# Denver Employees Retirement Plan


# Comprehensive Annual Financial Report

Fiscal Year Ended
December 31, 2019

A Component Unit of the City and County of Denver, Colorado

# Denver Employees Retirement Plan

(A Component Unit of the City and County of Denver, Colorado)

# Comprehensive Annual Financial Report

Fiscal Year Ended December 31, 2019

Eric Rothaus
Retirement Board Chair

Heather K. Darlington
Executive Director

Prepared by the Plan Staff

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# Introductory Section

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**Primary Plan Sponsor**
City and County of Denver, Colorado

**Elected Officials**
Mayor
Honorable Michael B. Hancock

Auditor
Honorable Timothy M. O'Brien, CPA

City Council

| | |
|---|---|
| District 1 | Honorable Amanda P. Sandoval |
| District 2 | Honorable Kevin Flynn |
| District 3 | Honorable Jamie Torres |
| District 4 | Honorable Kendra Black |
| District 5 | Honorable Amanda Sawyer |
| District 6 | Honorable Paul Kashmann |
| District 7 | Honorable Jolon Clark |
| District 8 | Honorable Christopher Herndon |
| District 9 | Honorable Candi CdeBaca |
| District 10 | Honorable Chris Hinds |
| District 11 | Honorable Stacie Gilmore |
| Council at-Large | Honorable Robin Kniech |
| Council at-Large | Honorable Deborah Ortega |

Clerk and Recorder
Honorable Paul D. López

THE PLAN

DENVER EMPLOYEES RETIREMENT PLAN

Heather K. Darlington
Executive Director
777 Pearl Street
Denver, CO 80203
Ph. 303.839.5419
Fax 303.839.9525
www.derp.org

May 15, 2020

Dear Members of the Denver Employees Retirement Plan:

We are pleased to present the Comprehensive Annual Financial Report (CAFR) of the Denver Employees Retirement Plan (the Plan) of the City and County of Denver (the City) for the fiscal year ended December 31, 2019.

**Comprehensive Annual Financial Report** This report is an overview intended to give the reader reliable and useful information which describes the financial position of the Plan and provides assurance that the Plan is in compliance with applicable legal provisions. The Plan's management is responsible for the accuracy of the data contained in this report, and we believe the information included presents fairly the fiduciary net position of the Plan as of December 31, 2019, as well as the changes in fiduciary net position for the year.

**Internal Control** The Plan's management has designed and implemented internal and accounting controls to provide reasonable assurance of the accuracy and reliability of all the financial records and the safekeeping of the Plan assets. There are inherent limitations in the effectiveness of any system of internal controls. The cost of internal control should not exceed anticipated benefits; therefore the objective is to provide reasonable, rather than absolute, assurance that the financial statements are free of material misstatement.

**Independent Audit** The City's Revised Municipal Code requires an annual audit of the trust fund, with the results being furnished to the Mayor, the City Council, and the City Auditor. The Retirement Board selected the accounting firm CliftonLarsonAllen, LLP to render an opinion as to the fairness of the Plan's 2019 financial statements. The audit was performed in accordance with auditing standards generally accepted in the United States of America and the standards for financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. The Independent Auditors' Report is included in this report's Financial Section.

**Management's Discussion and Analysis** Generally accepted accounting principles (GAAP) require that management provide a narrative introduction, overview, and analysis to accompany the basic financial statements in the form of Management's Discussion and Analysis (MD&A). This letter of transmittal is designed to complement MD&A and should be read in conjunction with it. The Plan's MD&A can be found immediately following the report of the independent auditors in this report's Financial Section.

**Plan Profile** The Plan was established on January 1, 1963, as a defined benefit plan. Most City employees, certain employees of the Denver Health and Hospital Authority (DHHA), and all of the Plan staff are covered by the Plan. Excluded from membership are the uniformed employees of the City's police and fire departments and the Denver Water Board employees. All active Plan members are required to contribute to Social Security while employed. As of December 31, 2019, there were 9,406 active and 10,137 retired Plan members.

The Plan is governed by a five member Board, the members of which are appointed for staggered six-year terms by the Mayor of the City. Additionally, three members of the Advisory Committee are elected by the Plan membership for staggered three-year terms and one member is appointed by the City's Career Service Board.

All Plan-related benefit and administrative provisions are detailed in Sections 18-401 through 18-430.7 of the City's Revised Municipal Code. Any amendments to the Plan must be enacted into ordinance by the Denver City Council and approved by the Mayor.

The Plan provides retirement benefit options based upon the member's date of hire. At the time of retirement, a member may elect to receive a reduced benefit in order to provide a lifetime benefit to a spouse or an eligible beneficiary upon the member's death. The Plan also provides disability and death benefits. With respect to other post-retirement benefits, the Plan offers retired members and their beneficiaries the option of purchasing health, dental, and vision insurance coverage. Based on a formula incorporating a member's years of service, the Plan pays a portion of the monthly insurance premium(s). A more detailed explanation of benefits is outlined in the Summary of Principal Plan Provisions in this report's Actuarial Section. The Plan's Membership Services representatives provide ongoing pre-retirement counseling to the active members and assist retired members and their beneficiaries throughout the year.

**Investment Performance** The Plan follows a strategic asset allocation policy so that investments are diversified. The goal of the asset allocation is to provide the highest level of return at an acceptable level of risk. During 2019, the Plan's investment portfolio returned 12.6% net of fees. These investment results lagged the overall strategic benchmark return for the Plan of 16.2% as well as the median peer return of 17.0%. These results were in the bottom quartile of public plan returns, following 2018's top quartile finish. Over the last 10 years, the DERP portfolio has earned a net annual return of 7.9%, slightly behind our peers and our blended benchmark returns of 8.1% and 8.3% respectively.

**Funded Status** The Plan's pension benefit fund continues to be in a healthy financial position relative to our peer group of other public pension funds nationally. The Retirement Board, the Executive Director, and the Plan staff remain committed to managing the Plan's assets and liabilities to maintain the long-term financial soundness of the Plan and to have the funds needed to pay every dollar of benefits promised to every current and future retiree. The funded status of the pension benefit fund for the year beginning January 1, 2019 was 62.20%. The Plan continues to work successfully with the City to annually receive the full amount of the actuarially required contribution necessary to achieve the Plan's funding goals. Additional information regarding the Plan's funding is included in this report's Actuarial Section.

**Awards** The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Denver Employees Retirement Plan for its CAFR for the fiscal year ended December 31, 2018. The Certificate of Achievement is a prestigious national award recognizing excellence in the preparation of state and local government financial reports. To be awarded the Certificate of Achievement for Excellence in Financial Reporting, a government unit must publish an easily readable and efficiently organized report, the contents of which meet or exceed program standards. The report must satisfy both generally accepted accounting principles and applicable legal requirements. A Certificate of Achievement is valid for one year. The Plan has received a Certificate of Achievement for 30 years in a row. We believe this current report continues to meet the Certificate of Achievement program requirements and will submit it to the GFOA for consideration again this year.

**Conclusion** We express our appreciation to the Plan staff who served the membership throughout 2019 and who prepared this report. We hope readers find it easy to read and understand, and will recognize the contributions that the Retirement Board, Advisory Committee, and Plan staff make toward the continued successful operation of the Plan.

Sincerely,

Eric Rothaus
Retirement Board Chair

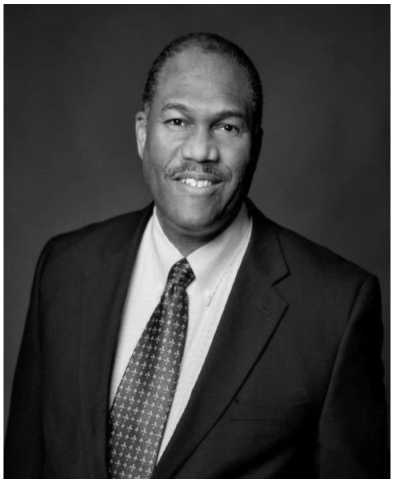
Heather K. Darlington

Heather Darlington
Executive Director

## Retirement Board

Each member is appointed by the Mayor of Denver

**Diane Barrett**
Term expires January 1, 2026



**Maurice Goodgaine**
Term expires January 1, 2023

**Guadalupe Gutierrez-Vasquez**
Term expires January 1, 2021

**Bruce Hoyt**
Term expires January 1, 2025

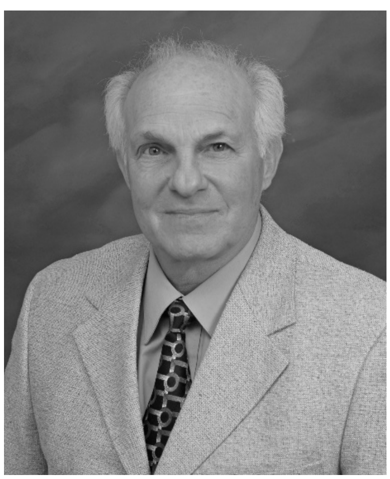
**Eric S. Rothaus**
Term expires January 1, 2022

## Advisory Committee

Three members are elected by the Plan membership and one member is appointed by the Denver Career Service Board

**Heather L. Britton**
Term expires June, 2020

Frank T. Fresquez
Term expires June, 2022



**Robert Press**
Term expires June, 2020

**Mark Valentine**
Term expires June, 2021

## Professional Services

### Actuary
- Cheiron, Inc.

### Independent Auditor
- CliftonLarsonAllen, LLP

### Custodian Bank
- Bank of New York Mellon Corporation

### Investment Consulting
- Meketa Investment Group

## Investment Managers

**Domestic Equity Managers**
- Brown Advisory
- Eagle Capital Management
- Franklin Templeton
- Mellon Capital Management
- Neuberger Berman, LLC

**Real Estate Managers**
- Contrarian Capital Management, LLC
- Prudential Real Estate Investors
- UBS Global Asset Management
- Walton Street Capital

**International Equity Managers**
- Dimensional Fund Advisors
- Fidelity Institutional
- Franklin Templeton
- LSV Asset Management
- Mellon Capital Management

**Alternative Investments Managers**
- Adams Street Partners, LLC
- EIG Global Energy Partners
- Hancock Timber Resource Group
- JP Morgan Private Equity Group
- Kayne Anderson Capital Advisors
- Lime Rock Resources
- Tortoise Capital Advisors

**Fixed Income Managers**
- Athyrium
- Bain Capital
- Colchester Global Investors Limited
- Golub Capital
- GSO Capital Partners, LP
- Mellon Capital Management

**Absolute Return Funds**
- PAAMCO Prisma

Investment commissions and fees can be found on pages 61-62 in the Investment Section.

Government Finance Officers Association

# Certificate of Achievement for Excellence in Financial Reporting

Presented to

**Denver Employees Retirement Plan**

**Colorado**

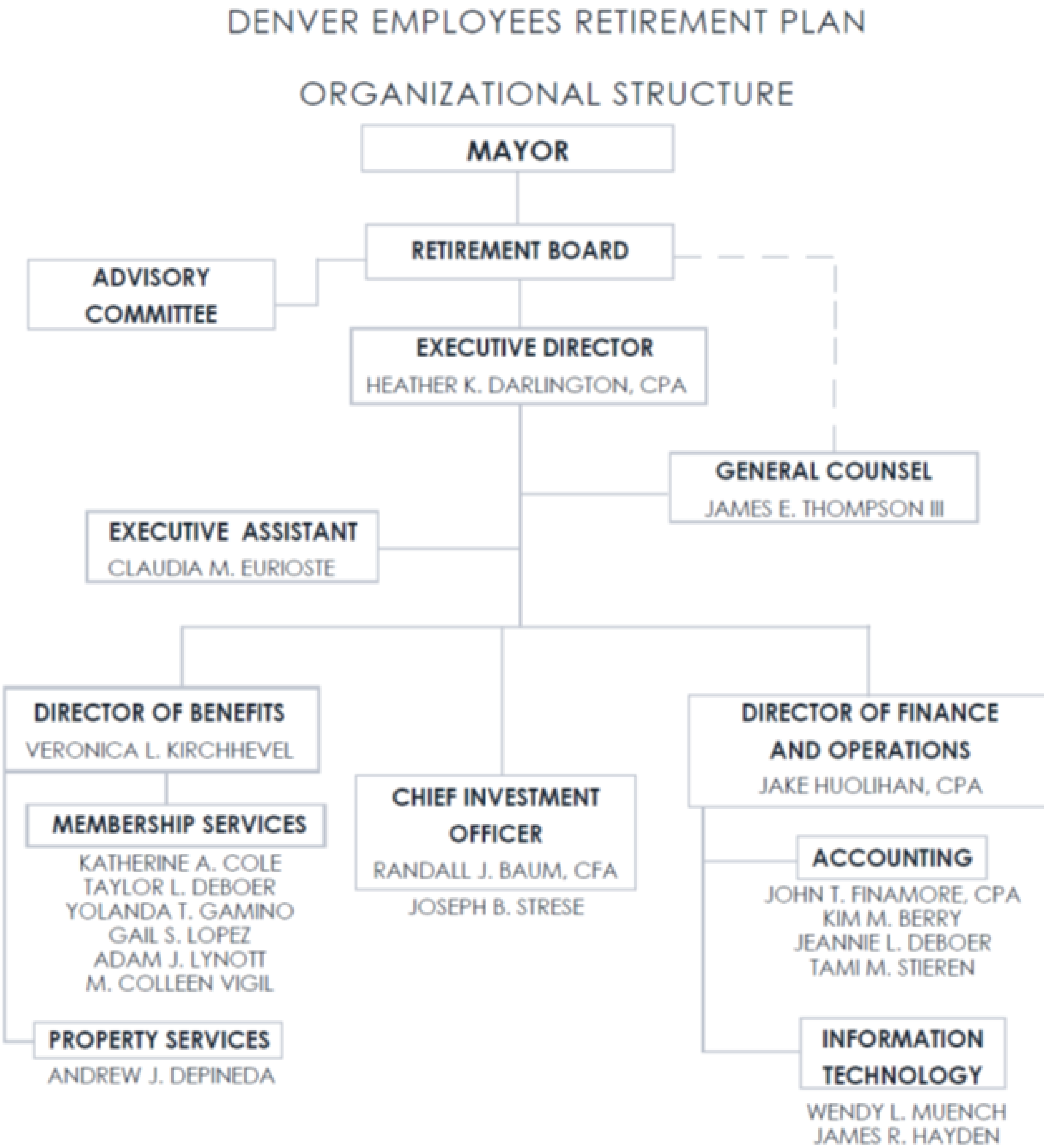
For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

**December 31, 2018**

Christopher P. Morrill

Executive Director/CEO

## Organizational Structure



# Financial Section

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CliftonLarsonAllen LLP
CLAconnect.com

## INDEPENDENT AUDITORS' REPORT

Retirement Board
Denver Employees Retirement Plan
Denver, Colorado

### Report on the Financial Statements

We have audited the accompanying financial statements of the Denver Employees Retirement Plan (the Plan), a component unit of the City and County of Denver, which comprise the statement of fiduciary net position and statement of changes in fiduciary net position, as of and for the year ended December 31, 2019, and the related notes to the financial statements, which collectively comprise the Plan's basic financial statements as listed in the table of contents.

### *Management's Responsibility for the Financial Statements*

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

### *Auditors' Responsibility*

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America 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 Plan'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 Plan's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

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

***Opinion***

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of the Plan as of December 31, 2019, and the changes in its fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

***Report on Summarized Comparative Information***

We have previously audited the Plan's 2018 financial statements, and we expressed an unmodified audit opinion on those audited financial statements in our report dated May 16, 2019. In our opinion, the summarized comparative information presented herein as of and for the year ended December 31, 2018 is consistent, in all material respects, with the audited financial statements from which it has been derived.

***Other Matters***

*Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and required supplementary information, 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 consider it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

*Other Information*

Our audits were conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Plan's basic financial statements. The other supplementary information listed in the table of contents is presented for purposes of additional analysis and is not a required part of the basic financial statements.

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

The introductory, investment, actuarial and statistical sections 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 express no opinion or provide any assurance on them.

**Other Reporting Required by *Government Auditing Standards***

In accordance with *Government Auditing Standards*, we have also issued our report dated June 3, 2020, on our consideration of the Plan's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the result 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 the Plan's internal control over financial reporting and compliance.

CliftonLarsonAllen LLP

**CliftonLarsonAllen LLP**

Denver, Colorado
June 3, 2020

## Management's Discussion and Analysis

This is an analysis and overview of the financial activities of the Denver Employees Retirement Plan (the Plan) for the year ended December 31, 2019. For additional information, please refer to the basic financial statements, notes to the financial statements, required supplementary information, and supporting schedules.

### *Financial Highlights*

As of December 31, 2019, the fiduciary net position of $2,330,171,602 was restricted for the payment of benefits and to meet the Plan's future obligations to its members and their beneficiaries.

For 2019, the Plan's total fiduciary net position restricted for benefits increased by $200,128,794, a 9.4% increase from the amount of net position restricted for benefits reported at the end of 2018. The increase for 2019 is the result of favorable market conditions that contributed to net investment earnings of $293,295,388, reduced by benefit payments exceeding contributions received.

Additions to the Plan's fiduciary net position included contributions of $87,996,771 from the City and County of Denver (the City) and $4,552,850 from the Denver Health and Hospital Authority (DHHA). In addition, active members of the Plan contributed $63,385,303.

Deductions from the Plan's fiduciary net position during 2019 totaled $249,101,518. This amount is 5.0% higher than the total 2018 deductions. Increasing retired member benefits, due to a net increase in the number of retirees and higher average monthly benefit payments for new retirees, is the cause for the higher deduction amount.

The Plan's funding objective is to meet its long-term benefit obligations through employer and employee contributions and investment returns. As of January 1, 2019, the date of the last actuarial valuation, the funded ratios for the pension and health benefits funds were 62.2% and 43.7%, respectively.

### *Overview of the Financial Statements*

The following discussion and analysis is intended to serve as an introduction to the Plan's financial statements which follow. The financial statements include:

- Statement of Fiduciary Net Position
- Statement of Changes in Fiduciary Net Position
- Notes to Financial Statements
- Required Supplementary Information
- Supplementary Information

*The* Statement *of Fiduciary Net Position* presents the Plan's assets, liabilities, and net position as of December 31, 2019, with summarized comparative totals for 2018. This statement reflects the Plan's net position available for benefits in each the retirement and the health benefits funds as of December 31, 2019, and in the aggregate as of December 31, 2018.

*The* Statement *of Changes in Fiduciary Net Position* shows the additions to and deductions from the Plan's net position during 2019, with summarized comparative totals for 2018.

The Governmental Accounting Standards Board (GASB) promulgates the requirements for financial statement presentation and certain disclosures for state and local governmental entities. The financial statements, notes to financial statements, and required supplementary information presented in this report were prepared in compliance with applicable GASB pronouncements.

**Management's Discussion and Analysis**

The financial statements provide a snapshot of the Plan's assets and liabilities as of December 31, 2019 and the financial activities that occurred during the year. The financial statements were prepared using the economic resources measurement focus and the accrual basis of accounting. Investment activities have been reported based on trade dates and were valued pursuant to independent outside sources. All capital assets, exclusive of land, are depreciated over their useful lives. Refer to the financial statements and notes to the financial statements for additional information.

*Notes to the Financial Statements* provide additional information which is essential for a full understanding of the basic financial statements.

*Required Supplementary Information* provides additional information and details about the Plan's progress in funding its future obligations and the history of employer and employee contributions.

*Other supplementary schedules* are also included. The Schedule of Administrative Expenses presents the overall cost of administering the Plan. The schedule of Investment Expenses shows the cost associated with investing the assets of the Plan.

***Financial Analysis***

There are several ways to measure the Plan's financial status. One means is to determine the Plan's fiduciary net position available to pay benefits, which is the difference between total assets and total liabilities. Another way to measure the Plan's financial status is to refer to the funded ratio which takes into account the actuarial assets and actuarial liabilities of the Plan.

On December 31, 2019, the Plan's fiduciary net position totaled $2,330,171,602. Of this amount, $118,320,453 represented funds in the Deferred Retirement Option Plan (DROP) and the Amended Deferred Retirement Option Plan (DROP II) accounts.

The Plan's Board has an investment allocation strategy in place and, with the help of an outside consultant, continually monitors the Plan's investments. The Plan's total assets increased in 2019 due to strong returns from its investment portfolio. As of December 31, the Plan's fiduciary net position was:

| | 2019 | 2018 | Amount of Change | Percentage Change |
|---|---|---|---|---|
| **Assets** | | | | |
| Cash, short-term investments, and receivables | $ 118,492,555 | $ 37,970,774 | $ 80,521,781 | 212.1 % |
| Securities lending collateral | 81,271,523 | 129,463,950 | (48,192,427) | (37.2)% |
| Investments, at fair value | 2,217,854,919 | 2,092,143,126 | 125,711,793 | 6.0 % |
| Capital assets, net | 3,168,692 | 3,518,282 | (349,590) | (9.9)% |
| Total assets | 2,420,787,689 | 2,263,096,132 | 157,691,557 | 7.0 % |
| **Liabilities** | | | | |
| Accounts payable and unsettled securities purchased | 2,538,455 | 3,589,374 | (1,050,919) | (29.3)% |
| Unearned contributions | 6,806,109 | — | 6,806,109 | 100.0 % |
| Securities lending obligations | 81,271,523 | 129,463,950 | (48,192,427) | (37.2)% |
| Total liabilities | 90,616,087 | 133,053,324 | (42,437,237) | (31.9)% |
| **Fiduciary net position** | $ 2,330,171,602 | $ 2,130,042,808 | $ 200,128,794 | 9.4 % |

**Management's Discussion and Analysis**

***Reserves***

The Plan has established a reserve account for accumulated DROP benefits of $118,320,453 as of December 31, 2019. These funds are restricted for individuals who elected to participate in one of the DROP programs. Upon retirement, the member could elect to receive distributions or keep the accumulated monies with the Plan. The remaining Plan fiduciary net position is available to pay retirement and health benefits to all eligible members and beneficiaries.

