,718	(1.3%)
12/31/2012	3,657	8,185,539	2,205	3,807,489	55,627	96,210,012	1,730	0.7%
12/31/2013	3,454	7,527,252	2,045	3,624,984	57,036	97,108,047	1,703	(1.6%)
12/31/2014	3,415	7,323,177	2,413	4,291,869	58,038	97,183,326	1,674	(1.7%)
12/31/2015	3,445	7,358,436	2,461	4,250,676	59,022	97,375,284	1,650	(1.4%)
12/31/2016	**3,373**	**7,243,344**	**2,721**	**4,765,554**	**59,674**	**97,271,508**	**1,630**	**(1.2%)**

[1] The annual benefit is based upon creditable service and varies by attained age. Results do not include benefits valued for "No Part A" benefits or RDS subsidies prior to December 31, 2013.

[2] The DPS HCTF was established on January 1, 2010, and received the balance of the Denver Public Schools Retiree Health Benefit Trust.

[3] Data prior to 2010 does not include the DPS HCTF.

[4] Includes the addition of 3,944 beneficiaries due to the DPSRS merger.

HEALTH CARE TRUST FUNDS—OPEB

SCHEDULE OF ACTIVE MEMBER ACTUARIAL VALUATION DATA

As of December 31

(In Actual Dollars)

Year	Number of Participating Employers[1]	Number of Active Members	Annual Payroll for Active Members	Average Annual Pay for Active Members	% Increase (Decrease) in Average Annual Pay
HCTF					
2007	409	186,842	$6,566,368,545	$35,144	—
2008	413	190,684	6,931,404,440	36,350	3.43%
2009	411	190,206	7,048,991,770	37,060	1.95%
2010	489[2]	187,924	7,035,419,174	37,438	1.02%
2011	496[2]	186,170	6,972,597,196	37,453	0.04%
2012	500[2]	182,524	6,766,713,013	37,073	(1.01%)
2013	516[2]	185,367	6,982,560,466	37,669	1.61%
2014	531[2]	187,336	7,211,350,491	38,494	2.19%
2015	534[2]	188,040	7,485,544,867	39,808	3.41%
2016	**542**[2]	**190,741**	**7,716,892,488**	**40,457**	**1.63%**
DPS HCTF[3]					
2010	28[2]	13,171	$470,773,746	$35,743	—
2011	27[2]	13,571	491,646,251	36,228	1.36%
2012	29[2]	13,911	510,872,366	36,724	1.37%
2013	31[2]	14,816	547,659,912	36,964	0.65%
2014	34[2]	15,414	584,319,269	37,908	2.55%
2015	38[2]	15,929	621,114,573	38,993	2.86%
2016	**42**[2]	**15,950**	**642,177,158**	**40,262**	**3.25%**
Total of Health Care Trust Funds[4]					
2007	409	186,842	$6,566,368,545	$35,144	—
2008	413	190,684	6,931,404,440	36,350	3.43%
2009	411	190,206	7,048,991,770	37,060	1.95%
2010	517[2]	201,095	7,506,192,920	37,327	0.72%
2011	523[2]	199,741	7,464,243,447	37,370	0.12%
2012	529[2]	196,435	7,277,585,379	37,048	(0.86%)
2013	547[2]	200,183	7,530,220,378	37,617	1.54%
2014	565[2]	202,750	7,795,669,760	38,450	2.21%
2015	572[2]	203,969	8,106,659,440	39,745	3.37%
2016	**584**[2]	**206,691**	**8,359,069,646**	**40,442**	**1.75%**

[1] Any differences in the number of participating employers in this schedule compared to the same schedule for the Division Trust Funds are due to the definition of employer as promulgated by GASB 67.

[2] Includes charter schools operating within the School and DPS Divisions.

[3] The DPS HCTF was established on January 1, 2010, and received the balance of the Denver Public Schools Retiree Health Benefit Trust.

[4] Data prior to 2010 does not include the DPS HCTF.

STATISTICAL SECTION

Colorado PERA employers make a difference in their communities whether it's the Grand Junction Regional Airport Authority making sure the airport is safe and secure; the Veterans Community Living Center at Rifle caring for the parent of a fallen service member; or the Colorado Housing and Finance Authority supporting housing and community development.

In every corner of the state, PERA members and employers demonstrate their dedication to public service.

More than $17 million in tax revenue is generated from the nearly $313 million in benefits paid annually to the 9,071 PERA retirees in the Western region.

Statistical Section

The Statistical Section presents detailed information that assists users in utilizing the basic financial statements, notes to basic financial statements, and required supplementary information to assess the economic condition of PERA.

Overview

Financial Trends

The following schedules show trend information about the changes and growth in PERA's fiduciary net position over the past 10 years:

- *Changes in Fiduciary Net Position*
- *Benefits and Refund Deductions From Fiduciary Net Position by Type*

Operating Information

The following schedules contain information related to the services that PERA provides and the activities it performs:

- *Member and Benefit Recipient Statistics*[1]
- *Breakdown of Membership by Percentage*[1]
- *Schedule of Average Retirement Benefits Payable—All Division Trust Funds*[1]
- *Schedule of Average Retirement Benefits Payable*[1]
- *Colorado PERA Benefit Payments—All Division Trust Funds*[1]
- *Schedule of Retirees and Survivors by Types of Benefits*[1]
- *Schedule of Average Benefit Payments*[1]
- *Schedule of Contribution Rate History*
- *Principal Participating Employers*
- *Schedule of Affiliated Employers*

Note: Schedules and information are derived from PERA internal sources unless otherwise noted.

[1] Schedules and data are provided by the consulting actuary, Cavanaugh Macdonald Consulting, LLC.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31
(Dollars in Thousands)

State Division Trust Fund

	2007	2008	2009	2010	2011
Additions					
Employer contributions[1]	$232,997	$270,353	$297,240	$287,624	$283,222
Member contributions[1]	179,971	191,481	194,168	223,240	258,678
Purchased service	8,259	13,315	8,830	12,496	11,277
Investment income (loss)	1,388,265	(3,745,843)	1,742,571	1,553,142	232,669
Other	4	7	3	1	331
Total additions	1,809,496	(3,270,687)	2,242,812	2,076,503	786,177
Deductions					
Benefit payments	925,761	999,279	1,071,725	1,122,435	1,174,707
Refunds	56,578	56,716	58,416	68,844	70,090
Disability insurance premiums	1,833	1,794	2,004	1,661	1,685
Administrative expenses	6,963	8,639	8,729	8,942	8,685
Other	7,592	6,613	(1,519)	(726)	(4,546)
Total deductions	998,727	1,073,041	1,139,355	1,201,156	1,250,621
Change in fiduciary net position	810,769	(4,343,728)	1,103,457	875,347	(464,444)
Fiduciary net position held at beginning of year	14,041,260	14,852,029	10,508,301	11,611,758	12,487,105
Fiduciary net position held at end of year	$14,852,029	$10,508,301	$11,611,758	$12,487,105	$12,022,661

	2012	2013	2014	2015	2016
Additions					
Employer contributions[1]	$335,073	$401,658	$444,372	$484,005	**$521,804**
Member contributions[1]	227,058	202,799	211,610	217,980	**223,005**
Purchased service	16,358	22,241	22,446	26,946	**24,528**
Investment income	1,511,244	1,931,658	780,762	210,337	**947,981**
Other	150	4,869	3,289	5,023	**8,708**
Total additions	2,089,883	2,563,225	1,462,479	944,291	**1,726,026**
Deductions					
Benefit payments	1,231,922	1,295,780	1,352,293	1,417,862	**1,483,828**
Refunds	69,221	68,735	61,152	63,567	**60,137**
Disability insurance premiums	1,570	2,229	2,309	2,088	**2,106**
Administrative expenses	8,568	9,780	10,067	10,779	**11,271**
Other	3,911	3,593	3,171	3,406	**3,040**
Total deductions	1,315,192	1,380,117	1,428,992	1,497,702	**1,560,382**
Change in fiduciary net position	774,691	1,183,108	33,487	(553,411)	**165,644**
Fiduciary net position held at beginning of year	12,022,661	12,797,352	13,980,460	14,013,947	**13,460,536**
Fiduciary net position held at end of year	$12,797,352	$13,980,460	$14,013,947	$13,460,536	**$13,626,180**

[1] Employer and member contribution rate history is shown on pages 222–227.

CHANGES IN FIDUCIARY NET POSITION
For the Years Ended December 31
(Dollars in Thousands)

School Division Trust Fund

	2007	2008	2009	2010	2011
Additions					
Employer contributions[1]	$375,480	$430,215	$480,239	$519,044	$541,962
Member contributions[1]	289,231	304,686	314,571	316,446	315,958
Purchased service	14,331	15,020	10,152	13,096	14,465
Investment income (loss)	2,145,958	(5,842,787)	2,741,797	2,469,517	370,045
Other	15	19	12	25	544
Total additions	2,825,015	(5,092,847)	3,546,771	3,318,128	1,242,974
Deductions					
Benefit payments	1,329,803	1,449,907	1,563,315	1,642,350	1,731,348
Refunds	67,710	65,659	70,910	79,012	78,543
Disability insurance premiums	2,983	2,886	3,186	2,802	2,619
Administrative expenses	11,942	12,815	13,226	17,104	16,322
Other	5,348	3,272	9,121	9,396	9,839
Total deductions	1,417,786	1,534,539	1,659,758	1,750,664	1,838,671
Change in fiduciary net position	1,407,229	(6,627,386)	1,887,013	1,567,464	(595,697)
Fiduciary net position held at beginning of year	21,635,957	23,043,186	16,415,800	18,302,813	19,870,277
Fiduciary net position held at end of year	$23,043,186	$16,415,800	$18,302,813	$19,870,277	$19,274,580

	2012	2013	2014	2015	2016
Additions					
Employer contributions[1]	$573,586	$624,784	$686,323	$754,182	**$812,740**
Member contributions[1]	313,923	322,217	334,585	348,537	**359,059**
Purchased service	17,406	19,285	21,935	23,841	**27,422**
Investment income	2,434,176	3,136,269	1,274,862	344,000	**1,569,026**
Other	246	139	112	96	**109**
Total additions	3,339,337	4,102,694	2,317,817	1,470,656	**2,768,356**
Deductions					
Benefit payments	1,832,643	1,932,756	2,032,628	2,134,754	**2,231,475**
Refunds	77,154	76,980	77,171	70,298	**65,715**
Disability insurance premiums	2,522	3,655	3,748	3,400	**3,454**
Administrative expenses	16,086	18,523	19,290	20,865	**21,991**
Other	9,157	7,132	4,376	9,178	**17,443**
Total deductions	1,937,562	2,039,046	2,137,213	2,238,495	**2,340,078**
Change in fiduciary net position	1,401,775	2,063,648	180,604	(767,839)	**428,278**
Fiduciary net position held at beginning of year	19,274,580	20,676,355	22,740,003	22,920,607	**22,152,768**
Fiduciary net position held at end of year	$20,676,355	$22,740,003	$22,920,607	$22,152,768	$22,581,046

[1] Employer and member contribution rate history is shown on pages 222–227.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31
(Dollars in Thousands)

Local Government Division Trust Fund

	2007	2008	2009	2010	2011
Additions					
Employer contributions[1]	$68,711	$79,457	$84,456	$89,515	$91,780
Member contributions[1]	54,880	58,508	57,598	56,728	58,590
Purchased service	2,447	3,820	4,460	3,671	3,902
Investment income (loss)	274,991	(778,885)	381,350	355,964	53,130
Other	12	(2)	2	9	78
Total additions	401,041	(637,102)	527,866	505,887	207,480
Deductions					
Benefit payments	117,350	132,696	150,036	165,770	179,449
Refunds	16,683	18,219	19,648	22,942	22,686
Disability insurance premiums	561	560	591	496	442
Administrative expenses	1,918	2,102	2,160	2,215	2,157
Other	1,326	2,014	2,737	5,235	2,737
Total deductions	137,838	155,591	175,172	196,658	207,471
Change in fiduciary net position	263,203	(792,693)	352,694	309,229	9
Fiduciary net position held at beginning of year	2,751,071	3,014,274	2,221,581	2,574,275	2,883,504
Fiduciary net position held at end of year	$3,014,274	$2,221,581	$2,574,275	$2,883,504	$2,883,513

	2012	2013	2014	2015	2016
Additions					
Employer contributions[1]	$86,113	$67,197	$68,719	$70,415	**$75,132**
Member contributions[1]	54,827	42,627	43,792	45,400	**48,470**
Purchased service	13,927	7,363	5,498	6,586	**3,981**
Employer disaffiliation	—	—	186,006	—	**—**
Investment income	368,492	482,297	200,394	56,328	**261,276**
Other	2,663	14	14	15	**17**
Total additions	526,022	599,498	504,423	178,744	**388,876**
Deductions					
Benefit payments	195,945	217,875	232,055	244,948	**258,967**
Refunds	42,941	32,480	24,436	20,410	**12,938**
Disability insurance premiums	410	479	481	431	**439**
Administrative expenses	2,035	2,021	2,091	2,253	**2,395**
Other	2,072	4,463	2,204	1,661	**1,140**
Total deductions	243,403	257,318	261,267	269,703	**275,879**
Change in fiduciary net position	282,619	342,180	243,156	(90,959)	**112,997**
Fiduciary net position held at beginning of year	2,883,513	3,166,132	3,508,312	3,751,468	**3,660,509**
Fiduciary net position held at end of year	$3,166,132	$3,508,312	$3,751,468	$3,660,509	$3,773,506

[1] Employer and member contribution rate history is shown on pages 222–227.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

Judicial Division Trust Fund

	2007	2008	2009	2010	2011
Additions					
Employer contributions[1]	$4,222	$5,105	$5,793	$5,654	$5,430
Member contributions[1]	2,479	2,806	3,001	3,465	4,120
Purchased service	80	392	(3)	109	5
Investment income (loss)	21,965	(61,192)	29,977	27,400	4,105
Other	—	—	—	—	6
Total additions	28,746	(52,889)	38,768	36,628	13,666
Deductions					
Benefit payments	12,396	13,356	15,011	15,394	16,809
Refunds	4	—	30	104	513
Disability insurance premiums	25	26	31	26	26
Administrative expenses	19	21	22	61	61
Other	(2,908)	(322)	(1,778)	(2,491)	(1,043)
Total deductions	9,536	13,081	13,316	13,094	16,366
Change in fiduciary net position	19,210	(65,970)	25,452	23,534	(2,700)
Fiduciary net position held at beginning of year	221,663	240,873	174,903	200,355	223,889
Fiduciary net position held at end of year	$240,873	$174,903	$200,355	$223,889	$221,189

	2012	2013	2014	2015	2016
Additions					
Employer contributions[1]	$5,922	$6,587	$7,070	$7,702	**$8,024**
Member contributions[1]	3,628	3,224	3,461	3,772	**3,928**
Purchased service	180	240	835	425	**109**
Investment income	28,063	37,096	15,299	4,149	**19,783**
Other	2,556	1,451	256	3,247	**2,800**
Total additions	40,349	48,598	26,921	19,295	**34,644**
Deductions					
Benefit payments	17,606	18,616	19,800	21,158	**22,734**
Refunds	605	385	60	—	**109**
Disability insurance premiums	27	40	43	42	**45**
Administrative expenses	61	69	72	77	**81**
Other	22	52	100	166	**122**
Total deductions	18,321	19,162	20,075	21,443	**23,091**
Change in fiduciary net position	22,028	29,436	6,846	(2,148)	**11,553**
Fiduciary net position held at beginning of year	221,189	243,217	272,653	279,499	**277,351**
Fiduciary net position held at end of year	$243,217	$272,653	$279,499	$277,351	**$288,904**

[1] Employer and member contribution rate history is shown on pages 222–227.

