

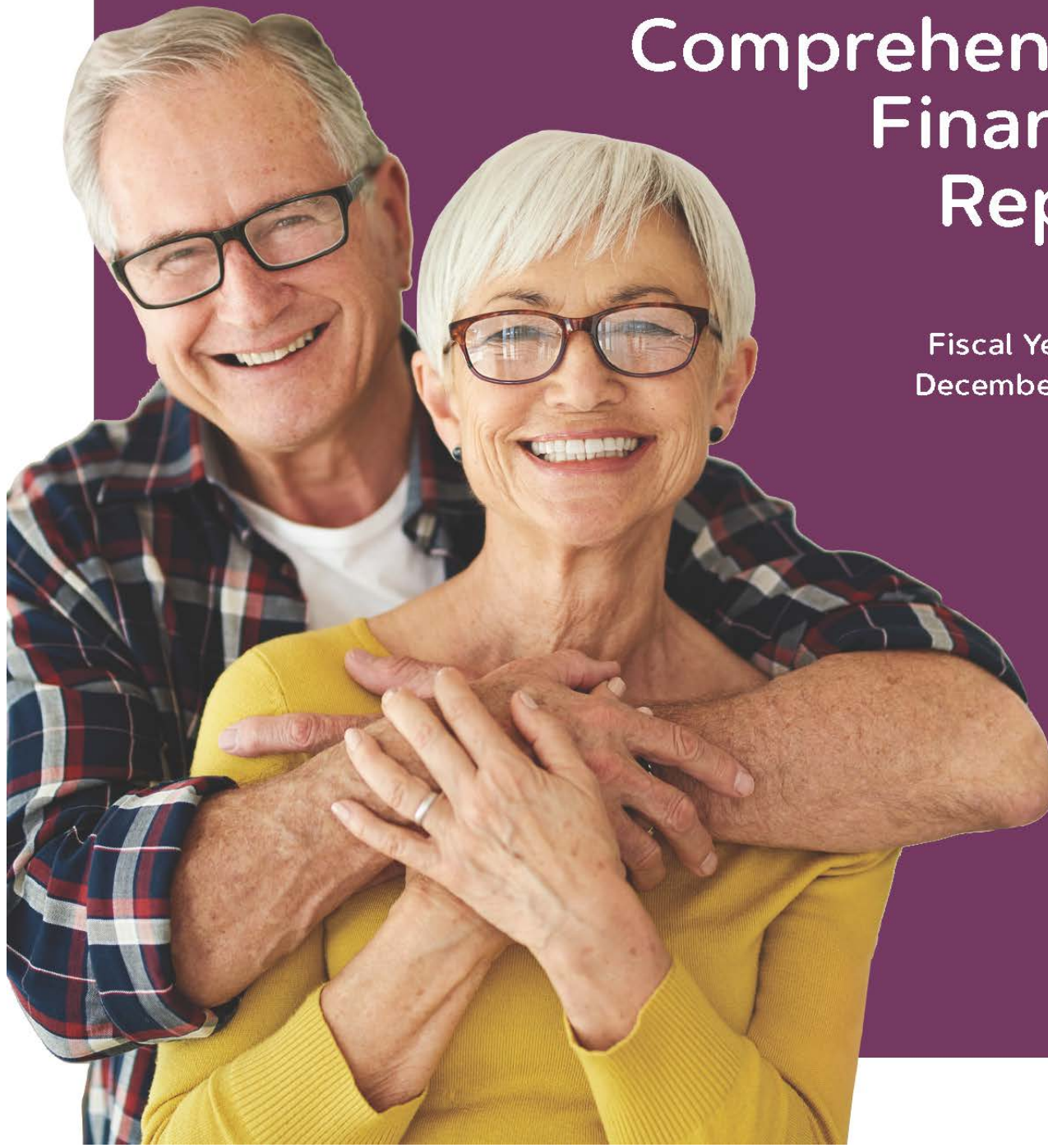
DERP

Denver Employees
Retirement Plan

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

Annual Comprehensive Financial Report

Fiscal Year Ended
December 31, 2021





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

Annual Comprehensive Financial Report

Fiscal Year Ended December 31, 2021

Maurice Goodgaine
Retirement Board Chair

Heather K. Darlington, CPA
Executive Director

Prepared by the Denver Employees Retirement Plan Staff

Available online at [DERP.org](https://www.derp.org)

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Introductory Section

Primary Sponsor

City and County of Denver, Colorado

Elected Officials

Honorable Michael B. Hancock
Mayor

Honorable Paul D. López
Clerk and Recorder

Honorable Timothy M. O'Brien, CPA
Auditor

City Council

Honorable Amanda P. Sandoval
District 1

Honorable Christopher Herndon
District 8

Honorable Kevin Flynn
District 2

Honorable Candi CdeBaca
District 9

Honorable Jamie Torres
District 3

Honorable Chris Hinds
District 10

Honorable Kendra Black
District 4

Honorable Stacie Gilmore
District 11

Honorable Amanda Sawyer
District 5

Honorable Robin Kniech
Council Member at-Large

Honorable Paul Kashmann
District 6

Honorable Deborah Ortega
Council Member at-Large

Honorable Jolon Clark
District 7



June 8, 2022

Dear Members of the Denver Employees Retirement Plan:

We are pleased to present the Annual Comprehensive Financial Report (ACFR) of the Denver Employees Retirement Plan (DERP) of the City and County of Denver (city) for the fiscal year ended December 31, 2021.

Annual Comprehensive Financial Report This report is an overview intended to give the reader reliable and useful information which describes the financial position of DERP and provides assurance DERP is in compliance with applicable legal provisions. DERP'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 DERP as of December 31, 2021, as well as the changes in fiduciary net position for the year.

Internal Control DERP 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 DERP 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 DERP's 2021 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 DERP 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 the MD&A and should be read in conjunction. DERP's MD&A can be found immediately following the report of the independent auditors in this report's Financial Section.

DERP Profile DERP 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 DERP staff are covered by DERP. Excluded from membership are the uniformed employees of the city's police and fire departments and the Denver Water Board employees. All active members are required to contribute to Social Security while employed. As of December 31, 2021, there were 8,751 active and 10,690 retired DERP members.

DERP is governed by a five member retirement 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 DERP membership for staggered three-year terms and one member is appointed by the city's Career Service Board.

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

DERP 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. DERP also provides disability and death benefits. With respect to other post-retirement benefits, DERP 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, DERP 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. DERP'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 DERP follows a strategic asset allocation ensuring investments are diversified. The goal of the asset allocation is to provide the highest level of return at an acceptable level of risk. During 2021, the investment portfolio generated a 17.1% net of fee return. These results compare favorably with the 14.1% return of the fund policy index and the 14.2% median return of our peers. Over the last 10 years, the DERP portfolio has earned a net annual return of 8.9%, which lagged our peers and our blended benchmark returns of 9.4% and 9.2% respectively.

Funded Status DERP'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 DERP's staff remain committed to managing DERP's assets and liabilities to maintain the long-term financial soundness of DERP 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, 2021 was 60.3%. DERP continues to work successfully with the city to annually receive the full amount of the actuarially required contribution necessary to achieve DERP's funding goals. Additional information regarding DERP'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 DERP for its ACFR for the fiscal year ended December 31, 2020. 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. DERP has received a Certificate of Achievement for 32 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.

Furthermore, the GFOA has given an Award for Outstanding Achievement in Popular Annual Financial Reporting to DERP for its Popular Annual Financial Report for the fiscal year ended December 31, 2020. The Award for Outstanding Achievement in Popular Annual Financial Reporting is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government popular reports. In order to receive an Award for Outstanding Achievement in Popular Annual Financial Reporting, a government unit must publish a Popular Annual Financial Report, whose contents conform to program standards of creativity, presentation, understandability, and reader appeal. An Award for Outstanding Achievement in Popular Annual Financial Reporting is valid for a period of one year only. This is the second year DERP has received a Popular Award. We believe our current report continues to conform to the Popular Annual Financial Reporting requirements, and we are submitting it to GFOA to determine its eligibility for another Award.

Conclusion We express our appreciation to DERP staff who served the membership throughout 2021 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 DERP staff make toward the continued successful operation of DERP.

Sincerely,



Maurice Goodgaine
Retirement Board Chair



Heather K. Darlington, CPA
Executive Director

Retirement Board

The retirement board's role is to ensure DERP is appropriately governed and managed. The board acts as trustees for active members, retired members, and their beneficiaries and oversees the investment of assets, approves the operating budget, and sets policy. One member must be a vested, active employee and one must be a retired member.

Diane Barrett

Retired member

Term expires January 1, 2026

Guadalupe Gutierrez-Vasquez

Active member

Term expires January 1, 2027

George Delaney

Retired member

Term expires January 1, 2028

Lisa Zúñiga Ramirez, CFA

Term expires January 1, 2025

Maurice Goodgaine

Term expires January 1, 2023

Advisory Committee

The advisory committee consists of voluntary and unpaid non-voting members who are elected by membership to serve staggered 3-year terms. One seat is filled by a vested, active City and County of Denver (city) or Denver Health and Hospital Authority (DHHA) employee, one seat is filled by a retired member, and another seat is appointed by the Denver Career Service Board. The fourth seat can be filled by an active, vested city or DHHA employee or retired member. An election is held every spring to elect, or re-elect, a member. An advisory committee member represents city employees, DHHA covered employees, and DERP retired members and presents suggestions and questions to the DERP Retirement Board.

Heather Britton

Appointed by the Career Service Board

Term expires June 2023

Andrew Luxen

Active member

Term expires June 2023

Victoria Gallo

Retired member

Term expires June 2022

Joseph A. Margoshes

Active member

Term expires June 2022

Professional Services

Actuary

- Cheiron, Inc.

Custodian Bank

- Bank of New York Mellon Corporation

Independent Auditor

- CliftonLarsonAllen, LLP

Investment Consulting

- Meketa Investment Group

Investment Managers

Domestic Equity Managers

- Brown Advisory
- Eagle Capital Management
- Franklin Templeton
- Mellon Capital Management
- Neuberger Berman, LLC

International Equity Managers

- Altrinsic Global Advisors
- Dimensional Fund Advisors
- LSV Asset Management
- Mellon Capital Management
- WCM Investment Management

Fixed Income Managers

- Athyrium
- Bain Capital
- Colchester Global Investors Limited
- Davidson Kempner Capital Management, LP
- Golub Capital
- GSO Capital Partners, LP
- Mellon Capital Management
- Silver Rock Financial, LP

Real Estate Managers

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

Alternative Investment Managers

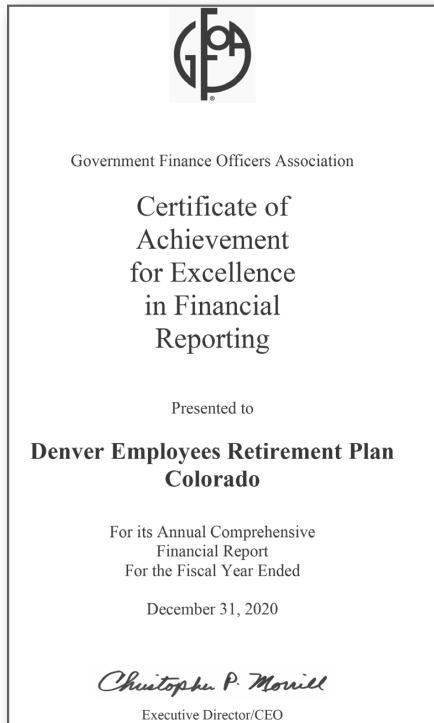
- Adams Street Partners, LLC
- EIG Global Energy Partners
- Hancock Timber Resource Group
- JP Morgan Private Equity Group
- Kayne Anderson Capaital Advisors
- Lime Rock Resources
- Tortoise Capital Advisors

Absolute Return Funds

- Alpstone Capital (Suisse) SA
- DG Partners
- Empyrean Capital Partners, LP
- PAAMCO Prisma
- Sculptor Capital, LP
- Southpoint Capital Advisors

Investment commissions and fees can be found on pages 60 - 61 in the Investment Section.

Certificate of Achievement for Excellence in Financial Reporting



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 Annual Report for the fiscal year ended December 31, 2020.

The Certificate of Achievement is the highest form of recognition for excellence in state or local government financial reporting. The Certification of Achievement Program was established to encourage municipal governments to publish high quality financial reports and to provide peer recognition and technical guidance for officials preparing these reports.

In order to be awarded a Certification of Achievement, a government unit must publish an easily-readable and efficiently-organized annual financial report, whose contents conform to program standards. Such reports should go beyond the minimum requirements of generally accepted accounting principles and demonstrate an effort to clearly communicate the municipal government's financial picture, enhance an understanding of financial reporting by municipal governments and address user needs. A Certification of Achievement is valid for a period of one year only.

Outstanding Achievement in Popular Annual Financial Reporting

The Government Finance Officers Association of the United States and Canada (GFOA) has given an Award for Outstanding Achievement in Popular Annual Financial Reporting to the Denver Employees Retirement Plan for its Popular Annual Financial Report for the fiscal year ended December 31, 2020. The Award for Outstanding Achievement in Popular Annual Financial Reporting is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government popular reports.

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

An Award of Outstanding Achievement in Popular Annual Financial Reporting is valid for a period of one year only. This is the second year the Denver Employees Retirement Plan has received a Popular Award. We believe our current report continues to conform to the Popular Annual Financial Reporting requirements, and we are submitting it to GFOA to determine its eligibility for another Award.



Financial Section



CliftonLarsonAllen LLP
CLAconnect.com

INDEPENDENT AUDITORS' REPORT

Retirement Board
Denver Employees Retirement Plan
Denver, Colorado

Report on the Audit of the Financial Statements

Opinion

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 net position, as of and for the year ended December 31, 2021, and the related notes to the financial statements, which collectively comprise the Plan's basic financial statements as listed in the table of contents.

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, 2021, and the respective changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditors' Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Plan and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for 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.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Plan's ability to continue as a going concern for 12 months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.



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Retirement Board
Denver Employees Retirement Plan

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit 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 Plan's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about Plan's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

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 is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which

Retirement Board
Denver Employees Retirement Plan

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.

Report on Summarized Comparative Information

We have previously audited the Plan's 2020 financial statements, and we expressed an unmodified audit opinion on those audited financial statements in our report dated June 11, 2021. In our opinion, the summarized comparative information presented herein as of and for the year ended December 31, 2020 is consistent, in all material respects, with the audited financial statements from which it has been derived.

Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the financial statements as a whole. The schedule of administrative expenses and the schedule of investment expenses are presented for purposes of additional analysis and is not a required part of the financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with GAAS. In our opinion, the information is fairly stated in all material respects in relation to the financial statements as a whole.

