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, 2022

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Lisa Zúñiga Ramirez, CFA
Retirement Board Chair

Heather K. Darlington, CPA
Executive Director

Prepared by the Denver Employees Retirement Plan Staff

Available online at DERP.org

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Primary Sponsor

City and County of Denver, Colorado

Elected Officials

Honorable Michael B. Hancock
Mayor

Honorable Timothy M. O'Brien, CPA
Auditor

Honorable Paul D. López
Clerk and Recorder

City Council

Honorable Amanda P. Sandoval
District 1

Honorable Kevin Flynn
District 2

Honorable Jamie Torres
District 3

Honorable Kendra Black
District 4

Honorable Amanda Sawyer
District 5

Honorable Paul Kashmann
District 6

Honorable Jolon Clark
District 7

Honorable Christopher Herndon
District 8

Honorable Candi CdeBaca
District 9

Honorable Chris Hinds
District 10

Honorable Stacie Gilmore
District 11

Honorable Robin Kniech
Council Member at-Large

Honorable Deborah Ortega
Council Member at-Large

Denver Employees Retirement Plan

May 25, 2023

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, 2022.

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, 2022, 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 UHY LLP to render an opinion as to the fairness of DERP’s 2022 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, 2022, there were 9,228 active and 10,895 retired DERP members.

DERP is governed by a five member retirement board, and the members 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 2022, the investment portfolio generated a 8.5% net of fee loss. These results slightly lagged the (8.2)% return of the fund policy index but was better than the (11.1)% median loss of our peers. Over the last 10 years, the DERP portfolio has earned a net annual return of 6.8%, which lagged our peers and our blended benchmark returns of 6.9% and 7.0% 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, 2022 was 61.8%. 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, 2021. 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 33 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, 2021. 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 third 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 2022 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,

Lisa Zúñiga Ramirez. CFA
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

George Delaney
Retired Member
Term expires January 1, 2028

John E. Dominguez
Term expires January 1, 2029

Guadalupe Gutierrez-Vasquez
Active Member
Term expires January 1, 2027

Lisa Zúñiga Ramirez, CFA
Term expires January 1, 2025

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 retired members and presents suggestions and questions to the retirement board.

Heather Britton
Appointed by the Career Service Board
Term expires June 30, 2026

Maro Casparian
Active Member
Term expires June 30, 2026

Roberta Monaco
Retired member
Term expires June 30, 2025

Danielle Sexton
Active Member
Term expires June 30, 2025

Professional Services

Actuary
- Cheiron, Inc.

Custodian Bank
- Bank of New York Mellon Corporation

Independent Auditor
- UHY LLP

Investment Consulting
- Meketa Investment Group

Investment Managers

Domestic Equitity Managers
- Brown Advisory
- Eagle Capital Management
- Franklin Templeton
- Mellon Investments Corporation
- Neuberger Berman

International Equity Managers
- Altrinsic Global Advisors
- Dimensional Fund Advisors
- LSV Asset Management
- Mellon Investments Corporation
- WCM Investment Management

Fixed Income Managers
- Athyrium Capital Management, LP
- Bain Capital, LP
- Colchester Global Investors Limited
- Davidson Kempner Capital Management, LP
- Fortress Investment Group, LLC
- Blackstone Credit (fka GSO Capital Partners)
- Mellon Investments Corporation
- Silver Rock Financial, LP

Real Estate Mangers
- Contrarian Capital Management, LLC
- DRA Advisors, LLC
- Prudential Real Estate Investors
- UBS Realty Investors, LLC
- Walton Street Capital, L.L.C.

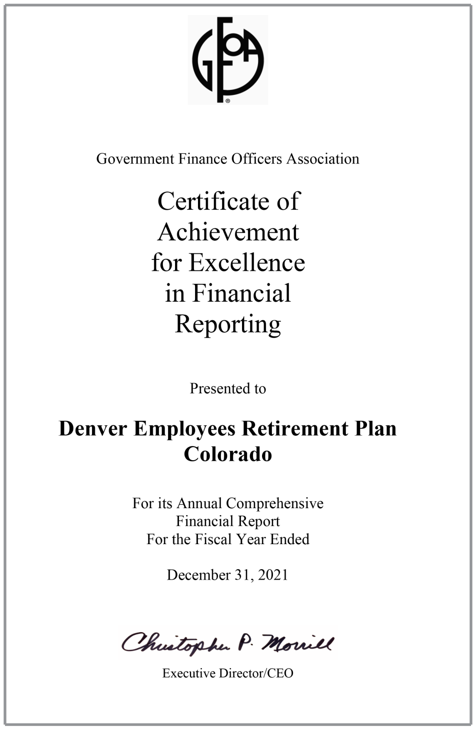
Alternative Investment Managers
- Adams Street Partners, LLC
- EIG Global Energy Partners
- Hancock Natural Resource Group
- JP Morgan Private Equity Group
- Kayne Anderson Capital Advisors, L.P.
- Lime Rock Resources

Absolute Return Funds
- 36 South Capital Advisors, LLP
- Alpstone Capital (Suisse) SA
- DG Partners, LLP
- Empyrean Capital Partners, LP
- Lombard Odier Asset Management (USA) Corp
- PAAMCO Prisma
- Pillar Capital Management Limited
- Sculptor Capital, LP
- Southpoint Capital Advisors, LP
- Waterfront Capital Partners LLC

Infrastructure
- JP Morgan Investment Management Inc.
- Kohlberg, Kravis, Roberts (KKR)

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

Certificate of Achievement for Excellence in Financial Reporting


Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Denver Employees Retirement Plan
Colorado

For its Annual Comprehensive Financial Report For the Fiscal Year Ended

December 31, 2021

Christopher P. Morrill

Executive Director/CEO

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, 2021.

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 communication 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, 2021. 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 third 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 it eligibility for another Award.

Executive Director

Directs the overall management ensuring DERP accomplishes its mission and strategic initiatives set forth by the retirement board.

Benefits and Membership Services Director

Delivers a great member experience for each member and creates positive relationships managing membership activities, education, and benefit programs.

Chief Investment Officer

Manages all investment related duties and risk exposures, working closely with investment advisors to develop and execute the investment strategies necessary to manage and preserve DERP's portfolio.

Finance and Technology Director

Utilizes forward thinking strategies to provide strategic direction and oversight that conforms to generally accepted accounting principles and actuarial best practices and directs technical infrastructure.

General Counsel

Provides legal advice, representation, and services to the retirement board, the executive director, and DERP staff.

Marketing and Communications Director

Develops and implements marketing, communication, and educational strategies to strengthen DERP's presence, create awareness, communicate value, and enhance the member experience.

Financial Section

UHY LLP
Certified Public Accountants

INDEPENDENT AUDITOR'S REPORT

Retirement Board
Denver Employees Retirement Plan
Denver, Colorado

Opinion

We have audited the accompanying financial statements of the Denver Employees Retirement Plan (DERP), a component unit of the City and County of Denver, which comprise of the statement of fiduciary net position and statement of changes in net position, as of and for the year ended December 31, 2022, and the related notes to the financial statements, which collectively comprise DERP'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 DERP, as of December 31, 2022, and the respective changes in its fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinions

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 Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of DERP 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 DERP's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's 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 auditor's report that includes our opinions. 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 DERP'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 the DERP'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 the schedule of changes in net pension liability and related ratios, employer contributions and investment returns and related notes, 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 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

The financial statements of DERP as of December 31, 2021 were audited by other auditors whose report dated June 8, 2022 expressed an unmodified opinion on those statements. In our opinion, the summarized comparative information presented herein as of and for the year ended December 31, 2021 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 of the introductory, investment, actuarial and statistical sections, but does not include the basic financial statements and our auditor's 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.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated May 25, 2023, on our consideration of the DERP's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the result of that testing and not to provide an opinion on the effectiveness of the DERP'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 DERP's internal control over financial reporting and compliance.

UHY LLP

Columbia, Maryland
May 25, 2023

This is an analysis and overview of the financial activities of the Denver Employees Retirement Plan (DERP) for the year ended December 31, 2022. 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, 2022, the fiduciary net position of $2,399,244,141 was restricted for the payment of benefits and to meet DERP's future obligations to its members and their beneficiaries.

For 2022, DERP's total fiduciary net position restricted for benefits decreased by $350,508,862, a 12.7% decrease from the amount of net position restricted for benefits reported at the end of 2021. The decrease for 2022 is the result of unfavorable market conditions that contributed to net investment loss of $243,820,897, reduced by benefit payments exceeding contributions received.

Additions to DERP's fiduciary net position included contributions of $131,831,032 from the City and County of Denver (city) and $4,314,680 from the Denver Health and Hospital Authority (DHHA). In addition, active members of DERP contributed $72,428,925.

Deductions from DERP's fiduciary net position during 2022 totaled $315,262,602. This amount is 11.9% higher than the total 2021 deductions. Increases in DROP withdrawals during 2022 were the primary driver of the increase in deductions. Additionally, there was an increase in the amount of retirees receiving benefits.

DERP's funding objective is to meet its long-term benefit obligations through employer and employee contributions and investment returns. As of January 1, 2022, the date of the last actuarial valuation, the funded ratios for the pension and health benefits funds were 61.8% and 47.7%, 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, 2022, with summarized comparative totals for 2021. This statement reflects DERP's net position available for benefits in each the retirement and the health benefits funds as of December 31, 2022, and in the aggregate as of December 31, 2021.

The Statement of Changes in Fiduciary Net Position shows the additions to and deductions from DERP's net position during 2022, with summarized comparative totals for 2021.

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, 2022 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 sources of changes in it's net pension and other post-employment benefits (OPEB) liabilities 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, 2022, DERP's fiduciary net position totaled $2,399,244,141. Of this amount, $73,691,078 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 decreased in 2022 due to poor market performance across multiple sectors. As of December 31, DERP's fiduciary net position was:

	2022	2021	Amount of Change	Percentage Change
Assets				
Cash, short-term investments, and receivables	$ 66,815,638	$ 86,009,680	$ (19,194,042)	(22.3)%
Securities lending collateral	68,602,894	77,080,319	(8,477,425)	(11.0)%
Investments, at fair value	2,332,598,410	2,663,900,426	(331,302,016)	(12.4)%
Capital assets, net	1,950,243	2,329,334	(379,091)	(16.3)%
Total assets	**2,469,967,185**	**2,829,319,759**	**(359,352,574)**	**(12.7)%**
Liabilities				
Accounts and lease payable and unsettled securities purchased	2,033,775	2,464,219	(430,444)	(17.5)%
Securities lending obligations	68,602,894	77,080,319	(8,477,425)	(11.0)%
Total liabilities	70,636,669	79,544,538	(8,907,869)	(11.2)%
Deferred inflow of resources	86,375	22,218	64,157	288.8 %
Fiduciary net position	**$ 2,399,244,141**	**$ 2,749,753,003**	**$ (350,508,862)**	**(12.7)%**

Reserves

DERP has established a reserve account for accumulated DROP benefits of $73,691,078 as of December 31, 2022. 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 less than deductions, resulting in an overall 12.7% decrease in fiduciary net position for the year. For the years ended December 31, DERP's activities were:

	2022	2021	Amount of Change	Percentage Change
Additions				
Contributions	$ 208,574,637	$ 183,695,350	$ 24,879,287	13.5 %
Net investment earnings	(243,820,897)	405,988,480	(649,809,377)	(160.1)%
Total additions, net	**(35,246,260)**	**589,683,830**	**(624,930,090)**	**(106.0)%**
Deductions				
Benefits	310,458,134	276,816,548	33,641,586	12.2 %
Administrative expenses	4,804,468	4,805,352	(884)	— %
Total deductions	**315,262,602**	**281,621,900**	**33,640,702**	**11.9 %**
Change in fiduciary net position	(350,508,862)	308,061,930	(658,570,792)	(213.8)%
Beginning of year fiduciary net position	2,749,753,003	2,441,691,073	308,061,930	12.6 %
End of year Fiduciary net position	**$ 2,399,244,141**	**$ 2,749,753,003**	**$ (350,508,862)**	**(12.7)%**

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 2022 totaled $136,145,712, which is 16.1% higher than the amount contributed in 2021, due primarily a significant increase in covered payroll in 2022 as a result of approved overtime and various one-time incentives. During 2022, employees contributed a total of $72,428,925, which is an increase of 9.0% over the 2021 amount, and due to a significant increase in covered payroll. DERP’s net investment return was (8.5)% in 2022 compared to 17.1% in 2021. With the exception of real estate and natural resources, all major asset classes experienced losses in 2022. The largest losses occurred in domestic and international equities, and even defensive fixed income suffered significant declines. 2022 was the first year since 1969 that both stock and bonds declined together. DERP had net securities lending transaction income of $261,548 in 2022 and $266,210 in 2021.