CHANGES IN FIDUCIARY NET POSITION
For the Years Ended December 31
(Dollars in Thousands)

DPS Division Trust Fund[1]

	2010	2011	2012	2013
Additions				
Employer contributions[2]	$6,493	$12,859	$14,703	$25,157
Member contributions[2]	36,824	39,422	41,124	43,564
Plan transfer	2,750,566	—	—	—
Purchased service	2,056	1,792	1,924	1,834
Investment income	367,145	55,081	354,867	452,919
Other	5	77	146	269
Total additions	3,163,089	109,231	412,764	523,743
Deductions				
Benefit payments	215,825	221,113	228,742	237,921
Refunds	3,029	4,412	5,821	6,733
Disability insurance premiums	311	238	220	338
Administrative expenses	2,944	1,914	1,919	2,240
Other	54	2,409	55	150
Total deductions	222,163	230,086	236,757	247,382
Change in fiduciary net position	2,940,926	(120,855)	176,007	276,361
Fiduciary net position held at beginning of year	—	2,940,926	2,820,071	2,996,078
Fiduciary net position held at end of year	$2,940,926	$2,820,071	$2,996,078	$3,272,439

	2014	2015	2016
Additions			
Employer contributions[2]	$18,478	$8,494	**$17,071**
Member contributions[2]	47,083	49,973	**52,740**
Plan transfer	—	—	**—**
Purchased service	2,326	3,585	**2,112**
Investment income	182,823	49,172	**218,415**
Other	13	11	**3,264**
Total additions	250,723	111,235	**293,602**
Deductions			
Benefit payments	247,005	255,068	**263,152**
Refunds	8,063	7,897	**8,521**
Disability insurance premiums	366	358	**398**
Administrative expenses	2,377	2,599	**2,754**
Other	1,560	1,775	**129**
Total deductions	259,371	267,697	**274,954**
Change in fiduciary net position	(8,648)	(156,462)	**18,648**
Fiduciary net position held at beginning of year	3,272,439	3,263,791	**3,107,329**
Fiduciary net position held at end of year	$3,263,791	$3,107,329	**$3,125,977**

[1] The Denver Public Schools (DPS) Division Trust Fund was established on January 1, 2010, and received the net assets of the Denver Public Schools Retirement System (DPSRS).

[2] Employer and member contribution rate history is shown on pages 222–227.

CHANGES IN FIDUCIARY NET POSITION
For the Years Ended December 31
(Dollars in Thousands)

Voluntary Investment Program

	2007[1]	2008[1]	2009	2010	2011
Additions					
Employer contributions	$3,252	$3,866	$3,383	$3,827	$3,610
Member contributions	171,630	157,937	134,645	132,674	126,331
Plan transfer	—	—	18,358	—	—
Investment income (loss)	125,576	(500,862)	291,029	194,500	(5,752)
Other	6,317	4,472	3,654	3,697	3,298
Total additions	306,775	(334,587)	451,069	334,698	127,487
Deductions					
Refunds	92,607	87,571	75,351	102,056	133,719
Administrative expenses	5,482	4,965	4,664	5,178	4,717
Other	—	—	—	—	29
Total deductions	98,089	92,536	80,015	107,234	138,465
Change in fiduciary net position	208,686	(427,123)	371,054	227,464	(10,978)
Fiduciary net position held at beginning of year	1,522,244	1,730,930	1,303,807	1,674,861	1,902,325
Fiduciary net position held at end of year	$1,730,930	$1,303,807	$1,674,861	$1,902,325	$1,891,347

	2012	2013	2014	2015	2016
Additions					
Employer contributions	$3,697	$3,679	$3,866	$3,889	**$4,740**
Member contributions	119,013	120,203	126,112	129,990	**129,909**
Investment income (loss)	236,775	423,877	188,199	(11,773)	**206,933**
Other	2,075	2,141	2,291	2,237	**2,170**
Total additions	361,560	549,900	320,468	124,343	**343,752**
Deductions					
Refunds	144,171	142,064	144,329	158,215	**154,202**
Administrative expenses	2,827	3,137	3,050	3,010	**2,814**
Other	234	624	839	1,019	**1,172**
Total deductions	147,232	145,825	148,218	162,244	**158,188**
Change in fiduciary net position	214,328	404,075	172,250	(37,901)	**185,564**
Fiduciary net position held at beginning of year	1,891,347	2,105,675	2,509,750	2,682,000	**2,644,099**
Fiduciary net position held at end of year	$2,105,675	$2,509,750	$2,682,000	$2,644,099	**$2,829,663**

[1] To improve trend analysis, the year has been restated to remove the Defined Contribution Retirement Plan which was reported as a component of the Voluntary Investment Program. For the years 2007–2008, the Defined Contribution Plan was a component plan in the Voluntary Investment Program Trust. In 2009, the Defined Contribution Retirement Plan became a separate trust.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31
(Dollars in Thousands)

Defined Contribution Retirement Plan

	2007[1]	2008[1]	2009	2010	2011
Additions					
Employer contributions	$1,104	$1,946	$5,899	$6,428	$7,034
Member contributions	880	1,564	4,652	6,896	9,732
Plan transfer	—	—	18,374	11	—
Investment income (loss)	69	(841)	5,060	5,519	(1,130)
Other	49	3	14	35	40
Total additions	2,102	2,672	33,999	18,889	15,676
Deductions					
Refunds	148	215	1,377	2,886	5,176
Administrative expenses	2	8	143	94	282
Other	—	—	—	—	5
Total deductions	150	223	1,520	2,980	5,463
Change in fiduciary net position	1,952	2,449	32,479	15,909	10,213
Fiduciary net position held at beginning of year	595	2,547	4,996	37,475	53,384
Fiduciary net position held at end of year	$2,547	$4,996	$37,475	$53,384	$63,597

	2012	2013	2014	2015	2016
Additions					
Employer contributions	$7,997	$11,090	$11,531	$12,428	**$13,060**
Member contributions	8,364	8,828	9,179	9,830	**10,382**
Investment income (loss)	9,046	17,416	6,745	(2,466)	**12,601**
Other	2	6	8	9	**92**
Total additions	25,409	37,340	27,463	19,801	**36,135**
Deductions					
Refunds	4,869	6,314	8,690	9,419	**8,932**
Administrative expenses	848	744	738	774	**726**
Other	22	49	69	48	**97**
Total deductions	5,739	7,107	9,497	10,241	**9,755**
Change in fiduciary net position	19,670	30,233	17,966	9,560	**26,380**
Fiduciary net position held at beginning of year	63,597	83,267	113,500	131,466	**141,026**
Fiduciary net position held at end of year	$83,267	$113,500	$131,466	$141,026	**$167,406**

[1] To improve trend analysis, the year has been restated to report changes in fiduciary net position which were included in the Voluntary Investment Program. For the years 2007–2008, the Defined Contribution Plan was a component plan in the Voluntary Investment Program Trust. In 2009, the Defined Contribution Retirement Plan became a separate trust.

CHANGES IN FIDUCIARY NET POSITION
For the Years Ended December 31
(Dollars in Thousands)

Deferred Compensation Plan[1]

	2009	2010	2011	2012
Additions				
Employer contributions	$12	$12	$51	$14
Member contributions	23,875	44,203	42,253	39,851
Plan transfer	336,504	24	4	—
Investment income	40,443	42,232	10,335	49,344
Other	1,820	917	984	354
Total additions	402,654	87,388	53,627	89,563
Deductions				
Refunds	8,745	20,869	27,524	27,627
Administrative expenses	507	822	834	1,105
Other	50	168	185	278
Total deductions	9,302	21,859	28,543	29,010
Change in fiduciary net position	393,352	65,529	25,084	60,553
Fiduciary net position held at beginning of year	—	393,352	458,881	483,965
Fiduciary net position held at end of year	$393,352	$458,881	$483,965	$544,518

	2013	2014	2015	2016
Additions				
Employer contributions	$20	$43	$27	**$26**
Member contributions	44,449	50,370	49,719	**51,601**
Investment income (loss)	88,565	32,133	(6,427)	**51,372**
Other	428	478	484	**496**
Total additions	133,462	83,024	43,803	**103,495**
Deductions				
Refunds	32,854	35,584	39,945	**41,922**
Administrative expenses	1,094	1,074	1,071	**963**
Other	430	517	562	**604**
Total deductions	34,378	37,175	41,578	**43,489**
Change in fiduciary net position	99,084	45,849	2,225	**60,006**
Fiduciary net position held at beginning of year	544,518	643,602	689,451	**691,676**
Fiduciary net position held at end of year	$643,602	$689,451	$691,676	**$751,682**

[1] On July 1, 2009, the State of Colorado’s Deferred Compensation Plan assets transferred to PERA, which became the administrator of that plan under the provisions of SB 09-66.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31
(Dollars in Thousands)

Health Care Trust Fund

	2007	2008	2009	2010	2011
Additions					
Employer contributions[1]	$68,508	$72,599	$74,073	$74,047	$73,449
Retiree health care premiums	96,345	102,644	106,903	110,158	108,689
Federal health care subsidies	12,397	13,743	13,633	25,751	14,151
Investment income (loss)	23,868	(72,423)	35,483	34,676	5,153
Other	12,454	12,803	12,721	16,035	10,574
Total additions	213,572	129,366	242,813	260,667	212,016
Deductions					
Benefit payments	159,939	196,769	192,656	192,044	203,419
Administrative expenses	11,051	11,838	12,170	11,131	12,481
Total deductions	170,990	208,607	204,826	203,175	215,900
Change in fiduciary net position	42,582	(79,241)	37,987	57,492	(3,884)
Fiduciary net position held at beginning of year	226,850	269,432	190,191	228,178	285,670
Fiduciary net position held at end of year	$269,432	$190,191	$228,178	$285,670	$281,786

	2012	2013	2014	2015	2016
Additions					
Employer contributions[1]	$72,553	$72,784	$75,631	$78,463	**$80,825**
Retiree health care premiums	107,104	114,364	105,459	127,873	**138,021**
Federal health care subsidies	14,198	15,731	—	—	**—**
Employer disaffiliation	—	—	3,994	—	**—**
Investment income	36,710	46,097	18,203	4,807	**19,021**
Other	11,668	10,522	9,813	9,993	**9,175**
Total additions	242,233	259,498	213,100	221,136	**247,042**
Deductions					
Benefit payments	218,768	222,860	200,627	234,414	**243,662**
Administrative expenses	13,514	13,766	16,612	19,261	**19,166**
Other	—	—	832	594	**491**
Total deductions	232,282	236,626	218,071	254,269	**263,319**
Change in fiduciary net position	9,951	22,872	(4,971)	(33,133)	**(16,277)**
Fiduciary net position held at beginning of year	281,786	291,737	314,609	309,638	**276,505**
Fiduciary net position held at end of year	$291,737	$314,609	$309,638	$276,505	**$260,228**

[1] Employer contribution rate history is shown on page 227.

CHANGES IN FIDUCIARY NET POSITION
For the Years Ended December 31
(Dollars in Thousands)

DPS Health Care Trust Fund[1]

	2010	2011	2012	2013
Additions				
Employer contributions[2]	$4,762	$5,029	$5,243	$5,558
Plan transfer	13,510	—	—	—
Retiree health care premiums	4,747	4,529	4,295	4,719
Federal health care subsidies	1,252	499	488	563
Investment income	1,992	424	1,800	2,277
Other	109	374	216	312
Total additions	26,372	10,855	12,042	13,429
Deductions				
Benefit payments	11,012	10,770	11,027	11,222
Administrative expenses	569	501	547	561
Total deductions	11,581	11,271	11,574	11,783
Change in fiduciary net position	14,791	(416)	468	1,646
Fiduciary net position held at beginning of year	—	14,791	14,375	14,843
Fiduciary net position held at end of year	$14,791	$14,375	$14,843	$16,489

	2014	2015	2016
Additions			
Employer contributions[2]	$6,003	$6,371	**$6,723**
Retiree health care premiums	4,442	6,275	**6,738**
Investment income	938	254	**1,235**
Other	281	301	**289**
Total additions	11,664	13,201	**14,985**
Deductions			
Benefit payments	10,432	12,442	**12,748**
Administrative expenses	668	822	**818**
Other	32	22	**18**
Total deductions	11,132	13,286	**13,584**
Change in fiduciary net position	532	(85)	**1,401**
Fiduciary net position held at beginning of year	16,489	17,021	**16,936**
Fiduciary net position held at end of year	$17,021	$16,936	**$18,337**

[1] The Denver Public Schools Health Care Trust Fund (DPS HCTF) was established on January 1, 2010, and received the balance of the Denver Public Schools Retiree Health Benefit Trust.

[2] Employer contribution rate history is shown on page 227.

CHANGES IN FIDUCIARY NET POSITION
For the Years Ended December 31
(Dollars in Thousands)

Life Insurance Reserve

	2007	2008	2009	2010	2011
Additions					
Life insurance premiums	$9,075	$1,772	$—	$—	$—
Investment income (loss)	2,851	(4,693)	2,496	2,280	503
Total additions	11,926	(2,921)	2,496	2,280	503
Deductions					
Life insurance premiums and claims	7,961	2,820	575	545	547
Administrative expenses	1,732	486	576	575	573
Total deductions	9,693	3,306	1,151	1,120	1,120
Change in fiduciary net position	2,233	(6,227)	1,345	1,160	(617)
Fiduciary net position held at beginning of year	16,522	18,755	12,528	13,873	15,033
Fiduciary net position held at end of year	$18,755	$12,528	$13,873	$15,033	$14,416

	2012	2013	2014	2015	2016
Additions					
Investment income	$2,020	$2,630	$1,068	$302	**$1,289**
Total additions	2,020	2,630	1,068	302	**1,289**
Deductions					
Life insurance premiums	62	131	196	250	**306**
Administrative expenses	510	871	871	805	**1,032**
Total deductions	572	1,002	1,067	1,055	**1,338**
Change in fiduciary net position	1,448	1,628	1	(753)	**(49)**
Fiduciary net position held at beginning of year	14,416	15,864	17,492	17,493	**16,740**
Fiduciary net position held at end of year	$15,864	$17,492	$17,493	$16,740	$16,691

BENEFITS AND REFUND DEDUCTIONS FROM FIDUCIARY NET POSITION BY TYPE

For the Years Ended December 31
(Dollars in Thousands)

State Division Trust Fund

	2007	2008	2009	2010	2011
Type of Benefit					
Age and service benefits:					
Retirees	$838,033	$910,475	$979,419	$1,031,628	$1,083,722
Disability	75,212	76,056	78,799	77,830	77,715
Survivors	12,516	12,748	13,507	12,977	13,270
Total benefits	**$925,761**	**$999,279**	**$1,071,725**	**$1,122,435**	**$1,174,707**
Type of Refund					
Separation	$53,220	$51,047	$53,668	$59,330	$65,525
Death	2,825	5,014	3,760	9,047	3,986
Purchased service	533	655	988	467	579
Total refunds	**$56,578**	**$56,716**	**$58,416**	**$68,844**	**$70,090**

