



Evolve. Innovate. Invest.

Annual Comprehensive Financial Report

FOR THE YEAR ENDED DECEMBER 31, 2023

Public Employees' Retirement Association of Colorado



2023 IN REVIEW

Facts and Figures as of December 31, 2023



Investment Portfolio Fair Value

\$61.5 billion

(Defined Benefit Plans)



Net Rate of Return

13.4%



Members Actively
Contributing to PERA

213,548



Employers

410



Total Covered Participants

59,470

(In PERACare Health Benefits Program)



Funded Status

69.6%

(Division Trust Funds)



Retirees and Benefit Recipients

138,553



Annual Retirement
Benefit Payments

\$5.3 billion



Invested in Colorado-Based Companies,
Partnerships, and Assets

\$788.9 million



30-Year Rate of Return

8.3%

(Annualized, Gross-of-Fees)

Annual Comprehensive Financial Report

For the Year Ended December 31, 2023

Public Employees' Retirement Association of Colorado

*Prepared by Colorado PERA's Accounting Division in
coordination with staff from other divisions*





Table of Contents

Introductory Section

Letter of Transmittal	3
Professional Awards	12
Board Chair's Report	14
Report of the Colorado PERA Audit Committee	15
Board of Trustees	17
Administrative Organizational Chart and Executive Management	19
Consultants	20

Financial Section

Independent Auditors' Report	23
Management's Discussion and Analysis (Unaudited)	27

Basic Financial Statements

Fund Financial Statements

Statements of Fiduciary Net Position	41
Statements of Changes in Fiduciary Net Position	44

Notes to the Financial Statements

Note 1—Plan Description	47
Note 2—Summary of Significant Accounting Policies	56
Note 3—Interfund Transfers and Balances	58
Note 4—Contributions	59
Note 5—Investments	62
Note 6—Derivative Instruments	73
Note 7—Commitments and Contingencies	73
Note 8—Voluntary Investment Program, Defined Contribution Retirement Plan, and Deferred Compensation Plan	74
Note 9—Health Care Trust Funds—Defined Benefit Health Care Plans	76
Note 10—Net Pension Liability of the Division Trust Funds	79
Note 11—Net OPEB Liability of the Health Care Trust Funds	82
Note 12—Leases, Capital Assets, and Subscription Liabilities	86

Required Supplementary Information (Unaudited)—

Division Trust Funds

Schedule of Changes in Net Pension Liability and Related Ratios	88
Schedule of Employer and Nonemployer Contributions	98
Schedule of Investment Returns	100

Notes to the Required Supplementary Information (Unaudited)—

Division Trust Funds

Note 1—Significant Changes in Plan Provisions Affecting Trends in Actuarial Information	101
Note 2—Significant Changes in Assumptions or Other Inputs Affecting Trends in Actuarial Information	103
Note 3—Methods and Assumptions Used in Calculations of ADC	105

Financial Section (continued)

Required Supplementary Information (Unaudited)—

Health Care Trust Funds

Schedule of Changes in Net OPEB Liability and Related Ratios	106
Schedule of Employer Contributions	110
Schedule of Investment Returns	110

Notes to the Required Supplementary Information (Unaudited)—

Health Care Trust Funds

Note 1—Significant Changes in Plan Provisions Affecting Trends in Actuarial Information	111
Note 2—Significant Changes in Assumptions or Other Inputs Affecting Trends in Actuarial Information	111
Note 3—Methods and Assumptions Used in Calculations of ADC	114

Supplementary Schedules

Schedule of Administrative Expenses	115
Schedule of Other Additions	117
Schedule of Other Deductions	117
Schedule of Investment Expenses	118
Schedule of Payments to Consultants	118

Investment Section

Defined Benefit Plans

Chief Investment Officer Letter	121
Report on Investment Activity	124
Schedule of Investment Results	126
Investment Summary	128
Schedule of Investment Expenses	129
Schedule of Internal and External Asset Management	129
Schedule of Investment Income and Expenses by Asset Class	130
Schedule of Private Market Investment Contributions, Distributions, and Paid Carried Interest	130
Profile of Investments in Colorado	131
Largest Equity Holdings by Fair Value	132
Largest Fixed Income Holdings by Fair Value	132
Investment Brokers/Advisers (Internally Managed Assets)	133
Schedule of Commissions	133

Defined Contribution Plans

Report on Investment Activity	134
Schedule of Investment Results	136
Investment Summary	137

Table of Contents

Actuarial Section

Actuary's Certification Letter	141
--------------------------------------	-----

Division Trust Funds—Pension

Actuarial Topics	149
Actuarial Assumptions: Exhibits A-G	157
Summary of Funding Progress	163
Schedule of Funded Liabilities by Type	163
Unfunded Actuarial Accrued Liability	166
Actuarial Gains and Losses	169
Actuarial Valuation Results	171
Plan Data	177

Health Care Trust Funds—OPEB

Actuarial Topics	185
Actuarial Assumptions: Exhibits H-L	191
Summary of Funding Progress	194
Schedule of Funded Liabilities by Type	194
Unfunded Actuarial Accrued Liability	195
Actuarial Gains and Losses	197
Actuarial Valuation Results	197
Plan Data	201

Statistical Section

Overview	207
Changes in Fiduciary Net Position	208
Benefits and Refund Deductions from Fiduciary Net	219
Position by Type	
Member and Benefit Recipient Statistics	222
Breakdown of Membership by Percentage	223
Schedule of Average Retirement Benefits Payable—	224
All Division Trust Funds	
Schedule of Average Retirement Benefits Payable	224
Benefit Payments—All Division Trust Funds	227
Schedule of Retirees and Survivors by Types of Benefits	229
Schedule of Average Benefit Payments	234
Schedule of Contribution Rate History	243
Principal Participating Employers	249

Commonly Used Acronyms

Commonly Used Acronyms	253
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Introductory Section





LETTER OF TRANSMITTAL



June 21, 2024

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

I'm pleased to present this *Annual Comprehensive Financial Report (ACFR)* for the Public Employees' Retirement Association of Colorado (PERA) for the year ended December 31, 2023.

I'm honored to write this letter as PERA's new Chief Executive Officer (CEO)/Executive Director. While 2023 predates my tenure with PERA, the facts and figures contained in this report speak to the competency and excellence of the PERA Board of Trustees (Board) and staff tasked with administering tens of billions of dollars in retirement benefits for the state's public workforce. I want to thank the Board for granting me the opportunity to serve PERA and its nearly 700,000 members and benefit recipients, and I want to thank staff for their hard work and dedication throughout the year.

PERA's investment portfolio for the defined benefit trust funds ended 2023 with a positive return of 13.4% net-of-fees compared to the benchmark's return of 14.4%.

As of December 31, 2023, PERA managed a portfolio of \$61.5 billion for the defined benefit plans and \$5.9 billion for the defined contribution plans on behalf of current and former public employees. The combined funded ratio for the five Division Trust Funds was 69.6%.

Colorado's public employees spend their careers providing vital services to the residents of this state. PERA benefits are a valuable source of financial stability, not just for our retirees but also for the local communities across the state where they live, shop, and recreate. In 2023 alone, PERA retirement benefits resulted in \$7.1 billion in economic output and helped support 28,525 jobs in the state.

I've spent my career in public service, and I'm honored to be Colorado PERA's eighth CEO/Executive Director. I look forward to helping this important organization continue its nearly 100-year legacy and move its mission forward. I know in the past year, staff have made tremendous progress on major projects, such as the new Colorado PERA mobile app, to modernize and improve our internal systems and the services we provide. Those projects and others just getting underway will help ensure we continue to deliver long-term value to all stakeholders.

In the months ahead, I look forward to getting to know PERA's staff, Board, employers, and other key stakeholders, especially our members and retirees. I know how important PERA is to your financial well-being, and I want you to know I take very seriously our responsibility to provide the benefits upon which you rely.

As in years past, we'll be holding Town Hall meetings following the release of this report, and I hope everyone with an interest in the future of this organization will take the opportunity to attend and participate.



Andrew Roth
Chief Executive Officer/
Executive Director

LETTER OF TRANSMITTAL

2023 Legislation

During the 2023 legislative session, three bills pertaining to PERA passed the Colorado General Assembly and became law.

Senate Bill 23-016: Greenhouse Gas Emission Reduction Measures

This bill includes multiple provisions meant to reduce greenhouse gas emissions in the state, along with one section concerning PERA, which requires a description of climate-related investment risks, impacts, and strategies to be included as part of the annual *Investment Stewardship Report*, which is posted on the PERA website.

PERA Board position: Monitor

Governor Jared Polis signed the bill into law on May 11, 2023.

Senate Bill 23-056: Compensatory Direct Distribution to PERA

The bill requires the State of Colorado to make an additional payment to PERA in the amount of the balance of the PERA Payment Cash Fund, plus \$10 million in the General Fund, which results in a total payment of approximately \$14.5 million. This payment is intended to recompense PERA for the cancellation of a previously scheduled July 1, 2020, direct distribution of \$225 million, in addition to the compensatory payment provided in previous legislation. The bill also repeals the PERA Payment Cash Fund on July 1, 2023.

PERA Board position: Support

Governor Jared Polis signed the bill into law on June 2, 2023.

Senate Bill 23-163: Colorado Parks and Wildlife Officers Classified as State Troopers

The bill modifies the definition of “State Trooper” to include wildlife officers and parks and recreation officers hired on or after January 1, 2011, by Colorado Parks and Wildlife in the Department of Natural Resources. It applies the State Trooper contribution rate and benefits to eligible employees and their employer effective July 1, 2023.

PERA Board position: Monitor

Governor Jared Polis signed the bill into law on June 6, 2023.

Economic Environment

Monetary policy moderated in 2023 as the Federal Reserve (Fed) normalized the pace and size of rate increases. The multi-year increase in interest rates slowed the rate of inflation, but price levels and inflation remained elevated, with the Fed leaning into a data-driven wait-and-see approach that may hold rates

higher for longer to avoid a resurgence of inflation. The federal funds rate was increased in four quarter-point increments and ended the year with an upper bound of 5.5%, the highest level since the dot-com boom of the late 1990s. Rate-sensitive sectors continued to be the most impacted by the Fed’s moves as mortgage, automobile, and credit card rates increased, dampening demand for discretionary goods as more income was spent on essential goods and services. 30-year fixed rate mortgages approached 8.0% in the fourth quarter, new car loans exceeded 8.0% in the fourth quarter, and the average interest rate on credit card accounts ended the year above 22.0%.

Three large regional bank failures in early 2023 raised fears the rapid increase in interest rates was beginning to impact the economy and reinforced expectations of a mild recession. However, strong consumer spending and declining inflation provided the economic tailwinds that allowed the U.S. economy to outperform expectations, with real gross domestic product (GDP) increasing 2.5% in 2023. Wage and salary growth outpaced inflation, increasing 4.3% for civilian workers for the 12-month period ending in December. The Consumer Price Index (CPI) for all items rose 3.4% for the 12-month period ending in December and CPI less food and energy rose 3.9%, notching its smallest increase since the beginning of pandemic disruptions. The Personal Consumption Expenditures (PCE) price index is the Fed’s preferred measure of inflation and rose 2.6% in December from a year earlier, approaching the Fed’s 2.0% target rate of inflation. The U.S. labor market softened slightly in 2023 but still added 2.7 million jobs, with the unemployment rate practically unchanged from the period prior to the interest rate hiking cycle. The unemployment rate remained historically low and ended the year at 3.7%.

Global economic growth continued to cool in the post-pandemic economy with 2023 estimated real GDP growth at 2.6%. Emerging market and developing economies experienced a modest increase in economic activity from the prior year, increasing 4.0%, while advanced economies continued a downward trend in their rate of growth, increasing 1.5%. Among advanced economies, the United States was a standout, coming in a full percent above other advanced economies, while the Euro area came in more than a full percent below other advanced economies. Within emerging market and developing economies, South and East Asia countries outperformed. Growth in the Russian Federation turned positive in 2023 but remained significantly below other emerging market and developing economies as ongoing sanctions limited economic activity. Conflicts in Ukraine and the Middle East, slowing growth in China, and rising tensions between China and Western nations posed challenges to global economic growth and cooperation. For countries trying to slow their economies, the rapid increase in

LETTER OF TRANSMITTAL

interest rates has not resulted in a meaningful rise in unemployment or currency crises like past monetary tightening cycles, increasing optimism for a soft landing.

Colorado's economy continued to outperform the national average with real GDP growth coming in at a healthy 2.9% in 2023. The unemployment rate in Colorado increased modestly from the prior year from 3.0% to 3.3%, and remained below the U.S. unemployment rate. Colorado's labor force participation rate was significantly above the U.S. average rate of 62.5% and ended 2023 at 68.3%. The Centennial State's strong job market was aided by the low unemployment rate, high labor force participation rate, and high level of educational attainment. Population growth slowed within the state, relative to the torrid growth rates of prior decades, but is expected to pick up again over the next decade before leveling off as the population ages and in-migration slows. The slowdown in population growth has allowed the state to catch up on its shortage of housing supply but inventory remains low contributing to still rising housing prices, albeit at slower rates of appreciation. The median price of a single-family home stands at \$550,000 statewide and just under \$600,000 in the metro area.

Investments

Investment portfolio income is a significant source of revenue to PERA. The Board's Investment Committee is responsible for assisting the Board in overseeing PERA's investment program.

In 2023, there was net investment income of \$8.3 billion compared with total member contributions of \$1.6 billion and employer contributions of \$2.5 billion.

For the year ended December 31, 2023, the defined benefit funds had a time-weighted rate of return of 13.4% net-of-fees. The annualized, net-of-fees, time-weighted, rates of return over the last three and five years were 4.5% and 10.0%, respectively, and over the last 10 years it was 7.8%. The 30-year annualized, gross-of-fees, time-weighted, rate of return was 8.3%.

Prudent funding and healthy investment returns are important to the financial soundness of PERA. More information on the composition of the portfolio is reflected in the Investment Summary on page 128.

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

In addition to asset class targets, the Board sets ranges within which asset classes are maintained. The yearly

policy benchmark weight and long-term asset allocation target, as well as the specified ranges for each asset class are presented on page 124. All of the asset classes were within their specified ranges at year-end.

PERA's investment policy is summarized in the Report on Investment Activity on page 124.

Investment Stewardship

It is PERA's fiduciary duty to serve as stewards of capital for our members, participants, and beneficiaries. Foundational to PERA's investment stewardship are cost-consciousness, integration of material factors in PERA's investment and proxy voting decisions, market advocacy, and the ongoing evaluation of our holdings. Collectively, these efforts are intended to strengthen PERA's investment stewardship across all asset classes in the portfolio as we continue to prioritize financial sustainability.

The Investment Committee is currently reviewing the *Proxy Voting Policy* with expected completion in 2024. Through careful deliberation, the Board continues to uphold its fiduciary duty in setting parameters for PERA's investment program.

In 2023, senior members of PERA staff served on advisory groups and boards to advocate for robust capital markets and business practices accretive to long-term investment value. Our leadership in the Investor Advisory Group of the Public Company Accounting Oversight Board (PCAOB), the U.S. Asset Owners Advisory Council of the Council of Institutional Investors (CII), and the board of the International Corporate Governance Network (ICGN) demonstrate PERA's commitment to strong investment stewardship.

Major Initiatives

In 2023, PERA made solid progress in achieving the Board's strategic plan to evolve systems, innovate programs, and invest in our employees. Major initiatives under these three themes were a companywide effort, requiring collaboration, training, and shared vision to improve our service to members, retirees, and employees.

Evolve

Investment Systems Modernization Program

The Investment Systems Modernization Program is a multi-year program to modernize our Investment systems and architecture, streamline workflows, and increase self-service reporting and data analytics capabilities. It will reduce manual processing, minimize redundancies, improve PERA's transmission and storage of data, and be scalable to accommodate future investment needs. The program encompasses several projects including the consolidation of private market investments onto a single platform as well as the implementation of data aggregation, data warehouse, and reporting tools.

LETTER OF TRANSMITTAL

In connection with this program, PERA has also implemented Organizational Change Management, which addresses the people side of change. The focus is to help those impacted by the program understand the reasons for the changes and how responsibilities will adjust as these new systems are implemented.

This is a collaborative program involving staff from Accounting, Alternatives, Communications, Information Technology, Investment Administration, Investment Operations, Private Equity, and Real Estate.

Genesys Cloud

In June 2023, PERA rolled out a new phone system in our Customer Service Center aimed at enhancing our service capabilities. This upgrade, powered by the Genesys Cloud system, introduces advanced tools that increase the availability of agents during peak periods and enhances our ability to forecast call volumes. Additionally, we have incorporated speech-to-text technology, which provides transcripts of all calls. This feature will eventually facilitate the extraction of valuable insights regarding call reasons, member sentiment, and other pertinent data. Future enhancements will include improved knowledge management, call summarization, and the addition of customer communication channels such as chat, further benefiting our members, employers, and support staff.

Pension Administration System Update

PERA engaged with a pension technology partner in 2023 to analyze PERA's current state with respect to its pension administration system. Additionally, the engagement provided information on the current landscape of modernization in the industry and consultation with peer organizations at various stages of modernization. PERA staff have continued to evaluate potential paths toward modernization with the goal of selecting the direction most appropriate for PERA and launching the project in 2024.

Mobile App

Also in June 2023, PERA launched its free mobile app on the App Store (iOS) and Google Play Store (Android). With the app, members and retirees can see at-a-glance account information, such as projected monthly benefit, account balance, and salary and service credit history. Users can also update their account information such as tax withholding and beneficiary details in the app. At year-end, the app had more than 22,000 downloads.

Innovate

Unitization Project

Unitization provides a compelling opportunity for defined contribution (DC) plan participants to gain access to PERA's low-cost, institutional quality, internal asset management capabilities by investing alongside the defined benefit (DB) plan. In 2023, PERA engaged

Callan, its DC Investment Consultant, to help evaluate the potential to unitize the DB plan.

Quick Tip Videos

In 2023, the Communications and Member Education Divisions created and published a series of Quick Tip videos—a new online video library of short-form and on-demand educational content that allows members to consume bite-size information about PERA when and how they want it. The series now has more than 13,000 views.

Invest

LEAD Pacesetter

PERA launched the LEAD Pacesetter Program in early 2023—a professional development program for PERA's future leaders, which encourages growth and development for team leads and individuals interested in gaining or advancing knowledge and skills. Twenty-one employees completed the year-long program with an entry option every six months, with another 11 starting mid-year.

Job Shadowing and Team Learning

The Job Shadowing and Team Learning Program, which was piloted in 2023 and rolled out in early 2024, fosters professional development, enables individuals to learn from internal experts, supports career paths, and enhances collaboration within PERA. This initiative aims to promote an integrated and collaborative culture, drive innovation and creativity, and ensure strategic alignment across divisions.

Mentoring

PERA's Mentoring Program continues to encourage insightful and inclusive two-way interactions for those wanting to deepen professional relationships with coworkers in other divisions. Mentees and Mentors engage in a mutually beneficial partnership to exchange ideas, knowledge, and expertise.

Project Management Community of Practice

The Project Management Community of Practice was formed in 2023 for those employees with a shared interest in project management, with no requirements for any formal training or background in this discipline. Forty employees participated in the community, which focused on project management skills and the process of managing PERA projects from concept through fruition.

Actuarial Results

Two types of actuarial valuations are required to be performed for PERA's five defined benefit pension and two other postemployment benefit (OPEB) trust funds: one for accounting and financial reporting purposes and the other for funding purposes. The results of both actuarial valuations are included in the financial and actuarial sections of this report, respectively.

LETTER OF TRANSMITTAL

The results of the actuarial valuations performed for accounting and financial reporting purposes are prepared in accordance with Governmental Accounting Standards Board (GASB) requirements. Assets are required to be stated at fair value and the liabilities are determined using a standardized methodology allowing for transparency and comparability across U.S. governmental defined benefit pension and OPEB systems.

The results of the actuarial valuations for funding purposes are prepared in accordance with Actuarial Standards of Practice and the Board's pension and OPEB funding policies. Investment gains and losses are recognized over a four-year period to calculate a smoothed or actuarial value of assets (AVA) used to determine funding metrics. The amount of actuarial accrued liability (AAL) in excess of the AVA is referred to as the unfunded actuarial accrued liability (UAAL). The ratio of AVA to AAL represents the funded status of each plan.

For the year ended December 31, 2023, the UAAL calculated for funding the five defined benefit pension trust funds was \$27.5 billion compared to the net pension liabilities (NPL) calculated for accounting and financial reporting purposes of \$29.3 billion. Although the same funding or attribution method is used to determine liabilities for both funding and accounting and financial reporting purposes, differing asset values (AVA versus fair value of assets) and other typically less impactful valuation processes can result in notably different assessments of unfunded liabilities (UAAL versus NPL) under various economic conditions. For the year ended December 31, 2022, the UAAL calculated for the five defined benefit pension trust funds for funding purposes was \$26.3 billion compared to the NPL calculated for accounting and financial reporting purposes of \$31.0 billion.

The decrease in the NPL is primarily due to favorable investment performance during 2023. In accordance with GASB 67 and GASB 74, the discount rate determination for 2023 required the use of the long-term expected rate of return of 7.25% for the five pension and two OPEB trust funds. When calculating the AAL for funding purposes, the discount rate used is always equal to the long-term expected rate of return set by the Board.

A comprehensive discussion of the results of the actuarial valuation performed for accounting and financial reporting purposes can be found in the Management's Discussion and Analysis (MD&A) on pages 33-36, as well as in Notes 10 and 11 of the Notes to the Financial Statements in the Financial Section. The results of the actuarial valuations performed for funding purposes are briefly summarized below with information on certain funding actuarial metrics provided in the MD&A on pages 37-38. A more

comprehensive discussion is provided in the Actuarial Section.

Funding

On December 31, 2023, the funded ratio for PERA's five defined benefit pension trust funds was 69.6% compared to 69.9% on December 31, 2022. The AVA as of December 31, 2023, was \$62.9 billion. Although the 2023 fair value investment return of 13.4% was favorable when compared to the long-term expected rate of return of 7.25%, the investment return on an AVA basis was 6.5% versus the 7.25% assumption. This less than expected return for 2023 was predominantly due to the 2022 investment losses still being recognized in the smoothed actuarial value. The UAAL as of December 31, 2023, was \$27.5 billion, an increase of approximately \$1.2 billion from the previous year, reflecting the AVA investment loss, as previously described, as well as a net demographic actuarial loss.

The development and ongoing review of a pension funding policy are responsibilities of the Board. PERA's current pension funding policy initially was adopted by the Board in March 2015, and last revised January 19, 2024, for the five defined benefit pension trust funds. The Board adopted a similarly structured OPEB funding policy in January 2018, which also was last revised January 19, 2024. Both policies focus on the determination of an actuarially determined contribution reflecting closed and layered 30-year amortization periods. The purpose of each policy is three-fold: (1) to define the overall funding benchmarks of each trust fund, (2) to assess the adequacy of the contribution rates set by the Colorado Legislature by comparing each trust fund's statutorily set contribution rate to an actuarially determined contribution benchmark, and (3) to define the annual actuarial metrics which will assist in assessing the sustainability of the plan. The results of these three items help guide the Board when considering whether to pursue or support proposed contribution and benefit legislation.

Investment income is the most significant driver of the funded status in a defined benefit plan. To understand the significance of this assumption, a sensitivity analysis is included in the Actuarial Section on page 176 for the Division Trust Funds and page 200 for the Health Care Trust Funds. Additional information on PERA's funded ratio, unfunded liabilities, and actuarial assumptions may be found in the Actuarial Section starting on page 149 for the Division Trust Funds and on page 185 for the Health Care Trust Funds.

Employer contributions also drive the funded status. 2023 is only the third year within the last 21 years the actual employer contributions received pursuant to statute for the five defined benefit pension trust funds were in excess, or \$162.6 million greater than the required actuarially determined contributions.

LETTER OF TRANSMITTAL

However, three years of excess does not fully compensate for the 18 years of deficiency, which has accumulated over the 21-year period to \$5.0 billion as of December 31, 2023. See page 35 of the MD&A in the Financial Section for additional details.

Investment Rate of Return Sensitivity Effect on Projected Amortization Periods

In addition to the annual actuarial funding valuation, the Board's actuary performs actuarial projections for each Division Trust Fund. These projections are forward-looking and take into consideration the many tiers of PERA benefit provisions and the statutory contribution rate structures. The projections also reflect applicable salary, demographic, and economic actuarial assumptions, as well as anticipated member growth. Considering the various benefit tiers currently in effect within PERA, the Board believes the results of the actuarial projections provide valuable insight into the long term impact of the pension reforms adopted in 2010 and 2018.

The main focus of these projections is to provide, by division, the amortization or funding period, meaning the expected number of years until full funding status is achieved. The projected amortization periods reflect all actuarial assumptions and the benefit and contribution provisions currently enacted, even if not yet effective.

The following table shows the projected amortization periods under two scenarios: (1) as of the December 31, 2023, actuarial valuation, reflecting the 2023 investment return and other plan experience, and (2) as of the December 31, 2022 actuarial valuation.

Division Trust Fund	Projected Amortization Periods (in years)	
	2023 Valuation Results	2022 Valuation Results
State	23	32
School	27	34
Local Government	14	23
Judicial	8	12
DPS	9	13

It is important to understand the risks related to defined benefit plans, specifically the risks associated with the selection and application of the long-term expected rate of return on investments. Given the long-term funding horizon and anticipated ongoing aspect of such defined benefit plans, particularly those providing benefits in the public sector, it is generally understood that the plan's existence is tied to the ongoing nature of governmental services. Therefore, it is common practice for plan sponsors/administrators of governmental or public sector pension plans also to apply the expected long-term rate of return as the discount rate used to determine the liabilities of the plan.

In order to derive the long-term rate of return assumption, the Board looks to the expertise of its investment and actuarial consultants to perform a comprehensive asset/liability study on a periodic basis (generally every three to five years). In conjunction with this study, the Board reviews capital market data from numerous sources. PERA concluded the most recent asset/liability study in November 2019. As a result of the study, the Board updated and approved long-term asset allocations and target ranges effective January 1, 2020, and reaffirmed the current 7.25% long-term expected rate of return applicable to all five Division Trust Funds and the two Health Care Trust Funds. The Board is currently in the process of updating the periodic asset/liability study, which is expected to be completed by or before the end of 2024.

The following table illustrates the projected amortization periods, in years, of the School Division Trust Fund under the various return scenarios (used for both assumed investment return and to discount liabilities of the plan) which correspond to the confidence levels (probabilities of investment return) as indicated. This table reflects the results and experience of the December 31, 2023, actuarial funding valuation and the actuarial assumptions adopted November 20, 2020, first effective for the December 31, 2020, actuarial valuations and measurement date. The projected funding periods reflect 50-year probability outlooks (Monte Carlo simulations), provided by the Board's actuaries, and are based on 30-year capital market assumptions, employed in the 2019 asset/liability study as previously described, provided by the Board's investment consultants.

Projected Amortization Periods—School Division Trust Fund					
Probability of Achieving at Least the Rate of Return Displayed (or Better), per Annum	Long-Term Expected Investment Return & Discount Rate				
	4.35%	6.18%	7.25%	8.63%	10.47%
95th Percentile	Infinite				
75th Percentile		69			
53rd Percentile			27		
25th Percentile				11	
5th Percentile					3

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

PERA offers members opportunities to save more for retirement through the Voluntary Investment Program (PERAPlus 401(k) Plan), the Defined Contribution Retirement Plan (DC Plan), and the Deferred Compensation Plan (PERAPlus 457 Plan). All employees working for a PERA-affiliated employer may contribute to the PERAPlus 401(k) Plan. As of December 31, 2023, there were a total of 216 employers who recognized the value of offering more choices in savings by affiliating

LETTER OF TRANSMITTAL

with the PERAPlus 457 Plan. The Roth option was added to the PERAPlus 401(k) and 457 Plans at the end of 2014. As of December 31, 2023, there were a total of 199 employers who have adopted the Roth option. The Roth option in these plans offers advantages over a Roth IRA, including higher contribution limits and no income-based contribution limitations.

The fiduciary net position of the PERAPlus 401(k), DC, and PERAPlus 457 Plans increased for the year ended December 31, 2023. The PERAPlus 401(k), DC, and PERAPlus 457 Plans earned \$711.7 million, \$63.1 million, and \$180.6 million of investment income with a fiduciary net position of \$4.3 billion, \$422.4 million, and \$1.3 billion, respectively.

Overview of Colorado PERA

PERA provides retirement and other benefits to the employees of more than 500 government agencies and public entities in the State of Colorado. Established by State law in 1931, PERA operates by authority of the Colorado General Assembly and is administered under Title 24, Article 51 of the Colorado Revised Statutes. In accordance with its duty to administer PERA, the Board has the authority to adopt and revise Rules in accordance with State statutes. See Notes 1, 8, and 9 of the Notes to the Financial Statements in the Financial Section for participant information and services provided by PERA.

Employer Affiliation

PERA welcomes the Town of Mt. Crested Butte, which affiliated in the Local Government Division on April 5, 2023.

Board of Trustees Composition

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

In March 2023, the Board reappointed the Honorable Rebecca R. Freyre to the Judicial Division seat since she was the sole candidate duly nominated and eligible to be elected. Judge Freyre will serve a four-year term that ends on June 30, 2027.

In June 2023, as a result of the 2023 Board election, one new Trustee was elected and two Trustees were reelected. Eunice Botchway, a Special Education Teacher in Adams-Arapahoe School District 28J, was elected to the School Division seat previously held by JB Phillips. Trustee Botchway will serve a two-year term that

expires in June 2025. Trina Ruhland, a deputy county attorney with the Boulder County Attorney's Office, was reelected by Local Government Division members to the seat she was appointed to in 2022. Trustee Ruhland will serve a four-year term that expires in June 2027. Timothy M. O'Brien, the auditor for the City and County of Denver, was reelected by retired members of the State, Local Government, and Judicial Divisions. Trustee O'Brien will serve a four-year term that expires in June 2027.

In November 2023, Trustee Ramon Alvarado resigned from the Board. Since Trustee Alvarado was the sole Higher Education candidate from the previous election, a replacement for this seat is pending the results of the 2024 Board election.

In January 2024, Vice Chair Suzanne Kubec retired from her position with the State Office of Risk Management and therefore vacated her seat on the Board. As a result, Ashley M. Smith was appointed to fill the seat as she was the runner-up in the 2022 Board election. Trustee Smith, who served on the Board from 2021 to 2022, will serve until the 2025 Board election. Trustee Smith is the Director of Corporate Strategy and Development at Pinnacol Assurance.

Also in January 2024, in compliance with procedures established in PERA's Governance Manual, the Board nominated and elected Trustee Taylor McLemore as Vice Chair to serve the balance of the term through 2024.

In May 2024, Trustee Taylor McLemore was reappointed to the Board by Governor Polis and will be subject to Senate confirmation during the 2025 legislative session.

Management Changes

In September 2023, Tom Liddy, Director of Investment Operations, retired after 19 years of service.

In October 2023, the Operations Support Division was reorganized to more efficiently serve members and support the organization. Team members whose roles support benefits or data analysis joined Benefit Services Division as the Benefits Administration Operations Support team. Team members whose roles impact communications functions, such as publications fulfillment and mail services, joined Communications as the Communications Operations Support team.

On March 15, 2024, the PERA Board named Andrew Roth as PERA's Chief Executive Officer/Executive Director, effective May 13, 2024. Roth was previously the Deputy Director for the Teacher Retirement System of Texas. After serving as Acting Executive Director beginning in March 2023, then Interim Executive Director since June 2023, Amy C. McGarrity has resumed her role as Chief Investment Officer/Chief Operating Officer.

LETTER OF TRANSMITTAL

Financial Information and Management Responsibility

Our *ACFR* must comply with the reporting requirements under Title 24, Article 51, Section 204(8) of the Colorado Revised Statutes.