	2022	2021	Amount of Change	Percentage Change
Employer contributions	$ 136,145,712	$ 117,270,262	$ 18,875,450	16.1 %
Employee contributions	72,428,925	66,425,088	6,003,837	9.0 %
Net appreciation (depreciation) in fair value of investments	(293,751,342)	362,175,795	(655,927,137)	(181.1)%
Interest, dividends, real estate/alternative investments, and absolute return income	64,583,514	57,841,622	6,741,892	(11.7)%
Securities lending transactions income, net	261,548	266,210	(4,662)	(1.8)%
Investment expenses	(14,914,617)	(14,295,147)	(619,470)	(4.3)%
Total additions, net	**$ (35,246,260)**	**$ 589,683,830**	**$ (624,930,090)**	**(106.0)%**

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, 2022, deductions totaled $315,262,602, an increase of 11.9% over the amount of 2021 total deductions. The increase is mainly attributed to DROP benefits paid of $24,241,300. Refunds of contributions to non-vested members were 18.2% higher than prior year . Administrative expenses were slightly higher than those of the previous year due primarily to an increase in salary expenses and remote work expenses.

	2022	2021	Amount of Change	Percentage Change
Benefits	$ 301,304,320	$ 269,073,269	$ 32,231,051	12.0 %
Employee refunds	9,153,814	7,743,279	1,410,535	18.2 %
Administrative expenses	4,804,468	4,805,352	(884)	— %
Total deductions	**$ 315,262,602**	**$ 281,621,900**	**$ 33,640,702**	**11.9 %**

Capital Assets

Capital assets, net of accumulated depreciation, had a net decrease of $379,090 for the year ended December 31, 2022, which is comprised primarily of depreciation expense of $404,783. 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, 2022, 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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Statement of Fiduciary Net Position

December 31, 2022
(with Summarized Comparative Totals for December 31, 2021)

	Pension Benefits	Health Benefits	December 31, 2022	December 31, 2021
Assets				
Cash and short-term investments	$ 54,835,922	$ 1,743,990	$ 56,579,912	$ 84,569,097
Securities lending collateral	66,488,313	2,114,581	68,602,894	77,080,319
Receivables				
Unsettled securities sold	312,432	9,937	322,369	49,690
Contributions	7,923,011	251,982	8,174,993	—
Interest and dividends	1,601,069	50,920	1,651,989	1,368,675
Leases receivable	83,713	2,662	86,375	22,218
Total receivables	**9,920,225**	**315,501**	**10,235,726**	**1,440,583**
Investments, at fair value				
U.S. Government obligations	401,240,517	12,760,971	414,001,488	414,001,488
Domestic corporate bonds and other fixed income	160,668,391	5,109,865	165,778,256	274,322,096
Domestic stocks	414,250,144	13,174,727	427,424,871	532,772,973
International stocks	446,834,826	14,211,043	461,045,869	555,365,597
Real estate	228,282,670	7,260,255	235,542,925	241,720,064
Alternative investments	423,767,097	13,477,402	437,244,499	576,542,588
Absolute return	116,863,368	3,716,699	120,580,067	69,175,620
Infrastructure	68,792,570	2,187,865	70,980,435	—
Total investments	**2,260,699,583**	**71,898,827**	**2,332,598,410**	**2,663,900,426**
Capital assets				
Land	416,786	13,255	430,041	430,041
Building and equipment, net of accumulated depreciation	1,455,442	46,289	1,501,731	1,870,384
Leased Equipment	17,902	569	18,471	28,909
Total assets	**2,393,834,173**	**76,133,012**	**2,469,967,185**	**2,829,319,759**
Liabilities				
Unsettled securities purchased	11,524	366	11,890	213,850
Securities lending obligations	66,488,313	2,114,581	68,602,894	77,080,319
Leases payable	19,348	615	19,963	30,570
Accounts payable	1,940,216	61,706	2,001,922	2,219,799
Total liabilities	**68,459,401**	**2,177,268**	**70,636,669**	**79,544,538**
Deferred inflow of resources	83,713	2,662	**86,375**	22,218
Fiduciary net position restricted for benefits	**$ 2,325,291,059**	**$ 73,953,082**	**$ 2,399,244,141**	**$ 2,749,753,003**
Fiduciary net position restricted for pension and health benefits	$ 2,251,599,981	$ 73,953,082	$ 2,325,553,063	$ 2,637,431,329
Fiduciary net position restricted for DROP and DROP II benefits	73,691,078	—	73,691,078	112,321,674
Fiduciary net position restricted for benefits	**$ 2,325,291,059**	**$ 73,953,082**	**$ 2,399,244,141**	**$ 2,749,753,003**

See **Notes to Financial Statements**

Statement of Changes in Fiduciary Net Position

Year Ended December 31, 2022
(with Summarized Comparative Totals for the Year Ended December 31, 2021)

	Pension Benefits	Health Benefits	Year ended December 31, 2022	2021
Additions				
Contributions				
City and County of Denver, Colorado	$ 125,584,507	$ 6,246,525	$ 131,831,032	112,205,407
Denver Health and Hospital Authority	4,107,478	207,202	4,314,680	5,064,855
Plan members	69,032,726	3,396,199	72,428,925	66,425,088
Total contributions	**198,724,711**	**9,849,926**	**208,574,637**	**183,695,350**
Investment earnings				
Net appreciation (depreciation) in fair value of investments	(284,762,531)	(8,988,811)	(293,751,342)	362,175,795
Dividends	13,203,135	415,939	13,619,074	14,508,030
Interest	9,630,512	303,396	9,933,908	16,882,917
Real estate, alternative investments, and absolute return gain/(loss)	39,839,437	1,191,095	41,030,532	26,450,675
	(222,089,447)	(7,078,381)	(229,167,828)	420,017,417
Investment expenses	(14,459,773)	(454,844)	(14,914,617)	(14,295,147)
	(236,549,220)	(7,533,225)	(244,082,445)	405,722,270
Securities lending transactions income	1,342,883	42,159	1,385,042	263,678
Securities lending transactions expenses				
Borrower rebates	(1,004,859)	(31,503)	(1,036,362)	91,205
Agent fees	(84,469)	(2,663)	(87,132)	(88,673)
	253,555	7,993	261,548	266,210
Net investment earnings	(236,295,665)	(7,525,232)	(243,820,897)	405,988,480
Total additions, net	**(37,570,954)**	**2,324,694**	**(35,246,260)**	**589,683,830**
Deductions				
Retired member benefits	249,148,975	12,652,365	261,801,340	253,811,589
DROP and DROP II benefits paid	39,502,980	—	39,502,980	15,261,680
Refunds of contributions	8,874,264	279,550	9,153,814	7,743,279
Administrative expenses	4,657,712	146,756	4,804,468	4,805,352
Total deductions	**302,183,931**	**13,078,671**	**315,262,602**	**281,621,900**
Change in fiduciary net position	(339,754,885)	(10,753,977)	(350,508,862)	308,061,930
Fiduciary net position held in trust for benefits				
Beginning of year	2,665,045,944	84,707,059	2,749,753,003	2,441,691,073
End of year	**$ 2,325,291,059**	**$ 73,953,082**	**$ 2,399,244,141**	**$ 2,749,753,003**

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. Additional valuations are performed each year for each employer for funding purposes. 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, 2022, DERP membership consisted of the following:

	Pension Benefits	Health Benefits
Retirees and beneficiaries currently receiving benefits	10,895	7,133
Retirees and beneficiaries entitled to health benefits but not receiving any	—	3,763
Terminated employees entitled to benefits but not yet receiving them	3,703	3,703
Current employees:		
Vested	5,064	5,064
Non-vested	4,164	4,164
Total	**23,826**	**23,827**

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 2022, 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 Retirement Board acts as the trustee of DERP's assets. The operating and other administrative expenses incurred by the retirement 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 $4,804,468 in 2022, 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, infrastructure, 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 cash investments 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 2022, DERP realized net gain on the disposition of investments of $60,124,093. The calculation of realized gains and losses is independent of the calculation of the net appreciation (depreciation) 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 2022.

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 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 - 50 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, 2021, 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 2022, the actuarially determined contribution rates, expressed as a percentage of annual covered payroll, for the pension and health benefits were 25.13% and 1.25%, respectively, for a combined total of 26.38%. The city enacted Ordinance No. 1580-22 in 2022 to reset the combined total contribution rate to 26.40%, effective January 2023. In 2022, employers contributed a total of 16.75% of covered payroll and employees made a pre-tax contribution of 8.85% 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 2022, the employers contributed $129,691,985 for pension benefits and $6,453,727 for health benefits while the employees contributed a total of $69,032,726 for pension benefits and $3,396,199 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 2022, in accordance with the January 1, 2022, actuarially determined contribution requirements, the total required contribution was $191,370,000 ($59,290,000 of normal cost and $123,020,000 amortization of the unfunded actuarial accrued liability for pension benefits; $1,960,000 of normal cost and $7,100,000 amortization of the unfunded actuarial accrued liability for health benefits) based on a rate of 26.38% of projected payroll. The actual contribution was $207,821,473 using a rate of 25.60% of covered payroll, which when combined with the members' purchase of service credits of $753,164 discussed below, resulted in total contributions of $208,574,637. In accordance with a separate agreement between DHHA and DERP, DHHA made a supplemental contribution in the amount of $452,831, which is included in the total contributions amount.

During 2022, employee contributions totaled $72,428,925 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 $753,164 under these provisions during 2022.

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 between 1% and 3% per annum set annually by the DERP board. During 2022, the DERP board set the rate at 1% per annum. Sections 18-422 through 18-429 of the City's Revised Municipal Code should be referred to for more complete information on DROP. Upon retirement, members have access to the funds accumulated during their participation in DROP. During 2022, a total of $837,057 in interest was credited to members' DROP accounts. During 2022, a total of $38,662,461 was distributed from the DROP accounts to members who had retired and exited DROP. As of December 31, 2022, the reserve for DROP payments was $69,482,853.

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 at a rate between 1% and 3% per annum set annually by the DERP board. During 2022, the DERP board set the rate at 1% per annum. Sections 18-430 through 18-430.7 of the city's Revised Municipal Code should be referred to for more complete information on DROP II. Upon exiting DROP II, members have access to the funds accumulated during their participation in DROP II. A total of $43,509 in interest was credited to members' DROP II accounts during 2022. Also during 2022, a total of $848,701 was distributed to members who had exited DROP II. As of December 31, 2022, the reserve for DROP II payments was $4,208,225.

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	23.5 %	20.5 % - 30.5 %
Real Estate	10.0 %	5.0 % - 15.0 %
Absolute Return	7.0 %	3.0 % - 9.0 %
Infrastructure	3.0 %	— % - 5.0 %
Alternatives	12.5 %	
Total Fund	**100.0 %**	

Investment Performance

For the year ended December 31, 2022, the money-weighted rate of return on the investment assets was (8.55)%, 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, 2022	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	$ 226,959,354	$ 226,959,354	$ —	$ —
Agencies	58,195,177	—	58,195,177	—
Total U.S. Government Obligations	**285,154,531**	**226,959,354**	**58,195,177**	**—**
Domestic corporate bonds and other fixed income				
Asset Backed & Corporate Bonds	40,518	—	40,518	—
Index fund	70,360,536	—	70,360,536	—
Total Domestic corporate bonds and other fixed income	**70,401,054**	**—**	**70,401,054**	**—**
Domestic stocks				
Equities	214,923,737	214,923,737	—	—
Index fund	212,501,134	212,501,134	—	—
Total Domestic stocks	**427,424,871**	**427,424,871**	**—**	**—**
International stocks				
Equity funds	396,181,551	396,181,551	—	—
Index fund	64,864,318	64,864,318		
Total International stocks	**461,045,869**	**461,045,869**	**—**	**—**
Total Investment by fair value level	**1,244,026,325**	**$ 1,115,430,094**	**$ 128,596,231**	**$ —**
Total Investments measured at the NAV (See detailed schedule on the following page)	1,088,572,085			
Total Investments	2,332,598,410			
Total Short-term Investments measured at amortized cost	29,053,027			
Total Investments measured at fair value	**$ 2,361,651,437**			
Total Invested securities lending collateral	**$ 121,574,823**	—	121,574,823	—

Note 6 Deposits and Investments (continued)

Investments measured at the NAV	Totals at December 31, 2022	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Fixed Income Investments				
Private Debt	$ 172,476,230	$ 62,421,574	Not Eligible	N/A
Emerging Market Debt	51,747,929	—	Monthly	3 Days
Total Fixed Income Investments	**224,224,159**	**62,421,574**		
Real Estate Investments				
Real Estate - Open end	204,127,436	—	Quarterly	20-90 Days
Real Estate - Closed end	31,415,489	42,481,329	Not Eligible	N/A
Total Real Estate Investments	**235,542,925**	**42,481,329**		
Alternative Investments				
Private Equity	291,693,386	44,246,978	Not Eligible	N/A
Energy Investments	107,159,539	29,199,948	Not Eligible	N/A
Timber	38,391,574	—	Not Eligible	N/A
Total Alternative Investments	**437,244,499**	**73,446,926**		
Absolute Return				
Hedge Fund	120,580,067	—	Quarterly	65 Days
Total Absolute Return	**120,580,067**	**—**		
Infrastructure				
Infrastructure	70,980,435	—	Quarterly	90 Days
Total Infrastructure	**70,980,435**	**—**		
Total Investments measured at the NAV	**$ 1,088,572,085**	**$ 178,349,829**		

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. Commingled investment pools are used, 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.