	2012	2013	2014	2015	2016
Type of Benefit					
Age and service benefits:					
Retirees	$1,140,055	$1,202,238	$1,257,767	$1,322,592	**$1,387,374**
Disability	78,689	79,854	80,753	81,310	**82,221**
Survivors	13,178	13,688	13,773	13,960	**14,233**
Total benefits	**$1,231,922**	**$1,295,780**	**$1,352,293**	**$1,417,862**	**$1,483,828**
Type of Refund					
Separation	$65,627	$64,072	$57,895	$58,274	**$54,606**
Death	3,503	4,411	3,058	5,213	**5,464**
Purchased service	91	252	199	80	**67**
Total refunds	**$69,221**	**$68,735**	**$61,152**	**$63,567**	**$60,137**

School Division Trust Fund

	2007	2008	2009	2010	2011
Type of Benefit					
Age and service benefits:					
Retirees	$1,261,407	$1,378,531	$1,490,293	$1,568,637	$1,657,071
Disability	57,054	59,019	60,532	60,920	61,150
Survivors	11,342	12,357	12,490	12,793	13,127
Total benefits	**$1,329,803**	**$1,449,907**	**$1,563,315**	**$1,642,350**	**$1,731,348**
Type of Refund					
Separation	$62,784	$61,259	$67,330	$74,423	$74,446
Death	4,455	3,530	2,725	4,206	3,676
Purchased service	471	870	855	383	421
Total refunds	**$67,710**	**$65,659**	**$70,910**	**$79,012**	**$78,543**

	2012	2013	2014	2015	2016
Type of Benefit					
Age and service benefits:					
Retirees	$1,757,279	$1,855,195	$1,952,989	$2,053,108	**$2,149,415**
Disability	62,140	63,741	65,780	67,203	**67,416**
Survivors	13,224	13,820	13,859	14,443	**14,644**
Total benefits	**$1,832,643**	**$1,932,756**	**$2,032,628**	**$2,134,754**	**$2,231,475**
Type of Refund					
Separation	$73,075	$73,215	$73,522	$66,494	**$60,873**
Death	3,815	3,282	3,521	3,621	**4,756**
Purchased service	264	483	128	183	**86**
Total refunds	**$77,154**	**$76,980**	**$77,171**	**$70,298**	**$65,715**

BENEFITS AND REFUND DEDUCTIONS FROM FIDUCIARY NET POSITION BY TYPE

For the Years Ended December 31

(Dollars in Thousands)

Local Government Division Trust Fund

	2007	2008	2009	2010	2011
Type of Benefit					
Age and service benefits:					
Retirees	$102,239	$116,951	$133,732	$149,260	$162,681
Disability	13,376	13,900	14,407	14,572	14,727
Survivors	1,735	1,845	1,897	1,938	2,041
Total benefits	**$117,350**	**$132,696**	**$150,036**	**$165,770**	**$179,449**
Type of Refund					
Separation	$15,835	$16,742	$18,703	$21,999	$21,316
Death	647	1,399	574	750	1,283
Purchased service	201	78	371	193	87
Total refunds	**$16,683**	**$18,219**	**$19,648**	**$22,942**	**$22,686**

	2012	2013	2014	2015	2016
Type of Benefit					
Age and service benefits:					
Retirees	$178,845	$199,821	$213,962	$226,400	**$240,432**
Disability	15,096	16,022	16,045	16,327	**16,274**
Survivors	2,004	2,032	2,048	2,221	**2,261**
Total benefits	**$195,945**	**$217,875**	**$232,055**	**$244,948**	**$258,967**
Type of Refund					
Separation	$41,696	$31,268	$23,034	$18,062	**$12,017**
Death	1,154	1,201	1,401	2,317	**921**
Purchased service	91	11	1	31	**—**
Total refunds	**$42,941**	**$32,480**	**$24,436**	**$20,410**	**$12,938**

Judicial Division Trust Fund

	2007	2008	2009	2010	2011
Type of Benefit					
Age and service benefits:					
Retirees	$11,292	$12,113	$13,734	$14,126	$15,563
Disability	746	850	913	917	889
Survivors	358	393	364	351	357
Total benefits	**$12,396**	**$13,356**	**$15,011**	**$15,394**	**$16,809**
Type of Refund					
Separation	$—	$—	$30	$104	$513
Purchased service	4	—	—	—	—
Total refunds	**$4**	**$—**	**$30**	**$104**	**$513**

	2012	2013	2014	2015	2016
Type of Benefit					
Age and service benefits:					
Retirees	$16,333	$17,362	$18,573	$19,901	**$21,485**
Disability	897	908	917	938	**939**
Survivors	376	346	310	319	**310**
Total benefits	**$17,606**	**$18,616**	**$19,800**	**$21,158**	**$22,734**
Type of Refund					
Separation	$250	$385	$60	$—	**$109**
Death	355	—	—	—	**—**
Total refunds	**$605**	**$385**	**$60**	**$—**	**$109**

BENEFITS AND REFUND DEDUCTIONS FROM FIDUCIARY NET POSITION BY TYPE

For the Years Ended December 31
(Dollars in Thousands)

DPS Division Trust Fund[1]

	2010	2011	2012	2013
Type of Benefit				
Age and service benefits:				
Retirees	$207,398	$212,524	$220,106	$228,692
Disability	6,886	7,078	7,070	7,592
Survivors	1,541	1,511	1,566	1,637
Total benefits	**$215,825**	**$221,113**	**$228,742**	**$237,921**
Type of Refund				
Separation	$2,947	$4,322	$5,602	$6,558
Death	82	82	217	160
Purchased service	—	8	2	15
Total refunds	**$3,029**	**$4,412**	**$5,821**	**$6,733**

	2014	2015	2016
Type of Benefit			
Age and service benefits:			
Retirees	$237,955	$245,683	**$253,641**
Disability	7,482	7,804	**7,929**
Survivors	1,568	1,581	**1,582**
Total benefits	**$247,005**	**$255,068**	**$263,152**
Type of Refund			
Separation	$7,424	$7,685	**$7,894**
Death	631	207	**616**
Purchased service	8	5	**11**
Total refunds	**$8,063**	**$7,897**	**$8,521**

[1] The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of DPSRS.

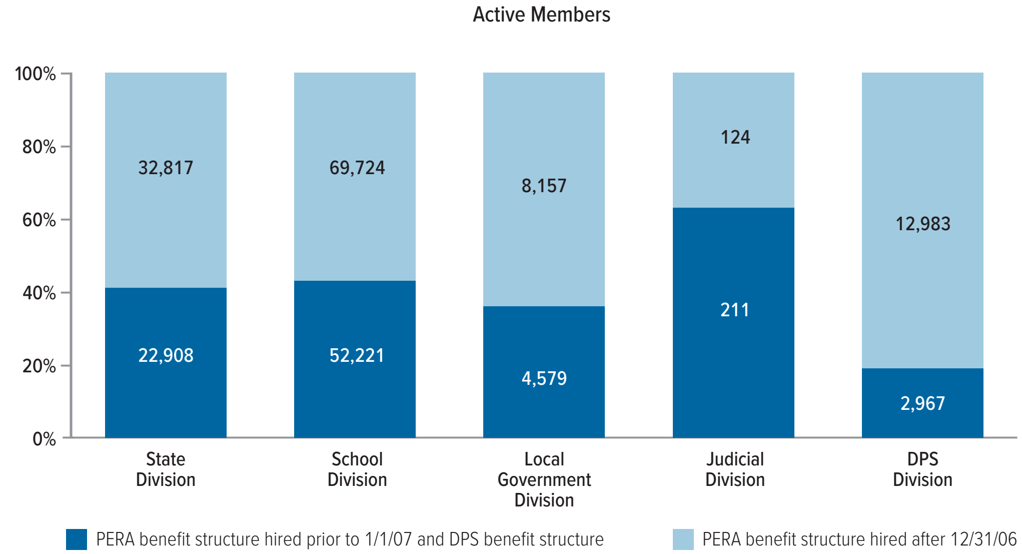
MEMBER AND BENEFIT RECIPIENT STATISTICS[1]

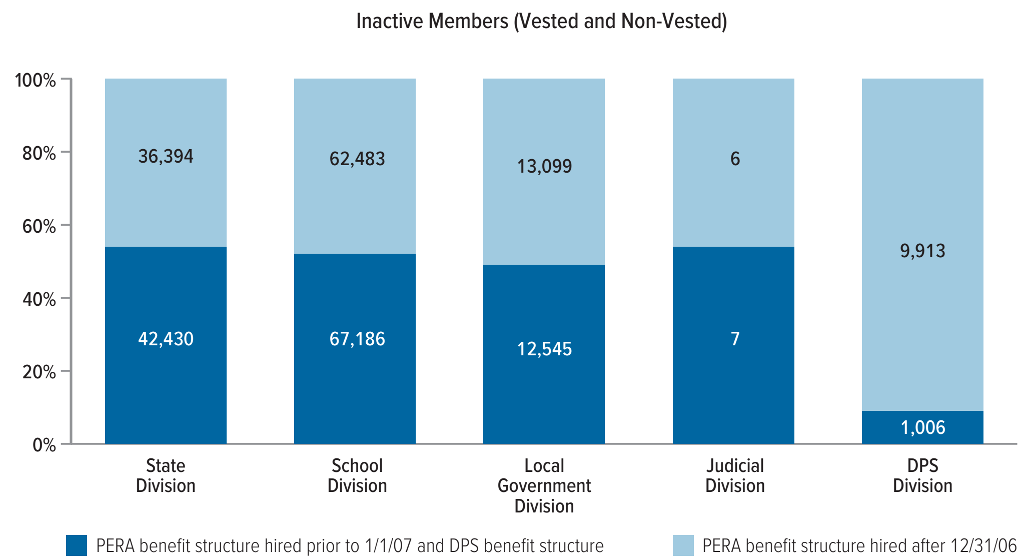
(In Actual Dollars)

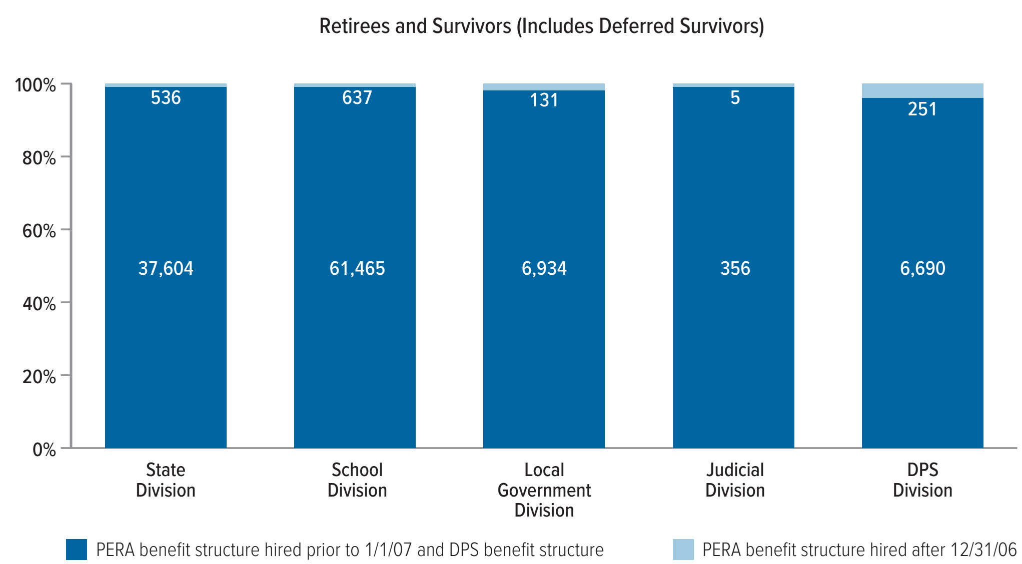
	State Division	School Division	Local Government Division	Judicial Division	DPS Division	Total
Active Members						
Active members as of December 31, 2016	**55,725**	**121,945**	**12,736**	**335**	**15,950**	**206,691**
Retirements during 2016						
Disability retirements	87	83	14	1	12	**197**
Service retirements	1,813	2,874	367	26	302	**5,382**
Total	**1,900**	**2,957**	**381**	**27**	**314**	**5,579**
Retirement benefits						
Total receiving disability and service retirement benefits on December 31, 2015	35,977	58,855	6,597	330	6,667	**108,426**
Total retiring during 2016	1,900	2,957	381	27	314	**5,579**
Cobeneficiaries continuing after retiree's death	264	256	44	5	49	**618**
Returning to retirement rolls from suspension	13	23	1	—	1	**38**
Total	38,154	62,091	7,023	362	7,031	**114,661**
Retirees and cobeneficiaries deceased during year	1,031	1,245	139	15	225	**2,655**
Retirees suspending benefits to return to work	11	17	1	—	2	**31**
Total receiving retirement benefits	**37,112**	**60,829**	**6,883**	**347**	**6,804**	**111,975**
Annual retirement benefits for retirees as of December 31, 2016	$1,489,600,308	$2,252,682,204	$259,757,160	$23,416,440	$265,163,100	$4,290,619,212
Average monthly benefit on December 31, 2016	$3,345	$3,086	$3,145	$5,624	$3,248	$3,193
Average monthly benefit for all members who retired during 2016	$2,812	$2,303	$2,467	$6,192	$2,520	$2,519
Survivor benefits						
Survivor benefit accounts						
Total survivors being paid on December 31, 2016	901	1,111	162	13	131	2,318
Annual benefits payable to survivors as of December 31, 2016	$19,695,444	$18,489,456	$3,372,108	$408,948	$2,514,012	$44,479,968
Future benefits						
Future retirements to age 62 or 65	6,426	15,727	2,748	8	1,374	26,283
Total annual future benefits	$67,094,728	$119,330,279	$36,405,863	$241,884	$14,253,402	$237,326,156
Future survivor beneficiaries of inactive members	127	162	20	1	6	316
Total annual future benefits	$1,691,256	$1,986,576	$262,392	$9,120	$83,232	$4,032,576

[1] In addition, as of December 31, 2016, there was a total of 218,786 non-vested terminated members due a refund of their contributions as follows: State Division—72,398; School Division—113,942; Local Government Division—22,896; Judicial Division—5; DPS Division—9,545.

BREAKDOWN OF MEMBERSHIP BY PERCENTAGE
As of December 31, 2016







SCHEDULE OF AVERAGE RETIREMENT BENEFITS PAYABLE—ALL DIVISION TRUST FUNDS[1, 2]

(In Actual Dollars)

Year Ended	Average Monthly Benefit	Average Age at Retirement	Average Current Age of Retirees	Average Years of Service at Retirement	Average Age at Death
12/31/2007	$2,658	58.0	68.9	23.1	N/A
12/31/2008	2,772	58.0	69.0	23.2	N/A
12/31/2009	2,885	58.0	69.3	23.3	N/A
12/31/2010	2,905	58.1	69.7	23.6	N/A
12/31/2011	2,966	58.1	69.9	23.6	N/A
12/31/2012	3,020	58.2	70.0	23.5	N/A
12/31/2013	3,068	58.2	70.4	23.5	82.0[3]
12/31/2014	3,112	58.3	70.7	23.4	82.8
12/31/2015	3,153	58.4	70.9	23.3	82.2
12/31/2016	**3,193**	**58.5**	**71.2**	**23.2**	**82.5**

[1] Includes disability retirements, but not survivor benefits.

[2] Data prior to December 31, 2010, does not include the DPS Division.

[3] Information not available prior to December 31, 2013.