Other Information included in the Annual Report


Management is responsible for the other information included in the annual report. The other information comprises the introductory, investment, actuarial, and statical sections but does not include the basic financial statements and our auditors' report thereon. Our opinion on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Retirement Board
Denver Employees Retirement Plan

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated June 8, 2022, 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 results of that testing, and not to provide an opinion on the effectiveness of the Plan's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Plan's internal control over financial reporting and compliance.



CliftonLarsonAllen LLP

Denver, Colorado
June 8, 2022

This is an analysis and overview of the financial activities of the Denver Employees Retirement Plan (DERP) for the year ended December 31, 2021. 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, 2021, the fiduciary net position of \$2,749,753,003 was restricted for the payment of benefits and to meet DERP's future obligations to its members and their beneficiaries.

For 2021, DERP's total fiduciary net position restricted for benefits increased by \$308,061,930, a 12.6% increase from the amount of net position restricted for benefits reported at the end of 2020. The increase for 2021 is the result of favorable market conditions that contributed to net investment earnings of \$405,988,480, reduced by benefit payments exceeding contributions received.

Additions to DERP's fiduciary net position included contributions of \$112,205,407 from the City and County of Denver (city) and \$5,064,855 from the Denver Health and Hospital Authority (DHHA). In addition, active members of DERP contributed \$66,425,088.

Deductions from DERP's fiduciary net position during 2021 totaled \$281,621,900. This amount is 10.4% higher than the total 2020 deductions. Increased retirees due to a city retirement incentive in the last quarter of 2020 caused a large increase in the amount of benefits paid over the period of the entire year of 2021. Additionally, in 2021 city council amended the DERP ordinance to change the rate at which DROP interest is credited causing a large increase in distributions.

DERP's funding objective is to meet its long-term benefit obligations through employer and employee contributions and investment returns. As of January 1, 2021, the date of the last actuarial valuation, the funded ratios for the pension and health benefits funds were 60.3% and 44.4%, respectively.

Overview of the Financial Statements

The following discussion and analysis is intended to serve as an introduction to DERP'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 DERP's assets, liabilities, and net position as of December 31, 2021, with summarized comparative totals for 2020. This statement reflects DERP's net position available for benefits in each the retirement and the health benefits funds as of December 31, 2021, and in the aggregate as of December 31, 2020.

The **Statement of Changes in Fiduciary Net Position** shows the additions to and deductions from DERP's net position during 2021, with summarized comparative totals for 2020.

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.

The financial statements provide a snapshot of DERP's assets and liabilities as of December 31, 2021 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 DERP'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 DERP. The schedule of Investment Expenses shows the cost associated with investing the assets of DERP.

Financial Analysis

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

On December 31, 2021, DERP's fiduciary net position totaled \$2,749,753,003. Of this amount, \$112,321,674 represented funds in the Deferred Retirement Option Plan (DROP) and the Amended Deferred Retirement Option Plan (DROP II) accounts.

DERP's Board has an investment allocation strategy in place and, with the help of an outside consultant, continually monitor DERP's investments. DERP's total assets increased in 2021 due to strong returns from its investment portfolio. As of December 31, DERP's fiduciary net position was:

	2021	2020	Amount of Change	Percentage Change
Assets				
Cash, short-term investments, and receivables	\$ 86,009,680	\$ 58,172,950	\$ 27,836,730	47.9 %
Securities lending collateral	77,080,319	82,051,725	(4,971,406)	(6.1)%
Investments, at fair value	2,663,900,426	2,383,234,047	280,666,379	11.8 %
Capital assets, net	2,329,334	2,716,226	(386,892)	(14.2)%
Total assets	2,829,319,759	2,526,174,948	303,144,811	12.0 %
Liabilities				
Accounts and lease payable and unsettled securities purchased	2,464,219	2,432,150	32,069	1.3 %
Securities lending obligations	77,080,319	82,051,725	(4,971,406)	(6.1)%
Total liabilities	79,544,538	84,483,875	(4,939,337)	(5.8)%
Deferred inflow of resources	22,218	—	22,218	— %
Fiduciary net position	\$ 2,749,753,003	\$ 2,441,691,073	\$ 308,061,930	12.6 %

Reserves

DERP has established a reserve account for accumulated DROP benefits of \$112,321,674 as of December 31, 2021. 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 DERP. The remaining DERP fiduciary net position is available to pay retirement and health benefits to all eligible members and beneficiaries.

Plan Activities

Net additions to the trust were greater than deductions, resulting in an overall 12.6% increase in fiduciary net position for the year. For the years ended December 31, DERP's activities were:

	2021	2020	Amount of Change	Percentage Change
Additions				
Contributions	\$ 183,695,350	\$ 180,579,216	\$ 3,116,134	1.7 %
Net investment earnings	405,988,480	186,105,031	219,883,449	118.2 %
Total additions, net	589,683,830	366,684,247	222,999,583	60.8 %
Deductions				
Benefits	276,816,548	250,557,542	26,259,006	10.5 %
Administrative expenses	4,805,352	4,607,234	198,118	4.3 %
Total deductions	281,621,900	255,164,776	26,457,124	10.4 %
Change in fiduciary net position	308,061,930	111,519,471	196,542,459	176.2 %
Beginning of year fiduciary net position	2,441,691,073	2,330,171,602	111,519,471	4.8 %
End of year Fiduciary net position	\$ 2,749,753,003	\$ 2,441,691,073	\$ 308,061,930	12.6 %

Additions to Fiduciary Net Position

The money needed to pay benefits is accumulated from contributions made by employers and employees and income generated from DERP's investments. Income or losses on investments are reported net of investment management expenses. Employer contributions for 2021 totaled \$117,270,262, which is 4.0% higher than the amount contributed in 2020, due primarily to an increase in the contribution rate and increase in covered payroll in 2021. During 2021, employees contributed a total of \$66,425,088, which is a decrease of (2.1)% over the 2020 amount, and due to a decrease in contribution rates withheld from employees. DERP's net investment return was 17.1% in 2021 compared to 5.7% in 2020. Top contributors to performance were Energy, Private Equity, MLPs. and domestic equities. DERP had net securities lending transaction income of \$266,210 in 2021 and \$296,248 in 2020.

	2021	2020	Amount of Change	Percentage Change
Employer contributions	\$ 117,270,262	\$ 112,733,625	\$ 4,536,637	4.0 %
Employee contributions	66,425,088	67,845,591	(1,420,503)	(2.1)%
Net appreciation in fair value of investments	362,175,795	200,430,935	161,744,860	80.7 %
Interest, dividends, real estate/alternative investments, and absolute return income	57,841,622	(1,226,470)	59,068,092	4,816.1 %
Securities lending transactions income, net	266,210	296,248	(30,038)	(10.1)%
Investment expenses	(14,295,147)	(13,395,682)	(899,465)	(6.7)%
Total additions, net	\$ 589,683,830	\$ 366,684,247	\$ 222,999,583	60.8 %

Deductions from Fiduciary Net Position

DERP provides a lifetime pension benefit to its retired members, as well as survivor, disability, and retiree health, dental, and vision benefits. Annual expenses of DERP include retirement benefits, DROP distributions, refunds of employee contributions, and administrative expenses. For the year ended December 31, 2021, deductions totaled \$281,621,900, an increase of 10.4% over the amount of 2020 total deductions. The increase is attributed to the increase in the number of retirees due to the city's retirement incentive in 2020, along with DROP interest change causing a large increase in DROP distributions. Refunds of contributions to non-vested members were 55.3% higher than prior year due to an increase in the amount of terminations of 50%. Administrative expenses were slightly higher than those of the previous year due primarily to an increase in salary expenses and remote work expenses.

	2021	2020	Amount of Change	Percentage Change
Benefits	\$ 269,073,269	\$ 245,570,732	\$ 23,502,537	9.6 %
Employee refunds	7,743,279	4,986,810	2,756,469	55.3 %
Administrative expenses	4,805,352	4,607,234	198,118	4.3 %
Total deductions	\$ 281,621,900	\$ 255,164,776	\$ 26,457,124	10.4 %

Capital Assets

Capital assets, net of accumulated depreciation, had a net decrease of \$386,892 for the year ended December 31, 2021, which is comprised primarily of depreciation expense of \$443,774. Refer to Note 8 *Capital Assets* for additional information.

Requests for Information

This management's discussion and analysis is intended to provide DERP's Board, participating employers, and the membership with an overview of DERP's financial position as of December 31, 2021, and a summary of DERP'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 St. | Denver, CO 80203

Phone: 303-839-5419

Fax: 303-839-9525

Web: DERP.org

Email: Help@DERP.org

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Financial Section

Statement of Fiduciary Net Position

December 31, 2021

(with Summarized Comparative Totals for December 31, 2020)

	Pension Benefits	Health Benefits	December 31,	
			2021	2020
Assets				
Cash and short-term investments	\$ 81,931,339	\$ 2,637,758	\$ 84,569,097	\$ 56,448,623
Securities lending collateral	74,706,776	2,373,543	77,080,319	82,051,725
Receivables				
Unsettled securities sold	48,160	1,530	49,690	270,094
Interest and dividends	1,326,529	42,146	1,368,675	1,420,389
Leases receivable	21,534	684	22,218	—
Total receivables	1,396,223	44,360	1,440,583	1,690,483
Investments, at fair value				
U.S. Government obligations	401,253,095	12,748,393	414,001,488	155,040,399
Domestic corporate bonds and other fixed income	265,874,866	8,447,230	274,322,096	471,787,108
Domestic stocks	516,367,236	16,405,737	532,772,973	510,224,162
International stocks	538,264,163	17,101,434	555,365,597	529,656,674
Real estate	234,276,751	7,443,313	241,720,064	168,606,473
Alternative investments	558,789,049	17,753,539	576,542,588	518,457,913
Absolute return	67,045,488	2,130,132	69,175,620	29,461,318
Total investments	2,581,870,648	82,029,778	2,663,900,426	2,383,234,047
Prepaid Items	—	—	—	33,844
Capital assets				
Land	416,799	13,242	430,041	430,041
Building and equipment, net of accumulated depreciation	1,812,788	57,596	1,870,384	2,286,185
Leased Equipment	28,019	890	28,909	—
Total assets	2,742,162,592	87,157,167	2,829,319,759	2,526,174,948
Liabilities				
Unsettled securities purchased	207,265	6,585	213,850	390,287
Securities lending obligations	74,706,776	2,373,543	77,080,319	82,051,725
Leases payable	29,629	941	30,570	—
Accounts payable	2,151,444	68,355	2,219,799	2,041,863
Total liabilities	77,095,114	2,449,424	79,544,538	84,483,875
Deferred inflow of resources	21,534	684	\$ 22,218	\$ —
Fiduciary net position restricted for benefits	\$ 2,665,045,944	\$ 84,707,059	\$ 2,749,753,003	\$ 2,441,691,073
Fiduciary net position restricted for pension and health benefits	\$ 2,552,724,270	\$ 84,707,059	\$ 2,637,431,329	\$ 2,319,174,144
Fiduciary net position restricted for DROP and DROP II benefits	112,321,674	—	112,321,674	122,516,929
Fiduciary net position restricted for benefits	\$ 2,665,045,944	\$ 84,707,059	\$ 2,749,753,003	\$ 2,441,691,073

See Notes to Financial Statements

Statement of Changes in Fiduciary Net Position

Year Ended December 31, 2021

(with Summarized Comparative Totals for the Year Ended December 31, 2020)

	Pension Benefits	Health Benefits	Year ended December 31,	
			2021	2020
Additions				
Contributions				
City and County of Denver, Colorado	\$ 105,687,056	\$ 6,518,351	\$ 112,205,407	107,776,122
Denver Health and Hospital Authority	4,777,943	286,912	5,064,855	4,957,503
Plan members	62,604,568	3,820,520	66,425,088	67,845,591
Total contributions	173,069,567	10,625,783	183,695,350	180,579,216
Investment earnings				
Net appreciation in fair value of investments	351,060,379	11,115,416	362,175,795	200,430,935
Dividends	14,063,092	444,938	14,508,030	11,166,259
Interest	16,364,860	518,057	16,882,917	5,156,579
Real estate, alternative investments, and absolute return gain/(loss)	25,639,250	811,425	26,450,675	(17,549,308)
	407,127,581	12,889,836	420,017,417	199,204,465
Investment expenses	(13,856,677)	(438,470)	(14,295,147)	(13,395,682)
	393,270,904	12,451,366	405,722,270	185,808,783
Securities lending transactions income	255,589	8,089	263,678	616,478
Securities lending transactions expenses				
Borrower rebates	88,407	2,798	91,205	(221,560)
Agent fees	(85,953)	(2,720)	(88,673)	(98,670)
	258,043	8,167	266,210	296,248
Net investment earnings	393,528,947	12,459,533	405,988,480	186,105,031
Total additions, net	566,598,514	23,085,316	589,683,830	366,684,247
Deductions				
Retired member benefits	240,811,989	12,999,600	253,811,589	241,094,522
DROP and DROP II benefits paid	15,261,680	—	15,261,680	4,476,210
Refunds of contributions	7,505,752	237,527	7,743,279	4,986,810
Administrative expenses	4,657,946	147,406	4,805,352	4,607,234
Total deductions	268,237,367	13,384,533	281,621,900	255,164,776
Change in fiduciary net position	298,361,147	9,700,783	308,061,930	111,519,471
Fiduciary net position held in trust for benefits				
Beginning of year	2,366,684,797	75,006,276	2,441,691,073	2,330,171,602
End of year	\$ 2,665,045,944	\$ 84,707,059	\$ 2,749,753,003	\$ 2,441,691,073

See Notes to Financial Statements

Note 1 Plan Description

The Denver Employees Retirement Plan (DERP) administers a cost-sharing multiple-employer defined benefit plan providing pension and post-employment health benefits to eligible members. DERP 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 DERP as a contractual entity. In 2001, DERP became closed to new entrants from DHHA. All risks and costs are shared by the City and County of Denver (city) and DHHA. There is a single actuarial valuation performed annually that covers both the pension and post employment health benefits. All assets of DERP are funds held in trust by DERP 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 DERP are covered under DERP. 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, 2021, DERP membership consisted of the following:

	Pension Benefits	Health Benefits
Retirees and beneficiaries currently receiving benefits	10,690	7,118
Retirees and beneficiaries entitled to health benefits but not receiving any	—	3,573
Terminated employees entitled to benefits but not yet receiving them	3,550	3,550
Current employees:		
Vested	5,136	5,136
Non-vested	3,615	3,615
Total	22,991	22,992

The following brief description of DERP 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 DERP.

DERP 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 DERP’s Retirement Board, and enacted into ordinance by the Denver City Council.

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 DERP awaiting approval of retirement applications. During 2021, 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

DERP 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, DERP 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. DERP 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 DERP.