The ultimate responsibility for the Basic Financial Statements and *ACFR* rests with PERA management with the Board providing oversight. The Board is assisted in its responsibilities by the Audit Committee, which consists of no fewer than five Board members and two independent outside members. A more detailed description of the Audit Committee's role can be found in their report on pages 15-16.

Management prepares PERA's financial statements and is responsible for the integrity and fairness of the data presented, including the many amounts that must, out of necessity, be based on estimates and judgments. This *ACFR* was prepared to conform to the accounting principles generally accepted in the United States of America, and the financial information presented in the report is consistent with the Basic Financial Statements.

Management is responsible for establishing and maintaining adequate internal control over financial reporting. In addition, our audit personnel provide a continuing review of the internal controls and operations of PERA, and the Director of Internal Audit regularly reports to the Audit Committee.

PERA's internal control over financial reporting is designed to provide reasonable, but not absolute assurance, regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

The effectiveness of any internal control system has inherent limitations, including the possibility of human error, the circumvention or overriding of controls, and the preference that the cost of control does not exceed the benefits to be derived.

Accordingly, even an effective internal control system may not prevent or detect misstatements and can provide only reasonable assurance with respect to financial statement preparation.

State law requires the State Auditor to conduct or cause to be conducted an annual audit of PERA. Pursuant to this requirement, under the direction of the State Auditor, CliftonLarsonAllen LLP audited PERA's 2023 Basic Financial Statements in accordance with auditing standards generally accepted in the United States of America and Government Auditing Standards. CliftonLarsonAllen LLP issued an unmodified opinion on PERA's financial statements, which can be found in the Independent Auditors' Report in the Financial Section on pages 23-26. Management has provided the auditors with full and unrestricted access to PERA's

records and staff to discuss their audit and related findings, to facilitate independent validation of the integrity of the plan's financial reporting and to consider the effectiveness of internal controls.

The Financial Section of the *ACFR* also contains the MD&A that serves as a narrative introduction, overview, and analysis of the Basic Financial Statements. This Letter of Transmittal is designed to complement the MD&A and should be read in conjunction with it.

Recognition of Achievements

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to PERA for its *ACFR* for the year ended December 31, 2022. This was the 38th consecutive year PERA has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized annual comprehensive financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

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

The GFOA also awarded PERA an Award for Outstanding Achievement in Popular Annual Financial Reporting for its *Popular Annual Financial Report* for the year ended December 31, 2022. The Award for Outstanding Achievement in Popular Annual Financial Reporting is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government popular reports.

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

An award for Outstanding Achievement in Popular Annual Financial Reporting is valid for a period of one year only. PERA has received a Popular Award for the last 21 consecutive years. We believe our current report continues to conform to the Popular Annual Financial Reporting requirements, and we are submitting it to the GFOA.

PPCC Standards Award Program

The Public Pension Coordinating Council (PPCC) presented PERA with a Public Pension Standards Award for Funding and Administration in 2023 for meeting professional standards for funding and plan administration as set forth in the Public Pension Standards. This is the 21st consecutive year PERA has

LETTER OF TRANSMITTAL

received this annual award. The PPCC is a coalition of three national associations that represent public retirement systems and administrators—the National Association of State Retirement Administrators, National Council on Teacher Retirement, and National Conference on Public Employee Retirement Systems. These three associations represent more than 500 of the largest pension plans in the U.S.

Acknowledgements

This *ACFR* reflects the combined efforts of PERA staff and is the responsibility of PERA management. I extend my sincere appreciation to all who assisted in and contributed toward its completion. Our *ACFR* is intended to provide complete and reliable information for transparent communication and to serve as a resource.

An email with a link to this *ACFR* is provided to all PERA-affiliated employers and other interested parties; a summary (*Popular Annual Financial Report*) is distributed to members and benefit recipients. Electronic versions of both reports are available on the PERA website at copera.org.

As we remain focused on our funding goals and investing for the future, I would like to thank our affiliated employers for their continued support and cooperation, which is vital to the success of PERA. I would also like to thank the PERA Board and staff for their hard work and many contributions in moving the mission forward to provide retirement security for Colorado's public employees.

Respectfully submitted,

Andrew Roth
Chief Executive Officer/Executive Director
Colorado PERA

PROFESSIONAL AWARDS



Government Finance Officers Association

Certificate of
Achievement
for Excellence
in Financial
Reporting

Presented to

**Public Employees' Retirement Association
of Colorado**

For its Annual Comprehensive
Financial Report
For the Fiscal Year Ended

December 31, 2022

Christopher P. Morill

Executive Director/CEO

PROFESSIONAL AWARDS



Public Pension Coordinating Council

***Public Pension Standards Award
For Funding and Administration
2023***

Presented to

Public Employees' Retirement Association of Colorado

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

Presented by the Public Pension Coordinating Council, a confederation of

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

A handwritten signature in dark ink, reading 'Alan H. Winkle', is positioned above the printed name and title.

Alan H. Winkle
Program Administrator

BOARD CHAIR'S REPORT



Marcus Pennell
Board Chair

June 21, 2024

Dear Colorado PERA Members, Benefit Recipients, and Employers:

As Chair of the Board of Trustees (Board), I am pleased to present this *Annual Comprehensive Financial Report* for the year ended December 31, 2023.

In 2023, the Board began the process of searching for PERA's next Executive Director, and I'm happy to say that earlier this year, the Trustees selected Andrew Roth to fill that role. Mr. Roth started work in May and has hit the ground running, meeting with PERA staff and engaging with various stakeholders. In the months to come, I anticipate many more of you will have a chance to connect with Mr. Roth and learn more about the expertise and skillset he brings to the role of Chief Executive Officer (CEO)/Executive Director.

As PERA leadership enters a new phase, it's vital that we as Trustees be thoughtful and deliberate in laying out our strategic vision for PERA's future. I'm confident the experience and knowledge Mr. Roth has gained from his career in public service—including leadership roles at two of the country's largest pension plans—will be valuable in the months ahead as we craft our next five-year strategic plan.

I want to thank PERA staff and leadership for their dedication and hard work during this period of transition. In addition to the important work of administering the plans and delivering benefits to our members during a leadership change, staff continued to find innovative ways to make PERA a stronger and more efficient organization. Our talented staff have completed some important projects to improve the services we provide to our members, such as launching our first-ever mobile app, and managed PERA's investment portfolio to a positive return of 13.4% net-of-fees. In particular, I want to extend the Board's appreciation to Chief Investment Officer/Chief Operating Officer Amy C. McGarrity for stepping up to serve as Interim Executive Director. I know it was a unique challenge, but Amy handled it extremely well and her hard work did not go unnoticed.

I would also like to thank JB Phillips, whose time on the Board ended in 2023, as well as Ramon Alvarado, who left the Board this year. I extend my sincere thanks also to Vice Chair Suzanne Kubec, who left the Board in January. Suzanne brought a wealth of expertise to the Board and I was honored to work alongside her. To fill the Vice Chair vacancy, the Trustees selected Taylor McLemore to assume that role. His leadership as chair of the CEO/Executive Director Search Committee demonstrated the thoughtfulness and diligence he will bring to the role of Vice Chair. I also want to welcome our newest Trustee, Eunice Botchway, as well as a returning Trustee, Ashley Smith.

Selecting our next CEO/Executive Director and developing our next strategic plan are major milestones for PERA, and I want to thank the Trustees for the high level of care, consideration, and purpose they've devoted to these important tasks. Colorado's current and former public employees rely on us for their financial security, and I'm continually humbled by the seriousness with which this Board carries out its duties.

Sincerely,

Marcus Pennell (He/Him)
Chair, Colorado PERA Board of Trustees

REPORT OF THE COLORADO PERA AUDIT COMMITTEE



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

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

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

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

- Are there any significant accounting judgments, estimates, or adjustments made by management in preparing the financial statements that would have been made differently had the Independent Auditor prepared and been responsible for the financial statements?
- Based on the Independent Auditor's expertise, and its knowledge of PERA and PERA's financial statements, have subsequent events been appropriately disclosed in the financial statements?
- Based on the Independent Auditor's experience, and its knowledge of PERA, do PERA's financial statements fairly present to users, with clarity and completeness, PERA's financial position and performance for the reporting period in accordance with generally accepted accounting principles?
- Based on the Independent Auditor's experience, and its knowledge of PERA, has PERA implemented internal control and internal audit procedures that are appropriate for PERA?
- Are the Independent Auditor and internal auditors getting the support they need from management to execute their duties?
- Were ethics hotline complaints, if any, adequately investigated and resolved?
- Did all PERA staff, including members of management, attest to their compliance with the PERA Standards of Ethical and Professional Conduct?

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

The Audit Committee had an agenda for 2023 that included the following items:

- Recommending the *Annual Comprehensive Financial Report* to the Board for its approval;
- Reviewing and approving the plan and budget of the Internal Audit Division;

REPORT OF THE COLORADO PERA AUDIT COMMITTEE

- Reviewing the adequacy of resources made available to the Internal Audit Division;
- Reviewing the scope, objectives, and timing of the annual independent audit of PERA's financial statements;
- Providing input into the Chief Executive Officer/Executive Director's annual performance evaluation of the Director of Internal Audit;
- Reviewing PERA's compliance with its *Standards of Professional and Ethical Conduct*;
- Meeting with the Independent Auditor separately, without management present;
- Meeting separately with the Chief Executive Officer/Executive Director, Director of Internal Audit, Director of Accounting/Controller, and General Counsel; and
- Meeting with the Director of Internal Audit and with management to discuss the effectiveness of PERA's system of internal control.

The Audit Committee has reviewed and discussed the audited financial statements for the year ended December 31, 2023, with management and the Independent Auditor. Management represented to the Audit Committee that PERA's audited financial statements were prepared in accordance with accounting principles generally accepted in the United States of America that apply to governmental accounting for fiduciary funds. The Independent Auditor represented that their presentations to the Audit Committee included the matters required by auditing standards on auditor communication to be discussed with the Independent Auditor. This review included a discussion with management of the quality (not merely the acceptability) of PERA's accounting principles, the reasonableness of significant estimates and judgments, and the clarity of disclosure in PERA's financial statements, including the disclosures related to critical accounting estimates.

In reliance on these reviews and discussions, and the reports of the Independent Auditor and the Director of Internal Audit, the Audit Committee has recommended to the Board, and the Board has approved PERA's *Annual Comprehensive Financial Report* for the year ended December 31, 2023.

Audit Committee as of June 20, 2024

Timothy M. O'Brien, Chairman

Norm Franke

Julie Friedemann

Mary-Margaret Henke

Tammie Lowrie

Jennifer Pasquino

Trina Ruhland

BOARD OF TRUSTEES

Serving from January 1, 2023, to June 21, 2024

By State law, authority over the Public Employees' Retirement Association of Colorado (PERA) is vested in the Board of Trustees (Board). The Board is composed of the following 16 Trustees:

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

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



Marcus A. Pennell
Chair

Elected by School Members
Physics Teacher
Jefferson County School District R-1
Current term expires June 30, 2025



Taylor McLemore
Vice Chair

Appointed by the Governor
Current term expires July 10, 2028



Ramon Alvarado

Elected by State Members
Adjunct Faculty/Professor
Metropolitan State University of Denver
Resigned from the Board November 16, 2023



Honorable Rebecca R. Freyre

Appointed to Judicial Division seat
Judge
Colorado Court of Appeals
Current term expires June 30, 2027



Eunice Botchway

Elected by School Members
Special Education Teacher
Aurora Public Schools
Current term expires June 30, 2025



Julie Friedemann

Elected by Retirees
Retired Mathematics Teacher
Jefferson County School District R-1
Current term expires June 30, 2025



Norm Franke

Appointed by the Governor
Current term expires July 10, 2025



Nathan Geroche

Appointed to School Division seat
Science Teacher
Boulder Valley School District
Current term expires June 30, 2024

BOARD OF TRUSTEES (CONTINUED)

Serving from January 1, 2023, to June 21, 2024



Amy Grant

Non-voting, Ex officio member
Elected by DPS Division active members
and retirees
Former Chair of the Denver Public
Schools Retirement System Board
Retired Secretary
Current term expires June 30, 2028



Trina Ruhland

Elected by Local Government Division
members
Deputy County Attorney
Boulder County Attorney's Office
Current term expires June 30, 2027



Suzanne E. Kubec

Elected by State Members
Liability Program Manager
State Office of Risk Management
Resigned from the Board January 31, 2024



Tracy Marie Rushing

Elected by State Members
Supervisor in Division of Vocational
Rehabilitation
Colorado Department of Labor and
Employment
Current term expires June 30, 2024



Timothy M. O'Brien

Elected by Retirees
Retired Colorado State Auditor
Office of the State Auditor
Current term expires June 30, 2027



Ashley M. Smith

Appointed to State Division seat
Director of Corporate Strategy and
Development
Pinnacol Assurance
Current term expires June 30, 2025



Jennifer Pasquino

Appointed by the Governor
Current term expires July 10, 2026



Scott Smith

Elected by School Members
Chief Financial and Operating Officer
Cherry Creek School District
Current term expires June 30, 2026



JB Phillips

Appointed to School Division seat
Computer Science Teacher
Mesa County Valley School District 51
Term expired June 30, 2023



Honorable Dave Young

Ex officio member
State Treasurer
Continuous term effective January 2019



Eric Rothaus

Deputy State Treasurer
Delegated Substitute for the State
Treasurer
Continuous term effective January 2019

Additional detail about Trustees can be found in Board of Trustees Composition on page 9 in the Letter of Transmittal.

ADMINISTRATIVE ORGANIZATIONAL CHART AND EXECUTIVE MANAGEMENT

As of June 1, 2024



CONSULTANTS

As of December 31, 2023

Disability and Life Insurance Consultant

Milliman, Inc.
One Canal Plaza
Suite 1001
Portland, ME 04101

Fiduciary Counsel

Cohen Milstein Sellers & Toll PLLC
1100 New York Ave. NW
Fifth Floor
Washington, DC 20005

Governance Consultant

Mosaic Governance Advisors, LLC
PO Box 350604
Westminster, CO 80035

Health Care Program and Pharmacy Benefits Consultant

Segal
7951 East Maplewood Avenue
Suite 327
Greenwood Village, CO 80111

Independent Auditors

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

Investment Performance Consultants

Aon Investments USA, Inc.
200 East Randolph Street Suite 700
Chicago, IL 60601

The Northern Trust Company
50 South La Salle Street
Chicago, IL 60603

Investments—Portfolio Consultant

Aon Investments USA, Inc.
200 East Randolph Street Suite 700
Chicago, IL 60601

Master Custodian

The Northern Trust Company
50 South La Salle Street
Chicago, IL 60603

Pension and Health Care Program Actuary

Segal
7951 East Maplewood Avenue
Suite 327
Greenwood Village, CO 80111

Risk Management

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

Voluntary Investment Program, Defined Contribution Retirement, and Deferred Compensation Plan Investment and Performance Consultant

Callan, LLC
1900 16th Street
Suite 1175
Denver, CO 80202

Voluntary Investment Program, Defined Contribution Retirement, and Deferred Compensation Plan Service Provider

Empower
8515 East Orchard Road
Greenwood Village, CO 80111

A list of PERA's Investment Brokers/Advisers, the Schedule of Commissions, and other information related to investment expenses can be found in the Investment Section on pages 129-133.



Financial Section





INDEPENDENT AUDITORS' REPORT



CliftonLarsonAllen LLP
CLAAconnect.com

INDEPENDENT AUDITORS' REPORT

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

Report on the Audit of the Financial Statements***Opinions***

We have audited the accompanying financial statements of Public Employees' Retirement Association of Colorado (Colorado PERA), including the individual fund financial statements, as of and for the year ended December 31, 2023, and the related notes to the financial statements, which collectively comprise Colorado PERA'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 Colorado PERA as of December 31, 2023, and the changes in its fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America. In addition, in our opinion, the financial statements referred to previously present fairly, in all material respects, the respective fiduciary net position of each individual fund of Colorado PERA as of December 31, 2023, and the respective changes in fiduciary net position thereof for the year then ended in conformity with accounting principles generally accepted in the United States of America.

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 Auditors' Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of Colorado PERA 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 opinions.

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.

CLA (CliftonLarsonAllen LLP) is an independent network member of CLA Global. See [CLAGlobal.com/disclaimer](https://claglobal.com/disclaimer)

INDEPENDENT AUDITORS' REPORT

Board of Trustees
Public Employees' Retirement Association of Colorado

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 Colorado PERA'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.

Auditors' Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditors' report that includes our 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 Colorado PERA'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 Colorado PERA'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.

INDEPENDENT AUDITORS' REPORT

Board of Trustees
Public Employees' Retirement Association of Colorado

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, the division trust funds' schedules of changes in net pension liability and related ratios, employer and nonemployer contributions, and investment returns and related notes, and the health care trust funds' schedules of changes in net OPEB liability and related ratios, contributions from employers, 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 GAAS, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise Colorado PERA's basic financial statements. The schedules of administrative expenses, other additions, other deductions, investment expenses, and payments to consultants (supplementary information) are presented for purposes of additional analysis and are not a required part of the basic 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 basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with GAAS. In our opinion, the supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the introductory, investment, actuarial and statistical sections but does not include the basic financial statements and our auditors' report thereon. Our opinions 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.

INDEPENDENT AUDITORS' REPORT

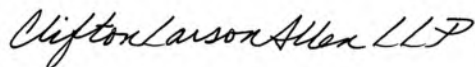
Board of Trustees
Public Employees' Retirement Association of Colorado

Report on Summarized Comparative Information

We have previously audited Colorado PERA's 2022 financial statements, and we expressed unmodified opinions on the respective financial statements of Colorado PERA and of each individual fund as displayed in the basic financial statements in our report dated June 16, 2023. In our opinion, the summarized comparative information presented herein as of and for the year ended December 31, 2022, is consistent, in all material respects, with the audited financial statements from which it has been derived.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated June 21, 2024, on our consideration of Colorado PERA's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of Colorado PERA'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 Colorado PERA's internal control over financial reporting and compliance.



CliftonLarsonAllen LLP

Denver, Colorado
June 21, 2024

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

This Management's Discussion and Analysis (MD&A) section provides a narrative overview and analysis of the financial activities of the Public Employees' Retirement Association of Colorado (PERA) for the year ended December 31, 2023. Please consider the information presented here in conjunction with additional information in the Letter of Transmittal starting on page 3 of this *Annual Comprehensive Financial Report (ACFR)* and with the Basic Financial Statements of PERA starting on page 41.

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

Overview of the Association

PERA administers the following 11 fiduciary funds:

Plan Name

Defined Benefit Pension Plans (Division Trust Funds)

State Division Trust Fund
School Division Trust Fund
Local Government Division Trust Fund
Judicial Division Trust Fund
Denver Public Schools (DPS) Division Trust Fund

Defined Benefit Other Postemployment Benefit Plans (Health Care Trust Funds)

Health Care Trust Fund (HCTF)
Denver Public Schools Health Care Trust Fund (DPS HCTF)

Defined Contribution Plans

Voluntary Investment Program
Defined Contribution Retirement Plan
Deferred Compensation Plan

Private Purpose Trust Fund

Life Insurance Reserve

Additional information regarding the contribution and benefit provisions of the plans can be found in Notes 1, 4, 8, and 9 of the Notes to the Financial Statements.

Financial Statement Overview

PERA's financial statements are prepared in conformity with generally accepted accounting principles (GAAP) in the United States and all applicable Governmental Accounting Standards Board (GASB) pronouncements. The actuarial valuations reported in the Actuarial Section are prepared in accordance with the Actuarial Standards of Practice and the PERA Board's funding policy.

Basic Financial Statements

PERA's financial statements include the following components:

1. Basic Financial Statements
 - Statements of Fiduciary Net Position
 - Statements of Changes in Fiduciary Net Position
2. Notes to the Basic Financial Statements
3. Required Supplementary Information - Unaudited
4. Supplementary Schedules

The Statements of Fiduciary Net Position presents information on PERA's assets, liabilities, and deferred inflows of resources, with the difference reported as fiduciary net position (FNP). Over time, the increase or decrease in FNP indicates PERA's financial condition and ability to fund future benefits.

The Statements of Changes in Fiduciary Net Position reflect how PERA's FNP changed during the fiscal year, including additions such as contributions and investment income and deductions such as benefit payments, refunds, and administrative expenses.

Notes to the Financial Statements

The Notes to the Financial Statements provide essential information for understanding the Basic Financial Statements.

Note 1—Plan Description: provides a general description of PERA, the administered funds, and an overview of plan provisions for the defined benefit pension trust funds.

Note 2—Summary of Significant Accounting Policies: provides a summary of significant accounting policies, including the basis of accounting for PERA and management's use of estimates.

Note 3—Interfund Transfers and Balances: provides information related to interfund activity and balances.

Note 4—Contributions: provides information related to contribution requirements of the defined benefit pension trust funds and the authority for establishing or amending those requirements.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Note 5—Investments: provides information related to deposits and investments, required investment disclosures, including risks related to credit (including custodial credit and concentrations of credit risk), interest rate, and foreign currency.

Note 6—Derivative Instruments: provides information on PERA's investment derivative instruments.

Note 7—Commitments and Contingencies: summarizes PERA's significant commitments and generally describes any potential contingencies of PERA.

Note 8—Voluntary Investment Program, Defined Contribution Retirement Plan, and Deferred Compensation Plan: identifies and describes the three defined contribution plans.

Note 9—Health Care Trust Funds: identifies and describes the types of defined benefit other postemployment benefit (OPEB) plans.

Note 10—Net Pension Liability (NPL) of the Division Trust Funds: provides a summary of the NPL of employers and the nonemployer contributing entity (if applicable) in accordance with GASB Statement No. 67, *Financial Reporting for Pension Plans*.

Note 11—Net OPEB Liability (NOL) of the Health Care Trust Funds: provides a summary of the NOL of employers in accordance with GASB Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*.

Note 12—Leases, Capital Assets, and Subscription Liabilities: provides information on PERA's leases and tangible and intangible capital assets.

Required Supplementary Information (RSI)

The following 10-year RSI is found after the Notes to the Financial Statements:

Division Trust Funds	Health Care Trust Funds
Schedule of Changes in Net Pension Liability and Related Ratios	Schedule of Changes in Net OPEB Liability and Related Ratios
Schedule of Employer and Nonemployer Contributions	Schedule of Employer Contributions
Schedule of Investment Returns	Schedule of Investment Returns

Supplementary Information

The section for Supplementary Information includes details on expenses and a breakdown of other additions and deductions. The schedules available in this section include:

- Schedule of Administrative Expenses
- Schedule of Other Additions
- Schedule of Other Deductions
- Schedule of Investment Expenses
- Schedule of Payments to Consultants

Financial Highlights

Combined assets increased \$12,203,755, or 19.0%, from 2022 to \$76,468,438 as of December 31, 2023, primarily because investments, at fair value, increased \$6,355,942 and securities lending collateral increased \$5,752,492.

Combined liabilities increased \$5,780,748, or 191.7%, from 2022 to \$8,796,141 as of December 31, 2023, primarily due to securities lending obligations increasing \$5,745,205.

Combined deferred inflows from tenant leases decreased by \$190, or 12.4%, from 2022 to \$1,337 as of December 31, 2023.

PERA's combined FNP increased \$6,423,197, or 10.5%, from 2022 to \$67,670,960 as of December 31, 2023, primarily due to positive investment returns.

See the remainder of the MD&A and the Notes to the Financial Statements for additional information

Comparative Financial Statements

The following comparative condensed statements of Fiduciary Net Position and Changes in Fiduciary Net Position for five Division Trust Funds, two Health Care Trust Funds, and the Life Insurance Reserve have been derived from PERA's audited financial statements. For the year ended December 31, 2023, the FNP for five Division Trust Funds, two Health Care Trust Funds, and the Life Insurance Reserve increased by \$5,501,689, \$111,693, and \$2,738 respectively. The increase was principally due to high investment income. While the annual changes in FNP can provide meaningful insight into the financial activities and financial status, long-term views and trend analysis are critical factors in reporting and understanding the financial status of PERA.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

FIDUCIARY NET POSITION

As of December 31

	Division Trust Funds			Health Care Trust Funds			Life Insurance Reserve		
	2023	2022	% Chg	2023	2022	% Chg	2023	2022	% Chg
Assets									
Cash and short-term investments	\$927,103	\$1,469,977	(36.9%)	\$10,503	\$15,081	(30.4%)	\$435	\$666	(34.7%)
Securities lending collateral	7,002,332	1,446,765	384.0%	79,332	14,842	434.5%	3,277	655	400.3%
Receivables	1,357,458	707,509	91.9%	24,980	30,675	(18.6%)	535	228	134.6%
Investments, at fair value	60,005,273	54,594,299	9.9%	679,821	560,087	21.4%	28,078	24,719	13.6%
Capital assets, net of accumulated depreciation	15,105	15,057	0.3%	—	—	—%	—	—	—%
Total assets	69,307,271	58,233,607	19.0%	794,636	620,685	28.0%	32,325	26,268	23.1%
Liabilities									
Investment settlements and other liabilities	1,385,691	1,361,913	1.7%	38,801	40,947	(5.2%)	3,036	2,335	30.0%
Securities lending obligations	6,990,945	1,442,558	384.6%	79,203	14,799	435.2%	3,271	653	400.9%
Total liabilities	8,376,636	2,804,471	198.7%	118,004	55,746	111.7%	6,307	2,988	111.1%
Deferred inflows of resources	1,337	1,527	(12.4%)	—	—	—%	—	—	—%
Fiduciary net position	\$60,929,298	\$55,427,609	9.9%	\$676,632	\$564,939	19.8%	\$26,018	\$23,280	11.8%

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

	Division Trust Funds			Health Care Trust Funds			Life Insurance Reserve		
	2023	2022	% Chg	2023	2022	% Chg	2023	2022	% Chg
Additions									
Employer contributions	\$2,329,726	\$2,101,327	10.9%	\$122,376	\$112,562	8.7%	\$—	\$—	—%
Nonemployer contributions	49,561	605,000	(91.8%)	—	—	—%	—	—	—%
Member contributions	1,306,321	1,174,072	11.3%	—	—	—%	—	—	—%
Purchased service	89,958	107,526	(16.3%)	—	—	—%	—	—	—%
Employer disaffiliation	24,967	—	100.0%	1,033	—	100.0%	—	—	—%
Net investment income (loss)	7,273,742	(8,744,360)	183.2%	76,835	(77,787)	198.8%	3,293	(3,927)	183.9%
Other	14,405	11,189	28.7%	6,991	9,310	(24.9%)	—	—	—%
Total additions	11,088,680	(4,745,246)	333.7%	207,235	44,085	370.1%	3,293	(3,927)	183.9%
Deductions									
Benefit payments	5,308,424	5,153,727	3.0%	86,862	87,167	(0.3%)	—	—	—%
Refunds	207,923	201,198	3.3%	—	—	—%	—	—	—%
Disability and life insurance premiums	3,275	2,687	21.9%	—	—	—%	511	533	(4.1%)
Administrative expenses	48,049	45,669	5.2%	8,583	7,570	13.4%	44	79	(44.3%)
Other	19,320	19,124	1.0%	97	111	(12.6%)	—	—	—%
Total deductions	5,586,991	5,422,405	3.0%	95,542	94,848	0.7%	555	612	(9.3%)
Change in fiduciary net position	5,501,689	(10,167,651)	154.1%	111,693	(50,763)	320.0%	2,738	(4,539)	160.3%
Fiduciary net position									
Beginning of year	55,427,609	65,595,260	(15.5%)	564,939	615,702	(8.2%)	23,280	27,819	(16.3%)
End of year	\$60,929,298	\$55,427,609	9.9%	\$676,632	\$564,939	19.8%	\$26,018	\$23,280	11.8%

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Additions to Net Position

Investments

INVESTMENT INCOME/(LOSS)

Trust Fund	Net Appreciation/ (Depreciation) in Fair Value	Interest and Dividends	Real Estate, Private Equity, and Alternatives Net Operating Inc	Investment Expenses	Net Securities Lending Income	Net Investment Income/(Loss)
State Division	\$1,854,295	\$300,729	\$90,761	(\$64,946)	\$6,521	\$2,187,360
School Division	3,281,313	532,505	160,710	(115,001)	11,542	3,871,069
Local Government Division	545,952	88,499	26,710	(19,113)	1,919	643,967
Judicial Division	45,605	7,399	2,233	(1,598)	161	53,800
DPS Division	438,590	71,292	21,516	(15,396)	1,544	517,546
HCTF	58,940	9,642	2,909	(2,082)	208	69,617
DPS HCTF	6,107	1,002	303	(216)	22	7,218
Life Insurance Reserve	2,793	452	136	(98)	10	3,293
2023 Total	\$6,233,595	\$1,011,520	\$305,278	(\$218,450)	\$21,927	\$7,353,870
2022 Total	(\$9,840,641)	\$916,589	\$298,825	(\$212,124)	\$11,277	(\$8,826,074)
2021 Total	\$8,386,384	\$761,721	\$318,225	(\$203,004)	\$6,107	\$9,269,433
2020 Total	\$7,878,679	\$760,772	\$258,171	(\$179,178)	\$5,293	\$8,723,737
2019 Total	\$8,015,889	\$860,464	\$271,053	(\$164,013)	\$7,200	\$8,990,593

The Division Trust Funds, the Health Care Trust Funds, and the Life Insurance Reserve pool their investments into a combined investment fund (CIF). CIF investments are the largest asset in PERA's defined benefit plans. Investment income generated by PERA ultimately defrays the cost of benefits provided to PERA's membership. CIF net investment income for the year ended December 31, 2023, was \$7,353,870, an increase of \$16,179,944 from 2022.

PERA's target and actual investment allocation includes equity and fixed income investments in public markets and private equity, real estate, and alternatives in private markets. A modest cash balance provides ongoing liquidity to meet cash needs. Additional information on limitations, an overview of the investment policy, the targeted investment asset allocation, as well as the permissible ranges of asset allocation for PERA's investment program can be found on page 124 of the Investment Section.

The global equity market, in which over 50% of the portfolio is invested, is the single greatest driver of PERA's annual return. The benchmark for this asset class, MSCI ACWI IMI, returned 21.9% in 2023. Equity markets rebounded sharply from the prior year as hiring and consumer spending continued and inflation eased.

The fixed income investments comprise nearly 20% of the portfolio. The benchmark for this asset class, Bloomberg U.S. Aggregate Bond Index, had a 5.5% return in 2023. The Federal Reserve slowed the pace and size of rate increases in 2023, with the effective rate ending the year in a range of 5.25% to 5.50%, allowing fixed income markets to recover some ground from last year's losses.