***Plan Activities***

Net additions were higher than Plan deductions, resulting in an overall 9.4% increase in Plan fiduciary net position for the year. For the years ended December 31, the Plan's activities were:

| | 2019 | 2018 | Amount of Change | Percentage Change |
|---|---|---|---|---|
| **Additions** | | | | |
| Contributions | $ 155,934,924 | $ 142,505,960 | $ 13,428,964 | 9.4 % |
| Net investment earnings | 293,295,388 | (75,510,404) | 368,805,792 | 488.4 % |
| Total additions, net | 449,230,312 | 66,995,556 | 382,234,756 | 570.5 % |
| **Deductions** | | | | |
| Benefits | 244,845,016 | 233,056,895 | 11,788,121 | 5.1 % |
| Administrative expenses | 4,256,502 | 4,149,416 | 107,086 | 2.6 % |
| Total deductions | 249,101,518 | 237,206,311 | 11,895,207 | 5.0 % |
| Change in fiduciary net position | 200,128,794 | (170,210,755) | 370,339,549 | 217.6 % |
| Beginning of year fiduciary net position | 2,130,042,808 | 2,300,253,563 | (170,210,755) | (7.4)% |
| **End of year Fiduciary net position** | $ 2,330,171,602 | $ 2,130,042,808 | $ 200,128,794 | 9.4 % |

***Additions to Fiduciary Net Position***

The monies needed to pay benefits are accumulated from the contributions made by employers and employees, and income generated from the Plan's investments. Income or losses on investments are reported net of investment management expenses. Employer contributions for 2019 totaled $92,549,621, which is 6.8% higher than the amount contributed in 2018, due primarily to an increase in the contribution rate and increase in covered payroll in 2019. During 2019, employees contributed a total of $63,385,303, which is an increase of 13.5% over the 2018 amount, and due to an increase in the contribution rate, increases in covered payroll and purchase of service. The Plan's net investment return was approximately 12.6% in 2019 compared to (2.40)% in 2018. Top contributors to performance were domestic equities and non-US developed market equities. The Plan had net securities lending transaction income of $469,282 in 2019 and $812,066 in 2018.

| | 2019 | 2018 | Amount of Change | Percentage Change |
|---|---|---|---|---|
| Employer contributions | $ 92,549,621 | $ 86,672,498 | $ 5,877,123 | 6.8 % |
| Employee contributions | 63,385,303 | 55,833,462 | 7,551,841 | 13.5 % |
| Net appreciation (depreciation) in fair value of investments | 262,064,555 | (120,309,087) | 382,373,642 | 317.8 % |
| Interest, dividends, real estate/alternative investments, and absolute return income | 45,767,196 | 57,903,473 | (12,136,277) | (21.0)% |
| Securities lending transactions income, net | 469,282 | 812,066 | (342,784) | (42.2)% |
| Investment expenses | (15,005,645) | (13,916,856) | (1,088,789) | 7.8 % |
| **Total additions, net** | $ 449,230,312 | $ 66,995,556 | $ 382,234,756 | 570.5 % |

**Management's Discussion and Analysis**

***Deductions from Fiduciary Net Position***

The Plan provides a lifetime pension benefit to its retired members, as well as survivor, disability, and retiree health, dental, and vision benefits. Annual expenses of the Plan include retirement benefits, DROP distributions, refunds of employee contributions, and administrative expenses. For the year ended December 31, 2019, deductions totaled $249,101,518, an increase of 5.0% over the amount of 2018 total deductions. The increase is attributed to a 1.9 % net increase in the number of retirees, along with higher average monthly benefit payments for new retirees. Refunds of contributions to non-vested members were 29.1% higher per refund on average with the number of member refund requests remaining constant. Administrative expenses were slightly higher than those of the previous year due primarily to an increase in salary expenses.

| | 2019 | 2018 | Amount of Change | Percentage Change |
|---|---|---|---|---|
| Benefits | $ 239,364,251 | $ 228,564,114 | $ 10,800,137 | 4.7 % |
| Employee refunds | 5,480,765 | 4,492,781 | 987,984 | 22.0 % |
| Administrative expenses | 4,256,502 | 4,149,416 | 107,086 | 2.6 % |
| **Total deductions** | $ 249,101,518 | $ 237,206,311 | $ 11,895,207 | 5.0 % |

***Capital Assets***

Capital assets, net of accumulated depreciation, had a net decrease of $349,590 for the year ended December 31, 2019, which is comprised primarily of depreciation expense of $436,602. See Note 8 *Capital Assets* for additional information.

***Requests for Information***

This management's discussion and analysis is intended to provide the Plan's Board, participating employers, and the membership with an overview of the Plan's financial position as of December 31, 2019, and a summary of the Plan's activities for the year then ended.

Questions about any of the information presented or requests for additional information should be directed to:

Denver Employees Retirement Plan
777 Pearl Street
Denver, CO 80203
Phone: 303-839-5419
Fax: 303-839-9525
Website: www.derp.org
Email: mbrsvs@derp.org

## Statement of Fiduciary Net Position

December 31, 2019

(with Summarized Comparative Totals for December 31, 2018)

| | Pension Benefits | Health Benefits | December 31, 2019 | December 31, 2018 |
|---|---|---|---|---|
| **Assets** | | | | |
| Cash and short-term investments | $ 112,797,073 | $ 3,613,427 | $ 116,410,500 | $ 36,378,568 |
| Securities lending collateral | 78,772,290 | 2,499,233 | 81,271,523 | 129,463,950 |
| Receivables | | | | |
| Unsettled securities sold | 192,744 | 6,115 | 198,859 | 33,093 |
| Interest and dividends | 1,791,671 | 56,845 | 1,848,516 | 1,526,593 |
| Total receivables | 1,984,415 | 62,960 | 2,047,375 | 1,559,686 |
| Investments, at fair value | | | | |
| U.S. Government obligations | 108,348,955 | 3,437,621 | 111,786,576 | 155,040,399 |
| Domestic corporate bonds and other fixed income | 416,433,244 | 13,212,308 | 429,645,552 | 307,549,779 |
| Domestic stocks | 447,648,651 | 14,202,688 | 461,851,339 | 420,939,186 |
| International stocks | 388,961,582 | 12,340,705 | 401,302,287 | 446,647,936 |
| Real estate | 170,123,332 | 5,397,556 | 175,520,888 | 173,038,863 |
| Alternative investments | 508,337,159 | 16,128,172 | 524,465,331 | 484,324,501 |
| Absolute return | 109,799,309 | 3,483,637 | 113,282,946 | 104,602,462 |
| Total investments | 2,149,652,232 | 68,202,687 | 2,217,854,919 | 2,092,143,126 |
| Prepaid Items | 33,614 | 1,066 | 34,680 | 32,520 |
| Capital assets | | | | |
| Land | 416,817 | 13,224 | 430,041 | 430,041 |
| Building and equipment, net of accumulated depreciation | 2,597,759 | 82,420 | 2,680,179 | 3,088,241 |
| Construction in Progress | 56,674 | 1,798 | 58,472 | — |
| Total assets | 2,346,310,874 | 74,476,815 | 2,420,787,689 | 2,263,096,132 |
| **Liabilities** | | | | |
| Unsettled securities purchased | 475,680 | 15,092 | 490,772 | 1,488,132 |
| Securities lending obligations | 78,772,290 | 2,499,233 | 81,271,523 | 129,463,950 |
| Unearned contributions | 6,596,810 | 209,299 | 6,806,109 | — |
| Accounts payable | 1,984,713 | 62,970 | 2,047,683 | 2,101,242 |
| Total liabilities | 87,829,493 | 2,786,594 | 90,616,087 | 133,053,324 |
| **Fiduciary net position restricted for benefits** | $ 2,258,481,381 | $ 71,690,221 | $ 2,330,171,602 | $ 2,130,042,808 |
| Fiduciary net position restricted for pension and health benefits | $ 2,140,160,928 | $ 71,690,221 | $ 2,211,851,149 | $ 2,011,964,373 |
| Fiduciary net position restricted for DROP and DROP II benefits | 118,320,453 | — | 118,320,453 | 118,078,435 |
| **Fiduciary net position restricted for benefits** | $ 2,258,481,381 | $ 71,690,221 | $ 2,330,171,602 | $ 2,130,042,808 |

*See Notes to Financial Statements*

**Statement of Changes in Fiduciary Net Position**

Year Ended December 31, 2019

(with Summarized Comparative Totals for the Year Ended December 31, 2018)

| | | | Year ended December 31, | |
|---|---|---|---|---|
| | Pension Benefits | Health Benefits | 2019 | 2018 |
| **Additions** | | | | |
| Contributions | | | | |
| City and County of Denver, Colorado | $ 83,146,716 | $ 4,850,055 | $ 87,996,771 | $ 80,122,159 |
| Denver Health and Hospital Authority | 4,318,106 | 234,744 | 4,552,850 | 6,550,339 |
| Plan members | 60,074,876 | 3,310,427 | 63,385,303 | 55,833,462 |
| Total contributions | 147,539,698 | 8,395,226 | 155,934,924 | 142,505,960 |
| Investment earnings | | | | |
| Net appreciation (depreciation) in fair value of investments | 253,855,321 | 8,209,234 | 262,064,555 | (120,309,087) |
| Dividends | 15,201,501 | 490,110 | 15,691,611 | 17,646,971 |
| Interest | 13,680,329 | 441,189 | 14,121,518 | 11,617,640 |
| Real estate, alternative investments, and absolute return income | 15,456,728 | 497,339 | 15,954,067 | 28,638,862 |
| | 298,193,879 | 9,637,872 | 307,831,751 | (62,405,614) |
| Investment expenses | (14,538,267) | (467,378) | (15,005,645) | (13,916,856) |
| | 283,655,612 | 9,170,494 | 292,826,106 | (76,322,470) |
| Securities lending transactions income | 3,272,725 | 105,745 | 3,378,470 | 3,575,077 |
| Securities lending transactions expenses | | | | |
| Borrower rebates | (2,666,732) | (86,192) | (2,752,924) | (2,492,567) |
| Agent fees | (151,380) | (4,884) | (156,264) | (270,444) |
| | 454,613 | 14,669 | 469,282 | 812,066 |
| Net investment earnings | 284,110,225 | 9,185,163 | 293,295,388 | (75,510,404) |
| Total additions, net | 431,649,923 | 17,580,389 | 449,230,312 | 66,995,556 |
| **Deductions** | | | | |
| Retired member benefits | 218,123,278 | 12,951,302 | 231,074,580 | 220,422,030 |
| DROP and DROP II benefits paid | 8,289,671 | — | 8,289,671 | 8,142,084 |
| Refunds of contributions | 5,309,546 | 171,219 | 5,480,765 | 4,492,781 |
| Administrative expenses | 4,123,494 | 133,008 | 4,256,502 | 4,149,416 |
| Total deductions | 235,845,989 | 13,255,529 | 249,101,518 | 237,206,311 |
| Change in fiduciary net position | 195,803,934 | 4,324,860 | 200,128,794 | (170,210,755) |
| **Fiduciary net position held in trust for benefits** | | | | |
| Beginning of year | 2,062,677,447 | 67,365,361 | 2,130,042,808 | 2,300,253,563 |
| End of year | $ 2,258,481,381 | $ 71,690,221 | $ 2,330,171,602 | $ 2,130,042,808 |

See Notes to Financial Statements

**Notes to Financial Statements**

**Note 1 Plan Description**

The Denver Employees Retirement Plan (the Plan) administers a cost-sharing multiple-employer defined benefit plan providing pension and post-employment health benefits to eligible members. The Plan was established in 1963 by the City and County of Denver, Colorado. During 1996, the Denver Health and Hospital Authority (DHHA) was created and joined the Plan as a contractual entity. In 2001, the Plan became closed to new entrants from DHHA. All risks and costs are shared by the City and County of Denver (the City) and DHHA. There is a single actuarial valuation performed annually that covers both the pension and post employment health benefits. All assets of the Plan are funds held in trust by the Plan for its members for the exclusive purpose of paying pension and post-employment health benefits.

Substantially all of the general employees of the City, certain employees of DHHA, and all employees of the Plan are covered under the Plan. The classified service employees of the Denver Police and Denver Fire Departments, and the employees of the Denver Water Board, are covered by separate retirement systems. At December 31, 2019, the Plan membership consisted of the following:

| | Pension Benefits | Health Benefits |
|---|---|---|
| Retirees and beneficiaries currently receiving benefits | 10,137 | 6,790 |
| Retirees and beneficiaries entitled to health benefits but not receiving any | — | 3,347 |
| Terminated employees entitled to benefits but not yet receiving them | 3,430 | 3,430 |
| Current employees: | | |
| Vested | 5,035 | 5,035 |
| Non-vested | 4,371 | 4,371 |
| Total | 22,973 | 22,973 |

The following brief description of the Plan is provided for general information purposes only. Sections 18-401 through 18-430.7 of the City's Revised Municipal Code should be referred to for complete details of the Plan.

The Plan provides retirement, death and disability benefits for its members and their beneficiaries. Members who were hired before September 1, 2004, and retire at or after age 65 (or at age 55 if the sum of their age and credited service is at least 75) are entitled to an annual retirement benefit, in an amount equal to 2.0% of their final average salary for each year of credited service, payable monthly for life. Effective for employees hired on or after September 1, 2004, the formula multiplier was reduced to 1.5%. Final average salary is based on the member's highest salary during a consecutive 36 month period of credited service. Members with five years of credited service may retire at or after age 55 and receive a reduced retirement benefit.

For members who were hired on or after July 1, 2011, they must be age 60 and have combined credited service and age of at least 85 in order to receive a normal retirement prior to age 65. Final average salary is based on the member's highest salary during a consecutive 60 month period of credited service. Five year vesting is required of all employees in order to qualify for a benefit, regardless of their age at the time of termination of employment.

Annual cost of living adjustments are granted on an ad hoc basis. The estimated cost of benefit and contribution provisions is determined annually by an independent actuary, recommended by the Plan's Board, and enacted into ordinance by the Denver City Council.

**Notes to Financial Statements**

The health benefits account was established by City Ordinance in 1991 to provide, beginning January 1, 1992, post-employment health care benefits in the form of a premium reduction to retired members, their spouses and dependents, spouses and dependents of deceased active and retired members, and members of the Plan awaiting approval of retirement applications. During 2019, the monthly health insurance premium reduction was $12.50 per year of service for retired participants not yet eligible for Medicare, and $6.25 per year of service for retirees eligible for Medicare. The health insurance premium reduction can be applied to the payment of medical, dental, and/or vision insurance premiums. The benefit recipient pays any remaining portion of the premiums.

**Note 2 Summary of Significant Accounting Policies**

***Reporting Entity***

The Plan has separate legal standing and is fiscally independent of the City. However, based upon the criterion of financial accountability as defined by Governmental Accounting Standards Board (GASB) Statement No. 14, *The Financial Reporting Entity,* as amended, the Plan is reported as a component unit of the City's financial reporting entity.

***Basis of Accounting and Presentation***

The accompanying financial statements are prepared in accordance with accounting principles generally accepted in the United States of America. The Plan is accounted for using the economic resources measurement focus and the accrual basis of accounting. Employer/employee contributions and investment earnings are recognized in the period in which they are due and earned, respectively. Contributions that have been received prior to fiscal year end but not earned in the reporting period are reported as unearned contributions until the reporting period in which they are earned. Expenses are recognized when incurred. Benefits and refunds are recognized when due and payable in accordance with the terms of the Plan.

***Plan Expenses***

The Plan's Board acts as the trustee of the Plan's assets. The operating and other administrative expenses incurred by the Board, or its employees, in the performance of its duties as the Plan's trustee are paid from the assets of the Plan accumulated from contributions and investment earnings. Such expenses totaled $4,256,502 in 2019, and are reported as administrative expenses in the accompanying statement of changes in fiduciary net position.

***Investments***

The Plan's investments are reported at fair value. The fair value of domestic stocks is based on prices reported by national exchanges. The fair value of international stocks and fixed income securities are based on prices obtained from an approved independent pricing service. Fair values of real estate and alternative investments are valued using the net asset value (NAV) determined by independent periodic appraisals of properties owned and valuation of assets in the various investment funds. The absolute return fund-of-funds' investment fair value is based upon net asset values provided by the fund's third-party administrator. Short-term investments, with the exception of international funds, are recorded at amortized cost, which approximates fair value. Investment earnings are recognized as earned. Gains and losses on sales and exchanges of securities are recognized on the trade date.

For 2019, the Plan realized net gain on the disposition of investments of $117,601,223. The calculation of realized gains and losses is independent of the calculation of the net appreciation in the fair value of the Plan's investments and is determined using the weighted average cost method. Unrealized gains and losses on investments held for more than one year and sold in the current year were included in the net appreciation in the fair value of investments reported for 2019.

**Notes to Financial Statements**

Investments of the Plan shall be in accordance with all applicable laws of the State of Colorado and the City, specifically:

- Investments shall be solely in the interest of the participants and their beneficiaries and for the exclusive purpose of providing benefits to the participants and their beneficiaries.
- Investments shall be made with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent investor acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character and with like aims.
- Investments shall be diversified so as to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly prudent not to do so.

***Capital Assets***

Capital assets, which include land, building, furniture, and equipment, are recorded at acquisition value. The Plan's capitalization threshold for capital assets is $500 of cost and a useful life in excess of one year. The costs of routine maintenance and repairs that do not add to the value of capital assets or materially extend assets' lives are not capitalized. Depreciation on capital assets, excluding land, is calculated using the straight-line method over the following estimated useful lives:

| | |
|---|---|
| Building | 30 years |
| General office equipment and furniture | 10 years |
| Internally generated computer software | 15 years |
| Computer equipment | 5 years |

***Income Taxes***

The Plan's current determination letter issued by the Internal Revenue Service, dated February 27, 2014, qualifies the Plan as a tax-exempt entity pursuant to Section 401(a) of the Internal Revenue Code. Earnings on the trust funds are exempt from federal income tax under Section 501(a) of the Internal Revenue Code.

***Estimates Made by Management***

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires the Plan's management to make certain estimates and assumptions that affect the reported amounts of assets, liabilities, and changes therein and disclosure of contingent assets and liabilities at the date of the financial statements. Actual results could differ from those estimates.

***Prior-Year Summarized Totals***

The basic financial statements include certain prior year summarized comparative information in total, but do not present detail for the pension or health benefits accounts. Such information does not include sufficient detail to constitute a presentation in conformity with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with the Plan's audited financial statements for the year ended December 31, 2018, from which the summarized information was derived.

***Current Economic Conditions***

The current economic environment continues to present public employee benefit plans such as the Plan with challenges which have resulted in substantial volatility in the fair value of investments. The accompanying financial statements have been prepared using values and information available to the Plan as of the date of the financial statements. Due to the volatility of economic conditions, the values of assets recorded in the financial statements could change materially in the future.

**Notes to Financial Statements**

**Note 3 Contributions**

The Plan's funding policy provides for annual contributions at rates determined by an independent actuary recommended by the Plan's Board and enacted by City ordinance, which when expressed as a percentage of annual covered payroll, are sufficient to accumulate assets to pay benefits when due. During 2019, the actuarially determined contribution rates, expressed as a percentage of annual covered payroll, for the pension and health benefits were 22.98% and 1.34%, respectively, for a combined total of 24.32%. The City enacted Ordinance No. 1271-19 in 2019 to reset the combined total contribution rate to 25.00%, effective January 2020. In 2019, employers contributed a total of 13.00% of covered payroll and employees made a pre-tax contribution of 8.50% in accordance with Section 18-407 of the City's Revised Municipal Code. The employees' contribution was handled as a payroll deduction and was forwarded to the Plan with the employers' contribution. During 2019, the employers contributed $87,464,822 for pension benefits and $5,084,799 for health benefits while the employees contributed a total of $60,074,876 for pension benefits and $3,310,427 for health benefits.

An actuarial valuation is performed annually by an independent actuarial consultant to determine that contributions are sufficient to provide funds for future benefits and to evaluate the funded status of the Plan. For 2019, in accordance with the January 1, 2019, actuarially determined contribution requirements, the total required contribution was $168,287,796 ($55,718,000 of normal cost and $103,310,918 amortization of the unfunded actuarial accrued liability for pension benefits; $2,076,000 of normal cost and $7,182,878 amortization of the unfunded actuarial accrued liability for health benefits) based on a rate of 24.32% of projected payroll. The actual contribution was $152,612,214 using a rate of 21.50% of covered payroll, which when combined with the members' purchase of service credits of $3,322,710 discussed below, resulted in total contributions of $155,934,924. In accordance with a separate agreement between DHHA and the Plan, DHHA made a supplemental contribution in the amount of $692,862, which is included in the total contributions amount.

During 2019, employee contributions totaled $63,385,303 and were allocated to pension and health benefits in the same manner as the employers' contributions. Regular employee contributions were not required or allowed between January 1, 1979, and September 30, 2003. City ordinance currently allows members to repay refunded contributions plus interest to reinstate service credits for periods prior to January 1, 1979. Any employee who made contributions after September 30, 2003, and was not vested upon leaving covered service could request a refund of those contributions. Eligible active members may also purchase permissive service credits in accordance with the Internal Revenue Code, which includes a maximum of five years of nonqualified service credits. Members paid $3,322,710 under these provisions during 2019.

**Note 4 Deferred Retirement Option Plan (DROP)**

Between January 1, 2001, and April 30, 2003, active members of the Plan who were eligible for a normal or rule-of-75 retirement could choose to enter the Deferred Retirement Option Plan (DROP) for a maximum of four years. After April 30, 2003, no active member with an actual and effective date of retirement after May 1, 2003, could enter or participate in DROP. Under DROP, the member's monthly retirement benefit was calculated as of the date of DROP entry. While participating in DROP, the member continued to work for the employer, earning a regular salary. The monthly retirement benefits were deposited into a DROP account maintained by the Plan. The balance in each member's DROP account earns interest at a rate equal to the actuarial assumed rate of return, currently 7.50% per annum. Sections 18-422 through 18-429 of the City's Revised Municipal Code should be referred to for more complete information on DROP. Upon retirement, members have access to the funds accumulated during their participation in DROP. During 2019, a total of $8,286,907 in interest was credited to members' DROP accounts. During 2019, a total of $7,993,876 was distributed from the DROP accounts to members who had retired and exited DROP. As of December 31, 2019, the reserve for DROP payments was $113,560,042.

**Notes to Financial Statements**

**Note 5  Amended Deferred Retirement Option Plan (DROP II)**

Between May 1, 2003, and August 31, 2003, active members of the Plan who were eligible for a normal or rule-of-75 retirement could choose to enter the Amended Deferred Retirement Option Plan (DROP II) for a maximum of five years. While participating in DROP II, the member continued to work for the employer, earning a regular salary. The member's monthly retirement benefits were deposited into a DROP II account maintained by the Plan. The balance in each member's DROP II account earns interest equal to the Plan's investment earnings rate provided it is not less than 3% per annum and not more than the Plan's annual actuarial assumed rate of return, currently 7.50% per annum. Sections 18-430 through 18-430.7 of the City's Revised Municipal Code should be referred to for more complete information on DROP II. Upon exiting DROP II, members have access to the funds accumulated during their participation in DROP II. A total of $245,179 in interest was credited to members' DROP II accounts during 2019. Also during 2019, a total of $296,192 was distributed to members who had exited DROP II. As of December 31, 2019, the reserve for DROP II payments was $4,760,411.

**Note 6  Deposits and Investments**

It is the objective of the Plan in managing the trust as a whole to provide a net realized nominal rate of return meeting or exceeding the actuarial assumption of 7.50% annualized, over a full market/economic cycle of three to seven years. The relative investment objective of the Plan is to exceed the rate of return that would have been achieved by a statically allocated and passively managed portfolio, at the same risk, in accordance with a long-term asset allocation strategy of the following approximate percentages:

| | Long-term Target | Policy Range |
|---|---|---|
| Public Equity | 42.0 % | 37.0 % - 47.0% |
| Fixed Income | 25.5 % | 20.5 % - 30.5% |
| Real Estate | 8.0 % | 5.0 % - 11.0% |
| Absolute Return | 5.0 % | 2.5 % - 7.5% |
| MLPs | 7.0 % | 5.0 % - 9.0% |
| Alternatives | 12.5 % | 7.0 % - 18.0% |
| Total Fund | 100.0 % | |

**Investment Performance**

For the year ended December 31, 2019, the money-weighted rate of return on the investment assets was 13.18%, net of fees.

The calculation of money-weighted returns is provided as an alternative to the more traditional time-weighted calculation of return, which appears elsewhere in this document. Money-weighted rate of return expresses investment performance, net of pension/OPEB plan investment expenses, adjusted for the changing amounts actually invested. Money-weighted methodology takes into consideration the amount and timing of cash flows in determining a net amount invested in each period. Since the net amount invested in the DERP investment portfolio does not fluctuate greatly, there is little difference in the results provided by the two methodologies, particularly over longer periods.

**Notes to Financial Statements**

**Note 6 Deposits and Investments (continued)**

**Fair Value Measurement**

The Plan categorizes fair value measurements within the fair value hierarchy established by U.S. generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset 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).

| | |
|---|---|
| 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 that are measured at fair value using the net asset value (NAV) per share (or its equivalent) as a proxy are not classified in the fair value hierarchy.

In instances where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest level input that is significant to the valuation.

The Plan's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability. The tables on the following pages show the classification by fair value level of the investments for the Plan.