DERP Expenses

DERP's Board acts as the trustee of DERP's assets. The operating and other administrative expenses incurred by the Board, or its employees, in the performance of its duties as DERP's trustee are paid from the assets of DERP accumulated from contributions and investment earnings. Such expenses totaled \$4,805,352 in 2021, and are reported as administrative expenses in the accompanying statement of changes in fiduciary net position.

Investments

DERP'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 2021, DERP realized net gain on the disposition of investments of \$200,502,013. The calculation of realized gains and losses is independent of the calculation of the net appreciation in the fair value of DERP'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 2021.

Investments of DERP 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 and Leases

Capital assets, which include land, building, furniture, and equipment, are recorded at acquisition value. DERP'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. Leased equipment are recorded when the term of a lease contract exceeds one year. At the commencement of a lease a right of use lease asset is recorded as the present value of future lease payments plus any installation costs. A corresponding payable is recorded at that time. The discount factor used in calculating the values is the Plan's assumed rate of return. 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
Leased equipment	Leased Term

Income Taxes

DERP's current determination letter issued by the Internal Revenue Service, dated February 27, 2014, qualifies DERP 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 DERP'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 DERP's audited financial statements for the year ended December 31, 2020, from which the summarized information was derived.

Current Economic Conditions

The current economic environment continues to present public employee benefit plans such as DERP 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 DERP 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.

Note 3 Contributions

DERP's funding policy provides for annual contributions at rates determined by an independent actuary recommended by DERP'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 2021, the actuarially determined contribution rates, expressed as a percentage of annual covered payroll, for the pension and health benefits were 24.72% and 1.30%, respectively, for a combined total of 26.02%. The city enacted Ordinance No. 1448-21 in 2021 to reset the combined total contribution rate to 25.60%, effective January 2022. In 2021, employers contributed a total of 15.75% of covered payroll and employees made a pre-tax contribution of 9.25% 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 DERP with the employers' contribution. During 2021, the employers contributed \$110,464,999 for pension benefits and \$6,805,263 for health benefits while the employees contributed a total of \$62,604,568 for pension benefits and \$3,820,520 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 DERP. For 2021, in accordance with the January 1, 2021, actuarially determined contribution requirements, the total required contribution was \$187,163,689 (\$59,127,281 of normal cost and \$118,715,534 amortization of the unfunded actuarial accrued liability for pension benefits; \$2,014,545 of normal cost and \$7,306,329 amortization of the unfunded actuarial accrued liability for health benefits) based on a rate of 26.02% of projected payroll. The actual contribution was \$183,035,809 using a rate of 25.00% of covered payroll, which when combined with the members' purchase of service credits of \$659,541 discussed below, resulted in total contributions of \$183,695,350. In accordance with a separate agreement between DHHA and DERP, DHHA made a supplemental contribution in the amount of \$548,637, which is included in the total contributions amount.

During 2021, employee contributions totaled \$66,425,088 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 \$659,541 under these provisions during 2021.

Note 4 Deferred Retirement Option Plan (DROP)

Between January 1, 2001, and April 30, 2003, active members of DERP 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 DERP. The balance in each member's DROP account earns interest at a rate equal to the actuarial assumed rate of return, interest was credited at 7.25% during 2021. On July 19, 2021 city council enacted an ordinance requiring DERP board to annually set DROP interest rates between 1% and 3% per annum beginning January 1, 2022. 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 2021, a total of \$8,079,690 in interest was credited to members' DROP accounts. During 2021, a total of \$18,356,267 was distributed from the DROP accounts to members who had retired and exited DROP. As of December 31, 2021, the reserve for DROP payments was \$107,308,257.

Note 5 Amended Deferred Retirement Option Plan (DROP II)

Between May 1, 2003, and August 31, 2003, active members of DERP 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 DERP. The balance in each member’s DROP II account earns interest equal to DERP’s investment earnings rate provided it is not less than 3% per annum and not more than DERP’s annual actuarial assumed rate of return, interest was credited at 7.25% during 2021. On July 19, 2021 city council enacted an ordinance requiring DERP board to annually set DROP interest rates between 1% and 3% per annum beginning January 1, 2022. 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 \$353,109 in interest was credited to members’ DROP II accounts during 2021. Also during 2021, a total of \$271,786 was distributed to members who had exited DROP II. As of December 31, 2021, the reserve for DROP II payments was \$5,013,417.

Note 6 Deposits and Investments

It is the objective of DERP in managing the trust as a whole to provide a net realized nominal rate of return meeting or exceeding the actuarial assumption of 7.25% annualized, over a full market/economic cycle of three to seven years. The relative investment objective of DERP 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	44.0 %	36.0 % - 48.0 %
Fixed Income	25.5 %	20.5 % - 30.5 %
Real Estate	10.0 %	5.0 % - 15.0 %
Absolute Return	5.0 %	2.0 % - 8.0 %
Infrastructure	3.0 %	— % - 5.0 %
Alternatives	12.5 %	7.0 % - 18.0 %
Total Fund	100.0 %	

Investment Performance

For the year ended December 31, 2021, the money-weighted rate of return on the investment assets was 18.2%, 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.

Note 6 Deposits and Investments (continued)

Fair Value Measurement

DERP 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.

DERP'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 DERP.

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. DERP 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. DERP currently does not maintain fixed income securities classified as Level 3.

Note 6 Deposits and Investments (continued)

Investments by fair value level	Totals at December 31, 2021	Fair Value Measurements Using		
		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	\$ 348,728,010	\$ 348,728,010	\$ —	\$ —
Agencies	65,273,478	—	65,273,478	—
Total U.S. Government Obligations	414,001,488	348,728,010	65,273,478	—
Domestic corporate bonds and other fixed income				
Asset Backed & Corporate Bonds	56,668	—	56,668	—
Index fund	63,975,145	—	63,975,145	—
Total Domestic corporate bonds and other fixed income	64,031,813	—	64,031,813	—
Domestic stocks				
Equities	272,522,987	272,522,987	—	—
Index fund	260,249,986	260,249,986	—	—
Total Domestic stocks	532,772,973	532,772,973	—	—
International stocks				
Equity funds	468,822,144	468,822,144	—	—
Index fund	86,543,453	86,543,453	—	—
Total International stocks	555,365,597	555,365,597	—	—
Publicly traded partnerships				
Master limited partnerships	71,687,156	71,687,156	—	—
Total Publicly traded partnerships	71,687,156	71,687,156	—	—
Total Investment by fair value level	1,637,859,027	\$ 1,508,553,736	\$ 129,305,291	\$ —
Total Investments measured at the NAV (See detailed schedule on the following page)	1,026,041,399			
Total Investments	2,663,900,426			
Total Investments measured at amortized cost	82,906,051			
Total Investments measured at fair value	\$ 2,746,806,477			
Total Invested securities lending collateral	\$ 136,045,003	—	136,045,003	—

Note 6 Deposits and Investments (continued)

Investments measured at the NAV	Totals at December 31, 2021	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Fixed Income Investments				
Private Debt	\$ 162,879,677	\$ 52,714,192	Not Eligible	N/A
Emerging Market Debt	47,410,606	—	Monthly	3 Days
Total Fixed Income Investments	210,290,283	52,714,192		
Real Estate Investments				
Real Estate - Open end	207,654,451	—	Quarterly	20-90 Days
Real Estate - Closed end	34,065,613	17,059,813	Not Eligible	N/A
Total Real Estate Investments	241,720,064	17,059,813		
Alternative Investments				
Private Equity	372,531,543	61,324,829	Not Eligible	N/A
Energy Investments	95,359,355	31,311,066	Not Eligible	N/A
Timber	36,964,534	—	Not Eligible	N/A
Total Alternative Investments	504,855,432	92,635,895		
Absolute Return				
Hedge Fund	69,175,620	—	Quarterly	65 Days
Total Absolute Return	69,175,620	—		
Total Investments measured at the NAV	\$ 1,026,041,399	\$ 162,409,900		

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 portfolio of hedge funds is intended 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, DERP manages credit risk through the constraints on investments specified in each manager’s investment guidelines included in DERP’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 DERP’s investment in debt securities as of December 31, 2021:

S&P	Moody's	Asset Backed	Corporate	Implicit U.S. Agency Securities	Total
AAA	NR	\$ —	\$ 12,791,007	\$ —	\$ 12,791,007
AA+ to AA-	Aa3 to A1	—	7,823,430	65,273,478	73,096,908
A+ to A-	A1 to Baa2	—	24,697,101	—	24,697,101
BBB+ to BBB-	A3 to Baa3	—	18,663,607	—	18,663,607
CC+ to CC-	Ca	40,922	—	—	40,922
NR	NR	—	\$ 15,746	—	15,746
		<u>\$ 40,922</u>	<u>\$ 63,990,891</u>	<u>\$ 65,273,478</u>	129,305,291
U.S. Treasury Securities					348,728,010
Non-rated Funds					210,290,283
Total					<u>\$688,323,584</u>

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

DERP 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, 2021, DERP had no exposure to any single issuer exceeding 1% of total plan assets.

Note 6 Deposits and Investments (continued)**Custodial Credit Risk**

In the event of a failure of a financial institution or counterparty, custodial credit risk is the risk that DERP would not be able to recover its deposits, investments, or collateral securities in the possession of an outside party. DERP has no formal policy for custodial credit risk for deposits and investments. At December 31, 2021, DERP's cash deposits were collateralized in the amount of \$250,000 with the remaining \$1,412,446 not collateralized.

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. DERP 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, 2021, DERP'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	\$ 348,728,010	\$ 1,014,846	\$ 184,182,809	\$ 17,824,319	\$ 145,706,036
U.S. agency securities	65,273,478	—	39,673,063	25,600,415	—
Asset backed	40,922	—	—	—	40,922
Corporate	63,990,891	486,094	63,501,728	—	3,069
Total	478,033,301	\$ 1,500,940	\$ 287,357,600	\$ 43,424,734	\$ 145,750,027
Non-rated Funds	210,290,283				
Total	\$ 688,323,584				

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

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. DERP's Investment Policy allows 16.0% to 26.0% of total investments to be invested in international equities. DERP's Investment Policy allows 1.0% to 4.0% of total investments to be invested in international fixed income. The following positions represent DERP's total exposure to foreign currency risk (in U.S. Dollars) as of December 31, 2021:

Foreign Currency	Equities	Fixed Income	Total
Euro	\$ 103,487,189	\$ —	\$ 103,487,189
Chinese Yuan	60,751,772	4,821,659	65,573,431
Japanese Yen	56,278,088	—	56,278,088
British Pound Sterling	40,391,543	—	40,391,543
Swiss Franc	39,527,234	—	39,527,234
South Korean Won	31,436,131	3,048,502	34,484,633
Taiwan Dollar	32,490,495	—	32,490,495
Indian Rupee	23,075,527	—	23,075,527
Hong Kong Dollar	22,546,469	—	22,546,469
Canadian Dollar	17,895,703	—	17,895,703
Australian Dollar	16,160,375	—	16,160,375
Brazilian Real	10,888,045	4,873,810	15,761,855
South African Rand	11,144,303	1,939,094	13,083,397
Swedish Krona	11,423,869	—	11,423,869
Russian Ruble	6,881,553	4,309,624	11,191,177
Mexican Peso	4,422,495	6,637,485	11,059,980
Malaysian Ringgit	2,745,698	6,680,154	9,425,852
Danish Krone	7,917,033	—	7,917,033
Indonesia Rupiah	3,411,933	3,807,072	7,219,005
Polish Zloty	2,180,407	3,892,411	6,072,818
Thai Bhat	4,825,160	440,919	5,266,079
Columbian Peso	948,881	3,968,268	4,917,149
Singapore Dollar	4,302,566	—	4,302,566
Argentine Peso	3,724,262	—	3,724,262
New Israeli Shekel	3,597,081	—	3,597,081
Turkey	2,725,509	530,999	3,256,508
Hungary Forint	2,362,108	858,132	3,220,240
United Arab Emirati Dirham	2,079,462	—	2,079,462
Romanian Leu	—	1,393,872	1,393,872
Saudia Riyal	948,881	—	948,881
Qatari Riyal	908,503	—	908,503
Norwegian Krone	892,329	—	892,329
Chilean Peso	585,480	—	585,480
New Zealand Dollar	467,894	—	467,894
Egyptian Pound	282,645	—	282,645
Philippine Peso	282,645	—	282,645
Pakistani Rupee	222,079	—	222,079
Peruvian Sol	—	99,562	99,562
Czech Koruna	—	37,928	37,928
Other	7,084,758	—	7,084,758
Total	\$ 541,296,105	\$ 47,339,491	\$ 588,635,596

Note 7 Securities Lending Transactions

The Investment Policy permits DERP to participate in a securities lending program to augment income. The program is administered by DERP'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 DERP. 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. DERP 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, 2021, the fair value of underlying securities lent was \$131,367,325. The fair value of associated collateral was \$136,045,003; of this amount, \$77,080,319 represents the fair value of cash collateral as reported on the financial statements and \$58,964,684 is the fair value of non-cash collateral not reported on the financial statements. The securities loaned are priced daily by third-party sources, and margins are delivered/received daily to maintain over-collateralized levels. Securities on loan can be recalled or returned by DERP or the borrower at any time. Since loans are terminable at will, loan durations do not generally match the duration of the investments made with the cash collateral. DERP has no credit risk exposure at December 31, 2021, since the collateral held exceeds the value of securities lent. The custodial agent bank indemnifies DERP in the event of a collateral shortfall.

DERP 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

DERP's capital assets activity for the year ended December 31, 2021, was as follows:

	January 1	Additions	Deletions	December 31
Capital assets, not being depreciated				
Land	\$ 430,041	\$ —	\$ —	\$ 430,041
Construction in Progress	—	—	—	—
Capital assets, being depreciated				
Building	1,136,014	—	—	1,136,014
Furniture and equipment	6,107,346	17,936	(11,043)	6,114,239
Leased equipment	—	52,189	—	52,189
Total capital assets, being depreciated	7,243,360	70,125	(11,043)	7,302,442
Accumulated depreciation				
Building	(1,098,492)	(37,522)	—	(1,136,014)
Furniture and equipment	(3,858,683)	(395,585)	10,413	(4,243,855)
Leased equipment	—	(23,280)	—	(23,280)
Total accumulated depreciation	(4,957,175)	(456,387)	10,413	(5,403,149)
Total capital assets being depreciated, net	2,286,185	(386,262)	(630)	1,899,293
Capital assets, net	\$ 2,716,226	\$ (386,262)	\$ (630)	\$ 2,329,334

The 2021 depreciation expense for the pension and health benefit accounts was \$421,585 and \$22,189 respectively.