Infrastructure Investments

DERP invests in funds which own and operate infrastructure assets such as utilities, toll roads, pipelines, and airports. Returns are generated thorough the cash flow produced by the normal business operations of the assets. As open-ended funds, these have infinite life and periodically accept contributions or honor redemptions.

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, 2022:

S&P	Moody's	Asset Backed	Corporate	Implicit U.S. Agency Securities	Total
AAA	NR	$ —	$ 51,391,336	$ —	$ 51,391,336
AA+ to AA-	Aa3 to A1	—	2,737,025	58,195,177	60,932,202
A+ to A-	A1 to Baa2	—	8,591,021	—	8,591,021
BBB+ to BBB-	A3 to Baa3	—	7,641,154	—	7,641,154
CC+ to CC-	Ca	30,498	—	—	30,498
NR	NR	—	$ 10,020	—	10,020
		$ 30,498	**$ 70,370,556**	**$ 58,195,177**	128,596,231
U.S. Treasury Securities					226,959,354
Non-rated Funds					224,224,159
Total					**$579,779,744**

NR - no rating available.

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

Note 6 Deposits and Investments (continued)

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, 2022, DERP had no exposure to any single issuer exceeding 1% of total plan assets.

Custodial Credit Risk

In the event of a failure of a financial institution or counterparty, custodial credit risk is the risk that 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, 2022, DERP's cash deposits were collateralized in the amount of $250,000 with the remaining $27,276,285 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, 2022, 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	$ 226,959,354	$ 11,691,175	$ 215,268,125	$ —	$ 54
U.S. agency securities	58,195,177	4,945,792	40,582,735	12,666,650	—
Asset backed	30,498	—	—	—	30,498
Corporate	70,370,556	282,474	70,086,129	—	1,953
Total	**355,555,585**	**$ 16,919,441**	**$ 325,936,989**	**$ 12,666,650**	**$ 32,505**
Non-rated Funds	224,224,159				
Total	**$ 579,779,744**				

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 17.0% to 27.0% 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, 2022:

Foreign Currency	Equities	Fixed Income	Total
Euro	$ 92,710,389	$ —	$ 92,710,389
Japanese Yen	52,145,955	—	52,145,955
Chinese Yuan	39,946,026	—	39,946,026
British Pound Sterling	33,397,126	—	33,397,126
Swiss Franc	31,082,668	—	31,082,668
Taiwan Dollar	25,615,837	—	25,615,837
South Korean Won	22,179,158	3,291,168	25,470,326
Indian Rupee	23,552,510	—	23,552,510
Hong Kong Dollar	19,799,038	—	19,799,038
Australian Dollar	17,782,712	—	17,782,712
Brazilian Real	9,237,125	7,255,060	16,492,185
Canadian Dollar	15,587,738	—	15,587,738
Danish Krone	11,875,578	—	11,875,578
Mexican Peso	3,386,387	8,010,579	11,396,966
South African Rand	7,376,288	3,984,591	11,360,879
Swedish Krona	9,549,371	—	9,549,371
Malaysian Ringgit	2,615,229	6,478,841	9,094,070
Polish Zloty	1,726,722	6,592,686	8,319,408
Hungary Forint	1,844,072	4,243,330	6,087,402
Indonesia Rupiah	4,073,723	1,464,466	5,538,189
Thai Bhat	4,744,294	714,121	5,458,415
Columbian Peso	368,814	4,460,671	4,829,485
Turkey	4,241,366	—	4,241,366
Chilean Peso	670,572	2,939,282	3,609,854
Singapore Dollar	3,047,808	—	3,047,808
Saudia Riyal	2,531,408	—	2,531,408
New Israeli Shekel	1,635,116	—	1,635,116
United Arab Emirati Dirham	1,571,931	—	1,571,931
Norwegian Krone	1,566,554	—	1,566,554
Philippine Peso	33,529	1,526,564	1,560,093
Qatari Riyal	1,089,679	—	1,089,679
Peruvian Sol	—	662,373	662,373
Pakistani Rupee	469,400	—	469,400
New Zealand Dollar	468,513	—	468,513
Egyptian Pound	318,522	—	318,522
Czech Koruna	—	41,398	41,398
Other	2,317,482	—	2,317,482
Total	**$ 450,558,640**	**$ 51,665,130**	**$ 502,223,770**

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, 2022, the fair value of underlying securities lent was $117,094,748. The fair value of associated collateral was $121,574,823; of this amount, $68,602,894 represents the fair value of cash collateral as reported on the financial statements and $52,971,929 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, 2022, 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, 2022, was as follows:

	January 1	Additions	Deletions	December 31
Capital assets, not being depreciated				
Land	$ 430,041	$ —	$ —	$ 430,041
Capital assets, being depreciated				
Building	1,136,014	—	—	1,136,014
Furniture and equipment	6,114,239	26,741	(2,488)	6,138,492
Leased equipment	52,189	—	—	52,189
Total capital assets, being depreciated	**7,302,442**	**26,741**	**(2,488)**	**7,326,695**
Accumulated depreciation				
Building	(1,136,014)	—	—	(1,136,014)
Furniture and equipment	(4,243,856)	(394,345)	1,440	(4,636,761)
Leased equipment	(23,280)	(10,438)	—	(33,718)
Total accumulated depreciation	**(5,403,150)**	**(404,783)**	**1,440**	**(5,806,493)**
Total capital assets being depreciated, net	**1,899,292**	**(378,042)**	**(1,048)**	**1,520,202**
Capital assets, net	**$ 2,329,333**	**$ (378,042)**	**$ (1,048)**	**$ 1,950,243**

The 2022 depreciation expense for the pension and health benefit accounts was $385,596 and $19,187 respectively.

Note 9 Commitments and Contingencies

As of December 31, 2022, DERP had commitments for the future purchase of investments in private debt of $62,421,574, real estate of $42,481,329, and alternative investments of $73,446,926. 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, 2022, were as follows:

Total pension liability	$	4,057,364,250
Plan fiduciary net position		2,325,291,059
Net pension liability	**$**	**1,732,073,191**
Plan fiduciary net position as a percentage of the total pension liability		57.31 %

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of January 1, 2022 rolled forward to a measurement date of December 31, 2022, 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, 2022 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, 2022 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, 2022 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 %	7.8 %
US Small Cap	4.0 %	8.7 %
International Equity		
Developed Markets	14.0 %	10.1 %
Emerging Markets	8.0 %	10.3 %
Fixed Income	**23.5 %**	
Core Fixed Income	15.0 %	4.8 %
Private Debt		
Private Debt	4.0 %	8.5 %
Distress Debt	2.5 %	10.8 %
Emerging Market Debt	2.0 %	6.4 %
Real Estate	**10.0 %**	**4.3 %**
Absolute Return	**7.0 %**	**5.4 %**
Infrastructure	**3.0 %**	**7.8 %**
Alternatives	**12.5 %**	
Private Equity	9.0 %	9.7 %
Natural Resources	3.5 %	9.8 %
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	$ 2,178,508,819	$ 1,732,073,191	$ 1,357,491,034

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

The components of the net OPEB liability of the employers at December 31, 2022, were as follows:

Total OPEB liability	$ 166,030,902
Plan fiduciary net position	73,953,082
Net OPEB liability	**$ 92,077,820**
Plan fiduciary net position as a percentage of the total pension liability	44.54 %

Actuarial Assumptions

The total OPEB liability was determined by an actuarial valuation as of January 1, 2022 rolled forward to a measurement date of December 31, 2022, 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, 2022 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, 2022 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, 2022 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 %	7.8 %
US Small Cap	4.0 %	8.7 %
International Equity		
Developed Markets	14.0 %	10.1 %
Emerging Markets	8.0 %	10.3 %
Fixed Income	**23.5 %**	
Core Fixed Income	15.0 %	4.8 %
Private Debt		
Private Debt	4.0 %	8.5 %
Distress Debt	2.5 %	10.8 %
Emerging Market Debt	2.0 %	6.4 %
Real Estate	**10.0 %**	**4.3 %**
Absolute Return	**7.0 %**	**5.4 %**
Infrastructure	**3.0 %**	**7.8 %**
Alternatives	**12.5 %**	
Private Equity	9.0 %	9.7 %
Natural Resources	3.5 %	9.8 %
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	$ 108,670,151	$ 92,077,820	$ 78,009,074

Schedule of Changes in Net Pension Liability and Related Ratios

(Ultimately 10 Fiscal Years will be displayed)

Fiscal year ending December 31,	2022	2021	2020
Total Pension Liability			
Service Cost (Entry-Age Normal)	$ 59,744,765	$ 59,681,949	$ 58,953,668
Interest on the Total Pension Liability	283,177,978	277,172,303	271,949,654
Benefit Changes	—	—	—
Difference between Expected and Actual Experience	(10,745,999)	26,207,643	19,741,953
Transition to Entry-Age Normal (1)	—	—	—
Assumption/Method Changes (2)(3)	—	—	96,394,671
Benefit Payments	(297,526,219)	(263,579,421)	(237,428,009)
Net Change in Total Pension Liability	**34,650,525**	**99,482,474**	**209,611,937**
Total Pension Liability - Beginning	**4,022,713,725**	**3,923,231,251**	**3,713,619,314**
Total Pension Liability - Ending (a)	**$ 4,057,364,250**	**$ 4,022,713,725**	**$ 3,923,231,251**
Plan Fiduciary Net Position			
Employer Contributions	$ 129,691,985	$ 110,464,999	$ 105,863,173
Employee Contributions	69,032,726	62,604,568	63,816,511
Pension Plan Net Investment Income	(236,295,665)	393,528,946	180,417,579
Benefit Payments	(297,526,219)	(263,579,421)	(237,428,009)
Pension Plan Administrative Expense	(4,657,712)	(4,657,946)	(4,465,837)
Other Income	—	—	—
Net Change in Plan Fiduciary Net Position	**(339,754,885)**	**298,361,146**	**108,203,417**
Total Fiduciary Net Position - Beginning	**2,665,045,944**	**2,366,684,798**	**2,258,481,381**
Total Fiduciary Net Position - Ending (b)	**$ 2,325,291,059**	**$ 2,665,045,944**	**$ 2,366,684,798**
Net Pension Liability - Ending (a)-(b)	**$ 1,732,073,191**	**$ 1,357,667,781**	**$ 1,556,546,453**
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	**57.31 %**	**66.25 %**	**60.32 %**
Covered Payroll	$ 810,106,752	$ 710,975,688	$ 713,566,300
Net Pension Liability as a Percentage of Covered Payroll	**213.81 %**	**190.96 %**	**218.14 %**

(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%.