Short-term securities generally include investments in money market-type securities reported at amortized cost, which approximates market or fair value.

Equities and U.S. Treasuries within all asset classes that are classified in Level 1 are valued using prices quoted in active markets for those securities. Equity and equity derivative securities classified in Level 2 are securities whose values are derived daily from associated traded securities. The Plan currently does not maintain equity securities classified as Level 3.

Fixed income securities and derivatives within all asset classes that are classified in Level 2 are valued using either a bid evaluation or a matrix pricing technique. Bid evaluations may include market quotations, yields, maturities, call features, and ratings. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. Such securities include U.S. Treasuries, corporate and agency bonds, bank loans, and mortgage-backed securities. Level 2 fixed income securities have non-proprietary information that was readily available to market participants, from multiple independent sources, which are known to be actively involved in the market. The Plan currently does not maintain fixed income securities classified as Level 3.

**Notes to Financial Statements**

**Note 6 Deposits and Investments (continued)**

| | | Fair Value Measurements Using | | |
|---|---|---|---|---|
| Investments by fair value level | Totals at December 31, 2019 | Quoted Prices in Active Markets for Identical Assets Level 1 | Significant Other Observable Inputs Level 2 | Significant Unobservable Inputs Level 3 |
| U.S. Government Obligations | | | | |
| Treasuries | $ 30,144,927 | $ 30,144,927 | $ — | $ — |
| Agencies | 81,641,649 | — | 81,641,649 | — |
| Total U.S. Government Obligations | 111,786,576 | 30,144,927 | 81,641,649 | — |
| Domestic corporate bonds and other fixed income | | | | |
| Asset Backed & Corporate Bonds | 94,881 | — | 94,881 | — |
| Index fund | 216,544,094 | — | 216,544,094 | — |
| Total Domestic corporate bonds and other fixed income | 216,638,975 | — | 216,638,975 | — |
| Domestic stocks | | | | |
| Equities | 232,940,817 | 232,940,817 | — | — |
| Index fund | 228,910,522 | 228,910,522 | — | — |
| Total Domestic stocks | 461,851,339 | 461,851,339 | — | — |
| International stocks | | | | |
| Equities | 75,446,134 | 75,446,134 | — | — |
| Equity funds | 285,633,055 | 285,633,055 | — | — |
| Index fund | 40,223,098 | 40,223,098 | | |
| Total International stocks | 401,302,287 | 401,302,287 | — | — |
| Publicly traded partnerships | | | | |
| Master limited partnerships | 140,667,885 | 140,667,885 | | |
| Total Publicly traded partnerships | 140,667,885 | 140,667,885 | — | — |
| Total Investment by fair value level | 1,332,247,062 | $ 1,033,966,438 | $ 298,280,624 | $ — |
| Total Investments measured at the NAV (See detailed schedule on the following page) | 885,607,857 | | | |
| Total Investments | 2,217,854,919 | | | |
| Total Investments measured at amortized cost | 95,068,270 | | | |
| Total Investments measured at fair value | $ 2,312,923,189 | | | |
| Total Invested securities lending collateral | $ 81,271,523 | $ — | $ 81,271,523 | $ — |

**Notes to Financial Statements**

**Note 6 Deposits and Investments (continued)**

| Investments measured at the NAV | Totals at December 31, 2019 | Unfunded Commitments | Redemption Frequency | Redemption Notice Period |
|---|---|---|---|---|
| Fixed Income Investments | | | | |
| Private Debt | $ 153,256,577 | $ 19,899,816 | Not Eligible | N/A |
| Emerging Market Debt | 59,750,000 | — | Monthly | 3 Days |
| Total Fixed Income Investments | 213,006,577 | 19,899,816 | | |
| Real Estate Investments | | | | |
| Real Estate - Open end | 145,515,466 | — | Quarterly | 20-90 Days |
| Real Estate - Closed end | 30,005,422 | 27,733,593 | Not Eligible | N/A |
| Total Real Estate Investments | 175,520,888 | 27,733,593 | | |
| Alternative Investments | | | | |
| Private Equity | 241,021,429 | 82,723,410 | Not Eligible | N/A |
| Energy Investments | 106,722,959 | 35,691,234 | Not Eligible | N/A |
| Timber | 36,053,059 | — | Not Eligible | N/A |
| Total Alternative Investments | 383,797,447 | 118,414,644 | | |
| Absolute Return | | | | |
| Hedge Fund | 113,282,946 | — | Quarterly | 65 Days |
| Total Absolute Return | 113,282,946 | — | | |
| Total Investments measured at the NAV | $ 885,607,858 | $ 166,048,053 | | |

*Fixed Income Investments*

Private debt investments are intended to generate returns by lending money to various businesses and enterprises, or by purchasing loans originated by other lenders. There are six commingled investment pools, each taking the form of a partnership or similar structure. The debt may be secured or unsecured, and various yield enhancing techniques may be used such as royalty sharing, equity options, or the application of leverage. Liquidity of these closed-end funds is determined by the monetization of underlying investments, and subject to reinvestment terms.

Investments in emerging market debt seek to purchase the publicly traded sovereign or corporate debt obligations of developing nations.

*Real Estate Investments*

Open end real estate investments are pooled investments that own and operate commercial property. Returns are generated from income and price appreciation. These funds have perpetual life, and periodically accept contributions or honor redemptions.

Closed end real estate investments consist of pooled funds to own and operate commercial property. These funds have a finite life, and funds are returned as investments are liquidated.

**Note 6 Deposits and Investments (continued)**

*Alternative Investments*
Private equity utilizes a fund of funds approach to make investments in venture capital, buyouts, and other corporate finance transactions.

Energy investments are a diversified portfolio of energy assets, including interests in oil, natural gas, power generation, and renewables.

Timber investments are made in both domestic and international timberland. Returns are generated through the acquisition, management, harvesting, and sale of timber.

Liquidity of these closed-end funds is determined by the monetization of underlying investments, and subject to reinvestment terms.

*Absolute Return Investments*
A hedge fund-of-funds is used to generate returns that are higher than core fixed income, with significantly lower risk than public equities. A multi-strategy approach is used to improve consistency of returns while limiting downside risk.

***Credit Risk***

To mitigate the risk that issuers or other counterparties to an investment will not fulfill their obligations, the Plan manages credit risk through the constraints on investments specified in each manager's investment guidelines included in the Plan's Investment Policy. Securities implicitly guaranteed by the U.S. Government are included.

The following table provides information regarding Standard & Poor's (S&P) and Moody's credit ratings associated with the Plan's investment in debt securities as of December 31, 2019:

| S&P | Moody's | Asset Backed | Corporate | Implicit U.S. Agency Securities | Total |
|---|---|---|---|---|---|
| AA+ to AA- | Aa3 to A1 | $ — | $ — | $ 81,641,649 | $ 81,641,649 |
| CC+ to CC- | Ca | 59,093 | — | — | 59,093 |
| NR | NR | — | 35,788 | — | 35,788 |
| | | $ 59,093 | $ 35,788 | $ 81,641,649 | 81,736,530 |
| U.S. Treasury Securities | | | | | 30,144,927 |
| Non-rated Funds | | | | | 429,550,671 |
| Total | | | | | $ 541,432,128 |

NR - no rating available.
Non-rated Funds are investments held in various funds, which are not rated, and not in specific securities.

***Concentration of Credit Risk***

The Plan is potentially exposed to credit risk concentrations from a single issuer. Certain fixed income managers are constrained in concentration of credit exposure. As of December 31, 2019, the Plan had no exposure to any single issuer exceeding 1% of total plan assets.

***Custodial Credit Risk***
In the event of a failure of a financial institution or counterparty, custodial credit risk is the risk that the Plan would not be able to recover its deposits, investments, or collateral securities in the possession of an outside party. The Plan has no formal policy for custodial credit risk for deposits and investments. At December 31, 2019, the Plan's cash deposits were collateralized in the amount of $250,000 with the remaining $21,205,477 not collateralized.

**Note 6 Deposits and Investments (continued)**

***Interest Rate Risk***

Interest rate risk is the risk that changes in financial market rates of interest will adversely affect the value of an investment. The Plan manages its exposure to changing interest rates by making allocations to variable-rate debt instruments, which have no interest rate sensitivity, and by limiting its target allocation to fixed-rate securities. Both allocations are set by the Investment Policy. The Investment Policy further constrains the duration (a measure of interest rate risk) of the fixed-rate allocation to prudent levels. At December 31, 2019, the Plan's fixed income investments had the following maturities by investment type:

| Investment Type | Fair Value | Less than 1 Year | 1-5 Years | 6-10 Years | More than 10 Years |
|---|---|---|---|---|---|
| U.S. Treasury securities | $ 30,144,927 | $ 5,042,000 | $ 15,008,543 | $ 10,094,318 | $ 66 |
| U.S. agency securities | 81,641,649 | 7,294,010 | 27,018,639 | 32,013,640 | 15,315,360 |
| Asset backed | 59,093 | — | — | — | 59,093 |
| Corporate | 35,788 | 28,813 | — | — | 6,975 |
| Total | 111,881,457 | $ 12,364,823 | $ 42,027,182 | $ 42,107,958 | $ 15,381,494 |
| Non-rated Funds | 429,550,671 | | | | |
| Total | $ 541,432,128 | | | | |

Non-rated Funds are investments held in various funds, which are not rated, and not in specific securities.

**Notes to Financial Statements**

**Note 6 Deposits and Investments (continued)**

***Foreign Currency Risk***

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or deposit. The Plan's Investment Policy allows 16.0% to 26.0% of total investments to be invested in international equities. The Plan's Investment Policy allows 1.0% to 4.0% of total investments to be invested in international fixed income. The following positions represent the Plan's total exposure to foreign currency risk (in U.S. Dollars) as of December 31, 2019:

| Foreign Currency | Equities | Fixed Income | Total |
|---|---|---|---|
| Euro | $ 65,880,579 | $ — | $ 65,880,579 |
| Japanese Yen | 51,139,937 | — | 51,139,937 |
| British Pound Sterling | 34,926,576 | — | 34,926,576 |
| Chinese Yuan | 34,915,838 | — | 34,915,838 |
| Hong Kong Dollar | 30,143,358 | — | 30,143,358 |
| South Korean Won | 27,593,551 | 2,419,875 | 30,013,426 |
| Taiwan Dollar | 25,320,234 | — | 25,320,234 |
| Brazilian Real | 12,438,745 | 5,753,925 | 18,192,670 |
| Russian Ruble | 9,950,996 | 4,791,950 | 14,742,946 |
| Canadian Dollar | 14,662,353 | — | 14,662,353 |
| South African Rand | 9,240,211 | 5,252,025 | 14,492,236 |
| Mexican Peso | 3,731,623 | 9,894,600 | 13,626,223 |
| Indian Rupee | 13,327,227 | — | 13,327,227 |
| Swiss Franc | 10,502,250 | — | 10,502,250 |
| Indonesian Rupiah | 2,665,445 | 7,301,450 | 9,966,895 |
| Australian Dollar | 9,818,770 | — | 9,818,770 |
| Malaysian Ringgit | 2,843,142 | 6,913,075 | 9,756,217 |
| Columbian Peso | 1,599,267 | 6,160,225 | 7,759,492 |
| Polish Zloty | 3,198,534 | 3,429,650 | 6,628,184 |
| Thai Baht | 4,975,498 | 788,700 | 5,764,198 |
| Turkish Lira | 2,665,445 | 1,481,800 | 4,147,245 |
| Swedish Krona | 4,108,251 | — | 4,108,251 |
| Singapore Dollar | 3,662,664 | — | 3,662,664 |
| Norwegian Krone | 3,314,796 | — | 3,314,796 |
| Hungarian Forint | 2,132,356 | 705,050 | 2,837,406 |
| Chilean Peso | 1,066,178 | 1,696,900 | 2,763,078 |
| Danish Krone | 2,558,940 | — | 2,558,940 |
| Romanian Leu | — | 1,828,350 | 1,828,350 |
| United Arab Emirati Dirham | 1,776,964 | — | 1,776,964 |
| Czech Koruna | — | 1,039,650 | 1,039,650 |
| New Israeli Shekel | 916,449 | — | 916,449 |
| Qatari Riyal | 533,089 | — | 533,089 |
| Philippine Peso | — | 167,300 | 167,300 |
| Peruvian Sole | — | 29,875 | 29,875 |
| Other | 2,930,659 | — | 2,930,659 |
| Total | $ 394,539,925 | $ 59,654,400 | $ 454,194,325 |

**Note 7 Securities Lending Transactions**

The *Investment Policy* permits the Plan to participate in a securities lending program to augment income. The program is administered by the Plan's custodial agent bank, which lends certain securities for a predetermined period of time, to an independent broker/dealer (borrower) in exchange for collateral. Collateral may be cash, U.S. government securities, or other collateral approved by the Plan. Loans of domestic securities are initially collateralized at 102% of the fair value of securities lent. Loans of international securities are initially collateralized at 105% of the fair value of securities lent. The custodial agent bank determines daily that collateral margins are sufficiently maintained. The Plan continues to receive interest and dividends during the loan period. There are no restrictions on the amount of securities that can be lent at one time. At December 31, 2019, the fair value of underlying securities lent was $124,890,791. The fair value of associated collateral was $130,021,584; of this amount, $81,271,523 represents the fair value of cash collateral as reported on the financial statements and $48,750,061 is the fair value of non-cash collateral not reported on the financial statements. The Plan has no credit risk exposure at December 31, 2019, since the collateral held exceeds the value of securities lent. The custodial agent bank indemnifies the Plan in the event of a collateral shortfall.

The Plan reports securities loaned as assets on the Statement of Plan Net Position. Cash received as collateral on securities lending transactions and investments made with that cash are recorded as an asset and liability. Investments purchased with cash collateral are recorded as Securities Lending Collateral with a corresponding liability as Securities Lending Obligations.

**Note 8 Capital Assets**

The Plan's capital assets activity for the year ended December 31, 2019, was as follows:

| | January 1 | Additions | Deletions | December 31 |
|---|---|---|---|---|
| Capital assets, not being depreciated | | | | |
| Land | $ 430,041 | $ — | $ — | $ 430,041 |
| Construction in Progress | — | 58,472 | — | 58,472 |
| Capital assets, being depreciated | | | | |
| Building | 1,136,014 | — | — | 1,136,014 |
| Furniture and equipment | 6,092,831 | 52,694 | (79,448) | 6,066,077 |
| Total capital assets, being depreciated | 7,228,845 | 52,694 | (79,448) | 7,202,091 |
| Accumulated depreciation | | | | |
| Building | (1,023,448) | (37,522) | — | (1,060,970) |
| Furniture and equipment | (3,117,156) | (399,080) | 55,294 | (3,460,942) |
| Total accumulated depreciation | (4,140,604) | (436,602) | 55,294 | (4,521,912) |
| Total capital assets being depreciated, net | 3,088,241 | (383,908) | (24,154) | 2,680,179 |
| **Capital assets, net** | $ 3,518,282 | $ (325,436) | $ (24,154) | $ 3,168,692 |

The 2019 depreciation expense for the pension and health benefit accounts was $412,545 and $24,057 respectively.

**Note 9 Commitments and Contingencies**

As of December 31, 2019, the Plan had commitments for the future purchase of investments in private debt of $19,899,816, real estate of $27,733,593, and alternative investments of $118,414,644. The purpose of such commitments is to assist the Plan in maintaining the designated level of exposure to these asset classes. The anticipated pace of funding the commitments coincides with the expected distribution rate of invested assets.

**Notes to Financial Statements**

**Note 10 Net Pension Liability of Employers**

The components of the net pension liability of the employers at December 31, 2019, were as follows:

| | | |
|---|---|---|
| Total pension liability | $ | 3,713,619,314 |
| Plan fiduciary net position | $ | 2,258,481,381 |
| Net pension liability | $ | 1,455,137,933 |
| Plan fiduciary net position as a percentage of the total pension liability | | 60.82 % |

**Actuarial Assumptions**

The total pension liability was determined by an actuarial valuation as of January 1, 2019 rolled forward to a measurement date of December 31, 2019, using the following actuarial assumptions, applied to all prior periods included in the measurement:

| | |
|---|---|
| Inflation | 2.50% |
| Salary Increases | 3.00% to 7.00% |
| Investment Rate of Return | 7.50% |

The mortality tables were based on the RP-2014 Combined Mortality Table for Males and Females projected with the Ultimate MP Scale with a multiplier of 110% male and 105% female. The Disabled mortality tables were based on the RP-2014 Disabled Life Mortality Table for Males and Females projected with the Ultimate MP Scale.

The actuarial assumptions used in the January 1, 2019 valuation were based on the results of an actuarial experience study as of January 1, 2018.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of geometric real rates of return were adopted by the Plan's trustees after considering input from the Plan's investment consultant and actuary. For each major asset class that is included in the pension plan's target asset allocation as of December 31, 2019 these best estimates are summarized in the table on the following page.

**Note 10 Net Pension Liability of Employers (continued)**

| Asset Class | Target Allocation | Long-Term Expected Real Rate of Return |
|---|---|---|
| **Public Equity** | **42.00%** | |
| US Equity | | |
| US Large Cap | 17.00% | 5.50% |
| US Small Cap | 4.00% | 5.70% |
| International Equity | | |
| Developed Markets | 13.00% | 5.90% |
| Emerging Markets | 8.00% | 7.80% |
| **Fixed Income** | **25.50%** | |
| Core Fixed Income | 17.00% | 0.80% |
| Private Debt | | |
| Private Debt | 4.00% | 4.10% |
| Distress Debt | 2.50% | 4.70% |
| Emerging Market Debt | 2.00% | 2.70% |
| **Real Estate** | **8.00%** | 4.40% |
| **Absolute Return** | **5.00%** | 2.80% |
| **MLPs** | **7.00%** | 6.40% |
| **Alternatives** | **12.50%** | |
| Private Equity | 7.00% | 7.50% |
| Natural Resources | 5.50% | 6.90% |
| **Total** | 100.00% | |

A single discount rate of 7.50% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 7.50%. The projection of cash flows used to determine this single rate assumed that plan member and employer contributions will be made at the current contribution rate. Based on these assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the single discount rate, the following presents the Plan's net pension liability, calculated using a single discount rate of 7.50%, as well as what the Plan's net pension liability would be if it were calculated using a single discount rate that is 1-percentage point lower or 1-percentage point higher:

| | 1% Decrease 6.50% | Current Single Discount Rate Assumption 7.50% | 1% Increase 8.50% |
|---|---|---|---|
| Net Pension Liability | $1,857,934,667 | $1,455,137,933 | $1,116,494,115 |

**Notes to Financial Statements**

**Note 11 Net Other Post-Employment Benefits (OPEB) Liability of Employers**

The components of the net OPEB liability of the employers at December 31, 2019, were as follows:

| | | |
|---|---|---|
| Total OPEB liability | $ | 170,043,704 |
| Plan fiduciary net position | $ | 71,690,221 |
| Net OPEB liability | $ | 98,353,483 |
| Plan fiduciary net position as a percentage of the total pension liability | | 42.16 % |

**Actuarial Assumptions**

The total OPEB liability was determined by an actuarial valuation as of January 1, 2019 rolled forward to a measurement date of December 31, 2019, using the following actuarial assumptions, applied to all prior periods included in the measurement:

| | |
|---|---|
| Inflation | 2.50% |
| Salary Increases | 3.00% to 7.00% |
| Investment Rate of Return | 7.50% |

The mortality tables were based on the RP-2014 Combined Mortality Table for Males and Females projected with the Ultimate MP Scale with a multiplier of 110% male and 105% female. The Disabled mortality tables were based on the RP-2014 Disabled Life Mortality Table for Males and Females projected with the Ultimate MP Scale.

The actuarial assumptions used in the January 1, 2019 valuation were based on the results of an actuarial experience study as of January 1, 2019.

The long-term expected rate of return on OPEB plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of OPEB plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of geometric real rates of return were adopted by the Plan's trustees after considering input from the Plan's investment consultant and actuary. For each major asset class that is included in the OPEB plan's target asset allocation as of December 31, 2019 these best estimates are summarized in the table on the following page.

**Note 11 Net Other Post-Employment Benefits (OPEB) Liability of Employers (continued)**

| Asset Class | Target Allocation | Long-Term Expected Real Rate of Return |
|---|---|---|
| **Public Equity** | **42.00%** | |
| US Equity | | |
| US Large Cap | 17.00% | 5.50% |
| US Small Cap | 4.00% | 5.70% |
| International Equity | | |
| Developed Markets | 13.00% | 5.90% |
| Emerging Markets | 8.00% | 7.80% |
| **Fixed Income** | **25.50%** | |
| Core Fixed Income | 17.00% | 0.80% |
| Private Debt | | |
| Private Debt | 4.00% | 4.10% |
| Distress Debt | 2.50% | 4.70% |
| Emerging Market Debt | 2.00% | 2.70% |
| **Real Estate** | **8.00%** | 4.40% |
| **Absolute Return** | **5.00%** | 2.80% |
| **MLPs** | **7.00%** | 6.40% |
| **Alternatives** | **12.50%** | |
| Private Equity | 7.00% | 7.50% |
| Natural Resources | 5.50% | 6.90% |
| **Total** | 100.00% | |

A single discount rate of 7.50% was used to measure the total OPEB liability. This single discount rate was based on the expected rate of return on OPEB plan investments of 7.50%. The projection of cash flows used to determine this single rate assumed that plan member and employer contributions will be made at the current contribution rate. Based on these assumptions, the OPEB plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

The OPEB Plan is not impacted by healthcare cost trends because the benefit is a flat dollar amount, independent of healthcare costs. Regarding the sensitivity of the net OPEB liability to changes in the single discount rate, the following presents the Plan's net OPEB liability, calculated using a single discount rate of 7.50%, as well as what the Plan's net OPEB liability would be if it were calculated using a single discount rate that is 1-percentage point lower or 1-percentage point higher:

| | 1% Decrease 6.50% | Current Single Discount Rate Assumption 7.50% | 1% Increase 8.50% |
|---|---|---|---|
| Net OPEB Liability | $115,103,750 | $98,353,483 | $84,108,343 |

**Note 12 Subsequent Event**

Subsequent to December 31, 2019 DERP experienced unrealized investment losses due to increased market volatility. As of June 1, 2020, the long-term effects of this market volatility on DERP are unknown. DERP continues to monitor the situation as it relates to potential future losses of the Plan.