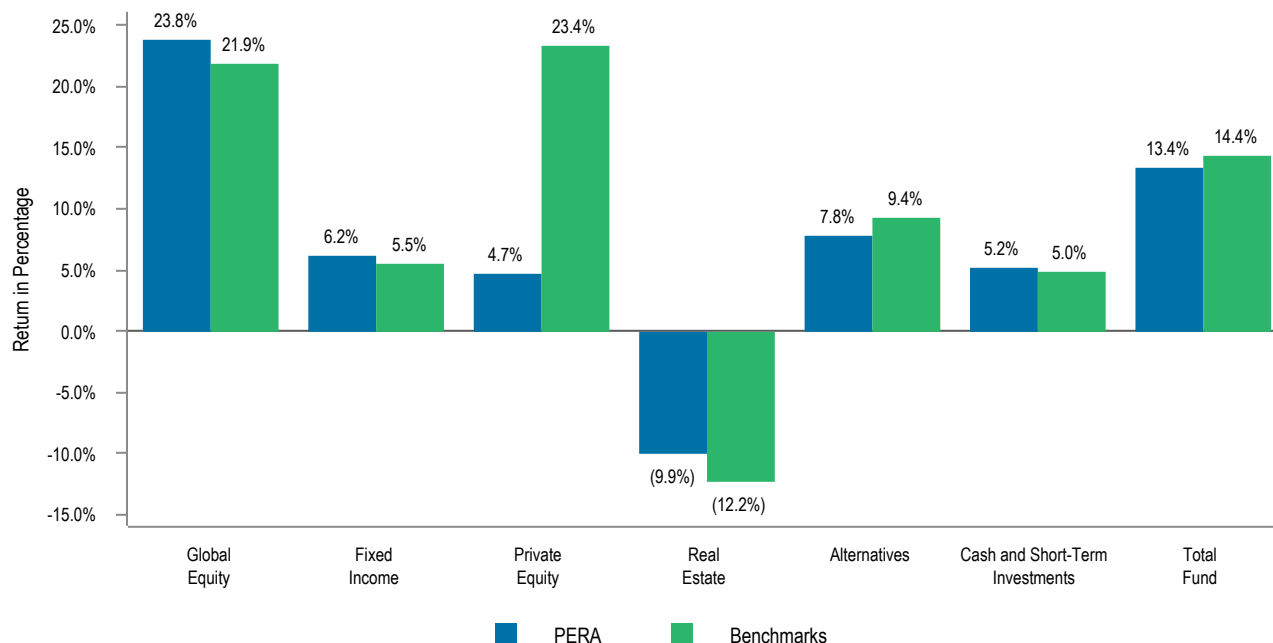
The private market asset classes (private equity, real estate, and alternatives) experienced mixed results in 2023. Private equity and alternatives were positive for the year but trailed their benchmarks, while real estate was negative but beat its benchmark. Cash and short-term investments ended the year with a positive return of 5.2%.

The actual net-of-fees, time-weighted rate of return was 13.4% for the year ended December 31, 2023. To assess investment performance, PERA closely monitors the performance of the Board's selected benchmarks to actual performance returns. For the year ended December 31, 2023, PERA's investments underperformed the total fund's policy benchmark by 100 basis points. Additional information on investment returns and benchmarks as well as a comprehensive discussion of the 2023 performance evaluation can be found in the Investment Section.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

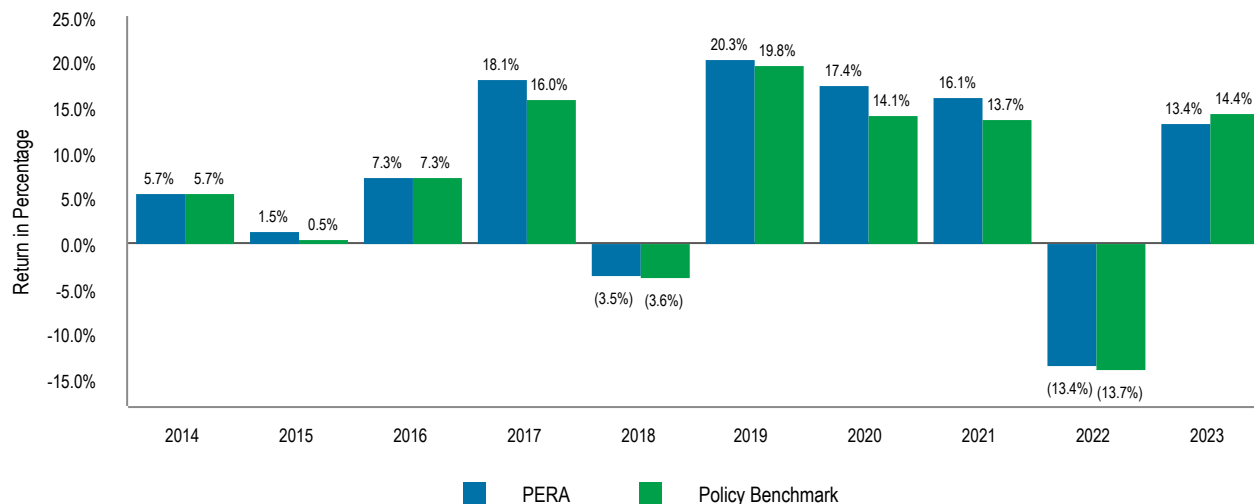
The net-of-fees time-weighted rates of return of the various asset classes, the total fund, and the various benchmarks are as follows:

2023 Actual Net-of-Fees Time-Weighted Rates of Returns versus Benchmarks**Long-Term Investment Returns**

While the annual investment returns can provide meaningful insight into the financial activities and financial status, long-term views and trend analysis are critical factors in understanding the financial status of PERA. Additional information on longer-term investment returns for the investment program and

benchmarks for the three-, five-, and 10-year periods for each investment asset class can be found in the Investment Section.

The following chart shows the annual investment returns for the total fund and the policy benchmark for each of the past 10 years:

Historical Net-of-Fees Time-Weighted Rates of Return versus Policy Benchmark

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Contributions and Other Additions

TOTAL CONTRIBUTIONS AND OTHER FOR DIVISION AND HEALTH CARE TRUST FUNDS

Trust Fund	Employer Contributions ¹	Nonemployer Contributions ²	Member Contributions	Purchased Service	Employer Disaffiliation Payment	Other	Total Contributions and Other
State Division	\$790,373	\$16,233	\$407,449	\$30,910	\$—	\$8,314	\$1,253,279
School Division	1,317,476	28,908	711,530	48,270	—	172	2,106,356
Local Government Division	119,470	—	78,567	6,954	24,967	112	230,070
Judicial Division	14,920	288	6,888	795	—	2,896	25,787
DPS Division	87,487	4,132	101,887	3,029	—	2,911	199,446
HCTF	112,931	—	—	—	1,033	6,755	120,719
DPS HCTF	9,445	—	—	—	—	236	9,681
2023 Total	\$2,452,102	\$49,561³	\$1,306,321	\$89,958	\$26,000	\$21,396	\$3,945,338
2022 Total	\$2,213,889	\$605,000³	\$1,174,072	\$107,526	\$—	\$20,499	\$4,120,986
2021 Total	\$2,056,019	\$225,000	\$1,062,408	\$114,246	\$—	\$19,956	\$3,477,629
2020 Total	\$1,954,366	\$—⁴	\$938,121	\$75,623	\$—	\$20,228	\$2,988,338
2019 Total	\$1,854,288	\$225,000	\$817,241	\$66,453	\$—	\$17,299	\$2,980,281

¹ Employer contributions include the employer statutory rates, AED, and SAED, less an offset of 10.93% in 2023 for the DPS Division as required by C.R.S. § 24-51-412 *et seq.*

² Beginning in 2018, contributions from a nonemployer contributing entity are required by C.R.S. § 24-51-414 *et seq.*

³ A restorative payment to recompense PERA for the suspended 2020 contribution was made in 2022 as required by C.R.S. §§ 24-51-414(6-9), which also advanced part of the 2023 distribution.

⁴ The 2020 contribution for the State's 2020-21 fiscal year was suspended as required by C.R.S. § 24-51-414(1)(b).

Contribution rates are set in statute and are thus determined by the Colorado General Assembly. See pages 243-248 in the Statistical Section for the Schedule of Contribution Rate History.

Contributions	2023	2022
From members to the Division Trust Funds	\$1,306,321	\$1,174,072
From employers to the Division Trust Funds, HCTF, and DPS HCTF	2,452,102	2,213,889

Member and employer contributions increased due to increases in membership count and covered payroll with slight increases in certain employer contribution rates subject to Colorado Revised Statutes (C.R.S.). In 2022, C.R.S. §§ 24-51-414(6-9) required an additional restorative payment for the suspended 2020 direct distribution and an accelerated payment for the scheduled 2023 direct distribution. Due to the advanced payment made in 2022, the State issued a warrant in the amount of \$49,561 in 2023. See Note 4 of the Notes to the Financial Statements for more information.

At the end of 2023, PERA had benefit receivables in the amount of \$222,525 which primarily represents contributions owed by members and employers for service credit earned in December 2023. Over the past 30 years, employer contributions (including nonemployer contributing entities and disaffiliation payments) represent 23% of the inflows into the

Division Trust Funds and Health Care Trust Funds. Member contributions and purchased service represent 15% of the inflows into these funds.

C.R.S. § 24-51-412 *et seq.* provides for a unique offset to the employer contributions that otherwise would go toward financing the unfunded actuarial accrued liability (UAAL) of the DPS Division, allowing relief to DPS Division employers by recognizing the dollars they contribute toward the pension certificates of participation (PCOPs). The statute states that as long as the funded status of the DPS Division exceeds the School Division, the Denver Public Schools is allowed this offset to the DPS Division employer contribution rate. The offset, expressed as a percentage of payroll, is equal to the annual assumed payment obligations for PCOPs issued in 1997 and 2008, including subsequent refinancing by the Denver Public Schools at a fixed effective annual interest rate of 8.50%. At a minimum, the DPS Division employer contribution rate must be sufficient to fund the DPS HCTF (1.02%) and the Annual Increase Reserve (AIR) (1.00%) applicable to the DPS Division. The annual increase (AI) is a post-retirement, cost-of-living adjustment meeting certain criteria as described in Note 1 of the Notes to the Financial Statements. The staff of Denver Public Schools calculated the PCOP offset rate of 10.93% for 2023.

C.R.S. § 24-51-401(1.7)(e) requires a periodic "true-up" calculation to be performed beginning in 2015 and every five years following, with the purpose of determining

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

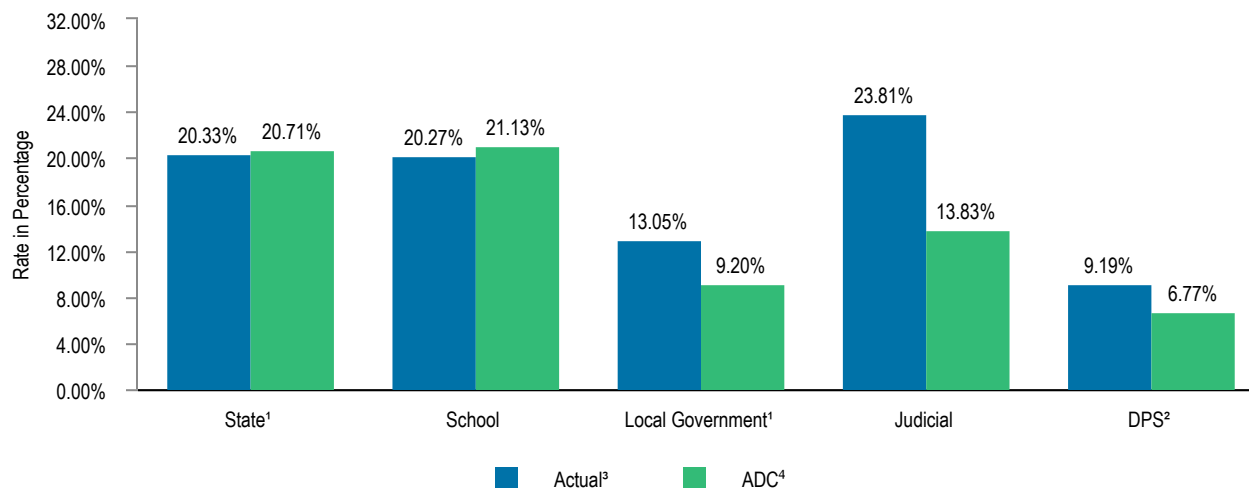
(Dollars in Thousands)

the total DPS Division employer contribution rate that would result in the equalization of the ratio of UAAL over payroll between the DPS and School Divisions at the end of the 30-year period beginning January 1, 2010. The 2020 calculation indicated a reduction to the total DPS Division employer rate would be needed to equalize the defined ratio. It should be noted the automatic adjustment provision (AAP) compares the blended actual contribution rates to the blended actuarially determined contribution rates, resulting in one ratio considering all five Division Trust Funds. Therefore, a reduction in an employer contribution rate for any one Division Trust Fund could potentially influence the outcome of the AAP assessment. A failed assessment would trigger additional employer and member contributions for all divisions, and a decrease in the AI cap, affecting all benefit recipients of the plan.

While the annual contribution amounts can provide meaningful insight into the financial activities and financial status of PERA, the assessment of the adequacy of contributions on an actuarial funding basis is a critical factor in reporting the financial status of PERA. In accordance with the actuarial standards of practice and the Board's pension and OPEB funding policies, a plan-specific actuarially determined contribution (ADC) benchmark is developed against which to gauge the adequacy of PERA's statutory contribution rates for the five Division Trust Funds and two OPEB Funds. The ADC for each trust fund is developed annually and reported by management to be used as a benchmark for contributions two years in the future.

The following two charts show the ADC and actual contributions as a percentage of covered payroll for each trust fund for 2023. Additional information on long-term trends can be found in the Actuarial Section.

State, School, Local Government, Judicial, and DPS Divisions
2023 Year-End Actual Contributions/ADC Comparison



¹ Actual employer rates are for non-Safety Officers and include the applicable defined contribution (DC) supplement pursuant to C.R.S. § 24-51-415.

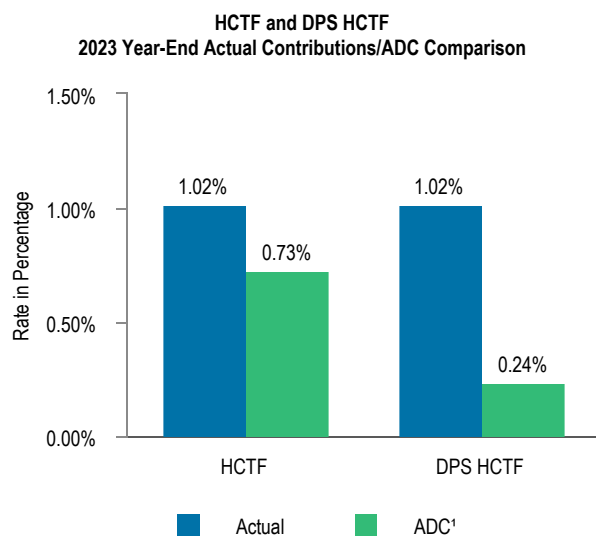
² Includes an offset as provided for under C.R.S. § 24-51-412.

³ Actual contributions include employer, AED, SAED, DC supplement and nonemployer, as applicable, less the AIR and health care contributions.

⁴ ADC rates for 2023 are based on the 2021 actuarial valuations.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)



¹ ADC rates for 2023 are based on the 2021 actuarial valuations.

Contribution Deficiency/(Excess)

Governmental accounting standards require the disclosure of the amount of contributions recognized by the defined benefit plan, the ADC amount, and the difference between these two amounts as RSI. An annual contribution deficiency arises when actual contributions are less than the ADC and an annual contribution excess arises when the actual contributions are greater than the ADC. The ADC is calculated using the investment rate of return and discount rate assumptions according to the Board's funding policies. The ADC for 2023 was determined based on the results of the December 31, 2021, actuarial valuation. The 10-year schedules illustrating the annual contribution deficiency/(excess) can be found in the RSI on pages 98-100 and 110.

Contribution deficiency/(excess) on an actuarial funding basis is determined through a similar process. Each year, the actuaries assess the increase or decrease to the expected unfunded liability by comparing the expected dollar inflows into each fund versus the actual dollar amounts recognized. This calculation for funding purposes differs slightly from the approach required by governmental accounting standards. It considers additional contributions from all sources each year and the timing of contributions made. Taking these factors into consideration results in a total contribution excess of \$162.6 million for the Division Trust Funds in 2023. During the past 21 years, contribution experience for the Division Trust Funds has resulted in 18 years of deficiencies, three years of excess, and an accumulated shortfall of \$5.0 billion.

Due to legislative actions such as the implementation of the AAP, specifically designed to better align actual contributions with actuarially determined contributions, and the State's annual direct distribution, progress is being made to dampen and eventually eliminate contribution deficiencies. A chart with the breakdown of benefit structures by division and type can be found on page 223 in the Statistical Section.

Senate Bill (SB) 18-200 implemented the AAP, which annually assesses actual contributions compared to required contributions to ascertain if adjustments to certain plan provisions are required in accordance with State statute beginning July 1, 2020. Based on certain statutory parameters, the AAP requires, as necessary, adjustments to member contributions, employer contributions, the direct distribution from the State, and the AI cap. The AAP is designed to help mitigate future contribution deficiencies and to keep PERA on the path to full funding. Additional information on this AAP can be found in Note 4 of the Notes to the Financial Statements starting on page 61, the Actuarial Section starting on page 173, and C.R.S. § 24-51-413.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

CONTRIBUTION DEFICIENCY/(EXCESS)

(Dollars in Millions)

Trust Fund	2023	2022	2021	2020	2019	Cumulative Deficiency/(Excess) 2003–2023
State Division ¹	(\$53.0)	(\$163.3)	(\$83.2)	\$93.5	\$21.1	\$1,550.5
School Division ¹	(34.5)	(178.1)	(102.0)	155.9	94.2	2,608.8
State and School Division ²	N/A	N/A	N/A	N/A	N/A	685.5
Local Government Division	(39.4)	(13.5)	(15.1)	3.6	(6.3)	(259.1)
Judicial Division ¹	(6.9)	(7.6)	(3.3)	0.3	(0.1)	6.4
DPS Division ^{1,3}	(28.8)	(54.9)	(13.0)	26.9	24.0	393.3
Total Division Trust Funds	(\$162.6)	(\$417.4)	(\$216.6)	\$280.2	\$132.9	\$4,985.4
HCTF	(\$43.4)	(\$32.7)	(\$23.8)	(\$15.9)	(\$1.0)	(\$205.8)
DPS HCTF ³	(7.8)	(6.5)	(5.4)	(4.5)	(3.5)	(41.8)
Total OPEB Trust Funds	(\$51.2)	(\$39.2)	(\$29.2)	(\$20.4)	(\$4.5)	(\$247.6)

¹ Beginning in 2018, includes contributions from a nonemployer contributing entity as required by C.R.S. § 24-51-414 *et seq.*

² The State and School Divisions merged July 1, 1997, and separated on January 1, 2006.

³ The DPS Division and DPS HCTF were established on January 1, 2010.

Amortization of Unfunded Actuarial Accrued Liabilities

The following table shows the amortization periods for the Division Trust Funds and Health Care Trust Funds for the prior and current valuation year:

Trust Fund	Actuarial Funding Valuation Results	
	2023 Amortization Period	2022 Amortization Period
State Division	18 Years	20 Years
School Division	23 Years	24 Years
Local Govt Division	8 Years	9 Years
Judicial Division	5 Years	6 Years
DPS Division ¹	6 Years	7 Years
HCTF	8 Years	11 Years
DPS HCTF	N/A	0 Years

¹ The calculation considers declining PCOP offset rate as described in statute.

The amortization periods for the five Division Trust Funds do not include the full effect of legislation enacted in 2006, 2010, and 2018. This legislation includes plan changes designed to lower the normal cost over time as new members are added to PERA's population, and to allow a greater proportion of the employers' contribution to be used to amortize the unfunded liability. The 2018 legislation also increased contributions to the Division Trust Funds in order to further accelerate the amortization of the unfunded liability. The amortization periods, determined on a valuation or closed-group basis, for all Divisions and the HCTF slightly decreased from 2022 to 2023 and the

DPS HCTF achieved full funding (a 110.4% funded ratio) as of December 31, 2023. The shorter amortization periods primarily reflect the increase in the margins of employer contribution rates available to pay down the unfunded liabilities in each division.

Unless otherwise temporarily altered by statute, the amortization periods shown in the previous table consider ongoing employer, member, AED, and SAED contributions, including any future statutory increases, and the direct distribution and DC supplement, where applicable.

C.R.S. § 24-51-211 states that a maximum amortization period of 30 years shall be deemed actuarially sound.

As stated by Segal in the Certification Letter on pages 141-147 in the Actuarial Section:

"The results indicate that for all Division Trust Funds, the combined employer and member contribution rates, including the direct distribution from the State, as appropriate, are sufficient to fund the normal cost for all members and each division's UAAL, with consideration of the amounts allocated to finance the Annual Increase Reserve (AIR) Funds, and provide additional contributions to help finance both Health Care Trust Funds. In addition, the employer contribution rate with anticipated service purchase transfers is sufficient to eventually finance benefits for the HCTFs."

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

"At the direction of PERA, Segal has prepared deterministic financial projections for all Division Trust Funds with the lower cost benefit structure for new members and using the following assumptions:

- All actuarial assumptions, including assuming 7.25% investment returns are realized each year
- Performed on an open-group basis with assumed active membership growth, as follows:
 - For School, Local Government and Denver Public Schools—1.00% per year

–For State and Judicial—0.25% each year

These projections indicate that fully funding the actuarial accrued liability under the PERA revised benefit structure created by SB 18-200 is achievable within a projection period of 27 years and includes the impact of legislative changes pursuant to HB 22-1029 and SB 23-056."

Deductions from Net Position

SUMMARY OF BENEFITS, REFUNDS, AND EXPENSES BY TRUST FUND

Trust Fund	Benefit Payments	Refunds	Disability and Life Insurance Premiums	Administrative Expenses	Other	Total Deductions
State Division	\$1,820,823	\$77,229	\$994	\$13,979	\$2,250	\$1,915,275
School Division	2,818,703	97,538	1,823	26,887	16,221	2,961,172
Local Government Division	348,662	16,300	236	3,653	710	369,561
Judicial Division	35,134	76	29	238	24	35,501
DPS Division	285,102	16,780	193	3,292	115	305,482
HCTF	82,911	—	—	8,122	96	91,129
DPS HCTF	3,951	—	—	461	1	4,413
Life Insurance Reserve	—	—	511	44	—	555
2023 Total	\$5,395,286	\$207,923	\$3,786	\$56,676	\$19,417	\$5,683,088
2022 Total	\$5,240,894	\$201,198	\$3,220	\$53,318	\$19,235	\$5,517,865
2021 Total	\$5,052,188	\$184,072	\$3,715	\$54,434	\$18,007	\$5,312,416
2020 Total	\$4,881,951	\$148,014	\$4,776	\$51,094	\$18,274	\$5,104,109
2019 Total	\$4,770,406	\$161,202	\$6,641	\$49,076	\$15,091	\$5,002,416

At the end of 2023, PERA was paying benefits to more than 138,000 retired public employees and their beneficiaries who received an average benefit of \$3,225 per month (actual dollars). Historical information about benefit payments, average benefit payments, and the number of retirees receiving payments and earned service credit can be found in the Statistical Section.

Since 2000, many changes to plan provisions have been enacted into law, which do not have an immediate effect on PERA's financial activities and financial status but have had an effect over time.

On average, members are retiring with generally lower monthly benefit amounts than members who retired in prior years. This trend is likely to continue and become more evident over time, as each year a larger portion of the retirement calculations will reflect the recent changes to benefit provisions (retirement eligibilities, determination of highest annual salary, etc.). The effect of these changes is tracked and monitored by PERA's management and reported as part of the overall governance structure of PERA.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Other Changes: Division Trust Funds, Health Care Trust Funds, and Life Insurance Reserve

For the year ended December 31, 2023, PERA had cash and short-term investments of \$938,041, a decrease of \$547,683 from 2022. The decrease was primarily due to duration management in the unitized PERA Fixed Income Pool.

For the year ended December 31, 2023, PERA had securities lending collateral of \$7,084,941 and securities lending obligations of \$7,073,419, an increase of \$5,622,679 and \$5,615,409, respectively, from 2022. The securities lending collateral and obligations increased primarily due to an increase in the securities on loan because of increased borrower demand resulting from a change in lending agents and a restructuring of the securities lending program.

For the year ended December 31, 2023, the Division Trust Funds had total receivables of \$1,357,458, an increase of \$649,949 and the Life Insurance Reserve had total receivables of \$535, an increase of \$307 from 2022. The increases were primarily due to higher pending settlements of investment sales.

For the year ended December 31, 2023, the Health Care Trust Funds had total receivables of \$24,980, a decrease of \$5,695 from 2022. The decrease was due to payment of outstanding health care subsidies and a lower amount of prescription rebates owed to PERA at year-end, partially offset by an increase in pending settlements of investment sales.

For the year ended December 31, 2023, the Life Insurance Reserve had investment settlements and other liabilities of \$3,036, an increase of \$701 from 2022. The increase was primarily due to the timing of monthly premium payments.

Nonemployer contributions for the Division Trust Funds decreased from \$605,000 in 2022 to \$49,561 in 2023. The decrease was due to the receipt of an additional \$380,000 from the State in 2022 as a nonemployer contributing entity pursuant to HB 22-1029 to recompense PERA for the direct distribution originally scheduled for receipt on July 1, 2020, which was suspended by HB 20-1379 and advanced part of the 2023 nonemployer contribution. The State Treasurer issued the remaining \$49,561 in 2023.

For the year ended December 31, 2023, PERA recognized \$26,000 in employer disaffiliation income. A \$24,000 payment received on December 4, 2023, and a \$2,000 receivable reflect income related to the disaffiliation of Tri-County Health Department as a PERA-affiliated employer.

For the year ended December 31, 2023, other additions for the Division Trust Funds increased from \$11,189 in 2022 to \$14,405 in 2023. The increase was primarily due to an increase in the net amount recorded for the interfund transfers at retirement as an addition. The amount of interfund transfers depends on the number of retirements where the member has earned service credit in more than one division.

Other additions of the Health Care Trust Funds decreased from \$9,310 in 2022 to \$6,991 in 2023. The decrease was primarily due to a decrease in the amount of health care contributions related to purchased service credit which are transferred at time of retirement.

Disability and life insurance premiums for the Division Trust Funds increased from \$2,687 in 2022 to \$3,275 in 2023. The increase was primarily due to an increase in the premium rate, in addition to a decrease in the prior year risk sharing payment used to offset current expense.

Actuarial Valuations: Accounting

Separate actuarial valuations are prepared for accounting and funding purposes for the Division Trust Funds and the Health Care Trust Funds. Calculations for purposes of financial reporting for the pension and OPEB plans are determined in accordance with GASB 67 and GASB 74, respectively.

The actuarial valuation for accounting purposes emphasizes the obligation an employer incurs to employees through the employment-exchange process. The primary purpose of the valuation for accounting purposes is to provide a consistent, standardized methodology allowing comparability of amounts and increased transparency of liabilities across U.S. plans complying with GASB 67 and GASB 74.

One of the key measurements in the accounting valuation which assesses the pension liabilities for accounting and financial reporting purposes is the NPL. The NPL is the difference between the FNP and the total pension liability (TPL). Similarly, one of the key measurements which assesses the OPEB liabilities for accounting and financial reporting purposes is the NOL or the Net OPEB Asset (NOA). The NOL/NOA is the difference between the FNP and the total OPEB liability (TOL). The individual components which collectively comprise the FNP can be found in the Statements of Fiduciary Net Position starting on page 41.

PERA-affiliated employers who comply with GASB 68 and GASB 75 are required to report their proportionate share of the collective NPL, collective NOL/NOA, and other related amounts for the plan(s) in which they participate. GASB requires employer contributions and nonemployer contributions (if applicable) to be used as a basis for the proportion.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

The following schedules show the collective NPLs and collective NOLs/NOAs as of December 31, 2023, and December 31, 2022, as well as the breakdown of changes in the collective liabilities and assets for 2023. The decrease in NPLs for all five Division Trust Funds

primarily is due to favorable investment performance during 2023. The decrease in NOLs for the HCTF and DPS HCTF largely is due to favorable investment and demographic experience during 2023.

SCHEDULE OF CHANGES IN NET PENSION LIABILITY

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	DPS Division Trust Fund	All Division Trust Funds ¹
2022 Net pension liability	\$10,872,576	\$18,209,465	\$1,002,563	\$94,213	\$867,729	\$31,046,546
Service cost	420,173	842,132	100,274	9,938	113,314	1,485,831
Interest	1,963,844	3,410,269	421,430	35,975	345,494	6,177,012
Changes of benefit terms	—	—	—	—	—	—
Differences between expected and actual experience	280,910	1,155,873	79,448	12,762	34,752	1,563,745
Changes of assumptions or other inputs	—	—	—	—	—	—
Contributions—employer	(790,373)	(1,317,476)	(119,470)	(14,920)	(87,487)	(2,329,726)
Contributions—nonemployer	(16,233)	(28,908)	—	(288)	(4,132)	(49,561)
Contributions—employer disaffiliation	—	—	(24,967)	—	—	(24,967)
Contributions—active member (includes purchased service)	(438,359)	(759,800)	(85,521)	(7,683)	(104,916)	(1,396,279)
Net investment gain	(2,187,360)	(3,871,069)	(643,967)	(53,800)	(517,546)	(7,273,742)
Administrative expenses	13,979	26,887	3,653	238	3,292	48,049
Other	(6,064)	16,049	598	(2,872)	(2,796)	4,915
2023 Net pension liability	\$10,113,093	\$17,683,422	\$734,041	\$73,563	\$647,704	\$29,251,823

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

SCHEDULE OF CHANGES IN NET OPEB LIABILITY

	Health Care Trust Fund	DPS Health Care Trust Fund	All Health Care Trust Funds ¹
2022 Net OPEB liability	\$816,479	\$8,789	\$825,268
Service cost	15,571	1,138	16,709
Interest	94,376	4,358	98,734
Changes of benefit terms	—	—	—
Differences between expected and actual experience	(18,579)	(2,206)	(20,785)
Changes of assumptions or other inputs	(8,889)	134	(8,755)
Contributions—employer	(112,931)	(9,445)	(122,376)
Contributions—employer disaffiliation	(1,033)	—	(1,033)
Purchased service transfers	(4,287)	(103)	(4,390)
Net investment gain	(69,617)	(7,218)	(76,835)
Administrative expense ²	5,008	307	5,315
Other	(2,372)	(132)	(2,504)
2023 Net OPEB liability (asset)	\$713,726	(\$4,378)	\$709,348

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

² Excludes administrative and other health care claims processing fees.

Additional information regarding the NPL, NOL/NOA, assumptions used to determine total pension and OPEB liabilities, sensitivity analysis of pension liabilities based on different discount rates, sensitivity analysis of

OPEB liabilities based on different discount and health care trend rates, and development of the investment rate of return assumption can be found in Notes 10 and 11 of the Notes to the Financial Statements.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

Defined Contribution Plans

Comparative Financial Statements

PERA administers three defined contribution plans. The following tables are the comparative condensed statements of Fiduciary Net Position and Changes in Fiduciary Net Position for the Voluntary Investment Program (PERAPlus 401(k) Plan), Defined Contribution Retirement Plan (DC Plan), and Deferred Compensation Plan (PERAPlus 457 Plan), collectively known as the Capital Accumulation Plans (CAPs). This information has been derived from PERA's audited financial statements. While the annual changes in FNP can provide meaningful insight into the financial activities and financial status of PERA, long-term views and trend analysis are critical factors in reporting and understanding the financial status of the plans.

DEFINED CONTRIBUTION PLANS
FIDUCIARY NET POSITION

As of December 31

	2023	2022	% Chg
Assets			
Cash and short-term investments	\$53,308	\$67,307	(20.8%)
Securities lending collateral	256,675	126,862	102.3%
Receivables	94,117	81,723	15.2%
Investments, at fair value	5,930,106	5,108,231	16.1%
Total assets	6,334,206	5,384,123	17.6%
Liabilities			
Investment settlements and other liabilities	38,938	25,728	51.3%
Securities lending obligations	256,256	126,460	102.6%
Total liabilities	295,194	152,188	94.0%
Fiduciary net position	\$6,039,012	\$5,231,935	15.4%

DEFINED CONTRIBUTION PLANS
CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

	2023	2022	% Chg
Additions			
Employer contributions	\$28,964	\$26,382	9.8%
Member contributions	261,763	249,158	5.1%
Net investment income (loss)	955,440	(1,014,369)	194.2%
Other	4,749	4,236	12.1%
Total additions	1,250,916	(734,593)	270.3%
Deductions			
Distributions	438,680	437,452	0.3%
Administrative expenses	3,518	3,384	4.0%
Other	1,641	1,925	(14.8%)
Total deductions	443,839	442,761	0.2%
Change in fiduciary net position	807,077	(1,177,354)	168.6%
Fiduciary net position			
Beginning of year	5,231,935	6,409,289	(18.4%)
End of year	\$6,039,012	\$5,231,935	15.4%

Investments

Investments for the CAPs are managed in a single investment pool. Underlying investments are grouped into one of 17 white label PERAAdvantage funds which participants can choose to contribute to and/or make transfers from on a daily basis. In addition, participants can choose to select their own investments by transferring funds into a Schwab Self-Directed Brokerage Account. The PERAAdvantage funds provide diversification and cover a wide risk/return spectrum within each of the seven primary investment options and 10 target retirement date funds. The target retirement date funds are broadly diversified across global asset classes and automatically adjust the underlying asset allocation to become more conservative over time. By investing in a single target retirement date fund, participants may capture diversified investment opportunities without having to manage multiple funds. More information about investment options and results can be found in the Investment Section on pages 135-136.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

(Dollars in Thousands)

For the year ended December 31, 2023, the CAPs net investment loss changed from \$1,014,369 in 2022 to income of \$955,440 in 2023, an increase of \$1,969,809. Investments at fair value increased by \$821,875 or 16.1% for the year ended December 31, 2023. The increase in investment income was primarily due to an increase in global equity investment returns. Additional information on longer-term performance and benchmarks for the three-, five-, and 10-year periods for each investment option can be found in the Investment Section.