Note 9 Commitments and Contingencies

As of December 31, 2021, DERP had commitments for the future purchase of investments in private debt of \$52,714,192, real estate of \$17,059,813, and alternative investments of \$92,635,895. The purpose of such commitments is to assist DERP 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.

Note 10 Net Pension Liability of Employers

The components of the net pension liability of the employers at December 31, 2021, were as follows:

Total pension liability	\$ 4,022,713,725
Plan fiduciary net position	<u>2,665,045,944</u>
Net pension liability	<u>\$ 1,357,667,781</u>
Plan fiduciary net position as a percentage of the total pension liability	66.25 %

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of January 1, 2021 rolled forward to a measurement date of December 31, 2021, 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	7.25%

The actuarial valuation as of January 1, 2021 was rolled forward using a 7.25% discount rate to reflect the rate adopted during the measurement period.

The mortality tables were based on the RP-2014 Mortality Table (gender-specific) 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, 2021 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 DERP’s trustees after considering input from DERP’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, 2021 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 Rate of Return
Public Equity	44.0 %	
US Equity		
US Large Cap	18.0 %	7.1 %
US Small Cap	4.0 %	7.6 %
International Equity		
Developed Markets	14.0 %	7.8 %
Emerging Markets	8.0 %	8.8 %
Fixed Income	25.5 %	
Core Fixed Income	17.0 %	2.1 %
Private Debt		
Private Debt	4.0 %	6.1 %
Distress Debt	2.5 %	6.7 %
Emerging Market Debt	2.0 %	4.3 %
Real Estate	10.0 %	7.0 %
Absolute Return	5.0 %	4.3 %
Infrastructure	3.0 %	6.4 %
Alternatives	12.5 %	
Private Equity	9.0 %	9.1 %
Natural Resources	3.5 %	7.7 %
Total	100.0 %	

A single discount rate of 7.25% 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 7.25%. The projection of cash flows used to determine this single rate assumed that DERP 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 DERP 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 DERP's net pension liability, calculated using a single discount rate of 7.25%, as well as what DERP'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 6.25%	Current Single Discount Rate Assumption 7.25%	1% Increase 8.25%
Net Pension Liability	\$ 1,799,438,372	\$ 1,357,667,781	\$ 987,172,878

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

The components of the net OPEB liability of the employers at December 31, 2021, were as follows:

Total OPEB liability	\$ 170,661,622
Plan fiduciary net position	84,707,059
Net OPEB liability	<u>\$ 85,954,563</u>
Plan fiduciary net position as a percentage of the total pension liability	49.63 %

Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of January 1, 2021 rolled forward to a measurement date of December 31, 2021, 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	7.25%

The actuarial valuation as of January 1, 2021 was rolled forward using a 7.25% discount rate to reflect the rate adopted during the measurement period.

The mortality tables were based on the RP-2014 Combined Mortality Table (gender-specific) 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, 2021 valuation were based on the results of an actuarial experience study as of January 1, 2018.

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 DERP’s trustees after considering input from DERP’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, 2021 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 Rate of Return
Public Equity	44.0 %	
US Equity		
US Large Cap	18.0 %	7.1 %
US Small Cap	4.0 %	7.6 %
International Equity		
Developed Markets	14.0 %	7.8 %
Emerging Markets	8.0 %	8.8 %
Fixed Income	25.5 %	
Core Fixed Income	17.0 %	2.1 %
Private Debt		
Private Debt	4.0 %	6.1 %
Distress Debt	2.5 %	6.7 %
Emerging Market Debt	2.0 %	4.3 %
Real Estate	10.0 %	7.0 %
Absolute Return	5.0 %	4.3 %
Infrastructure	3.0 %	6.4 %
Alternatives	12.5 %	
Private Equity	9.0 %	9.1 %
Natural Resources	3.5 %	7.7 %
Total	100.0 %	

A single discount rate of 7.25% 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 7.25%. The projection of cash flows used to determine this single rate assumed that DERP 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 DERP 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 DERP's net OPEB liability, calculated using a single discount rate of 7.25%, as well as what DERP'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 6.25%	Current Single Discount Rate Assumption 7.25%	1% Increase 8.25%
Net OPEB Liability	\$ 103,014,071	\$ 85,954,563	\$ 71,483,219

Schedule of Changes in Net Pension Liability and Related Ratios

(Ultimately 10 Fiscal Years will be displayed)

Fiscal year ending December 31,	2021	2020	2019
Total Pension Liability			
Service Cost (Entry-Age Normal)	\$ 59,681,949	\$ 58,953,668	\$ 56,355,775
Interest on the Total Pension Liability	277,172,303	271,949,654	261,392,243
Benefit Changes	—	—	—
Difference between Expected and Actual Experience	26,207,643	19,741,953	56,265,688
Transition to Entry-Age Normal (1)	—	—	—
Assumption/Method Changes (2)(3)	—	96,394,671	—
Benefit Payments	(263,579,421)	(237,428,009)	(231,722,495)
Net Change in Total Pension Liability	99,482,474	209,611,937	142,291,211
Total Pension Liability - Beginning	3,923,231,251	3,713,619,314	3,571,328,103
Total Pension Liability - Ending (a)	<u>\$ 4,022,713,725</u>	<u>\$ 3,923,231,251</u>	<u>\$ 3,713,619,314</u>
Plan Fiduciary Net Position			
Employer Contributions	\$ 110,464,999	\$ 105,863,173	\$ 87,464,822
Employee Contributions	62,604,568	63,816,511	60,074,876
Pension Plan Net Investment Income	393,528,946	180,417,579	284,110,225
Benefit Payments	(263,579,421)	(237,428,009)	(231,722,495)
Pension Plan Administrative Expense	(4,657,946)	(4,465,837)	(4,123,494)
Other Income	—	—	—
Net Change in Plan Fiduciary Net Position	298,361,146	108,203,417	195,803,934
Total Fiduciary Net Position - Beginning	2,366,684,798	2,258,481,381	2,062,677,447
Total Fiduciary Net Position - Ending (b)	<u>\$ 2,665,045,944</u>	<u>\$ 2,366,684,798</u>	<u>\$ 2,258,481,381</u>
Net Pension Liability - Ending (a)-(b)	<u>\$ 1,357,667,781</u>	<u>\$ 1,556,546,453</u>	<u>\$ 1,455,137,933</u>
Plan Fiduciary Net Position as a Percentage of			
Total Pension Liability	66.25 %	60.32 %	60.82 %
Covered Payroll	\$ 710,975,688	\$ 713,566,300	\$ 706,441,299
Net Pension Liability as a Percentage of			
Covered Payroll	190.96 %	218.14 %	205.98 %

(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%.

(4) As of October 1, 2020, the valuation interest rate was lowered from 7.50% to 7.25%.

	2018	2017	2016	2015	2014
\$	49,796,219	\$ 49,158,616	\$ 46,577,860	\$ 46,419,739	\$ 42,793,142
	248,598,306	241,977,403	237,104,293	229,130,437	221,367,921
	—	—	—	—	—
	13,946,045	14,324,507	16,967,117	29,122,513	—
	—	—	—	—	140,652,205
	80,783,495	69,289,533	—	73,157,470	—
	(220,006,730)	(207,612,390)	(194,541,616)	(183,992,079)	(172,686,029)
	173,117,335	167,137,669	106,107,654	193,838,080	232,127,239
	3,398,210,768	3,231,073,099	3,124,965,445	2,931,127,365	2,699,000,126
\$	<u>3,571,328,103</u>	<u>3,398,210,768</u>	<u>3,231,073,099</u>	<u>3,124,965,445</u>	<u>2,931,127,365</u>
\$	81,719,744	\$ 71,731,309	\$ 68,794,871	\$ 67,234,597	\$ 59,941,041
	52,700,679	50,599,952	48,037,800	46,689,696	39,521,451
	(73,146,389)	302,942,063	147,443,477	(35,746,029)	101,595,704
	(220,006,730)	(207,612,390)	(194,541,616)	(183,992,079)	(172,686,029)
	(4,016,288)	(3,899,901)	(3,742,451)	(3,785,416)	(3,638,296)
	—	—	—	—	—
	(162,748,984)	213,761,033	65,992,081	(109,599,231)	24,733,871
	2,225,426,431	2,011,665,398	1,945,673,317	2,055,272,548	2,030,538,677
\$	<u>2,062,677,447</u>	<u>2,225,426,431</u>	<u>2,011,665,398</u>	<u>1,945,673,317</u>	<u>2,055,272,548</u>
\$	<u>1,508,650,656</u>	<u>1,172,784,337</u>	<u>1,219,407,701</u>	<u>1,179,292,128</u>	<u>875,854,817</u>
	57.76 %	65.49 %	62.26 %	62.26 %	70.12 %
\$	671,120,225	\$ 636,738,387	\$ 613,284,274	\$ 602,454,420	\$ 554,103,740
	224.80 %	184.19 %	198.83 %	195.75 %	158.07 %

Schedule of Changes in Net OPEB Liability and Related Ratios

(Ultimately 10 Fiscal Years will be displayed)

Fiscal year ending December 31,	2021	2020
Total OPEB Liability		
Service Cost (Entry-Age Normal)	\$ 2,022,136	\$ 2,060,169
Interest on the Total OPEB Liability	12,075,413	12,345,681
Benefit Changes	—	—
Difference between Expected and Actual Experience	(2,265,610)	(3,134,783)
Transition to Entry-Age Normal	—	—
Assumption/Method Changes	—	3,881,572
Benefit Payments	(13,237,127)	(13,129,533)
Net Change in Total OPEB Liability	(1,405,188)	2,023,106
Total OPEB Liability - Beginning	172,066,810	170,043,704
Total OPEB Liability - Ending (a)	\$ 170,661,622	\$ 172,066,810
Plan Fiduciary Net Position		
Employer Contributions	6,805,263	6,870,452
Employee Contributions	3,820,520	4,029,080
OPEB Plan Net Investment Income	12,459,534	5,687,452
Benefit Payments, Including Refunds of Employee Contributions	(13,237,127)	(13,129,533)
OPEB Plan Administrative Expense	(147,406)	(141,397)
Other	—	—
Net Change in Plan Fiduciary Net Position	9,700,784	3,316,054
Total Fiduciary Net Position - Beginning	75,006,275	71,690,221
Total Fiduciary Net Position - Ending (b)	\$ 84,707,059	\$ 75,006,275
Net OPEB Liability - Ending (a)-(b)	\$ 85,954,563	\$ 97,060,535
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	49.63 %	43.59 %
Covered Payroll	\$ 710,975,688	\$ 713,566,300
Net OPEB Liability as a Percentage of Covered Payroll	12.09 %	13.60 %

2019	2018	2017
\$ 2,073,228	\$ 1,932,881	\$ 2,103,783
12,489,835	11,796,771	11,700,994
—	—	—
(3,352,740)	627,097	—
—	—	—
—	7,900,882	—
<u>(13,122,521)</u>	<u>(13,050,165)</u>	<u>(13,171,022)</u>
(1,912,198)	9,207,466	633,755
171,955,902	162,748,436	162,114,681
<u>\$ 170,043,704</u>	<u>\$ 171,955,902</u>	<u>\$ 162,748,436</u>
5,084,799	4,952,754	4,367,474
3,310,427	3,132,783	3,005,989
9,185,163	(2,364,015)	10,422,137
(13,122,521)	(13,050,165)	(13,171,022)
(133,008)	(133,128)	(133,959)
—	—	—
<u>4,324,860</u>	<u>(7,461,771)</u>	<u>4,490,619</u>
<u>67,365,361</u>	<u>74,827,132</u>	<u>70,336,513</u>
<u>\$ 71,690,221</u>	<u>\$ 67,365,361</u>	<u>\$ 74,827,132</u>
<u>\$ 98,353,483</u>	<u>\$ 104,590,541</u>	<u>\$ 87,921,304</u>
42.16 %	39.18 %	45.98 %
\$ 706,441,299	\$ 671,120,225	\$ 636,738,387
13.92 %	15.58 %	13.81 %

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 %
2020	3,923,231,251	2,366,684,798	1,556,546,453	60.32 %	713,566,300	218.14 %
2021	4,022,713,725	2,665,045,944	1,357,667,781	66.25 %	710,975,688	190.96 %

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 %
2020	172,066,810	75,006,275	97,060,535	43.59 %	713,566,300	13.60 %
2021	170,661,622	84,707,059	85,954,563	49.63 %	710,975,688	12.09 %

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)
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 %
2020	102,905,472	105,863,173	(2,957,701)	713,566,300	14.84 %
2021	113,775,803	110,464,999	3,310,804	710,975,688	15.54 %

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)
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 %
2020	5,732,330	6,870,452	(1,138,122)	713,566,300	0.96 %
2021	5,996,964	6,805,263	(808,299)	710,975,688	0.96 %

Notes to Schedules of Contributions (Pension and OPEB)

Valuation Date: January 1, 2021

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	Entry Age Normal
Asset Valuation Method	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	7.25% net of investment expenses (reduced from 7.50% in 2021)
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, 2021 can be found in the January 1, 2021 actuarial valuation report.

Schedule of Investment Returns

(Pension and OPEB Plans)

Last 10 Fiscal Years

Fiscal Year Ending December 31,	Annual Return ⁽¹⁾
2012	13.09 %
2013	18.18 %
2014	5.41 %
2015	(1.78)%
2016	7.70 %
2017	15.14 %
2018	(2.23)%
2019	13.18 %
2020	5.40 %
2021	18.20 %

(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.

Schedule of Administrative Expenses

Year ended December 31, 2021

Personnel services:

Salaries	\$ 1,854,031
Employee benefits	715,247
Total personnel services	2,569,278

Professional services:

Actuarial	137,575
Legal	(41,154)
Retirement board	17,450
Audit	45,900
Consultation	4,760
Total professional services	164,531

Office operations:

Plan insurance	128,217
Postage	(3,828)
Office forms and printing	3,222
Office equipment	22,080
Employee travel and conferences	1,473
Telephone	9,320
Membership education	91,598
Miscellaneous operating	22,367
Employee education	13,252
Office supplies	2,374
Publications	7,212
Interest expense lease	2,215
Total office operations	299,502

Computer operations:

Software licenses and hosting fees	1,017,687
Supplies and other expenses	2,922
Total computer operations	1,020,609

Miscellaneous administrative expenses:

Building operations	307,658
Depreciation expense	443,774
Total miscellaneous administrative expenses	751,432

Total	\$ 4,805,352
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Schedule of Investment Expenses

Year ended December 31, 2021

Alternative investment portfolio management	\$ 4,128,843
International equity portfolio management	2,553,579
Real estate portfolio management	2,055,589
Domestic equity portfolio management	2,177,610
Fixed income portfolio management	2,030,334
Absolute return investment portfolio management	61,593
Other investment related expenses	1,184,238
Custody	103,361
Total	<u>\$ 14,295,147</u>

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Investment Section



INVESTMENT GROUP

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Suite 110
Carlsbad, CA 92008

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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: April 29, 2022
RE: Investment Consultant's Statement for ACFR

This letter reviews the investment performance of the Denver Employees Retirement Plan (DERP) for the year ending December 31, 2021.