2019	2018	2017	2016	2015	2014
$ 56,355,775	$ 49,796,219	$ 49,158,616	$ 46,577,860	$ 46,419,739	$ 42,793,142
261,392,243	248,598,306	241,977,403	237,104,293	229,130,437	221,367,921
—	—	—	—	—	—
56,265,688	13,946,045	14,324,507	16,967,117	29,122,513	—
—	—	—	—	—	140,652,205
—	80,783,495	69,289,533	—	73,157,470	—
(231,722,495)	(220,006,730)	(207,612,390)	(194,541,616)	(183,992,079)	(172,686,029)
142,291,211	**173,117,335**	**167,137,669**	**106,107,654**	**193,838,080**	**232,127,239**
3,571,328,103	**3,398,210,768**	**3,231,073,099**	**3,124,965,445**	**2,931,127,365**	**2,699,000,126**
$ 3,713,619,314	**$ 3,571,328,103**	**$ 3,398,210,768**	**$ 3,231,073,099**	**$ 3,124,965,445**	**$ 2,931,127,365**
$ 87,464,822	$ 81,719,744	$ 71,731,309	$ 68,794,871	$ 67,234,597	$ 59,941,041
60,074,876	52,700,679	50,599,952	48,037,800	46,689,696	39,521,451
284,110,225	(73,146,389)	302,942,063	147,443,477	(35,746,029)	101,595,704
(231,722,495)	(220,006,730)	(207,612,390)	(194,541,616)	(183,992,079)	(172,686,029)
(4,123,494)	(4,016,288)	(3,899,901)	(3,742,451)	(3,785,416)	(3,638,296)
—	—	—	—	—	—
195,803,934	**(162,748,984)**	**213,761,033**	**65,992,081**	**(109,599,231)**	**24,733,871**
2,062,677,447	**2,225,426,431**	**2,011,665,398**	**1,945,673,317**	**2,055,272,548**	**2,030,538,677**
$ 2,258,481,381	**$ 2,062,677,447**	**$ 2,225,426,431**	**$ 2,011,665,398**	**$ 1,945,673,317**	**$ 2,055,272,548**
$ 1,455,137,933	**$ 1,508,650,656**	**$ 1,172,784,337**	**$ 1,219,407,701**	**$ 1,179,292,128**	**$ 875,854,817**
60.82 %	**57.76 %**	**65.49 %**	**62.26 %**	**62.26 %**	**70.12 %**
$ 706,441,299	$ 671,120,225	$ 636,738,387	$ 613,284,274	$ 602,454,420	$ 554,103,740
205.98 %	**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,	**2022**	**2021**
Total OPEB Liability		
Service Cost (Entry-Age Normal)	$ 1,968,952	$ 2,022,136
Interest on the Total OPEB Liability	11,982,513	12,075,413
Benefit Changes	—	—
Difference between Expected and Actual Experience	(5,650,270)	(2,265,610)
Transition to Entry-Age Normal	—	—
Assumption/Method Changes	—	—
Benefit Payments	(12,931,915)	(13,237,127)
Net Change in Total OPEB Liability	**(4,630,720)**	**(1,405,188)**
Total OPEB Liability - Beginning	**170,661,622**	**172,066,810**
Total OPEB Liability - Ending (a)	**$ 166,030,902**	**$ 170,661,622**
Plan Fiduciary Net Position		
Employer Contributions	6,453,727	6,805,263
Employee Contributions	3,396,199	3,820,520
OPEB Plan Net Investment Income	(7,525,232)	12,459,534
Benefit Payments, Including Refunds of Employee Contributions	(12,931,915)	(13,237,127)
OPEB Plan Administrative Expense	(146,756)	(147,406)
Other	—	—
Net Change in Plan Fiduciary Net Position	**(10,753,977)**	**9,700,784**
Total Fiduciary Net Position - Beginning	**84,707,059**	**75,006,275**
Total Fiduciary Net Position - Ending (b)	**$ 73,953,082**	**$ 84,707,059**
Net OPEB Liability - Ending (a)-(b)	**$ 92,077,820**	**$ 85,954,563**
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	**44.54 %**	**49.63 %**
Covered Payroll	$ 810,106,752	$ 710,975,688
Net OPEB Liability as a Percentage of Covered Payroll	**11.37 %**	**12.09 %**

2020	2019	2018	2017
$ 2,060,169	$ 2,073,228	$ 1,932,881	$ 2,103,783
12,345,681	12,489,835	11,796,771	11,700,994
—	—	—	—
(3,134,783)	(3,352,740)	627,097	—
—	—	—	—
3,881,572	—	7,900,882	—
(13,129,533)	(13,122,521)	(13,050,165)	(13,171,022)
2,023,106	**(1,912,198)**	**9,207,466**	**633,755**
170,043,704	**171,955,902**	**162,748,436**	**162,114,681**
$ 172,066,810	**$ 170,043,704**	**$ 171,955,902**	**$ 162,748,436**
6,870,452	5,084,799	4,952,754	4,367,474
4,029,080	3,310,427	3,132,783	3,005,989
5,687,452	9,185,163	(2,364,015)	10,422,137
(13,129,533)	(13,122,521)	(13,050,165)	(13,171,022)
(141,397)	(133,008)	(133,128)	(133,959)
—	—	—	—
3,316,054	**4,324,860**	**(7,461,771)**	**4,490,619**
71,690,221	**67,365,361**	**74,827,132**	**70,336,513**
$ 75,006,275	**$ 71,690,221**	**$ 67,365,361**	**$ 74,827,132**
$ 97,060,535	**$ 98,353,483**	**$ 104,590,541**	**$ 87,921,304**
43.59 %	**42.16 %**	**39.18 %**	**45.98 %**
$ 713,566,300	$ 706,441,299	$ 671,120,225	$ 636,738,387
13.60 %	**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 %
2022	4,057,364,250	2,325,291,059	1,732,073,191	57.31 %	810,106,752	213.81 %

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 %
2022	166,030,902	73,953,082	92,077,820	44.54 %	810,106,752	11.37 %

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)
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 %
2022	$ 135,766,365	$ 129,691,985	6,074,380	$ 810,106,752	16.01 %

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)
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 %
2022	$ 6,750,922	$ 6,453,727	297,195	$ 810,106,752	0.80 %

Notes to Schedules of Contributions (Pension and OPEB)

Valuation Date:	**January 1, 2022**
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-2014 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, 2022 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)
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 %
2022	(8.55)%

(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, 2022

Personnel services:	
Salaries	$ 1,898,107
Employee benefits	778,306
Total personnel services	**2,676,413**
Professional services:	
Actuarial	129,893
Legal	8,794
Retirement board	26,329
Audit	69,240
Consultation	4,092
Total professional services	**238,348**
Office operations:	
Plan insurance	95,142
Postage	14,317
Office forms and printing	26,264
Office equipment	18,618
Employee travel and conferences	9,159
Telephone	11,706
Membership education	82,858
Miscellaneous operating	25,444
Employee education	15,997
Office supplies	1,382
Publications	2,123
Interest expense lease	1,868
Operating special projects	5,462
Total office operations	**310,340**
Computer operations:	
Software licenses and hosting fees	891,540
Supplies and other expenses	4,427
Total computer operations	**895,967**
Miscellaneous administrative expenses:	
Building operations	278,617
Depreciation expense	404,783
Total miscellaneous administrative expenses	**683,400**
Total	**$ 4,804,468**

Schedule of Investment Expenses

Year ended December 31, 2022

Alternative investment portfolio management	$ 3,345,311
International equity portfolio management	2,220,981
Real estate portfolio management	2,547,159
Domestic equity portfolio management	1,819,583
Fixed income portfolio management	2,534,965
Absolute return investment portfolio management	365,739
Infrastructure portfolio management	617,482
Other investment related expenses	1,360,541
Custody	102,856
Total	**$ 14,914,617**

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Investment Section

MEKETA
INVESTMENT GROUP

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MEMORANDUM

TO: Board Members, Investment Staff, Denver Employees Retirement Plan
FROM: Leandro Festino, Mika Malone, Paola Nealon, Eric Larsen, Meketa Investment Group
DATE: April 14, 2023
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, 2022.

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.

Calendar Year 2022 Year in Review

As 2022 began, investors were riding the wave of strong returns over the last couple of years and expectations were for inflation to be transitory, growth to fall slightly, and the Federal Reserve to raise interest rates to just below 1% by year-end. This clearly did not play out, as inflation remained well above expectations and the Federal Reserve, and other central banks, raised interest rates at a pace we have not witnessed in a long time.

As some of the global population resumed activity that looked like pre-pandemic times during the year, parts of the world remained on lockdown, notably China. With increased mobility and related improvements to economic growth, along with lingering supply issues from the pandemic, increases in prices began to take center stage, especially among developed nations. At the end of January, the consumer price index ("CPI") in the United States hit 7.5%[i] for the first time since the early 1980s, a level well above the Federal Reserve's average target of 2%. As the year started, the Federal Reserve began

April 14, 2023

to acknowledge that this bout with inflation may not be transitory, as it was previously labeled, and signaled that they intended to begin increasing the fed funds rate.

The unemployment rate remained elevated at the start of the year, but continued to improve over the first quarter, declining to 6.1%[2] despite the Omicron variant. Average hourly earnings continued to rise during the quarter, reaching the 2022 peak of 5.9%[2] by quarter-end, a level still below inflation. The labor force participation rate remained below pre-pandemic levels as many workers stayed on the sidelines. This contributed to there being many more job openings than applicants, a trend that would continue for all of calendar year 2022.

In late February, Russia invaded Ukraine and the west responded with sweeping sanctions that exceeded market expectations. Restricting access to foreign reserves was key, leading Russia's central bank to dramatically increase interest rates (9.5% to 20%[3]) to try to protect the currency. Because of rising rates in the US, as well as safe-haven flows, the US dollar strengthened at the start of the year versus other currencies. This is a trend that would continue throughout the year. Concerns that inflation may remain higher for longer had been compounded by the tragic conflict in Ukraine. The war specifically weighed on energy and food prices.

As the first calendar quarter of the year ended, market volatility increased, driven by unrelenting inflation, expectations for policy to tighten much faster than previously expected, and Russia's invasion of Ukraine as well as its potential financial consequences for the global economy.

As a result, all major public market asset classes declined in the three months ending March, except for commodities. US equities (Russell 3000: -5.3%[3]) had similar declines compared to equities outside the US (MSCI ACWI ex. US: -5.4%[3]). Value stocks significantly outperformed growth stocks, and investors preferred companies presumably better able to weather the tightening financial conditions. An increase in inflation expectations, and the pricing in of higher policy rates, proved to be a challenging headwind for nearly all bond indices in the first calendar quarter of 2022, with only 3-month Treasury Bills providing positive returns. The broad US bond market (Bloomberg Aggregate) fell an impressive 5.9%[3] just in the first quarter.

The Federal Reserve started its rate increases with 50 basis point hikes in March and May. At the June 8, 2022, meeting, Federal Reserve policy makers increased rates by a surprising 75 basis points versus the 50 basis points expected. Shortly following this meeting in June, CPI was released showing that prices had increased to a multi-decade high of 9.1%[4], again above expectations. This surprised markets and put into question the idea that inflation was peaking, as well as accelerated investor expectations for the pace of the Fed tightening policy. High inflation levels and potentially rapidly rising rates also elevated concerns about the US economy, and others, heading into a recession.

The US bond market (Bloomberg Aggregate) had its worst first half of a calendar year on record (-10.3%[3]) while the US equity market (S&P 500) had its 3rd worst first half of a year (-20.0%[3]). For historical perspective, this was the only start to a year where both indices were in top ten lists for negative performance. The decline in the S&P 500 through June 2022 also brought the index into bear market territory.

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In Europe, the war in Ukraine, high inflation, slow growth, and a reliance on energy imports all weighed on markets. However, the European Central Bank had not yet begun to increase rates. Similarly, Japan seemed committed to their monetary policy of low rates, leading to weakness in the yen not seen since 1998. The MSCI EAFE index declined by 19.6%[3] through the first half of 2022. The strength of the US dollar played a significant role in the decline for US investors, with the index declining only 11.3% in local terms (much less than domestic equities). China had begun to relax COVID-Zero policies around the middle of the year leading to positive results (+3.4%[3]) for the MSCI China index in the second quarter. The gains contributed to the MSCI Emerging Markets index (-17.6%[3]) outpacing developed markets in the first six months of 2022.

The second half of calendar year 2022 started off with strong performance across global markets, especially in the US. Investors' optimism at the time was driven by a decline in inflation measures, as the CPI ticked down from 9.1% to 8.5% and came in below expectations[3]. This led to longer-dated yields falling as investors reconsidered economic growth prospects and the likelihood that yields had reached their peak for this economic cycle. Shorter dated yields rose on near-term monetary policy actions and messaging that policy officials intended to remain aggressive in fighting inflation pressures into early 2023. This messaging effectively started tightening financial conditions that had been loosening since the end of April.

It was also at the start of July when we first saw an inversion in the US yield curve. The yield spread between two-year and ten-year Treasuries, finished July at -0.23%[3]. Inversions in the yield curve have historically signaled building recessionary pressures.

The Federal Reserve raised interest rates by an additional 75 basis points[3] in July and again by the same amount in September. The European Central Bank also notably started increasing rates, moving off 0%. They increased rates by 50 basis points in July followed by a surprise 75 basis point increase in September.