SCHEDULE OF AVERAGE RETIREMENT BENEFITS PAYABLE[1]

(In Actual Dollars)

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Year Ended 12/31/2016					
Average monthly benefit	**$3,345**	**$3,086**	**$3,145**	**$5,624**	**$3,248**
Average age at retirement	**58.3**	**58.6**	**58.2**	**61.6**	**59.2**
Average age of current retiree	**71.4**	**71.0**	**69.0**	**74.2**	**74.0**
Average years of service at retirement	**22.9**	**23.4**	**21.7**	**23.0**	**24.7**
Average age at death	**82.4**	**82.7**	**80.1**	**84.2**	**83.3**
Year Ended 12/31/2015					
Average monthly benefit	$3,294	$3,052	$3,114	$5,379	$3,206
Average age at retirement	58.2	58.5	58.1	61.4	59.1
Average age of current retiree	71.2	70.7	68.6	74.5	73.9
Average years of service at retirement	23.0	23.5	21.8	22.9	25.0
Average age at death	81.7	82.2	79.6	78.9	85.3
Year Ended 12/31/2014					
Average monthly benefit	$3,241	$3,019	$3,067	$5,158	$3,169
Average age at retirement	58.1	58.4	58.0	61.4	59.0
Average age of current retiree	71.0	70.4	68.3	74.5	73.7
Average years of service at retirement	23.0	23.6	21.9	22.7	25.3
Average age at death	82.2	83.1	78.8	81.1	85.2
Year Ended 12/31/2013					
Average monthly benefit	$3,185	$2,980	$3,044	$5,077	$3,121
Average age at retirement	58.0	58.3	57.8	61.3	58.8
Average age of current retiree	70.8	70.0	67.9	74.2	73.5
Average years of service at retirement	23.0	23.6	22.1	22.8	25.5
Average age at death[2]	82.5	81.4	78.6	88.2	84.8
Year Ended 12/31/2012					
Average monthly benefit	$3,124	$2,939	$3,007	$4,889	$3,064
Average age at retirement	58.0	58.2	57.7	61.2	58.8
Average age of current retiree	70.4	69.7	67.5	73.7	73.3
Average years of service at retirement	23.0	23.7	22.2	22.6	25.8
Year Ended 12/31/2011					
Average monthly benefit	$3,056	$2,895	$2,948	$4,739	$3,009
Average age at retirement	58.0	58.2	57.5	61.0	58.7
Average age of current retiree	70.3	69.5	67.8	73.7	73.2
Average years of service at retirement	23.0	23.8	22.3	22.4	26.0

[1] Includes disability retirements, but not survivor benefits.

[2] Information not available prior to December 31, 2013.

COLORADO PERA BENEFIT PAYMENTS—ALL DIVISION TRUST FUNDS

As of December 31, 2016
(In Actual Dollars)

At the end of 2016, PERA was paying benefits to more than 114,000 retired public employees and their beneficiaries who received an average benefit of $3,161[1] per month. For benefit recipients, this may be the primary source of income in retirement as most PERA benefit recipients do not qualify for Social Security payments. The median monthly PERA benefit is $2,924 ($35,088 a year), which means that half of all monthly benefits paid are lower than $2,924 and half are higher than that amount.

The PERA service retirement formula for calculating benefits, specified in State law, is 2.5 percent multiplied by years of service multiplied by highest average salary (HAS). HAS[2] is also defined in State law as one-twelfth of the average of the highest annual salaries on which contributions were paid that are associated with three periods of 12 consecutive months of service credit. The three 12-month periods do not have to be consecutive, nor do they have to be the last three years of employment.

These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year salary increase limitation for HAS calculation purposes. The year-to-year limit for members who were eligible to retire on January 1, 2011, and hired before January 1, 2007, is 15 percent. All other members are subject to an 8 percent year-to-year limit in their HAS calculation. This annual limit applied to salaries in the HAS years is designed to moderate salary "spiking."

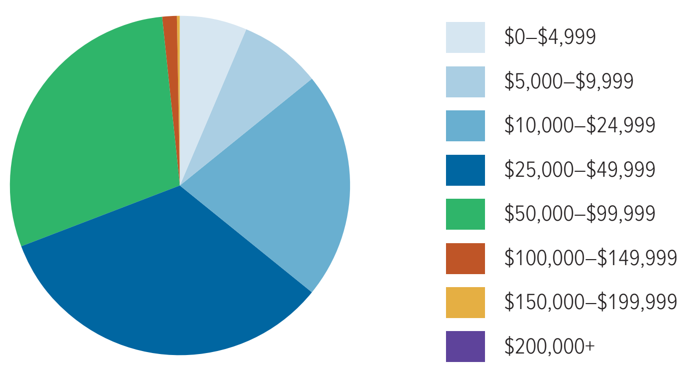
Approximately 69 percent of PERA benefit recipients receive less than $50,000 a year in retirement, as the graph below demonstrates. Slightly more than 1.4 percent (1,620) of PERA benefit recipients receive an annual benefit payment of $100,000 or more. Generally, these benefit recipients had high salaries and a significant number of years of service credit.

[1] Does not include benefits that ended in 2016 or retirements suspended in 2016. Includes only continuing benefits at the end of 2016, excluding amounts paid under the Replacement Benefit Arrangements.

[2] Some members of the DPS benefit structure and members in the Judicial Division have different HAS calculations.

PERA Benefit Payments by Dollar Amount of Annual Benefit/Number of Benefit Recipients

Benefit Range	Number of Benefit Recipients[1]
$0–$4,999	7,393
$5,000–$9,999	8,986
$10,000–$24,999	24,638
$25,000–$49,999	38,086
$50,000–$99,999	33,570
$100,000–$149,999	1,508
$150,000–$199,999	88
$200,000+	24
Total Benefit Recipients	**114,293**



[1] Does not include 316 deferred survivors.

COLORADO PERA BENEFIT PAYMENTS—ALL DIVISION TRUST FUNDS

As of December 31, 2016
(In Actual Dollars)

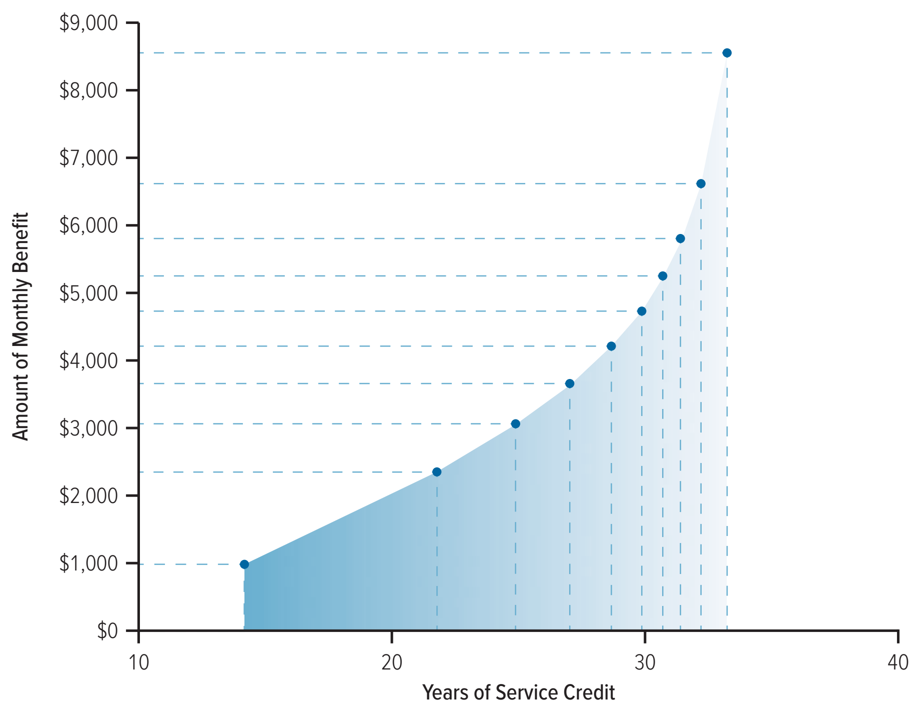
Benefit Payments by Decile

Another way to examine the data is to group benefit recipients and the benefits they receive into benefit payment ranges as a percentage of the total. The table below shows that, for the one-third of PERA benefit recipients (38,445) in the lowest decile, the average benefit is $11,844 a year. This group retired at an average age of 60 with just under 14¼ years of service credit. For the top decile, on the other end of the scale, the average benefit is $102,660 a year. However, this group, on average, had over 33 years of service credit, which is more than twice the length of the average service credit of those in the lowest decile. For the 5,579 new retirees in 2016, the average monthly benefit is $2,519. These members retired at an average age of 62 with 20.43 years of service credit.

Decile	Number of Benefit Recipients[1]	Percent of Benefit Recipients	Average Monthly Benefit	Average Age at Retirement	Average Service Credit
1%–10%	38,445	33.64%	$987	60	14.17
11%–20%	15,389	13.46%	2,348	58	21.79
21%–30%	11,795	10.32%	3,063	58	24.88
31%–40%	9,877	8.64%	3,658	58	27.03
41%–50%	8,579	7.51%	4,211	57	28.67
51%–60%	7,635	6.68%	4,731	57	29.87
61%–70%	6,880	6.02%	5,251	57	30.70
71%–80%	6,221	5.44%	5,807	57	31.40
81%–90%	5,460	4.78%	6,617	57	32.21
91%–100%	4,012	3.51%	8,555	57	33.24
Total	**114,293**	**100.00%**	**3,161**	**58**	**23.01**

[1] Does not include 316 deferred survivors.

Average Monthly Benefit Payment by Years of Service Credit



SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS
As of December 31, 2016

Types of Benefits
1—Age and service retirement.
2—Disability retirement.
3—Survivor payment—Option 3.
4—Survivor payment—children, spouse, or dependent parent.
5—Surviving spouse with future benefit.
6—Former member with future benefit.

Option Selected
Retirees select one of the following options at retirement:
1—Single-life benefit.
2—Joint benefit with 1/2 to surviving cobeneficiary.
3—Joint and survivor benefit.
4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary
Retiree has predeceased the cobeneficiary.

Surviving Retiree
Cobeneficiary has predeceased the retiree.

State Division

		Types of Benefits					
Amount of Monthly Benefit *(In Actual Dollars)*	Total (Columns 1–5)	1	2	3	4	5	6
$1–$1,000	5,127	4,497	282	21	260	67	4,568
$1,001–$2,000	6,872	5,052	1,442	40	288	50	1,386
$2,001–$3,000	7,416	6,030	1,235	26	118	7	324
$3,001–$4,000	6,326	5,957	285	25	57	2	93
$4,001–$5,000	4,664	4,542	89	15	17	1	33
$5,001+	7,735	7,678	23	26	8	—	22
Total	38,140	33,756	3,356	153	748	127	6,426

	Option Selected					
Amount of Monthly Benefit[1] *(In Actual Dollars)*	1	2	3	4	Surviving Cobeneficiary	Surviving Retiree
$1–$1,000	3,119	305	725	3	593	34
$1,001–$2,000	3,696	696	1,069	4	946	83
$2,001–$3,000	3,992	999	1,394	8	797	75
$3,001–$4,000	3,319	1,079	1,331	3	463	47
$4,001–$5,000	2,310	917	1,107	3	263	31
$5,001+	3,638	1,701	2,019	6	304	33
Total	20,074	5,697	7,645	27	3,366	303

[1] For Types of Benefits 1 and 2 above.

SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS
As of December 31, 2016

Types of Benefits
1—Age and service retirement.
2—Disability retirement.
3—Survivor payment—Option 3.
4—Survivor payment—children, spouse, or dependent parent.
5—Surviving spouse with future benefit.
6—Former member with future benefit.

Option Selected
Retirees select one of the following options at retirement:
1—Single-life benefit.
2—Joint benefit with 1/2 to surviving cobeneficiary.
3—Joint and survivor benefit.
4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary
Retiree has predeceased the cobeneficiary.

Surviving Retiree
Cobeneficiary has predeceased the retiree.

School Division

		Types of Benefits					
Amount of Monthly Benefit *(In Actual Dollars)*	Total (Columns 1–5)	1	2	3	4	5	6
$1–$1,000	12,901	11,451	788	42	511	109	13,055
$1,001–$2,000	10,004	8,537	1,134	30	270	33	2,190
$2,001–$3,000	9,348	8,511	683	15	127	12	343
$3,001–$4,000	9,026	8,624	326	19	50	7	90
$4,001–$5,000	8,640	8,501	112	13	14	—	32
$5,001+	12,183	12,124	38	13	7	1	17
Total	62,102	57,748	3,081	132	979	162	15,727

	Option Selected					
Amount of Monthly Benefit[1] *(In Actual Dollars)*	1	2	3	4	Surviving Cobeneficiary	Surviving Retiree
$1–$1,000	8,643	871	1,755	4	892	74
$1,001–$2,000	6,098	1,198	1,432	9	843	91
$2,001–$3,000	5,501	1,474	1,473	6	650	90
$3,001–$4,000	5,437	1,780	1,353	5	339	36
$4,001–$5,000	4,927	1,917	1,505	5	235	24
$5,001+	7,637	2,596	1,710	9	190	20
Total	38,243	9,836	9,228	38	3,149	335

[1] For Types of Benefits 1 and 2 above.

SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS
As of December 31, 2016

Types of Benefits
1—Age and service retirement.
2—Disability retirement.
3—Survivor payment—Option 3.
4—Survivor payment—children, spouse, or dependent parent.
5—Surviving spouse with future benefit.
6—Former member with future benefit.

Option Selected
Retirees select one of the following options at retirement:
1—Single-life benefit.
2—Joint benefit with 1/2 to surviving cobeneficiary.
3—Joint and survivor benefit.
4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary
Retiree has predeceased the cobeneficiary.

Surviving Retiree
Cobeneficiary has predeceased the retiree.

Local Government Division

		Types of Benefits					
Amount of Monthly Benefit *(In Actual Dollars)*	Total (Columns 1–5)	1	2	3	4	5	6
$1–$1,000	1,231	1,108	64	7	42	10	1,675
$1,001–$2,000	1,443	1,068	308	7	53	7	680
$2,001–$3,000	1,262	995	234	10	21	2	267
$3,001–$4,000	1,035	961	59	6	8	1	84
$4,001–$5,000	774	755	14	4	1	—	31
$5,001+	1,320	1,310	7	2	1	—	11
Total	7,065	6,197	686	36	126	20	2,748

	Option Selected					
Amount of Monthly Benefit[1] *(In Actual Dollars)*	1	2	3	4	Surviving Cobeneficiary	Surviving Retiree
$1–$1,000	768	90	182	—	127	5
$1,001–$2,000	772	160	269	2	161	12
$2,001–$3,000	631	210	281	—	96	11
$3,001–$4,000	533	204	235	—	44	4
$4,001–$5,000	384	169	190	—	26	—
$5,001+	559	328	390	—	39	1
Total	3,647	1,161	1,547	2	493	33

[1] For Types of Benefits 1 and 2 above.

SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS
As of December 31, 2016

Types of Benefits
1—Age and service retirement.
2—Disability retirement.
3—Survivor payment—Option 3.
4—Survivor payment—children, spouse, or dependent parent.
5—Surviving spouse with future benefit.
6—Former member with future benefit.

Option Selected
Retirees select one of the following options at retirement:
1—Single-life benefit.
2—Joint benefit with 1/2 to surviving cobeneficiary.
3—Joint and survivor benefit.
4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary
Retiree has predeceased the cobeneficiary.

Surviving Retiree
Cobeneficiary has predeceased the retiree.