DERP seeks appropriate returns using Modern Portfolio Theory risk/return concepts, with the intent of providing the promised 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 Plan's Board 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 decisions are discussed, and the Plan's liabilities are reviewed. Meketa Investment Group, DERP's investment consultant, works in concert with DERP staff and other vendors such as DERP's actuary, to provide guidance to the Board regarding performance evaluation, asset allocation, manager assessment, and other areas, as detailed in the contract governing our 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.

2021 Calendar Year in Review

We entered calendar year 2021 reflecting on the prior year where the global population had their lives disrupted because of COVID-19, a novel coronavirus without an available playbook to address it. That year included global lockdowns, supply chain disruptions, and declines in global economic growth. However, we entered calendar year 2021 with approved vaccines, inoculations that were developed in record time with considerable global cooperation. The combination of past negative economic growth, substantial global fiscal and monetary stimulus, and the first rounds of vaccine distribution, led to optimism around the globe for capital markets that were sure to have a better year than the first year of this pandemic.

In the US, fiscal stimulus was enacted in 2020 under the Trump administration, and an additional stimulus package was signed into law by President Biden in March 2021. Titled the American Rescue Plan Act ("ARPA") of 2021, the \$1.9 Trillion package was intended to speed up the economic recovery coming out of the pandemic and was similar in size to the CARES Act passed in 2020. The ARPA



legislation included an extension of unemployment benefits, direct payments to individuals and families, emergency paid leave, and grants to small businesses, among other items.

One of the goals of the ARPA act was to help drive unemployment down, and the legislation contributed to achieving that goal. At the beginning of the year, unemployment stood at 6.7%¹, down from over 14% during the peak of the pandemic. Outsized fiscal stimulus, relative to other developed nations, contributed to enthusiasm in the markets during the first quarter. The Russell 3000 index increased by 6.3% during the first quarter of 2021, outpacing the MSCI EAFE and MSCI EM indices, which returned 3.5% and 2.3%, respectively.

As the year progressed, there was increased focus on ramping up production and distribution of vaccines on a global basis. Wealthy countries purchased vaccines for their population and then some, with the idea of distributing excess shots globally, as needed. As vaccines became readily available, many nations also faced another challenge: reluctance to take the shot. High transmission rates in many highly populated, less inoculated countries, gave rise to variants of the original virus strain. These variants of concern, named Beta, Delta and eventually Omicron, reminded global economies that the pandemic would continue, lockdowns would come and go, and supply chain issues would not resolve as quickly as originally anticipated.

It was around this time that these supply chain issues started to show up in Consumer Price Index (“CPI”) readings. At the beginning of 2021, CPI was at 1.4%, below long-term averages and the Federal Reserve’s target. This reading had increased to 2.6% at the end of the first quarter and was at 5.4%² by midyear. At the time, many market commentators and the Federal Reserve were labeling increases as “transitory,” a result of pandemic-induced supply chain issues and accumulated savings over a year of stay-at-home orders. The Federal Reserve declined to act at the time, citing elevated unemployment levels and an incomplete recovery. Capital markets largely shrugged off the higher inflation concerns with all major asset classes, producing positive returns in the second quarter of 2021, with the notable inflation sensitive Bloomberg Commodity Index increasing 13.3%.

As the Delta variant began to take hold during the summer, many countries returned to some sort of lockdown. Travel slowed and manufacturing production faltered as factories, particularly those in Asia, shut down leading to further strain on supply chains and uneven economic growth across countries. Volatility increased in many asset classes, while investors fell back to their pandemic playbook; rotating from small cap stocks to large, a focus on growth, and the ability to capitalize on stay-at-home trends. Fiscal and monetary stimulus remained supportive, which coupled with stronger economic growth and better underlying economic fundamentals led to US stocks outperforming non-US stocks once again. Ultimately for the third quarter, US markets were slightly positive while developed markets outside the US were slightly negative (in US dollars), while the MSCI EM index declined -8.1% for the three months ending September 30, 2021. Rates stayed largely unchanged in the US as inflation leveled off though at historically elevated levels.

¹ Source: Bloomberg.

² Source: Bloomberg and InvestorForce.



April 29, 2022

As Delta began to subside, optimism again began to take hold. People were doing more traveling, businesses that previously operated on a remote basis started to invite employees back to office buildings, and schools in many places reopened to in-person learning. Corporate earnings were positive and expectations for an orderly monetary policy withdrawal all helped contribute to positive returns at the beginning of the fourth quarter. However, news of a new variant of concern, Omicron, were beginning to leak out of South Africa. Early reports were that this new variant was significantly more transmissible, and possibly less virulent. Depending on the region, restrictions were reintroduced, exacerbating supply chain issues. Additionally, high natural gas prices were threatening the economic recovery in Europe and troubles related to China's overleveraged property sector and crackdown on the technology sector began to rattle markets.

Ultimately, Omicron proved to be much less dangerous as measured by hospitalizations and death rates. In the US and other developed countries, new restrictions on travel were largely avoided, while China continued its "Zero Covid" approach, shutting down large cities when any new cases were detected.

Over the full year, US stocks outperformed other regions, with the S&P 500 index returning 28.7%³ for the year, compared to the MSCI EAFE index at 11.3%, and a decline of -2.5% for the MSCI EM index. The MSCI China index was a notable outlier with a full year return of -21.7%. Within fixed income, higher inflation led the Bloomberg TIPS index to increase 6.0% over the full year, while the Bloomberg Aggregate index declined by -1.5% on higher rates. Economic growth in the US registered at levels not seen in over 40 years at 5.7% over the year, while Europe's economic output increased 5.4% and China at 8.1%. Inflation remained stubbornly high, with CPI increasing 7.0% in the US over the year, the highest reading since 1981.

2022 Outlook

After a year in which economic growth rebounded around the world, the question moving into 2022 is: How do consumers, economies and central banks react to higher prices? There are signs that economic growth will slow while inflation remains elevated, exacerbated by Russia's invasion of Ukraine in February. Economic uncertainties abound. These include:

- Central Banks find themselves behind the curve on inflation, with available tools that may be too blunt to reduce inflation without sending economies into a recession. Persistently high inflation may start to affect consumer and business spending. We have already begun to see some evidence that consumer spending is declining, and business spending may also decline due to higher prices.
- Decline in globalization: supply chain issues and geopolitical risks have placed a premium on supply chain stability relative to supply chain efficiency. Beginning in the 1990s and accelerating after the inclusion of China in the World Trade Organization in 2001, many companies globalized their sourcing and production and embraced lean manufacturing techniques to drive efficiency. But the move toward globalization, though greatly reducing costs, exposed companies to an abundance of supply chain risks, which trade disputes, the pandemic, and Russian invasion of Ukraine laid bare.

³ Source: Bloomberg.



As a result, companies are focused on making supply chains more resilient and robust. This often entails the reshoring of large segments of the supply chain and an embrace of redundancies, including input and inventory stockpiling. This transition is likely a secular change which could lead to pricing pressure for years to come, that is largely unaffected by monetary policy.

- Unemployment levels are low, and back near levels consistent with full employment, but the labor participation levels have not recovered and there continues to be an imbalance between job openings and the available workers to fulfill them.
- Potential for a wage-price spiral: early retirements and other trends associated with the pandemic and the “Great Resignation” have left millions more job openings than available workers in the US. The labor participation rate⁴ was at 63.4% in January of 2020, prior to the pandemic, and was still only at 61.9% at the end of 2021. As companies look to respond to increased demand as the economy reopens and economic growth rebounds, they have faced a distinct shortage in available workers. In response, some companies have been aggressively raising wages to fill vacancies. As companies look to offset the higher input costs, often they respond by raising the prices of the goods and services they sell, furthering pricing pressure. Ultimately, such a condition can only exist during a strong economic expansion and ultra-tight labor markets. As a result, inflation arising from this process should be sensitive to monetary policy to the extent that the central bank is willing to slow economic growth to break the cycle.
- Base input supply shock: Russia’s invasion of Ukraine and the resulting sanctions have created a supply shock to many base inputs, notably energy and metals. Given the large role Russia and Ukraine play in the global export markets for oil, natural gas, grains, metals, and fertilizer, the war and subsequent sanctions are having a large disruptive impact on the price of many base inputs in supply chains. Since the supply shock is focused on the base inputs of many supply chains, the ripple effect and contagion can cause pricing pressure across an exceedingly wide swath of the economy. Inflation arising from supply shocks are only minimally influenced by monetary policy as it can do nothing to resolve the supply constraint and can only affect the demand component through a slowing of the economy. As such, stagflation is usually associated with a supply shock driven inflationary environment.
- The invasion of Ukraine by Russia evolves into a long-term conflict and threatens to pull in other nations to the fight. This development increases the possibility of lower economic growth worldwide, and most likely causes prices to stay elevated for longer periods of time, versus the absence of global conflict.
- Another COVID-19 variant of concern emerges that may be more dangerous. The novel coronavirus is still out there, and as it continues to spread there is always a chance that a new, more virulent variant could emerge.

⁴ Source: US Bureau of Labor Statistics.



April 29, 2022

DERP 2021 Performance

DERP's portfolio returned 17.1% in 2021, outperforming the Policy Index return of 14.1%. For 2021, DERP's performance ranked in the top quartile (15th percentile) of the peer universe⁵ (1st percentile is best and 100th is worst). The Private Equity Composite and Energy Composite had the strongest absolute performance during 2021, returning 49.9% and 40.1%, respectively. The Core Fixed Income Composite had the weakest 2021 performance at -1.9%.

Over the trailing three-, five-, seven-, and ten-year periods, the DERP portfolio returned 11.9%, 9.5%, 7.6%, and 8.9%, on average, annually, respectively, exceeding the current actuarial assumed rate of return of 7.25% in all periods. Additionally, DERP returned 8.7% (annualized) since inception (January 1986), and ranks in the second quartile (38th percentile) of the peer universe since that time.

Performance for DERP over the 2021 calendar year outperformed the benchmark's return and provided the strongest absolute calendar year return since 2013 (18.2%). DERP's outperformance relative to peers in 2021 is due in part to its higher allocation to real assets, notably Energy, MLPs and Real Estate, which were some of the top performers for the calendar year given the higher inflationary environment. Additionally, DERP experienced strong individual manager performance, as nearly all composites provided a positive selection effect (outperforming their respective composite level benchmark) for the calendar year (US Equity and Real Estate composites being the only exceptions).

We remain convinced that a moderately conservative positioning is appropriate given the risks faced globally, including ongoing geopolitical risks and tightening monetary policies by central banks globally, as well as and the unique circumstances affecting the Plan, such as its funding status, net cash flow position, and ratio of active participants to retirees. We will continue to monitor the portfolio and work with staff to advise the Board of recommended material investment positioning changes, with the ultimate goal of seeing the Plan meet its obligations to participants and their beneficiaries.

Sincerely,

Leandro Festino, CFA, CAIA
 Managing Principal, Consultant
 LAF/MM/PN/JEN/sf

⁵ Based on InvestorForce peer rankings: Defined Benefit Public Funds over \$1 billion in assets.

Investment Section

Investment Summary

Category	Book Value	Fair Value	% of Investments at Fair Value	2021 Target Allocation
Domestic Equities	\$ 300,304,417	\$ 532,772,973	19.4 %	22.0 %
International Equities	423,934,514	555,365,597	20.2 %	22.0 %
Fixed Income	652,219,385	688,323,584	25.0 %	25.5 %
Real Estate	185,713,412	241,720,064	8.8 %	10.0 %
Alternatives	301,268,640	576,542,588	21.0 %	12.5 %
Infrastructure	—	—	— %	3.0 %
Absolute Return	69,716,056	69,175,620	2.5 %	5.0 %
Cash and Short-Term Investments	84,569,097	84,569,097	3.1 %	— %
Total Investment Value	<u>\$ 2,017,725,521</u>	<u>\$ 2,748,469,523</u>	<u>100.0 %</u>	<u>100.0 %</u>

Investment Policy

The Denver Employees Retirement Plan (DERP) was established on January 1, 1963, as a defined benefit pension plan. DERP 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

DERP Retirement Board is responsible for formulating investment strategies, asset allocation, and monitoring the performance of investment management firms and professionals. The retirement board has formal written objectives and guidelines contained in DERP'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 retirement board.

The investment managers are each responsible for implementing investment strategies in accordance with the stated investment policies, guidelines, and objectives of DERP. Each manager is responsible for optimizing investment return within its guideline constraints and in the sole interest of DERP's members and beneficiaries. The retirement board has directed all investment managers to vote proxies in the interest of DERP'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 two five percent (7.25%), 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.

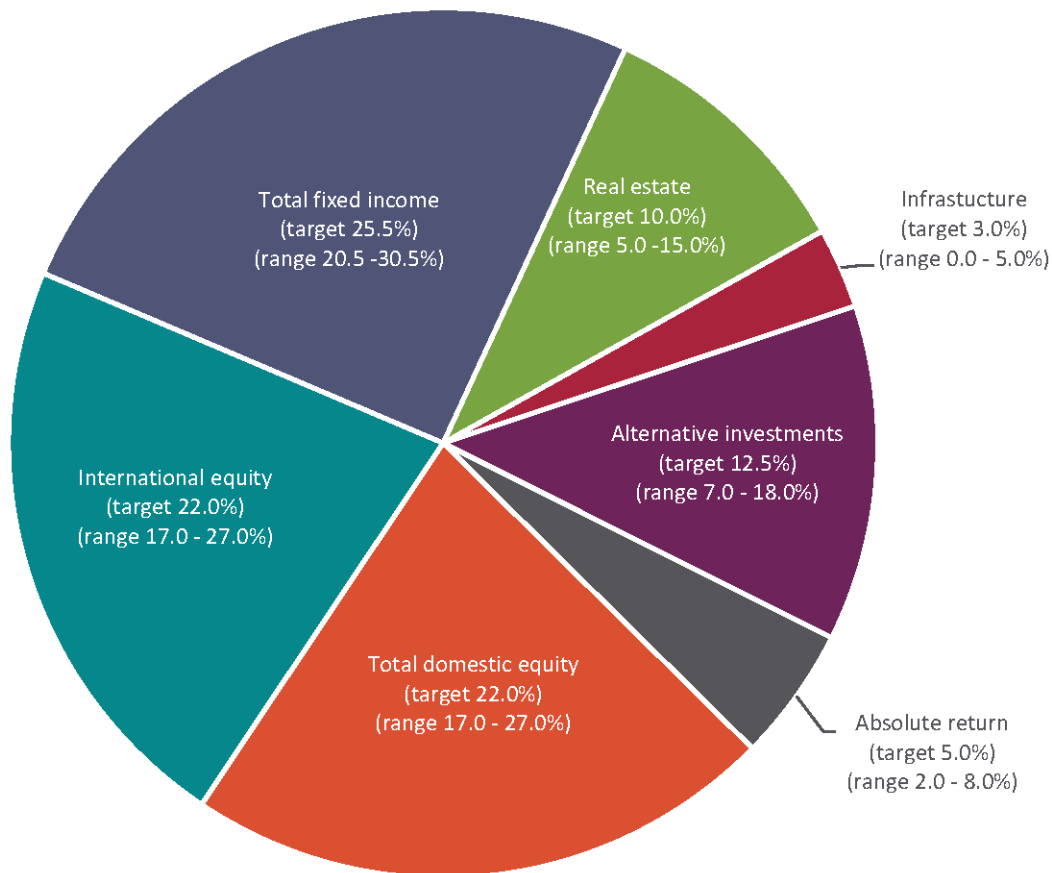
Investment Section

Asset Allocation Target

The retirement 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 DERP Board in 1989. There have been subsequent asset allocation plans adopted, with the most recent being on November 17, 2021. DERP's investment consultant assisted the retirement board in developing the latest asset allocation.