The administrative fee for the PERAPlus 401(k) Plan and the PERA DC Plan consists of a flat \$1.00 (actual dollars) per month per participant per plan and an asset-based fee of up to 0.03% on each underlying PERAdvantage fund. The PERAPlus 401(k) asset-based fee was waived through 2024. The administrative fee for the PERAPlus 457 Plan consists of a flat \$1.50 (actual dollars) per month per participant per plan and an asset-based fee of up to 0.03% on each underlying PERAdvantage fund.

Participants also pay investment management fees. Investment management fees as of December 31, 2023, are shown in the following table:

Fund	2023	2022
PERAdvantage Capital Preservation Fund	0.21%	0.21%
PERAdvantage Fixed Income Fund	0.13%	0.13%
PERAdvantage Real Return Fund	0.17%	0.17%
PERAdvantage Socially Responsible Investment Fund	0.18%	0.19%
PERAdvantage U.S. Large Cap Stock Fund	0.05%	0.05%
PERAdvantage U.S. Small and Mid Cap Stock Fund	0.15%	0.15%
PERAdvantage International Stock Fund	0.26%	0.27%
PERAdvantage Target Retirement Date Funds	0.07%	0.07%

Note: Fees shown are investment management fees. Participants who have a Self-Directed Brokerage Account pay an annual \$50 (actual dollars) self-directed brokerage fee.

Plan Participants and Contributions

In 2023, overall participation in the CAPs decreased by 267 participants from 2022. The following table shows the number of participants in each plan at the end of fiscal years 2023 and 2022:

Plan	2023	2022	Change
PERAPlus 401(k) Plan	66,394	67,040	(646)
DC Plan	8,083	7,846	237
PERAPlus 457 Plan	20,205	20,063	142
Total	94,682	94,949	(267)

For the year ended December 31, 2023, the CAPs had employer and member contributions of \$290,727, an increase of \$15,187 from 2022.

See current annual contribution limits for PERAPlus 401(k) Plan and PERAPlus 457 Plan and contribution rates for the DC Plan in Note 8 of the Notes to the Financial Statements on pages 74-75.

Distributions

Participants can take normal distributions when they reach the minimum age designated by the plan. Participants can also take in-service withdrawals and can transfer funds after termination of employment. For the year ended December 31, 2023, the CAPs had distributions of \$438,680, an increase of \$1,228 from 2022. See Note 8 of the Notes to the Financial Statements for additional information about allowable in-service withdrawals in each plan.

Other Changes

For the year ended December 31, 2023, the CAPs had securities lending collateral of \$256,675 and securities lending obligations of \$256,256, an increase of \$129,813 and \$129,796, respectively, from 2022. The securities lending collateral and obligations increased primarily due to an increase in the securities on loan because of increased borrower demand resulting from a change in lending agents and a restructuring of the securities lending program.

For the year ended December 31, 2023, the CAPs had investment settlements and other liabilities of \$38,938, an increase of \$13,210 from 2022. The increase was primarily due to higher pending settlements of investment purchases.

STATEMENTS OF FIDUCIARY NET POSITION

As of December 31, 2023, with Summarized Financial Information for 2022

(Dollars in Thousands)

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	Denver Public Schools Division Trust Fund	Total Defined Benefit Pension Plans
Assets						
Cash and short-term investments						
Cash and short-term investments	\$277,569	\$494,168	\$82,223	\$6,891	\$66,252	\$927,103
Securities lending collateral	2,096,456	3,732,405	621,024	52,050	500,397	7,002,332
Total cash and short-term investments	2,374,025	4,226,573	703,247	58,941	566,649	7,929,435
Receivables						
Benefit	90,711	96,562	12,671	2,435	8,116	210,495
Interfund	100	178	30	2	24	334
Investment settlements and income	342,148	609,140	101,353	8,495	81,666	1,142,802
Other	1,065	2,266	237	9	250	3,827
Total receivables	434,024	708,146	114,291	10,941	90,056	1,357,458
Investments, at fair value						
Global equity	9,891,257	17,609,805	2,930,044	245,576	2,360,918	33,037,600
Fixed income	3,395,454	6,045,064	1,005,821	84,300	810,452	11,341,091
Private equity	1,585,468	2,822,673	469,656	39,363	378,431	5,295,591
Real estate	1,841,342	3,278,215	545,453	45,716	439,505	6,150,231
Alternatives	1,251,694	2,228,442	370,784	31,076	298,764	4,180,760
Multi-asset class funds	—	—	—	—	—	—
Self-directed brokerage	—	—	—	—	—	—
Total investments, at fair value	17,965,215	31,984,199	5,321,758	446,031	4,288,070	60,005,273
Capital assets, at cost, net of accumulated depreciation of \$26,899 and \$30,613 at December 31, 2023, and 2022, respectively	4,206	8,942	934	34	989	15,105
Total assets	20,777,470	36,927,860	6,140,230	515,947	4,945,764	69,307,271
Liabilities						
Investment settlements and other liabilities	414,403	738,849	123,061	10,223	99,155	1,385,691
Securities lending obligations	2,093,047	3,726,335	620,014	51,965	499,584	6,990,945
Interfund	—	—	—	—	—	—
Total liabilities	2,507,450	4,465,184	743,075	62,188	598,739	8,376,636
Deferred inflows of resources	372	792	83	3	87	1,337
Fiduciary net position restricted for pensions and other postemployment benefits, and held in trust for private purpose trust fund participants	\$18,269,648	\$32,461,884	\$5,397,072	\$453,756	\$4,346,938	\$60,929,298

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

STATEMENTS OF FIDUCIARY NET POSITION (CONTINUED)

As of December 31, 2023, with Summarized Financial Information for 2022

(Dollars in Thousands)

	Voluntary Investment Program	Defined Contribution Retirement Plan	Deferred Compensation Plan	Health Care Trust Fund	Denver Public Schools Health Care Trust Fund	Life Insurance Reserve
Assets						
Cash and short-term investments						
Cash and short-term investments	\$30,504	\$9,689	\$13,115	\$9,507	\$996	\$435
Securities lending collateral	180,562	14,231	61,882	71,807	7,525	3,277
Total cash and short-term investments	211,066	23,920	74,997	81,314	8,521	3,712
Receivables						
Benefit	54,365	3,908	14,124	11,469	561	—
Interfund	—	—	—	3	—	—
Investment settlements and income	15,547	1,104	5,069	11,719	1,228	535
Other	—	—	—	—	—	—
Total receivables	69,912	5,012	19,193	23,191	1,789	535
Investments, at fair value						
Global equity	2,474,806	146,542	637,361	338,790	35,504	15,460
Fixed income	598,061	34,541	244,920	116,299	12,188	5,306
Private equity	—	—	—	54,305	5,691	2,478
Real estate	—	—	—	63,069	6,609	2,878
Alternatives	—	—	—	42,873	4,493	1,956
Multi-asset class funds	1,147,108	220,436	338,248	—	—	—
Self-directed brokerage	45,490	8,428	34,165	—	—	—
Total investments, at fair value	4,265,465	409,947	1,254,694	615,336	64,485	28,078
Capital assets, at cost, net of accumulated depreciation of \$26,899 and \$30,613 at December 31, 2023, and 2022, respectively	—	—	—	—	—	—
Total assets	4,546,443	438,879	1,348,884	719,841	74,795	32,325
Liabilities						
Investment settlements and other liabilities	28,167	2,143	8,291	36,240	2,561	3,036
Securities lending obligations	180,104	14,244	61,908	71,690	7,513	3,271
Interfund	216	60	61	—	—	—
Total liabilities	208,487	16,447	70,260	107,930	10,074	6,307
Deferred inflows of resources						
	—	—	—	—	—	—
Fiduciary net position restricted for pensions and other postemployment benefits, and held in trust for private purpose trust fund participants	\$4,337,956	\$422,432	\$1,278,624	\$611,911	\$64,721	\$26,018

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

STATEMENTS OF FIDUCIARY NET POSITION (CONTINUED)

As of December 31, 2023, with Summarized Financial Information for 2022

(Dollars in Thousands)

	Total for all PERA Plans	
	2023	2022
Assets		
Cash and short-term investments		
Cash and short-term investments	\$991,349	\$1,553,031
Securities lending collateral	7,341,616	1,589,124
Total cash and short-term investments	8,332,965	3,142,155
Receivables		
Benefit	294,922	293,891
Interfund	337	396
Investment settlements and income	1,178,004	521,834
Other	3,827	4,014
Total receivables	1,477,090	820,135
Investments, at fair value		
Global equity	36,686,063	32,000,029
Fixed income	12,352,406	11,464,027
Private equity	5,358,065	5,159,499
Real estate	6,222,787	6,653,589
Alternatives	4,230,082	3,508,950
Multi-asset class funds	1,705,792	1,439,252
Self-directed brokerage	88,083	61,990
Total investments, at fair value	66,643,278	60,287,336
Capital assets, at cost, net of accumulated depreciation of \$26,899 and \$30,613 at December 31, 2023, and 2022, respectively	15,105	15,057
Total assets	76,468,438	64,264,683
Liabilities		
Investment settlements and other liabilities	1,466,129	1,430,527
Securities lending obligations	7,329,675	1,584,470
Interfund	337	396
Total liabilities	8,796,141	3,015,393
Deferred inflows of resources	1,337	1,527
Fiduciary net position restricted for pensions and other postemployment benefits, and held in trust for private purpose trust fund participants	\$67,670,960	\$61,247,763

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

STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION

For the Year ended December 31, 2023, with Summarized Financial Information for 2022

(Dollars in Thousands)

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	Denver Public Schools Division Trust Fund	Total Defined Benefit Pension Plans
Additions						
Contributions						
Employers	\$790,373	\$1,317,476	\$119,470	\$14,920	\$87,487	\$2,329,726
Nonemployer	16,233	28,908	—	288	4,132	49,561
Members	407,449	711,530	78,567	6,888	101,887	1,306,321
Purchased service	30,910	48,270	6,954	795	3,029	89,958
Employer disaffiliation	—	—	24,967	—	—	24,967
Total contributions	1,244,965	2,106,184	229,958	22,891	196,535	3,800,533
Investment income (loss)						
Net appreciation (depreciation) in fair value of investments	1,854,295	3,281,313	545,952	45,605	438,590	6,165,755
Interest	125,413	222,071	36,907	3,086	29,731	417,208
Dividends	175,316	310,434	51,592	4,313	41,561	583,216
Real estate, private equity, and alternatives net operating income	90,761	160,710	26,710	2,233	21,516	301,930
Less investment expenses	(64,946)	(115,001)	(19,113)	(1,598)	(15,396)	(216,054)
Net income (loss) from investing activities	2,180,839	3,859,527	642,048	53,639	516,002	7,252,055
Securities lending income	71,733	127,014	21,111	1,765	17,004	238,627
Less securities lending expenses	(65,212)	(115,472)	(19,192)	(1,604)	(15,460)	(216,940)
Net income from securities lending	6,521	11,542	1,919	161	1,544	21,687
Net investment income (loss)	2,187,360	3,871,069	643,967	53,800	517,546	7,273,742
Other additions	8,314	172	112	2,896	2,911	14,405
Total additions	3,440,639	5,977,425	874,037	79,587	716,992	11,088,680
Deductions						
Benefits						
Benefits paid to retirees/cobeneficiaries	1,804,592	2,801,318	345,597	34,883	283,487	5,269,877
Benefits paid to survivors	16,231	17,385	3,065	251	1,615	38,547
Benefits paid on behalf of health care participants	—	—	—	—	—	—
Total benefits	1,820,823	2,818,703	348,662	35,134	285,102	5,308,424
Refunds and distributions	77,229	97,538	16,300	76	16,780	207,923
Disability and life insurance premiums	994	1,823	236	29	193	3,275
Administrative expenses	13,979	26,887	3,653	238	3,292	48,049
Other deductions	2,250	16,221	710	24	115	19,320
Total deductions	1,915,275	2,961,172	369,561	35,501	305,482	5,586,991
Net increase (decrease) in fiduciary net position	1,525,364	3,016,253	504,476	44,086	411,510	5,501,689
Fiduciary net position restricted for pensions and other postemployment benefits, and held in trust for private purpose trust fund participants						
Beginning of year	16,744,284	29,445,631	4,892,596	409,670	3,935,428	55,427,609
End of year	\$18,269,648	\$32,461,884	\$5,397,072	\$453,756	\$4,346,938	\$60,929,298

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

STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION (CONTINUED)

For the Year ended December 31, 2023, with Summarized Financial Information for 2022

(Dollars in Thousands)

	Voluntary Investment Program	Defined Contribution Retirement Plan	Deferred Compensation Plan	Health Care Trust Fund	Denver Public Schools Health Care Trust Fund	Life Insurance Reserve
Additions						
Contributions						
Employers	\$7,362	\$21,556	\$46	\$112,931	\$9,445	\$—
Nonemployer	—	—	—	—	—	—
Members	152,567	23,567	85,629	—	—	—
Purchased service	—	—	—	—	—	—
Employer disaffiliation	—	—	—	1,033	—	—
Total contributions	159,929	45,123	85,675	113,964	9,445	—
Investment income (loss)						
Net appreciation (depreciation) in fair value of investments	662,824	59,923	165,395	58,940	6,107	2,793
Interest	12,367	942	4,923	4,021	418	188
Dividends	39,113	2,539	11,091	5,621	584	264
Real estate, private equity, and alternatives net operating income	—	—	—	2,909	303	136
Less investment expenses	(3,022)	(304)	(969)	(2,082)	(216)	(98)
Net income (loss) from investing activities	711,282	63,100	180,440	69,409	7,196	3,283
Securities lending income	6,057	402	1,906	2,299	239	108
Less securities lending expenses	(5,591)	(376)	(1,780)	(2,091)	(217)	(98)
Net income from securities lending	466	26	126	208	22	10
Net investment income (loss)	711,748	63,126	180,566	69,617	7,218	3,293
Other additions	2,611	1,486	652	6,755	236	—
Total additions	874,288	109,735	266,893	190,336	16,899	3,293
Deductions						
Benefits						
Benefits paid to retirees/cobeneficiaries	—	—	—	—	—	—
Benefits paid to survivors	—	—	—	—	—	—
Benefits paid on behalf of health care participants	—	—	—	82,911	3,951	—
Total benefits	—	—	—	82,911	3,951	—
Refunds and distributions	319,523	25,722	93,435	—	—	—
Disability and life insurance premiums	—	—	—	—	—	511
Administrative expenses	1,988	922	608	8,122	461	44
Other deductions	1,094	111	436	96	1	—
Total deductions	322,605	26,755	94,479	91,129	4,413	555
Net increase (decrease) in fiduciary net position	551,683	82,980	172,414	99,207	12,486	2,738
Fiduciary net position restricted for pensions and other postemployment benefits, and held in trust for private purpose trust fund participants						
Beginning of year	3,786,273	339,452	1,106,210	512,704	52,235	23,280
End of year	\$4,337,956	\$422,432	\$1,278,624	\$611,911	\$64,721	\$26,018

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

STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION (CONTINUED)

For the Year ended December 31, 2023, with Summarized Financial Information for 2022

(Dollars in Thousands)

	Total for all PERA Plans	
	2023	2022
Additions		
Contributions		
Employers	\$2,481,066	\$2,240,271
Nonemployer	49,561	605,000
Members	1,568,084	1,423,230
Purchased service	89,958	107,526
Employer disaffiliation	26,000	—
Total contributions	4,214,669	4,376,027
Investment income (loss)		
Net appreciation (depreciation) in fair value of investments	7,121,737	(10,917,869)
Interest	440,067	319,986
Dividends	642,428	662,857
Real estate, private equity, and alternatives net operating income	305,278	298,825
Less investment expenses	(222,745)	(216,393)
Net income (loss) from investing activities	8,286,765	(9,852,594)
Securities lending income	249,638	34,289
Less securities lending expenses	(227,093)	(22,138)
Net income from securities lending	22,545	12,151
Net investment income (loss)	8,309,310	(9,840,443)
Other additions	26,145	24,735
Total additions	12,550,124	(5,439,681)
Deductions		
Benefits		
Benefits paid to retirees/cobeneficiaries	5,269,877	5,118,024
Benefits paid to survivors	38,547	35,703
Benefits paid on behalf of health care participants	86,862	87,167
Total benefits	5,395,286	5,240,894
Refunds and distributions	646,603	638,650
Disability and life insurance premiums	3,786	3,220
Administrative expenses	60,194	56,702
Other deductions	21,058	21,160
Total deductions	6,126,927	5,960,626
Net increase (decrease) in fiduciary net position	6,423,197	(11,400,307)
Fiduciary net position restricted for pensions and other postemployment benefits, and held in trust for private purpose trust fund participants		
Beginning of year	61,247,763	72,648,070
End of year	\$67,670,960	\$61,247,763

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

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Note 1—Plan Description

Organization

Public Employees' Retirement Association of Colorado (PERA) was established in 1931. The statute governing PERA is Title 24, Article 51 of the Colorado Revised Statutes (C.R.S.). PERA administers the following plans:

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

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

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

This table is the number of active participating employers for the five Division Trust Funds. Guidance under the Governmental Accounting Standards Board (GASB) Statement No. 67 classifies a primary government and its component units as one employer.

Division	As of December 31, 2023 ¹
State	32
School	234
Local Government	141
Judicial	2
DPS	1
Total employers	410

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

Pursuant to C.R.S. § 24-51-414, the State of Colorado (State) is required to make an annual nonemployer contribution to PERA to be allocated to all divisions except the Local Government Division.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Membership—Division Trust Funds-Defined Benefit Pension Plans

Benefit recipients and members of PERA consisted of the following as of December 31, 2023, with summarized totals for 2022:

	State Division	School Division	Local Government Division	Judicial Division	DPS Division	2023	2022
Retirees and beneficiaries (includes deferred survivors)	44,517	77,165	9,095	460	7,316	138,553	135,485
Inactive members eligible but not yet receiving benefits	9,887	24,561	3,174	29	3,364	41,015	39,924
Inactive members not eligible for benefits	94,780	159,333	31,426	9	17,173	302,721	289,856
Active members							
Vested members other than Safety Officers	29,330	73,192	6,257	253	8,475	117,507	116,179
Vested Safety Officers	786	—	—	—	—	786	652
Non-vested members other than Safety Officers	21,408	57,996	6,394	94	7,151	93,043	88,363
Non-vested Safety Officers	2,163	—	49	—	—	2,212	1,452
Total active members	53,687	131,188	12,700	347	15,626	213,548	206,646
Total	202,871	392,247	56,395	845	43,479	695,837	671,911

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

See Note 8.

Membership—Health Care Trust Funds

See Note 9.

Benefit Provisions—Division Trust Funds

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

Plan Eligibility

All employees of PERA employers who work in a position eligible for PERA membership must be enrolled in the PERA Defined Benefit Plan, except for employees who are hired into a position that makes them eligible for a choice between enrolling in the PERA Defined Benefit Plan or the PERA Defined Contribution Retirement Plan (PERAChoice). PERAChoice eligibility applies to certain employees of the State or Local Government Divisions, classified employees at State colleges and universities, most community colleges, as well as the District Attorney within each Judicial District, and if authorized by the county and the District Attorney, the attorneys within that Judicial District. If an eligible employee does not make a choice of which plan to participate in within 60 days of the starting date of employment, the employee is automatically enrolled in the PERA Defined Benefit Plan. Between the second and fifth year of participation in their original plan, employees may make a one-time, irrevocable election to switch to the other plan. After the fifth year of participation, this option to switch plan participation no longer exists.

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

Benefit Provisions

The Division Trust Funds have various benefit provisions depending upon the member's date of hire or upon the member's date of retirement. The differences in plan benefit provisions are detailed in the following pages in this Note as of December 31, 2023. Following the January 1, 2010, merger of the Denver Public Schools Retirement System (DPSRS) into PERA, the benefit provisions of existing PERA members and all new hires post-merger date are identified as the PERA benefit structure and the benefit provisions originating under DPSRS are referred to as the DPS benefit structure.

Member Accounts

During 2023, most members in the State, School, Judicial and DPS Divisions contributed 11.00% of their PERA-includable salary to their member accounts. Safety Officers (as defined in the next paragraph) contributed 13.00% of their PERA-includable salary. Most members of the Local Government Division contributed 9.00% of their PERA-includable salary.

The term "Safety Officers" is used for PERA purposes to better describe the expanded definition of the term "State Trooper", which under Colorado law includes several categories of employees: (1) employees of the Colorado State Patrol or Colorado Bureau of Investigation (CBI) vested with the powers of peace officers; (2) beginning July 1, 2020, new or existing employees of the Division of Fire Prevention and Control in the Department of Public Safety classified as firefighter I through firefighter VII; (3) new members hired on or after January 1, 2020, as a county sheriff, undersheriff, deputy sheriff, noncertified deputy sheriff, or detention officer by a Local Government Division employer; (4) new members hired on or after

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

January 1, 2020, as a corrections officer classified as I through IV by a State Division employer; and (5) beginning July 1, 2023, wildlife officers or parks and recreation officers hired on or after January 1, 2011, by the Division of Parks and Wildlife in the Department of Natural Resources.

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

Service Credit

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

A full month of service credit is earned for each month of work where the salary earned by the employee is equal to or greater than 80 multiplied by the federal minimum hourly wage in effect for that month. Earned salary which is less than this amount results in a partial month of service credit. Positions with an employment pattern of at least eight months but fewer than 12 months (including, but not limited to, positions in the School and DPS Divisions) receive a higher ratio of service credit for each month worked, up to a maximum of 12 months of service credit per year.

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

Refund or Distribution Provisions

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

- Leave the account invested in the Division Trust Funds for a future distribution or retirement benefit, which must begin by the member's applicable required beginning date, as defined by IRC § 401(a)(9)(C).
- Request a distribution of the member account plus an applicable match, which cancels all service credit and any benefit entitlements associated with the account. The distribution may be taken as a cash refund with the resulting tax consequences or as a rollover to an eligible qualified plan.

Matching Amounts

Members under the PERA benefit structure who withdraw their accounts on or after reaching retirement eligibility or age 65 receive their member account plus a 100% match on eligible amounts. For members under the PERA benefit structure who withdraw their accounts before reaching retirement eligibility, all contributions received prior to January 1, 2011, are eligible for the 50% match regardless of how much service credit the member has earned. However, contributions received after January 1, 2011, are not eligible for the 50% match until the member earns five years of service credit.

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

Members reaching retirement eligibility who choose to take a retirement benefit are entitled to a minimum monthly benefit equal to the member's account plus a 100% match on eligible amounts, annuitized into a monthly benefit using PERA's expected rate of return.

Highest Average Salary

Plan benefits generally are calculated as a percentage of the member's three- or five- year Highest Average Salary (HAS). The following conditions apply to the HAS calculation:

- *For all members of the PERA benefit structure, except judges, who were eligible to retire as of January 1, 2011, who were hired before January 1, 2007, and who retire on or after January 1, 2009:* HAS is determined by the highest annual salaries associated with four periods of 12 consecutive months of service credit. The four 12-month periods selected do not have to be consecutive nor do they have to include the last four years of membership. The lowest of the four periods becomes a base year used as a starting point for a 15% cap on annual salary increases for the next three periods used to determine the applicable HAS. This salary cap applies regardless of when the annual salaries used in the HAS calculation occurred.
- *For all members of the PERA benefit structure, except judges, who were not eligible to retire as of January 1, 2011, or members of the PERA benefit structure who are hired on or after January 1, 2007, who have at least five years of service credit on December 31, 2019:* HAS is determined by the highest annual salaries associated with four periods of 12 consecutive months of service credit. The four 12-month periods selected do not have to be consecutive nor do they have to include the last four years of

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

membership. The lowest of the four periods becomes a base year used as a starting point for an 8% cap on annual salary increases for the next three periods used to determine the applicable HAS. This salary cap applies regardless of when the annual salaries used in the HAS calculation occurred.

- **For all members of the PERA and DPS benefit structures, except judges, regardless of hire date, who do not have at least five years of service credit on December 31, 2019:** HAS is determined by the highest annual salaries associated with six periods of 12 consecutive months of service credit. The six 12-month periods selected do not have to be consecutive nor do they have to include the last six years of membership. The lowest of the six periods becomes a base year used as a starting point for an 8% cap on annual salary increases for the next five periods used to determine the applicable HAS. This salary cap applies regardless of when the annual salaries used in the HAS calculation occurred.
- **For members of the Judicial Division Trust Fund (judges) who have at least five years of service credit on December 31, 2019:** HAS is one-twelfth of the highest annual salary associated with one period of 12 consecutive months of service credit.
- **For members of the Judicial Division Trust Fund (judges) who do not have at least five years of service credit on December 31, 2019, regardless of the date of hire:** HAS is determined by the highest annual salaries associated with four periods of 12 consecutive months of service credit. The four 12-month periods selected do not have to be consecutive nor do they have to include the last four years of membership. The lowest of the four periods becomes a base year used as a starting point for an 8% cap on annual salary increases for the next three periods used to determine the applicable HAS. This salary cap applies regardless of when the annual salaries used in the HAS calculation occurred.
- **For members of the DPS benefit structure who are eligible to retire as of January 1, 2011:** HAS is the average monthly salary of the 36 months of earned service having the highest salaries.
- **For members of the DPS benefit structure who are not eligible to retire as of January 1, 2011, and have at least five years of service credit on December 31, 2019:** HAS is determined by the highest annual salaries associated with four periods of 12 consecutive months of service credit. The four 12-month periods selected do not have to be consecutive nor do they have to include the last four years of membership. The lowest of the four periods becomes a base year used as a starting point for an 8% cap on annual salary increases for the next three periods used to determine the applicable HAS. This salary cap applies regardless of when the annual salaries used in the HAS calculation occurred.

Service Retirement Benefits—PERA Benefit Structure

With one exception, the service retirement benefit for all retiring members under the PERA benefit structure is the greater of the Defined Benefit Formula or the Money Purchase Formula explained as follows:

- **Defined Benefit Formula**

HAS multiplied by 2.5% and then multiplied by years of service credit. The service retirement benefit is limited to 100% of HAS.

- **Money Purchase Formula**

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

The exception is retiring members who are age 65, have less than five years of service credit, and less than 60 payroll postings will receive a service retirement benefit under the Money Purchase Formula only.

In all cases, a service retirement benefit cannot exceed the maximum benefit amount allowed by federal law.

Service Retirement Benefits for Members other than Safety Officers—PERA Benefit Structure

Upon termination of PERA-covered employment and reaching eligibility for service retirement benefits, a member may begin receipt of benefits as follows:

**Members Hired Before July 1, 2005,
With Five Years of Service Credit on January 1, 2011**

Age Requirement (in years)	Service Credit Requirement (in years)
50	30
55	Age and Service = 80 or more
60	20
65	5 or at least 60 payroll postings

**Members Hired on or After July 1, 2005,
But Before January 1, 2007,
With Five Years of Service Credit on January 1, 2011**

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
55	Age and Service = 80 or more
60	20
65	5 or at least 60 payroll postings

**Members Hired on or After January 1, 2007,
But Before January 1, 2011,
With Five Years of Service Credit on January 1, 2011**

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
55	30
55	Age and Service = 85 or more
60	25
65	5 or at least 60 payroll postings

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

**Members Hired Before January 1, 2011,
With Less Than Five Years of Service Credit on January 1, 2011**

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
55	30
55	Age and Service = 85 or more
60	25
65	5 or at least 60 payroll postings

**Members Hired on or After January 1, 2011,
But Before January 1, 2017, or Hired on or After January 1, 2017,
But Before January 1, 2020, Whose Most Recent 10
Years of Service are in the School or DPS Divisions**

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
58	30
58	Age and Service = 88 or more
60	28
65	5 or at least 60 payroll postings

**Members Hired on or After January 1, 2017,
But Before January 1, 2020, Whose Most Recent 10
Years of Service are not in the School or DPS Divisions**

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
60	30
60	Age and Service = 90 or more
65	5 or at least 60 payroll postings

Members Hired on or After January 1, 2020

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
64	30
64	Age and Service = 94 or more
65	5 or at least 60 payroll postings

**Service Retirement Benefits for Safety Officers—
PERA Benefit Structure**

Upon termination of PERA-covered employment and reaching eligibility for service retirement benefits, a Safety Officer may begin receipt of benefits as follows:

Safety Officer Hired Before January 1, 2020

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	30
50	25
55	20
60	Age and Service = 80 or more
65	5 or at least 60 payroll postings

Safety Officers Hired on or After January 1, 2020

Age Requirement (in years)	Service Credit Requirement (in years)
Any Age	35
55	25
55	Age and Service = 80 or more
65	5 or at least 60 payroll postings

**Reduced Service Retirement Benefits—
PERA Benefit Structure**

Reduced service retirement benefits are calculated in the same manner as a service retirement benefit with a reduction for each month prior to the member's first eligible date for a service retirement.

Members and Safety Officers Hired Before January 1, 2020

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

Members and Safety Officers Hired on or After January 1, 2020

Age Requirement (in years)	Service Credit Requirement (in years)
55	25
55 (Safety Officers only)	20
60	5

For members eligible to retire as of January 1, 2011, the early retirement reduction factors used to determine the reduced service retirement benefit are specified in C.R.S. § 24-51-605.

For members not eligible to retire as of January 1, 2011, the early retirement reduction factors used to determine the reduced service retirement benefit reflect an actuarial equivalent reduction.

Service Retirement Benefits—DPS Benefit Structure

The service retirement benefit for all retiring members under the DPS benefit structure is the greater of the two calculations explained as follows:

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

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

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

Upon termination of PERA-covered employment and reaching eligibility for service retirement benefits, a member may begin receipt of benefits as follows:

Members With Five Years of Service Credit on January 1, 2011

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

¹ 15 years must be earned service credit

Member With Less Than Five Years of Service Credit on January 1, 2011

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

¹ 20 years must be earned service credit

**Reduced Service Retirement Benefits—
DPS Benefit Structure****Member With Five Years of Service Credit on January 1, 2011**

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

Member With Less Than Five Years of Service Credit on January 1, 2011

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

Members with less than five years of service credit under the DPS benefit structure do not have the option to apply for a benefit and are only eligible for a refund of the member account.

Disability Program

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

Medical determinations for the disability program are made by UNUM, PERA's disability program

administrator pursuant to C.R.S. § 24-51-703. Applicants found to be disabled receive payments under one of two tiers:

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

Benefit Options

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

- **Option 1:** A single-life benefit payable for the life of the retiree and, upon the death of the retiree, no further monthly benefits are payable.
- **Option 2:** A joint-life benefit payable for the life of the retiree and, upon the death of the retiree, one-half of the benefit becomes payable to the cobeneficiary of the retiree for life. Upon the death of the cobeneficiary prior to the death of the retiree, an Option 1 benefit becomes payable to the retiree.
- **Option 3:** A joint-life benefit payable for the life of the retiree and, upon the death of the retiree, the same benefit becomes payable to the cobeneficiary of the retiree for life. Upon the death of the cobeneficiary prior to the death of the retiree, an Option 1 benefit becomes payable to the retiree.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Options 2 and 3 are reduced to be the actuarial equivalent of Option 1, to ensure equitable benefits are provided regardless of the payment option chosen.