**Required Supplementary Information**
**(Unaudited)**

**Schedule of Changes in Net Pension Liability and Related Ratios**
**(Ultimately 10 Fiscal Years will be displayed)**

| Fiscal year ending December 31, | 2019 | 2018 |
|---|---|---|
| **Total Pension Liability** | | |
| Service Cost (Entry-Age Normal) | $ 56,355,775 | $ 49,796,219 |
| Interest on the Total Pension Liability | 261,392,243 | 248,598,306 |
| Benefit Changes | — | — |
| Difference between Expected and Actual Experience | 56,265,688 | 13,946,045 |
| Transition to Entry-Age Normal[(1)] | — | — |
| Assumption/Method Changes[(2)(3)] | — | 80,783,495 |
| Benefit Payments | (231,722,495) | (220,006,730) |
| **Net Change in Total Pension Liability** | 142,291,211 | 173,117,335 |
| **Total Pension Liability - Beginning** | 3,571,328,103 | 3,398,210,768 |
| **Total Pension Liability - Ending (a)** | $ 3,713,619,314 | $ 3,571,328,103 |
| **Plan Fiduciary Net Position** | | |
| Employer Contributions | $ 87,464,822 | 81,719,744 |
| Employee Contributions | 60,074,876 | 52,700,679 |
| Pension Plan Net Investment Income | 284,110,225 | (73,146,389) |
| Benefit Payments | (231,722,495) | (220,006,730) |
| Pension Plan Administrative Expense | (4,123,494) | (4,016,288) |
| Other Income | — | — |
| **Net Change in Plan Fiduciary Net Position** | 195,803,934 | (162,748,984) |
| **Total Fiduciary Net Position - Beginning** | 2,062,677,447 | 2,225,426,431 |
| **Total Fiduciary Net Position - Ending (b)** | $ 2,258,481,381 | $ 2,062,677,447 |
| **Net Pension Liability - Ending (a)-(b)** | $ 1,455,137,933 | $ 1,508,650,656 |
| **Plan Fiduciary Net Position as a Percentage of Total Pension Liability** | 60.82 % | 57.76 % |
| **Covered Payroll** | $ 706,441,299 | $ 671,120,225 |
| **Net Pension Liability as a Percentage of Covered Payroll** | 205.98 % | 224.80 % |

(1) Transition liability is the additional liability due to the transition from the Projected Unit Credit to Entry-Age Normal actuarial cost method.
(2) As of October 1, 2015, the valuation interest rate was lowered from 8% to 7.75%.
(3) As of October 1, 2017, the valuation interest rate was lowered from 7.75% to 7.50%.

| 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|
| $ 49,158,616 | $ 46,577,860 | $ 46,419,739 | $ 42,793,142 |
| 241,977,403 | 237,104,293 | 229,130,437 | 221,367,921 |
| — | — | — | — |
| 14,324,507 | 16,967,117 | 29,122,513 | — |
| — | — | — | 140,652,205 |
| 69,289,533 | — | 73,157,470 | — |
| (207,612,390) | (194,541,616) | (183,992,079) | (172,686,029) |
| 167,137,669 | 106,107,654 | 193,838,080 | 232,127,239 |
| 3,231,073,099 | 3,124,965,445 | 2,931,127,365 | 2,699,000,126 |
| $ 3,398,210,768 | $ 3,231,073,099 | $ 3,124,965,445 | $ 2,931,127,365 |
| 71,731,309 | $ 68,794,871 | $ 67,234,597 | $ 59,941,041 |
| 50,599,952 | 48,037,800 | 46,689,696 | 39,521,451 |
| 302,942,063 | 147,443,477 | (35,746,029) | 101,595,704 |
| (207,612,390) | (194,541,616) | (183,992,079) | (172,686,029) |
| (3,899,901) | (3,742,451) | (3,785,416) | (3,638,296) |
| — | — | — | — |
| 213,761,033 | 65,992,081 | (109,599,231) | 24,733,871 |
| 2,011,665,398 | 1,945,673,317 | 2,055,272,548 | 2,030,538,677 |
| $ 2,225,426,431 | $ 2,011,665,398 | $ 1,945,673,317 | $ 2,055,272,548 |
| $ 1,172,784,337 | $ 1,219,407,701 | $ 1,179,292,128 | $ 875,854,817 |
| 65.49 % | 62.26 % | 62.26 % | 70.12 % |
| $ 636,738,387 | $ 613,284,274 | $ 602,454,420 | $ 554,103,740 |
| 184.19 % | 198.83 % | 195.75 % | 158.07 % |

**Required Supplementary Information**
**(Unaudited)**

**Schedule of Changes in Net OPEB Liability and Related Ratios**
**(Ultimately 10 Fiscal Years will be displayed)**

| Fiscal year ending December 31, | 2019 | 2018 | 2017 |
|---|---|---|---|
| **Total OPEB Liability** | | | |
| Service Cost (Entry-Age Normal) | $ 2,073,228 | $ 1,932,881 | $ 2,103,783 |
| Interest on the Total OPEB Liability | 12,489,835 | 11,796,771 | 11,700,994 |
| Benefit Changes | — | — | — |
| Difference between Expected and Actual Experience | (3,352,740) | 627,097 | — |
| Transition to Entry-Age Normal | — | — | — |
| Assumption/Method Changes | — | 7,900,882 | — |
| Benefit Payments | (13,122,521) | (13,050,165) | (13,171,022) |
| **Net Change in Total OPEB Liability** | (1,912,198) | 9,207,466 | 633,755 |
| **Total OPEB Liability - Beginning** | 171,955,902 | 162,748,436 | 162,114,681 |
| **Total OPEB Liability - Ending (a)** | $ 170,043,704 | $ 171,955,902 | $ 162,748,436 |
| **Plan Fiduciary Net Position** | | | |
| Employer Contributions | $ 5,084,799 | $ 4,952,754 | $ 4,367,474 |
| Employee Contributions | 3,310,427 | 3,132,783 | 3,005,989 |
| OPEB Plan Net Investment Income | 9,185,163 | (2,364,015) | 10,422,137 |
| Benefit Payments, Including Refunds of Employee Contributions | (13,122,521) | (13,050,165) | (13,171,022) |
| OPEB Plan Administrative Expense | (133,008) | (133,128) | (133,959) |
| Other | — | — | — |
| **Net Change in Plan Fiduciary Net Position** | 4,324,860 | (7,461,771) | 4,490,619 |
| **Total Fiduciary Net Position - Beginning** | 67,365,361 | 74,827,132 | 70,336,513 |
| **Total Fiduciary Net Position - Ending (b)** | $ 71,690,221 | $ 67,365,361 | $ 74,827,132 |
| **Net OPEB Liability - Ending (a)-(b)** | $ 98,353,483 | $ 104,590,541 | $ 87,921,304 |
| **Plan Fiduciary Net Position as a Percentage of Total OPEB Liability** | 42.16 % | 39.18 % | 45.98 % |
| **Covered Payroll** | $ 706,441,299 | $ 671,120,225 | $ 636,738,387 |
| **Net OPEB Liability as a Percentage of Covered Payroll** | 13.92 % | 15.58 % | 13.81 % |

## Required Supplementary Information
## (Unaudited)

### Schedule of the Net Pension Liability
### (Ultimately 10 Fiscal Years will be displayed)

| Fiscal Year Ending December 31, | Total Pension Liability | Plan Net Position | Net Pension Liability | Plan Net Position as a % of Total Pension Liability | Covered Payroll | Net Pension Liability as a % of Covered Payroll |
|---|---|---|---|---|---|---|
| 2014 | $ 2,931,127,365 | $ 2,055,272,548 | $ 875,854,817 | 70.12% | $ 554,103,740 | 158.07% |
| 2015 | $ 3,124,965,445 | $ 1,945,673,317 | $ 1,179,292,128 | 62.26% | $ 602,454,420 | 195.75% |
| 2016 | $ 3,231,073,099 | $ 2,011,665,398 | $ 1,219,407,701 | 62.26% | $ 613,284,274 | 198.83% |
| 2017 | $ 3,398,210,768 | $ 2,225,426,431 | $ 1,172,784,337 | 65.49% | $ 636,738,387 | 184.19% |
| 2018 | $ 3,571,328,103 | $ 2,062,677,477 | $ 1,508,650,626 | 57.76% | $ 671,120,225 | 224.80% |
| 2019 | $ 3,713,619,314 | $ 2,258,481,381 | $ 1,455,137,933 | 60.82% | $ 706,441,299 | 205.98% |

### Schedule of the Net OPEB Liability
### (Ultimately 10 Fiscal Years will be displayed)

| Fiscal Year Ending December 31, | Total Pension Liability | Plan Net Position | Net Pension Liability | Plan Net Position as a % of Total Pension Liability | Covered Payroll | Net Pension Liability as a % of Covered Payroll |
|---|---|---|---|---|---|---|
| 2017 | $ 162,748,436 | $ 74,827,132 | $ 87,921,304 | 45.98% | $ 636,738,387 | 13.81% |
| 2018 | $ 171,955,902 | $ 67,365,361 | $ 104,590,541 | 39.18% | $ 671,120,225 | 15.58% |
| 2019 | $ 170,043,704 | $ 71,690,221 | $ 98,353,483 | 42.16% | $ 706,441,299 | 13.92% |

**Required Supplementary Information**
**(Unaudited)**

## Schedules of Employer Contributions

### Pension Benefit

| Fiscal Year Ending December 31, | Actuarially Determined Contributions (a) | Actual Contributions (b) | Contribution Deficiency (Excess) (a)-(b) | Covered Payroll (c) | Actual Contribution as a % of Covered Payroll (b)/(c) |
|---|---|---|---|---|---|
| 2010 | $ 48,995,846 | $ 42,228,203 | $ 6,767,643 | $ 506,045,186 | 8.34% |
| 2011 | 52,000,472 | 45,703,351 | 6,297,121 | 517,398,105 | 8.83% |
| 2012 | 56,054,792 | 49,756,639 | 6,298,153 | 517,396,257 | 9.62% |
| 2013 | 55,397,564 | 56,427,308 | (1,029,744) | 531,559,017 | 10.62% |
| 2014 | 55,871,677 | 59,941,041 | (4,069,364) | 519,003,905 | 11.55% |
| 2015 | 59,811,786 | 67,234,597 | (7,422,811) | 545,955,845 | 12.32% |
| 2016 | 66,135,502 | 68,794,871 | (2,659,369) | 563,316,210 | 12.21% |
| 2017 | 76,859,156 | 71,731,309 | 5,127,847 | 636,738,387 | 11.27% |
| 2018 | 82,818,225 | 81,719,744 | 1,098,481 | 671,120,225 | 12.18% |
| 2019 | 106,297,687 | 87,464,822 | 18,832,865 | 706,441,299 | 12.38% |

### OPEB Benefit

| Fiscal Year Ending December 31, | Actuarially Determined Contributions (a) | Actual Contributions (b) | Contribution Deficiency (Excess) (a)-(b) | Covered Payroll (c) | Actual Contribution as a % of Covered Payroll (b)/(c) |
|---|---|---|---|---|---|
| 2010 | $ 4,290,712 | $ 2,924,858 | $ 1,365,854 | $ 506,045,186 | 0.58% |
| 2011 | 4,965,060 | 4,202,033 | 763,027 | 517,398,105 | 0.81% |
| 2012 | 5,153,185 | 4,241,291 | 911,894 | 517,396,257 | 0.82% |
| 2013 | 4,721,761 | 4,135,064 | 586,697 | 531,559,017 | 0.78% |
| 2014 | 4,093,763 | 4,332,376 | (238,613) | 519,003,905 | 0.83% |
| 2015 | 4,322,064 | 4,380,107 | (58,043) | 545,955,845 | 0.80% |
| 2016 | 4,253,678 | 4,364,140 | (110,462) | 563,316,210 | 0.77% |
| 2017 | 4,837,383 | 4,367,473 | 469,910 | 636,738,387 | 0.69% |
| 2018 | 5,208,156 | 4,952,754 | 255,402 | 671,120,225 | 0.74% |
| 2019 | 6,168,489 | 5,084,799 | 1,083,690 | 706,441,299 | 0.72% |

**Required Supplementary Information**
**(Unaudited)**

**Notes to Schedules of Contributions (Pension and OPEB)**

| | |
|---|---|
| **Valuation Date:** | **January 1, 2019** |
| Notes | Actuarially determined contribution rates are calculated as of December 31 of each year and are applicable for the following calendar (fiscal) year. |

**Key Methods and Assumptions Used to Determine Contribution Rates:**

| | |
|---|---|
| Actuarial Cost Method | In the 2019 actuarial valuation, the Actuarial Cost Method was changed to the Entry Age method. In prior years, the ADC was determined using the Projected Unit Credit method. |
| Asset Valuation Method | In the 2019 actuarial valuation, the asset valuation method was changed to the market value of assets less any unrecognized investment gains or losses from the prior five years (with 20% of each year's gains/losses recognized annually). In the initial year, only the unrecognized loss from the prior year (2018) is reflected. In prior years, the asset valuation method was a smoothed market value. |
| Amortization Method | As of the 2019 actuarial valuation, the UAL as of January 1, 2019 is amortized over a closed 20-year period as a level percentage of payroll, with future changes in the UAL amortized over a new closed 20-year layers. In prior years, the ADC was determined using fixed 30-year layers. |
| Discount rate | 7.50% net of investment expenses (reduced from 7.75% in 2017, reduced from 8.00% in 2015) |
| Amortization growth rate | 3.00% (reduced from 3.25% in 2017) |
| Price inflation | 2.50% (reduced from 2.75% in 2017) |
| Salary increases | 3.00% (reduced from 3.25% in 2017) plus merit component based on years of service. |
| Mortality | Adjusted RP-2014 Mortality Tables, with generational projections using Ultimate MP Scale (changed in 2018 from RP-2000 Combined Mortality Projected with Scale AA to 2020. |

A complete description of the methods and assumptions used to determined contribution rates for the year ending December 31, 2019 can be found in the January 1, 2019 actuarial valuation report.

**Required Supplementary Information**
**(Unaudited)**

**Schedule of Investment Returns**
**(Pension and OPEB Plans)**
**Last 10 Fiscal Years**

| Fiscal Year Ending December 31, | Annual Return [1] |
|---|---|
| 2010 | 14.04 % |
| 2011 | (0.30)% |
| 2012 | 13.09 % |
| 2013 | 18.18 % |
| 2014 | 5.41 % |
| 2015 | (1.78)% |
| 2016 | 7.70 % |
| 2017 | 15.14 % |
| 2018 | (2.23)% |
| 2019 | 13.18 % |

(1) Annual money-weighted rate of return, net of Investment expenses

Note: The calculation of money-weighted returns is provided as an alternative to the more traditional time-weighted calculation of return which appears elsewhere in this document. Money-weighted rate of return expresses investment performance, net of pension/OPEB plan investment expenses, adjusted for the changing amounts actually invested. Money-weighted methodology takes into consideration the amount and timing of cash flows in determining a net amount invested in each period. Since the net amount invested in the DERP investment portfolio does not fluctuate greatly, there is little difference in the results provided by the two methodologies, particularly over longer periods.

**Supporting Schedules**

**Schedule of Administrative Expenses**
**Year ended December 31, 2019**

| | |
|---|---|
| Personnel services: | |
| Salaries | $ 1,717,658 |
| Employee benefits | 508,328 |
| Total personnel services | 2,225,986 |
| Professional services: | |
| Actuarial | 187,322 |
| Legal | 572 |
| Retirement board | 39,296 |
| Audit | 61,000 |
| Consultation | 6,239 |
| Total professional services | 294,429 |
| Office operations: | |
| Plan insurance | 99,711 |
| Postage | 45,056 |
| Office forms and printing | 18,479 |
| Office equipment | 19,540 |
| Employee travel and conferences | 9,198 |
| Telephone | 32,005 |
| Membership education | 42,678 |
| Miscellaneous operating | 14,436 |
| Employee education | 9,935 |
| Office supplies | 7,049 |
| Publications | 4,066 |
| Automobile | 1,553 |
| Total office operations | 303,706 |
| Computer operations: | |
| Software licenses and hosting fees | 769,783 |
| Supplies and other expenses | 2,620 |
| Total computer operations | 772,403 |
| Miscellaneous administrative expenses: | |
| Building operations | 223,376 |
| Depreciation expense | 436,602 |
| Total miscellaneous administrative expenses | 659,978 |
| **Total** | $ 4,256,502 |

## Supporting Schedules

### Schedule of Investment Expenses
### Year ended December 31, 2019

| | |
|---|---|
| Alternative investment portfolio management | $ 4,787,505 |
| International equity portfolio management | 2,436,255 |
| Fixed income portfolio management | 2,127,294 |
| Real estate portfolio management | 1,903,928 |
| Domestic equity portfolio management | 1,679,608 |
| Absolute return investment portfolio management | 1,090,095 |
| Other investment related expenses | 848,161 |
| Custody | 132,799 |
| **Total** | $ 15,005,645 |

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# Investment Section

MEKETA
INVESTMENT GROUP

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Suite 110
Carlsbad, CA 92008

760.795.3450
Meketa.com

# MEMORANDUM

**TO:** Board Members, Investment Staff, Denver Employees Retirement Plan
**FROM:** Leandro Festino, Mika Malone, Paola Nealon, Jonas Noack, Meketa Investment Group
**DATE:** May 7, 2020
**RE:** Investment Consultant's Statement for CAFR

This letter reviews the investment performance of the Denver Employees Retirement Plan (DERP) for the year ending December 31, 2019.

DERP seeks appropriate returns through the use of Modern Portfolio Theory risk/return concepts, with the intent of providing benefits to plan participants and their beneficiaries. To this end, DERP strives to align the portfolio's asset allocation, investments, and other related decisions with this goal in mind.

This alignment is a fundamental part of the Retirement Board's meetings, where performance is examined (both on an overall portfolio basis and at the manager level), asset allocation is reviewed and modified to fit changes in expected return, strategic and tactical decisions are discussed, and the Plan's liabilities are reviewed. Meketa Investment Group, DERP's investment consultant, works in concert with DERP staff, to provide guidance to the Board regarding performance evaluation, asset allocation, manager assessment, and other areas, as detailed in the contract governing Meketa's services.

Meketa calculates investment performance statistics using fair values received from the custodian, BNY Mellon, and from manager statements. Rates of return are presented using a time-weighted rate of return methodology based upon estimated market values.

## 2019 Calendar Year in Review

Following a volatile fourth quarter of 2018 that saw most major markets deliver negative returns, 2019 saw sharply positive returns across most major asset classes, with riskier assets generating particularly strong results. The Federal Reserve began 2019 with an abrupt "dovish pivot" towards a more accommodative monetary policy stance, after a gradual tightening of monetary policy in 2018 and tighter liquidity conditions helped catalyze the aforementioned Q4 2018 selloff. Outside of the US, major central banks affirmed similar accommodative policy stances in 2019. This pivot set the stage for strong performance in global equities and other risk assets. Monetary accommodation persisted throughout 2019. Prompted by ongoing concerns regarding slower global growth and the trade standoff between the US and China, the Federal Reserve cut rates by 0.25% three times over the course of the year (August, September, and October) to settle at a range of 1.50-1.75% by year-end. Meanwhile, the European Central Bank (ECB) held rates steady with the main deposit rate at -0.50% and the marginal lending facility rate at 0.25%, noting a potential for further reductions. The Bank of Japan showed no

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signs of pulling back from its unprecedented monetary stimulus, keeping bank deposit rates negative (-0.10%) and continuing to target a 0.0% target yield on the 10-year government bond. Of these three major developed markets central banks, only the US has room to lower rates from positive territory towards zero, while Japan and Europe are already in negative territory. Despite this broadly accommodative stance, growth revisions for global GDP growth in 2019 and 2020 have tended to be negative. Going forward, uncertainty regarding the path of fiscal and monetary policies, a general slowdown in growth across major global economies, the potential for additional trade issues, and political uncertainty in Europe (Italy, Greece, Brexit) should all be carefully monitored.

Global equities rebounded significantly during 2019 to close out the 2019 calendar year with strong positive results. Most global equity markets embraced a "risk on" appetite. The VIX Index, which had seen a jump in Q4 2018 above 30.0, remained low for much of the year despite a spike in August after the yield curve briefly inverted. The VIX closed out the year at a relatively benign level of 14.0.

US equities, as represented by the Russell 3000 Index, finished the year with a 31.0% return. Emerging markets (MSCI Emerging Markets) delivered 18.4% for the year; the index was up 11.8% in the fourth quarter following an apparent trade resolution agreement between China and the US. The MSCI EAFE Index, representing foreign developed markets, returned 22.0%. While major EAFE countries faced declining GDP growth outlooks, uncertainties related to Brexit, and elevated trade tensions during the year, markets in these regions proved to be resilient.

In the US, the recent trend of growth stocks outperforming value stocks persisted during 2019. In 2019, growth stocks outperformed value stocks by 9.6 percentage points. The Russell 3000 Growth Index closed out the year with a 35.9% return, versus 26.3% for the Russell 3000 Value Index.

As central banks abruptly shifted to a more accommodative policy stance by early January 2019, fixed income markets also rallied alongside equities. The expectation of continued accommodative policy, benign inflation, and incrementally lower global growth expectations were significant tailwinds. In addition, trade concerns provided support for bond prices. Over the calendar year, the broad US bond market, as measured by the Bloomberg Barclays Aggregate Index, returned 8.7% for the year, high yield bonds returned 14.3%, and TIPS returned 8.4%. Emerging market bonds (as represented by the JPM GBI-EM Global Diversified Index) posted a 13.5% return for the calendar year. Despite strong returns, the deterioration of trade talks between the US and China in May prompted a temporary drop in global equity prices and U.S. Treasury yields.

The 3 month – 10 year segment of the yield curve inverted for the second time in 2019, leading investors to question the economic outlook. Historically, the shape of the yield curve has been viewed as a barometer of economic strength and as a potential recession indicator. Inversions in the yield curve (long term bond interest rates falling below short term bond interest rates) have preceded recessions in most previous instances in the US, with few exceptions.

Within other asset classes, natural resource stocks (S&P Global Natural Resources Index) returned 17.2%, commodities (Bloomberg Commodity Index) returned 7.7%, and REITs (MSCI U.S. REIT Index)

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gained 25.8%. WTI crude oil settled at $61.10/barrel, well above the December 2018 value of $45.15. OPEC-led production cuts, along with sanctions on Iran and Venezuela, supported prices. However, these production cuts had only a moderate positive impact on oil prices as market participants' economic growth and oil demand expectations were both revised downward.

## 2020 Outlook

At the time of this publication, the financial and economic markets have witnessed an extreme disruption since the close of the 2019 calendar year, given the swift global contagion of COVID-19 and its impact on the world. The full extent to which is still unknown.

Looking ahead, there are a number of issues that merit close monitoring: a slowdown in global growth, elevated valuations, the potential for ongoing trade conflicts, the duration of the current growth cycle, weaker growth in China, and political risk in Europe.

Policy rates in the US have experienced a miniature cycle from 2015-2019. Until the end of 2018, many major central banks had been "testing the waters" by increasing (or signaling a potential increase in) policy rates at a moderate pace from record lows, in an attempt to normalize monetary policy and restore their ability to fight any potential future economic downturn. From 2015 to 2018, the Federal Reserve increased interest rates eight times, increasing the policy rate from 0.25-0.50% to 2.25-2.50%. At the time, many market participants questioned whether the pace of rate hikes was too aggressive. Unfortunately, their concerns were realized when liquidity conditions deteriorated at the end of 2018 and equity markets sold off. The rate hiking trend came to an abrupt halt in 2019, as the Federal Reserve was forced to reverse course, cutting rates three times. It appears that the global economy is on weaker footing than most investors and policymakers had thought, even a decade after the Global Financial Crisis. With little room left for a further reduction in rates here in the US, it remains to be seen whether the Federal Reserve's ability to counter acute economic weakness with rate cuts, with the policy rate already near zero, has been weakened or impaired. Outside of the US, European economic prospects are on weak footing, with headwinds due to political uncertainty, trade uncertainty, and a persistent decline in economic growth. Growth in Germany slipped significantly due to the country's trade ties with China. In Japan, the policy rate remains near all-time lows, as growth continues to be tepid. Within emerging markets, growth has also slowed, with the slowdown in China being a key driver.

Our second key concern is elevated valuations, particularly in the US. While valuation itself is not a catalyst for an equity market selloff, the economy is on weak footing, and the current economic cycle has been one of the longest on record. Compounding this issue, company profits have not kept pace with the market rally. In 2019, the majority of the US equity market's performance could be explained by multiple expansion (and thus, expectations for future profitability). This means that corporate earnings in 2020 will need to be strong in order to support rich valuations and high expectations.

Another key risk to global growth is trade uncertainty. While an agreement was tentatively reached between the US and China to ease tariffs, trade protectionism remains a key topic, with countries attempting to shore up weakness in their domestic economies by restricting the flow of goods from

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other countries. Since China and the US are the world's largest economies, uncertainty related to tariffs and strategic alliances in the two countries are critical risk factors for global growth.