Judicial Division

Amount of Monthly Benefit *(In Actual Dollars)*	Total (Columns 1–5)	Types of Benefits 1	2	3	4	5	6
$1–$1,000	18	16	1	—	—	1	1
$1,001–$2,000	28	23	1	—	4	—	2
$2,001–$3,000	31	24	3	—	4	—	2
$3,001–$4,000	35	27	4	—	4	—	2
$4,001–$5,000	35	31	4	—	—	—	1
$5,001+	214	206	7	1	—	—	—
Total	**361**	**327**	**20**	**1**	**12**	**1**	**8**

Amount of Monthly Benefit[1] *(In Actual Dollars)*	Option Selected 1	2	3	4	Surviving Cobeneficiary	Surviving Retiree
$1–$1,000	6	1	3	—	7	—
$1,001–$2,000	9	—	5	—	10	—
$2,001–$3,000	5	7	6	—	9	—
$3,001–$4,000	9	4	14	—	4	—
$4,001–$5,000	10	3	11	—	11	—
$5,001+	65	52	80	—	16	—
Total	**104**	**67**	**119**	**—**	**57**	**—**

[1] For Types of Benefits 1 and 2 above.

SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS

As of December 31, 2016

Types of Benefits

1—Age and service retirement.
2—Disability retirement.
3—Survivor payment—Option 3.
4—Survivor payment—children, spouse, or dependent parent.
5—Surviving spouse with future benefit.
6—Former member with future benefit.

Option Selected

Retirees select one of the following options at retirement:
1—Single-life benefit.
2—Joint benefit with 1/2 to surviving cobeneficiary.
3—Joint and survivor benefit.
4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary

Retiree has predeceased the cobeneficiary.

Surviving Retiree

Cobeneficiary has predeceased the retiree.

DPS Division

Amount of Monthly Benefit *(In Actual Dollars)*	Total (Columns 1–5)	Types of Benefits 1	2	3	4	5	6
$1–$1,000	787	648	81	1	54	3	980
$1,001–$2,000	1,202	1,054	122	1	23	2	314
$2,001–$3,000	1,198	1,077	83	14	23	1	64
$3,001–$4,000	1,390	1,338	42	7	3	—	13
$4,001–$5,000	1,296	1,276	16	4	—	—	1
$5,001+	1,068	1,063	4	1	—	—	2
Total	**6,941**	**6,456**	**348**	**28**	**103**	**6**	**1,374**

Amount of Monthly Benefit[2] *(In Actual Dollars)*	Option Selected[1] 1	2	3	4	Surviving Cobeneficiary	Surviving Retiree	Cobeneficiaries Both Deceased
$1–$1,000	476	20	129	—	72	31	1
$1,001–$2,000	715	84	216	—	110	47	4
$2,001–$3,000	613	101	262	—	111	73	—
$3,001–$4,000	655	119	380	—	141	84	1
$4,001–$5,000	605	109	386	—	111	81	—
$5,001+	524	104	321	—	78	40	—
Total	**3,588**	**537**	**1,694**	**—**	**623**	**356**	**6**

[1] Below are the equivalent DPS benefit structure options:
PERA Option 1 = Options A, B, and D (D is discontinued)
PERA Option 2 = Options P2 and E (E is discontinued)
PERA Option 3 = Options P3 and C (C is discontinued)

[2] For Types of Benefits 1 and 2 above.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS
(In Actual Dollars)

State Division

	Years of Service Credit						
Year Retired	0–5	6–10	10–15	15–20	20–25	25–30	30+
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	**$240**	**$641**	**$1,285**	**$2,050**	**$2,983**	**$4,128**	**$5,593**
Average highest average salary	**$3,010**	**$3,477**	**$4,394**	**$4,790**	**$5,397**	**$6,130**	**$6,957**
Number of service retirees	**103**	**244**	**233**	**238**	**319**	**357**	**319**
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	$241	$770	$1,339	$2,111	$2,934	$4,121	$5,232
Average highest average salary	$2,851	$4,043	$4,506	$4,766	$5,260	$6,074	$6,490
Number of service retirees	82	246	214	222	293	348	324
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	$228	$626	$1,239	$1,996	$2,930	$4,002	$5,438
Average highest average salary	$2,960	$3,421	$4,046	$4,609	$5,351	$5,904	$6,642
Number of service retirees	64	204	218	212	278	327	261
Period 1/1/2013 to 12/31/2013							
Average monthly benefit	$269	$628	$1,288	$1,997	$2,853	$4,165	$5,285
Average highest average salary	$2,836	$3,508	$4,030	$4,527	$5,150	$6,196	$6,617
Number of service retirees	64	173	151	167	236	296	252
Period 1/1/2012 to 12/31/2012							
Average monthly benefit	$236	$634	$1,259	$2,121	$2,855	$4,126	$5,035
Average highest average salary	$2,487	$3,355	$4,141	$4,661	$5,248	$5,969	$6,268
Number of service retirees	60	182	196	206	284	351	343
Period 1/1/2011 to 12/31/2011							
Average monthly benefit	$160	$690	$1,214	$1,956	$2,863	$4,096	$5,307
Average highest average salary	$2,254	$3,425	$4,027	$4,413	$5,181	$6,002	$6,661
Number of service retirees	53	184	130	143	237	331	305
Period 1/1/2010 to 12/31/2010							
Average monthly benefit	$266	$617	$1,089	$2,200	$2,816	$4,011	$5,156
Average highest average salary	$2,569	$3,212	$3,504	$4,923	$5,102	$5,983	$6,394
Number of service retirees	34	171	127	164	305	430	362
Period 1/1/2009 to 12/31/2009							
Average monthly benefit	$181	$530	$1,160	$1,952	$2,848	$3,974	$5,087
Average highest average salary	$2,223	$2,903	$3,750	$4,397	$5,159	$5,790	$6,426
Number of service retirees	25	131	129	143	241	406	361
Period 1/1/2008 to 12/31/2008							
Average monthly benefit	$271	$482	$1,049	$1,774	$2,437	$3,499	$4,672
Average highest average salary	$2,730	$2,686	$3,608	$4,319	$4,716	$5,428	$6,031
Number of service retirees	14	123	122	106	276	294	530
Period 1/1/2007 to 12/31/2007							
Average monthly benefit	$109	$518	$978	$1,576	$2,415	$3,267	$4,469
Average highest average salary	$2,192	$2,995	$3,477	$3,848	$4,631	$5,088	$5,748
Number of service retirees	13	134	105	100	272	321	583

Note: Highest average salary is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate “spiking.” Some members of the DPS benefit structure and members in the Judicial Division have different HAS calculations.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS
(In Actual Dollars)

School Division

	Years of Service Credit						
Year Retired	0–5	6–10	10–15	15–20	20–25	25–30	30+
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	**$127**	**$430**	**$879**	**$1,684**	**$2,304**	**$3,727**	**$4,695**
Average highest average salary	**$1,796**	**$2,325**	**$2,924**	**$3,799**	**$4,156**	**$5,388**	**$5,851**
Number of service retirees	**118**	**384**	**388**	**408**	**565**	**589**	**422**
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	$221	$436	$899	$1,565	$2,400	$3,682	$4,621
Average highest average salary	$2,015	$2,317	$3,058	$3,538	$4,322	$5,347	$5,741
Number of service retirees	110	372	398	397	544	618	395
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	$194	$467	$939	$1,661	$2,407	$3,726	$4,778
Average highest average salary	$2,108	$2,580	$3,189	$3,706	$4,372	$5,422	$5,908
Number of service retirees	106	362	401	392	531	597	465
Period 1/1/2013 to 12/31/2013							
Average monthly benefit	$201	$474	$976	$1,687	$2,448	$3,685	$4,739
Average highest average salary	$1,791	$2,726	$3,197	$3,721	$4,357	$5,318	$5,886
Number of service retirees	79	350	339	311	492	571	441
Period 1/1/2012 to 12/31/2012							
Average monthly benefit	$216	$473	$815	$1,632	$2,411	$3,682	$4,592
Average highest average salary	$1,696	$2,575	$2,800	$3,546	$4,368	$5,370	$5,791
Number of service retirees	96	365	349	380	534	634	509
Period 1/1/2011 to 12/31/2011							
Average monthly benefit	$214	$462	$806	$1,625	$2,430	$3,617	$4,632
Average highest average salary	$1,980	$2,563	$2,683	$3,526	$4,344	$5,235	$5,804
Number of service retirees	71	336	273	334	506	651	497
Period 1/1/2010 to 12/31/2010							
Average monthly benefit	$212	$464	$780	$1,543	$2,393	$3,603	$4,602
Average highest average salary	$2,193	$2,572	$2,500	$3,336	$4,243	$5,207	$5,722
Number of service retirees	56	297	252	305	585	755	601
Period 1/1/2009 to 12/31/2009							
Average monthly benefit	$165	$440	$825	$1,671	$2,384	$3,508	$4,515
Average highest average salary	$1,928	$2,311	$2,663	$3,512	$4,246	$5,047	$5,632
Number of service retirees	33	268	191	232	459	618	495
Period 1/1/2008 to 12/31/2008							
Average monthly benefit	$369	$383	$706	$1,238	$2,183	$2,994	$4,313
Average highest average salary	$2,965	$2,373	$2,534	$2,948	$4,125	$4,567	$5,554
Number of service retirees	22	218	197	156	523	553	847
Period 1/1/2007 to 12/31/2007							
Average monthly benefit	$90	$352	$729	$1,143	$2,046	$2,980	$4,198
Average highest average salary	$1,465	$2,228	$2,593	$2,789	$3,871	$4,553	$5,409
Number of service retirees	12	228	170	156	499	567	961

Note: Highest average salary is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate "spiking." Some members of the DPS benefit structure and members in the Judicial Division have different HAS calculations.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS
(In Actual Dollars)

Local Government Division

	Years of Service Credit						
Year Retired	0–5	6–10	10–15	15–20	20–25	25–30	30+
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	**$323**	**$686**	**$1,401**	**$2,195**	**$2,761**	**$4,569**	**$5,378**
Average highest average salary	**$4,580**	**$4,031**	**$5,104**	**$5,506**	**$5,255**	**$6,796**	**$6,648**
Number of service retirees	**15**	**73**	**77**	**49**	**55**	**52**	**46**
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	$252	$663	$1,202	$2,255	$3,152	$3,970	$5,814
Average highest average salary	$3,727	$4,141	$4,581	$5,481	$5,960	$5,896	$7,317
Number of service retirees	16	64	62	36	76	70	60
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	$241	$680	$1,185	$2,190	$3,110	$4,068	$4,796
Average highest average salary	$4,005	$3,912	$4,206	$5,106	$5,805	$6,299	$6,037
Number of service retirees	15	87	63	42	61	59	48
Period 1/1/2013 to 12/31/2013							
Average monthly benefit	$211	$650	$1,259	$2,156	$2,733	$4,020	$5,692
Average highest average salary	$3,013	$3,743	$4,467	$5,107	$5,311	$6,024	$7,353
Number of service retirees	16	58	47	36	49	73	34
Period 1/1/2012 to 12/31/2012							
Average monthly benefit	$536	$839	$1,264	$2,524	$3,095	$4,323	$4,943
Average highest average salary	$4,726	$4,538	$4,213	$5,649	$5,626	$6,465	$6,275
Number of service retirees	27	96	77	83	138	138	99
Period 1/1/2011 to 12/31/2011							
Average monthly benefit	$338	$665	$1,011	$1,985	$2,908	$4,093	$5,337
Average highest average salary	$5,959	$3,988	$3,469	$4,616	$5,333	$6,070	$6,712
Number of service retirees	13	48	33	32	42	78	60
Period 1/1/2010 to 12/31/2010							
Average monthly benefit	$401	$725	$1,053	$1,955	$2,776	$4,540	$5,024
Average highest average salary	$3,879	$4,141	$3,516	$4,482	$5,184	$6,476	$6,414
Number of service retirees	8	46	32	41	73	116	124
Period 1/1/2009 to 12/31/2009							
Average monthly benefit	$327	$579	$1,496	$1,991	$2,869	$3,712	$4,755
Average highest average salary	$2,981	$3,088	$4,420	$4,380	$5,249	$5,634	$5,970
Number of service retirees	9	43	37	35	49	83	90
Period 1/1/2008 to 12/31/2008							
Average monthly benefit	$485	$605	$1,072	$1,625	$2,867	$3,453	$5,245
Average highest average salary	$5,531	$3,547	$3,832	$4,043	$5,522	$5,503	$7,011
Number of service retirees	9	42	25	27	45	59	135
Period 1/1/2007 to 12/31/2007							
Average monthly benefit	$92	$592	$1,205	$2,061	$2,388	$3,437	$4,627
Average highest average salary	$1,847	$3,446	$4,358	$5,220	$4,593	$5,463	$6,010
Number of service retirees	9	33	26	21	58	55	118

Note: Highest average salary is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate “spiking.” Some members of the DPS benefit structure and members in the Judicial Division have different HAS calculations.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS
(In Actual Dollars)

Judicial Division

	Years of Service Credit						
Year Retired	0–5	6–10	10–15	15–20	20–25	25–30	30+
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	**$679**	**$1,868**	**$3,471**	**$5,044**	**$5,641**	**$8,291**	**$10,086**
Average highest average salary	**$6,905**	**$12,839**	**$12,526**	**$12,043**	**$11,450**	**$13,030**	**$13,340**
Number of service retirees	**2**	**2**	**1**	**6**	**3**	**7**	**5**
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	$—	$—	$4,012	$4,158	$5,913	$7,635	$9,227
Average highest average salary	$—	$—	$13,045	$11,602	$11,664	$12,097	$12,331
Number of service retirees	—	—	2	1	6	4	6
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	$—	$1,505	$2,767	$4,432	$6,197	$7,806	$7,287
Average highest average salary	$—	$9,209	$10,444	$10,910	$11,182	$12,370	$9,350
Number of service retirees	—	3	3	1	4	2	3
Period 1/1/2013 to 12/31/2013							
Average monthly benefit	$—	$—	$3,596	$—	$—	$9,561	$9,427
Average highest average salary	$—	$—	$9,119	$—	$—	$11,271	$10,871
Number of service retirees	—	—	3	—	—	1	4
Period 1/1/2012 to 12/31/2012							
Average monthly benefit	$—	$713	$3,376	$4,438	$7,013	$6,927	$2,582
Average highest average salary	$—	$4,363	$10,256	$8,787	$12,913	$10,988	$3,077
Number of service retirees	—	4	1	2	2	8	1
Period 1/1/2011 to 12/31/2011							
Average monthly benefit	$—	$962	$2,332	$3,156	$5,642	$4,768	$7,974
Average highest average salary	$—	$8,192	$10,487	$8,704	$10,430	$7,818	$9,925
Number of service retirees	—	1	2	3	5	3	5
Period 1/1/2010 to 12/31/2010							
Average monthly benefit	$—	$—	$2,246	$—	$5,734	$7,313	$8,959
Average highest average salary	$—	$—	$7,685	$—	$10,717	$10,602	$10,999
Number of service retirees	—	—	1	—	1	4	4
Period 1/1/2009 to 12/31/2009							
Average monthly benefit	$—	$1,006	$2,549	$4,238	$5,555	$7,012	$8,330
Average highest average salary	$—	$3,171	$7,858	$10,304	$10,302	$10,449	$10,297
Number of service retirees	—	1	2	1	5	3	6
Period 1/1/2008 to 12/31/2008							
Average monthly benefit	$—	$—	$—	$—	$5,148	$8,780	$7,031
Average highest average salary	$—	$—	$—	$—	$9,636	$11,871	$9,982
Number of service retirees	—	—	—	—	3	1	3
Period 1/1/2007 to 12/31/2007							
Average monthly benefit	$—	$714	$1,853	$—	$3,764	$6,020	$6,631
Average highest average salary	$—	$3,898	$9,312	$—	$7,676	$9,227	$8,678
Number of service retirees	—	3	1	—	4	6	8