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

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

Options B, P2, and P3 are reduced to be the actuarial equivalent of Option A, to ensure equitable benefits are provided regardless of the payment option chosen.

Survivor Benefits Program—PERA Benefit Structure

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

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

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

If at the time of death, a member has less than one year of earned service credit or does not have any qualified survivors, the deceased's named beneficiary or the estate

receives a lump-sum payment of the deceased member's account plus a 100% match on eligible amounts.

Survivor Benefits Program—DPS Benefit Structure

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

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

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

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

Annual Increases

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

The AI provisions are explained as follows:

- For benefit recipients of the PERA benefit structure who began membership before January 1, 2007, and whose benefit is paid based on a retirement date prior to January 1, 2011, and benefit recipients of the DPS benefit structure whose benefit is paid based on a retirement date prior to January 1, 2011:
 - **Payment Month:** The AI is paid in July.
 - **Eligibility:** The benefit recipient has been receiving benefits for at least seven months immediately preceding the July in which the AI is to be paid.
 - **AI Amount:** The AI for 2023 is 1.00%. Each year, the AI is equal to the maximum AI or "AI cap," currently 1.00% per year, unless it is adjusted by the automatic adjustment provision (AAP). The AAP may raise or lower the AI cap by up to 0.25% if the AAP ratio of the Division Trust Funds is outside the parameters specified in C.R.S. § 24-51-413. The amount of the first AI will be prorated from the month of retirement to the first AI payment date.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

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

- **Payment Month:** The AI is paid in July.
- **Eligibility:** For full service retirees, disability retirees, and reduced service retirees who are eligible to receive a benefit on January 1, 2011, and survivor benefit recipients, who already received the first AI on or before May 1, 2018, the benefit recipient has received benefit payments for the 12 months prior to the July in which the AI is to be paid.

For full service retirees, disability retirees, and reduced service retirees who are eligible to receive a benefit on January 1, 2011, and survivor benefit recipients, who had not yet received the first AI on or before May 1, 2018, the benefit recipient has received benefit payments for 36 months total, including for the 12 months prior to the July in which the AI is to be paid.

For reduced service retirees who are not eligible to retire as of January 1, 2011, but who already received the first AI on or before May 1, 2018: A reduced service retiree is eligible to receive the AI in July of the year in which both of the following conditions are met: (1) the retiree has received benefit payments for 12 months immediately preceding the July in which the AI is to be paid and (2) as of January 1 of the year the AI is paid, the retiree has either reached age 60 or the age and service rule for unreduced service retirement applicable to the retiree's plan.

For reduced service retirees who are not eligible to retire as of January 1, 2011, and who had not yet received the AI on or before May 1, 2018: A reduced service retiree is eligible to receive the AI in July of the year in which all of the following conditions are met: (1) the retiree has received benefit payments for 36 months total; (2) the retiree has received benefit payments for 12 months immediately preceding the July in which the AI is to be paid; and (3) as of January 1 of the year the AI is paid, the retiree has either reached age 60 or the age and service rule for unreduced service retirement applicable to the retiree's plan.

- **AI Amount:** The AI for 2023 is 1.00%. Each year, the AI is equal to the AI cap, currently 1.00% per year, unless it is adjusted by the AAP. The AAP may raise or lower the AI cap by up to 0.25% if the AAP ratio of the Division Trust Funds is outside the parameters specified in C.R.S. § 24-51-413.

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

- **Payment Month:** The AI is paid in July.
- **Eligibility:** For full service retirees, disability retirees, and survivor benefit recipients who had already received an AI on or before May 1, 2018: The benefit recipient becomes eligible in July of the calendar year following the calendar year in which the benefit recipient has received 12 months of benefit payments. For full service retirees, disability retirees, and survivor benefit recipients who had not yet received an AI on or before May 1, 2018: The benefit recipient becomes eligible in July if the benefit recipient has received 36 months of benefit payments total including 12 months of benefit payments in the prior calendar year.

A reduced service retiree who had already received an AI on or before May 1, 2018, is eligible to receive the AI in July of the year in which both of the following conditions are met: (1) as of January 1 of the year the AI is to be paid, the retiree has received 12 months of benefit payments in the prior calendar year and (2) as of January 1 of the year the AI is paid, the retiree has either reached age 60 or the age and service rule for unreduced service retirement applicable to the retiree's plan.

A reduced service retiree who had not yet received an AI on or before May 1, 2018, is eligible to receive the AI in July of the year in which all of the following conditions are met: (1) as of January 1 of the year the AI is to be paid, the retiree has received 36 months of benefit payments total; (2) the retiree received 12 months of benefit payments in the prior calendar year; and (3) as of January 1 of the year the AI is paid, the retiree has either reached age 60 or the age and service rule for unreduced service retirement applicable to the retiree's plan.

- **AI Amount:** The AI for 2023 is 1.00%. Each year, the AI is the lesser of the AI cap, currently 1.00% (unless adjusted by the AAP), or the average of the monthly Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W) amounts for the prior calendar year. In no case can the present value of the year's AIs paid to a division's benefit recipients exceed 10% of the division's Annual Increase Reserve (AIR).

Changes to the AI Cap: If PERA's overall funded status (actuarial value of assets/actuarial accrued liability) is at or above 103%, the AI cap will increase by 0.25%. This adjustment will occur separately from any impact of the AAP.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Automatic Adjustment Provision

Adjustments may be made to the AI cap, member and employer contribution rates, and, under certain circumstances, the direct distribution from the State.

Based on the results of the AAP assessment which utilized the December 31, 2022, actuarial valuation performed for funding purposes, effective July 1, 2024, no adjustment to the AI cap is required.

Based on the results of the AAP assessment which utilized the December 31, 2023, actuarial valuation performed for funding purposes, effective July 1, 2025, no adjustment to the AI cap is required.

A summary of AAP provisions is provided in Note 4.

Indexing of Benefits

Inactive members, who meet the following conditions, have their benefit amounts increased by the applicable AI granted by PERA from their date of membership termination to their effective date of retirement:

- Covered by the plan as of December 31, 2006;
- Eligible to retire as of January 1, 2011;
- Have 25 or more years of service credit; and
- Have not started receiving monthly benefits.

Suspending Benefits

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

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

Working After Retirement Without Suspending Benefits

- **Retiree Contributions:** With a few statutory exceptions, employers are required to remit employer contributions, amortization equalization disbursement (AED), supplemental amortization equalization disbursement (SAED), and defined contribution (DC) supplement (if applicable) on salary earned by retirees who work for them, but do not suspend retirement and return to membership. Beginning January 1, 2011, working retirees are required to make contributions at a percentage equal to the member contribution rate.

Under C.R.S. § 24-51-101(53), working retiree contributions are nonrefundable and are not deposited into member accounts. PERA deposits these contributions into the employer reserve.

- **Limits on Working After Retirement:** With a few statutory exceptions, outlined as follows, retirees may work up to 110 days/720 hours per calendar year for a PERA employer with no reduction in benefits. In addition, each employer assigned to the School Division, DPS Division, and each Higher Education Institution assigned to the State Division may designate on a calendar year basis, up to 10 service retirees who may work up to 30 additional days for a total of 140 days/916 hours in a calendar year without exception under the working after retirement provisions:
 - The employer is required to provide full payment of PERA employer contributions, AED, SAED, DC supplement (if applicable), and working retiree contributions on all salary earned.
 - The retiree cannot work for any PERA employer during the month of the effective date of retirement.
 - The retiree does not resume PERA membership or build an additional benefit.
- **“Critical Shortage” Exceptions to the Limits on Working After Retirement:** Certain retirees who have applicable experience, skills, or qualifications that meet one or more requirements of the critical shortage positions may receive salary without a reduction in retirement benefits from employers who have declared a critical shortage of certain positions. Following is a summary of PERA law containing such exceptions, each with specific provisions or requirements not detailed here:
 - C.R.S. § 24-51-1101(1.9) is applicable to retirees who work for a rural school district, Boards of Cooperative Services (BOCES) within a rural school district, or a charter school within a rural school district that has determined it has a critical shortage of qualified teachers, school bus drivers, school food services cooks, school nurses, or paraprofessionals.
 - C.R.S. § 24-51-1101(5) enacted July 13, 2020, to be repealed effective July 1, 2025 is applicable to retirees who work as a special service provider for a BOCES that serves rural school districts and has determined it has a critical shortage of qualified service providers.
 - C.R.S. § 24-51-1101(1.3) enacted March 17, 2022, to be repealed effective July 1, 2025, is applicable to retirees who hold a valid Colorado teaching license and work as substitute teachers for any school district or charter school that has determined it has a critical shortage of substitute teachers.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Benefit Provisions—Voluntary Investment Program, Defined Contribution Retirement Plan, and Deferred Compensation Plan

See Note 8.

Benefit Provisions—Health Care Trust Funds

See Note 9.

Life Insurance Reserve

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

Termination of PERA

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

Note 2—Summary of Significant Accounting Policies**Reporting Entity**

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

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

Basis of Presentation

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

The financial statements include summarized prior-year comparative information. Such information does not include all of the information required to constitute a presentation in accordance with accounting principles generally accepted in the United States of America. Accordingly, such information should be read in conjunction with the financial statements for the year ended December 31, 2022, from which such summarized information was derived.

To conform with current year presentation, a portion of 2022 combined amounts for benefit receivable and entire lease receivable amounts on the Statements of Fiduciary Net Position were restated to other receivables. The restatements do not affect the individual funds' fiduciary net position (FNP) as of December 31, 2022.

To conform with the current year's presentation, 2022 securities lending rebates were restated from securities lending income to expenses. The restatements do not affect net income from securities lending or the individual funds' FNP as of December 31, 2022.

Basis of Accounting

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

Adoption of Accounting Standards

PERA implemented all applicable new GASB pronouncements in the year ended December 31, 2023. The pronouncement which had an impact on PERA's financial statements is summarized below.

PERA implemented GASB Statement No. 96 *Subscription-Based Information Technology Arrangements (SBITAs)* for the year ended December 31, 2023.

Due to the adoption of GASB Statement 96, PERA recognized a right-to-use subscription asset and a corresponding subscription liability. See Note 12 for disclosures related to GASB 96.

Fund Accounting

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

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

all actuarial determinations are made using separate division-based information.

The Division Trust Funds, the Health Care Trust Funds, and the Life Insurance Reserve pool their investments into a combined investment fund (CIF). Investment value and earnings of the CIF are allocated among the funds based on each fund's percentage ownership. As of December 31, 2023, the ownership percentages of each fund are shown in the following table:

Trust Fund	Ownership Percentages
State Division	29.59%
School Division	52.68%
Local Government Division	8.77%
Judicial Division	0.73%
DPS Division	7.06%
HCTF	1.01%
DPS HCTF	0.11%
Life Insurance Reserve	0.05%
Total	100.00%

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

Fair Value of Investments

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

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Note 3—Interfund Transfers and Balances

Interfund transfers of assets take place on a regular basis between the Division Trust Funds. The transfers occur upon the initiation of a retirement or survivor benefit where the member earned or purchased service in another division in addition to the Fund paying the benefit.

Transfers also occur from the Division Trust Funds to the Health Care Trust Funds to allocate a portion of the amount paid by members to purchase service credit. The transfers for the year ended December 31, 2023, consisted of the following amounts:

INTERFUND TRANSFERS

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	DPS Division Trust Fund	HCTF	DPS HCTF
Transfers in from other Funds for retirements ¹	\$28,780	\$22,936	\$6,277	\$2,895	\$10,513	\$—	\$—
Transfers out to other Funds for retirements ¹	(20,484)	(37,105)	(6,147)	—	(7,665)	—	—
Transfers in from other Funds for survivor benefits ¹	63	71	2	—	48	—	—
Transfers out to other Funds for survivor benefits ¹	(119)	(21)	(44)	—	—	—	—
Transfers out to Health Care Trust Funds for purchased service credit ²	(1,579)	(1,996)	(686)	(24)	(103)	—	—
Transfers in to Health Care Trust Funds for purchased service credit ³	—	—	—	—	—	4,285	103

¹ The interfund transfers at retirement line on the Schedule of Other Additions and Schedule of Other Deductions in the Supplementary Schedules show where the total for each division is included on the Statements of Changes in Fiduciary Net Position.

² Included in other deductions on the Statements of Changes in Fiduciary Net Position as shown on the Schedule of Other Deductions in the Supplementary Schedules.

³ Included in other additions on the Statements of Changes in Fiduciary Net Position as shown on the Schedule of Other Additions in the Supplementary Schedules.

As of December 31, 2023, interfund balances existed between funds due to unreimbursed internal operating expenses. The interfund balances consisted of the following amounts:

INTERFUND BALANCES

Trust Fund	Amount
State Division	\$100
School Division	178
Local Government Division	30
Judicial Division	2
DPS Division	24
Voluntary Investment Program	(216)
Defined Contribution Retirement Plan	(60)
Deferred Compensation Plan	(61)
HCTF	3
Total	\$—

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Note 4—Contributions

Division Trust Funds—Defined Benefit Pension Plans

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

Members are required to contribute a percentage of their PERA-includable salary as shown in the contribution rates table on page 60. PERA records these contributions in individual member accounts. Member contributions are tax-deferred for federal and Colorado income tax purposes, effective July 1, 1984, (January 1, 1986, for members of the DPS benefit structure) and January 1, 1987, respectively. Prior to those dates, contributions were on an after-tax basis. PERA-affiliated employers contribute a percentage of active member covered payrolls depending on division as shown in the following contribution rates table.

Employers that rehire a PERA retiree as an employee or under any other work arrangement (working retiree) are required to report and pay employer contributions, including an additional 2.00% for retirees rehired pursuant to C.R.S. § 24-51-1101(5), on the amounts paid to the working retiree. In addition, effective January 1, 2011, working retirees are required to make contributions at a percentage of salary equal to the member contribution rate. However, under C.R.S. § 24-51-101(53), these contributions are not member contributions, are not deposited into a member account, and, therefore, are nonrefundable to the working retiree.

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

Beginning January 1, 2006, employers are required to pay the AED, and beginning January 1, 2008, employers are required to pay the SAED. The employers pay these amounts on the PERA-includable salary for all employees working for the employer who are members of PERA, or who are eligible to elect to become members of PERA on or after January 1, 2006, including any amounts paid in connection with the employment of a retiree by an employer. PERA uses these payments to help amortize the unfunded actuarial accrued liability (UAAL).

C.R.S. § 24-51-411 provides for adjustment of the AED and SAED based on the year end funded status within a

particular Division Trust Fund. If a particular Division Trust Fund reaches a funded status of 103%, a decrease in the AED and SAED is mandated and if it subsequently falls below a funded status of 90%, an increase in the AED and SAED is mandated. For the Local Government and Judicial Divisions, if the funded ratio reaches 90% and subsequently falls below 90%, an increase in the AED and SAED is mandated. AED and SAED rates cannot exceed the maximums listed in the table on page 60.

Effective January 1, 2021, and every year thereafter, C.R.S. § 24-51-415 adjusts employer contribution rates for the State and Local Government Divisions to include a DC supplement. The DC supplement for these two divisions will be determined based on the employer contribution amounts paid on behalf of eligible employees who commence employment on or after January 1, 2019, to DC plan participant accounts that would have otherwise gone to the defined benefit trusts to pay down the unfunded liability. This calculation includes defined benefit investment earnings thereon, and is expressed as a percentage of salary on which employer contributions are made.

C.R.S. § 24-51-412 permits a pension certificates of participation (PCOP) offset to the DPS Division employer contribution rate. The offset, expressed as a percentage of covered payroll, is equal to the annual assumed payment obligations for PCOPs issued in 1997 and 2008, including subsequent refinancing, by the DPS at a fixed effective annual interest rate of 8.50%. At a minimum, the DPS Division employer rate, after applying the PCOP offset, must be sufficient to fund the DPS HCTF and the AIR contribution rates applicable to the DPS Division. The staff of Denver Public Schools provided the PCOP offset rate of 10.93% for 2023, which is reviewed and analyzed by PERA staff.

C.R.S. § 24-51-401(1.7)(e) requires a periodic “true-up” calculation to be performed beginning in 2015 and every five years following, with the purpose of determining the total DPS Division employer contribution rate that would result in the equalization of the ratio of UAAL over payroll between the DPS and School Divisions at the end of the 30-year period beginning January 1, 2010. The 2020 calculation indicated a reduction to the total DPS Division employer rate would be needed to equalize the defined ratio. As of December 31, 2023, the ratio of UAAL over payroll is 271.4% for the School Division and 58.2% for the DPS Division. It should be noted a reduction in an employer contribution rate for any one Division Trust Fund could potentially influence the outcome of the assessment of contributions (actual versus actuarially determined) considering all five Division Trust Funds, annually performed under the AAP, enacted through C.R.S. § 24-51-413, and described in greater detail on page 61.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

PERA-affiliated employers forward the contributions to PERA for deposit. PERA transfers a portion of these contributions, equal to 1.02% of the reported salaries, into the HCTF or DPS HCTF for health care benefits. Beginning in 2007, the AIR, under C.R.S. § 24-51-1009, was created within each division for the purpose of funding future benefit increases. Funding for this reserve comes from the employer contributions and is calculated at 1.00% of the salary reported for members in the PERA benefit structure hired on or after January 1, 2007. In 2023, post-retirement benefit increases for these members are limited to a maximum of 1.00% (unless further adjusted by the AAP) compounded annually, subject to the availability of assets in the AIR for each division. As of December 31, 2023, the value of the AIR was \$311,387 in the State Division,

\$441,242 in the School Division, \$81,887 in the Local Government Division, \$4,064 in the Judicial Division, and \$76,631 in the DPS Division. The remainder of the contributions is transferred into a trust fund established for each division for the purpose of meeting current benefit accruals and future benefit payments.

The DC supplement provisions increased employer contribution rates, effective January 1, 2023, by 0.07% and 0.03% for all employers in the State and Local Government Divisions, respectively.

The combined employer contribution rates for retirement and health care benefits along with the member contribution rates for 2023 are shown as follows:

CONTRIBUTION RATES

Trust Fund ¹	Employer Contribution Rate	AED	SAED	DC Supplement	PCOP Offset	Total Contribution Rate Paid by Employer	Member Contribution Rate
State Division (members other than Safety Officers)	11.40%	5.00%	5.00%	0.17%	—%	21.57%	11.00%
State Division (Safety Officers)	14.10%	5.00%	5.00%	0.17%	—%	24.27%	13.00%
School Division	11.40%	4.50%	5.50%	—%	—%	21.40%	11.00%
Local Government Division (members other than Safety Officers)	11.00%	2.20%	1.50%	0.06%	—%	14.76%	9.00%
Local Government Division (Safety Officers)	14.10%	2.20%	1.50%	0.06%	—%	17.86%	13.00%
Judicial Division	14.91%	5.00%	5.00%	—%	—%	24.91%	11.00%
DPS Division	11.40%	4.50%	5.50%	—%	(10.93%)	10.47%	11.00%

¹ See Note 1 for the definition of "Safety Officers".

FUTURE AED AND SAED RATES

Trust Fund	2024 Rates		Future Annual Increases in Rates Prescribed by Colorado Revised Statutes		Maximum Allowable Limitations	
	AED	SAED	AED	SAED	AED	SAED
State Division	5.00%	5.00%	N/A	N/A	5.00%	5.00%
School Division	4.50%	5.50%	N/A	N/A	4.50%	5.50%
Local Government Division	2.20%	1.50%	No	No	5.00%	5.00%
Judicial Division	5.00%	5.00%	N/A	N/A	5.00%	5.00%
DPS Division ¹	4.50%	5.50%	N/A	N/A	4.50%	5.50%

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

Funding of the plan assumes statutory contributions will be made on a timely basis. Any significant reduction in contributions would have an impact on the ability of the plan to make benefit payments in the future.

Direct Distribution

Pursuant to C.R.S. § 24-51-414, PERA is to receive an annual direct distribution from the State, as a nonemployer contributing entity, in the amount of \$225,000. Beginning in 2018, the distribution will occur each July 1 until there are no unfunded actuarial accrued liabilities in the trust fund of any division that receives

such distribution. PERA shall allocate the distribution to the trust funds as it would an employer contribution in a manner proportionate to the annual payroll of each division except there shall be no allocation to the Local Government Division.

The direct distribution from the State was suspended in 2020. To compensate PERA for the suspension, C.R.S. §§ 24-51-414(6-8) required restorative payment by providing an accelerated payment in 2022. In 2022, the State Treasurer issued payment for the direct distribution of \$225,000 plus an additional amount of \$380,000. Due to

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

the advanced payment made in 2022, the State reduced the distribution in 2023 to \$35,000. Additionally, the newly-added C.R.S. § 24-51-414(9) provided compensatory payment of \$14,561 for 2023 only.

The allocation for 2023 was as follows:

Trust Fund	Direct Distribution
State Division	\$16,233
School Division	28,908
Judicial Division	288
DPS Division	4,132
Total	\$49,561

The standard \$225,000 direct distribution is scheduled to occur on July 1, 2024.

Automatic Adjustment Provision

The primary intent of the AAP is to gauge the adequacy of the contributions coming into the pension trust fund against the amount required, and if determined necessary, to initiate automatic changes to member and employer contribution rates, the AI cap, and, under certain circumstances, the direct distribution from the State. This assessment commenced with the December 31, 2018, actuarial funding valuation and is performed annually thereafter.

Pursuant to C.R.S. § 24-51-413, the AAP assessment involves the comparison of two blended rates, weighted across all five Division Trust Funds, determining a resulting ratio as follows:

+ employer contribution rates	
+ member contribution rate	
+ direct distribution as a rate of pay	
= Blended Total Contribution Amount	
divided by	= AAP Resulting Ratio
+ actuarially determined contribution (ADC) rate	
+ member contribution rate	
= Blended Total Required Contribution	

If the resulting ratio falls within an acceptable corridor (98% to 119%), no adjustments are made. If the resulting ratio does not achieve a minimum benchmark (less than 98%), adjustments are applied in an equitable manner of impact resulting in increases in contributions and a decrease in the AI cap. If the resulting ratio exceeds the acceptable corridor (120% or greater), adjustments are applied in an equitable manner of impact resulting in decreases in contributions and an increase in the AI cap.

Per statute, the first adjustment required as a result of the AAP did not occur until July 1, 2020. The AAP defines the limited amounts of total adjustment available in each

category, and the increments of adjustments that can occur in any year. Adjustments over multiple years arising from a single AAP are permitted, although they cannot exceed the ultimate limits as set forth in statute. An adjustment (increase or decrease) to each of the employer contribution rates and the member contribution rates cannot exceed 0.50% in any one year, and in total, cannot exceed 2.00% above the rates defined in C.R.S. § 24-51-401(1.7)(a)(IV) or fall below the rates defined in C.R.S. § 24-51-401(1.7)(a)(I). An adjustment (increase or decrease) to the direct distribution cannot exceed \$20,000 in any one year, and cannot exceed the initially legislated annual \$225,000 amount, but can be reduced to \$0.

Further, adjustments required because funding is below the 98% AAP ratio threshold will be made to an extent that will bring the revised ratio to 103% following the corrective efforts, but in no event can the adjustments in one year be greater than the limits as previously described. Similarly, adjustments required because funding has reached the 120% AAP ratio threshold must not cause the ratio to fall below 103%.

Based on the results of the AAP assessment which utilized the December 31, 2022, actuarial valuation performed for funding purposes, effective July 1, 2024, no adjustments to member and employer contribution rates are required, with no adjustment to the \$225,000 direct distribution.

Based on the results of the AAP assessment which utilized the December 31, 2023, actuarial valuation performed for funding purposes, effective July 1, 2025, no adjustments to member and employer contribution rates are required, with no adjustment to the \$225,000 direct distribution.

Replacement Benefit Arrangements

IRC § 415 limits the amount of the benefit payable to a retiree or survivor in a defined benefit plan. In some cases, the IRC limit is lower than the benefit calculated under the plan provisions. For 2023, this limit is set at \$265,000 (actual dollars) for retirees who are age 62 or older. This dollar amount is actuarially decreased for retirees younger than 62. IRC § 415(m) allows a government plan to set up a "qualified governmental excess benefit arrangement" to pay the difference to those retirees. To accomplish this, PERA has entered into agreements with the employers who last employed the affected retirees. Under the agreement, the employer pays the benefit difference to the retiree from a portion of the current employer contributions. In 2023, employers under these agreements used current employer contributions to pay retirees \$2,789 in the State Division; \$656 in the School Division; \$1,166 in the Local Government Division; \$0 in the Judicial Division; and \$22 in the DPS Division. As of December 31, 2023, payroll, there were 107 accounts receiving a replacement benefit.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

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

See Note 8.

Contributions—Health Care Trust Funds

See Note 9.

Note 5—Investments**Investment Authority**

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

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

Additionally, C.R.S. § 24-54.8-201 *et seq.* imposes targeted divestment from companies that have economic prohibitions against Israel.

PERA Board's Statutory Fiduciary Responsibility

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

Investment Committee

The Investment Committee is responsible for assisting the Board in overseeing the PERA investment program. Specific responsibilities include:

- Recommend *Statements of Investment Policy and Philosophy* and review the statements at least biennially.
- Recommend the strategic asset allocation and associated benchmarks.
- Review, at least annually, PERA's compliance with the *Statement of Investment Policy*.
- Review costs of the investment program.

- Review total fund, asset class, and investment manager performance and risk.
- Advise on any other investment matters and make recommendations for action when necessary.

Overview of Investment Policy

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

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

The Board determines the strategic asset allocation for the fund. This strategic asset allocation contains a long-term target allocation and specific ranges within which each asset class may operate. The yearly policy benchmark weight, long-term asset allocation target, and the specified ranges for each asset class are presented in the Investment Section on page 124.

The asset allocation policy is determined by an intensive asset/liability study which considers expected investment returns, risks, and correlations of returns. The characteristics of the fund's liabilities are analyzed in conjunction with expected investment risks and returns. The targeted strategic asset allocation is designed to provide appropriate diversification and to balance the expected returns while ensuring an appropriate level of risk is incurred.

The asset allocation targets are adhered to through the implementation of a rebalancing policy. Investments are managed and monitored in a manner which seeks to balance return and risk within the asset/liability framework. The Chief Investment Officer is authorized to execute investment transactions on behalf of the Board. Assets are managed both internally and externally. In making investment decisions, the Board and staff utilize external experts in various fields.

See information on the most recent asset/liability study in the Investment Section on page 124.

NOTES TO THE FINANCIAL STATEMENTS

*(Dollars in Thousands)***Investment Performance**

For the year ended December 31, 2023, the net-of-fees, money-weighted rate of return on the pooled investment assets was 13.4%.

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

Fair Value

Investments are measured at fair value in accordance with GASB Statement No. 72. Fair value is defined as the amount for which an investment could be sold in an orderly transaction between market participants at the measurement date in the principal or most advantageous market of the investment. This Statement establishes a three-tier, hierarchical disclosure framework which prioritizes and ranks the level of market price observability used in measuring fair value. The hierarchy is based on the valuation inputs used to measure the fair value of the investment and gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest

priority to unobservable inputs (Level 3 measurements). Inputs refer broadly to the assumptions that market participants would use in pricing the asset or liability, including assumptions about risk, for example, the risk inherent in a particular valuation technique used to measure fair value (such as a pricing model) and/or the risk inherent in the inputs to the valuation technique. The categorization of investments within the hierarchy is based upon the pricing transparency of the instrument and should not be perceived as the particular investment's risk. The three-tier framework is summarized as follows:

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

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

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

The following table presents PERA's investments within the hierarchical framework, as well as investments where fair value is determined using the practical expedient, as of December 31, 2023:

INVESTMENTS MEASURED AT FAIR VALUE

		Fair Value Measurements Using:		
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Global Equity				
Public market investments ¹				
Information technology	\$9,064,506	\$9,009,829	\$54,677	\$—
Financials	4,902,430	4,864,853	37,158	419
Consumer discretionary	4,474,349	4,457,679	16,563	107
Industrials	4,314,501	4,256,924	55,729	1,848
Health care	3,994,649	3,942,153	52,183	313
Communication services	2,455,455	2,443,144	12,267	44
Consumer staples	2,196,242	2,165,751	30,489	2
Materials	1,559,029	1,551,440	7,067	522
Energy	1,522,124	1,511,313	9,178	1,633
Real estate	762,749	762,692	—	57
Utilities	516,399	505,069	11,330	—
Non-public market investments and other	1,988	—	—	1,988
Equity mutual fund	16	—	—	16
Total global equity investments	35,764,437	35,470,847	286,641	6,949
Fixed Income				
U.S. Treasuries	4,308,635	4,308,635	—	—
U.S. government MBS	3,996,571	472,120	3,524,451	—
U.S. corporate bonds	2,394,328	—	2,394,328	—
Non-U.S. corporate bonds	394,070	—	394,070	—
Non-U.S. government/agency bonds	303,249	—	303,249	—
U.S. government agencies	105,107	—	105,107	—
Non-agency MBS/CMBS	86,138	—	86,138	—
U.S. municipal bonds	79,333	—	79,333	—
Fixed income mutual fund	18,455	18,455	—	—
Total fixed income investments	11,685,886	4,799,210	6,886,676	—
Real estate	2,290,332	—	—	2,290,332
Self-directed brokerage	60,137	54,999	5,129	9
Total investments by fair value level	49,800,792	\$40,325,056	\$7,178,446	\$2,297,290
Investments Measured at the NAV				
Global equity	921,626			
Fixed income	213,062			
Self-directed brokerage	27,946			
Private equity	5,358,065			
Real estate	3,932,455			
Alternatives	4,230,082			
Multi-asset class funds	1,705,792			
Total investments measured at the NAV	16,389,028			
Total investments measured at fair value	\$66,189,820			

¹ Public market investments of \$286,521 are classified in Level 2 due to the election of fair value pricing for international equity portfolios. This election employs the use of intra-day movements of the Russell 1000 index as a factor in pricing individual equity investments to ensure equitability between participants in the PERAdvantage International Stock Fund.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

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

	Investments by Fair Value Level ¹	Investments Measured at the NAV	Stable Value Fund ²	Statements of Fiduciary Net Position Combined Total
Global equity	\$35,764,437	\$921,626	\$—	\$36,686,063
Fixed income	11,685,886	213,062	453,458	12,352,406
Private equity	—	5,358,065	—	5,358,065
Real estate	2,290,332	3,932,455	—	6,222,787
Alternatives	—	4,230,082	—	4,230,082
Multi-asset class funds	—	1,705,792	—	1,705,792
Self-directed brokerage	60,137	27,946	—	88,083
Total	\$49,800,792	\$16,389,028	\$453,458	\$66,643,278

¹ Futures investments of \$76,400 that would be classified as Level 1 in the fair value hierarchy are excluded from this table but included as a component of Investment receivables in the Statements of Fiduciary Net Position.

² The Stable Value Fund is the underlying investment in the PERAdvantage Capital Preservation Fund which is available to participants in the three defined contribution plans. The value of the investment is based on the contract value, which approximates fair value. Contract value represents what is owed to the plan participants and at what price the shares of the stable value fund are being bought and sold.

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

Global equity investments classified in Level 2 of the hierarchical framework include securities valued using a theoretical price which utilizes a standardized formula to derive a price from a related security or from the intra-day movement of a market index. Fixed income investments

classified as Level 2 typically do not trade on a national or international exchange and their fair value is based on equivalent values of the same or comparable securities with similar yield and risk, otherwise known as matrix pricing. Fixed income investments contained in the self-directed brokerage are typically valued using a matrix pricing approach, and therefore are classified in Level 2 of the hierarchical framework.