Federal Reserve messaging about policy going forward, combined with outsized interest rate hikes due to the slow rate of decline in inflation and a strong labor market resulted in significant equity market declines in both August and September 2022. The September CPI release showed prices that increased 8.2% over the trailing twelve months, which was lower than the peak of 9.1% but still above the pace of market expectations at the time. The US bond market (Bloomberg Aggregate) continued its decline through the third quarter (-14.6%[3]) as did the US Equity Market (Russell 3000), which returned -24.6% year-to-date through September.

The last calendar quarter of 2022 started very strong for developed market equities, on signs that inflation may be peaking, monetary policy tightening may relatedly slow, and hopes for a soft-landing of major economies. However, as the quarter progressed, results were mixed by month and region as the world received mixed signals on inflation. Overall, US equities finished the fourth quarter up (Russell 3000: +7.2%[3]), while equities outside the US (MSCI ACWI ex. US: +14.3%) increased even more versus stocks in the US. The US bond market also finished the calendar quarter in positive territory (Bloomberg Aggregate: +1.9%).

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Inflation, as measured by CPI, declined to 6.5% by the end of the year. While progress had been made since the 2022 peak of 9.1%, there was still much work to be done to bring the pace of price increases down to the Federal Reserve's preferred range. Except for Japan, inflation impacted the rest of the developed world as well. Inflation in the Eurozone ended the year at 9.2%, down from a peak of 10.6%[3]. Similarly, inflation in the UK ended the year at 9.2%, down from a peak of 9.6%[5].

The US labor market remained extraordinarily strong throughout 2022, with the unemployment rate declining to 3.5% at the end of the year from a starting point of 3.9%[3]. The labor force participation rate remained slightly above 62% for most of 2022. This is an increase from the lows of the pandemic but still below the 63.4%[2] level from before the pandemic. Average hourly earnings declined at the backend of 2022 after peaking at 5.9% in March, finishing the year at 4.8%. The strength of the labor market in the US contributed to the Federal Reserve's continued hawkish stance. In Europe and Japan, increases in unemployment were less during the pandemic compared to the US but also improved.

Economic growth in the US rebounded in the second half of 2022 after declining, respectively, at annualized rates of 1.6% and 0.6% in the first and second quarters. The GDP release for the third calendar quarter of 2022 came in at an annualized rate of 3.2%[6], and the most recent fourth quarter growth rate was 2.7%[6], resulting in full calendar year 2022 GDP growth of 2.1%[6]. Outside the US, the Euro area economy grew 3.5%[7], the UK at 4.1%[5], and Japan at 1.7%[8] over calendar year 2022. Looking forward, growth is expected to slow in 2023 with many forecasts being downgraded given inflation dynamics and expectations for policy. This upcoming year we will likely see how successful central banks are in reducing inflation while trying to not tip their respective economy into recession. Beyond 2023, growth is expected to return to pre-pandemic levels.

Over the full year, US stocks outperformed emerging markets but underperformed developed markets outside the US. The Russell 3000 returned -19.2%[3] for the year, compared to the MSCI EAFE at -14.5%[3], and a decline of -20.1%[3] for the MSCI Emerging Markets index. Though the MSCI China index had strong performance in the fourth quarter (+13.5%[3]) on reopening optimism, the full year return was -21.9%[3]. Within fixed income, the inflation adjustment helped TIPS' full year relative results as the Bloomberg TIPS index decreased 11.8%[3] over the full year, while the Bloomberg Aggregate index declined by -13.0%[3]. Riskier bonds declined overall too in 2022, but less than high quality bonds. The Bloomberg High Yield index fell 11.2% in 2022.

2023 Outlook

Looking ahead, markets could remain volatile in 2023 due to persistent concerns over inflation, uncertainty related to the path of monetary policy, the potential for a recession, and geopolitical issues. Recent issues in the banking sector have created further complications. Beyond these issues, more attractive equity valuations, coupled with higher fixed income yields, should increase expected returns over the long-term. That said, there are several uncertainties that could guide markets, both positively and negatively, in 2023. These include:

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- The Federal Reserve and other Central Banks find that the tools they have to fight inflation may be too blunt to reduce it without sending economies into a recession.
  - Among developed markets, the Federal Reserve's pace of increasing interest rates and reducing its balance sheet puts the US at the front of the inflation fighting efforts.
  - The ECB has been more cautious and the Bank of Japan apparently reluctant to tighten policy causing noteworthy interest rate differentials between the US and other developed markets. This may widen further as Fed messaging has signaled higher rates for a longer period.
  - Questions remain about the track of policy going forward with the recent issues in the banking sector creating challenges for central banks to balance financial stability with continuing to fight inflation.
- US – unemployment and recession.
  - Headline unemployment numbers are still at or near historical lows and usually there needs to be some uptick in jobless numbers for a recession to occur.
  - An increase in the labor force participation rate could help alleviate some of the issues with the tight labor market and associated wage increases.
  - The Federal Reserve has referenced the tight labor market as one of the reasons that their preferred, core inflation measure has remained stubbornly elevated.
- China – reopening & implications for global supply chains.
  - China waited longer than any other country to reduce or remove COVID-related restrictions on mobility. They have since reopened their economy, which could affect global growth and inflation, both positively and negatively.
  - As the second largest economy, a successful reopening could help to ignite global growth just as some developed economies are slowing. This also has the possibility to increase energy demand and pricing, leading to upward pressures on global price increases.
  - A successful reopening could also help to alleviate any remaining pressures on supply chains, as China remains an important center of manufacturing and trade.

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DERP 2022 Performance

DERP's portfolio returned -8.5% in 2022, underperforming the Policy Index return of -8.2%. For 2022, DERP's performance ranked in the top quartile (24th percentile) of the peer universe[1] (1st percentile is best and 100th is worst). The Energy Composite and Natural Resources Composite had the strongest absolute performance during 2022, returning 28.7% and 20.9%, respectively. The US Equity Composite had the weakest 2022 performance at -22.7%.

Over the trailing three-, five-, seven-, and ten-year periods, the DERP portfolio returned 4.8%, 4.9%, 6.7%, and 6.8%, on average, annually, respectively, trailing the current actuarial assumed rate of return of 7.25%. Additionally, DERP returned 8.2% (annualized) since inception (January 1986), and ranks in the second quartile (40th percentile) of the peer universe since that time, well ahead of its assumed rate of return.

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 goal of seeing the Plan meet its obligations to participants and their beneficiaries.

Sincerely,

Leandro Festino, CFA, CAIA
Managing Principal, Consultant

1 Source: Bloomberg. Data as of January 31, 2022.
2 Source: Bureau of Labor Statistics.
3 Source: Bloomberg.
4 Source: Bloomberg. Data as of June 30, 2022.
5 Source: Office for National Statistics.
6 Source: Bureau of Economic Analysis.
7 Source: Eurostat.
8 Source: World Bank.

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

Investment Summary

Category	Book Value	Fair Value	% of Investments at Fair Value	2022 Target Allocation
Domestic Equities	$ 331,125,127	$ 427,424,871	17.9 %	22.0 %
International Equities	424,098,010	461,045,869	19.3 %	22.0 %
Fixed Income	581,543,287	579,779,744	24.3 %	23.5 %
Real Estate	174,808,001	235,542,925	9.8 %	10.0 %
Alternatives	255,346,151	437,244,499	18.3 %	12.5 %
Infrastructure	69,548,638	70,980,435	3.0 %	3.0 %
Absolute Return	119,262,709	120,580,067	5.0 %	7.0 %
Cash and Short-Term Investments	56,577,833	56,579,912	2.4 %	— %
Total Investment Value	$ 2,012,309,756	$ 2,389,178,322	100.0 %	100.0 %

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.

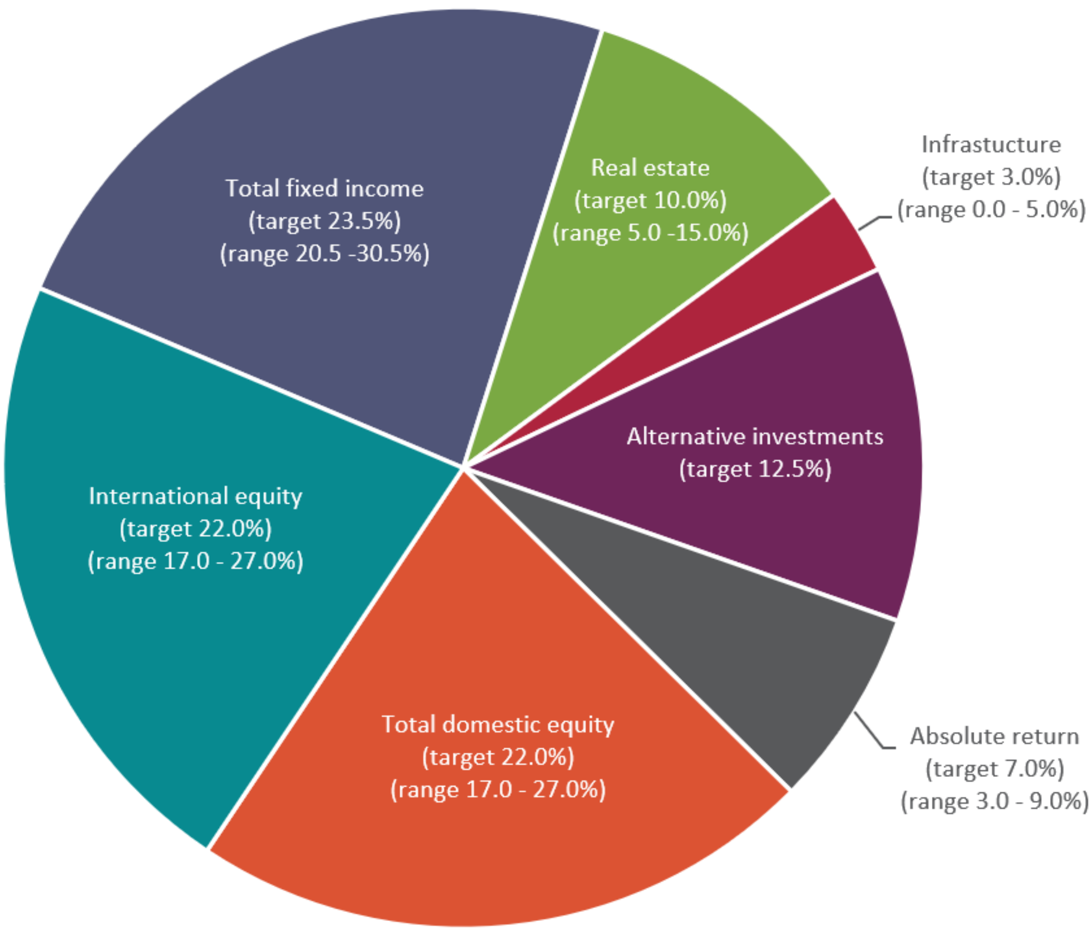
(c) The relative investment objective, over a market/ economic cycle of three to seven years, is to exceed the rate of return that would have been achieved by a statically allocated and passively managed portfolio, at the same risk, in accordance with the long term asset allocation policy set forth.

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 18, 2022. DERP's investment consultant assisted the retirement board in developing the latest asset allocation.