Note: Highest average salary is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate “spiking.” Some members of the DPS benefit structure and members in the Judicial Division have different HAS calculations.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS
(In Actual Dollars)

DPS Division[1]

	Years of Service Credit						
Year Retired	0–5	6–10	10–15	15–20	20–25	25–30	30+
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	**$163**	**$611**	**$1,462**	**$1,989**	**$3,415**	**$4,133**	**$5,342**
Average highest average salary	**$1,938**	**$3,536**	**$4,816**	**$4,955**	**$6,055**	**$5,876**	**$6,785**
Number of service retirees	**4**	**59**	**40**	**60**	**59**	**56**	**24**
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	$230	$702	$1,588	$1,994	$3,147	$4,159	$5,254
Average highest average salary	$1,908	$4,275	$5,022	$4,808	$5,523	$7,318	$6,391
Number of service retirees	12	55	36	37	60	56	19
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	$472	$810	$1,379	$2,233	$3,091	$4,243	$4,862
Average highest average salary	$3,399	$4,593	$4,489	$5,569	$5,607	$6,250	$5,891
Number of service retirees	15	39	44	49	72	44	32
Period 1/1/2013 to 12/31/2013							
Average monthly benefit	$276	$890	$1,365	$1,847	$3,214	$4,350	$5,049
Average highest average salary	$2,532	$5,835	$4,861	$4,618	$5,754	$6,611	$6,097
Number of service retirees	15	30	31	32	69	57	27
Period 1/1/2012 to 12/31/2012							
Average monthly benefit	$274	$840	$1,507	$2,099	$3,032	$3,589	$4,568
Average highest average salary	$2,645	$4,483	$4,919	$5,238	$5,454	$5,478	$5,682
Number of service retirees	8	38	31	42	70	38	33
Period 1/1/2011 to 12/31/2011							
Average monthly benefit	$1,297	$996	$1,479	$2,060	$3,373	$4,188	$4,290
Average highest average salary	$2,751	$4,789	$4,956	$4,948	$5,910	$6,046	$5,198
Number of service retirees	8	30	35	38	57	38	26
Period 1/1/2010 to 12/31/2010							
Average monthly benefit	$1,203	$867	$1,386	$1,943	$2,870	$3,971	$4,710
Average highest average salary	$3,568	$4,608	$4,335	$5,151	$5,312	$5,893	$5,944
Number of service retirees	5	17	20	25	42	33	30

[1] The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of DPSRS.

Note: Highest average salary is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate “spiking.” Some members of the DPS benefit structure and members in the Judicial Division have different HAS calculations.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS
(In Actual Dollars)

All Division Trust Funds[1]

	Years of Service Credit						
Year Retired	0–5	6–10	10–15	15–20	20–25	25–30	30+
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	**$192**	**$540**	**$1,096**	**$1,882**	**$2,621**	**$3,955**	**$5,137**
Average highest average salary	**$2,530**	**$2,979**	**$3,730**	**$4,375**	**$4,746**	**$5,783**	**$6,402**
Number of service retirees	**242**	**762**	**739**	**761**	**1,001**	**1,061**	**816**
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	$231	$587	$1,101	$1,802	$2,686	$3,879	$5,006
Average highest average salary	$2,445	$3,198	$3,753	$4,112	$4,848	$5,738	$6,225
Number of service retirees	220	737	712	693	979	1,096	804
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	$229	$564	$1,084	$1,839	$2,674	$3,863	$5,005
Average highest average salary	$2,620	$3,135	$3,641	$4,207	$4,875	$5,674	$6,165
Number of service retirees	200	695	729	696	946	1,029	809
Period 1/1/2013 to 12/31/2013							
Average monthly benefit	$233	$555	$1,117	$1,822	$2,640	$3,896	$4,999
Average highest average salary	$2,352	$3,196	$3,644	$4,111	$4,747	$5,710	$6,229
Number of service retirees	174	611	571	546	846	998	758
Period 1/1/2012 to 12/31/2012							
Average monthly benefit	$270	$589	$1,038	$1,913	$2,677	$3,910	$4,779
Average highest average salary	$2,413	$3,174	$3,480	$4,227	$4,870	$5,721	$5,999
Number of service retirees	191	685	654	713	1,028	1,169	985
Period 1/1/2011 to 12/31/2011							
Average monthly benefit	$265	$576	$989	$1,770	$2,657	$3,817	$4,919
Average highest average salary	$2,480	$3,063	$2,941	$3,605	$4,371	$5,351	$6,012
Number of service retirees	145	599	473	550	847	1,101	893
Period 1/1/2010 to 12/31/2010[2]							
Average monthly benefit	$292	$549	$922	$1,795	$2,572	$3,836	$4,846
Average highest average salary	$2,515	$2,979	$2,767	$3,754	$4,401	$5,454	$5,881
Number of service retirees	103	531	432	535	1,006	1,338	1,121
Period 1/1/2009 to 12/31/2009							
Average monthly benefit	$193	$482	$1,024	$1,802	$2,585	$3,703	$4,779
Average highest average salary	$2,180	$2,564	$3,263	$3,911	$4,643	$5,377	$5,995
Number of service retirees	67	443	359	411	754	1,110	952
Period 1/1/2008 to 12/31/2008							
Average monthly benefit	$362	$439	$854	$1,471	$2,313	$3,194	$4,527
Average highest average salary	$3,405	$2,602	$3,009	$3,553	$4,411	$4,915	$5,859
Number of service retirees	45	383	344	289	847	907	1,515
Period 1/1/2007 to 12/31/2007							
Average monthly benefit	$98	$430	$860	$1,369	$2,199	$3,123	$4,335
Average highest average salary	$1,844	$2,600	$3,075	$3,356	$4,188	$4,816	$5,585
Number of service retirees	34	398	302	277	833	949	1,670

[1] Data prior to December 31, 2010, does not include the DPS Division.

[2] The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of DPSRS.

Note: Highest average salary is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate “spiking.” Some members of the DPS benefit structure and members in the Judicial Division have different HAS calculations.

SCHEDULE OF CONTRIBUTION RATE HISTORY

State Division (Members Other Than State Troopers)[1]

			Percent of Covered Payroll				
Years			Member Contribution Rate	Employer Contribution Rate[2]	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Total Contribution Rate
8/1/1931	to	6/30/1938	3.50%	—	—	—	3.50%
7/1/1938	to	6/30/1949	3.50%	3.50%	—	—	7.00%
7/1/1949	to	6/30/1958	5.00%	5.00%	—	—	10.00%
7/1/1958	to	6/30/1969	6.00%	6.00%	—	—	12.00%
7/1/1969	to	6/30/1970	7.00%	7.00%	—	—	14.00%
7/1/1970	to	6/30/1971	7.00%	8.00%	—	—	15.00%
7/1/1971	to	6/30/1973	7.00%	8.50%	—	—	15.50%
7/1/1973	to	6/30/1974	7.75%	9.50%	—	—	17.25%
7/1/1974	to	6/30/1975	7.75%	10.50%	—	—	18.25%
7/1/1975	to	8/31/1980	7.75%	10.64%	—	—	18.39%
9/1/1980	to	12/31/1981	7.75%	12.20%	—	—	19.95%
1/1/1982	to	6/30/1987	8.00%	12.20%	—	—	20.20%
7/1/1987	to	6/30/1988	8.00%	10.20%	—	—	18.20%
7/1/1988	to	6/30/1991	8.00%	12.20%	—	—	20.20%
7/1/1991	to	4/30/1992	8.00%	11.60%	—	—	19.60%
5/1/1992	to	6/30/1992	8.00%	5.60%[3]	—	—	13.60%
7/1/1992	to	6/30/1993	8.00%	10.60%	—	—	18.60%
7/1/1993	to	6/30/1997	8.00%	11.60%	—	—	19.60%
1/1/2006	to	12/31/2006	8.00%	10.15%	0.50%	—	18.65%
1/1/2007	to	12/31/2007	8.00%	10.15%	1.00%	—	19.15%
1/1/2008	to	12/31/2008	8.00%	10.15%	1.40%	0.50%	20.05%
1/1/2009	to	12/31/2009	8.00%	10.15%	1.80%	1.00%	20.95%
1/1/2010	to	6/30/2010	8.00%	10.15%	2.20%	1.50%	21.85%
7/1/2010	to	12/31/2010	10.50%[4]	7.65%[4]	2.20%	1.50%	21.85%
1/1/2011	to	12/31/2011	10.50%[4]	7.65%[4]	2.60%	2.00%	22.75%
1/1/2012	to	6/30/2012	10.50%[4]	7.65%[4]	3.00%	2.50%	23.65%
7/1/2012	to	12/31/2012	8.00%	10.15%	3.00%	2.50%	23.65%
1/1/2013	to	12/31/2013	8.00%	10.15%	3.40%	3.00%	24.55%
1/1/2014	to	12/31/2014	8.00%	10.15%	3.80%	3.50%	25.45%
1/1/2015	to	12/31/2015	8.00%	10.15%	4.20%	4.00%	26.35%
1/1/2016	**to**	**12/31/2016**	**8.00%**	**10.15%**	**4.60%**	**4.50%**	**27.25%**

[1] State and School Divisions merged July 1, 1997, and separated on January 1, 2006.

[2] All employer contribution rates shown since July 1, 1985, include the Health Care Trust Fund (HCTF) allocation.

[3] Legislation created an annual reduction equal to 1.0 percent of salary retroactive to July 1, 1991, to be taken during May and June of 1992.

[4] Senate Bills 10-146 and 11-076 required member contributions to increase by 2.50 percent and employer contributions to decrease by 2.50 percent.

SCHEDULE OF CONTRIBUTION RATE HISTORY

State Troopers[1]

Years			Member Contribution Rate	Employer Contribution Rate[2]	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Total Contribution Rate
			Percent of Covered Payroll				
7/1/1945	to	6/30/1969	7.00%	7.00%	—	—	14.00%
7/1/1969	to	6/30/1970	8.00%	8.00%	—	—	16.00%
7/1/1970	to	6/30/1971	8.00%	9.00%	—	—	17.00%
7/1/1971	to	6/30/1973	8.00%	9.50%	—	—	17.50%
7/1/1973	to	6/30/1974	8.75%	10.50%	—	—	19.25%
7/1/1974	to	6/30/1975	8.75%	11.50%	—	—	20.25%
7/1/1975	to	8/31/1980	8.75%	11.64%	—	—	20.39%
9/1/1980	to	12/31/1981	8.75%	13.20%	—	—	21.95%
1/1/1982	to	6/30/1987	9.00%	13.20%	—	—	22.20%
7/1/1987	to	6/30/1988	9.00%	11.20%	—	—	20.20%
7/1/1988	to	6/30/1989	9.00%	13.20%	—	—	22.20%
7/1/1989	to	4/30/1992	12.30%	13.20%	—	—	25.50%
5/1/1992	to	6/30/1992	12.30%	7.20%[3]	—	—	19.50%
7/1/1992	to	6/30/1993	11.50%	12.20%	—	—	23.70%
7/1/1993	to	6/30/1997	11.50%	13.20%	—	—	24.70%
7/1/1997	to	6/30/1999	11.50%	13.10%	—	—	24.60%
7/1/1999	to	6/30/2001	10.00%	13.10%	—	—	23.10%
7/1/2001	to	6/30/2002	10.00%	12.60%	—	—	22.60%
7/1/2002	to	6/30/2003	10.00%	12.74%	—	—	22.74%
7/1/2003	to	12/31/2005	10.00%	12.85%	—	—	22.85%
1/1/2006	to	12/31/2006	10.00%	12.85%	0.50%	—	23.35%
1/1/2007	to	12/31/2007	10.00%	12.85%	1.00%	—	23.85%
1/1/2008	to	12/31/2008	10.00%	12.85%	1.40%	0.50%	24.75%
1/1/2009	to	12/31/2009	10.00%	12.85%	1.80%	1.00%	25.65%
1/1/2010	to	6/30/2010	10.00%	12.85%	2.20%	1.50%	26.55%
7/1/2010	to	12/31/2010	12.50%[4]	10.35%[4]	2.20%	1.50%	26.55%
1/1/2011	to	12/31/2011	12.50%[4]	10.35%[4]	2.60%	2.00%	27.45%
1/1/2012	to	6/30/2012	12.50%[4]	10.35%[4]	3.00%	2.50%	28.35%
7/1/2012	to	12/31/2012	10.00%	12.85%	3.00%	2.50%	28.35%
1/1/2013	to	12/31/2013	10.00%	12.85%	3.40%	3.00%	29.25%
1/1/2014	to	12/31/2014	10.00%	12.85%	3.80%	3.50%	30.15%
1/1/2015	to	12/31/2015	10.00%	12.85%	4.20%	4.00%	31.05%
1/1/2016	**to**	**12/31/2016**	**10.00%**	**12.85%**	**4.60%**	**4.50%**	**31.95%**

[1] State and School Divisions merged July 1, 1997, and separated on January 1, 2006.

[2] All employer contribution rates shown since July 1, 1985, include the HCTF allocation.

[3] Legislation created an annual reduction equal to 1.0 percent of salary retroactive to July 1, 1991, to be taken during May and June of 1992.

[4] Senate Bills 10-146 and 11-076 required member contributions to increase by 2.50 percent and employer contributions to decrease by 2.50 percent.

SCHEDULE OF CONTRIBUTION RATE HISTORY

School Division[1]

Years			Member Contribution Rate	Employer Contribution Rate[2]	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Total Contribution Rate
			Percent of Covered Payroll				
1/1/1944	to	12/31/1949	3.50%	3.50%	—	—	7.00%
1/1/1950	to	6/30/1958	5.00%	5.00%	—	—	10.00%
7/1/1958	to	6/30/1969	6.00%	6.00%	—	—	12.00%
7/1/1969	to	12/31/1969	7.00%	6.00%	—	—	13.00%
1/1/1970	to	12/31/1970	7.00%	7.50%	—	—	14.50%
1/1/1971	to	12/31/1971	7.00%	8.50%	—	—	15.50%
1/1/1972	to	6/30/1973	7.00%	9.25%	—	—	16.25%
7/1/1973	to	12/31/1973	7.75%	9.25%	—	—	17.00%
1/1/1974	to	12/31/1974	7.75%	10.25%	—	—	18.00%
1/1/1975	to	12/31/1975	7.75%	11.25%	—	—	19.00%
1/1/1976	to	12/31/1980	7.75%	12.10%	—	—	19.85%
1/1/1981	to	12/31/1981	7.75%	12.50%	—	—	20.25%
1/1/1982	to	6/30/1987	8.00%	12.50%	—	—	20.50%
7/1/1987	to	6/30/1988	8.00%	11.50%	—	—	19.50%
7/1/1988	to	6/30/1991	8.00%	12.50%	—	—	20.50%
7/1/1991	to	6/30/1992	8.00%	12.20%	—	—	20.20%
7/1/1992	to	6/30/1997	8.00%	11.60%	—	—	19.60%
1/1/2006	to	12/31/2006	8.00%	10.15%	0.50%	—	18.65%
1/1/2007	to	12/31/2007	8.00%	10.15%	1.00%	—	19.15%
1/1/2008	to	12/31/2008	8.00%	10.15%	1.40%	0.50%	20.05%
1/1/2009	to	12/31/2009	8.00%	10.15%	1.80%	1.00%	20.95%
1/1/2010	to	12/31/2010	8.00%	10.15%	2.20%	1.50%	21.85%
1/1/2011	to	12/31/2011	8.00%	10.15%	2.60%	2.00%	22.75%
1/1/2012	to	12/31/2012	8.00%	10.15%	3.00%	2.50%	23.65%
1/1/2013	to	12/31/2013	8.00%	10.15%	3.40%	3.00%	24.55%
1/1/2014	to	12/31/2014	8.00%	10.15%	3.80%	3.50%	25.45%
1/1/2015	to	12/31/2015	8.00%	10.15%	4.20%	4.00%	26.35%
1/1/2016	**to**	**12/31/2016**	**8.00%**	**10.15%**	**4.50%**	**4.50%**	**27.15%**

[1] State and School Divisions merged July 1, 1997, and separated on January 1, 2006.