Global equity public market investments classified in Level 3 of the hierarchical framework are valued using one or more unobservable inputs. This includes instruments delisted from an exchange, instruments where trading has been suspended, and instruments that lack recent transaction information. Fixed income securities classified in Level 3 of the hierarchical framework include instruments in default and instruments whose values are estimated, out of necessity, using unobservable inputs due to lack of comparable securities in the market place. Real estate investments classified in Level 3 of the hierarchical framework were valued by an independent appraiser.

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

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

The following table presents PERA's unfunded commitments, the investment redemption frequency and redemption notice period as of December 31, 2023, for PERA investments measured at the NAV:

INVESTMENTS MEASURED AT THE NET ASSET VALUE

	Investments Measured at the NAV	Unfunded Commitments ¹	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Global equity commingled funds	\$921,626	\$—	Daily	1 - 3 days
Fixed income commingled funds	213,062	—	Daily	1 - 3 days
Private equity partnerships	5,358,065	2,882,384	N/A	N/A
Private real estate				
Directly held joint ventures	964,916	65,602	N/A	N/A
Real estate partnerships	1,341,456	347,646	N/A	N/A
Commingled open-end funds	1,626,083	—	Daily, Quarterly	30 - 90 days
Alternatives				
Alternatives partnerships	2,480,357	1,637,306	Monthly, Quarterly, Annual, Biennial, Quinquennial	30 - 180 days
Commingled open-end funds	1,749,725	281,759	Daily, Monthly, Quarterly, Biennial	30 - 180 days
Multi-asset class commingled funds	1,705,792	—	Daily	1 - 3 days
Self-directed brokerage	27,946	—	N/A	N/A
Total	\$16,389,028	\$5,214,697		

¹ Corresponding Note 7 includes unfunded commitments to assets valued at Level 3 within the hierarchical framework or with no fair value as of December 31, 2023.

The fair value of the investments in global equity, fixed income, and multi-asset class commingled funds has been determined using NAV of the units held at December 31, 2023. Commingled funds are only offered to a limited group of investors, and the most significant element of the NAV is the fair value of the underlying investment holdings of the fund. Unit values are determined by dividing each fund's net assets by the number of units outstanding on the valuation date. Global equity commingled funds include seven funds which primarily consist of investments whose objective is to produce returns that either match or exceed the total rate of return of a particular benchmark. Fixed income commingled funds include three funds that seek results which correspond generally to the price and yield performance of a particular index or to produce returns in excess of the total rate of return of a particular benchmark. Multi-asset class commingled funds include 10 target date retirement funds which are broadly diversified across global asset classes, where asset allocations become more conservative over time with the objective of providing for retirement outcomes consistent with investor preferences throughout the savings and drawdown phase. Additionally, this asset class also includes one fund whose objective is to produce returns that exceed inflation.

Private equity partnerships include 152 private equity limited partnership funds with various strategies including: buyout, venture, distressed, mezzanine, energy, secondary, and fund-of-funds. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of PERA's ownership

interest in partners' capital. The most significant element of NAV is the fair value of the investment holdings. The valuation techniques vary based on investment type and involve a certain degree of expert judgment. These holdings are valued by the general partners in conjunction with management, investment advisers, and valuation specialists and are generally audited annually. These investments cannot be redeemed during the term of the partnership. Typically, private equity partnerships have an approximate life of 10 years, with the first four to six years deemed as the investment period when capital is deployed. The remaining years are typically the harvest period in which distributions are received through the liquidation of the underlying assets of the fund. The fair value for these investments could differ significantly if a ready market for these assets existed.

Private real estate includes 63 funds that invest primarily in U.S. institutional quality commercial real estate across a broad range of real estate asset types and locations. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of PERA's ownership interest in partners' capital. The most significant element of NAV is the fair value of the investment holdings. The valuation techniques vary based on investment type and involve a certain degree of expert judgment. These holdings are valued by the general partners in conjunction with management, investment advisers, and valuation specialists and are generally audited annually. There are 38 real estate closed-end limited partnership funds, which are considered illiquid as these investments cannot typically be redeemed during

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

the term of the partnership. Distributions can be made periodically based on the sole discretion of the general partner. There are seven majority-owned joint venture investments which consist of industrial and multifamily assets in various locations throughout the U.S., Mexico, and Europe. These investments are considered illiquid. There are 18 real estate commingled open-end funds which are considered semi-liquid real estate funds by nature of the open-end structure of the fund. Open-end funds generally offer periodic distributions of net cash flow, which investors may elect to reinvest. Additionally, open-end funds generally offer quarterly redemption windows for requesting portions, or all, of PERA's investments. The fair value for these investments could differ significantly if a ready market for these assets existed.

Alternatives include 68 funds that invest in timber, real assets, tactical, credit, global macro, multi-strategy, and other opportunistic strategies. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of PERA's ownership interest in partners' capital. The most significant element of NAV is the fair value of the investment holdings. The valuation techniques vary based on investment type and involve a certain degree of expert judgment. These holdings are valued by the general partners in conjunction with management, investment advisers, and valuation specialists and are generally audited annually. There are 48 partnerships within Alternatives considered illiquid as the investments cannot be redeemed during the term of the partnership. Two open-end funds are also considered illiquid due to redemption restrictions. Illiquid funds represent approximately 39.2% of the value of alternatives. Seven partnerships have redemption periods ranging from monthly to every five years. There are 12 investments within alternatives considered liquid by nature of the open-end structure of the fund. Open-end funds generally offer periodic distributions of net cash flow, which investors may elect to reinvest. Additionally, open-end funds generally offer daily and monthly redemption windows for requesting portions, or all, of PERA's investments. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected the underlying assets of the funds may be liquidated over the next two to 10 years. The fair value for these investments could differ significantly if a ready market for these assets existed.

Cash and Short-Term Investments

The total carrying value of cash and short-term investments in the Statements of Fiduciary Net Position as of December 31, 2023, was \$991,349. Cash balances represent operating cash accounts and investment cash held by banks.

Federal Deposit Insurance Corporation (FDIC) covers accounts up to \$250. Operating cash account balances

above that amount are collateralized, as required by the State of Colorado Public Deposit Protection Act (PDPA) statute, at 102% with a U.S. Bank Letter of Credit from the Federal Home Loan Bank of Cincinnati. The Statements of Fiduciary Net Position liabilities include negative operating cash book balances resulting from investing the float of outstanding checks.

Uninvested cash deposits in the Schwab self-directed brokerage account are eligible for \$250 FDIC insurance protection per participant at each bank.

Uninvested cash deposits held by Northern Trust, the custodian bank, are covered by FDIC up to \$250, and the remaining balances are uninsured and uncollateralized. Projected cash held by the custodial bank is invested daily in short-term investment funds at a specified cut-off time. Projected cash may be higher than actual cash, resulting in an overinvestment in short-term investment funds, which may cause a negative investment cash balance overnight. Trade timing differences can also cause negative cash.

See custodial credit risk disclosure on page 69 and foreign currency risk disclosure on page 72.

Securities Lending Transactions

C.R.S. § 24-51-206 and Board policies permit PERA to lend its securities to broker-dealers and other entities with a simultaneous agreement to return the collateral for the same securities in the future. In 2023, PERA ended our securities lending agent relationship with The Northern Trust Company (Northern Trust) and began unwinding our relationship with Deutsche Bank AG, New York Branch (Deutsche Bank). As of December 31, 2023, PERA lent securities exclusively through its new agent, Securities Finance Trust Company (eSecLending).

eSecLending lends global equity and fixed income securities for cash and securities collateral. Securities are loaned versus collateral valued between 102% and 110% of the fair value of the securities plus any accrued interest. For non-cash collateral, eSecLending relies on Tri-Party agents to value the securities held as collateral and ensures pricing is within a 5% threshold tolerance. eSecLending's pricing process is done weekly as well as at month-end.

PERA cannot pledge or sell the collateral securities unless the borrower defaults.

eSecLending invests the cash collateral related to PERA's loaned securities in a separate account according to guidelines stipulated by PERA. eSecLending's Credit Risk Department sets borrower credit limits. As of December 31, 2023, the total fair value of securities on loan with eSecLending was not limited.

Northern Trust primarily lent international equity and fixed income securities for cash collateral. U.S. securities were loaned versus collateral valued at 102% of the fair value of the securities plus any accrued interest. Non-U.S. securities were loaned versus collateral valued at 105% of

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

the fair value of the securities plus any accrued interest. Collateral was marked-to-market daily. PERA could not pledge or sell the collateral securities unless the borrower defaulted.

Northern Trust invested the cash collateral related to PERA's loaned securities in a separate account according to guidelines stipulated by PERA. Northern Trust's Senior Credit Committee set borrower credit limits. The total fair value of securities on loan with Northern Trust could not exceed \$600,000.

Deutsche Bank lent domestic and international equities for cash collateral. U.S. securities were loaned versus collateral valued at a minimum of 102% of the fair value of the securities. International securities were loaned versus collateral valued at a minimum of 105% of the fair value of the securities. Collateral was marked-to-market daily. PERA could not pledge or sell the collateral securities unless the borrower defaulted.

Deutsche Bank invested the cash collateral related to PERA's loaned securities in a separate account according to guidelines stipulated by PERA. Deutsche Bank's Global Credit Risk Department set borrower credit limits. The total fair value of securities on loan with Deutsche Bank could not exceed \$1,500,000.

The following table details the balances relating to securities lending transactions at December 31, 2023:

Securities Lent	Fair Value of Underlying Securities	Cash Collateral Received/ Securities Collateral Value	Cash Collateral Investment Value
For Cash Collateral			
Global equity	\$2,400,377	\$2,450,281	\$2,454,249
Fixed income	4,782,149	4,879,394	4,887,367
For Securities Collateral			
Global equity	415,050	441,673	—
Fixed income	1,567,486	1,668,028	—
Total	\$9,165,062	\$9,439,376	\$7,341,616

PERA's income from securities lending, including realized and unrealized gain/(loss), net of expenses, was \$22,545 for the year ended December 31, 2023. The following table details the securities lending expenses as of December 31, 2023:

Securities Lending Expenses	2023
Borrower rebates	\$225,729
Management fees	1,364
Total securities lending expenses	\$227,093

As of December 31, 2023, PERA had no credit risk exposure to borrowers because the associated value of the collateral held exceeded the value of the securities loaned. The contracts with PERA's lending agents did and do provide that the lending agents would and will indemnify PERA if loaned securities were or are not returned and PERA suffered or suffers direct losses due to a borrower's default and the lending agent's noncompliance with the contract. PERA had no losses on securities lending transactions resulting from the default of a borrower or the lending agents for the year ended December 31, 2023. PERA limited the total fair value of securities outstanding to one borrower to 25% of the total fair value of all borrowed securities in the Deutsche Bank lending program and \$50,000 per borrower in the Northern Trust lending program.

PERA or the borrower may terminate any security loan on demand. Though every loaned security may be sold and reclaimed at any time from the borrower, the weighted average loan life of overall loans outstanding at eSecLending was approximately 22 days as of December 31, 2023. The weighted average loan life of the single remaining loan at Deutsche Bank was 2,173 days as of December 31, 2023. At all securities lending agents, loans were made on an overnight (one day) basis throughout 2023. The approximate weighted average maturity (to the next reset date) at eSecLending was 13.6 days and at Deutsche Bank was one day as of December 31, 2023. Since all securities loans were and are made on an overnight basis, there is usually a difference between the weighted average maturity of the investments made with the cash collateral provided by the borrower and the maturities of the securities loans.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

As of December 31, 2023, the \$7,341,616 investment value of the reinvested cash collateral consisted of \$53,864 cash and receivables and \$7,287,752 of investments. \$1,480,000 of the investments were valued at par, and accordingly were not classified within the fair value hierarchical framework. Fixed rate securities with final maturities of 100 days or less totaling \$960,507 were valued using amortized cost basis; fixed rate securities with remaining maturities longer than 100 days totaling \$273,478 and floating rate securities totaling \$3,806,504 used a fair value derived from a bid-side market indication and are considered Level 2 investments in the fair value hierarchical framework. Money market fund investments totaling \$767,263 were valued using the NAV per share for the respective money market fund.

Custodial Credit Risk

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

To mitigate custodial credit risk, PERA's custodial credit risk policy has requirements governing how securities are held by the master custodian and for the effective management of cash balances. To further minimize custodial credit risk, periodic reviews are required to be completed on the master custodian's credit quality and

capital levels. Additionally, assessments of counterparty risk are completed periodically using internal analysis and information obtained from third-party research and rating agency reports.

Northern Trust is the master custodian for the majority of PERA's securities. At December 31, 2023, there were no investments or collateral securities subject to custodial credit risk.

At December 31, 2023, there were \$4,685 of U.S. dollar deposits, \$17,892 of foreign currency deposits, \$315 securities lending uninvested cash collateral, \$76,400 of margin, and \$1,108 cash collateral pledged outside of Northern Trust which were uninsured and uncollateralized and, therefore, exposed to custodial credit risk.

Concentration of Credit Risk

Concentration of credit risk is the risk of loss that may be attributed to the magnitude of PERA's investment in a single issuer. C.R.S. § 24-51-206(3) requires that no investment of the fund in common or preferred stock, or both, of any single corporation shall be of an amount which exceeds 5% of the then book value of the fund, nor shall the fund acquire more than 12% of the outstanding stock or bonds of any single corporation. The 12% requirement does not apply to governmental securities (U.S. Treasuries, sovereigns, etc.), Government-sponsored enterprise securities (agencies including FNMA, FHLMC, etc.), agency or non-agency MBS, commercial mortgage-backed securities (CMBS), asset-backed securities, or municipal securities. There is no single issuer exposure that comprises 5% of the then book value of the fund and no holdings greater than 12% of the outstanding stock or bonds of any single corporation at December 31, 2023.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Credit Risk

Credit risk is the risk an issuer or other counterparty to an investment will not fulfill its obligation. As of December 31, 2023, PERA held investments across the credit ratings spectrum, with the majority invested in investment grade issuers defined as having a minimum rating of Baa3 issued by Moody's (or the equivalent by another nationally recognized statistical rating organization (NRSRO) which PERA does not have a license to publish).

PERA's fixed income credit risk provisions primarily include limitations on the fixed income portfolio, however, the policy also governs limitations on the

total fund. For the unitized PERA Fixed Income Pool, the amount of below investment grade securities is limited to 3%, the exposure of a single company's securities is limited to 5%, and there are limits pertaining to holdings within the spectrum of credit rating categories. Additional individual manager mandates in the defined contribution plans have limits pertaining to holdings within the spectrum of credit rating categories to limit below investment grade securities.

The following table provides Moody's credit quality ratings for PERA's fixed income holdings as of December 31, 2023:

CREDIT QUALITY RATING DISPERSION SCHEDULE

Quality Rating	Total	U.S. Govt MBS	U.S. Corporate Bonds	Stable Value Fund	Non-U.S. Corporate Bonds	Non-U.S. Govt/ Agency Bonds	U.S. Govt Agencies ¹	Non-Agency MBS/ CMBS	U.S. Municipal Bonds
Aaa	\$368,961	\$15,824	\$59,695	\$—	\$—	\$131,777	\$100,274	\$30,123	\$31,268
Aa1	35,500	—	10,515	—	—	14,471	3,020	1,112	6,382
Aa2	75,027	—	27,687	—	12,352	20,663	—	2,496	11,829
Aa3	122,396	—	71,825	—	13,403	15,665	—	9,099	12,404
A1	527,978	—	433,199	—	74,620	19,328	—	64	767
A2	379,615	—	315,804	—	47,544	12,858	—	1,049	2,360
A3	326,283	—	229,543	—	82,508	3,049	—	—	11,183
Baa1	303,805	—	216,739	—	74,018	13,048	—	—	—
Baa2	626,458	—	528,812	—	44,074	43,703	—	9,869	—
Baa3	389,059	—	345,423	—	30,807	11,941	—	—	888
Ba1	84,509	—	84,509	—	—	—	—	—	—
Ba2	1,935	—	1,935	—	—	—	—	—	—
Not rated ²	3,991,702	3,401,720	68,642	453,458	14,745	16,746	1,813	32,326	2,252
Subtotal	7,233,228	\$3,417,544	\$2,394,328	\$453,458	\$394,071	\$303,249	\$105,107	\$86,138	\$79,333
U.S. Treasuries	4,308,635								
Explicit U.S. govt agencies ³	579,026								
Fixed income commingled funds ^{2,4}	213,062								
Fixed income mutual funds ²	18,455								
Total	\$12,352,406								

¹ Includes bonds issued by Federal Home Loan Bank, Federal Home Loan Mortgage Corporation, Federal National Mortgage Association, and other Government-sponsored enterprises.

² Not rated.

³ Bonds issued by the Government National Mortgage Association.

⁴ The fair value and average fund-level credit quality ratings as reported by the commingled fund managers are: \$13,538—Aa1; \$199,524—Aa2.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Interest Rate Risk

Interest rate risk is the risk changes in interest rates will adversely affect the fair value of an investment. PERA's policy is to manage its exposure to fair value losses arising from changes in interest rates by requiring that the duration of individual portfolios stays within defined bands of the duration of each portfolio's benchmark. PERA utilizes effective duration as the primary measure of interest rate risk within its fixed income investments.

Duration estimates the sensitivity of a bond's price to interest rate changes. Effective duration makes assumptions regarding the most likely timing and amounts of variable cash flows arising from such investments as callable bonds, MBS, and variable-rate debt.

Effective duration for PERA's fixed income holdings as of December 31, 2023, is shown in the following table:

INTEREST RATE RISK—EFFECTIVE DURATION

	Fair Value	Effective Weighted Duration in Years
U.S. Treasuries	\$4,308,635	7.04
U.S. government MBS	3,996,570	6.41
U.S. corporate bonds	2,394,328	7.17
Stable value fund	453,458	3.30
Non-U.S. corporate bonds	394,071	6.08
Non-U.S. government/agency bonds	303,249	5.35
Fixed income commingled funds	213,062	6.24
U.S. government agencies	105,107	2.92
Non-agency MBS/CMBS	86,138	3.80
U.S. municipal bonds	79,333	8.45
Fixed income mutual fund	18,455	6.20
Total	\$12,352,406	6.59

Mortgage-Backed Securities

PERA invests in residential MBS and CMBS which are reported at fair value in the Statements of Fiduciary Net Position under investments at fair value, fixed income. PERA invests in MBS for diversification and to enhance fixed income returns.

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

CMBS depend on underlying pools of commercial real estate loans to provide the cash flow to make principal and interest payments on the security. CMBS are subject to credit risk, the risk the borrower will be unable to meet its obligations. These loans are typically for a fixed term, cannot be repaid early by the borrower without penalty and, accordingly, have lower prepayment risk than residential MBS.

To reduce PERA's counterparty credit risk while trading residential MBS, PERA has entered into Master Securities Forward Transaction Agreements with a number of counterparties which require margin collateral to be pledged or received when the change in net value of unsettled trades exceeds an agreed-upon threshold. As of December 31, 2023, there was \$1,108 in pledged collateral to counterparties and \$6,588 in counterparty pledged collateral held by PERA.

As of December 31, 2023, the fair value of residential MBS and CMBS was \$3,904,598 and \$178,111, respectively, which excludes the fair value of those securities held in commingled funds.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Foreign Currency Risk

Foreign currency risk is the risk changes in exchange rates will adversely impact the fair value of an investment or a deposit. PERA's currency risk exposure resides primarily within the Global Equity asset class. In accordance with governmental accounting standards, this disclosure is limited to investments denominated in non-U.S. dollars. There may be additional foreign currency risk in investments that contain underlying securities or business operations exposed to a foreign currency. PERA's formal policy regarding foreign currency risk is to incorporate the

risk as part of the fund's periodic asset/liability study and to consider it in determining the total fund asset allocation.

At December 31, 2023, PERA did not have a currency hedging program at the total fund level. However, at the manager level, hedging currency risk may be permitted which allows the manager to actively manage currency exposure at their discretion in accordance with their individual investment guidelines. PERA monitors currency risk at the total fund, asset class, and portfolio levels. PERA's exposure to foreign currency risk as of December 31, 2023, is shown in the following table:

FOREIGN CURRENCY RISK

Currency	Total	Global Equity	Private Equity	Real Estate	Alternatives	Cash and Short-Term Investments	Income Receivable	Pending Trades	Pending Foreign Exchange Trades
Euro	\$3,356,989	\$2,721,816	\$351,755	\$134,447	\$100,629	\$252	\$48,089	(\$911)	\$912
Japanese yen	1,804,941	1,802,321	—	—	—	124	2,496	130	(130)
British pound sterling	1,408,551	1,402,955	17	—	—	2,598	3,035	—	(54)
Canadian dollar	699,708	696,899	—	—	—	1,041	1,768	(299)	299
Swiss franc	666,886	646,664	—	—	—	2	20,220	—	—
Hong Kong dollar	626,662	626,203	—	—	—	419	40	572	(572)
Australian dollar	485,063	481,662	—	—	—	2,883	518	—	—
Swedish krona	463,359	460,978	—	—	—	14	2,367	—	—
New Taiwan dollar	417,096	416,326	—	—	—	103	667	—	—
Indian rupee	299,940	299,205	—	—	—	735	—	—	—
Danish krone	265,773	259,125	—	—	—	—	6,648	—	—
South Korean won	255,779	254,677	—	—	—	108	1,179	(254)	69
Chinese yuan renminbi (offshore)	178,727	172,754	—	—	—	5,973	—	—	—
Singapore dollar	158,754	158,735	—	—	—	19	—	—	—
Brazilian real	123,366	118,657	—	—	—	3,644	1,063	84	(82)
Indonesian rupiah	76,916	76,216	—	—	—	441	673	(507)	93
Saudi riyal	66,136	65,033	—	—	—	1,103	—	—	—
Norwegian krone	46,631	46,609	—	—	—	22	—	—	—
Russian ruble	43,944	40,975	—	—	—	2,010	959	—	—
Thai baht	40,293	40,291	—	—	—	2	—	—	—
Mexican peso	39,248	39,052	—	—	—	195	1	—	—
South African rand	35,111	34,722	—	—	—	388	1	—	—
Israeli shekel	32,809	32,780	—	—	—	13	16	—	—
United Arab Emirates dirham	26,663	26,142	—	—	—	521	—	—	—
Polish zloty	25,607	25,410	—	—	—	122	75	—	—
New Zealand dollar	14,674	14,647	—	—	—	27	—	—	—
Qatari riyal	8,097	7,697	—	—	—	400	—	—	—
Hungarian forint	5,020	4,984	—	—	—	36	—	—	—
Turkish lira	3,029	3,027	—	—	—	2	—	—	—
Kuwaiti dinar	2,784	2,443	—	—	—	341	—	—	—
Malaysian ringgit	2,392	2,332	—	—	—	59	1	—	—
Philippine peso	2,288	2,176	—	—	—	112	—	—	—
Chilean peso	1,212	1,211	—	—	—	1	—	—	—
Egyptian pound	163	145	—	—	—	18	—	—	—
Colombian peso	100	99	—	—	—	—	1	—	—
Peruvian sol	6	—	—	—	—	6	—	—	—
Chinese yuan renminbi	(5,842)	—	—	—	—	(5,842)	—	—	—
Total	\$11,678,875	\$10,984,968	\$351,772	\$134,447	\$100,629	\$17,892	\$89,817	(\$1,185)	\$535

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Note 6—Derivative Instruments

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

The following table summarizes the derivative instruments outstanding as of December 31, 2023, deemed significant by management. These instruments are recorded in investment receivables in the Statements of Fiduciary Net Position and the changes in fair value are included in investment income in the Statements of Changes in Fiduciary Net Position. Investments in limited partnerships and commingled funds include derivative instruments that are not reported in the following disclosure.

DERIVATIVE INSTRUMENTS—DEFINED BENEFIT PLANS

Changes in Fair Value		
Investment Derivatives	Classification	Amount
Equity futures	Investment income	\$63,831
Fixed income futures	Investment loss	(3,965)
Total		\$59,866

Fair Value at December 31, 2023		
	Classification	Amount
	Investment receivables	\$76,400
Total		\$76,400

Equity/Fixed Income Futures

Equity and fixed income futures represent contracts between two parties to purchase or sell securities or cash at a future date for a specified price. Futures contracts trade on organized exchanges with quoted prices, are included as investment receivables in the Statement of Fiduciary Net Position, and would be classified in Level 1 of the fair value hierarchy. Recognition of investment income, with a corresponding change to the amount of investment receivables or liabilities, occurs on a daily basis according to the fluctuation of value of the futures contract. Payments are received or made to settle the

fluctuation of the contract's value on a periodic basis. Upon entering into a futures contract, PERA is required to pledge an amount of cash or securities (known as an initial margin deposit) equal to a percentage of the contract amount.

Investment in futures contracts exposes PERA to credit risk. No losses related to counterparty nonperformance occurred in 2023. Credit risk is minimized by central counterparty clearing, margin deposits, and periodic settlement payments. Investments in fixed income futures exposes PERA to interest rate risk.

At December 31, 2023, PERA's defined benefit plans had 4,266 outstanding futures contracts with a total notional market exposure of \$558,694 and total investment receivables of \$76,400 reflecting counterparty margin deposits and fluctuation of the contract value since the last periodic settlement payment.

FUTURES CONTRACTS OUTSTANDING—DEFINED BENEFIT PLANS

As of December 31, 2023

Contract Type	Year of Maturity	Notional Amount (Market Exposure)
Equity	2024	\$427,267
Fixed income	2024	131,427
Total		\$558,694

Note 7—Commitments and Contingencies

As of December 31, 2023, PERA had commitments for future investments in Private Equity of \$2,882,384, Real Estate of \$413,248, and Alternatives of \$1,919,065.

Other Pending or Threatened Litigation

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

Contribution Settlements

In the normal course of business, administrative errors can occur resulting in corrections to prior employer and member contribution remissions.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

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

PERA administers three defined contribution plans: the Voluntary Investment Program (PERAPlus 401(k) Plan), the Defined Contribution Retirement Plan (DC Plan), and the Deferred Compensation Plan (PERAPlus 457 Plan), collectively known as the Capital Accumulation Plans (CAPs). The Board has the authority to establish and administer the CAPs pursuant to C.R.S. § 24-51-1401, C.R.S. § 24-51-1501, and C.R.S. § 24-51-1601, respectively. The provisions of the PERAPlus 401(k) Plan and the DC Plan are found in the law at C.R.S. § 24-51-1401 *et seq.*, C.R.S. § 24-51-1501, *et seq.*, PERA Rules, 8 CCR 1502-1, and *PERA's 401(k) and Defined Contribution Plan and Trust* document. The provisions of the PERAPlus 457 Plan are found in the law at C.R.S. § 24-51-1601 *et. seq.*, PERA Rules, 8 CCR 1502-1, and *The PERA Deferred Compensation Plan* document.

All Plans

The following investment, distribution, and fee provisions are the same under all three CAPs:

- Participants have the choice of contributing to 18 different investment options. In addition, participants may also make transfers, at any time, among the following listed investment options:
 - PERAdvantage Capital Preservation Fund
 - PERAdvantage Fixed Income Fund
 - PERAdvantage Real Return Fund
 - PERAdvantage Socially Responsible Investment (SRI) Fund
 - PERAdvantage U.S. Large Cap Stock Fund
 - PERAdvantage U.S. Small and Mid-Cap Stock Fund
 - PERAdvantage International Stock Fund
 - PERAdvantage Income Fund
 - PERAdvantage 2025 Fund
 - PERAdvantage 2030 Fund
 - PERAdvantage 2035 Fund
 - PERAdvantage 2040 Fund
 - PERAdvantage 2045 Fund
 - PERAdvantage 2050 Fund
 - PERAdvantage 2055 Fund
 - PERAdvantage 2060 Fund
 - PERAdvantage 2065 Fund
 - Schwab Self-Directed Brokerage Account
- The participant's account balances become available for distribution upon termination from all PERA-affiliated employers. All distributions are in accordance with the Plan documents and IRC requirements.
- Empower administers the recordkeeping for all participant transactions. Northern Trust provides an array of financial services in support of day to day operations of the CAPs, including custodial services.
- Cash balances represent both operating cash accounts and investment cash on deposit held by the custodians.
- Participants pay plan administration fees and investment management fees. Plan administrative fees cover fees for services such as recordkeeping, accounting, and plan maintenance. Investment management fees are charged by the fund managers for the CAPs' investment options to cover the costs of managing their respective funds.

This table presents the number of employers eligible to participate in the three defined contribution plans as of December 31, 2023.

Plan	Employers ¹
PERAPlus 401(k) Plan	410
DC Plan	164
PERAPlus 457 Plan	117

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

PERAPlus 401(k) Plan

The PERAPlus 401(k) Plan was established January 1, 1985, and is an IRC § 401(k) plan that allows for voluntary participation to provide additional benefits at retirement for PERA members. All employees working for a PERA-affiliated employer may contribute to the PERAPlus 401(k) Plan.

In 2023, participants could contribute the lesser of \$22,500 (actual dollars) or 100% of compensation less PERA member contributions. Catch-up contributions up to \$7,500 (actual dollars) in 2023 were allowed for participants who had attained age 50 before the close of the plan year, subject to the limitations of IRC § 414(v). Employer matching and discretionary contributions are allowable with total participant and employer contributions limited to \$66,000 (actual dollars) per participant in 2023 (plus catch-up contributions, if applicable).

Provisions of the PERAPlus 401(k) Plan permit in-service withdrawals by participants while employed with a PERA-affiliated employer through loans, hardship withdrawals, or by a trustee-to-trustee transfer to the PERA defined benefit plan to purchase service credit. The balance of outstanding loans as of December 31, 2023, was \$50,121 and was recorded as a benefit receivable on the Statements of Fiduciary Net Position. There were 66,394 participants with balances as of December 31, 2023. During 2023, the PERAPlus 401(k) Plan had a total of 3,298 terminated participants take full distributions of their accounts.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

DC Plan

The DC Plan was established January 1, 2006, and is an IRC § 401(a) governmental profit-sharing plan. Its purpose is to offer a defined contribution alternative to the PERA defined benefit plan. Participation is available to certain employees of the State or Local Government Divisions, classified employees at State colleges and universities, most community colleges, as well as the District Attorney within each Judicial District, and if authorized by the county and the District Attorney, the attorneys within that Judicial District (see Note 1 for additional details). The eligible employees have the option to choose the PERA defined benefit plan or the DC Plan.

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

2023 rates for employer and member contributions deposited to DC Plan participant accounts are shown in the following table:

Trust Fund ¹	Employer Contribution Rate ^{2,3}	Member Contribution Rate
State Division (members other than Safety Officers) ⁴	10.15%	11.00%
State Division (Safety Officers) ⁴	12.85%	13.00%
Local Government Division (members other than Safety Officers)	10.00%	9.00%
Local Government Division (Safety Officers) ⁴	12.85%	13.00%

¹ See Note 1 for the definition of "Safety Officers".

² Employers also contribute the AED and SAED to the respective Division Trust Fund. See Note 4 for additional details on AED and SAED.

³ Additional employer DC supplement contributions and employer AAP contributions are deposited in the respective Division Trust Fund. See Note 4 for additional information on the DC supplement and AAP.

⁴ Additional 0.25% in statutory employer contribution increases are deposited in the respective Division Trust Fund.

DC Plan participants immediately vest in 50% of their employer contributions, together with accumulated investment earnings on the vested portion. For each full year of participation, vesting increases by 10%. Contribution requirements are established under C.R.S. § 24-51-1505.

Provisions of the DC Plan allow for the transfer of DC funds to the PERAPlus 401(k) Plan if a participant is still a PERA member but not active in the DC Plan. Additionally, the election to purchase service credit is available to those who are eligible and who are members of the PERA defined benefit plan with an existing DC Plan account. As of December 31, 2023, the DC Plan had 8,083 participants with balances. During the year, 548 participants took full distributions of their accounts.