The asset allocation strategy as of December 31, 2022 is depicted in the chart below:

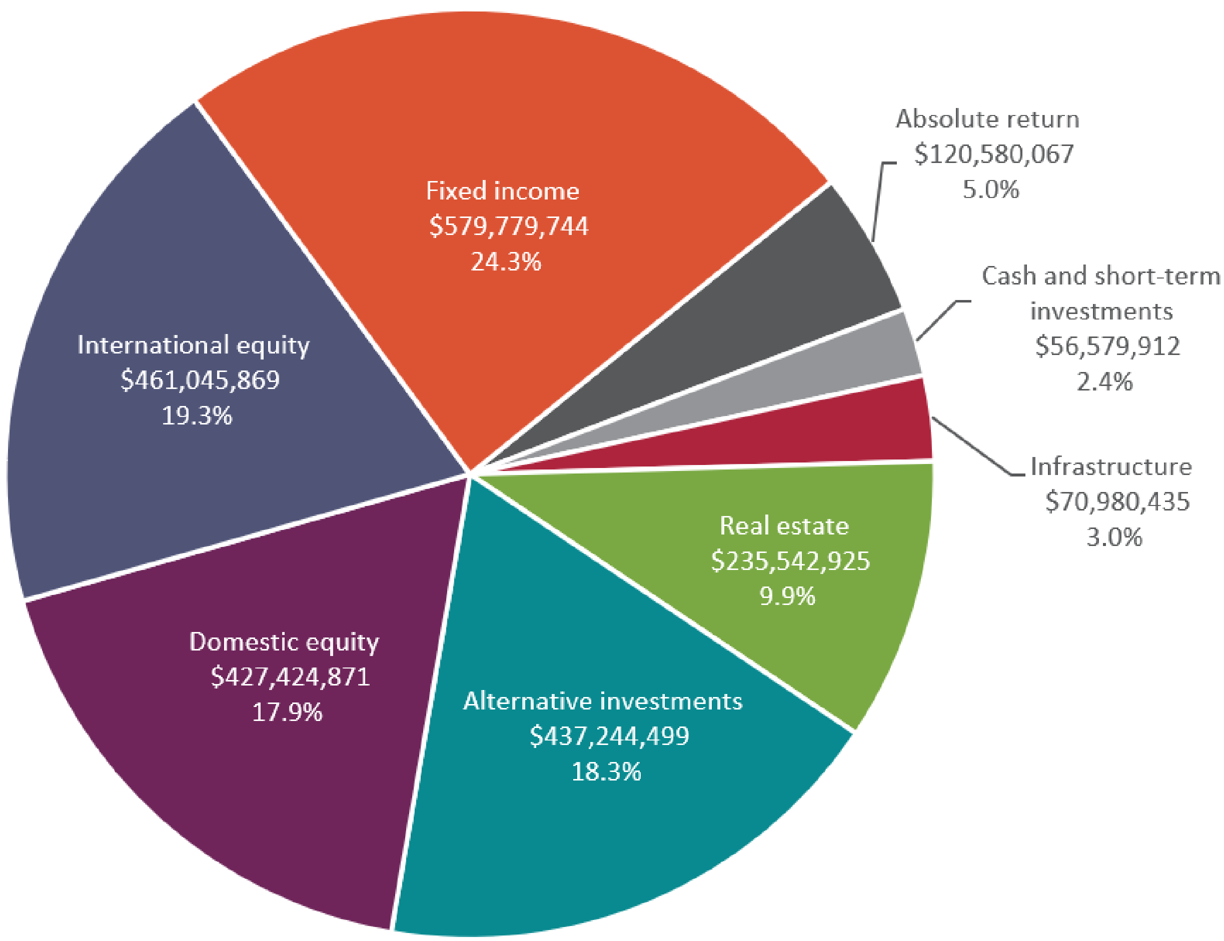


At target, a portfolio so allocated would be expected to achieve an 8.0% return with a standard deviation (risk) of 13.0%.

Investment Section

Asset Allocation by Asset Class

The total Fiduciary Net Position of DERP on December 31, 2022, was $2,399,244,141 including cash and investments of $2,389,178,322. At December 31, 2022, DERP's investment assets were allocated as shown in the following chart:



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, 2022, are shown in the following tables:

Top Ten Stock Holdings
December 31, 2022

Shares	Stocks	Fair Value
37,247	Microsoft Corp	$ 8,932,576
85,487	Alphabet Inc	7,570,366
12,786	Unitedhealth Group Inc	6,778,881
71,547	Amazon.com Inc	6,009,948
15,969	Netflix Inc	4,708,939
22,095	Visa Inc	4,590,457
10,410	Goldman Sachs Group Inc	3,574,586
29,035	Meta Platforms Inc	3,494,072
12,433	Danaher Corp	3,299,967
79,849	Wells Fargo & Co	3,296,965

Top Ten Bond Holdings
December 31, 2022

Par	Bonds	Coupon Rate	Maturity Date	Fair Value
15,000,000	U.S. Treasury Note	0.875 %	9/30/2026	$ 13,337,100
10,000,000	FNMA Bond	1.875 %	9/24/2026	9,239,700
9,000,000	U.S. Treasury Note	3.000 %	6/30/2024	8,787,690
8,000,000	U.S. Treasury Note	2.250 %	3/31/2024	7,764,400
6,000,000	FNMA Bond	6.625 %	11/15/2030	7,053,600
7,000,000	U.S. Treasury Note	2.500 %	5/31/2024	6,793,850
6,500,000	FNMA Bond	2.125 %	4/24/2026	6,098,885
5,800,000	U.S. Treasury Note	2.750 %	4/30/2023	5,767,578
6,000,000	U.S. Treasury Note	0.250 %	6/15/2024	5,633,460
5,000,000	FNMA Bond	6.250 %	5/15/2029	5,613,050

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, 2022 is 8.20%. Annualized investment results compared with benchmarks for the year ending December 31, 2022, are as follows:

	Last Year	Last 3 Years	Last 5 Years	Last 10 Year
Domestic Equity	(22.7)%	5.8 %	8.8 %	11.70 %
Russell 3000 Index	(19.2)%	7.1 %	8.8 %	12.10 %
International Equity	(15.1)%	0.6 %	— %	3.80 %
International Equity Policy Index	(16.4)%	(0.3)%	0.4 %	4.00 %
Fixed Income	(7.5)%	(0.7)%	1.3 %	2.00 %
Fixed Income Policy Index	(7.9)%	(0.6)%	1.0 %	1.70 %
Real Estate	6.8 %	6.8 %	5.7 %	8.40 %
NCREIF Index	9.6 %	12.1 %	10.0 %	10.80 %
Alternatives	1.8 %	13.0 %	10.2 %	8.80 %
Infrastructure	(0.6)%	N/A	N/A	N/A
CPI +3%	9.6 %	N/A	N/A	N/A
Absolute Return	3.2 %	7.6 %	5.1 %	4.60 %
HFRI FOF Conservation Index	0.1 %	4.7 %	3.9 %	3.60 %
Total Portfolio	(8.5)%	4.8 %	4.9 %	6.80 %
Total Fund Policy Index	(8.2)%	5.5 %	5.5 %	7.00 %
Change in Consumer Price Index (CPI-U)	8.0 %	4.8 %	3.9 %	2.75 %

Schedule of Investment Commissions

December 31, 2022

Broker	Quantity (Units)	Broker Commission	Commission Per/Share
Merrill Lynch Pierce Fenner Smith Inc	1,046,352	$ 13,896	$ 0.013
J.P. Morgan Securities	1,329,552	13,043	0.010
Goldman Sachs & Co	568,083	8,167	0.014
Bernstein Sanford C & Co	189,943	4,731	0.025
Stifel Nicolaus	107,020	3,760	0.035
National Financial Services Corp	174,489	3,687	0.021
Cowen and Co LLC	129,876	3,438	0.026
Scotia Capital Inc	443,899	3,329	0.008
Jefferies & Co Inc	151,923	3,197	0.021
RBC Capital Markets LLC	227,401	2,851	0.013
Morgan Stanley & Co Inc	97,409	2,566	0.026
Wells Fargo Securities LLC	216,016	2,559	0.012
Pershing LLC	82,070	2,526	0.031
Instinet Corp	287,975	2,413	0.008
State Street Global Markets LLC	83,736	2,391	0.029
Raymond James & Assoc Inc	150,161	1,970	0.013
Piper Jaffray &Co	247,396	1,856	0.008
Barclays Capital	94,501	1,655	0.018
Citigroup Global Market Inc	58,590	1,178	0.020
Pickering Energy Partners	50,226	1,005	0.020
William Blair & Co	20,302	812	0.040
ISI Group Inc	60,337	658	0.011
UBS Securities LLC	27,771	592	0.021
Baird, Robert W & Co Inc	13,485	525	0.039
BMO Capital Market Corp	19,928	510	0.026
Credit Suisse	12,369	432	0.035
Oppenheimer & Co	7,535	298	0.040
Liquidnet Inc	7,425	162	0.022
Mizuho Securties Inc	7,233	162	0.022
Luminex Trading and Analytics	5,374	132	0.024
Investment Tech Group Inc	5,745	126	0.022
Strategas Securities LLV	3,054	122	0.040
Apex Clearing Corp	4,610	113	0.025
Deutsche BK Sec	2,652	106	0.040
Southwest Securities Inc	1,858	74	0.040
Mirae Asset Sec	1,612	64	0.040
Cantor Fitzgerald & Co Inc	204	6	0.030
Total	**5,938,112**	**$ 85,112**	**$ 0.014**

Schedule of Investment Fees

December 31, 2022

Externally Managed Portfolios	Assets Under Management	Fees
U.S. Equities:		
Actively Managed	$ 214,923,737	$ 1,762,255
Passively Managed	212,501,134	57,328
International Equities:		
Actively Managed	396,181,551	2,198,597
Passively Managed	64,864,319	22,384
Fixed Income:		
Actively Managed	579,779,744	2,534,965
Real Estate:		
Fees netted with earnings	235,542,925	2,547,159
Absolute Return:		
Fees netted with earnings	120,580,067	365,739
Alternative Investments:		
Fees netted with earnings	433,706,602	3,089,149
Fees paid separately	3,537,897	256,162
Infrastructure		
Fees netted with earnings	70,980,435	617,482
	$ 2,332,598,411	**$ 13,451,220**
Other Investment Services		
Custody Fees		$ 102,856
Other investment related expenses		$ 1,360,541

Actuarial Section

CHEIRON Classic Values, Innovative Advice

April 13, 2023

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

Re: Actuarial Certification – Actuarial Valuation as of January 1, 2022

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, 2022 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, 2022 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, 2022 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 – Analysis of Financial Experience
- Schedule 3 – Demographic History
- Schedule 4 – Schedule of Funded Liabilities by Type / Member Benefit Coverage Information
- Schedule 5 – Summary of Plan Provisions
- Schedule 6 – Schedule of Funding Progress

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

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

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Denver Employees Retirement Plan
April 13, 2023
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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, 2022 actuarial valuation updated to the measurement date of December 31, 2022. 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, 2022 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, 2022 valuation, except for the discount rate, 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 Retirement Board adopted a motion to lower the discount rate from 7.50% to 7.25% at their September 23, 2020 Board meeting. 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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Denver Employees Retirement Plan
April 13, 2023
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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 and 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 Harper

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

Graham Schmidt

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

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Summary of Actuarial Assumptions and Methods

Contribution Allocation Procedure

The contribution allocation procedure primarily consists of an actuarial cost method, an asset valuation method, and an amortization method as described below. The actuarial cost method, amortization method, and asset valuation method were all 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 members is allocated as a level percentage of each individual's projected pay to the period between their date of hire and their assumed maximum retirement age. The normal cost for the Plan is the sum of the individual normal costs for each member. This actuarial cost method is in compliance with GASB standards. The EAN Actuarial Liability is the difference between the Plan's total present value of future benefits and the present value of future normal costs. The unfunded actuarial liability is the difference between the Actuarial Liability and the Actuarial Value of Assets.

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

2. **Amortization Method**

   The Unfunded Actuarial Liability (or Surplus Funding) is amortized as a percentage of the projected salaries of DERP members. Effective with the January 1, 2019 valuation, the Unfunded Actuarial Liability (UAL) as of January 1, 2019 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. 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 return assumption was adopted by the Board at its September 23, 2020 meeting, based on information presented by Cheiron and the Plan's investment consultant (Meketa). The other 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 were adopted by the Board for the January 1, 2018 actuarial valuation. More details on the rationale for these 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 2022 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 2022 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, unused sick and vacation hours are converted into pay at retirement, death, disability or termination. That converted amount is included in the Highest Average Salary. The valuation accounts for this by assuming the FAC will be increased by 5.00% for active retirement benefits and increased by 2.25% for active ordinary death and termination benefits for eligible members.

Summary of Actuarial Assumptions and Methods

9. Family Composition

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

Gender	Percent Married
Male	75%
Female	60%

10. Increases in Pay

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

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

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

Summary of Actuarial Assumptions and Methods

11. Rates of Termination

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

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

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

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Summary of Actuarial Assumptions and Methods

12. Rates of Disability

Disability rates of active participants are shown below.

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

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

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

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.

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Summary of Actuarial Assumptions and Methods

15. Rates of Retirement

Non-DHHA Rates of Retirement

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

Summary of Actuarial Assumptions and Methods

Eligible for Rule of 75 or Rule of 85

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

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

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

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

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

16. Retiree Medical Election Percentages

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

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

17. Maximum Retiree Medical Benefit

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

Denver Employees Retirement Plan — Schedule 2

Analysis of Financial Experience

Composite Gain (Loss) for the Years Ending December 31, 2017 through December 31, 2021.