The current economic cycle is among the longest in modern US history. The US equity market has experienced a long period of growth since the Global Financial Crisis, due in part to central bank support. Late cycle dynamics of low unemployment, as well as gradual increases in wages and inflation, are in place. Valuations are stretched for equites despite the pullback witnessed in December 2018. Latent risks, such as trade protectionism, remain. As a result, we could experience an increase in volatility in 2020.

China has the second largest economy behind the US, making it a critical contributor to global GDP, and a far more important contributor to global growth, since it is growing at a faster rate than the US. However, China continues to experience a "soft landing" of GDP growth towards a lower level. After a long period of export- and debt-driven growth, China has managed a repositioning of its economy to one based increasingly on domestic consumption. This rebalancing process has led to a slowing of the economy and a decline in commodity prices, which has hurt countries that are reliant on exports to China (and commodity exports in particular). The recent focus on tariffs between the US and China is another key issue that could have a disproportionately negative impact on China, as the US is one of their largest export destinations. Another core issue in China is its high debt level, particularly in the corporate sector. This issue is likely to manifest in more tentative monetary and fiscal stimulus in the face of a future economic slowdown, which could reduce the efficacy of the policy response and result in a more protracted period of economic weakness.

Europe continues to fight the potential structural imbalance implied by maintaining a single currency and monetary policy regime, while fiscal policy rests with each individual country. Countries experiencing financial difficulties that diverge from larger economies within the currency union are unable to use the traditional tools of lowering interest rates and devaluing their currencies to stimulate growth. This has caused tensions within the Eurozone, as highlighted by the recent elections in Italy and the prior elections in Germany, as well as the on-going issues in Greece. Given the size of Italy's bond market and economy within the euro area, an Italian sovereign debt crisis or its departure from the euro would have significant consequences. Europe also faces continued knock-on effects from Brexit. The United Kingdom's exit date from the European Union has been set for early 2020, with trade negotiations set to take place before an end-of-year deadline. While this reduces short-term uncertainty regarding the Brexit outcome, volatility could increase significantly as policymakers attempt to meet the deadline, where they have struggled to meet similar deadlines throughout the Brexit proceedings. We will continue to monitor these issues and others, as they arise.

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## DERP 2019 Performance

DERP's portfolio returned 12.6% in 2019, underperforming the Policy Index return of 16.2%. For 2019, DERP's performance ranked in the bottom quartile (97th percentile) of the peer universe[1] (1st percentile is best and 100th is worst). The US Equity Composite and Large Cap Composite had the strongest absolute performance during 2019, returning 32.7% and 33.3%, respectively. The Energy Composite had the weakest 2019 performance at -11.9%, underperforming the Private Natural Resources Policy Index[2], which returned -4.2% over the same period.

Over the trailing three- and five-year periods, the DERP portfolio returned 8.2% and 6.0% on average annually, slightly underperforming the Policy Index returns of 8.9% and 6.7%, respectively. For the trailing three years, DERP was in the 87th percentile compared to peers, and over the trailing five years, DERP was in the 96th percentile compared to peers. However, over a longer time horizon, seven- and ten-year periods, DERP returned 7.6% and 7.9%, respectively, exceeding the current actuarial assumed rate of return of 7.5% in both periods. Additionally, DERP returned 8.5% (annualized) since inception (January 1986), and ranks in the top quartile (18th percentile) of the peer universe.

Performance for DERP over the 2019 calendar year trailed the benchmark's return, but provided strong performance on an absolute basis, and exceeded the actuarial assumed rate of return. DERP's underperformance relative to peers in 2019 is due to its defensive positioning, which compares more favorably versus peers during times of increased market volatility (as experienced in 2018). Additionally, DERP's greater allocation to Private Markets and lower allocations to Public Equities (relative to peers) detracted from their peer rankings in 2019, given Public Equities greatly outperformed other asset classes for the year.

We remain convinced that the conservative positioning is very much appropriate and necessary given all the risks faced globally at the end of 2019, as described in prior pages. We will continue to monitor the portfolio and work with staff to advise the Board of recommended material positioning changes. We look forward to continuing to work with staff and the Board to assist the Plan in meeting its obligations to participants and their beneficiaries

Sincerely,

LFestino

Leandro Festino, CFA, CAIA
Managing Principal, Consultant

LAF/JEN/sf

[1] Based on InvestorForce peer rankings: Defined Benefit Public Funds over $1 billion in assets.

[2] The Private Natural Resources Policy Index is a custom, blended benchmark, consisting of Actual Energy Composite Return data from June 2003 – September 2019, and CPI + 3% from October 2019 – present.

## Investment Policy

The Denver Employees Retirement Plan (the Plan) was established on January 1, 1963, as a defined benefit pension plan. The Plan Board assumes full and absolute responsibility for establishing, implementing, and monitoring adherence to the pension fund policy. The investment of the Trust shall be in accord with all applicable laws of the State of Colorado and the City and County of Denver. Specifically:

(a) Investments shall be solely in the interest of the participants and their beneficiaries and for the exclusive purpose of providing benefits to the participants and their beneficiaries.

(b) Investments shall be made with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent investor acting in a like capacity and familiar with these matters would use in the conduct of an enterprise of a like character with like aims.

(c) Investments shall be diversified so as to minimize the risk of loss and to maximize rate of return, unless under the circumstances it is clearly prudent not to do so.

## Investment Responsibilities

The Plan Board is responsible for formulating investment strategies, asset allocation, and monitoring the performance of investment management firms and professionals. The Plan Board has formal written objectives and guidelines contained in the Plan's *Investment Policy*, in which asset allocation targets, investment objectives, and investment manager guidelines are specified. Changes to the *Investment Policy* must be approved by the Plan Board.

The investment managers are each responsible for implementing investment strategies in accordance with the stated investment policies, guidelines, and objectives of the Plan. Each manager is responsible for optimizing investment return within its guideline constraints and in the sole interest of the Plan's members and beneficiaries. The Board has directed all investment managers to vote proxies in the interest of the Plan's members and beneficiaries, and to report annually as to how proxies were voted.

## Investment Objectives

As outlined in the *Investment Policy*, the investment objectives include:

(a) The investment objective for the Trust as a whole is to provide a net realized rate of return meeting or exceeding the actuarial assumption of seven point five percent (7.50%), annualized, over a full market/ economic cycle of three to seven years.

(b) Consistent with this minimum investment objective, an attempt to maintaining an efficient portfolio determined by the risk/return concepts of Modern Portfolio Theory will be made.

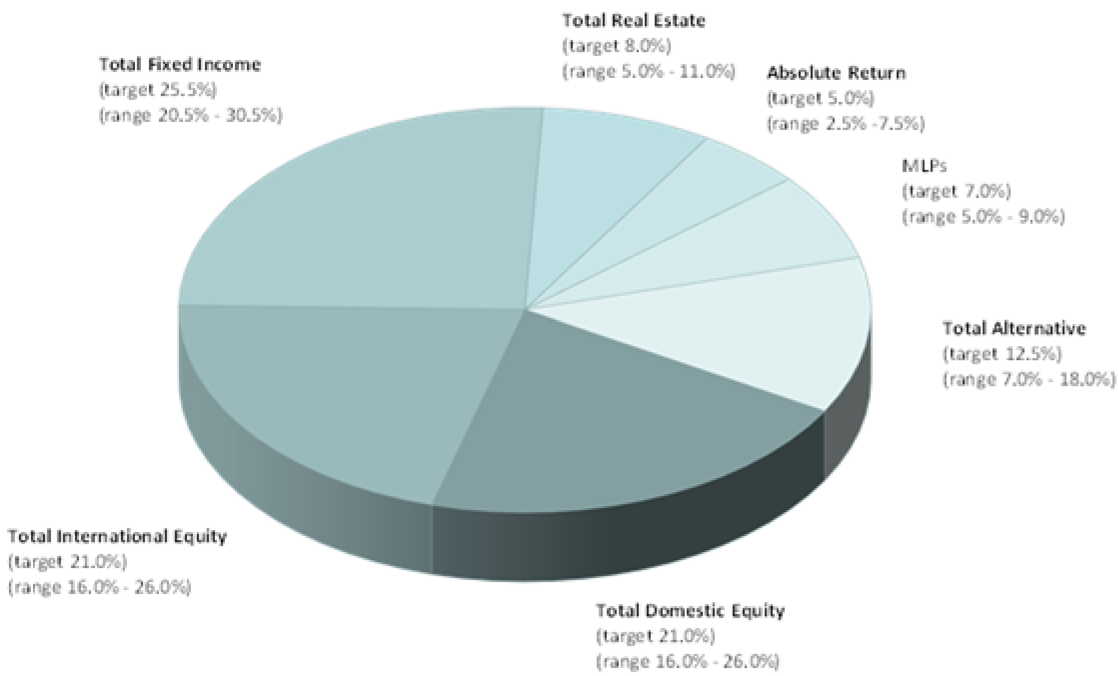
(c) The relative investment objective, over a market/ economic cycle of three to seven years, is to exceed the rate of return that would have been achieved by a statically allocated and passively managed portfolio, at the same risk, in accordance with the long term asset allocation policy set forth.

**Asset Allocation Target**

The Plan Board recognizes that an asset allocation plan has the greatest impact on long-term performance results and is, therefore, the most important decision in the investment process. The risk/return profile is maintained by identifying a long-term target strategic asset allocation. Temporary deviations from the targets are held within ranges.

The first formal asset allocation plan was adopted by the Plan Board in 1989. There have been subsequent asset allocation plans adopted, with the most recent being on April 18, 2019. The Plan's investment consultant assisted the Plan Board in developing the latest asset allocation.

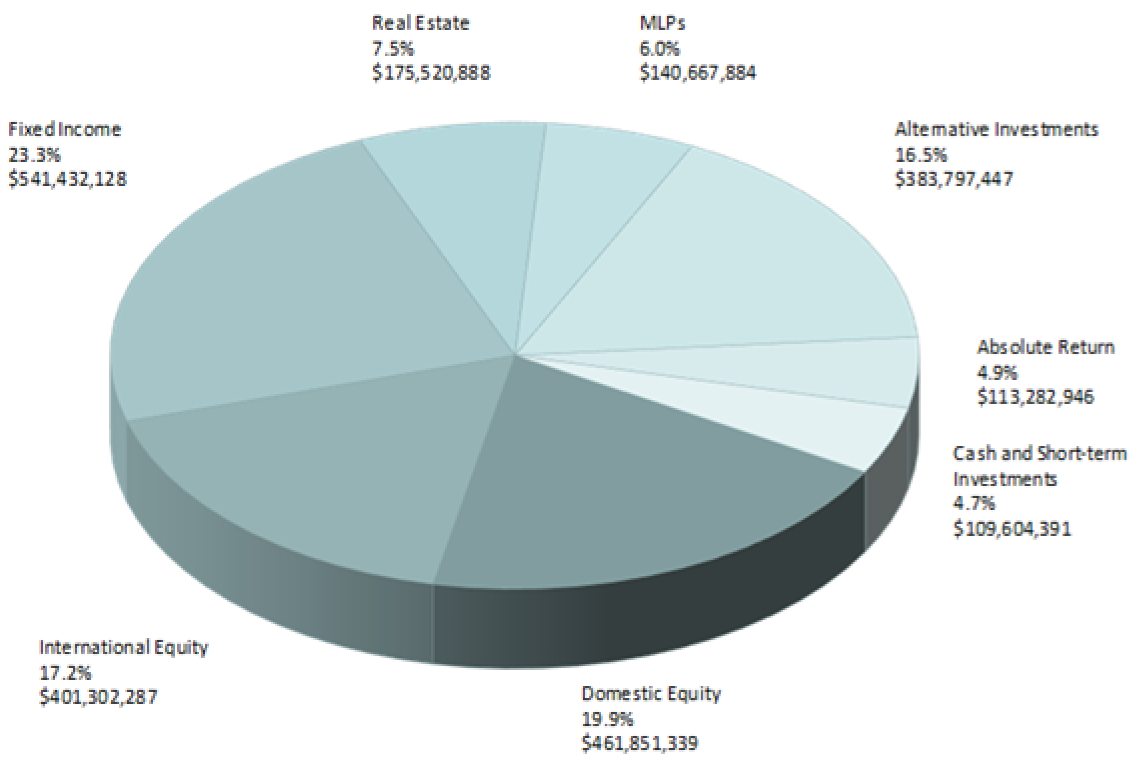
The asset allocation strategy as of December 31, 2019 is depicted in the chart below:




At target, a portfolio so allocated would be expected to achieve a 8.4% return with a standard deviation (risk) of 12.6%.

**Asset Allocation by Asset Class**

The total Fiduciary Net Position of the Plan on December 31, 2019, was $2,330,171,602 including cash and investments of S2,306,117,079. At December 31, 2019, the Plan's investment assets were allocated as shown in the following chart:



The Plan staff actively monitors each investment manager for compliance with guidelines. There is no allocation to cash. Each manager is directed to prudently remain fully invested in their asset style group. All allocated but uninvested cash is commingled and actively managed by the Plan. Investment manager, custodian, and consultant fees are aggressively negotiated and reviewed periodically.

The top ten stock and bond holdings as of December 31, 2019, are shown in the following tables:

**Top Ten Stock Holdings**
**December 31, 2019**

| Shares | Stocks | Fair Value |
|---|---|---|
| 65,998 | MICROSOFT CORP | $10,407,885 |
| 7,087 | ALPHABET INC-CL C | 9,475,461 |
| 3,911 | AMAZON.COM INC | 7,226,902 |
| 26,214 | BERKSHIRE HATHAWAY INC | 5,937,471 |
| 61,600 | CITIGROUP INC | 4,921,224 |
| 18,152 | GOLDMAN SACHS GROUP INC/THE | 4,173,689 |
| 90,355 | COMCAST CORP | 4,063,264 |
| 24,325 | MARRIOTT INTERNATIONAL INC/MD | 3,683,535 |
| 66,505 | WELLS FARGO & CO | 3,577,969 |
| 317,832 | GENERAL ELECTRIC CO | 3,547,005 |

**Top Ten Bond Holdings**
**December 31, 2019**

| Par | Bonds | Coupon Rate | Maturity Date | Fair Value |
|---|---|---|---|---|
| 10,000,000 | FNMA Bond | 1.875% | 9/24/2026 | $9,982,100 |
| 6,000,000 | FNMA Bond | 6.625% | 11/15/2030 | 8,553,360 |
| 5,000,000 | FNMA Bond | 6.250% | 5/15/2029 | 6,762,000 |
| 6,500,000 | FNMA Bond | 2.125% | 4/24/2026 | 6,598,345 |
| 5,800,000 | U.S. Treasury Note | 2.750% | 4/30/2023 | 6,010,018 |
| 5,500,000 | U.S. Treasury Note | 1.375% | 9/30/2023 | 5,445,220 |
| 5,000,000 | FHLBC Bond | 3.125% | 6/11/2027 | 5,366,950 |
| 4,500,000 | FHLBC Bond | 5.365% | 9/9/2024 | 5,228,730 |
| 5,000,000 | FHLBC Bond | 2.750% | 6/19/2023 | 5,193,000 |
| 5,000,000 | FFCBC Bond | 2.380% | 8/4/2025 | 5,145,000 |

Complete listings of stock and bond holdings are available at the Plan’s office.

**Investment Performance**

The Plan contracts with Meketa Investment to measure investment results on a quarterly basis. Returns are calculated using a time-weighted rate of return based on the fair value of assets. Returns are reported net of fees unless otherwise stated. The estimated annualized return from January 1, 1986 to December 31, 2019 is 8.50%. Annualized investment results compared with benchmarks for the year ending December 31, 2019, are as follows:

| | Last Year | Last 3 Years | Last 5 Years |
|---|---|---|---|
| Domestic Equity | 32.7 % | 16.6 % | 11.7 % |
| Russell 3000 Index | 31.0 % | 14.6 % | 11.2 % |
| International Equity | 17.9 % | 7.7 % | 4.7 % |
| International Equity Policy Index | 20.9 % | 10.3 % | 6.2 % |
| Fixed Income | 6.7 % | 5.1 % | 4.0 % |
| Fixed Income Policy Index | 8.7 % | 4.3 % | 3.5 % |
| Real Estate | 2.1 % | 4.7 % | 7.5 % |
| NCREIF Index | 5.4 % | 7.1 % | 9.0 % |
| MLPs | 11.1 % | (2.3)% | (4.8)% |
| Alerian Midstream Blended | 13.5 % | (2.4)% | (5.8)% |
| Alternatives | 1.1 % | 10.2 % | 9.1 % |
| Total Portfolio | 12.6 % | 8.2 % | 6.0 % |
| Total Fund Policy Index | 16.2 % | 8.9 % | 6.7 % |
| Change in Consumer Price Index (CPI-U) | 2.3 % | 2.4 % | 1.7 % |

**Schedule of Investment Commissions**

December 31, 2019

| BROKER | QUANTITY (UNITS) | BROKER COMMISSION | COMMISSION PER/SHARE |
|---|---|---|---|
| MERRILL LYNCH | 1,155,618 | $14,248 | $0.012 |
| CREDIT SUISSE | 1,304,739 | 11,844 | 0.009 |
| GOLDMAN SACHS & CO | 835,063 | 11,052 | 0.013 |
| BARCLAYS CAPITAL | 1,044,712 | 8,992 | 0.009 |
| J.P. MORGAN SECURITIES LLC | 680,733 | 8,762 | 0.013 |
| CITIGROUP GLOBAL MARKETS, INC. | 896,174 | 8,518 | 0.010 |
| UBS SECURITIES LLC | 825,030 | 6,756 | 0.008 |
| RBC CAPITAL MARKETS LLC | 475,230 | 4,910 | 0.010 |
| JEFFERIES & CO INC | 333,878 | 4,632 | 0.014 |
| ISI GROUP INC | 466,921 | 4,369 | 0.009 |
| ROYAL BANK OF CANADA LTD | 948,253 | 4,349 | 0.005 |
| WELLS FARGO SECURITIES, LLC | 417,671 | 3,895 | 0.009 |
| MORGAN STANLEY & CO INC | 279,083 | 3,673 | 0.013 |
| MACQUARIE CAPITAL INC. | 208,688 | 3,346 | 0.016 |
| ICBC FINCL SVCS | 111,514 | 3,342 | 0.030 |
| LIQUIDNET INC | 176,006 | 3,092 | 0.018 |
| NATIONAL FINL SVCS CORP | 121,240 | 3,010 | 0.025 |
| BERNSTEIN SANFORD C & CO | 90,297 | 2,987 | 0.033 |
| WILLIAM BLAIR & CO | 73,972 | 2,862 | 0.039 |
| KNIGHT EQUITY MARKETS LP | 372,392 | 2,795 | 0.008 |
| INVESTMENT TECHNOLOGY GROUP LTD | 468,606 | 2,331 | 0.005 |
| CREDIT LYONNAIS SECS | 37,300 | 1,912 | 0.051 |
| SCOTIA CAPITAL INC | 227,899 | 1,862 | 0.008 |
| DAVY STOCKBROKERS | 40,318 | 1,855 | 0.046 |
| DEUTSCHE BK SECS INC | 32,934 | 1,604 | 0.049 |
| BERENBERG GOSSLER & CIE | 24,610 | 1,586 | 0.064 |
| INSTINET CORP | 132,894 | 1,518 | 0.011 |
| SOCIETE GENERALE | 236,543 | 1,202 | 0.005 |
| RAYMOND JAMES & ASSOC INC | 30,285 | 1,106 | 0.037 |
| STIFEL NICOLAUS | 31,243 | 1,051 | 0.034 |
| VIRTU AMERICAS LLC | 118,120 | 1,004 | 0.009 |
| SANFORD C BERNSTEIN & CO INC | 77,151 | 879 | 0.011 |
| COWEN AND CO LLC | 89,255 | 688 | 0.008 |
| CANTOR FITZGERALD & CO INC | 22,473 | 602 | 0.027 |
| BAIRD, ROBERT W & CO INC | 25,213 | 594 | 0.024 |
| PIPER JAFFRAY & CO. | 68,212 | 563 | 0.008 |
| MIZUHO SECURITIES INC. | 29,730 | 543 | 0.018 |
| BMO CAPITAL MARKETS CORP | 52,271 | 537 | 0.010 |
| All other brokers (each at $500 or less) | 384,757 | 6,535 | 0.017 |
| **TOTAL** | 12,947,028 | $145,406 | $0.011 |

**Schedule of Investment Fees**
December 31, 2019

| **Externally Managed Portfolios** | **Assets Under Management** | **Fees** |
|---|---|---|
| U.S. Equities: | | |
| Actively Managed : | $232,940,818 | $1,617,329 |
| Passively Managed | 228,910,522 | 62,279 |
| International Equities: | | |
| Actively Managed | 361,079,189 | 2,421,972 |
| Passively Managed | 40,223,098 | 14,283 |
| Fixed Income: | | |
| Actively Managed | 541,432,128 | 2,111,031 |
| Passively Managed | — | 16,263 |
| Real Estate: | | |
| Fees netted with earnings | 175,520,888 | 1,903,928 |
| Fees paid separately | — | — |
| Absolute Return: | | |
| Fees netted with earnings | 113,282,946 | 1,090,095 |
| Alternative Investments: | | |
| Fees netted with earnings | 377,318,393 | 3,803,930 |
| Fees paid separately | 147,146,937 | 983,575 |
| | $2,217,854,919 | $14,024,685 |

| **Other Investment Services** | | |
|---|---|---|
| Custody Fees | | $132,799 |
| Other investment related expenses | | 848,161 |

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# Actuarial Section

CHEIRON

Classic Values, Innovative Advice

April 14, 2020

Retirement Board
Denver Employees Retirement Plan
777 Pearl Street
Denver, CO 80203

**Re: Actuarial Certification – Actuarial Valuation as of January 1, 2019**

Dear Board Members:

This is the Actuary's Certification Letter for Actuarial Section of the Comprehensive Annual Financial Report (CAFR) for the Denver Employees Retirement Plan (the Plan) as of December 31, 2019 with respect to pension and retiree health benefits.

**Actuarial Valuation Used for Funding Purposes**

The purpose of the annual Actuarial Valuation Report performed as of January 1, 2019 is to determine the actuarial funding status of the Plan on that date and to calculate the total Actuarial Determined Contribution. Please refer to that report for additional information related to the funding of the Plan.

We prepared the following schedules for inclusion in the Actuarial Section of the CAFR based on the January 1, 2019 actuarial valuation. All historical information prior to the January 1, 2019 actuarial valuation shown in these schedules is based on information reported by the prior actuary, Gabriel, Roeder, Smith and Co.

- Schedule 1 - Summary of Actuarial Assumptions and Methods
- Schedule 2 – Demographic History
- Schedule 3 - Analysis of Financial Experience
- Schedule 4- Schedule of Funded Liabilities by Type / Member Benefit Coverage Information
- Schedule 5- Summary of Plan Provisions
- Schedule 6 - Schedule of Funding Progress

The funding ratios shown in the schedule of funded liabilities by type and the schedule of funding progress exhibits are ratios compared to the funding target and are for the purpose of evaluating funding progress in a budgeting context. These ratios are not appropriate for measuring or assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations.

The Retirement Board is responsible for establishing and maintaining the contribution policy for the Plan. However, the City is responsible for establishing the allocation of the total contribution between the employers and employees. The actuarial methods and assumptions used in the actuarial valuation are adopted by the Board of Administration with advice from the actuary. In our opinion, the assumptions and methods used in the actuarial valuation for funding purposes are consistent with applicable Actuarial Standards of Practice. The actuarial cost method and the actuarial assumptions used for funding purposes are the same as those used for financial reporting purposes.