PERAPlus 457 Plan

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

The PERAPlus 457 Plan is an IRC § 457 plan that allows for voluntary participation to provide additional benefits at retirement. All employees working for a PERA employer affiliated with the PERAPlus 457 Plan may contribute to the PERAPlus 457 Plan.

In 2023, participants could defer the lesser of \$22,500 (actual dollars) or 100% of compensation less PERA member contributions. Catch-up deferrals, up to the greater of \$7,500 (actual dollars) for participants who had attained age 50 before the close of the plan year or the limits of the special section 457 plan catch-up, were allowed in 2023, subject to the limitations of IRC § 414(v) and § 457(b).

Provisions of the PERAPlus 457 Plan permit in-service withdrawals by participants while employed with a PERA-affiliated employer through loans, unforeseen emergency withdrawals, de minimis distributions, or by a trustee-to-trustee transfer to the PERA defined benefit plan to purchase service credit. The balance of outstanding loans as of December 31, 2023, was \$11,487 and was recorded as a benefit receivable on the Statements of Fiduciary Net Position. There were 20,205 participants with balances as of December 31, 2023. During the year, the PERAPlus 457 Plan had a total of 1,061 terminated participants take full distributions of their accounts.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Note 9—Health Care Trust Funds—Defined Benefit Health Care Plans

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

PERA Board Authority

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

Plan Description and Benefit Provisions

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

Membership Eligibility

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

- Benefit recipients and their dependents.

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

Available Health Care Premium Subsidy**PERA Benefit Structure**

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

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

DPS Benefit Structure

The maximum service-based premium subsidy is \$230 (actual dollars) per month for retirees who are under 65 years of age and who are not entitled to Medicare; the maximum service-based subsidy is \$115 (actual dollars) per month for retirees who are 65 years of age or older or

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

who are under 65 years of age and entitled to Medicare. The maximum subsidy, in each case, is for retirees with retirement benefits based on 20 or more years of service credit. There is a 5% reduction in the subsidy for each year less than 20. The retiree pays the remaining portion of the premium to the extent the subsidy does not cover the entire amount.

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

Contributions

Contribution requirements are established by statute under C.R.S. § 24-51-208. Colorado State law provisions may be amended from time to time by the Colorado General Assembly. PERA-affiliated employers must submit contributions for all PERA members equal to 1.02% of covered salaries. PERA-affiliated employers of the State Division, School Division, Local Government Division, and Judicial Division contribute to the HCTF. Affiliated employers of the DPS Division contribute to the DPS HCTF.

This table is the number of active participating employers for the two Health Care Trust Funds. Guidance under GASB 74 classifies a primary government and its component units as one employer.

Trust Fund	As of December 31, 2023 ¹
HCTF	409
DPS HCTF	1
Total employers	410

¹ This employer count is presented for purposes of complying with GASB 74 only. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

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

Plan Data

Benefit recipients and members of PERA consisted of the following as of December 31, 2023:

MEMBERSHIP—HEALTH CARE TRUST FUNDS¹

	HCTF	DPS HCTF	2023
Retirees and beneficiaries ²	131,237	7,316	138,553
Inactive members eligible but not yet receiving benefits ³	37,651	3,364	41,015
Active members ³	197,922	15,626	213,548
Total	366,810	26,306	393,116

¹ Inactive members not eligible for benefits are not included in this membership count.

² Currently receiving or eligible for OPEB benefits.

³ May be eligible for future OPEB benefits.

PARTICIPATION IN PERACARE HEALTH PLANS FOR ELIGIBLE RETIREES AND BENEFICIARIES

	HCTF	DPS HCTF	Total
Enrolled in PERACare			
Under age 65	6,636	281	6,917
Age 65 and older	49,616	2,937	52,553
	56,252	3,218	59,470
Not enrolled in PERACare			
Under age 65	16,621	640	17,261
Age 65 and older	58,364	3,458	61,822
	74,985	4,098	79,083
Total eligible retirees and beneficiaries	131,237	7,316	138,553

Summary of HCTF and DPS HCTF

PERA offers two general types of health plans: fully insured plans offered through health care organizations and self-insured plans administered by third-party vendors. The plans offered include HMO, PPO, and Medicare Advantage plans.

Premiums collected and payments made are reported in two ways, depending on whether or not the funds bear any level of risk with regard to the health coverage. When there is no transfer of risk to the funds, the premiums collected are reported as a liability and the liability is relieved when the premiums are paid to the health

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

insurance company that provides the fully insured health plan. When there is no health coverage risk, the only benefit payment reported is the subsidy benefit which is equal to the difference between the premiums collected from the enrollees and the full premium due to the health insurance company.

When the health care plan bears risk, all claims paid are reported as benefit payments and premiums collected are reported as a reduction to benefit payments. The health care plan that involves risk to the funds is the self-insured plan administered by UMR, a UnitedHealthcare company. For this plan, the commercial medical and prescription claims are self-insured, while the UnitedHealthcare Medicare Advantage medical and prescription plans are fully insured. Due to PERA's premium structure, the Medicare premiums paid to United are reported as an expense within the plan and included in benefit payments. PERA uses an outside consultant to determine the premiums required to cover anticipated health claims. The cost to the enrollee is reduced by the amount of the enrollee's calculated subsidy, if applicable. Implicit in this process is the risk actual claims experience could be different from the consultant's determination resulting in either a gain or loss to the funds. In addition, other estimates and assumptions are made for these funds. It is possible actual results could significantly differ from these estimates.

Dental and Vision Plans

Dental and vision plans are also available to benefit recipients. PERA offers fully insured and self-insured dental plans and self-insured vision plans. The funds provide no subsidy and the participants pay the full premiums for dental and vision coverage. For the fully insured dental plan, premiums collected are reported as a liability and the liability is relieved when the premiums are paid to the insurance company who provides the coverage. For this plan, the risk is borne by the insurance company contracted to provide the coverage. The claims paid for the self-insured dental and vision plans are recorded as benefit payments and the premiums collected

are recorded as a reduction to benefit payments. PERA uses an outside consultant to determine the premiums required to cover anticipated claims. The risk to these plans is actual claims experience could be different from the estimates resulting in either a gain or loss to the funds. As of December 31, 2023, there were 69,547 participants enrolled in the dental plans and 56,924 participants enrolled in the vision plans in both the HCTF and the DPS HCTF.

PERA-Affiliated Employer Program Participation

In addition, fully insured pre-Medicare health plans offered through Kaiser Permanente are available to any PERA-affiliated employer who voluntarily elects to provide health care coverage through the health care plan for its employees who are PERA members. The program acts as a purchaser of private insurance to obtain economies of scale for the employers that elect to join in the joint purchasing arrangement. As of December 31, 2023, there were 13 employers in the program with 189 active members enrolled.

Fully insured dental and vision plans are also available to eligible employees of employers who have elected to provide health care coverage through PERA. As of December 31, 2023, there were 262 participants enrolled in the dental plans and 319 participants enrolled in the vision plans.

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

It is under this fully-insured set of plans that PERA offers coverage to members who are receiving short-term disability program payments.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Note 10—Net Pension Liability of the Division Trust Funds

The components of the net pension liability (NPL) for participating employers for each Division Trust Fund as of December 31, 2023, are as follows:

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Total pension liability	\$28,382,741	\$50,145,306	\$6,131,113	\$527,319	\$4,994,642
Plan fiduciary net position	18,269,648	32,461,884	5,397,072	453,756	4,346,938
Net pension liability	\$10,113,093	\$17,683,422	\$734,041	\$73,563	\$647,704
Plan fiduciary net position as a percentage of the total pension liability	64.37%	64.74%	88.03%	86.05%	87.03%

Actuarial Methods and Assumptions

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future. Actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future. A Schedule of Changes in Net Pension Liability and Related Ratios is included in the Required Supplementary Information (RSI), which follows the Notes to the Financial Statements. It presents multi-year trend information about whether the FNP is increasing or decreasing over time relative to the total pension liability (TPL) for each division. Calculations are based on the benefits provided

under the terms of the substantive plan in effect at the time of each pension actuarial valuation and on the pattern of sharing of costs between employers of each Division Trust Fund and/or plan members to that point. Actuarial calculations reflect a long-term perspective.

The TPL for the Division Trust Funds was determined by actuarial valuations as of December 31, 2022, and generally accepted actuarial techniques were applied to roll forward the TPL to December 31, 2023 (measurement date). The December 31, 2022, actuarial valuations used the following actuarial cost method and key actuarial assumptions and other inputs:

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Actuarial cost method	Entry age	Entry age	Entry age	Entry age	Entry age
Price inflation	2.30%	2.30%	2.30%	2.30%	2.30%
Real wage growth	0.70%	0.70%	0.70%	0.70%	0.70%
Wage inflation	3.00%	3.00%	3.00%	3.00%	3.00%
Salary increases, including wage inflation:					
Members other than Safety Officers ¹	3.30%-10.90%	3.40%-11.00%	3.20%-11.30%	2.80%-5.30%	3.80%-11.50%
Safety Officers ¹	3.20%-12.40%	N/A	3.20%-12.40%	N/A	N/A
Long-term investment rate of return, net of pension plan investment expenses, including price inflation	7.25%	7.25%	7.25%	7.25%	7.25%
Discount rate	7.25%	7.25%	7.25%	7.25%	7.25%
Post-retirement benefit increases:					
PERA benefit structure hired prior to 1/1/07 and DPS benefit structure (compounded annually)	1.00%	1.00%	1.00%	1.00%	1.00%
PERA benefit structure hired after 12/31/06 ²	Financed by the AIR	Financed by the AIR	Financed by the AIR	Financed by the AIR	Financed by the AIR

¹ See Note 1 for the definition of "Safety Officers".

² Post-retirement benefit increases are provided by the AIR, accounted separately within each Division Trust Fund, and subject to moneys being available; therefore, liabilities related to increases for members of these benefit tiers can never exceed available assets.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

As of the December 31, 2023, measurement date, the FNP and related disclosure components for the Local Government Division reflect payments related to the disaffiliation of Tri-County Health Department (Tri-County Health) as a PERA-affiliated employer, effective December 31, 2022. As of the December 31, 2023, year-end, PERA recognized two additions for accounting and financial reporting purposes: a \$24,000 payment

received on December 4, 2023 and a \$2,000 receivable. The employer disaffiliation payment and receivable allocations to the Local Government Division Trust Fund and HCTF were \$24,967 and \$1,033, respectively.

All mortality assumptions are developed on a benefit-weighted basis and apply generational mortality. Note that in all categories, displayed as follows, the mortality tables are generationally projected using scale MP-2019.

Pre-Retirement	Mortality Table	Adjustments, as Applicable
State and Local Government Divisions (members other than Safety Officers)	PubG-2010 Employee	N/A
Safety Officers	PubS-2010 Employee	N/A
School and DPS Divisions	PubT-2010 Employee	N/A
Judicial Division	PubG-2010(A) Above-Median Employee	N/A
Post-Retirement (Retiree), Non-Disabled	Mortality Table	Adjustments, as Applicable
State and Local Government Divisions (members other than Safety Officers)	PubG-2010 Healthy Retiree	Males: 94% of the rates prior to age 80/ 90% of the rates age 80 and older Females: 87% of the rates prior to age 80/ 107% of the rates age 80 and older
Safety Officers	PubS-2010 Healthy Retiree	N/A
School and DPS Divisions	PubT-2010 Healthy Retiree	Males: 112% of the rates prior to age 80/ 94% of the rates age 80 and older Females: 83% of the rates prior to age 80/ 106% of the rates age 80 and older
Judicial Division	PubG-2010(A) Above-Median Healthy Retiree	N/A
Post-Retirement (Beneficiary), Non-Disabled	Mortality Table	Adjustments, as Applicable
All Beneficiaries	Pub-2010 Contingent Survivor	Males: 97% of the rates for all ages Females: 105% of the rates for all ages
Disabled	Mortality Table	Adjustments, as Applicable
Members other than Safety Officers	PubNS-2010 Disabled Retiree	99% of the rates for all ages
Safety Officers	PubS-2010 Disabled Retiree	N/A

The actuarial assumptions used in the December 31, 2022, valuations were based on the 2020 experience analysis, dated October 28, 2020, for the period January 1, 2016, through December 31, 2019. Revised economic and demographic assumptions were adopted by the Board on November 20, 2020.

The long-term expected return on plan assets is reviewed as part of regularly scheduled experience studies performed at least every five years, and asset/liability studies, performed every three to five years for PERA. The most recent analyses were outlined in the Experience Study report dated October 28, 2020.

Several factors are considered in evaluating the long-term rate of return assumption, including long-term historical data, estimates inherent in current market data, and a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected

return, net of investment expense and inflation) were developed for each major asset class. These ranges were combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentages and then adding expected inflation. The capital market assumptions may cover a shorter investment horizon and may not be useful in setting the long-term rate of return for funding pension plans, which covers a longer timeframe. The assumption is intended to be a long-term assumption and is not expected to change absent a significant change in the asset allocation, a change in the inflation assumption, or a fundamental change in the market that alters expected future returns.

The Board first adopted the 7.25% long-term expected rate of return as of November 18, 2016. Following an asset/liability study, the Board reaffirmed the assumed rate of return at the Board's November 15, 2019, meeting,

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

to be effective January 1, 2020. As of the most recent reaffirmation of the long-term rate of return, the target asset allocation and best estimates of geometric real rates of return for each major asset class are summarized in the table as follows:

Asset Class	Target Allocation	30-Year Expected Geometric Real Rate of Return
Global Equity	54.00%	5.60%
Fixed Income	23.00%	1.30%
Private Equity	8.50%	7.10%
Real Estate	8.50%	4.40%
Alternatives	6.00%	4.70%
Total	100.00%	

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

Discount Rate/Single Equivalent Interest Rate

The projection of cash flows used to determine the discount rate was performed in accordance with GASB 67. The basis for the projection of the liabilities and the FNP was an actuarial valuation performed as of December 31, 2022, and the financial status of the funds as of the current measurement date (December 31, 2023). In addition to the actuarial cost method and assumptions presented earlier, the projection of cash flows applied the following methods and assumptions:

- Total covered payroll for the initial projection year consists of the covered payroll of the active membership present on the valuation date and the covered payroll of future plan members assumed to be hired during the year. In subsequent projection years, total covered payroll was assumed to increase annually at a rate of 3.00%.
- Employee contributions were assumed to be made at the member contribution rates in effect for each year, including the scheduled increases in SB 18-200 and required adjustments resulting from the 2018 and 2020 AAP assessments. Employee contributions for future plan members were used to reduce the estimated amount of total service costs for future plan members.
- Employer contributions were assumed to be made at rates equal to the fixed statutory rates specified in law for each year, including the scheduled increase in SB 18-200 and required adjustments resulting from the 2018 and 2020 AAP assessments. Employer contributions also include current and estimated future AED and SAED, until the actuarial value funding ratio reaches 103%, at which point the AED and SAED will each drop 0.50% every year until they are zero. Additionally, estimated employer contributions reflect reductions for the funding of the AIR and retiree health

care benefits. For future plan members, employer contributions were further reduced by the estimated amount of total service costs for future plan members not financed by their member contributions.

- Employer contributions for the DPS Division Trust Fund are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.
- As specified in law, the State, as a nonemployer contributing entity, will provide an annual direct distribution of \$225,000, commencing July 1, 2018, that is proportioned between the State, School, Judicial, and DPS Division Trust Funds based upon the covered payroll of each Division. The annual direct distribution ceases when all Division Trust Funds are fully funded.
- As of the December 31, 2023, measurement date, the FNP and related disclosure components for the Local Government Division reflect payments related to the disaffiliation of Tri-County Health as a PERA-affiliated employer, effective December 31, 2022. As of the December 31, 2023, year-end, PERA recognized two additions for accounting and financial reporting purposes: a \$24,000 payment received on December 4, 2023 and a \$2,000 receivable. The employer disaffiliation payment and receivable allocations to the Local Government Division Trust Fund and HCTF were \$24,967 and \$1,033, respectively.
- Employer contributions and the amount of total service costs for future plan members were based upon a process to estimate future ADCs assuming an analogous future plan member growth rate.
- The AIR balance was excluded from the initial FNP, as, per statute, AIR amounts cannot be used to pay benefits until transferred to either the retirement benefits reserve or the survivor benefits reserve, as appropriate. AIR transfers to the FNP position and the subsequent AIR benefit payments were estimated and included in the projections.
- Benefit payments and contributions were assumed to be made at the middle of the year.
- Beginning with the December 31, 2023, measurement date and thereafter, the FNP as of the current measurement date is used as a starting point for the GASB 67 projection test.

Based on those methods and assumptions and the GASB 67 projection test methodology, the FNP for all Division Trust Funds were projected to be available to make all projected future benefit payments of current plan members and were not projected to reach a depletion date. Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the TPL for each

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

fund. The discount rate determination did not use a municipal bond index rate. Therefore, the discount rate used to measure the TPL for these funds as of the measurement date (December 31, 2023) was 7.25%, unchanged from the prior measurement date.

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

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

The following tables present the NPL for participating employers for each fund using the current discount rate, as well the fund's NPL if calculated using a discount rate one percentage point lower or one percentage point higher than the current rate:

Trust Fund	1.0% Decrease in Discount Rate	Net Pension Liability
State Division	6.25%	\$13,217,803
School Division	6.25%	23,645,677
Local Government Division	6.25%	1,438,802
Judicial Division	6.25%	127,122
DPS Division	6.25%	1,276,604

Trust Fund	Current Discount Rate	Net Pension Liability
State Division	7.25%	\$10,113,093
School Division	7.25%	17,683,422
Local Government Division	7.25%	734,041
Judicial Division	7.25%	73,563
DPS Division	7.25%	647,704

Trust Fund	1.0% Increase in Discount Rate	Net Pension Liability
State Division	8.25%	\$7,502,455
School Division	8.25%	12,711,623
Local Government Division	8.25%	143,689
Judicial Division	8.25%	27,734
DPS Division	8.25%	130,008

As shown, if there is a significant deviation, over a long period, in the actual rate of return compared to the assumed discount rate, the measurement of the NPL could be materially under- or over-reported as of December 31, 2023.

Note 11—Net OPEB Liability of the Health Care Trust Funds

The components of the net OPEB liability (NOL) or net OPEB asset (NOA) for participating employers for each Health Care Trust Fund as of December 31, 2023, are as follows:

	HCTF	DPS HCTF
Total OPEB liability	\$1,325,637	\$60,343
Plan fiduciary net position	611,911	64,721
Net OPEB liability (asset)	\$713,726	(\$4,378)
Plan fiduciary net position as a percentage of the total OPEB liability	46.16%	107.26%

Actuarial Methods and Assumptions

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

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

The TOL for the Health Care Trust Funds was determined by actuarial valuations as of December 31, 2022, and generally accepted actuarial techniques were applied to roll forward the TOL to December 31, 2023 (measurement

date). The December 31, 2022, actuarial valuations used the following actuarial cost method and key actuarial assumptions and other inputs:

	HCTF				DPS HCTF
	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Actuarial cost method			Entry age		Entry age
Price inflation			2.30%		2.30%
Real wage growth			0.70%		0.70%
Wage inflation			3.00%		3.00%
Salary increases, including wage inflation:					
Members other than Safety Officers ¹	3.30%-10.90%	3.40%-11.00%	3.20%-11.30%	2.80%-5.30%	3.80%-11.50%
Safety Officers ¹	3.20%-12.40%	N/A	3.20%-12.40%	N/A	N/A
Long-term investment rate of return, net of OPEB plan investment expenses, including price inflation			7.25%		7.25%
Discount rate at measurement date			7.25%		7.25%
Health care cost trend rates					
PERA benefit structure:					
Service-based premium subsidy			0.00%		0.00%
			7.00% in 2023 gradually decreasing to 4.50% in 2033		7.00% in 2023 gradually decreasing to 4.50% in 2033
PERACare Medicare plans ²			3.50% in 2023, gradually increasing to 4.50% in 2035		3.50% in 2023, gradually increasing to 4.50% in 2035
Medicare Part A premiums					
DPS benefit structure:					
Service-based premium subsidy			0.00%		0.00%
PERACare Medicare plans			N/A		N/A
Medicare Part A premiums			N/A		N/A

¹ See Note 1 for the definition of "Safety Officers".

² UnitedHealthcare MAPD PPO plans are 0% for 2023.

As of the December 31, 2023, measurement date, the FNP and related disclosure components for the HCTF reflect payments related to the disaffiliation of Tri-County Health as a PERA-affiliated employer, effective December 31, 2022. As of the December 31, 2023, year-end, PERA recognized two additions for accounting and financial reporting purposes: a \$24,000 payment received on December 4, 2023 and a \$2,000 receivable. The employer disaffiliation payment and receivable allocations to the HCTF and Local Government Division Trust Fund were \$1,033 and \$24,967, respectively.

Each year the per capita health care costs are developed by plan option; currently based on 2023 premium rates for the UnitedHealthcare Medicare Advantage Prescription Drug (MAPD) PPO plan #1, the UnitedHealthcare MAPD PPO plan #2, and the Kaiser Permanente MAPD HMO plan. Actuarial morbidity factors are then applied to estimate individual retiree and spouse costs by age, gender, and health care cost trend.

This approach applies for all members and is adjusted accordingly for those not eligible for premium-free Medicare Part A for the PERA benefit structure.

AGE-RELATED MORBIDITY ASSUMPTIONS

Participant Age	Annual Increase (Male)	Annual Increase (Female)
65-68	2.2%	2.3%
69	2.8%	2.2%
70	2.7%	1.6%
71	3.1%	0.5%
72	2.3%	0.7%
73	1.2%	0.8%
74	0.9%	1.5%
75-85	0.9%	1.3%
86 and older	0.0%	0.0%

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

(in Actual Dollars)	MAPD PPO #1 with Medicare Part A		MAPD PPO #1 without Medicare Part A	
	Retiree/Spouse		Retiree/Spouse	
	Male	Female	Male	Female
Sample Age				
65	\$1,692	\$1,406	\$6,469	\$5,373
70	1,901	1,573	7,266	6,011
75	2,100	1,653	8,026	6,319

(in Actual Dollars)	MAPD PPO #2 with Medicare Part A		MAPD PPO #2 without Medicare Part A	
	Retiree/Spouse		Retiree/Spouse	
	Male	Female	Male	Female
Sample Age				
65	\$579	\$481	\$4,198	\$3,487
70	650	538	4,715	3,900
75	718	566	5,208	4,101

(in Actual Dollars)	MAPD HMO (Kaiser) with Medicare Part A		MAPD HMO (Kaiser) without Medicare Part A	
	Retiree/Spouse		Retiree/Spouse	
	Male	Female	Male	Female
Sample Age				
65	\$1,913	\$1,589	\$6,719	\$5,581
70	2,149	1,778	7,546	6,243
75	2,374	1,869	8,336	6,563

The 2023 Medicare Part A premium is \$506 (actual dollars) per month.

All costs are subject to the health care cost trend rates, discussed as follows.

Health care cost trend rates reflect the change in per capita health costs over time due to factors such as medical inflation, utilization, plan design, and technology improvements. For the PERA benefit structure, health care cost trend rates are needed to project the future costs associated with providing benefits to those PERACare enrollees not eligible for premium-free Medicare Part A.

Health care cost trend rates for the PERA benefit structure are based on published annual health care inflation surveys in conjunction with actual plan experience (if credible), building block models, and industry methods developed by health plan actuaries and administrators. In addition, projected trends for the Federal Hospital Insurance Trust Fund (Medicare Part A premiums) provided by the Centers for Medicare & Medicaid Services are referenced in the development of these rates. Effective December 31, 2022, the health care cost trend rates for Medicare Part A premiums were revised to reflect the current expectation of future increases in rates of inflation applicable to Medicare Part A premiums.

The PERA benefit structure health care cost trend rates used to measure the TOL are summarized in the following table:

Year	PERACare Medicare Plans ¹	Medicare Part A Premiums
2023	7.00%	3.50%
2024	6.75%	3.50%
2025	6.50%	3.75%
2026	6.25%	3.75%
2027	6.00%	4.00%
2028	5.75%	4.00%
2029	5.50%	4.00%
2030	5.25%	4.25%
2031	5.00%	4.25%
2032	4.75%	4.25%
2033	4.50%	4.25%
2034	4.50%	4.25%
2035+	4.50%	4.50%

¹ UnitedHealthcare MAPD PPO plans are 0% for 2023.

Mortality assumptions used in the December 31, 2022, valuation for the Division Trust Funds are shown in Note 10 on page 80, and were applied, as applicable, in the December 31, 2022, valuation for the HCTF and DPS HCTF but developed using a headcount-weighted basis. Affiliated employers of the State, School, Local Government, and Judicial Divisions participate in the HCTF. Affiliated employers of the DPS Division participate in the DPS HCTF.

The following health care costs assumptions were updated and used in roll forward calculation for the HCTF and DPS HCTF:

- Per capita health care costs in effect as of the December 31, 2022, valuation date for those PERACare enrollees under the PERA benefit structure who are expected to be age 65 and older and are not eligible for premium-free Medicare Part A benefits were updated to reflect costs for the 2023 plan year.
- The morbidity rates used to estimate individual retiree and spouse costs by age and by gender were updated effective for the December 31, 2022, actuarial valuation. The revised morbidity rate factors are based on a review of historical claims experience by age, gender, and status (active versus retired) from actuary's claims data warehouse.
- The health care cost trend rates applicable to health care premiums were revised to reflect the current expectation of future increases in those premiums.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

These actuarial assumptions pertaining to per capita health care costs and their related trend rates are analyzed and updated annually by the Board's actuary.

The actuarial assumptions used in the December 31, 2022, valuations were based on the 2020 experience analysis, dated October 28, 2020, and November 4, 2020, for the period January 1, 2016, through December 31, 2019. Revised economic and demographic assumptions were adopted by the Board on November 20, 2020.

The long-term expected return on plan assets is reviewed as part of regularly scheduled experience studies performed at least every five years, and asset/liability studies, performed every three to five years for PERA. The most recent analyses were outlined in the Experience Study report dated October 28, 2020.

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

The Board first adopted the 7.25% long-term expected rate of return as of November 18, 2016. Following an asset/liability study, the Board reaffirmed the assumed rate of return at the Board's November 15, 2019, meeting, to be effective January 1, 2020. As of the most recent reaffirmation of the long-term rate of return, the target asset allocation and best estimates of geometric real rates of return for each major asset class are summarized in the table in Note 10 on page 81.

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

The following table presents the NOL/NOA using the current health care cost trend rates applicable to the PERA benefit structure, as well as the fund's NOL/NOA if calculated using health care cost trend rates one percentage point lower or one percentage point higher than the current rates:

	1.0% Decrease in Trend Rates	Current Trend Rates	1.0% Increase in Trend Rates
Initial PERACare Medicare trend rate ¹	5.75%	6.75%	7.75%
Ultimate PERACare Medicare trend rate	3.50%	4.50%	5.50%
Initial Medicare Part A trend rate ¹	2.50%	3.50%	4.50%
Ultimate Medicare Part A trend rate	3.50%	4.50%	5.50%
Net OPEB liability (asset)			
HCTF	\$693,241	\$713,726	\$736,009
DPS HCTF	(4,556)	(4,378)	(4,235)

¹ For the January 1, 2024, plan year.

Discount Rate/Single Equivalent Interest Rate

The projection of cash flows used to determine the discount rate was performed in accordance with GASB 74. The basis for the projections of the liabilities and the FNP was an actuarial valuation performed as of December 31, 2022, and the financial status of the fund as of the current measurement date (December 31, 2023). In addition to the actuarial cost method and assumptions presented earlier, the projection of cash flows applied the following methods and assumptions:

- Updated health care cost trend rates for Medicare Part A premiums as of the December 31, 2023, measurement date.
- Total covered payroll for the initial projection year consists of the covered payroll of the active membership present on the valuation date and the covered payroll of future plan members assumed to be hired during the year. In subsequent projection years, total covered payroll was assumed to increase annually at a rate of 3.00%.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

- Employer contributions were assumed to be made at rates equal to the fixed statutory rates specified in law and effective as of the measurement date.
- Employer contributions and the amount of total service costs for future plan members were based upon a process to estimate future ADCs assuming an analogous future plan member growth rate.
- Estimated transfers of dollars from the Division Trust Funds into the Health Care Trust Funds representing a portion of purchased service agreements intended to cover the costs associated with OPEB benefits.
- Benefit payments and contributions were assumed to be made at the middle of the year.
- Beginning with the December 31, 2023, measurement date and thereafter, the FNP as of the current measurement date is used as a starting point for the GASB 74 projection test.
- As of the December 31, 2023, measurement date, the FNP and related disclosure components for the HCTF reflect payments related to the disaffiliation of Tri-County Health as a PERA-affiliated employer, effective December 31, 2022. As of the December 31, 2023, year-end, PERA recognized two additions for accounting and financial reporting purposes: a \$24,000 payment received on December 4, 2023 and a \$2,000 receivable. The employer disaffiliation payment and receivable allocations to the HCTF and Local Government Division Trust Fund were \$1,033 and \$24,967, respectively.

Based on those methods and assumptions and the GASB 74 projection test methodology, the FNP for the HCTF and DPS HCTF were projected to be available to make all projected future benefit payments of current plan members and were not projected to reach a depletion date. Therefore, the long-term expected rate of return on plan investments was applied to all periods of projected benefit payments to determine the TOL for each fund. The discount rate determination did not use a municipal bond index rate. Therefore, the discount rate used to measure the TOL for these funds as of the measurement date (December 31, 2023) was 7.25%, unchanged from the prior measurement date.

The results of the GASB 74 projection test methodology and development of the discount rate for each fund do not necessarily indicate the fund's ability to make benefit payments in the future.

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

The following tables present the NOL/NOA for participating employers for each fund using the current discount rate, as well as the fund's NOL/NOA if calculated using a discount rate one percentage point lower or one percentage point higher than the current rate:

	1.0% Decrease in Discount Rate	Net OPEB Liability
HCTF	6.25%	\$843,000
DPS HCTF	6.25%	1,780

	Current Discount Rate	Net OPEB Liability (Asset)
HCTF	7.25%	\$713,726
DPS HCTF	7.25%	(4,378)

	1.0% Increase in Discount Rate	Net OPEB Liability (Asset)
HCTF	8.25%	\$603,132
DPS HCTF	8.25%	(9,610)

As shown, if there is a significant deviation, over a long period, in the actual rate of return compared to the assumed discount rate, the measurement of the NOL/NOA could be materially under- or over-reported as of December 31, 2023.

Note 12—Leases, Capital Assets, and Subscription Liabilities**Leases**

Lease receivables are included in other receivables in the Statements of Fiduciary Net Position. PERA, acting as lessor, leases office space at the Pointe Office in Westminster under long-term, non-cancelable lease payments. The agreements range from two years to six years with interest rates between 1.77% and 3.25% and provide for renewal options ranging from one year to six years. During the year ended December 31, 2023, PERA recognized \$378 and \$34 in lease revenue and interest revenue respectively.

NOTES TO THE FINANCIAL STATEMENTS

(Dollars in Thousands)

Capital Assets

Capital assets include tangible capital assets and intangible right-to-use assets. PERA has adopted capitalization thresholds to determine whether acquisitions of assets are classified as capital assets or operating expenses.

Tangible capital assets are recorded at cost less accumulated depreciation since acquisition. Depreciation for tangible capital assets is calculated using the straight-line method, with estimated lives ranging from three to 40 years.

Intangible right-to-use assets and related liabilities are recorded at the present value of expected payments over the contract term. Right-to-use assets are amortized using the straight-line method over the contract term or the useful life of the underlying asset, whichever is shortest.