[2] All employer contribution rates shown since July 1, 1985, include the HCTF allocation.

State and School Division[1]

Years			Member Contribution Rate	Employer Contribution Rate[2]
			Percent of Covered Payroll	
7/1/1997	to	6/30/1998	8.00%	11.50%
7/1/1998	to	6/30/2000	8.00%	11.40%
7/1/2000	to	6/30/2001	8.00%	10.40%
7/1/2001	to	6/30/2002	8.00%	9.90%
7/1/2002	to	6/30/2003	8.00%	10.04%
7/1/2003	to	12/31/2005	8.00%	10.15%

[1] State and School Divisions merged July 1, 1997, and separated on January 1, 2006.

[2] The employer contribution rates shown include the HCTF allocation.

SCHEDULE OF CONTRIBUTION RATE HISTORY

Local Government Division[1]

			Percent of Covered Payroll				
Years			Member Contribution Rate	Employer Contribution Rate[2]	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Total Contribution Rate
1/1/1944	to	12/31/1949	3.50%	3.50%	—	—	7.00%
1/1/1950	to	6/30/1958	5.00%	5.00%	—	—	10.00%
7/1/1958	to	6/30/1969	6.00%	6.00%	—	—	12.00%
7/1/1969	to	12/31/1969	7.00%	6.00%	—	—	13.00%
1/1/1970	to	12/31/1970	7.00%	7.00%	—	—	14.00%
1/1/1971	to	6/30/1973	7.00%	7.50%	—	—	14.50%
7/1/1973	to	12/31/1973	7.75%	7.50%	—	—	15.25%
1/1/1974	to	12/31/1974	7.75%	8.50%	—	—	16.25%
1/1/1975	to	12/31/1975	7.75%	9.50%	—	—	17.25%
1/1/1976	to	12/31/1980	7.75%	9.86%	—	—	17.61%
1/1/1981	to	12/31/1981	7.75%	10.20%	—	—	17.95%
1/1/1982	to	6/30/1991	8.00%	10.20%	—	—	18.20%
7/1/1991	to	12/31/2000	8.00%	10.00%	—	—	18.00%
1/1/2001	to	12/31/2001	8.00%	9.43%	—	—	17.43%
1/1/2002	to	12/31/2002	8.00%	9.19%	—	—	17.19%
1/1/2003	to	12/31/2003	8.00%	9.60%	—	—	17.60%
1/1/2004	to	12/31/2005	8.00%	10.00%	—	—	18.00%
1/1/2006	to	12/31/2006	8.00%	10.00%	0.50%	—	18.50%
1/1/2007	to	12/31/2007	8.00%	10.00%	1.00%	—	19.00%
1/1/2008	to	12/31/2008	8.00%	10.00%	1.40%	0.50%	19.90%
1/1/2009	to	12/31/2009	8.00%	10.00%	1.80%	1.00%	20.80%
1/1/2010	to	**12/31/2016**	**8.00%**	**10.00%**	**2.20%**	**1.50%**	**21.70%**

[1] The Local Government Division Trust Fund was the Municipal Division Trust Fund prior to January 1, 2006.

[2] All employer contribution rates shown since July 1, 1985, include the HCTF allocation.

SCHEDULE OF CONTRIBUTION RATE HISTORY

Judicial Division

Years			Member Contribution Rate	Employer Contribution Rate[1]	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Total Contribution Rate
			Percent of Covered Payroll				
7/1/1949	to	6/30/1957	5.00%	5.00%	—	—	10.00%
7/1/1957	to	6/30/1973	6.00%	12.00%	—	—	18.00%
7/1/1973	to	6/30/1980	7.00%	12.00%	—	—	19.00%
7/1/1980	to	8/30/1980	7.00%	13.00%	—	—	20.00%
9/1/1980	to	12/31/1981	7.00%	15.00%	—	—	22.00%
1/1/1982	to	6/30/1987	8.00%	15.00%	—	—	23.00%
7/1/1987	to	6/30/1988	8.00%	13.00%	—	—	21.00%
7/1/1988	to	6/30/2000	8.00%	15.00%	—	—	23.00%
7/1/2000	to	6/30/2001	8.00%	14.00%	—	—	22.00%
7/1/2001	to	6/30/2003	8.00%	11.82%	—	—	19.82%
7/1/2003	to	6/30/2004	8.00%	12.66%	—	—	20.66%
7/1/2004	to	12/31/2005	8.00%	13.66%	—	—	21.66%
1/1/2006	to	12/31/2006	8.00%	13.66%	0.50%	—	22.16%
1/1/2007	to	12/31/2007	8.00%	13.66%	1.00%	—	22.66%
1/1/2008	to	12/31/2008	8.00%	13.66%	1.40%	0.50%	23.56%
1/1/2009	to	12/31/2009	8.00%	13.66%	1.80%	1.00%	24.46%
1/1/2010	to	6/30/2010	8.00%	13.66%	2.20%	1.50%	25.36%
7/1/2010	to	6/30/2012	10.50%[2]	11.16%[2]	2.20%	1.50%	25.36%
7/1/2012	to	**12/31/2016**	**8.00%**	**13.66%**	**2.20%**	**1.50%**	**25.36%**

[1] All employer contribution rates shown since July 1, 1985, include the HCTF allocation.

[2] Senate Bills 10-146 and 11-076 required member contributions to increase by 2.50 percent and employer contributions to decrease by 2.50 percent.

DPS Division[1]

Years			Member Contribution Rate	Employer Contribution Rate[2]	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Employer Contribution PCOP Offset[3]	Total Contribution Rate
			Percent of Covered Payroll					
1/1/2010	to	12/31/2010	8.00%	13.75%	2.20%	1.50%	(15.04%)	10.41%
1/1/2011	to	12/31/2011	8.00%	13.75%	2.60%	2.00%	(14.72%)	11.63%
1/1/2012	to	12/31/2012	8.00%	13.75%	3.00%	2.50%	(15.37%)	11.88%
1/1/2013	to	12/31/2013	8.00%	13.75%	3.40%	3.00%	(14.51%)	13.64%
1/1/2014	to	12/31/2014	8.00%	13.75%	3.80%	3.50%	(16.89%)	12.16%
1/1/2015	to	12/31/2015	8.00%	10.15%[4]	4.20%	4.00%	(15.97%)	10.38%
1/1/2016	**to**	**12/31/2016**	**8.00%**	**10.15%**	**4.50%**	**4.50%**	**(15.54%)**	**11.61%**

[1] The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of DPSRS.

[2] All employer contribution rates shown include the DPS HCTF allocation.

[3] An offset to the DPS Division rate is provided for under C.R.S. § 24-51-412. See Note 4 of the Notes to the Financial Statements in the Financial Section.

[4] On June 3, 2015, House Bill 15-1391 reduced the employer contribution rate with a retroactive effective date of January 1, 2015.

SCHEDULE OF CONTRIBUTION RATE HISTORY

Employer Contributions to Health Care Trust Funds

Division/Years			Percent of Covered Payroll Allocated from Employer Contribution to Health Care Trust Funds
State Division[1]			
7/1/1985	to	6/30/1997	0.80%
1/1/2006	to	**12/31/2016**	**1.02%**
School Division[1]			
7/1/1985	to	6/30/1997	0.80%
1/1/2006	to	**12/31/2016**	**1.02%**
State and School Division[1]			
7/1/1997	to	6/30/1999	0.80%
7/1/1999	to	12/31/2000	1.10%
1/1/2001	to	12/31/2001	1.42%
1/1/2002	to	12/31/2002	1.64%
1/1/2003	to	6/30/2004	1.10%
7/1/2004	to	12/31/2005	1.02%
Local Government Division[2]			
7/1/1985	to	6/30/1999	0.80%
7/1/1999	to	12/31/2000	1.10%
1/1/2001	to	12/31/2001	1.96%
1/1/2002	to	12/31/2002	2.31%
1/1/2003	to	12/31/2003	1.69%
1/1/2004	to	6/30/2004	1.10%
7/1/2004	to	**12/31/2016**	**1.02%**
Judicial Division			
7/1/1985	to	6/30/1999	0.80%
7/1/1999	to	12/31/2000	1.10%
1/1/2001	to	12/31/2002	4.37%
1/1/2003	to	12/31/2003	3.11%
1/1/2004	to	6/30/2004	1.10%
7/1/2004	to	**12/31/2016**	**1.02%**
DPS Division[3]			
1/1/2010	to	**12/31/2016**	**1.02%**

[1] State and School Divisions merged July 1, 1997, and separated on January 1, 2006.

[2] The Local Government Division Trust Fund was the Municipal Division Trust Fund prior to January 1, 2006.

[3] The DPS HCTF was established on January 1, 2010, and received the balance of the Denver Public Schools Health Benefit Trust.

Employer Contributions to MatchMaker[1]

Division/Years			Percent of Covered Payroll Available from Employer Contribution for MatchMaker (Maximum Match)
State and School Division[2]			
1/1/2001	to	12/31/2002	3.00%
1/1/2003	to	12/31/2003	2.00%
1/1/2004	to	5/31/2004	1.00%
Local Government Division[3]			
1/1/2001	to	12/31/2001	2.00%
1/1/2002	to	12/31/2002	3.00%
1/1/2003	to	12/31/2003	2.00%
1/1/2004	to	5/31/2004	1.00%
Judicial Division			
1/1/2001	to	12/31/2002	7.00%
1/1/2003	to	12/31/2003	6.00%
1/1/2004	to	5/31/2004	5.00%

[1] Legislation enacted in 2004 ended MatchMaker contributions by June 1, 2004.

[2] State and School Divisions merged July 1, 1997, and separated on January 1, 2006.

[3] The Local Government Division Trust Fund was the Municipal Division Trust Fund prior to January 1, 2006.

PRINCIPAL PARTICIPATING EMPLOYERS

State Division Trust Fund[1, 2]

	2016			2014		
Employer	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
State of Colorado	**50,963**	**1**	**91.45%**	50,508	1	91.33%

[1] Guidance under GASB 67 classifies a primary government and its component units as one employer. Due to this change, data for the number of members by employer for years prior to 2014 is not available.

[2] This schedule was compiled using the definition of an employer as promulgated by GASB 67. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

School Division Trust Fund[1, 2]

	2016			2014		
Employer	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
Jefferson County School District R-1	**12,392**	**1**	**10.16%**	12,184	1	10.19%
Douglas County School District Re 1	**8,666**	**2**	**7.11%**	8,345	2	6.98%
Cherry Creek School District 5	**7,777**	**3**	**6.38%**	7,670	3	6.41%
Adams-Arapahoe School District 28J	**5,501**	**4**	**4.51%**	5,453	4	4.56%
Adams 12 Five Star Schools	**5,191**	**5**	**4.26%**	5,261	5	4.40%
Boulder Valley School District RE2	**4,686**	**6**	**3.84%**	4,678	6	3.91%
Poudre School District R-1	**4,554**	**7**	**3.73%**	4,425	7	3.70%
Colorado Springs School District 11	**4,475**	**8**	**3.67%**	4,292	8	3.59%
St. Vrain Valley School District RE1J	**4,360**	**9**	**3.58%**	4,189	9	3.50%
Academy School District #20	**3,763**	**10**	**3.09%**	3,660	10	3.06%

[1] Guidance under GASB 67 classifies a primary government and its component units as one employer. Due to this change, data for the number of members by employer for years prior to 2014 is not available.

[2] This schedule was compiled using the definition of an employer as promulgated by GASB 67. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

Local Government Division Trust Fund[1, 2]

	2016			2014		
Employer	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
City of Colorado Springs	**3,202**	**1**	**25.14%**	3,054	1	25.27%
Boulder County	**2,092**	**2**	**16.43%**	2,067	2	17.11%
City of Boulder	**1,489**	**3**	**11.69%**	1,413	3	11.69%

[1] Guidance under GASB 67 classifies a primary government and its component units as one employer. Due to this change, data for the number of members by employer for years prior to 2014 is not available.

[2] This schedule was compiled using the definition of an employer as promulgated by GASB 67. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

PRINCIPAL PARTICIPATING EMPLOYERS

Judicial Division Trust Fund[1, 2]

	2016			2014		
Employer	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
Judicial Department	**317**	**1**	**94.63%**	318	1	95.21%

[1] Guidance under GASB 67 classifies a primary government and its component units as one employer. Due to this change, data for the number of members by employer for years prior to 2014 is not available.

[2] This schedule was compiled using the definition of an employer as promulgated by GASB 67. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

DPS Division Trust Fund[1, 2]

	2016			2014		
Employer	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
Denver Public School District No. 1	**15,950**	**1**	**100.00%**	15,414	1	100.00%

[1] Guidance under GASB 67 classifies a primary government and its component units as one employer. Due to this change, data for the number of members by employer for years prior to 2014 is not available.

[2] This schedule was compiled using the definition of an employer as promulgated by GASB 67. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

Health Care Trust Fund[1]

	2016			2007		
Employer	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
Jefferson County School District	**12,339**	**1**	**6.47%**	12,486	1	6.68%
Cherry Creek School District	**7,697**	**2**	**4.04%**	7,198	3	3.85%
Douglas County Schools	**7,481**	**3**	**3.92%**	7,266	2	3.89%
Department of Corrections	**6,105**	**4**	**3.20%**	6,030	4	3.23%
University of Colorado	**5,631**	**5**	**2.95%**	5,657	5	3.03%
Aurora Public Schools	**5,179**	**6**	**2.72%**	4,452	10	2.38%
Adams 12 Five Star Schools	**4,737**	**7**	**2.48%**	4,765	6	2.55%
Boulder Valley School District	**4,471**	**8**	**2.34%**	4,722	7	2.53%
Colorado Springs Public Schools	**4,256**	**9**	**2.23%**	4,508	8	2.41%
Poudre School District RE-1	**4,234**	**10**	**2.22%**	—	—	—
Memorial Health System	**—**	**—**	**—**	4,478	9	2.40%

[1] Any differences in the employer name and/or number of covered active members in this schedule compared to the schedules for the Division Trust Funds are due to separate guidance promulgated by GASB 44 and GASB 67.

DPS Health Care Trust Fund[1, 2]

	2016			2010		
Employer	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
Denver Public Schools	**13,673**	**1**	**85.72%**	12,248	1	92.99%

[1] The DPS HCTF was established on January 1, 2010, and received the balance of the Denver Public Schools Retiree Health Benefit Trust, as required by SB 09-282.

[2] The difference in the number of covered active members in this schedule compared to the schedule for the DPS Division Trust Fund is due to separate guidance promulgated by GASB 44 and GASB 67.