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April 14, 2020
Denver Employees Retirement Plan
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**Actuarial Valuation Used for Financial Reporting Purposes**

For financial reporting purposes, the Total Pension Liability is based on the January 1, 2019 actuarial valuation updated to the measurement date of December 31, 2019. At their May 19, 2019 meeting, the Board adopted the Entry Age Normal (EAN) actuarial cost method for the January 1, 2019 actuarial valuation, which is compliant with GASB No. 67, No. 68, No. 74, and No. 75. There were no significant events between the valuation date and the measurement date, so the update procedures only include the addition of service cost and interest cost offset by actual benefit payments.

Please refer to our GASB 67/68 and GASB 74/75 reports as of December 31, 2019 for additional information related to the financial reporting of the Plan. The following schedules can be found in these reports for inclusion in the Financial Section of the CAFR.

- Change in Net Pension Liability / Net OPEB Liability
- Sensitivity of Net Pension Liability / Net OPEB Liability to Changes in Discount Rate
- Schedule of Changes in Net Pension Liability / Net OPEB Liability and Related Ratios
- Schedule of Employer Contributions
- Notes to the Schedule of Employer Contributions

***Funding Policy/Objective***

The Plan's funding objective is to meet its long-term benefit obligations through employer and employee contributions and investment returns. The contributions from the employers and employees equal to the sum of:

- The total Normal Cost under the actuarial funding method, and
- Amortization of the Unfunded Actuarial Liability (UAL)

The UAL is the difference between the EAN Actuarial Liability and the Actuarial Value of Assets. As of January 1, 2019, all of the prior UAL bases were combined and an initial layer to amortize the existing UAL as a level percentage of projected payroll over a 20-year period was created. An additional layer was created to amortize the change in the actuarial cost method and asset smoothing method.

***Assumptions***

The actuarial assumptions used in performing the January 1, 2019 valuation were recommended by the prior actuary and adopted by the Retirement Board based on the Actuarial Experience Study dated May 18, 2018 for the period covering January 1, 2013 through December 31, 2017. We reviewed the assumptions and found them to be reasonable. The assumptions and methods used for funding purposes were developed in compliance with the actuarial standards of practice as they relate to pension and retiree medical plans. The assumptions reflect the likely future experience of the System and the assumptions both individually and as a whole represent the best estimate for the future experience of the System.

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***Supporting Schedules***

The following schedules were prepared by Cheiron:

1. Statement of Current Actuarial Assumptions and Method
2. Analysis of Financial Experience
3. Demographic History
4. Funded Liabilities by Type/Solvency Test
5. Plan Provisions
6. Schedule of Funding Progress

***Certification***

In preparing our valuation and GASB reports, we relied on information (some oral and some written) supplied by the Plan. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice No. 23.

Future actuarial measurements may differ significantly from the current measurements due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and, changes in plan provisions or applicable law.

Cheiron's reports, the exhibits within this letter and their contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices, and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board, as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinions contained in this section. This section does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

Our report and this letter were prepared for the Denver Employees Retirement Plan for the purposes described herein and for the use by the Plan and participating employers' auditors may rely on these reports in completing an audit related to the matters herein. Other users of this information are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Sincerely,
Cheiron

Anne Harper

Anne D. Harper, FSA, MAAA, EA
Principal Consulting Actuary

Graham Schmidt

Graham A. Schmidt, ASA, FCA, MAAA, EA
Consulting Actuary

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## Summary of Actuarial Assumptions and Methods

### Contribution Allocation Procedure

The contribution allocation procedure primarily consists of an actuarial cost method, an asset valuation method, and an amortization method as described below. The actuarial cost method, amortization method, and asset valuation method were all changed as of the January 1, 2019 valuation as described below. The Board adopted the actuarial funding method changes at their May 19, 2019 meeting.

1. **Actuarial Cost Method**

   The cost method for the valuation of liabilities used for this valuation is the Entry Age Normal (EAN) method. The actuarial present value of the projected benefits of each active members is allocated as a level percentage of each individual's projected pay to the period between their date of hire and their assumed maximum retirement age. The normal cost for the Plan is the sum of the individual normal costs for each member. This actuarial cost method is in compliance with GASB standards. The EAN Actuarial Liability is the difference between the Plan's total present value of future benefits and the present value of future normal costs. The unfunded actuarial liability is the difference between the Actuarial Liability and the Actuarial Value of Assets.

   Deferred Retirement Option Plan (DROP I and DROP II) – The DROPs are closed and no new members are assumed to enter either of the two DROPs. All members have retired from the DROPs. For DROP members who have left their DROP balances in the Plan, an Actuarial Liability equal to the sum of the individual DROP account balances is included in the Plan's Actuarial Liabilities. Further detail describing the DROPs can be found in the Summary of Plan Provisions in this report.

2. **Amortization Method**

   The Unfunded Actuarial Liability (or Surplus Funding) is amortized as a percentage of the projected salaries of DERP members. Effective with the January 1, 2019 valuation, the Unfunded Actuarial Liability (UAL) as of January 1, 2019 is amortized over a closed 20-year period. The additional UAL attributable to the change in funding method and asset valuation method is amortized over a separate 20-year period. All future gains and losses will be amortized over new 20-year periods, called layers.

3. **Asset Valuation Method**

   As of January 1, 2019, the Actuarial Value of Assets is determined as the Market Value of Assets less any unrecognized investment gains or losses in each of the last five years. For the initial application of this method, the unrecognized loss is only from the previous plan year ending December 31, 2018. In general, the gains and losses are equal to the difference between the actual market return and the expected market return and are recognized over a five-year period or 20% per year.

## Summary of Actuarial Assumptions and Methods

### Actuarial Assumptions

The assumptions used in this report reflect the results of an Experience Study performed by the prior actuary covering the period from January 1, 2013 through December 31, 2017 and adopted by the Board for the January 1, 2018 Actuarial Valuation. More details on the rationale for the demographic and economic assumptions can be found in the Actuarial Experience Study dated May 18, 2018.

**1. Rate of Return**

Assets are assumed to earn 7.50%, net of investment and administrative expenses

**2. Administrative Expenses**

No explicit assumption because assumed rate of return is net of administrative expenses

**3. Cost-of-Living / Inflation**

2.50%

**4. Post Retirement COLA**

0.00% per year

**5. Internal Revenue Code Section 415 Limit**

The Internal Revenue Code Section 415 maximum benefit limitations are reflected in the valuation for funding purposes.

**6. Internal Revenue Code Section 401(a)(17)**

The Internal Revenue Code Section 401(a)(17) maximum compensation limitation are reflected in the valuation for funding purposes.

**7. Interest on Member Contributions**

The annual credited interest rate on non-vested member contributions is assumed to be 1.0%.

**8. Unused Sick and Vacation Hours**

For members hired prior to January 1, 2010 and District Attorney's Office and Denver Sheriff Department members regardless of hire date, unused sick and vacation hours are converted into pay at retirement, death, disability or termination. That converted amount is included in the Highest Average Salary. The valuation accounts for this by assuming the FAC will be increased by 5.00% for active retirement benefits and increased by 2.25% for active ordinary death and termination benefits for eligible members.

**Summary of Actuarial Assumptions and Methods**

**9. Family Composition**

Percentage married for all active members who retire, become disabled, or die during active service is shown in the table below. Male spouses are assumed to be the same age as female spouses for active members.

| Gender | Percent Married |
|---|---|
| Male | 75% |
| Female | 60% |

**10. Increases in Pay**

Wage inflation component: 3.00%
Additional longevity and promotion component:

| Service | Non-DHHA |
|---|---|
| 1 | 7.00% |
| 2 | 5.50% |
| 3 | 3.50% |
| 4 | 3.25% |
| 5 | 3.00% |
| 6 | 2.75% |
| 7 | 2.50% |
| 8 | 2.25% |
| 9 | 2.00% |
| 10 | 1.50% |
| 11 | 1.50% |
| 12 | 1.25% |
| 13 | 1.25% |
| 14 | 1.00% |
| 15 | 0.75% |
| 16 | 0.50% |
| 17 | 0.50% |
| 18 | 0.25% |
| 19 | 0.25% |
| 20 | 0.25% |
| 21+ | 0.00% |

| Age | DHHA |
|---|---|
| ≤ 25 | 2.00% |
| 26 | 2.00% |
| 27 | 2.00% |
| 28 | 2.00% |
| 29 | 2.00% |
| 30 | 2.00% |
| 31 | 2.00% |
| 32 | 2.00% |
| 33 | 2.00% |
| 34 | 2.00% |
| 35 | 0.75% |
| 36 | 0.75% |
| 37 | 0.75% |
| 38 | 0.75% |
| 39 | 0.75% |
| 40 | 0.50% |
| 41 | 0.50% |
| 42 | 0.50% |
| 43 | 0.50% |
| 44 | 0.50% |
| ≥ 45 | 0.00% |

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**Summary of Actuarial Assumptions and Methods**

**11. Rates of Termination**

Sample rates of termination are shown in the following table below.

| | Non-DHHA | |
|---|---|---|
| **Service** | **Male** | **Female** |
| 0-1 | 18% | 23% |
| 1-2 | 15% | 18% |
| 2-3 | 14% | 16% |
| 3-4 | 11% | 13% |
| 4-5 | 10% | 12% |
| 5-6 | 9% | 11% |
| 6-7 | 8% | 10% |
| 7-8 | 8% | 10% |
| 8-9 | 7% | 9% |
| 9-10 | 6% | 9% |
| 10-11 | 5% | 8% |
| 11-12 | 5% | 7% |
| 12-13 | 5% | 5% |
| 13-14 | 5% | 5% |
| 14-15 | 4% | 4% |
| 15-16 | 4% | 4% |
| 16-17 | 3% | 3% |
| 17-18 | 3% | 3% |
| 18-19 | 3% | 3% |
| 19-20 | 3% | 3% |
| 21+ | 2% | 2% |

| DHHA | |
|---|---|
| **Age** | **Unisex** |
| ≤ 29 | 10.0% |
| 30 – 39 | 5.0% |
| 40 – 49 | 4.0% |
| 50 – 54 | 2.5% |
| 55+ | 0% |

## Summary of Actuarial Assumptions and Methods

### 12. Rates of Disability

Disability rates of active participants are shown below.

| Age | Rate |
|---|---|
| 30 | 0.0150% |
| 31 | 0.0150% |
| 32 | 0.0150% |
| 33 | 0.0188% |
| 34 | 0.0203% |
| 35 | 0.0225% |
| 36 | 0.0300% |
| 37 | 0.0375% |
| 38 | 0.0450% |
| 39 | 0.0450% |
| 40 | 0.0525% |
| 41 | 0.0600% |
| 42 | 0.0750% |
| 43 | 0.0825% |
| 44 | 0.0900% |
| 45 | 0.0975% |
| 46 | 0.1200% |
| 47 | 0.1425% |
| 48 | 0.1650% |
| 49 | 0.1875% |

| Age | Rate |
|---|---|
| 50 | 0.2025% |
| 51 | 0.2250% |
| 52 | 0.2550% |
| 53 | 0.2775% |
| 54 | 0.3000% |
| 55 | 0.3300% |
| 56 | 0.3675% |
| 57 | 0.3975% |
| 58 | 0.4350% |
| 59 | 0.4725% |
| 60 | 0.5025% |
| 61 | 0.5625% |
| 62 | 0.6000% |
| 63 | 0.6375% |
| 64 | 0.6750% |
| 65 | 0.7500% |

15% of disabilities are assumed to be duty-related and 85% are assumed to be non-duty related.

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**Summary of Actuarial Assumptions and Methods**

**13. Rates of Mortality**

Mortality rates were adjusted to include margin for future longevity improvement as described below:

Active Mortality
Male: RP-2014 Employee Mortality Table for males with generational projection using Ultimate MP Scale

Female: RP-2014 Employee Mortality Table for females with generational projection using Ultimate MP Scale

15% of deaths are assumed to be duty-related and 85% are assumed to be non-duty related

Healthy Retirees, Beneficiaries, and Deferred Vested Members
Male: RP-2014 Healthy Annuitant Mortality Table for males with a 110% multiplier applied to the base rates and generational projection using Ultimate MP-Scale

Female: RP-2014 Healthy Annuitant Mortality Table for females projected with a 105% multiplier applied to the base rates and generational projection using Ultimate MP-Scale

Disabled Retirees
Male: RP-2014 Disabled Retiree Mortality Table for males with generational projection using Ultimate MP Scale

Female: RP-2014 Disabled Retiree Mortality Table for females with generational projection using Ultimate MP Scale

**14. Form of Benefit Payment and Timing**

A straight life annuity is the normal form of benefit and is payable at the beginning of the month

**Summary of Actuarial Assumptions and Methods**

**15. Rates of Retirement**

**Non-DHHA Rates of Retirement**

| Age | Early Retirement: Hired before July 1, 2011 | Early Retirement: Hired after June 30, 2011 | Normal Retirement |
|---|---|---|---|
| 55 | 2.5% | N/A | N/A |
| 56 | 4.0% | N/A | N/A |
| 57 | 4.0% | N/A | N/A |
| 58 | 4.0% | N/A | N/A |
| 59 | 4.0% | N/A | N/A |
| 60 | 5.0% | 2.5% | N/A |
| 61 | 9.0% | 4.5% | N/A |
| 62 | 10.0% | 5.0% | N/A |
| 63 | 6.0% | 3.0% | N/A |
| 64 | 6.0% | 3.0% | N/A |
| 65 | N/A | N/A | 20.0% |
| 66 | N/A | N/A | 18.0% |
| 67 | N/A | N/A | 18.0% |
| 68 | N/A | N/A | 18.0% |
| 69 | N/A | N/A | 25.0% |
| 70 | N/A | N/A | 30.0% |
| 71 | N/A | N/A | 30.0% |
| 72 | N/A | N/A | 100.0% |

**Summary of Actuarial Assumptions and Methods**

**Eligible for Rule of 75 or Rule of 85**

| Age | Rule of 75/85 |
|---|---|
| NAR | 25.0% |
| NAR+1 | 17.0% |
| NAR+2 | 17.0% |
| NAR+3 | 17.0% |
| NAR+4 | 17.0% |
| NAR+5 | 17.0% |
| NAR+6 | 27.0% |
| NAR+7 | 27.0% |
| NAR+8 | 27.0% |
| NAR+9 | 33.0% |
| NAR+10 | 33.0% |
| NAR+11 | 100.0% |

Normal Age at Retirement (NAR) is defined as the first age at which a member is eligible to retirement under the Rule of 75 or Rule of 85.

All DHHA members are assumed to retire under "Rule of" retirement.

The retirement assumption is 100% after attainment of age 72 (age 75 for the DHHA group) or NAR+11.

Inactive members are assumed to retire at the age when they are first eligible.

**16. Retiree Medical Election Percentages**

The assumptions for members who elect retiree medical benefits are as follows:

| | |
|---|---|
| Retirees | 85% |
| Inactives | 30% |
| Beneficiaries | 80% |
| Disabled | 80% |

**17. Maximum Retiree Medical Benefit**

The retiree medical benefit is limited to the monthly health premium.

Denver Employees Retirement Plan Schedule 2

## Analysis of Financial Experience

Composite Gain (Loss) for the Years Ending December 31, 2014 through December 31, 2018.

| Pension Benefits | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Dec 31, 2018 | | Dec 31, 2017 | | Dec 31, 2016 | | Dec 31, 2015 | | Dec 31, 2014 |
| Demographic Experience | $ | (31,212,710) | $ | (10,454,200) | $ | (8,924,900) | $ | (12,616,600) | $ | (27,660,900) |
| New Entrants | | (3,240,484) | | (3,711,800) | | (3,714,300) | | (2,768,100) | | (2,376,500) |
| Investment Income | | (58,325,659) | | (11,792,983) | | (43,288,228) | | (55,770,203) | | (19,188,065) |
| Total Gain (Loss) | $ | (92,778,853) | $ | (25,958,983) | $ | (55,927,428) | $ | (71,154,903) | $ | (49,225,465) |
| Non-Recurring Items[1] | | (180,806,014) | | (82,057,600) | | (66,320,488) | | 0 | | (70,260,465) |
| Composite Gain (Loss) During Year | $ | (273,584,867) | $ | (108,016,583) | $ | (122,247,916) | $ | (71,154,903) | $ | (119,485,930) |

*Amounts for 2017 And earlier were calculated by the prior actuary.*

[1] *Includes Assumption, Method, and Benefit Changes.*

| Health Benefits | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Dec 31, 2018 | | Dec 31, 2017 | | Dec 31, 2016 | | Dec 31, 2015 | | Dec 31, 2014 |
| Demographic Experience | $ | 1,091,031 | $ | (182,500) | $ | 1,857,700 | $ | 905,900 | $ | 1,568,200 |
| New Entrants | | (47,374) | | (209,400) | | (165,900) | | (131,700) | | (84,500) |
| Investment Income | | (2,236,926) | | (757,727) | | (1,886,477) | | (2,389,228) | | (1,084,695) |
| Total Gain (Loss) | $ | (1,193,269) | $ | (1,149,627) | $ | (194,677) | $ | (1,615,028) | $ | 399,005 |
| Non-Recurring Items[1] | | (8,912,349) | | (4,937,600) | | (3,449,169) | | 0 | | (3,350,257) |
| Composite Gain (Loss) During Year | $ | (10,105,618) | $ | (6,087,227) | $ | (3,643,846) | $ | (1,615,028) | $ | (2,951,252) |

*Amounts for 2017 And earlier were calculated by the prior actuary.*

[1] *Includes Assumption, Method, and Benefit Changes.*

Denver Employees Retirement Plan | Schedule 3

## Demographic History

| Schedule of Retirees, Disabled, and Benficiaries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Valuation Date Jan1 , | Added to Rolls | | Removed from Rolls | | Rolls at Valuation Date | | Average Annual Benefit | Increase in Average Benefit |
| | Count | Allowances | Count | Allowances | Count | Benefits | | |
| 2010 | 733 | $ 17,229,892 | 183 | $ 1,847,244 | 7,423 | $ 124,695,435 | $ 16,799 | 5.7% |
| 2011 | 410 | 7,484,590 | 227 | 2,827,899 | 7,606 | 130,319,793 | 17,134 | 2.0% |
| 2012 | 457 | 9,392,512 | 287 | 2,922,903 | 7,776 | 138,317,723 | 17,788 | 3.8% |
| 2013 | 540 | 11,227,434 | 271 | 2,973,325 | 8,045 | 146,837,873 | 18,252 | 2.6% |
| 2014 | 658 | 15,872,322 | 221 | 3,126,984 | 8,482 | 159,503,726 | 18,805 | 3.0% |
| 2015 | 597 | 13,833,209 | 264 | 4,026,993 | 8,815 | 169,735,929 | 19,255 | 2.4% |
| 2016 | 560 | 12,947,276 | 301 | 3,846,224 | 9,074 | 179,304,283 | 19,760 | 2.6% |
| 2017 | 558 | 13,549,263 | 330 | 4,951,335 | 9,302 | 188,483,949 | 20,263 | 2.5% |
| 2018 | 610 | 15,814,329 | 268 | 3,358,163 | 9,644 | 201,456,870 | 20,889 | 3.1% |
| 2019 | 600 | 15,257,198 | 299 | 4,791,186 | 9,945 | 211,922,882 | 21,309 | 2.0% |

*Amounts for January 1, 2018 and earlier were calculated by the prior actuary.*

| Schedule of Active Members | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Active Members | | Projected Payroll | | Projected Average Payroll | | Average | |
| January 1, | Number | % Increase | $ Amount | % Increase | $ Amount | % Increase | Age | Service |
| 2010 | 8,604 | -7.7% | $ 506,045,186 | -10.4% | $ 58,815 | -2.9% | 45.7 | 11.2 |
| 2011 | 8,403 | -2.3% | 517,398,105 | 2.2% | 61,573 | 4.7% | 46.2 | 11.7 |
| 2012 | 8,149 | -3.0% | 517,396,257 | 0.0% | 63,492 | 3.1% | 46.3 | 11.9 |
| 2013 | 8,175 | 0.3% | 531,559,017 | 2.7% | 65,023 | 2.4% | 46.4 | 11.8 |
| 2014 | 8,304 | 1.6% | 540,229,189 | 1.6% | 65,057 | 0.1% | 45.9 | 11.3 |
| 2015 | 8,489 | 2.2% | 568,562,500 | 5.2% | 66,976 | 3.0% | 45.5 | 10.9 |
| 2016 | 8,636 | 1.7% | 586,819,180 | 3.2% | 67,950 | 1.5% | 45.1 | 10.6 |
| 2017 | 8,981 | 4.0% | 623,098,077 | 6.2% | 69,380 | 2.1% | 44.5 | 10.0 |
| 2018 | 9,094 | 1.3% | 646,777,231 | 3.8% | 71,121 | 2.5% | 44.3 | 9.7 |
| 2019 | 9,210 | 1.3% | 692,150,700 | 7.0% | 75,152 | 5.7% | 44.2 | 9.3 |

*This schedule does not include participants in DROP I and DROP II.*
*Amounts for January 1, 2018 and earlier were calculated by the prior actuary.*

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Denver Employees Retirement Plan — Schedule 4

## Scheduled of Funded Liabilities by Type / Member Benefit Coverage Information

### Schedule of Funded Liabilities by Type - Pension Benefits

| | Actuarial Liabilities | | | | Portion of Actuarial Liabilities Covered by Reported Assets | | |
|---|---|---|---|---|---|---|---|
| | (A) | (B) | (C) | | | | |
| Valuation Date January 1, | Non-Vested Member Contributions[1] | Retirees, Beneficiaries, and Term Vested | Remaining Active Members' Liabilities | Reported Assets | (A) | (B) | (C) |
| 2010 | $ 3,366,000 | $ 1,414,554,000 [2] | $ 758,323,000 | $ 1,923,561,000 | 100% | 100% | 67% |
| 2011 | 8,618,000 | 1,471,749,000 [3] | 804,389,000 | 1,942,871,000 | 100% | 100% | 57% |
| 2012 | 14,330,000 | 1,567,383,000 [4] | 804,817,000 | 1,946,844,000 | 100% | 100% | 45% |
| 2013 | 14,004,000 | 1,676,748,000 [5] | 902,438,000 | 1,980,204,000 | 100% | 100% | 32% |
| 2014 | 15,239,000 | 1,793,125,000 [6] | 890,636,000 | 2,062,323,000 | 100% | 100% | 29% |
| 2015 | 21,758,000 | 1,938,787,000 [7] | 933,123,000 | 2,132,025,000 | 100% | 100% | 18% |
| 2016 | 30,578,000 | 2,038,925,000 [8] | 934,087,000 | 2,168,754,000 | 100% | 100% | 11% |
| 2017 | 39,110,000 | 2,177,513,000 [9] | 958,017,000 | 2,207,268,000 | 100% | 100% | 0% |
| 2018 | 47,644,000 | 2,345,254,000 [10] | 965,324,000 | 2,272,599,000 | 100% | 95% | 0% |
| 2019 | 53,342,000 | 2,468,387,000 [11] | 1,101,941,000 | 2,255,412,000 | 100% | 89% | 0% |

*Amounts for January 1, 2018 and earlier were calculated by the prior actuary.*

[1] *Member contributions are allocated between pension and health benefits based on the proportion of the total contribution.*

[2] *Includes DROP accounts of $98,423,000.*

[3] *Includes DROP accounts of $98,884,000.*

[4] *Includes DROP accounts of $101,401,000.*

[5] *Includes DROP accounts of $105,677,000.*

[6] *Includes DROP accounts of $107,944,000.*

[7] *Includes DROP accounts of $110,655,000.*

[8] *Includes DROP accounts of $113,006,000.*

[9] *Includes DROP accounts of $116,493,000.*

[10] *Includes DROP accounts of $125,524,000.*

[11] *Includes DROP accounts of $118,078,000.*

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Denver Employees Retirement Plan | Schedule 4

## Scheduled of Funded Liabilities by Type / Member Benefit Coverage Information

| Member Benefit Coverage Information - Health Benefits | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Actuarial Liabilities[1] | | | | | | |
| | (A) | (B) | (C) | | | | |
| Valuation Date January 1, | Non-Vested Member Contributions[2] | Retirees, Beneficiaries, and Term Vested | Remaining Active Members' Liabilities | Reported Assets | Portion of Actuarial Liabilities Covered by Reported Assets (A) | (B) | (C) |
| 2010 | $ 209,000 | $ 104,838,000 | $ 36,596,000 | $ 90,415,000 | 100% | 86% | 0% |
| 2011 | 535,000 | 102,248,000 | 40,329,000 | 87,609,000 | 100% | 85% | 0% |
| 2012 | 889,000 | 102,538,000 | 39,540,000 | 84,680,000 | 100% | 82% | 0% |
| 2013 | 869,000 | 104,349,000 | 43,668,000 | 82,993,000 | 100% | 79% | 0% |
| 2014 | 946,000 | 106,514,000 | 42,322,000 | 82,737,000 | 100% | 77% | 0% |
| 2015 | 1,350,000 | 108,982,000 | 42,590,000 | 82,195,000 | 100% | 74% | 0% |
| 2016 | 1,898,000 | 110,239,000 | 41,118,000 | 80,383,000 | 100% | 71% | 0% |
| 2017 | 2,427,000 | 112,599,000 | 41,076,000 | 78,723,000 | 100% | 68% | 0% |
| 2018 | 2,957,000 | 117,103,000 | 42,200,000 | 77,858,000 | 100% | 64% | 0% |
| 2019 | 3,311,000 | 120,108,000 | 45,418,000 | 73,706,000 | 100% | 59% | 0% |

*Amounts for January 1, 2018 and earlier were calculated by the prior actuary.*

[1] *These liabilities only represent the value of the explicit benefit without regard to the implicit rate subsidy, and therefore are not compliant with GASB No. 75.*

[2] *Member contributions are allocated between pension and health benefits based on the proportion of the total contribution.*

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## Summary of Plan Provisions

All actuarial calculations are based on our understanding of the statutes governing the Denver Employees Retirement Plan, as amended and restated under Denver Municipal Code Section 18-391 through 18-430.7, with provisions adopted by the Retirement Board, effective through December 31, 2019. The benefit and contribution provisions of the Plan are summarized briefly below. This summary does not attempt to cover all the detailed provisions of the Plan.