Pension Benefits

	Dec 31, 2021	Dec 31, 2020	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017
Demographic Experience	$ 8,208,780	$ (29,128,753)	$ (13,993,345)	$ (28,925,223)	$ (10,454,200)
Investment Income	22,531,189	(23,832,619)	(36,961,589)	(58,325,659)	(11,792,983)
Contribution Gain (Loss)[1]	(3,714,412)	1,150,377	(12,746,285)	(5,527,971)	0
New Entrants[2]	N/A	N/A	N/A	N/A	(3,711,800)
Total Gain (Loss)	$ 27,025,557	$ (51,810,995)	$ (63,701,219)	$ (92,778,853)	$ (25,958,983)
Non-Recurring Items[3]	0	0	0	(180,806,014)	(82,057,600)
Composite Gain (Loss) During Year	$ 27,025,557	$ (51,810,995)	$ (63,701,219)	$ (273,584,867)	$ (108,016,583)

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, 2021	Dec 31, 2020	Dec 31, 2019	Dec 31, 2018	Dec 31, 2017
Demographic Experience	$ 5,272,511	$ 2,022,025	$ 2,924,694	$ 1,340,646	$ (182,500)
Investment Income	659,484	(806,487)	(1,226,092)	(2,236,926)	(757,727)
Contribution Gain (Loss)[1]	1,339,330	1,613,491	(901,196)	(296,989)	0
New Entrants[2]	N/A	N/A	N/A	N/A	(209,400)
Total Gain (Loss)	$ 7,271,325	$ 2,829,029	$ 797,406	$ (1,193,269)	$ (1,149,627)
Non-Recurring Items[3]	0	0	0	(8,912,349)	(4,937,600)
Composite Gain (Loss) During Year	$ 7,271,325	$ 2,829,029	$ 797,406	$ (10,105,618)	$ (6,087,227)

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.

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Denver Employees Retirement Plan — Schedule 3

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		
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%
2022	521	12,360,592	369	6,102,399	10,690	244,102,903	22,835	1.4%

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

Schedule of Active Members								
	Active Members		Projected Payroll		Projected Average Payroll		Average	
January 1,	Number	% Increase	$ Amount	% Increase	$ Amount	% Increase	Age	Service
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
2022	8,751	-2.3%	729,704,460	0.9%	83,385	3.3%	44.3	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.

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Denver Employees Retirement Plan Schedule 4

Scheduled of Funded Liabilities by Type / Member Benefit Coverage Information

Pension Plan - Schedule of Funded Liabilities by Type

Valuation Date January 1,	Actuarial Liabilities (A) Non-Vested Member Contributions[1]	(B) Retirees, Beneficiaries, and Term Vested		(C) Remaining Active Members' Liabilities	Reported Assets	Portion of Actuarial Liabilities Covered by Reported Assets (A)	(B)	(C)
2013	$ 14,004,000	$ 1,676,748,000	2	$ 902,438,000	$ 1,980,204,000	100%	100%	32%
2014	15,239,000	1,793,125,000	3	890,636,000	2,062,323,000	100%	100%	29%
2015	21,758,000	1,938,787,000	4	933,123,000	2,132,025,000	100%	100%	18%
2016	30,578,000	2,038,925,000	5	934,087,000	2,168,754,000	100%	100%	11%
2017	39,110,000	2,177,513,000	6	958,017,000	2,207,268,000	100%	100%	0%
2018	47,644,000	2,345,254,000	7	965,324,000	2,272,599,000	100%	95%	0%
2019	53,342,000	2,468,387,000	8	1,101,941,000	2,255,412,000	100%	89%	0%
2020	58,696,000	2,554,340,000	9	1,114,751,000	2,300,324,000	100%	88%	0%
2021	63,042,000	2,800,846,000	10	1,083,780,000	2,378,772,000	100%	83%	0%
2022	64,673,000	2,855,029,000	11	1,093,000,000	2,480,031,000	100%	85%	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 $105,677,000.

3 Includes DROP accounts of $107,944,000.

4 Includes DROP accounts of $110,655,000.

5 Includes DROP accounts of $113,006,000.

6 Includes DROP accounts of $116,493,000.

7 Includes DROP accounts of $125,524,000.

8 Includes DROP accounts of $118,078,000.

9 Includes DROP accounts of $118,320,000.

10 Includes DROP accounts of $122,517,000.

11 Includes DROP accounts of $112,323,000.

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Denver Employees Retirement Plan | Schedule 4

Scheduled of Funded Liabilities by Type / Member Benefit Coverage Information

Retiree Medical Plan - Member Benefit Coverage Information							
	Actuarial Liabilities[1]						
	(A)	(B)	(C)				
Valuation Date January 1,	Non-Vested Member Contributions[2]	Retirees, Beneficiaries, and Term Vested	Remaining Active Members' Liabilities	Reported Assets	Portion of Actuarial Liabilities Covered by Reported Assets (A)	(B)	(C)
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%
2022	3,208,000	120,066,000	42,119,000	78,898,000	100%	63%	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, 2021. 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.

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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 55^{th} if hired prior to July 1, 2011, or after the member's 60^{th} 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

8.85% of compensation, effective January 1, 2022 (decreased from 9.25% effective January 1, 2020).

23. Employer Contributions

16.75% of compensation, effective January 1, 2022 for each member (increased from 15.75% 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

Member Contribution Rate was decreased from 9.25% to 8.85%.

Employer Contribution Rate was increased from 15.75% to 16.75%.

Denver Employees Retirement Plan Schedule 6

Schedule of Funding Progress

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

Pension 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
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%
2022	2,480,031,000	4,012,702,000	1,532,671,000	61.8%	725,590,000	211.2%

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
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%
2022	78,898,000	165,393,000	86,495,000	47.7%	725,590,000	11.9%

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.

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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.

Statistical Section

The objective of the Statistical Section is to provide additional historical detailed information to assist the reader in understanding what the information in the financial statements, note disclosure, and required supplementary information indicate about DERP's overall financial status.

Overview

Financial Trends

The following schedules show trend information about the changes and growth in DERP's fiduciary net position over the last 10 years:

- Changes in Fiduciary Net Position – Pension Benefits and Health Benefits
- Schedule of Benefit Expenses by Type

Operating Information

The following schedules contain information related to the services that DERP provides and the activities that DERP performs:

- Schedule of Retired Members by Type of Benefits – Pension
- Schedule of Retired Members by Type of Benefits – Health Insurance Reduction
- Schedule of Retired Members by Attained Age and Type of Pension Benefit
- Average Monthly Benefit Payment – Pension (last 10 years)
- Average Monthly Benefit Payment – Health Insurance Reduction (last 10 years)
- Principal Participating Employers

Demographic

Demographic information is designed to provide additional information of DERP's retired members.

- Location of DERP Retirees

The material in this section is derived from DERP internal sources and intended to supplement the independent auditor's report. None of the information within the Statistical Section has been reviewed or audited for accuracy by DERP's auditors.

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Changes in Fiduciary Net Position

Last Ten Fiscal Years

	2013	2014	2015	2016
Pension Benefits				
Additions:				
Member contributions (1)	$ 37,138,512	(2) $ 39,521,451	(3) $ 46,689,696	(4) $ 48,037,800
Employer contributions (1)	56,427,308	59,941,041	67,234,597	68,794,871
Investment earnings (net of expenses)	318,274,197	101,595,703	(35,746,029)	147,443,477
Total additions to fiduciary net position	**411,840,017**	**201,058,195**	**78,178,264**	**264,276,148**
Deductions:				
Benefit payments	158,285,769	171,178,475	181,827,975	191,790,600
Refunds	1,051,298	1,507,554	2,164,104	2,751,016
Administrative expenses	3,597,603	3,638,296	3,785,416	3,742,451
Total deductions from fiduciary net position	**162,934,670**	**176,324,325**	**187,777,495**	**198,284,067**
Change in fiduciary net position	**$ 248,905,347**	**$ 24,733,870**	**$ (109,599,231)**	**$ 65,992,081**
Health Benefits				
Additions:				
Member contributions (1)	$ 2,543,374	$ 2,725,316	$ 3,026,103	$ 3,012,052
Employer contributions (1)	4,135,064	4,332,376	4,380,107	4,364,140
Investment earnings (net of expenses)	12,911,917	3,966,864	(1,308,528)	5,225,319
Total additions to fiduciary net position	**19,590,355**	**11,024,556**	**6,097,682**	**12,601,511**
Deductions:				
Benefit payments	12,582,751	12,846,786	12,905,247	12,859,361
Refunds	42,505	58,314	80,925	98,273
Administrative expenses	145,169	140,710	141,296	133,511
Total deductions from fiduciary net position	**12,770,425**	**13,045,810**	**13,127,468**	**13,091,145**
Change in fiduciary net position	**$ 6,819,930**	**$ (2,021,254)**	**$ (7,029,786)**	**$ (489,634)**

(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, 2013, the employer and employee contributions increased to 11.00% and 7.00%, respectively.

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

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

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

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

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

(8) Effective January 1, 2022, the employer and employee contributions increased to 16.75% and 8.85%, respectively.

2017	2018		2019		2020		2021	2022	
$ 50,599,952	$ 52,700,679	(5)	$ 60,074,876	(6)	$ 63,816,511	(7)	$ 62,604,568	$ 69,032,726	(8)
71,731,309	81,719,744		87,464,822		105,863,173		110,464,999	129,691,985	
302,942,063	(73,146,389)		284,110,225		180,417,580		393,528,947	(236,295,665)	
425,273,324	**61,274,034**		**431,649,923**		**350,097,264**		**566,598,514**	**(37,570,954)**	
204,064,502	215,658,138		226,412,949		232,594,284		256,073,669	288,651,955	
3,547,888	4,348,592		5,309,546		4,833,725		7,505,752	8,874,264	
3,899,901	4,016,288		4,123,494		4,465,837		4,657,946	4,657,712	
211,512,291	**224,023,018**		**235,845,989**		**241,893,846**		**268,237,367**	**302,183,931**	
$ 213,761,033	**$ (162,748,984)**		**$ 195,803,934**		**$ 108,203,418**		**$ 298,361,147**	**$ (339,754,885)**	
$ 3,005,989	$ 3,132,783		$ 3,310,427		$ 4,029,080		$ 3,820,520	$ 3,396,199	
4,367,474	4,952,754		5,084,799		6,870,452		6,805,263	6,453,727	
10,422,137	(2,364,015)		9,185,163		5,687,451		12,459,533	(7,525,232)	
17,795,600	**5,721,522**		**17,580,389**		**16,586,983**		**23,085,316**	**2,324,694**	
13,049,162	12,905,976		12,951,302		12,976,448		12,999,600	12,652,365	
121,860	144,189		171,219		153,085		237,527	279,550	
133,959	133,128		133,008		141,397		147,406	146,756	
13,304,981	**13,183,293**		**13,255,529**		**13,270,930**		**13,384,533**	**13,078,671**	
$ 4,490,619	**$ (7,461,771)**		**$ 4,324,860**		**$ 3,316,053**		**$ 9,700,783**	**$ (10,753,977)**	

Statistical Section

Schedule of Benefit Expenses by Type

Last Ten Fiscal Years

	2013	2014	2015	2016
Age and Service Benefits:				
Retirees	$ 135,648,423	$ 146,505,901	$ 156,519,225	$ 165,246,685
Survivor	6,619,661	7,274,571	7,755,324	8,482,372
Death in Service Benefits	3,781,917	3,965,980	4,054,992	4,135,128
Disability Benefits:				
Retirees:				
On-the-Job	826,071	844,509	879,295	917,075
Off-the-Job	3,940,566	4,018,848	3,977,212	4,122,190
Survivors	1,309,114	1,433,661	1,535,422	1,569,064
Lump Sum Death Benefits	1,350,159	1,415,762	1,324,545	1,615,976
Pension Benefits' Contribution Refunds				
Separation	1,051,298	1,507,554	2,162,575	2,671,771
Death	—	—	1,529	2,616
Health Benefits' Contribution Refunds				
Separation	42,505	58,314	80,868	174,731
Death	—	—	57	171
DROP Benefits	4,809,858	5,719,243	5,781,960	5,702,111
Pension Benefits	153,475,911	165,459,232	176,046,015	186,088,490
Health Benefits	12,582,751	12,846,786	12,905,247	12,859,360