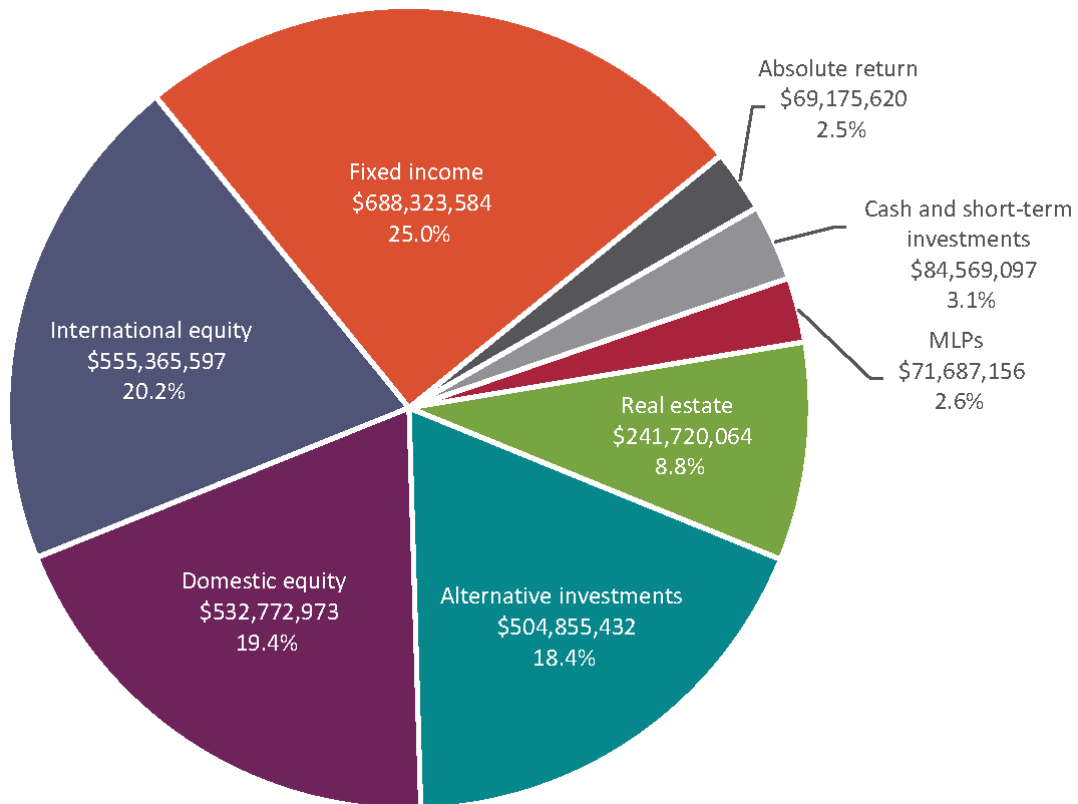
The asset allocation strategy as of December 31, 2021 is depicted in the chart below:



At target, a portfolio so allocated would be expected to achieve a 7.3% return with a standard deviation (risk) of 12.6%.

Asset Allocation by Asset Class

The total Fiduciary Net Position of DERP on December 31, 2021, was \$2,749,753,003 including cash and investments of \$2,748,469,523. At December 31, 2021, DERP's investment assets were allocated as shown in the following chart:



Investment Section

DERP 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 DERP. Investment manager, custodian, and consultant fees are aggressively negotiated and reviewed periodically.

The top ten stock and bond holdings as of December 31, 2021, are shown in the following tables:

Top Ten Stock Holdings December 31, 2021

Shares	Stocks	Fair Value
4,438	Alphabet Inc	\$ 12,846,424
37,620	Microsoft Corp	12,652,358
2,638	Amazon.com Inc	8,795,989
15,359	Unitedhealth Group Inc	7,712,368
17,865	Meta Platforms Inc	6,008,893
10,198	West Pharmaceutical Service	4,782,964
19,961	Visa Inc	4,325,748
6,752	Netflix Inc	4,067,675
6,013	Intuit Inc	3,867,682
23,388	Marriott International Inc/MD	3,864,633

Top Ten Bond Holdings December 31, 2021

Par	Bonds	Coupon Rate	Maturity Date	Fair Value
15,000,000	U.S. Treasury Note	0.875 %	9/30/2026	\$ 14,741,550
10,000,000	FNMA Bond	1.875 %	9/24/2026	10,278,100
6,000,000	FNMA Bond	6.625 %	11/15/2030	8,456,580
6,500,000	FNMA Bond	2.125 %	4/24/2026	6,742,190
5,000,000	FNMA Bond	6.250 %	5/15/2029	6,647,150
5,800,000	U.S. Treasury Note	2.750 %	4/30/2023	5,969,708
6,000,000	U.S. Treasury Note	1.250 %	5/31/2028	5,945,640
6,000,000	U.S. Treasury Note	0.250 %	6/15/2024	5,912,820
6,000,000	U.S. Treasury Note	0.750 %	5/31/2026	5,880,000
6,000,000	U.S. Treasury Note	0.750 %	1/31/2028	5,782,740

Complete listings of stock and bond holdings are available at DERP's office.

Investment Performance

DERP 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, 2021 is 8.70%. Annualized investment results compared with benchmarks for the year ending December 31, 2021, are as follows:

	Last Year	Last 3 Years	Last 5 Years
Domestic Equity	23.4 %	26.8 %	19.5 %
Russell 3000 Index	25.7 %	25.8 %	18.0 %
International Equity	12.9 %	12.3 %	8.4 %
International Equity Policy Index	6.2 %	12.8 %	9.8 %
Fixed Income	0.1 %	4.2 %	4.2 %
Fixed Income Policy Index	(0.9)%	5.1 %	3.9 %
Real Estate	16.1 %	4.6 %	5.2 %
NCREIF Index	22.4 %	9.4 %	8.8 %
MLPs	(25.3)%	(10.2)%	(4.3)%
Alerian Midstream Blended	(20.2)%	(7.4)%	(2.6)%
Alternatives	(1.4)%	5.6 %	7.9 %
Total Portfolio	17.1 %	11.9 %	9.5 %
Total Fund Policy Index	14.1 %	13.4 %	10.1 %
Change in Consumer Price Index (CPI-U)	4.7 %	2.6 %	2.6 %

Investment Section

Schedule of Investment Commissions

December 31, 2021

Broker	Quantity (Units)	Broker Commission	Commission Per/Share
Merrill Lynch Pierce Fenner Smith Inc	633,468	\$ 9,421	\$ 0.015
J.P. Morgan Securities	637,582	7,398	0.012
RBC Capital Markets LLC	781,639	7,168	0.009
Pickering Energy Partners	739,291	6,005	0.008
Goldman Sachs & Co	314,865	5,657	0.018
Jefferies & Co Inc	462,536	4,976	0.011
B Riley and Co LLC	211,632	4,233	0.020
Barclays Capital	425,859	3,945	0.009
Morgan Stanley & Co Inc	157,628	3,576	0.023
Wells Fargo Securities LLC	121,241	2,986	0.025
Instinet Corp	365,728	2,952	0.008
ISI Group Inc	206,774	2,638	0.013
Liquidnet Inc	230,760	2,365	0.010
Virtu Americas LLC	295,290	2,245	0.008
State Street Global Markets LLC	75,929	2,234	0.029
Citigroup Global Market Inc	210,301	2,147	0.010
ITG Group Inc	65,907	2,143	0.033
Pershing LLC	57,428	2,101	0.037
National Financial Services Corp	80,300	2,092	0.026
Cantor Fitzgerald & Co Inc	96,574	1,966	0.020
Bernstein Sanford C & Co	90,919	1,750	0.019
UBS Securities LLC	101,119	1,619	0.016
Credit Suisse	172,167	1,433	0.008
Raymond James & Assoc Inc	147,659	1,388	0.009
Scotia Capital Inc	169,891	1,274	0.008
Baird, Robert W & Co Inc	17,471	698	0.040
Southwest Securities Inc	16,711	668	0.040
Luminex Trading and Analytics	104,727	644	0.006
USCA Securities LLC	84,535	634	0.007
William Blair & Co	7,949	318	0.040
All other brokers (each at \$300 or less)	138,018	1,709	0.019
Total	7,221,898	\$ 90,383	\$ 0.013

Schedule of Investment Fees

December 31, 2021

Externally Managed Portfolios	Assets Under Management	Fees
U.S. Equities:		
Actively Managed	\$ 272,522,987	\$ 2,112,001
Passively Managed	260,249,986	65,609
International Equities:		
Actively Managed	468,822,144	2,529,088
Passively Managed	86,543,453	24,491
Fixed Income:		
Actively Managed	688,323,584	2,030,334
Passively Managed	—	—
Real Estate:		
Fees netted with earnings	241,720,064	2,055,589
Fees paid separately	—	—
Absolute Return:		
Fees netted with earnings	69,175,620	61,593
Alternative Investments:		
Fees netted with earnings	498,452,774	3,370,395
Fees paid separately	78,089,814	758,448
	\$ 2,663,900,426	\$ 13,007,548
Other Investment Services		
Custody Fees		\$ 103,361
Other investment related expenses		\$ 1,184,238

Investment Section

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Actuarial Section



May 10, 2022

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

Re: Actuarial Certification – Actuarial Valuation as of January 1, 2021

Dear Board Members:

This is the Actuary's Certification Letter for Actuarial Section of the Annual Comprehensive Financial Report (ACFR) for the Denver Employees Retirement Plan (the Plan) as of December 31, 2021 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, 2021 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 ACFR based on the January 1, 2021 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.



www.cheiron.us 1.877.CHEIRON (243.4766)

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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, 2021 actuarial valuation updated to the measurement date of December 31, 2021. 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, 2021 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 ACFR.

- 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 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. Any subsequent unexpected changes in the UAL will be amortized over new 20-year periods. The amortization payment to cover the increase in the UAL due to lowering the discount rate from 7.50% to 7.25% as of January 1, 2021 is being phased-in over a three-year period.

Assumptions

The actuarial assumptions used in performing the January 1, 2021 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.

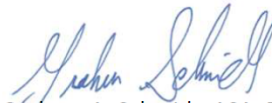
Cheiron's reports, the exhibits within this letter and their contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices, and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial 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 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 D. Harper, FSA, MAAA, EA
Principal Consulting Actuary



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



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 adopted by the Board as of May 19, 2019 and implemented as of the January 1, 2019 valuation as described below.

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 member 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 was amortized over a closed 20-year period. The additional UAL attributable to the change in funding method and asset valuation method was amortized over a separate 20-year period. All future gains and losses will be amortized over new 20-year periods, called layers. The amortization payment to cover the increase in the UAL due to lowering the discount rate from 7.50% to 7.25% as of January 1, 2021, is being phased-in over a three-year period.

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. As of January 1, 2022, the unrecognized loss is only from the previous four plan years ending December 31, 2018, December 31, 2019, December 31, 2020 and December 31, 2021. 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 7.25%, 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 limitation for 2021 is reflected in the valuation and increased annually for future years by the assumed CPI of 2.50%.

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

The Internal Revenue Code Section 401(a)(17) maximum compensation limitation for 2020 is reflected in the valuation and increased annually for future years by the assumed CPI of 2.50%.

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	Age	DHHA
1	7.00%	≤ 25	2.00%
2	5.50%	26	2.00%
3	3.50%	27	2.00%
4	3.25%	28	2.00%
5	3.00%	29	2.00%
6	2.75%	30	2.00%
7	2.50%	31	2.00%
8	2.25%	32	2.00%
9	2.00%	33	2.00%
10	1.50%	34	2.00%
11	1.50%	35	0.75%
12	1.25%	36	0.75%
13	1.25%	37	0.75%
14	1.00%	38	0.75%
15	0.75%	39	0.75%
16	0.50%	40	0.50%
17	0.50%	41	0.50%
18	0.25%	42	0.50%
19	0.25%	43	0.50%
20	0.25%	44	0.50%
21+	0.00%	≥ 45	0.00%



Summary of Actuarial Assumptions and Methods

11. Rates of Termination

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

Service	Non-DHHA		Age	DHHA
	Male	Female		Unisex
0-1	18%	23%	≤ 29	10.0%
1-2	15%	18%	30 – 39	5.0%
2-3	14%	16%	40 – 49	4.0%
3-4	11%	13%	50 – 54	2.5%
4-5	10%	12%	55+	0%
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%		



Summary of Actuarial Assumptions and Methods

12. Rates of Disability

Disability rates of active participants are shown below.

Age	Rate	Age	Rate
30	0.0150%	50	0.2025%
31	0.0150%	51	0.2250%
32	0.0150%	52	0.2550%
33	0.0188%	53	0.2775%
34	0.0203%	54	0.3000%
35	0.0225%	55	0.3300%
36	0.0300%	56	0.3675%
37	0.0375%	57	0.3975%
38	0.0450%	58	0.4350%
39	0.0450%	59	0.4725%
40	0.0525%	60	0.5025%
41	0.0600%	61	0.5625%
42	0.0750%	62	0.6000%
43	0.0825%	63	0.6375%
44	0.0900%	64	0.6750%
45	0.0975%	65	0.7500%
46	0.1200%		
47	0.1425%		
48	0.1650%		
49	0.1875%		

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



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		Normal Retirement
	Hired before July 1, 2011	Hired after June 30, 2011	
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.



Analysis of Financial Experience

Composite Gain (Loss) for the Years Ending December 31, 2016 through December 31, 2020.