**1. Effective Date**

January 1, 1963

**2. Plan Year**

January 1 through December 31

**3. Type of Plan**

Qualified, 401(a) governmental defined benefit retirement plan; for GASB purposes it is multi-employer cost sharing plan.

**4. Eligibility Requirements**

Elected Officials, Appointed Officials, and Employees as defined in Denver Municipal Code Sections 18-402 and 18-406.

**5. Credited Service**

Service measured in months from date of employment to date of retirement or prior Termination.

**6. Compensation**

Gross pay, compensation, and salary shall mean the amount of remuneration, including wages, salaries, other amounts received for personal services actually rendered in the course of employment with the employer, and other amounts actually included or that could be included in gross income of an due to an employee, including employees on disability leave as provided for in division 4 of article V of chapter 18 of the Denver Municipal Code, or otherwise, from the employer in the full amount as calculated before any reductions or deductions are made for any purpose, including reductions or deductions by reason of sections 125, 132(f)(4) or 457 of the Internal Revenue Code, but not including distributions made from a plan of the employer designated to be eligible under section 457.

Employer provided fringe benefits receiving special tax benefits, such as premiums for group term life insurance (to the extent excludible from gross income), shall be excluded from the definition of compensation. The calendar year shall be the limitation year (determination period) for purposes of section 415 of the Internal Revenue Code.

Denver Employees Retirement Plan Schedule 5

## Summary of Plan Provisions

**7. Highest Average Salary (HAS)**

Highest average salary during 36 (60 for members hired on or after July 1, 2011) consecutive calendar months of covered service.

**8. Normal Retirement**

Eligibility: For employees hired prior to July 1, 2011, attainment of age 65, or attainment of age 55 with age plus credited service equal to 75. For Employees hired July 1, 2011 or after, attainment of age 65 with five years of service, or attainment of age 60 with age plus credited service equal to 85

Benefit: 1.5% (2.0% if hired before September 1, 2004) of HAS times credited service

Normal Form: Single Life Annuity

**9. Early Retirement**

Eligibility: Attainment of age 55 (60 for members hired on or after July 1, 2011) and completion of five years

Benefit: Benefit accrued to date of retirement, reduced by 3% (6% for members hired on or after July 1, 2011) per year from age 65 to reflect commencement of benefit at an earlier age

**10. Temporary Early Retirement**

Pending approval of a disability application, a retirement benefit is available to an active, vested member who is at least age 55 (60 for members hired on or after July 1, 2011). This benefit is designed to provide income to the member during the process of fulfilling the disability application requirements. There is a three-year limit on this retirement benefit.

**11. Deferred Retirement**

Eligibility: Any vested employee who terminates service for any reason other than retirement, disability or death.

Benefit: Based on the formula in effect at the time of separation from service. Payment may commence any month after the member's 55th if hired prior to July 1, 2011, or after the member's 60th birthday for members hired on or after July 1, 2011.

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## Summary of Plan Provisions

**12. Service Connected Disability**

Eligibility: Any employee who becomes totally and permanently disabled as defined in Denver Municipal Code Section 18-408(d), which arises out of and in the course of the member's employment with the employer

Benefit: Based on the greater of 20 years of service or actual service plus 10 years. Total credited service cannot exceed the credited service the member would have earned as of age 65

Normal Form: Single Life Annuity

**13. Non-Service Connected Disability**

Eligibility: Any vested employee who becomes totally and permanently disabled as defined in Denver Municipal Code Section 18-408(e) which does not occur as a result of a service connected disability

Benefit: The higher of 75% of the amount calculated for a service-connected disability or the amount calculated for an early retirement

Normal Form: Single Life Annuity

**14. Death in the Life of Duty**

The active member's surviving spouse is awarded the retirement benefit the member would have been entitled at their normal retirement date based on the higher of 15 years of service or actual credited service plus five years. Total credited service cannot exceed the credited service the member would have earned at age 65. If there is no surviving spouse but the member has children under age 21, then the benefit shall be paid until the youngest child becomes age 21. If there is no surviving spouse and no children under age 21, then the benefit shall be paid to a designated beneficiary.

**15. Other Pre-Retirement Death**

The active member's surviving spouse is awarded 75% of the benefit that would have been entitled had the death been service connected. If an active member who has attained the age of fifty five (55) or the age of sixty (60) if hired on or after July 1, 2011 dies prior to the actual retirement date, the member shall be deemed to have retired on the first day of the month following the month in which death occurs and the surviving spouse will receive an annuity as if the member had elected the 100% joint and survivor option if this will result in a greater benefit to the spouse than the above provision.

## Summary of Plan Provisions

### 16. Post-Retirement Death

1) For Normal Retirement (with at least five years of service), Disability Retirement (after age 65), and for Temporary Early Retirement (pending approval of disability) the lump-sum death benefit is $5,000.

2) For Disability Retirement before age 65, the death benefit is 150% of the member's annualized average monthly salary, limited to $50,000. This benefit reduces to $5,000 upon the disabled member reaching age 65.

3) If hired prior to July 1, 2011, for Early Retirement, the lump-sum at age:

| Age | Lump Sum |
|---|---|
| 64 | $4,750 |
| 63 | $4,500 |
| 62 | $4,250 |
| 61 | $4,000 |
| 60 | $3,750 |
| 59 | $3,500 |
| 58 | $3,250 |
| 57 | $3,000 |
| 56 | $2,750 |
| 55 | $2,500 |

4) If hired on or after July 1, 2011, for Earl Retirement, the lump-sum at age:

| Age | Lump Sum |
|---|---|
| 64 | $4,500 |
| 63 | $4,000 |
| 62 | $3,500 |
| 61 | $3,000 |
| 60 | $2,500 |

5) In lieu of a single lump-sum payment that would be paid upon death, a retired member may elect to receive the appropriate death benefit limited to five thousand dollars ($5,000) in the form of periodic payments.

### 17. Optional Forms

Joint and Survivor Options – Any employee retiring under the normal retirement provision may elect a joint and survivor benefit. The member's benefit is actuarially reduced based on their election: 100%, 75%, or 50%. Once the benefit commences, this election cannot be changed. If the spouse or designated beneficiary predeceases the member, the benefit paid to the member shall be increased to the full single straight life annuity as if no joint and survivor benefit had been selected.

## Summary of Plan Provisions

### 18. Deferred Retirement Option Plan

DROP – From January 1, 2001 through April 30, 2003, in lieu of immediate termination of employment and receipt of a normal retirement benefit, eligible members were permitted to continue employment for four years and have their normal retirement benefit paid into the deferred retirement option plan (DROP) account, after which time the participant either terminated employment or continued to be employed and resumed regular membership with the retirement plan.

DROP II – From May 1, 2003 through September 1, 2003, in lieu of immediate termination of employment and receipt of a normal retirement benefit, eligible members were permitted to continue employment for five years and have their normal retirement benefit paid into the DROP II account after which time all participants terminated employment.

### 19. Other Ancillary Benefits

Social Security Make Up Benefit – For members hired before July 1, 2011 and retiring on or after January 1, 1996, an additional retirement benefit equal to the applicable percentage (per Denver Municipal Code Section 18-409(i)) of the member's estimated primary Social Security benefit, multiplied by credited service with the City/DHHA during which the contributions were made to Social Security (up to a maximum of 35 years of credited service), divided by 35. This additional benefit is payable beginning on the first day of the month after the member's 62 birthday or the member's retirement date, whichever is later, but will not be paid before retirement benefits have begun from the Plan. Members retiring under a disability form of retirement are not eligible for this benefit.

### 20. Medical Benefits

Retiree Medical Plan Benefits – Participants and their surviving spouses or dependents receiving retirement benefits are eligible to elect to receive plan-provided retiree medical coverage and a plan-provided subsidy (benefit) to help provide for the payment of health insurance premiums. The Plan contributes $6.25 per month for each year of service for members who are Medicare eligible. The Plan contributes $12.50 per month for each year of service for members not eligible for Medicare.

In the event of the election of a Joint and Survivor option, the benefit is calculated based on the age of the member. If the member predeceases the joint and survivor beneficiary then the full benefit is transferred to the surviving spouse or dependent regardless of the joint and survivor election percentage.

The monthly benefit is limited to the monthly premium amount for the coverage elected. If a member dies and leaves a beneficiary who is not a spouse or dependent, that beneficiary can elect to participate in the group health plan, but must pay the full cost. No plan contribution can be made for non-spouse or non-dependent beneficiaries.

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## Summary of Plan Provisions

**21. Refunds**

Eligibility: All members leaving covered employment with less than five years of service are eligible. Vested members (those with five or more years of service) may not withdraw their accumulated contributions plus interest in lieu of the deferred benefits otherwise due.

Benefit: Members who withdraw receive a lump-sum payment of his/her employee contributions, plus the interest credited on these contributions. Interest is currently credited at 1.00%.

**22. Member Contributions**

8.50% of compensation, effective January 1, 2019 (increased from 8.00% effective January 1, 2018)

**23. Employer Contributions**

13.00% of compensation, effective January 1, 2019 for each member (increased from 12.50% effective January 1, 2018)

**24. Cost of Living Increases**

Given on an ad hoc basis. There have been no cost of living increases since 2002.

**25. Changes Since Prior Valuation**

The member and employer contribution rates have increased from the prior valuation as described above.

Denver Employees Retirement Plan Schedule 6

## Schedule of Funding Progress

The funding ratios shown in the exhibits below are ratios compared to the Actuarial Liabilities that are intended to be a funding target and are for the purpose of evaluating funding progress in a budgeting context. These ratios are not appropriate for measuring of assessing the solvency of the Plan or the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligations.

**Pension Benefits**

| Valuation Date January 1, | Actuarial Value of Assets | Actuarial Liability (AL) | Unfunded AL | Funded Ratio | Covered Payroll | Unfunded AL as a % of Covered Payroll |
|---|---|---|---|---|---|---|
| 2010 | $ 1,923,561,000 | $ 2,176,243,000 | $ 252,682,000 | 88.4% | $ 506,045,000 | 49.9% |
| 2011 | 1,942,871,000 | 2,284,756,000 | 341,885,000 | 85.0% | 517,398,000 | 66.1% |
| 2012 | 1,946,844,000 | 2,386,530,000 | 439,686,000 | 81.6% | 517,396,000 | 85.0% |
| 2013 | 1,980,204,000 | 2,593,190,000 | 612,986,000 | 76.4% | 531,559,000 | 115.3% |
| 2014 | 2,062,323,000 | 2,699,000,000 | 636,677,000 | 76.4% | 540,229,000 | 117.9% |
| 2015 | 2,132,025,000 | 2,893,668,000 | 761,643,000 | 73.7% | 568,563,000 | 134.0% |
| 2016 | 2,168,754,000 | 3,003,590,000 | 834,836,000 | 72.2% | 586,819,000 | 142.3% |
| 2017 | 2,207,268,000 | 3,174,640,000 | 967,372,000 | 69.5% | 623,098,000 | 155.3% |
| 2018 | 2,272,599,000 | 3,358,222,000 | 1,085,623,000 | 67.7% | 646,777,000 | 167.9% |
| 2019 | 2,255,412,000 | 3,623,670,000 | 1,368,258,000 | 62.2% | 692,151,000 | 197.7% |

*Amounts for January 1, 2018 and earlier were calculated by the prior actuary.*

**Health Benefits**

| Valuation Date January 1, | Actuarial Value of Assets | Actuarial Liability (AL) | Unfunded AL | Funded Ratio | Covered Payroll | Unfunded AL as a % of Covered Payroll |
|---|---|---|---|---|---|---|
| 2010 | $ 90,415,000 | $ 141,643,000 | $ 51,228,000 | 63.8% | $ 506,045,000 | 10.1% |
| 2011 | 87,609,000 | 143,112,000 | 55,503,000 | 61.2% | 517,398,000 | 10.7% |
| 2012 | 84,680,000 | 142,967,000 | 58,287,000 | 59.2% | 517,396,000 | 11.3% |
| 2013 | 82,993,000 | 148,886,000 | 65,893,000 | 55.7% | 531,559,000 | 12.4% |
| 2014 | 82,737,000 | 149,782,000 | 67,045,000 | 55.2% | 540,229,000 | 12.4% |
| 2015 | 82,195,000 | 152,922,000 | 70,727,000 | 53.7% | 568,563,000 | 12.4% |
| 2016 | 80,383,000 | 153,255,000 | 72,872,000 | 52.5% | 586,819,000 | 12.4% |
| 2017 | 78,723,000 | 156,102,000 | 77,379,000 | 50.4% | 623,098,000 | 12.4% |
| 2018 | 77,858,000 | 162,260,000 | 84,402,000 | 48.0% | 646,777,000 | 13.0% |
| 2019 | 73,706,000 | 168,837,000 | 95,131,000 | 43.7% | 692,151,000 | 13.7% |

*Amounts for January 1, 2018 and earlier were calculated by the prior actuary.*

These liabilities represent solely the value of the explicit benefit, without regard to the implicit rate subsidy. The explicit benefit is valued in compliance with all the parameters established by GASB Statements No. 74 and No. 75. The value of any implicit rate subsidy in the city-sponsored health plans will be illustrated in the separate disclosures related to those plans.

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# Statistical Section

This section of the Plan's comprehensive annual financial report presents detailed information to assist the reader in understanding what the information in the financial statements, note disclosures, and required supplementary information indicate about the Plan's overall financial status.

**Changes in Fiduciary Net Position**
Last Ten Fiscal Years

| | 2010 | | 2011 | | 2012 | | 2013 | |
|---|---|---|---|---|---|---|---|---|
| **Pension Benefits** | | | | | | | | |
| Additions: | | | | | | | | |
| Member contributions (1) | $ 21,139,754 | (2) | $ 26,110,772 | (3) | $ 30,663,247 | (4) | $ 37,138,512 | (5) |
| Employer contributions (1) | 42,228,203 | | 45,703,351 | | 49,756,639 | | 56,427,308 | |
| Investment earnings (net of expenses) | 217,566,113 | | (2,396,020) | | 205,809,820 | | 318,274,197 | |
| Total additions to fiduciary net position | 280,934,070 | | 69,418,103 | | 286,229,706 | | 411,840,017 | |
| Deductions: | | | | | | | | |
| Benefit payments | 137,392,322 | | 142,108,250 | | 149,470,854 | | 158,285,769 | |
| Refunds | 666,009 | | 948,969 | | 947,756 | | 1,051,298 | |
| Administrative expenses | 2,555,677 | | 2,883,909 | | 3,334,741 | | 3,597,603 | |
| Total deductions from fiduciary net position | 140,614,008 | | 145,941,128 | | 153,753,351 | | 162,934,670 | |
| Change in fiduciary net position | $ 140,320,062 | | $ (76,523,025) | | $ 132,476,355 | | $ 248,905,347 | |
| **Health Benefits** | | | | | | | | |
| Additions: | | | | | | | | |
| Member contributions (1) | $ 1,950,508 | | $ 2,329,357 | | $ 2,492,678 | | $ 2,543,374 | |
| Employer contributions (1) | 2,924,858 | | 4,202,033 | | 4,241,292 | | 4,135,064 | |
| Investment earnings (net of expenses) | 9,714,426 | | (42,792) | | 8,635,748 | | 12,911,917 | |
| Total additions to fiduciary net position | 14,589,792 | | 6,488,598 | | 15,369,718 | | 19,590,355 | |
| Deductions: | | | | | | | | |
| Benefit payments | 11,708,006 | | 12,471,835 | | 12,446,444 | | 12,582,751 | |
| Refunds | 30,120 | | 41,255 | | 39,653 | | 42,505 | |
| Administrative expenses | 115,362 | | 125,390 | | 139,510 | | 145,169 | |
| Total deductions from fiduciary net position | 11,853,488 | | 12,638,480 | | 12,625,607 | | 12,770,425 | |
| Change in fiduciary net position | $ 2,736,304 | | $ (6,149,882) | | $ 2,744,111 | | $ 6,819,930 | |

(1) Employer and employee contributions are made in accordance with rates set by City ordinance. The contribution rate has been actuarially determined by an independent actuary to be sufficient to accumulate assets necessary to pay the actuarial liability when due.

(2) Effective January 1, 2010, the employee contribution increased to 4.5%.

(3) Effective January 1, 2011, the employer and employee contributions increased to 9.5% and 5.5%, respectively.

(4) Effective January 1, 2012, the employer and employee contributions increased to 10.25% and 6.25%, respectively.

(5) Effective January 1, 2013, the employer and employee contributions increased to 11.00% and 7.00%, respectively.

(6) Effective January 1, 2014, the employer and employee contributions increased to 11.20% and 7.30%, respectively.

(7) Effective January 1, 2015, the employer and employee contributions increased to 11.20% and 8.00%, respectively.

(8) Effective January 1, 2018, the employer and employee contributions increased to 12.50% and 8.00%, respectively.

(9) Effective January 1, 2019, the employer and employee contributions increased to 13.50% and 8.50%, respectively.

| 2014 | | 2015 | | 2016 | 2017 | 2018 | | 2019 | |
|---|---|---|---|---|---|---|---|---|---|
| $ 39,521,451 | (6) | $ 46,689,696 | (7) | $ 48,037,800 | $ 50,599,952 | $ 52,700,679 | (8) | $ 60,074,876 | (9) |
| 59,941,041 | | 67,234,597 | | 68,794,871 | 71,731,309 | 81,719,744 | | 87,464,822 | |
| 101,595,703 | | (35,746,029) | | 147,443,477 | 302,942,063 | (73,146,389) | | 284,110,225 | |
| 201,058,195 | | 78,178,264 | | 264,276,148 | 425,273,324 | 61,274,034 | | 431,649,923 | |
| | | | | | | | | | |
| 171,178,475 | | 181,827,975 | | 191,790,600 | 204,064,502 | 215,658,138 | | 226,412,949 | |
| 1,507,554 | | 2,164,104 | | 2,751,016 | 3,547,888 | 4,348,592 | | 5,309,546 | |
| 3,638,296 | | 3,785,416 | | 3,742,451 | 3,899,901 | 4,016,288 | | 4,123,494 | |
| 176,324,325 | | 187,777,495 | | 198,284,067 | 211,512,291 | 224,023,018 | | 235,845,989 | |
| $ 24,733,870 | | $ (109,599,231) | | $ 65,992,081 | $ 213,761,033 | $ (162,748,984) | | 195,803,934 | |
| | | | | | | | | | |
| $ 2,725,316 | | $ 3,026,103 | | $ 3,012,052 | $ 3,005,989 | $ 3,132,783 | | $ 3,310,427 | |
| 4,332,376 | | 4,380,107 | | 4,364,140 | 4,367,474 | 4,952,754 | | 5,084,799 | |
| 3,966,864 | | (1,308,528) | | 5,225,319 | 10,422,137 | (2,364,015) | | 9,185,163 | |
| 11,024,556 | | 6,097,682 | | 12,601,511 | 17,795,600 | 5,721,522 | | 17,580,389 | |
| | | | | | | | | | |
| 12,846,786 | | 12,905,247 | | 12,859,361 | 13,049,162 | 12,905,976 | | 12,951,302 | |
| 58,314 | | 80,925 | | 98,273 | 121,860 | 144,189 | | 171,219 | |
| 140,710 | | 141,296 | | 133,511 | 133,959 | 133,128 | | 133,008 | |
| 13,045,810 | | 13,127,468 | | 13,091,145 | 13,304,981 | 13,183,293 | | 13,255,529 | |
| $ (2,021,254) | | $ (7,029,786) | | $ (489,634) | $ 4,490,619 | $ (7,461,771) | | $ 4,324,860 | |

**Schedule of Benefit Expenses by Type**

Last Ten Fiscal Years

| | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|
| Age and Service Benefits: | | | | |
| Retirees | $114,044,816 | $119,878,934 | $127,091,564 | $135,648,423 |
| Survivor | $5,415,206 | $5,879,654 | $6,126,099 | $6,619,661 |
| Death in Service Benefits | $3,636,127 | $3,659,245 | $3,736,130 | $3,781,917 |
| Disability Benefits: | | | | |
| Retirees: | | | | |
| On-the-Job | $769,792 | $818,527 | $869,781 | $826,071 |
| Off-the-Job | $3,712,434 | $3,888,218 | $3,854,524 | $3,940,566 |
| Survivors | $1,124,708 | $1,122,643 | $1,238,793 | $1,309,114 |
| Lump Sum Death Benefits | $1,376,342 | $1,508,915 | $1,315,428 | $1,350,159 |
| Pension Benefits' Contribution Refunds | | | | |
| Separation | $591,480 | $911,074 | $941,408 | $1,051,298 |
| Death | $74,529 | $37,895 | $6,348 | $0 |
| Health Benefits' Contribution Refunds | | | | |
| Separation | $26,749 | $39,608 | $39,387 | $42,505 |
| Death | $3,371 | $1,647 | $266 | $0 |
| DROP Benefits | $7,312,897 | $5,352,114 | $5,238,535 | $4,809,858 |
| Pension Benefits | $130,079,425 | $136,756,136 | $144,232,319 | $153,475,911 |
| Health Benefits | $11,708,006 | $12,471,835 | $12,446,444 | $12,582,751 |

| 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|---|
| $146,505,901 | $156,519,225 | $165,246,685 | $175,893,605 | $185,677,299 | $195,391,329 |
| $7,274,571 | $7,755,324 | $8,482,372 | $9,001,245 | $9,413,449 | $10,222,475 |
| $3,965,980 | $4,054,992 | $4,135,128 | $4,248,073 | $4,320,956 | $4,392,797 |
| $844,509 | $879,295 | $917,075 | $913,151 | $1,003,139 | $926,796 |
| $4,018,848 | $3,977,212 | $4,122,190 | $4,019,183 | $3,936,770 | $3,925,053 |
| $1,433,661 | $1,535,422 | $1,569,064 | $1,615,969 | $1,698,309 | $1,805,386 |
| $1,415,762 | $1,324,545 | $1,615,976 | $1,561,969 | $1,466,130 | $1,459,441 |
| $1,507,554 | $2,162,575 | $2,671,771 | $3,434,692 | $4,226,993 | $5,178,686 |
| $0 | $1,529 | $2,616 | $17,882 | $3,892 | $0 |
| $58,314 | $80,868 | $174,731 | $216,049 | $261,655 | $302,079 |
| $0 | $57 | $171 | $1,125 | $241 | $0 |
| $5,719,243 | $5,781,960 | $5,702,111 | $6,811,306 | $8,142,084 | $8,289,671 |
| $165,459,232 | $176,046,015 | $186,088,490 | $197,253,196 | $207,516,054 | $218,123,278 |
| $12,846,786 | $12,905,247 | $12,859,360 | $13,049,162 | $12,905,976 | $12,951,302 |