2017	2018	2019	2020	2021	2022
$ 175,893,605	$ 185,677,299	$ 195,391,329	$ 217,219,220	$ 229,078,224	$ 235,947,929
9,001,245	9,413,449	10,222,475	11,309,771	12,248,632	13,139,641
4,248,073	4,320,956	4,392,797	4,616,997	4,494,804	4,723,939
913,151	1,003,139	926,796	1,077,114	878,069	996,045
4,019,183	3,936,770	3,925,053	3,823,114	3,792,467	3,635,930
1,615,969	1,698,309	1,805,386	1,793,476	1,829,505	2,024,426
1,561,969	1,466,130	1,459,441	1,254,830	1,489,888	1,333,430
3,434,692	4,226,993	5,178,686	4,771,796	7,332,167	8,812,684
17,882	3,892	—	61,929	23,949	61,580
216,049	261,655	302,079	149,826	385,903	276,309
1,125	241	—	3,259	1,260	3,241
6,811,306	8,142,084	8,289,671	4,476,210	15,261,680	39,502,980
197,253,196	207,516,054	218,123,278	228,118,074	240,811,989	249,148,975
13,049,162	12,905,976	12,951,302	12,976,448	12,999,600	12,652,365

Schedule of Retired Members by Type of Benefit - Pension

December 31, 2022

		Type of Retirement*							Option Selected**			
Amount of Monthly Benefit	Number of Retirees	1	2	3	4	5	6	7	1	2	3	4
$ 1 - 50	54	47	4	—	—	1	2	—	48	2	1	3
51 - 100	90	60	9	—	—	9	12	—	56	29	1	4
101 - 150	252	201	12	1	—	12	26	—	134	99	5	14
151 - 200	254	199	22	—	—	9	23	1	136	91	8	19
201 - 250	339	258	38	—	—	17	26	—	193	109	12	25
251 - 300	331	246	33	—	2	16	32	2	183	123	8	17
301 - 350	303	206	31	—	4	27	29	6	176	96	13	18
351 - 400	266	182	35	1	5	21	18	4	150	77	17	22
401 - 450	271	188	34	—	6	16	21	6	147	79	12	33
451 - 500	261	170	30	—	10	20	27	4	141	87	12	21
501 - 600	447	244	85	2	18	30	55	13	203	163	26	55
601 - 700	390	236	54	1	15	22	48	14	194	122	28	46
701 - 800	362	213	48	3	22	14	47	15	172	116	29	45
801 - 900	339	233	43	2	8	18	25	10	179	104	23	33
901 - 1,000	300	201	23	2	17	14	29	14	153	80	25	42
1,001 - 1,100	339	222	33	1	10	14	50	9	170	107	22	40
1,101 - 1,200	324	219	28	—	15	11	38	13	152	107	25	40
1,201 - 1,300	280	198	16	3	9	13	36	5	139	82	25	34
1,301 - 1,400	262	181	14	3	8	9	39	8	132	66	27	37
1,401 - 1,500	252	188	11	1	10	13	25	4	132	65	20	35
1,501 - 1,600	263	208	11	1	7	11	25	—	152	64	28	19
1,601 - 1,700	236	187	4	2	7	10	20	6	126	47	27	36
1,701 - 1,800	226	183	2	—	8	12	19	2	127	42	26	31
1,801 - 1,900	246	212	4	1	6	6	16	1	121	58	28	39
1,901 - 2,000	232	207	2	—	5	5	11	2	120	55	15	42
2,001 - 2,500	930	791	11	4	24	21	69	10	419	272	100	139
2,501 - 3,000	779	710	4	4	9	6	43	3	355	216	86	122
3,001 - 3,500	622	570	1	4	4	11	29	3	250	185	70	117
3,501 - 4,000	405	384	2	—	2	3	13	1	166	127	41	71
4,001 - 4,500	329	319	—	1	1	3	5	—	149	84	24	72
4,501 - 5,000	252	242	—	—	—	3	7	—	121	72	20	39
5,001 - 5,500	177	171	—	—	1	2	3	—	80	52	17	28
5,501 - 6,000	124	118	—	1	—	3	2	—	50	45	10	19
6,001 - 6,500	78	76	—	—	—	—	2	—	37	23	5	13
6,501 - 7,000	67	63	—	—	1	—	3	—	27	25	3	12
7,001 - 7,500	66	64	—	—	—	—	2	—	23	18	10	15
7,501 - 8,000	42	41	—	—	—	—	1	—	21	9	5	7
8,001 - 8,500	21	19	—	—	—	1	1	—	7	9	3	2
$ 8,501 - over	84	78	—	2	2	—	1	1	29	28	9	18
Totals	**10,895**	**8,535**	**644**	**40**	**236**	**403**	**880**	**157**	**5,370**	**3,235**	**866**	**1,424**

* 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, 2022

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	72	$ 6.25 - 50.00	698
51.00 - 100.00	264	51.00 - 100.00	1,486
101.00 - 150.00	259	101.00 - 150.00	1,408
151.00 - 200.00	200	151.00 - 200.00	1,291
201.00 - 250.00	186	201.00 - 250.00	436
251.00 - 300.00	185	251.00 - 300.00	44
301.00 - 350.00	222	301.00 - 350.00	22
351.00 - 400.00	178	351.00 - 400.00	14
401.00 - 450.00	112	401.00 - 450.00	3
451.00 - 500.00	32	451.00 - 500.00	2
501.00 - 550.00	7	501.00 - 550.00	1
551.00 - 600.00	5	551.00 - 600.00	1
601.00 - 650.00	1	601.00 - 650.00	1
651.00 - 700.00	1	651.00 - 700.00	—
701.00 - 750.00	—	701.00 - 750.00	1
751.00 - 800.00	1	751.00 - 800.00	—
$ 801.00-over	1	$ 801.00 - over	—
Total	**1,726**	**Total**	**5,408**

Type of Benefit:

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

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

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

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

December 31, 2022

		Type of Retirement*						
Age	Number of Retirees/ Beneficiary	1	2	3	4	5	6	7
0 - 24	38	—	—	—	2	30	4	2
25 - 29	10	—	—	—	—	4	4	2
30 - 34	23	—	—	—	—	7	8	8
35 - 39	20	—	—	—	1	9	8	2
40 - 44	38	—	—	—	2	17	11	8
45 - 49	32	2	—	—	4	10	12	4
50 - 54	81	6	—	1	14	28	23	9
55 - 59	944	825	20	3	19	46	25	6
60 - 64	1,630	1,374	85	6	40	60	54	11
65 - 69	2,267	1,924	111	7	51	61	95	18
70 - 74	2,363	1,953	129	13	47	57	132	32
75 - 79	1,641	1,266	136	2	32	35	152	18
80 - 84	900	607	87	3	16	17	147	23
85 - 89	512	330	45	4	6	13	104	10
90 - 94	293	190	17	1	2	3	77	3
95 and up	103	58	14	—	—	6	24	1
Totals	**10,895**	**8,535**	**644**	**40**	**236**	**403**	**880**	**157**

***Type of Retirement:**

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

Average Monthly Benefit Payment – Pension

Last Ten Fiscal Years

Retirement Effective Date for the Years Ended December 31:	Years of Credited Service 0-5	6-10	11-15	16-20	21-25	26-30	31+	Total
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
2022								
Average Monthly Benefit	$333.16	$656.57	$1,199.23	$2,147.99	$3,405.38	$4,955.69	$6,431.74	$2,732.82
Mean Final Average Monthly Salary	$4,167.50	$5,092.78	$6,028.22	$7,086.82	$8,062.38	$9,626.28	$9,807.94	$7,124.56
Number of Retirees	41	103	61	55	65	58	39	422

Average Monthly Benefit Payment – Health Insurance Reduction

Last Ten Fiscal Years

	Years of Credited Service							
As of December 31:	1-5	6-10	11-15	16-20	21-25	26-30	31+	Total
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
2022								
Total Eligible Reduction Amount	$6,155.98	$37,511.40	$77,985.78	$161,414.03	$222,181.75	$268,736.28	$317,432.01	$1,091,417.23
Average Monthly Benefit Paid	$34.78	$54.44	$81.15	$115.30	$153.87	$196.73	$230.52	$147.21
Number of Retirees	177	689	961	1,400	1,444	1,366	1,377	7,414

Principal Participating Employers

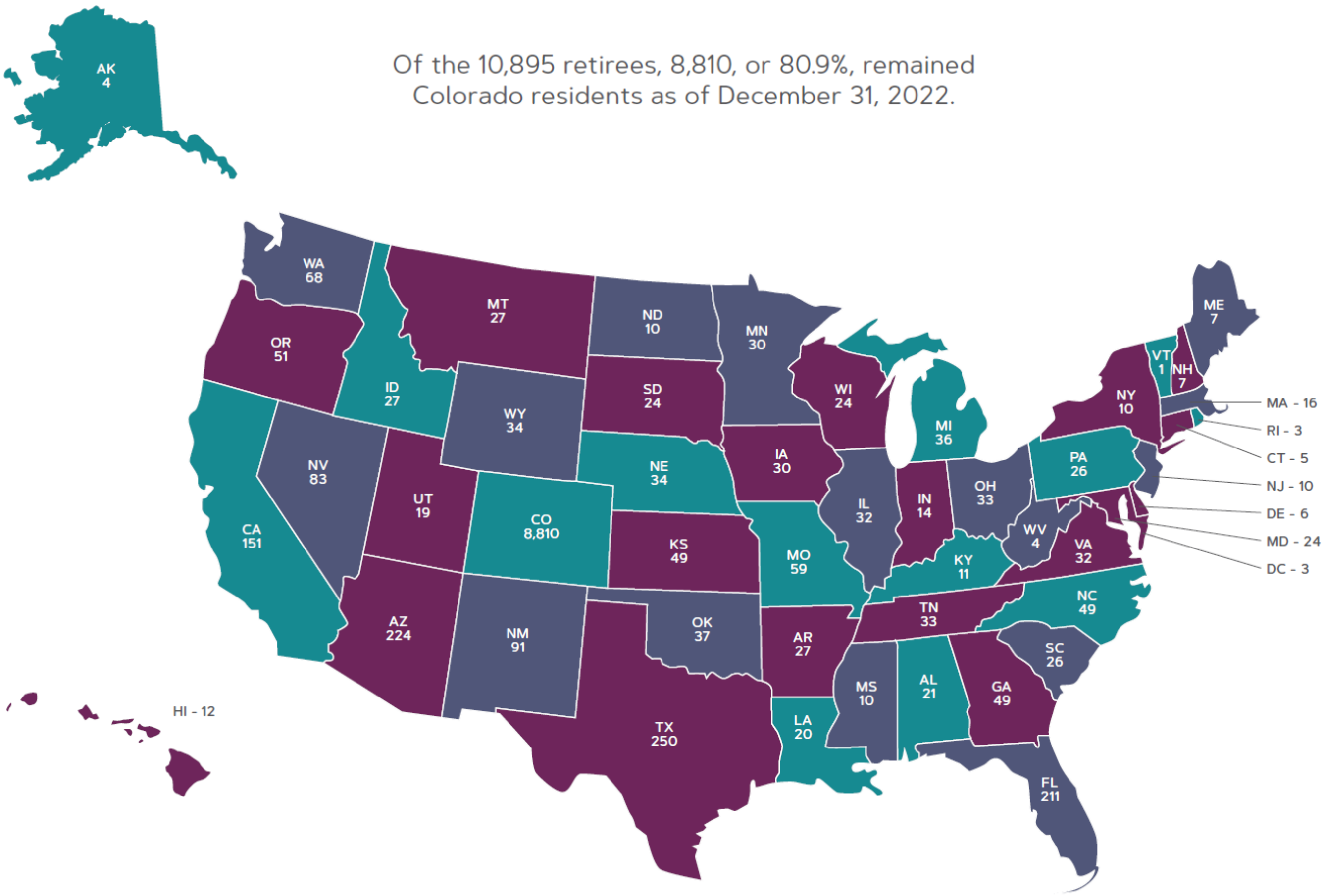
Current Year and Nine Years Ago

	2022			2013		
	Covered Employees	Rank	Percentage of Total System	Covered Employees	Rank	Percentage of Total System
Pension Benefits						
Participating Government:						
City and County of Denver	22,674	1	95.2 %	21,276	1	93.5 %
Denver Health and Hospital Authority	1,152	2	4.8 %	1,470	2	6.5 %
Total	**23,826**		**100.0 %**	**22,746**		**100.0 %**
Health Benefits						
Participating Government:						
City and County of Denver	22,674	1	95.2 %	21,276	1	93.5 %
Denver Health and Hospital Authority	1,152	2	4.8 %	1,470	2	6.5 %
Total	**23,826**		**100.0 %**	**22,746**		**100.0 %**

Statistical Section

Location of DERP Retirees

Of the 10,895 retirees, 8,810, or 80.9%, remained Colorado residents as of December 31, 2022.



Other Countries and Territories

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

Armed Forces

Africia, Canada, Europe, or Middle East	1