SCHEDULE OF AFFILIATED EMPLOYERS

State Division

Agencies and Instrumentalities

CollegeInvest
College Assist
Colorado Association of School Boards
Colorado Association of School Executives
Colorado Council on the Arts
Colorado High School Activities Association
Colorado Public Employees' Retirement Association
Colorado Water Resources & Power Development Authority
Colorado Community College System
Department of Agriculture
Department of Corrections
Department of Education
Department of Health Care Policy and Financing
Department of Human Services
Department of Labor and Employment
Department of Law
Department of Local Affairs
Department of Military and Veterans Affairs
Department of Natural Resources
Department of Personnel and Administration
Department of Public Health and Environment
Department of Public Safety
Department of Regulatory Agencies
Department of Revenue
Department of State
Department of the Treasury
Department of Transportation
Fire and Police Pension Association
General Assembly
Joint Budget Committee
Judicial Department
Legislative Council
Office of the District Attorneys
Office of the Governor
Office of Legislative Legal Services
Office of the Lieutenant Governor
Office of the State Auditor
Pinnacol Assurance
School for the Deaf and the Blind
Special District Association of Colorado
State Historical Society

Institutions of Higher Education

Adams State University
Aims Community College
Arapahoe Community College
Auraria Higher Education Center
Aurora Community College
Colorado Mesa University
Colorado Mountain College
Colorado Northwestern Community College
Colorado School of Mines
Colorado State University
Colorado State University at Pueblo
Commission on Higher Education
Denver Community College
Fort Lewis College
Front Range Community College
Lamar Community College
Metropolitan State University of Denver
Morgan Community College
Northeastern Junior College
Otero Junior College
Pikes Peak Community College
Pueblo Vocational Community College
Red Rocks Community College
State Board for Community Colleges and Occupational Education
Trinidad State Junior College
University of Colorado
University of Northern Colorado
Western State Colorado University

SCHEDULE OF AFFILIATED EMPLOYERS

School Division[1]

Adams County
Adams 12 Five Star Schools
Adams County School District 14
Bennett School District 29J
Brighton School District 27J
Mapleton School District 1
Strasburg School District 31J
Westminster Public Schools

Alamosa County
Alamosa County School District Re-11J
Sangre de Cristo School District Re-22J

Arapahoe County
Adams-Arapahoe School District 28J
Byers School District 32J
Cherry Creek School District 5
Deer Trail School District 26J
Englewood School District 1
Littleton School District 6
Sheridan School District 2

Archuleta County
Archuleta County School District 50 Jt

Baca County
Campo School District RE-6
Pritchett School District RE-3
Springfield School District RE-4
Vilas School District RE-5
Walsh School District RE-1

Bent County
Las Animas School District RE-1
McClave School District RE-2

Boulder County
Boulder Valley School District RE2
St. Vrain Valley School District RE1J

Chaffee County
Buena Vista School District R-31
Salida School District R-32(J)

Cheyenne County
Cheyenne County School District Re-5
Kit Carson School District R-1

Clear Creek County
Clear Creek School District RE-1

Conejos County
North Conejos School District RE1J
Sanford School District 6J
South Conejos School District RE 10

Costilla County
Centennial School District R-1
Sierra Grande School District R-30

Crowley County
Crowley County School District RE-1

Custer County
Custer County Consolidated School District C-1

Delta County
Delta County School District 50(J)

Dolores County
Dolores County School District Re No. 2

Douglas County
Douglas County School District Re 1

Eagle County
Eagle County School District Re 50

Elbert County
Agate School District 300
Big Sandy School District 100J
Elbert School District 200
Elizabeth School District C-1
Kiowa School District C-2

El Paso County
Academy School District #20
Calhan School District RJ1
Cheyenne Mountain School District 12
Colorado Springs School District 11
Edison School District 54 Jt
Ellicott School District 22
Falcon School District 49
Fountain School District 8
Hanover School District 28
Harrison School District 2
Lewis-Palmer School District 38
Manitou Springs School District 14
Miami/Yoder School District 60 Jt
Peyton School District 23 Jt
Widefield School District 3

Fremont County
Canon City School District Re-1
Cotopaxi School District Re-3
Florence School District Re-2

Garfield County
Garfield School District 16
Garfield School District Re-2
Roaring Fork School District Re-1

[1] The list of employers in the School Division does not include charter schools operating within the respective public school districts and under the Colorado Charter School Institute.

SCHEDULE OF AFFILIATED EMPLOYERS

School Division[1] (continued)

Gilpin County
Gilpin County School District Re-1

Grand County
East Grand School District 2
West Grand School District 1

Gunnison County
Gunnison Watershed School District Re1J

Hinsdale County
Hinsdale County School District Re-1

Huerfano County
Huerfano School District Re-1
La Veta School District Re-2

Jackson County
North Park School District R-1

Jefferson County
Jefferson County School District R-1

Kiowa County
Kiowa County School District RE-1
Plainview School District Re-2

Kit Carson County
Arriba-Flagler Consolidated School District No. 20
Bethune School District R-5
Burlington School District Re-6J
Hi-Plains School District R-23
Stratton School District R-4

Lake County
Lake County School District R-1

La Plata County
Bayfield School District 10Jt-R
Durango School District 9-R
Ignacio School District 11 Jt

Larimer County
Estes Park School District
Poudre School District R-1
Thompson School District R-2J

Las Animas County
Aguilar Reorganized School District 6
Branson Reorganized School District 82
Hoehne Reorganized School District 3
Kim Reorganized School District 88
Primero Reorganized School District 2
Trinidad School District 1

Lincoln County
Genoa/Hugo School District C-113
Karval School District Re 23
Limon School District Re 4J

Logan County
Buffalo School District Re-4
Frenchman School District Re-3
Plateau School District Re-5
Valley School District Re-1

Mesa County
De Beque School District 49 Jt
Mesa County Valley School District 51
Plateau Valley School District 50

Mineral County
Creede Consolidated School District 1

Moffat County
Moffat County School District Re No. 1

Montezuma County
Dolores School District RE 4A
Mancos School District Re-6
Montezuma-Cortez School District Re 1

Montrose County
Montrose County School District Re-1J
West End School District Re-2

Morgan County
Brush School District Re-2 (J)
Fort Morgan School District Re-3
Weldon Valley School District Re-20 (J)
Wiggins School District Re-50 (J)

Otero County
Cheraw School District 31
East Otero School District R1
Fowler School District R4J
Manzanola School District 3J
Rocky Ford School District R2
Swink School District 33

Ouray County
Ouray School District R-1
Ridgway School District R-2

Park County
Park County School District Re-2
Platte Canyon School District 1

Phillips County
Haxtun School District Re-2J
Holyoke School District Re-1J

[1] The list of employers in the School Division does not include charter schools operating within the respective public school districts and under the Colorado Charter School Institute.

SCHEDULE OF AFFILIATED EMPLOYERS

School Division[1] (continued)

Pitkin County
Aspen School District 1

Prowers County
Granada School District Re-1
Holly School District Re-3
Lamar School District Re-2
Wiley School District Re-13 Jt

Pueblo County
Pueblo City School District 60
Pueblo County Rural School District 70

Rio Blanco County
Meeker School District RE1
Rangely School District RE4

Rio Grande County
Del Norte School District C-7
Monte Vista School District C-8
Sargent School District Re-33J

Routt County
Hayden School District Re 1
South Routt School District Re 3
Steamboat Springs School District Re 2

Saguache County
Center Consolidated School District 26 Jt
Moffat School District 2
Mountain Valley School District Re 1

San Juan County
Silverton School District 1

San Miguel County
Norwood School District R-2J
Telluride School District R-1

Sedgwick County
Julesburg School District Re 1
Revere School District Re3

Summit County
Summit School District Re 1

Teller County
Cripple Creek-Victor School District Re-1
Woodland Park School District RE-2

Washington County
Akron School District R-1
Arickaree School District R-2
Lone Star School District 101
Otis School District R-3
Woodlin School District R-104

Weld County
Ault-Highland School District Re-9
Briggsdale School District Re-10
Eaton School District Re-2
Gilcrest School District Re-1
Greeley School District 6
Johnstown-Milliken School District Re-5J
Keenesburg School District Re-3
Pawnee School District Re-12
Platte Valley School District Re-7
Prairie School District Re-11
Weld School District Re-8
Windsor School District Re-4

Yuma County
Idalia School District RJ-3
Liberty School District J-4
Wray School District RD-2
Yuma School District 1

Boards of Cooperative Educational Services (BOCES)
Adams County BOCES
Centennial BOCES
Colorado Digital BOCES
East Central BOCES
Expeditionary Learning School BOCES
Grand Valley BOCES
Mt. Evans BOCES
Mountain BOCES
Northeast BOCES
Northwest Colorado BOCES
Pikes Peak BOCES
Rio Blanco BOCES
San Juan BOCES
San Luis Valley BOCES
Santa Fe Trail BOCES
South Central BOCES
Southeastern BOCES
Uncompahgre BOCES
Ute Pass BOCES

Vocational Schools
Delta-Montrose Area Vocational School

Other
Colorado Consortium for Earth and Space Science Education

[1] The list of employers in the School Division does not include charter schools operating within the respective public school districts and under the Colorado Charter School Institute.

SCHEDULE OF AFFILIATED EMPLOYERS

Local Government Division

Adams and Jefferson County Hazardous Response Authority
Alamosa Housing Authority
Arapahoe Park and Recreation District
Aurora Housing Authority
Baca Grande Water & Sanitation District
Beulah Water Works District
Black Hawk-Central City Sanitation District
Blanca-Fort Garland Metropolitan District
Boulder County
Boulder County Public Trustee's Office
Boxelder Sanitation District
Brush Housing Authority
Carbon Valley Park & Recreation District
Castle Pines Metropolitan District
Castle Pines North Metropolitan District
Center Housing Authority
Central Colorado Water Conservancy District
Cheyenne Wells Housing Authority
City of Alamosa
City of Boulder
City of Castle Pines
City of Colorado Springs
City of Fort Morgan
City of Las Animas
City of Lone Tree
City of Manitou Springs
City of Pueblo
City of Wray
City of Yuma
Clearview Library District
Collbran Conservancy District
Colorado District Attorneys' Council
Colorado First Conservation District
Colorado Health Facilities Authority
Colorado Housing and Finance Authority
Colorado Library Consortium
Colorado River Fire Protection District
Colorado School District Self Insurance Pool
Colorado Springs Utilities
Columbine Knolls-Grove Metropolitan Recreation District
Costilla Housing Authority
County Technical Services, Inc.
Cucharas Sanitation & Water District
Cunningham Fire Protection District
Douglas County Libraries
Douglas County Housing Partnership
Durango Fire Protection District
East Cheyenne Groundwater Management District
East Larimer County Water District
Eastern Rio Blanco Metropolitan Recreation & Park District
Eaton Housing Authority
Elbert County Library District
Elizabeth Park and Recreation District
El Paso-Teller County Emergency Telephone Service Authority
Estes Park Housing Authority
Estes Park Local Marketing District
Estes Valley Fire Protection District
Estes Valley Public Library District
Forest Lakes Metropolitan District
Fremont Conservation District
Fremont Sanitation District
Garfield County Housing Authority
Grand Junction Regional Airport Authority
Grand Valley Fire Protection District
Green Mountain Water and Sanitation District
GVR Metropolitan District
Housing Authority of Arriba
Housing Authority of the City of Boulder
Housing Authority of the City of Colorado Springs
Housing Authority of the County of Adams
Housing Authority of the Town of Limon
Lamar Housing Authority
Lamar Utilities Board
Left Hand Water District
Longmont Housing Authority
Longs Peak Water District
Louisville Fire Protection District
Meeker Cemetery District
Meeker Regional Library District
Meeker Sanitation District
Montrose Fire Protection District
Montrose Recreation District
Monument Sanitation District
Morgan Conservation District
Morgan County Quality Water District
Mountain View Fire Protection District
Mountain Water and Sanitation District
Niwot Sanitation District
North Carter Lake Water District
North Chaffee County Regional Library
Northeast Colorado Health Department
Northeastern Colorado Association of Local Governments
Park Center Water District
Pikes Peak Regional Building Department
Pine Drive Water District
Plum Creek Water Reclamation Authority
Pueblo City-County Health Department
Pueblo Library District
Pueblo Transit Authority
Pueblo Urban Renewal Authority
Rampart Regional Library District
Rangely Regional Library District
Red Feather Mountain Library District
Red, White & Blue Fire Protection District

SCHEDULE OF AFFILIATED EMPLOYERS

Local Government Division (continued)

Republican River Water Conservation District
Rio Blanco Fire Protection District
Rio Blanco Water Conservancy District
Routt County Conservation District
Sable-Altura Fire Protection District
San Luis Valley Development Resources Group
San Luis Valley Water Conservancy District
San Miguel County Public Library
San Miguel Regional and Telluride Housing Authority
Scientific and Cultural Facilities District
Sheridan Sanitation District #1
Soldier Canyon Filter Plant
Statewide Internet Portal Authority
Steamboat II Water and Sanitation District
Strasburg Metropolitan Parks & Recreation District
St. Vrain Sanitation District
Tabernash Meadows Water and Sanitation District
Town of Alma
Town of Bayfield
Town of Crawford
Town of Dinosaur
Town of Eckley
Town of Estes Park
Town of Firestone
Town of Lake City
Town of Lochbuie
Town of Mountain Village
Town of Platteville
Town of Rico
Town of Rye
Town of Seibert
Town of Silver Plume
Town of Timnath
Tri-County Health Department
Tri-Lakes Wastewater Treatment Facility
Upper Colorado Environmental Plant Center
Upper Thompson Sanitation District
Washington-Yuma Counties Combined Communications Center
Weld County Department of Public Health and Environment
West Greeley Conservation District
Western Rio Blanco Metropolitan Recreation and Park District
White River Conservation District
Wray Housing Authority
Yuma Housing Authority

SCHEDULE OF AFFILIATED EMPLOYERS

Judicial Division

1st-22nd District Court
Adams County Court
Alamosa County Court
Arapahoe County Court
Archuleta County Court
Baca County Court
Bent County Court
Boulder County Court
Broomfield County Court
Chaffee County Court
Cheyenne County Court
Clear Creek County Court
Conejos County Court
Costilla County Court
Court of Appeals
Crowley County Court
Custer County Court
Delta County Court
Denver County Court
Denver Juvenile Court
Denver Probate Court
Dolores County Court
Douglas County Court
Eagle County Court
Elbert County Court
El Paso County Court
Fremont County Court
Garfield County Court
Gilpin County Court
Grand County Court
Gunnison County Court
Hinsdale County Court
Huerfano County Court
Jackson County Court
Jefferson County Court
Kiowa County Court
Kit Carson County Court
Lake County Court
La Plata County Court
Larimer County Court
Las Animas County Court
Lincoln County Court
Logan County Court
Mesa County Court
Mineral County Court
Moffat County Court
Montezuma County Court
Montrose County Court
Morgan County Court
Otero County Court
Ouray County Court
Park County Court
Phillips County Court
Pitkin County Court
Prowers County Court
Pueblo County Court
Rio Blanco County Court
Rio Grande County Court
Routt County Court
Saguache County Court
San Juan County Court
San Miguel County Court
Sedgwick County Court
Summit County Court
Supreme Court
Teller County Court
Washington County Court
Weld County Court
Yuma County Court

DPS Division[1]

Denver Public School District No. 1

[1] The list of employers in the DPS Division does not include charter schools operating within the Denver Public Schools school district.

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