## Schedule of Retired Members by Type of Benefit - Pension

December 31, 2019

| Amount of Monthly Benefit | Number of Retirees | Type of Retirement* | | | | | | | Option Selected** | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 1 | 2 | 3 | 4 |
| $1- 50 | 68 | 64 | 4 | — | — | — | — | — | 67 | — | 1 | — |
| 51- 100 | 100 | 68 | 11 | — | — | 8 | 13 | — | 68 | 25 | 3 | 4 |
| 101- 150 | 233 | 177 | 21 | 1 | — | 11 | 23 | — | 125 | 90 | 6 | 12 |
| 151- 200 | 271 | 208 | 24 | — | — | 11 | 25 | 3 | 149 | 93 | 7 | 22 |
| 201- 250 | 294 | 215 | 40 | — | — | 14 | 25 | — | 156 | 103 | 11 | 24 |
| 251- 300 | 296 | 212 | 38 | — | 2 | 17 | 25 | 2 | 171 | 102 | 7 | 16 |
| 301- 350 | 295 | 181 | 39 | — | 3 | 30 | 36 | 6 | 163 | 93 | 15 | 24 |
| 351- 400 | 228 | 154 | 32 | 1 | 7 | 17 | 14 | 3 | 130 | 70 | 12 | 16 |
| 401- 450 | 241 | 166 | 33 | — | 6 | 16 | 14 | 6 | 134 | 66 | 10 | 31 |
| 451- 500 | 240 | 148 | 36 | 1 | 10 | 17 | 23 | 5 | 131 | 75 | 14 | 20 |
| 501- 600 | 444 | 240 | 91 | 2 | 19 | 27 | 50 | 15 | 222 | 146 | 24 | 52 |
| 601- 700 | 375 | 229 | 50 | 1 | 19 | 20 | 44 | 12 | 202 | 101 | 26 | 46 |
| 701- 800 | 342 | 193 | 49 | 2 | 24 | 16 | 43 | 15 | 163 | 110 | 28 | 41 |
| 801- 900 | 309 | 192 | 46 | 2 | 12 | 21 | 28 | 8 | 152 | 99 | 21 | 37 |
| 901- 1,000 | 295 | 198 | 23 | 2 | 18 | 13 | 29 | 12 | 150 | 88 | 24 | 33 |
| 1,001-1,100 | 311 | 203 | 31 | 1 | 11 | 14 | 40 | 11 | 150 | 93 | 27 | 41 |
| 1,101-1,200 | 300 | 198 | 25 | 1 | 15 | 11 | 36 | 14 | 135 | 100 | 26 | 39 |
| 1,201-1,300 | 289 | 200 | 19 | 3 | 8 | 14 | 38 | 7 | 147 | 76 | 24 | 42 |
| 1,301-1,400 | 250 | 190 | 9 | 3 | 9 | 5 | 27 | 7 | 131 | 63 | 27 | 29 |
| 1,401-1,500 | 250 | 188 | 11 | 1 | 11 | 13 | 22 | 4 | 133 | 63 | 21 | 33 |
| 1,501-1,600 | 260 | 209 | 9 | 3 | 9 | 11 | 19 | — | 149 | 60 | 28 | 23 |
| 1,601-1,700 | 232 | 190 | 4 | 2 | 9 | 9 | 14 | 4 | 135 | 45 | 21 | 31 |
| 1,701-1,800 | 217 | 174 | 3 | — | 11 | 11 | 16 | 2 | 122 | 43 | 21 | 31 |
| 1,801-1,900 | 240 | 213 | 4 | 1 | 6 | 4 | 11 | 1 | 124 | 51 | 27 | 38 |
| 1,901-2,000 | 217 | 190 | 3 | — | 5 | 6 | 11 | 2 | 107 | 54 | 16 | 40 |
| 2,001-2,500 | 922 | 806 | 11 | 4 | 22 | 21 | 49 | 9 | 441 | 256 | 88 | 137 |
| 2,501-3,000 | 737 | 682 | 4 | 5 | 9 | 6 | 30 | 1 | 336 | 198 | 69 | 134 |
| 3,001-3,500 | 559 | 523 | — | 5 | 5 | 8 | 16 | 2 | 238 | 154 | 63 | 104 |
| 3,501-4,000 | 369 | 351 | 2 | — | 2 | 2 | 12 | — | 157 | 103 | 37 | 72 |
| 4,001-4,500 | 269 | 256 | — | — | 1 | 4 | 8 | — | 119 | 69 | 21 | 60 |
| 4,501-5,000 | 201 | 192 | 1 | — | — | 2 | 6 | — | 101 | 54 | 18 | 28 |
| 5,001-5,500 | 131 | 125 | — | 1 | 1 | 1 | 3 | — | 49 | 46 | 14 | 22 |
| 5,501-6,000 | 93 | 87 | — | 1 | — | 3 | 2 | — | 38 | 34 | 7 | 14 |
| 6,001-6,500 | 54 | 54 | — | — | — | — | — | — | 30 | 14 | 2 | 8 |
| 6,501-7,000 | 57 | 52 | — | — | 1 | 1 | 3 | — | 19 | 25 | 2 | 11 |
| 7,001-7,500 | 40 | 38 | — | — | — | 1 | 1 | — | 14 | 12 | 5 | 9 |
| 7,501-8,000 | 23 | 22 | — | — | — | — | — | 1 | 8 | 7 | 2 | 6 |
| 8,001-8,500 | 17 | 17 | — | — | — | — | — | — | 5 | 6 | 2 | 4 |
| $8,501- over | 68 | 58 | — | — | 3 | 2 | 4 | 1 | 18 | 25 | 11 | 14 |
| Totals | 10,137 | 7,863 | 673 | 43 | 258 | 387 | 760 | 153 | 5,089 | 2,912 | 788 | 1,348 |

* Type of Retirement:
1. Normal Retirement for Age and Service
2. Early Retirement
3. Disability – On-the-Job
4. Disability – Off-the-Job
5. Survivor Payment – Death in Service
6. Survivor Payment – Normal or Early Retirement
7. Survivor Payment – Disability Retirement

**Option Selected:
1. Life
2. 100% Joint and Survivor
3. 75% Joint and Survivor
4. 50% Joint and Survivor

**Schedule of Retired Members by Type of Benefit - Health Insurance Reduction**

December 31, 2019

| [(1)] Non Medicare-eligible | | [(2)] Medicare-eligible | |
|---|---|---|---|
| **Amount of Reduction Eligible to Receive** | **Number of Retirees** | **Amount of Reduction Eligible to Receive** | **Number of Retirees** |
| $12.50 - 50.00 | 83 | $6.25 - 50.00 | 563 |
| 51.00 - 100.00 | 275 | 51.00 - 100.00 | 1,316 |
| 101.00 - 150.00 | 268 | 101.00 - 150.00 | 1,285 |
| 151.00 - 200.00 | 203 | 151.00 - 200.00 | 1,106 |
| 201.00 - 250.00 | 214 | 201.00 - 250.00 | 481 |
| 251.00 - 300.00 | 196 | 251.00 - 300.00 | 82 |
| 301.00 - 350.00 | 221 | 301.00 - 350.00 | 35 |
| 351.00 - 400.00 | 206 | 351.00 - 400.00 | 18 |
| 401.00 - 450.00 | 164 | 401.00 - 450.00 | 9 |
| 451.00 - 500.00 | 38 | 451.00 - 500.00 | 4 |
| 501.00 - 550.00 | 9 | 501.00 - 550.00 | 1 |
| 551.00 - 600.00 | 4 | 551.00 - 600.00 | 1 |
| 601.00 - 650.00 | 3 | 601.00 - 650.00 | 2 |
| 651.00 - 700.00 | — | 651.00 - 700.00 | — |
| 701.00 - 750.00 | — | 701.00 - 750.00 | — |
| 751.00 - 800.00 | 1 | 751.00 - 800.00 | 1 |
| $801.00 - over | 1 | $801.00 - over | — |
| Total | 1,886 | Total | 4,904 |

Type of Benefit:

[(1)] Participants who are not Medicare-eligible are eligible for health/dental insurance premium reduction equal to $12.50 per month for each year of service.

[(2)] Participants who are Medicare-eligible are eligible for health/dental insurance premium reduction equal to $6.25 per month for each year of service.

Note: In some instances, the years of service of spouses may have been combined when determining the amount of benefit.

**Schedule of Retired Members by Attained Age and Type of Pension Benefit**
December 31, 2019

| Age | Number of Retirees/ Beneficiary | Type of Retirement* 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|---|
| 0-24 | 44 | — | — | — | 4 | 35 | 4 | 1 |
| 25-29 | 16 | — | — | — | — | 2 | 5 | 9 |
| 30-34 | 9 | — | — | — | 1 | 3 | 2 | 3 |
| 35-39 | 24 | — | — | — | — | 14 | 8 | 2 |
| 40-44 | 25 | — | — | — | 1 | 12 | 6 | 6 |
| 45-49 | 44 | — | — | — | 9 | 16 | 12 | 7 |
| 50-54 | 68 | 4 | — | — | 17 | 29 | 14 | 4 |
| 55-59 | 997 | 850 | 37 | 3 | 31 | 44 | 26 | 6 |
| 60-64 | 1,703 | 1,409 | 91 | 7 | 58 | 58 | 62 | 18 |
| 65-69 | 2,337 | 1,981 | 121 | 18 | 50 | 60 | 88 | 19 |
| 70-74 | 2,013 | 1,632 | 151 | 5 | 50 | 47 | 106 | 22 |
| 75-79 | 1,194 | 884 | 111 | 1 | 24 | 24 | 126 | 24 |
| 80-84 | 792 | 549 | 81 | 5 | 6 | 17 | 118 | 16 |
| 85-89 | 507 | 338 | 37 | 4 | 6 | 13 | 98 | 11 |
| 90-94 | 249 | 164 | 16 | — | 1 | 5 | 59 | 4 |
| 95 and up | 115 | 52 | 28 | — | — | 8 | 26 | 1 |
| Totals | 10,137 | 7,863 | 673 | 43 | 258 | 387 | 760 | 153 |

*Type of Retirement:
1. Normal Retirement for Age and Service
2. Early Retirement
3. Disability – On-the-Job
4. Disability – Off-the-Job
5. Survivor Payment – Death in Service
6. Survivor Payment – Normal or Early Retirement
7. Survivor Payment – Disability Retirement

## Average Monthly Benefit Payment – Pension

Last Ten Fiscal Years

| Retirement Effective Date for the Years Ended December 31: | Years of Credited Service 0-5 | 6-10 | 11-15 | 16-20 | 21-25 | 26-30 | 31+ | Total |
|---|---|---|---|---|---|---|---|---|
| 2010 | | | | | | | | |
| Average Monthly Benefit | $211.53 | $369.70 | $979.86 | $1,527.63 | $2,163.74 | $2,606.62 | $3,138.77 | $1,569.19 |
| Mean Final Average Monthly Salary | $3,293.07 | $3,738.27 | $5,649.60 | $5,459.85 | $5,761.51 | $5,114.12 | $5,862.78 | $5,152.88 |
| Number of Retirees | 5 | 72 | 63 | 74 | 40 | 33 | 48 | 335 |
| 2011 | | | | | | | | |
| Average Monthly Benefit | $296.19 | $500.13 | $1,078.70 | $1,848.95 | $2,506.49 | $3,229.10 | $3,896.81 | $1,908.05 |
| Mean Final Average Monthly Salary | $4,168.30 | $4,069.33 | $5,078.96 | $5,671.69 | $6,024.76 | $5,987.34 | $5,877.89 | $5,268.32 |
| Number of Retirees | 40 | 74 | 66 | 90 | 44 | 43 | 55 | 412 |
| 2012 | | | | | | | | |
| Average Monthly Benefit | $547.95 | $447.11 | $1,083.12 | $1,871.72 | $2,482.05 | $3,215.24 | $4,364.42 | $2,001.66 |
| Mean Final Average Monthly Salary | $6,647.48 | $3,884.74 | $5,068.86 | $5,761.95 | $5,797.04 | $6,102.37 | $6,753.19 | $5,716.52 |
| Number of Retirees | 34 | 101 | 104 | 78 | 61 | 37 | 52 | 467 |
| 2013 | | | | | | | | |
| Average Monthly Benefit | $291.11 | $407.63 | $1,091.12 | $1,943.89 | $2,882.70 | $3,867.46 | $4,470.81 | $2,136.39 |
| Mean Final Average Monthly Salary | $4,208.28 | $3,809.74 | $4,983.96 | $5,834.63 | $6,815.54 | $7,356.09 | $6,845.95 | $5,693.45 |
| Number of Retirees | 29 | 91 | 87 | 103 | 85 | 55 | 63 | 513 |
| 2014 | | | | | | | | |
| Average Monthly Benefit | $236.76 | $457.19 | $1,130.46 | $2,076.25 | $3,135.95 | $3,815.05 | $4,512.90 | $2,194.94 |
| Mean Final Average Monthly Salary | $3,461.08 | $4,024.75 | $5,225.31 | $6,393.35 | $6,795.95 | $7,206.76 | $6,749.41 | $5,693.80 |
| Number of Retirees | 36 | 126 | 79 | 92 | 72 | 54 | 55 | 514 |
| 2015 | | | | | | | | |
| Average Monthly Benefit | $321.79 | $535.69 | $1,172.21 | $2,366.45 | $2,919.18 | $3,513.48 | $4,821.40 | $2,235.74 |
| Mean Final Average Monthly Salary | $4,214.31 | $4,311.94 | $5,332.13 | $6,817.83 | $6,363.86 | $6,703.53 | $7,400.13 | $5,877.68 |
| Number of Retirees | 24 | 96 | 100 | 79 | 80 | 63 | 57 | 499 |
| 2016 | | | | | | | | |
| Average Monthly Benefit | $266.14 | $507.61 | $937.86 | $2,092.13 | $3,076.03 | $3,923.10 | $4,913.50 | $2,245.20 |
| Mean Final Average Monthly Salary | $3,592.82 | $4,238.98 | $4,429.35 | $6,410.25 | $6,517.95 | $7,019.04 | $7,287.40 | $5,642.26 |
| Number of Retirees | 33 | 81 | 66 | 93 | 87 | 58 | 41 | 459 |
| 2017 | | | | | | | | |
| Average Monthly Benefit | $307.87 | $614.46 | $970.75 | $2,185.44 | $3,034.32 | $3,940.37 | $5,282.81 | $2,333.72 |
| Mean Final Average Monthly Salary | $4,056.40 | $4,695.63 | $4,610.13 | $6,591.06 | $6,936.58 | $7,615.46 | $8,152.56 | $6,093.97 |
| Number of Retirees | 29 | 100 | 71 | 106 | 81 | 64 | 80 | 531 |
| 2018 | | | | | | | | |
| Average Monthly Benefit | $303.61 | $571.19 | $1,171.03 | $2,088.90 | $2,972.35 | $4,651.16 | $4,937.44 | $2,385.10 |
| Mean Final Average Monthly Salary | $4,031.18 | $4,366.05 | $5,876.33 | $6,159.74 | $6,597.69 | $8,893.55 | $7,809.30 | $6,247.69 |
| Number of Retirees | 35 | 101 | 67 | 82 | 69 | 66 | 61 | 481 |
| 2019 | | | | | | | | |
| Average Monthly Benefit | $309.63 | $566.25 | $1,161.47 | $2,385.78 | $3,199.41 | $4,016.27 | $5,850.66 | $2,498.49 |
| Mean Final Average Monthly Salary | $4,124.93 | $4,452.82 | $5,780.38 | $6,867.69 | $7,234.90 | $7,563.72 | $8,462.15 | $6,355.23 |
| Number of Retirees | 36 | 77 | 87 | 82 | 55 | 56 | 46 | 439 |

**Average Monthly Benefit Payment – Health Insurance Reduction**
Last Ten Fiscal Years

| As of December 31: | 1-5 | 6-10 | 11-15 | 16-20 | 21-25 | 26-30 | 31+ | Total |
|---|---|---|---|---|---|---|---|---|
| | Years of Credited Service | | | | | | | |
| 2010 | | | | | | | | |
| Total Eligible Reduction Amount | $3,506 | $34,006 | $75,925 | $157,556 | $209,787 | $252,344 | $377,131 | $1,110,255 |
| Average Monthly Benefit Paid | $36.91 | $69.97 | $110.20 | $164.12 | $206.48 | $255.41 | $336.12 | $207.29 |
| Number of Retirees | 95 | 486 | 689 | 960 | 1,016 | 988 | 1,122 | 5,356 |
| 2011 | | | | | | | | |
| Total Eligible Reduction Amount | $4,666 | $31,748 | $72,015 | $157,243 | $200,803 | $262,652 | $313,342 | $1,042,469 |
| Average Monthly Benefit Paid | $36.45 | $62.25 | $93.77 | $151.05 | $192.34 | $246.39 | $313.97 | $187.66 |
| Number of Retirees | 128 | 510 | 768 | 1,041 | 1,044 | 1,066 | 998 | 5,555 |
| 2012 | | | | | | | | |
| Total Eligible Reduction Amount | $4,844 | $32,767 | $76,100 | $161,844 | $209,974 | $266,394 | $328,562 | $1,080,485 |
| Average Monthly Benefit Paid | $36.97 | $61.36 | $92.24 | $147.27 | $188.32 | $241.08 | $309.96 | $184.10 |
| Number of Retirees | 131 | 534 | 825 | 1,099 | 1,115 | 1,105 | 1,060 | 5,869 |
| 2013 | | | | | | | | |
| Total Eligible Reduction Amount | $5,087 | $33,201 | $78,183 | $165,711 | $215,607 | $267,749 | $336,423 | $1,101,961 |
| Average Monthly Benefit Paid | $37.40 | $60.70 | $91.98 | $144.60 | $184.44 | $235.90 | $305.01 | $181.06 |
| Number of Retirees | 136 | 547 | 850 | 1,146 | 1,169 | 1,135 | 1,103 | 6,086 |
| 2014 | | | | | | | | |
| Total Eligible Reduction Amount | $5,480 | $34,538 | $79,741 | $166,663 | $214,240 | $267,382 | $341,055 | $1,109,099 |
| Average Monthly Benefit Paid | $38.05 | $60.17 | $90.31 | $139.35 | $177.79 | $229.12 | $300.22 | $175.91 |
| Number of Retirees | 144 | 574 | 883 | 1,196 | 1,205 | 1,167 | 1,136 | 6,305 |
| 2015 | | | | | | | | |
| Total Eligible Reduction Amount | $5,678 | $36,043 | $81,626 | $168,578 | $214,335 | $266,580 | $343,191 | $1,116,031 |
| Average Monthly Benefit Paid | $37.85 | $60.37 | $89.01 | $134.86 | $172.71 | $223.27 | $292.83 | $171.14 |
| Number of Retirees | 150 | 597 | 917 | 1,250 | 1,241 | 1,194 | 1,172 | 6,521 |
| 2016 | | | | | | | | |
| Total Eligible Reduction Amount | $5,819 | $36,470 | $81,645 | $169,996 | $218,241 | $267,517 | $338,370 | $1,118,058 |
| Average Monthly Benefit Paid | $37.79 | $59.11 | $88.74 | $132.50 | $169.44 | $218.38 | $283.63 | $167.37 |
| Number of Retirees | 154 | 617 | 920 | 1,283 | 1,288 | 1,225 | 1,193 | 6,680 |
| 2017 | | | | | | | | |
| Total Eligible Reduction Amount | $6,116 | $35,569 | $79,516 | $164,180 | $208,031 | $257,991 | $326,844 | $1,078,246 |
| Average Monthly Benefit Paid | $38.23 | $59.18 | $88.55 | $130.20 | $166.03 | $215.53 | $277.69 | $164.69 |
| Number of Retirees | 160 | 601 | 898 | 1,261 | 1,253 | 1,197 | 1,177 | 6,547 |
| 2018 | | | | | | | | |
| Total Eligible Reduction Amount | $6,096 | $38,087 | $80,149 | $173,116 | $221,294 | $275,969 | $347,532 | $1,142,244 |
| Average Monthly Benefit Paid | $36.95 | $58.15 | $84.81 | $126.36 | $164.16 | $214.10 | $270.24 | $161.84 |
| Number of Retirees | 165 | 655 | 945 | 1,370 | 1,348 | 1,289 | 1,286 | 7,058 |
| 2019 | | | | | | | | |
| Total Eligible Reduction Amount | $6,098 | $38,623 | $80,951 | $170,221 | $218,729 | $271,553 | $337,494 | $1,123,669 |
| Average Monthly Benefit Paid | $37.18 | $57.05 | $84.32 | $123.89 | $159.31 | $207.45 | $257.43 | $156.76 |
| Number of Retirees | 164 | 677 | 960 | 1,374 | 1,373 | 1,309 | 1,311 | 7,168 |

**Principal Participating Employers**
Current Year and Nine Years Ago

| | 2019 | | | 2010 | | |
|---|---|---|---|---|---|---|
| | Covered Employees | Rank | Percentage of Total System | Covered Employees | Rank | Percentage of Total System |
| **Pension Benefits** | | | | | | |
| Participating Government: | | | | | | |
| City and County of Denver | 25,634 | 1 | 94.8 % | 17,702 | 1 | 91.5 % |
| Denver Health and Hospital Authority | 1,394 | 2 | 5.2 % | 1,650 | 2 | 8.5 % |
| Total | 27,028 | | 100.0 % | 19,352 | | 100.0 % |
| **Health Benefits** | | | | | | |
| Participating Government: | | | | | | |
| City and County of Denver | 25,634 | 1 | 94.8 % | 17,702 | 1 | 91.5 % |
| Denver Health and Hospital Authority | 1,394 | 2 | 5.2 % | 1,650 | 2 | 8.5 % |
| Total | 27,028 | | 100.0 % | 19,352 | | 100.0 % |

**Location of Plan Retirees**

Total Number of Retirees – 10,137



| Other Countries and Territories | |
|---|---|
| Australia | 1 |
| Canada | 2 |
| Costa Rica | 3 |
| Germany | 1 |
| Israel | 3 |
| Italy | 1 |
| Mexico | 4 |
| New Zealand | 1 |
| United Kingdom | 2 |

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**303-839-5419**
**www.derp.org**
**mbrsvs@derp.org**

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