Pension Benefits					
	Dec 31, 2020	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017	Dec 31, 2016
Demographic Experience	\$ (29,128,753)	\$ (13,993,345)	\$ (28,925,223)	\$ (10,454,200)	\$ (8,924,900)
Investment Income	(23,832,619)	(36,961,589)	(58,325,659)	(11,792,983)	(43,288,228)
Contribution Gain (Loss) ¹	1,150,377	(12,746,285)	(5,527,971)	0	0
New Entrants ²	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>(3,711,800)</u>	<u>(3,714,300)</u>
Total Gain (Loss)	\$ (51,810,995)	\$ (63,701,219)	\$ (92,778,853)	\$ (25,958,983)	\$ (55,927,428)
Non-Recurring Items ³	<u>0</u>	<u>0</u>	<u>(180,806,014)</u>	<u>(82,057,600)</u>	<u>(66,320,488)</u>
Composite Gain (Loss) During Year	\$ (51,810,995)	\$ (63,701,219)	\$ (273,584,867)	\$ (108,016,583)	\$ (122,247,916)

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

¹ Contribution Gain (Loss) represents implementation logs and payroll growth not as assumed. It was included by the prior actuary in the demographic experience.

² Actuarial liabilities that accrue for new entrants are offset by contributions made by both the employer and employees.

³ Includes Assumption, Method and Benefit Changes.

Health Benefits					
	Dec 31, 2020	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017	Dec 31, 2016
Demographic Experience	\$ 2,022,025	\$ 2,924,694	\$ 1,340,646	\$ (182,500)	\$ 1,857,700
Investment Income	(806,487)	(1,226,092)	(2,236,926)	(757,727)	(1,886,477)
Contribution Gain (Loss) ¹	1,613,491	(901,196)	(296,989)	0	0
New Entrants ²	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>(209,400)</u>	<u>(165,900)</u>
Total Gain (Loss)	\$ 2,916,203	\$ 797,406	\$ (1,193,269)	\$ (1,149,627)	\$ (194,677)
Non-Recurring Items ³	<u>0</u>	<u>0</u>	<u>(8,912,349)</u>	<u>(4,937,600)</u>	<u>(3,449,169)</u>
Composite Gain (Loss) During Year	\$ 2,916,203	\$ 797,406	\$ (10,105,618)	\$ (6,087,227)	\$ (3,643,846)

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

¹ Contribution Gain (Loss) represents implementation logs and payroll growth not as assumed. It was included by the prior actuary in the demographic experience.

² Actuarial liabilities that accrue for new entrants are offset by contributions made by both the employer and employees.

³ Includes Assumption, Method and Benefit Changes.



Demographic History

Schedule of Retirees, Disabled, and Beneficiaries								
Valuation Date Jan 1,	Added to Rolls		Removed from Rolls		Rolls at Valuation Date		Average Annual Benefit	Increase in Average Benefit
	Count	Allowances	Count	Allowances	Count	Annual Benefits		
2012	457	9,392,512	287	2,922,903	7,776	138,317,723	17,788	3.8%
2013	540	11,227,434	271	9,273,325	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%
2020	553	13,314,532	345	5,448,419	10,153	220,253,735	21,693	1.8%
2021	719	21,775,238	334	4,866,064	10,538	237,264,216	22,515	3.8%

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

Schedule of Active Members								
January 1,	Active Members		Projected Payroll		Projected Average Payroll		Average	
	Number	% Increase	\$ Amount	% Increase	\$ Amount	% Increase	Age	Service
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
2020	9,401	2.1%	737,532,660	6.6%	78,453	4.4%	44.1	9.1
2021	8,958	-4.7%	723,324,272	-1.9%	80,746	2.9%	44.0	9.2

This schedule does not include participants in DROP I or DROP II.

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



Scheduled of Funded Liabilities by Type / Member Benefit Coverage Information

Pension Plan - Schedule of Funded Liabilities by Type								
Valuation Date January 1,	Actuarial Liabilities			Reported Assets	Portion of Actuarial Liabilities Covered by Reported Assets			
	(A)	(B)	(C)		(A)	(B)	(C)	
	Non-Vested Member Contributions ¹	Retirees, Beneficiaries, and Term Vested	Remaining Active Members' Liabilities					
2012	\$ 14,330,000	\$ 1,567,383,000 ²	\$ 804,817,000	\$ 1,946,844,000	100%	100%	45%	
2013	14,004,000	1,676,748,000 ³	902,438,000	1,980,204,000	100%	100%	32%	
2014	15,239,000	1,793,125,000 ⁴	890,636,000	2,062,323,000	100%	100%	29%	
2015	21,758,000	1,938,787,000 ⁵	933,123,000	2,132,025,000	100%	100%	18%	
2016	30,578,000	2,038,925,000 ⁶	934,087,000	2,168,754,000	100%	100%	11%	
2017	39,110,000	2,177,513,000 ⁷	958,017,000	2,207,268,000	100%	100%	0%	
2018	47,644,000	2,345,254,000 ⁸	965,324,000	2,272,599,000	100%	95%	0%	
2019	53,342,000	2,468,387,000 ⁹	1,101,941,000	2,255,412,000	100%	89%	0%	
2020	58,696,000	2,554,340,000 ¹⁰	1,114,751,000	2,300,324,000	100%	88%	0%	
2021	63,042,000	2,800,846,000 ¹¹	1,083,780,000	2,378,772,000	100%	83%	0%	

Amounts for January 1, 2018 and earlier were calculated by the prior actuary, and are based on the Projected Unit Credit actuarial cost method.

Amounts for January 1, 2019 and later were calculated by Cheiron, and are based on the Entry Age Normal actuarial cost method.

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

² Includes DROP accounts of \$101,401,000.

⁷ Includes DROP accounts of \$116,493,000.

³ Includes DROP accounts of \$105,677,000.

⁸ Includes DROP accounts of \$125,524,000.

⁴ Includes DROP accounts of \$107,944,000.

⁹ Includes DROP accounts of \$118,078,000.

⁵ Includes DROP accounts of \$110,655,000.

¹⁰ Includes DROP accounts of \$118,320,000.

⁶ Includes DROP accounts of \$113,006,000.

¹¹ Includes DROP accounts of \$122,517,000.



Scheduled of Funded Liabilities by Type / Member Benefit Coverage Information

Retiree Medical Plan - Member Benefit Coverage Information								
Valuation Date January 1,	Actuarial Liabilities ¹				Reported Assets	Portion of Actuarial Liabilities Covered by Reported Assets		
	(A)	(B)	(C)	(A)		(B)	(C)	
	Non-Vested Member Contributions ²	Retirees, Beneficiaries, and Term Vested	Remaining Active Members' Liabilities					
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%	
2020	3,257,000	119,238,000	44,633,000	73,107,000	100%	59%	0%	
2021	3,309,000	124,184,000	42,461,000	75,471,000	100%	58%	0%	

Amounts for January 1, 2018 and earlier were calculated by the prior actuary, and are based on the Projected Unit Credit actuarial cost method.

Amounts for January 1, 2019 and later were calculated by Cheiron, and are based on the Entry Age Normal actuarial cost method.

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.



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, 2020. 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.



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.



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.



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

9.25% of compensation, effective January 1, 2020

23. Employer Contributions

15.75% of compensation, effective January 1, 2020

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

None.



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 or 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 Plan - Schedule of Funding Progress						
Valuation Date January 1,	Actuarial Value of Assets	Actuarial Liability (AL)	Unfunded AL	Funded Ratio	Covered Payroll	Unfunded AL as a % of Covered Payroll
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%
2020	2,300,324,000	3,727,787,000	1,427,463,000	61.7%	732,075,000	195.0%
2021	2,378,772,000	3,947,667,000	1,568,895,000	60.3%	719,481,000	218.1%

Amounts for January 1, 2018 and earlier were calculated by the prior actuary, and are based on the Projected Unit Credit actuarial cost method.

Amounts for January 1, 2019 and later were calculated by Cheiron, and are based on the Entry Age Normal actuarial cost method.

Retiree Medical Plan - Schedule of Funding Progress						
Valuation Date January 1,	Actuarial Value of Assets	Actuarial Liability (AL)	Unfunded AL	Funded Ratio	Covered Payroll	Unfunded AL as a % of Covered Payroll
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%
2020	73,107,000	167,128,000	94,021,000	43.7%	732,075,000	12.8%
2021	75,471,000	169,954,000	94,483,000	44.4%	719,481,000	13.1%

Amounts for January 1, 2018 and earlier were calculated by the prior actuary, and are based on the Projected Unit Credit actuarial cost method.

Amounts for January 1, 2019 and later were calculated by Cheiron, and are based on the Entry Age Normal actuarial cost method.

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.



Statistical Section

This section of DERP's Annual Comprehensive 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 DERP's overall financial status.

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Statistical Section

Changes in Fiduciary Net Position

Last Ten Fiscal Years

	2012	2013	2014	2015
Pension Benefits				
Additions:				
Member contributions (1)	\$ 30,663,247 (2)	\$ 37,138,512 (3)	\$ 39,521,451 (4)	\$ 46,689,696 (5)
Employer contributions (1)	49,756,639	56,427,308	59,941,041	67,234,597
Investment earnings (net of expenses)	205,809,820	318,274,197	101,595,703	(35,746,029)
Total additions to fiduciary net position	286,229,706	411,840,017	201,058,195	78,178,264
Deductions:				
Benefit payments	149,470,854	158,285,769	171,178,475	181,827,975
Refunds	947,756	1,051,298	1,507,554	2,164,104
Administrative expenses	3,334,741	3,597,603	3,638,296	3,785,416
Total deductions from fiduciary net position	153,753,351	162,934,670	176,324,325	187,777,495
Change in fiduciary net position	\$ 132,476,355	\$ 248,905,347	\$ 24,733,870	\$ (109,599,231)
Health Benefits				
Additions:				
Member contributions (1)	\$ 2,492,678	\$ 2,543,374	\$ 2,725,316	\$ 3,026,103
Employer contributions (1)	4,241,292	4,135,064	4,332,376	4,380,107
Investment earnings (net of expenses)	8,635,748	12,911,917	3,966,864	(1,308,528)
Total additions to fiduciary net position	15,369,718	19,590,355	11,024,556	6,097,682
Deductions:				
Benefit payments	12,446,444	12,582,751	12,846,786	12,905,247
Refunds	39,653	42,505	58,314	80,925
Administrative expenses	139,510	145,169	140,710	141,296
Total deductions from fiduciary net position	12,625,607	12,770,425	13,045,810	13,127,468
Change in fiduciary net position	\$ 2,744,111	\$ 6,819,930	\$ (2,021,254)	\$ (7,029,786)

(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, 2012, the employer and employee contributions increased to 10.25% and 6.25%, respectively.

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

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

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

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

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

(8) Effective January 1, 2020, the employer and employee contributions increased to 15.75% and 9.25%, respectively.

Statistical Section

2016	2017	2018	2019	2020	2021
\$ 48,037,800	\$ 50,599,952	\$ 52,700,679 ⁽⁶⁾	\$ 60,074,876 ⁽⁷⁾	\$ 63,816,511 ⁽⁸⁾	\$ 62,604,568
68,794,871	71,731,309	81,719,744	87,464,822	105,863,173	110,464,999
147,443,477	302,942,063	(73,146,389)	284,110,225	180,417,580	393,528,947
264,276,148	425,273,324	61,274,034	431,649,923	350,097,264	566,598,514
191,790,600	204,064,502	215,658,138	226,412,949	232,594,284	256,073,669
2,751,016	3,547,888	4,348,592	5,309,546	4,833,725	7,505,752
3,742,451	3,899,901	4,016,288	4,123,494	4,465,837	4,657,946
198,284,067	211,512,291	224,023,018	235,845,989	241,893,846	268,237,367
\$ 65,992,081	\$ 213,761,033	\$ (162,748,984)	\$ 195,803,934	\$ 108,203,418	\$ 298,361,147
\$ 3,012,052	\$ 3,005,989	\$ 3,132,783	\$ 3,310,427	\$ 4,029,080	\$ 3,820,520
4,364,140	4,367,474	4,952,754	5,084,799	6,870,452	6,805,263
5,225,319	10,422,137	(2,364,015)	9,185,163	5,687,451	12,459,533
12,601,511	17,795,600	5,721,522	17,580,389	16,586,983	23,085,316
12,859,361	13,049,162	12,905,976	12,951,302	12,976,448	12,999,600
98,273	121,860	144,189	171,219	153,085	237,527
133,511	133,959	133,128	133,008	141,397	147,406
13,091,145	13,304,981	13,183,293	13,255,529	13,270,930	13,384,533
\$ (489,634)	\$ 4,490,619	\$ (7,461,771)	\$ 4,324,860	\$ 3,316,053	\$ 9,700,783

Statistical Section

Schedule of Benefit Expenses by Type

Last Ten Fiscal Years

	2012	2013	2014	2015
Age and Service Benefits:				
Retirees	\$ 127,091,564	\$ 135,648,423	\$ 146,505,901	\$ 156,519,225
Survivor	6,126,099	6,619,661	7,274,571	7,755,324
Death in Service Benefits	3,736,130	3,781,917	3,965,980	4,054,992
Disability Benefits:				
Retirees:				
On-the-Job	869,781	826,071	844,509	879,295
Off-the-Job	3,854,524	3,940,566	4,018,848	3,977,212
Survivors	1,238,793	1,309,114	1,433,661	1,535,422
Lump Sum Death Benefits	1,315,428	1,350,159	1,415,762	1,324,545
Pension Benefits' Contribution Refunds				
Separation	941,408	1,051,298	1,507,554	2,162,575
Death	6,348	—	—	1,529
Health Benefits' Contribution Refunds				
Separation	39,387	42,505	58,314	80,868
Death	266	—	—	57
DROP Benefits	5,238,535	4,809,858	5,719,243	5,781,960
Pension Benefits	144,232,319	153,475,911	165,459,232	176,046,015
Health Benefits	12,446,444	12,582,751	12,846,786	12,905,247

Statistical Section

2016	2017	2018	2019	2020	2021
\$ 165,246,685	\$ 175,893,605	\$ 185,677,299	\$ 195,391,329	\$ 217,219,220	\$ 229,078,224
8,482,372	9,001,245	9,413,449	10,222,475	11,309,771	12,248,632
4,135,128	4,248,073	4,320,956	4,392,797	4,616,997	4,494,804
917,075	913,151	1,003,139	926,796	1,077,114	878,069
4,122,190	4,019,183	3,936,770	3,925,053	3,823,114	3,792,467
1,569,064	1,615,969	1,698,309	1,805,386	1,793,476	1,829,505
1,615,976	1,561,969	1,466,130	1,459,441	1,254,830	1,489,888
2,671,771	3,434,692	4,226,993	5,178,686	4,771,796	7,332,167
2,616	17,882	3,892	—	61,929	23,949
174,731	216,049	261,655	302,079	149,826	385,903
171	1,125	241	—	3,259	1,260
5,702,111	6,811,306	8,142,084	8,289,671	4,476,210	15,261,680
186,088,490	197,253,196	207,516,054	218,123,278	228,118,074	240,811,989
12,859,360	13,049,162	12,905,976	12,951,302	12,976,448	12,999,600

Statistical Section

Schedule of Retired Members by Type of Benefit - Pension

December 31, 2021

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	60	54	4	—	—	1	1	—	56	1	1	2
51 - 100	88	58	9	—	—	8	13	—	57	26	1	4
101 - 150	248	198	14	1	—	12	23	—	132	99	4	13
151 - 200	261	199	26	—	—	11	24	1	145	90	7	19
201 - 250	329	249	38	—	—	16	26	—	186	104	12	27
251 - 300	321	238	35	—	2	17	27	2	180	119	9	13
301 - 350	301	203	34	—	3	28	27	6	180	90	12	19
351 - 400	247	167	34	1	6	17	19	3	139	76	13	19
401 - 450	261	179	30	—	6	22	18	6	146	75	12	28
451 - 500	256	164	36	—	9	17	25	5	141	78	14	23
501 - 600	447	243	88	2	18	28	55	13	210	159	24	54
601 - 700	362	205	53	1	18	23	48	14	167	118	27	50
701 - 800	352	204	50	2	23	15	44	14	174	105	30	43
801 - 900	340	226	44	2	11	20	30	7	179	104	22	35
901 - 1,000	315	211	24	2	17	14	33	14	154	94	26	41
1,001 - 1,100	324	213	31	1	11	12	47	9	166	97	22	39
1,101 - 1,200	327	224	26	—	16	11	37	13	158	104	23	42
1,201 - 1,300	286	203	18	3	8	12	34	8	143	81	23	39
1,301 - 1,400	260	185	12	3	10	5	37	8	131	67	27	35
1,401 - 1,500	255	193	11	1	10	13	24	3	137	65	20	33
1,501 - 1,600	263	213	11	2	7	9	21	—	157	59	28	19
1,601 - 1,700	231	188	4	2	9	9	16	3	126	48	23	34
1,701 - 1,800	224	178	2	—	10	12	20	2	124	45	25	30
1,801 - 1,900	243	215	4	1	6	5	12	—	120	56	29	38
1,901 - 2,000	229	203	2	—	5	5	12	2	122	55	14	38
2,001 - 2,500	949	815	12	4	24	25	61	8	430	272	100	147
2,501 - 3,000	756	697	2	4	10	4	38	1	347	200	85	124
3,001 - 3,500	612	565	1	4	4	11	23	4	252	174	71	115
3,501 - 4,000	388	364	2	—	2	2	18	—	150	125	38	75
4,001 - 4,500	309	302	—	1	1	3	2	—	141	81	20	67
4,501 - 5,000	239	231	—	—	—	1	7	—	115	67	21	36
5,001 - 5,500	161	155	—	1	—	2	3	—	70	48	17	26
5,501 - 6,000	120	110	—	1	—	4	4	1	47	44	12	17
6,001 - 6,500	69	67	—	—	1	—	1	—	34	22	2	11
6,501 - 7,000	72	67	—	—	1	2	2	—	30	24	4	14
7,001 - 7,500	57	55	—	—	—	—	2	—	19	15	7	16
7,501 - 8,000	34	33	—	—	—	—	1	—	15	8	5	6
8,001 - 8,500	21	19	—	—	—	—	1	1	6	8	3	4
\$ 8,501 - over	73	69	—	—	1	—	2	1	25	23	9	16
Totals	10,690	8,362	657	39	249	396	838	149	5,311	3,126	842	1,411

* 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, 2021

Non Medicare-eligible (1)		Medicare-eligible (2)	
Amount of Reduction Eligible to Receive	Number of Retirees	Amount of Reduction Eligible to Receive	Number of Retirees
\$ 12.50 - 50.00	89	\$ 6.25 - 50.00	635
51.00 - 100.00	288	51.00 - 100.00	1,459
101.00 - 150.00	258	101.00 - 150.00	1,358
151.00 - 200.00	197	151.00 - 200.00	1,185
201.00 - 250.00	202	201.00 - 250.00	511
251.00 - 300.00	196	251.00 - 300.00	78
301.00 - 350.00	228	301.00 - 350.00	24
351.00 - 400.00	198	351.00 - 400.00	16
401.00 - 450.00	135	401.00 - 450.00	8
451.00 - 500.00	33	451.00 - 500.00	3
501.00 - 550.00	5	501.00 - 550.00	1
551.00 - 600.00	5	551.00 - 600.00	—
601.00 - 650.00	1	601.00 - 650.00	—
651.00 - 700.00	1	651.00 - 700.00	—
701.00 - 750.00	1	701.00 - 750.00	1
751.00 - 800.00	1	751.00 - 800.00	—
\$ 801.00-over	1	\$ 801.00 - over	—
Total	1,839	Total	5,279

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.

Statistical Section

Schedule of Retired Members by Attained Age and Type of Pension Benefit

December 31, 2021

Age	Number of Retirees/ Beneficiary	Type of Retirement*						
		1	2	3	4	5	6	7
0-24	39	—	—	—	2	32	4	1
25-29	11	—	—	—	—	3	3	5
30-34	17	—	—	—	1	4	7	5
35-39	23	—	—	—	—	13	7	3
40-44	38	—	—	—	2	17	13	6
45-49	30	1	—	—	5	10	10	4
50-54	83	7	—	—	19	26	23	8
55-59	975	846	22	3	20	50	29	5
60-64	1,703	1,430	90	4	47	59	57	16
65-69	2,286	1,934	114	12	52	54	102	18
70-74	2,303	1,907	132	11	51	58	119	25
75-79	1,480	1,129	135	1	30	32	136	17
80-84	795	525	84	3	13	16	131	23
85-89	518	342	41	5	6	13	102	9
90-94	286	190	16	—	1	4	72	3
95 and up	103	51	23	—	—	5	23	1
Totals	10,690	8,362	657	39	249	396	838	149

***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							Total
	0-5	6-10	11-15	16-20	21-25	26-30	31+	
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
2020								
Average Monthly Benefit	\$282.10	\$576.28	\$1,096.89	\$2,378.30	\$3,225.77	\$4,612.82	\$5,534.90	\$2,529.58
Mean Final Average Monthly Salary	\$3,330.75	\$4,192.21	\$5,524.10	\$6,972.69	\$7,022.33	\$8,380.70	\$8,271.98	\$6,242.11
Number of Retirees	35	81	84	106	114	98	90	608
2021								
Average Monthly Benefit	\$336.28	\$547.07	\$1,147.79	\$2,425.76	\$3,741.65	\$4,711.65	\$4,388.36	\$2,471.22
Mean Final Average Monthly Salary	\$4,299.80	\$4,661.48	\$5,723.78	\$7,688.27	\$8,541.19	\$8,856.93	\$6,506.68	\$6,611.16
Number of Retirees	31	85	76	54	67	57	24	394

Statistical Section

Average Monthly Benefit Payment – Health Insurance Reduction

Last Ten Fiscal Years

As of December 31:	Years of Credited Service							Total
	1-5	6-10	11-15	16-20	21-25	26-30	31+	
2012								
Total Eligible Reduction Amount	\$4,844.00	\$32,767.00	\$76,100.00	\$161,844.00	\$209,974.00	\$266,394.00	\$328,562.00	\$1,080,485.00
Average Monthly Benefit Paid	\$36.97	\$61.36	\$92.24	\$147.27	\$188.32	\$241.08	\$309.96	\$164.10
Number of Retirees	131	534	825	1,099	1,115	1,105	1,060	5,869
2013								
Total Eligible Reduction Amount	\$5,087.00	\$33,201.41	\$78,182.64	\$165,710.99	\$215,607.22	\$267,748.88	\$336,423.35	\$1,101,961.49
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	\$5,479.72	\$34,538.29	\$79,741.06	\$166,663.15	\$214,239.85	\$267,381.50	\$341,055.39	\$1,109,098.96
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	\$5,678.16	\$36,042.85	\$81,626.26	\$168,577.92	\$214,334.80	\$266,579.67	\$343,191.32	\$1,116,030.98
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	\$5,819.39	\$36,469.96	\$81,644.92	\$169,995.87	\$218,240.60	\$267,517.16	\$338,369.62	\$1,118,057.52
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	\$6,116.13	\$35,568.50	\$79,516.08	\$164,180.00	\$208,031.27	\$257,990.76	\$326,843.59	\$1,078,246.33
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	\$6,096.40	\$38,086.82	\$80,149.33	\$173,116.33	\$221,293.95	\$275,968.84	\$347,532.44	\$1,142,244.11
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	\$6,097.56	\$38,623.27	\$80,951.33	\$170,221.11	\$218,728.91	\$271,553.26	\$337,493.83	\$1,123,669.27
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
2020								
Total Eligible Reduction Amount	\$6,362.16	\$38,453.43	\$80,149.75	\$173,714.10	\$227,910.50	\$279,923.61	\$348,419.64	\$1,154,933.19
Average Monthly Benefit Paid	\$37.42	\$56.14	\$83.32	\$121.82	\$159.27	\$206.74	\$253.77	\$156.05
Number of Retirees	170	685	962	1,426	1,431	1,354	1,373	7,401
2021								
Total Eligible Reduction Amount	\$6,300.84	\$37,520.77	\$79,360.31	\$167,607.91	\$227,624.26	\$274,548.92	\$332,090.16	\$1,125,053.17
Average Monthly Benefit Paid	\$36.21	\$55.10	\$82.67	\$118.20	\$157.09	\$201.87	\$243.29	\$151.89
Number of Retirees	174	681	960	1,418	1,449	1,360	1,365	7,407

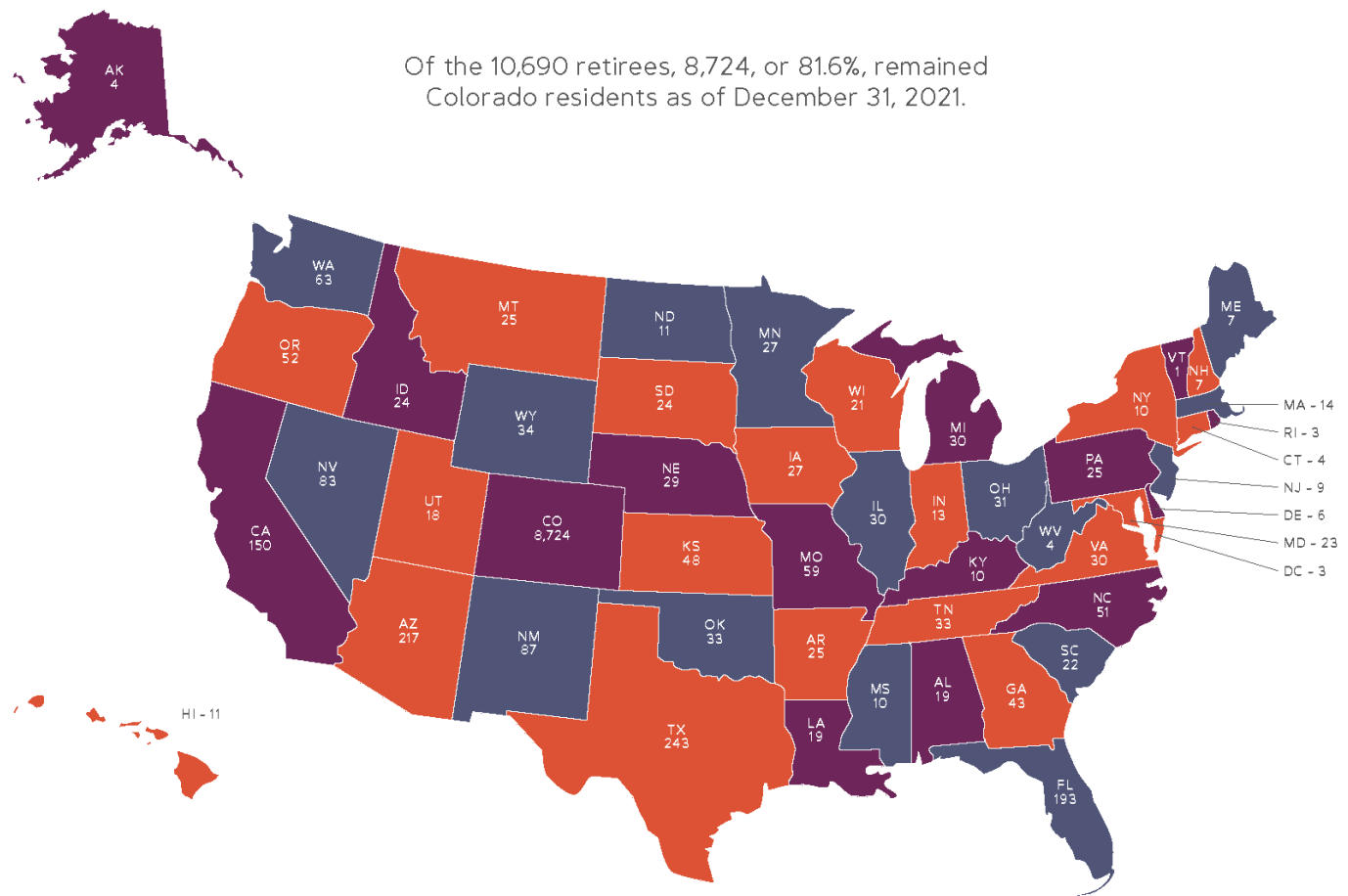
Principal Participating Employers

Current Year and Nine Years Ago

	2021			2012		
	Covered Employees	Rank	Percentage of Total System	Covered Employees	Rank	Percentage of Total System
Pension Benefits						
Participating Government:						
City and County of Denver	21,823	1	94.9 %	20,616	1	93.6 %
Denver Health and Hospital Authority	1,168	2	5.1 %	1,416	2	6.4 %
Total	22,991		100.0 %	22,032		100.0 %
Health Benefits						
Participating Government:						
City and County of Denver	21,823	1	94.9 %	20,616	1	93.6 %
Denver Health and Hospital Authority	1,168	2	5.1 %	1,416	2	6.4 %
Total	22,991		100.0 %	22,032		100.0 %

Statistical Section

Location of DERP Retirees



Armed Forces

Africa, Canada, Europe, or Middle East - 1

Other Countries and Territories

Australia - 1	Mexico - 3
Canada - 2	New Zealand - 1
Costa Rica - 3	Philippines - 1
Germany - 1	Poland - 1
Israel - 2	United Kingdom - 2
Italy - 1	