Capital asset balances and activity for the year ended December 31, 2023, is reported below:

SCHEDULE OF CAPITAL ASSETS

	December 31, 2022	Increases	Decreases	December 31, 2023
Non-Depreciable Capital Assets				
Land	\$4,283	\$—	(\$240)	\$4,043
Construction in Progress	—	230	—	230
Total Non-Depreciable Capital Assets	4,283	230	(240)	4,273
Capital Assets Being Depreciated or Amortized				
Building and Improvements	37,557	233	(5,885)	31,905
Furnishings, Equipment and Automobiles	3,829	302	(24)	4,107
Intangible Right to Use Assets	—	1,718	—	1,718
Total Capital Assets Being Depreciated or Amortized	41,386	2,253	(5,909)	37,730
Total Capital Assets	45,669	2,483	(6,149)	42,003
Less Accumulated Depreciation or Amortization				
Building and Improvements	(27,436)	(1,215)	5,571	(23,080)
Furnishings, Equipment and Automobiles	(3,176)	(358)	24	(3,510)
Intangible Right to Use Assets	—	(308)	—	(308)
Total Accumulated Depreciation or Amortization	(30,612)	(1,881)	5,595	(26,898)
Total Net Capital Assets	\$15,057	\$602	(\$554)	\$15,105

Subscription Liabilities

Starting in the fiscal year ending December 31, 2023, PERA implemented GASB Statement No. 96, which requires the recognition of liabilities related to SBITAs. The liabilities related to these arrangements are included in investment

settlements and other liabilities in the Statements of Fiduciary Net Position, with interest expense recognized over the contract term.

SCHEDULE OF MINIMUM COMMITMENTS

Fiscal Year	Principal	Imputed Interest ¹	Total
2024	\$198	\$51	\$249
2025	419	48	467
2026	450	17	467
Total	\$1,067	\$116	\$1,183

¹ PERA used a 3.72% discount rate to calculate the present value of the SBITA liabilities recognized during the fiscal year ended December 31, 2023. The difference between the liability booked to record the present value of these future payment obligations, and the actual lease payments, is reported as interest expense.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—STATE DIVISION

For the Years Ended December 31

	2023	2022	2021	2020	2019
Total pension liability					
Service cost	\$420,173	\$401,939	\$413,596	\$355,719	\$344,666
Interest	1,963,844	1,945,315	1,948,606	1,825,929	1,800,848
Changes of benefit terms	—	—	(547,823)	—	(501,768)
Difference between expected and actual experience	280,910	(229,762)	(16,478)	195,634	408,792
Changes of assumptions or other inputs	—	—	—	1,025,120	—
Benefit payments, refunds, and disability premiums	(1,899,046)	(1,861,237)	(1,802,036)	(1,734,329)	(1,700,965)
Net change in total pension liability	765,881	256,255	(4,135)	1,668,073	351,573
Total pension liability – beginning	27,616,860	27,360,605	27,364,740	25,696,667	25,345,094
Total pension liability – ending (a)	\$28,382,741	\$27,616,860	\$27,360,605	\$27,364,740	\$25,696,667
Plan fiduciary net position					
Contributions – employer	\$790,373	\$704,797	\$664,304	\$646,386	\$612,282
Contributions – nonemployer	16,233	198,247	76,706	—	77,088
Contributions – active member (includes purchased service)	438,359	396,222	369,166	326,786	287,297
Net investment income (loss)	2,187,360	(2,657,031)	2,806,442	2,652,870	2,764,719
Benefit payments, refunds, and disability premiums	(1,899,046)	(1,861,237)	(1,802,036)	(1,734,329)	(1,700,965)
Administrative expense	(13,979)	(13,312)	(12,051)	(11,385)	(11,294)
Other additions and deductions	6,064	(8,968)	3,088	6,756	(2,685)
Net change in plan fiduciary net position	1,525,364	(3,241,282)	2,105,619	1,887,084	2,026,442
Plan fiduciary net position – beginning	16,744,284	19,985,566	17,879,947	15,992,863	13,966,421
Plan fiduciary net position – ending (b)	\$18,269,648	\$16,744,284	\$19,985,566	\$17,879,947	\$15,992,863
Net pension liability – ending (a)-(b)	\$10,113,093	\$10,872,576	\$7,375,039	\$9,484,793	\$9,703,804
Plan fiduciary net position as a percentage of the total pension liability	64.37%	60.63%	73.05%	65.34%	62.24%
Covered payroll	\$3,576,201	\$3,183,955	\$3,092,509	\$3,089,161	\$2,995,453
Net pension liability as a percentage of covered payroll	282.79%	341.48%	238.48%	307.03%	323.95%

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—STATE DIVISION (CONTINUED)

For the Years Ended December 31

	2018	2017	2016	2015	2014
Total pension liability					
Service cost	\$727,319	\$518,360	\$317,466	\$309,351	\$285,311
Interest	1,658,186	1,640,426	1,741,390	1,700,903	1,663,542
Changes of benefit terms	(1,967,940)	—	—	—	—
Difference between expected and actual experience	330,007	416,731	176,889	237,147	(1,069)
Changes of assumptions or other inputs	(8,968,282)	2,286,877	7,313,068	(192,776)	—
Benefit payments, refunds, and disability premiums	(1,675,880)	(1,615,021)	(1,546,071)	(1,483,517)	(1,415,754)
Net change in total pension liability	(9,896,590)	3,247,373	8,002,742	571,108	532,030
Total pension liability – beginning	35,241,684	31,994,311	23,991,569	23,420,461	22,888,431
Total pension liability – ending (a)	\$25,345,094	\$35,241,684	\$31,994,311	\$23,991,569	\$23,420,461
Plan fiduciary net position					
Contributions – employer	\$583,164	\$563,977	\$521,804	\$484,005	\$444,372
Contributions – nonemployer	78,489	—	—	—	—
Contributions – active member (includes purchased service)	261,540	256,420	247,533	244,926	234,056
Net investment income (loss)	(497,562)	2,391,683	947,981	210,337	780,762
Benefit payments, refunds, and disability premiums	(1,675,880)	(1,615,021)	(1,546,071)	(1,483,517)	(1,415,754)
Administrative expense	(11,903)	(11,745)	(11,271)	(10,779)	(10,067)
Other additions and deductions	4,871	12,208	5,668	1,617	118
Net change in plan fiduciary net position	(1,257,281)	1,597,522	165,644	(553,411)	33,487
Plan fiduciary net position – beginning	15,223,702	13,626,180	13,460,536	14,013,947	13,980,460
Plan fiduciary net position – ending (b)	\$13,966,421	\$15,223,702	\$13,626,180	\$13,460,536	\$14,013,947
Net pension liability – ending (a)-(b)	\$11,378,673	\$20,017,982	\$18,368,131	\$10,531,033	\$9,406,514
Plan fiduciary net position as a percentage of the total pension liability	55.11%	43.20%	42.59%	56.11%	59.84%
Covered payroll	\$2,898,827	\$2,774,207	\$2,710,651	\$2,641,867	\$2,564,670
Net pension liability as a percentage of covered payroll	392.53%	721.57%	677.63%	398.62%	366.77%

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—SCHOOL DIVISION

For the Years Ended December 31

	2023	2022	2021	2020	2019
Total pension liability					
Service cost	\$842,132	\$815,689	\$783,583	\$663,873	\$618,937
Interest	3,410,269	3,313,326	3,278,565	3,006,736	2,938,492
Changes of benefit terms	—	—	(964,344)	—	(856,299)
Difference between expected and actual experience	1,155,873	47,448	110,446	595,867	770,676
Changes of assumptions or other inputs	—	—	—	2,020,180	—
Benefit payments, refunds, and disability premiums	(2,918,064)	(2,813,457)	(2,708,328)	(2,605,668)	(2,545,230)
Net change in total pension liability	2,490,210	1,363,006	499,922	3,680,988	926,576
Total pension liability – beginning	47,655,096	46,292,090	45,792,168	42,111,180	41,184,604
Total pension liability – ending (a)	\$50,145,306	\$47,655,096	\$46,292,090	\$45,792,168	\$42,111,180
Plan fiduciary net position					
Contributions – employer	\$1,317,476	\$1,201,265	\$1,113,636	\$1,048,992	\$1,002,760
Contributions – nonemployer	28,908	350,393	127,781	—	127,367
Contributions – active member (includes purchased service)	759,800	699,671	630,849	536,847	462,891
Net investment income (loss)	3,871,069	(4,623,013)	4,847,781	4,556,622	4,676,607
Benefit payments, refunds, and disability premiums	(2,918,064)	(2,813,457)	(2,708,328)	(2,605,668)	(2,545,230)
Administrative expense	(26,887)	(25,562)	(22,608)	(22,779)	(22,619)
Other additions and deductions	(16,049)	1,610	(8,572)	(11,226)	(7,929)
Net change in plan fiduciary net position	3,016,253	(5,209,093)	3,980,539	3,502,788	3,693,847
Plan fiduciary net position – beginning	29,445,631	34,654,724	30,674,185	27,171,397	23,477,550
Plan fiduciary net position – ending (b)	\$32,461,884	\$29,445,631	\$34,654,724	\$30,674,185	\$27,171,397
Net pension liability – ending (a)-(b)	\$17,683,422	\$18,209,465	\$11,637,366	\$15,117,983	\$14,939,783
Plan fiduciary net position as a percentage of the total pension liability	64.74%	61.79%	74.86%	66.99%	64.52%
Covered payroll	\$6,176,713	\$5,670,280	\$5,465,866	\$5,146,118	\$5,104,431
Net pension liability as a percentage of covered payroll	286.29%	321.14%	212.91%	293.77%	292.68%

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—SCHOOL DIVISION (CONTINUED)

For the Years Ended December 31

	2018	2017	2016	2015	2014
Total pension liability					
Service cost	\$1,270,011	\$954,368	\$567,247	\$548,358	\$511,059
Interest	2,759,146	2,690,433	2,722,256	2,652,731	2,582,865
Changes of benefit terms	(3,247,230)	—	—	—	—
Difference between expected and actual experience	443,651	564,155	346,658	278,464	(1,387)
Changes of assumptions or other inputs	(15,247,222)	3,547,294	13,572,334	(298,005)	—
Benefit payments, refunds, and disability premiums	(2,492,928)	(2,411,987)	(2,300,644)	(2,208,452)	(2,113,547)
Net change in total pension liability	(16,514,572)	5,344,263	14,907,851	973,096	978,990
Total pension liability – beginning	57,699,176	52,354,913	37,447,062	36,473,966	35,494,976
Total pension liability – ending (a)	\$41,184,604	\$57,699,176	\$52,354,913	\$37,447,062	\$36,473,966
Plan fiduciary net position					
Contributions – employer	\$923,910	\$857,740	\$812,740	\$754,182	\$686,323
Contributions – nonemployer	126,505	—	—	—	—
Contributions – active member (includes purchased service)	414,336	399,053	386,481	372,378	356,520
Net investment income (loss)	(838,899)	3,982,275	1,569,026	344,000	1,274,862
Benefit payments, refunds, and disability premiums	(2,492,928)	(2,411,987)	(2,300,644)	(2,208,452)	(2,113,547)
Administrative expense	(23,560)	(23,019)	(21,991)	(20,865)	(19,290)
Other additions and deductions	5,456	(22,378)	(17,334)	(9,082)	(4,264)
Net change in plan fiduciary net position	(1,885,180)	2,781,684	428,278	(767,839)	180,604
Plan fiduciary net position – beginning	25,362,730	22,581,046	22,152,768	22,920,607	22,740,003
Plan fiduciary net position – ending (b)	\$23,477,550	\$25,362,730	\$22,581,046	\$22,152,768	\$22,920,607
Net pension liability – ending (a)-(b)	\$17,707,054	\$32,336,446	\$29,773,867	\$15,294,294	\$13,553,359
Plan fiduciary net position as a percentage of the total pension liability	57.01%	43.96%	43.13%	59.16%	62.84%
Covered payroll	\$4,789,503	\$4,471,357	\$4,349,320	\$4,235,290	\$4,063,236
Net pension liability as a percentage of covered payroll	369.71%	723.19%	684.56%	361.12%	333.56%

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—LOCAL GOVERNMENT DIVISION

For the Years Ended December 31

	2023	2022	2021	2020	2019
Total pension liability					
Service cost	\$100,274	\$93,983	\$93,133	\$77,400	\$75,305
Interest	421,430	411,598	408,879	379,994	373,200
Changes of benefit terms	—	(9,807)	(118,435)	—	(105,812)
Difference between expected and actual experience	79,448	(8,688)	(2,587)	32,128	65,687
Changes of assumptions or other inputs	—	—	—	222,809	—
Benefit payments, refunds, and disability premiums	(365,198)	(350,307)	(338,375)	(320,919)	(312,629)
Net change in total pension liability	235,954	136,779	42,615	391,412	95,751
Total pension liability – beginning	5,895,159	5,758,380	5,715,765	5,324,353	5,228,602
Total pension liability – ending (a)	\$6,131,113	\$5,895,159	\$5,758,380	\$5,715,765	\$5,324,353
Plan fiduciary net position					
Contributions – employer	\$119,470	\$108,748	\$96,481	\$89,662	\$85,597
Contributions – employer disaffiliation	24,967	—	—	—	—
Contributions – active member (includes purchased service)	85,521	80,759	77,096	66,958	62,823
Net investment income (loss)	643,967	(781,550)	820,403	771,556	792,219
Benefit payments, refunds, and disability premiums	(365,198)	(350,307)	(338,375)	(320,919)	(312,629)
Administrative expense	(3,653)	(3,450)	(3,065)	(2,459)	(2,476)
Other additions and deductions	(598)	(5,721)	(3,061)	(3,122)	(3,961)
Net change in plan fiduciary net position	504,476	(951,521)	649,479	601,676	621,573
Plan fiduciary net position – beginning	4,892,596	5,844,117	5,194,638	4,592,962	3,971,389
Plan fiduciary net position – ending (b)	\$5,397,072	\$4,892,596	\$5,844,117	\$5,194,638	\$4,592,962
Net pension liability (asset) – ending (a)-(b)	\$734,041	\$1,002,563	(\$85,737)	\$521,127	\$731,391
Plan fiduciary net position as a percentage of the total pension liability	88.03%	82.99%	101.49%	90.88%	86.26%
Covered payroll	\$843,453	\$760,262	\$723,744	\$698,060	\$681,093
Net pension liability (asset) as a percentage of covered payroll	87.03%	131.87%	(11.85%)	74.65%	107.38%

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—LOCAL GOVERNMENT DIVISION (CONTINUED)
For the Years Ended December 31

	2018	2017	2016	2015	2014
Total pension liability					
Service cost	\$84,331	\$75,417	\$65,250	\$63,005	\$58,676
Interest	386,381	360,995	346,944	338,616	329,156
Changes of benefit terms	(412,930)	(110)	—	—	—
Difference between expected and actual experience	77,207	125,585	42,105	14,930	(322)
Changes of assumptions or other inputs	—	—	179,802	(36,449)	—
Benefit payments, refunds, and disability premiums	(302,903)	(289,218)	(272,344)	(265,789)	(256,972)
Net change in total pension liability	(167,914)	272,669	361,757	114,313	130,538
Total pension liability – beginning	5,396,516	5,123,847	4,762,090	4,647,777	4,517,239
Total pension liability – ending (a)	\$5,228,602	\$5,396,516	\$5,123,847	\$4,762,090	\$4,647,777
Plan fiduciary net position					
Contributions – employer	\$81,358	\$78,291	\$75,132	\$70,415	\$68,719
Contributions – employer disaffiliation	—	1,063	—	—	186,006
Contributions – active member (includes purchased service)	58,063	56,797	52,451	51,986	49,290
Net investment income (loss)	(142,476)	669,011	261,276	56,328	200,394
Benefit payments, refunds, and disability premiums	(302,903)	(289,218)	(272,344)	(265,789)	(256,972)
Administrative expense	(2,621)	(2,541)	(2,395)	(2,253)	(2,091)
Other additions and deductions	(3,118)	(3,823)	(1,123)	(1,646)	(2,190)
Net change in plan fiduciary net position	(311,697)	509,580	112,997	(90,959)	243,156
Plan fiduciary net position – beginning	4,283,086	3,773,506	3,660,509	3,751,468	3,508,312
Plan fiduciary net position – ending (b)	\$3,971,389	\$4,283,086	\$3,773,506	\$3,660,509	\$3,751,468
Net pension liability – ending (a)-(b)	\$1,257,213	\$1,113,430	\$1,350,341	\$1,101,581	\$896,309
Plan fiduciary net position as a percentage of the total pension liability	75.96%	79.37%	73.65%	76.87%	80.72%
Covered payroll	\$660,998	\$632,768	\$608,223	\$561,518	\$540,468
Net pension liability as a percentage of covered payroll	190.20%	175.96%	222.01%	196.18%	165.84%

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—JUDICIAL DIVISION

For the Years Ended December 31

	2023	2022	2021	2020	2019
Total pension liability					
Service cost	\$9,938	\$9,790	\$9,791	\$9,106	\$8,774
Interest	35,975	34,772	34,282	32,590	32,105
Changes of benefit terms	—	—	(9,135)	105	(8,459)
Difference between expected and actual experience	12,762	5,974	4,037	10,421	2,732
Changes of assumptions or other inputs	—	—	—	915	—
Benefit payments, refunds, and disability premiums	(35,239)	(32,951)	(31,488)	(29,485)	(28,097)
Net change in total pension liability	23,436	17,585	7,487	23,652	7,055
Total pension liability – beginning	503,883	486,298	478,811	455,159	448,104
Total pension liability – ending (a)	\$527,319	\$503,883	\$486,298	\$478,811	\$455,159
Plan fiduciary net position					
Contributions – employer	\$14,920	\$12,318	\$9,787	\$10,402	\$10,649
Contributions – nonemployer	288	3,576	1,360	—	1,344
Contributions – active member (includes purchased service)	7,683	8,822	9,389	7,697	5,187
Net investment income (loss)	53,800	(63,501)	66,030	61,634	61,719
Benefit payments, refunds, and disability premiums	(35,239)	(32,951)	(31,488)	(29,485)	(28,097)
Administrative expense	(238)	(212)	(186)	(87)	(84)
Other additions and deductions	2,872	4,492	5,383	2,456	6,670
Net change in plan fiduciary net position	44,086	(67,456)	60,275	52,617	57,388
Plan fiduciary net position – beginning	409,670	477,126	416,851	364,234	306,846
Plan fiduciary net position – ending (b)	\$453,756	\$409,670	\$477,126	\$416,851	\$364,234
Net pension liability – ending (a)-(b)	\$73,563	\$94,213	\$9,172	\$61,960	\$90,925
Plan fiduciary net position as a percentage of the total pension liability	86.05%	81.30%	98.11%	87.06%	80.02%
Covered payroll	\$60,606	\$56,565	\$55,780	\$54,780	\$53,427
Net pension liability as a percentage of covered payroll	121.38%	166.56%	16.44%	113.11%	170.19%

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—JUDICIAL DIVISION (CONTINUED)

For the Years Ended December 31

	2018	2017	2016	2015	2014
Total pension liability					
Service cost	\$13,516	\$14,364	\$12,639	\$10,813	\$9,024
Interest	30,417	27,480	25,774	25,005	24,820
Changes of benefit terms	(33,997)	—	—	—	—
Difference between expected and actual experience	3,122	16,644	22,804	7,289	(5)
Changes of assumptions or other inputs	(100,437)	(14,394)	43,576	21,485	21,294
Benefit payments, refunds, and disability premiums	(26,463)	(25,298)	(22,888)	(21,200)	(19,903)
Net change in total pension liability	(113,842)	18,796	81,905	43,392	35,230
Total pension liability – beginning	561,946	543,150	461,245	417,853	382,623
Total pension liability – ending (a)	\$448,104	\$561,946	\$543,150	\$461,245	\$417,853
Plan fiduciary net position					
Contributions – employer	\$8,299	\$8,080	\$8,024	\$7,702	\$7,070
Contributions – nonemployer	1,385	—	—	—	—
Contributions – active member (includes purchased service)	4,700	4,863	4,037	4,197	4,296
Net investment income (loss)	(11,006)	51,173	19,783	4,149	15,299
Benefit payments, refunds, and disability premiums	(26,463)	(25,298)	(22,888)	(21,200)	(19,903)
Administrative expense	(86)	(86)	(81)	(77)	(72)
Other additions and deductions	155	2,226	2,678	3,081	156
Net change in plan fiduciary net position	(23,016)	40,958	11,553	(2,148)	6,846
Plan fiduciary net position – beginning	329,862	288,904	277,351	279,499	272,653
Plan fiduciary net position – ending (b)	\$306,846	\$329,862	\$288,904	\$277,351	\$279,499
Net pension liability – ending (a)-(b)	\$141,258	\$232,084	\$254,246	\$183,894	\$138,354
Plan fiduciary net position as a percentage of the total pension liability	68.48%	58.70%	53.19%	60.13%	66.89%
Covered payroll	\$50,506	\$48,948	\$48,700	\$46,870	\$42,977
Net pension liability as a percentage of covered payroll	279.69%	474.14%	522.07%	392.35%	321.93%

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—DPS DIVISION

For the Years Ended December 31

	2023	2022	2021	2020	2019
Total pension liability					
Service cost	\$113,314	\$113,836	\$107,672	\$93,058	\$91,764
Interest	345,494	333,769	326,361	309,174	301,210
Changes of benefit terms	—	—	(89,028)	—	(82,064)
Difference between expected and actual experience	34,752	15,514	46,732	(15,298)	86,001
Changes of assumptions or other inputs	—	—	—	125,275	—
Benefit payments, refunds, and disability premiums	(302,075)	(299,660)	(291,799)	(287,719)	(288,984)
Net change in total pension liability	191,485	163,459	99,938	224,490	107,927
Total pension liability – beginning	4,803,157	4,639,698	4,539,760	4,315,270	4,207,343
Total pension liability – ending (a)	\$4,994,642	\$4,803,157	\$4,639,698	\$4,539,760	\$4,315,270
Plan fiduciary net position					
Contributions – employer	\$87,487	\$74,199	\$65,215	\$56,245	\$43,340
Contributions – nonemployer	4,132	52,784	19,153	—	19,201
Contributions – active member (includes purchased service)	104,916	96,124	90,154	75,456	65,496
Net investment income (loss)	517,546	(619,265)	649,370	610,847	632,669
Benefit payments, refunds, and disability premiums	(302,075)	(299,660)	(291,799)	(287,719)	(288,984)
Administrative expense	(3,292)	(3,133)	(2,829)	(2,667)	(2,713)
Other additions and deductions	2,796	652	(3,115)	(1,010)	2,975
Net change in plan fiduciary net position	411,510	(698,299)	526,149	451,152	471,984
Plan fiduciary net position – beginning	3,935,428	4,633,727	4,107,578	3,656,426	3,184,442
Plan fiduciary net position – ending (b)	\$4,346,938	\$3,935,428	\$4,633,727	\$4,107,578	\$3,656,426
Net pension liability – ending (a)-(b)	\$647,704	\$867,729	\$5,971	\$432,182	\$658,844
Plan fiduciary net position as a percentage of the total pension liability	87.03%	81.93%	99.87%	90.48%	84.73%
Covered payroll	\$894,245	\$810,403	\$823,396	\$771,347	\$736,264
Net pension liability as a percentage of covered payroll	72.43%	107.07%	0.73%	56.03%	89.48%

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS—DPS DIVISION (CONTINUED)

For the Years Ended December 31

	2018	2017	2016	2015	2014
Total pension liability					
Service cost	\$90,657	\$91,986	\$85,988	\$82,079	\$76,564
Interest	313,294	295,838	283,862	281,752	274,862
Changes of benefit terms	(318,480)	—	—	—	—
Difference between expected and actual experience	35,147	47,121	(2,839)	45,767	(174)
Changes of assumptions or other inputs	—	—	205,645	(113,772)	—
Benefit payments, refunds, and disability premiums	(287,825)	(281,844)	(272,071)	(263,323)	(255,434)
Net change in total pension liability	(167,207)	153,101	300,585	32,503	95,818
Total pension liability – beginning	4,374,550	4,221,449	3,920,864	3,888,361	3,792,543
Total pension liability – ending (a)	\$4,207,343	\$4,374,550	\$4,221,449	\$3,920,864	\$3,888,361
Plan fiduciary net position					
Contributions – employer	\$35,994	\$27,578	\$17,071	\$8,494	\$18,478
Contributions – nonemployer	18,621	—	—	—	—
Contributions – active member (includes purchased service)	61,098	56,820	54,852	53,558	49,409
Net investment income (loss)	(114,070)	548,585	218,415	49,172	182,823
Benefit payments, refunds, and disability premiums	(287,825)	(281,844)	(272,071)	(263,323)	(255,434)
Administrative expense	(2,919)	(2,857)	(2,754)	(2,599)	(2,377)
Other additions and deductions	(4,497)	3,781	3,135	(1,764)	(1,547)
Net change in plan fiduciary net position	(293,598)	352,063	18,648	(156,462)	(8,648)
Plan fiduciary net position – beginning	3,478,040	3,125,977	3,107,329	3,263,791	3,272,439
Plan fiduciary net position – ending (b)	\$3,184,442	\$3,478,040	\$3,125,977	\$3,107,329	\$3,263,791
Net pension liability – ending (a)-(b)	\$1,022,901	\$896,510	\$1,095,472	\$813,535	\$624,570
Plan fiduciary net position as a percentage of the total pension liability	75.69%	79.51%	74.05%	79.25%	83.94%
Covered payroll	\$722,040	\$658,198	\$642,177	\$621,115	\$584,319
Net pension liability as a percentage of covered payroll	141.67%	136.21%	170.59%	130.98%	106.89%

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF EMPLOYER AND NONEMPLOYER CONTRIBUTIONS

For the Years Ended December 31

State Division	2023	2022	2021	2020	2019
Actuarially determined contribution rate (a)	20.71%	23.45%	21.05%	23.69%	23.28%
Covered payroll (b)	\$3,576,201	\$3,183,955	\$3,092,509	\$3,089,161	\$2,995,453
Annual Increase Reserve contribution (c)	26,039	22,441	20,606	19,442	17,663
Actuarially determined contribution (a) x (b) + (c)	766,670	769,078	671,579	751,264	715,004
Contributions in relation to the actuarially determined contribution ^{1,2}	806,606	903,044	741,010	646,386	689,370
Annual contribution deficiency (excess)	(\$39,936)	(\$133,966)	(\$69,431)	\$104,878	\$25,634
Actual contributions as a percentage of covered payroll	22.55%	28.36%	23.96%	20.92%	23.01%
	2018	2017	2016	2015	2014
Actuarially determined contribution rate (a)	26.30%	22.71%	22.31%	22.35%	20.45%
Covered payroll (b)	\$2,898,827	\$2,774,207	\$2,710,651	\$2,641,867	\$2,564,670
Annual Increase Reserve contribution (c)	15,919	14,355	12,838	11,400	9,984
Actuarially determined contribution (a) x (b) + (c)	778,311	644,377	617,584	601,857	534,459
Contributions in relation to the actuarially determined contribution ¹	661,653	563,977	521,804	484,005	444,372
Annual contribution deficiency	\$116,658	\$80,400	\$95,780	\$117,852	\$90,087
Actual contributions as a percentage of covered payroll	22.82%	20.33%	19.25%	18.32%	17.33%
	2023	2022	2021	2020	2019
Actuarially determined contribution rate (a)	21.13%	24.54%	20.61%	23.37%	23.59%
Covered payroll (b)	\$6,176,713	\$5,670,280	\$5,465,866	\$5,146,118	\$5,104,431
Annual Increase Reserve contribution (c)	40,019	35,114	31,169	28,159	26,062
Actuarially determined contribution (a) x (b) + (c)	1,345,158	1,426,601	1,157,684	1,230,807	1,230,197
Contributions in relation to the actuarially determined contribution ^{1,2}	1,346,384	1,551,658	1,241,417	1,048,992	1,130,127
Annual contribution deficiency (excess)	(\$1,226)	(\$125,057)	(\$83,733)	\$181,815	\$100,070
Actual contributions as a percentage of covered payroll	21.80%	27.36%	22.71%	20.38%	22.14%
	2018	2017	2016	2015	2014
Actuarially determined contribution rate (a)	26.80%	22.54%	22.36%	21.94%	19.65%
Covered payroll (b)	\$4,789,503	\$4,471,357	\$4,349,320	\$4,235,290	\$4,063,236
Annual Increase Reserve contribution (c)	22,497	19,903	17,868	15,648	13,280
Actuarially determined contribution (a) x (b) + (c)	1,306,084	1,027,747	990,376	944,871	811,706
Contributions in relation to the actuarially determined contribution ¹	1,050,415	857,740	812,740	754,182	686,323
Annual contribution deficiency	\$255,669	\$170,007	\$177,636	\$190,689	\$125,383
Actual contributions as a percentage of covered payroll	21.93%	19.18%	18.69%	17.81%	16.89%

¹ Includes an annual contribution from a nonemployer contributing entity required by C.R.S. § 24-51-414 *et seq.* starting on July 1, 2018.² House Bill 20-1379 suspended the July 2020 contribution from the nonemployer contributing entity for the State's 2020-21 fiscal year.

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF EMPLOYER AND NONEMPLOYER CONTRIBUTIONS (CONTINUED)

For the Years Ended December 31

Local Government Division	2023	2022	2021	2020	2019
Actuarially determined contribution rate (a)	9.20%	12.72%	10.84%	13.01%	11.13%
Covered payroll (b)	\$843,453	\$760,262	\$723,744	\$698,060	\$681,093
Annual Increase Reserve contribution (c)	6,403	5,739	4,964	4,492	4,201
Actuarially determined contribution (a) x (b) + (c)	84,001	102,444	83,418	95,310	80,007
Contributions in relation to the actuarially determined contribution ¹	119,470	108,748	96,481	89,662	85,597
Annual contribution deficiency (excess)	(\$35,469)	(\$6,304)	(\$13,063)	\$5,648	(\$5,590)
Actual contributions as a percentage of covered payroll	14.16%	14.30%	13.33%	12.84%	12.57%
	2018	2017	2016	2015	2014
Actuarially determined contribution rate (a)	14.27%	11.92%	11.98%	13.62%	11.78%
Covered payroll (b)	\$660,998	\$632,768	\$608,223	\$561,518	\$540,468
Annual Increase Reserve contribution (c)	3,779	3,390	2,969	2,522	2,180
Actuarially determined contribution (a) x (b) + (c)	98,103	78,816	75,834	79,001	65,847
Contributions in relation to the actuarially determined contribution ¹	81,358	78,291	75,132	70,415	68,719
Annual contribution deficiency (excess)	\$16,745	\$525	\$702	\$8,586	(\$2,872)
Actual contributions as a percentage of covered payroll	12.31%	12.37%	12.35%	12.54%	12.71%
Judicial Division	2023	2022	2021	2020	2019
Actuarially determined contribution rate (a)	13.83%	15.56%	14.13%	22.05%	21.90%
Covered payroll (b)	\$60,606	\$56,565	\$55,780	\$54,780	\$53,427
Annual Increase Reserve contribution (c)	397	357	314	289	251
Actuarially determined contribution (a) x (b) + (c)	8,779	9,159	8,196	12,368	11,952
Contributions in relation to the actuarially determined contribution ^{2,3}	15,208	15,894	11,147	10,402	11,993
Annual contribution deficiency (excess)	(\$6,429)	(\$6,735)	(\$2,951)	\$1,966	(\$41)
Actual contributions as a percentage of covered payroll	25.09%	28.10%	19.98%	18.99%	22.45%
	2018	2017	2016	2015	2014
Actuarially determined contribution rate (a)	27.26%	22.54%	22.07%	21.45%	20.07%
Covered payroll (b)	\$50,506	\$48,948	\$48,700	\$46,870	\$42,977
Annual Increase Reserve contribution (c)	207	191	164	141	116
Actuarially determined contribution (a) x (b) + (c)	13,975	11,224	10,912	10,195	8,741
Contributions in relation to the actuarially determined contribution ²	9,684	8,080	8,024	7,702	7,070
Annual contribution deficiency	\$4,291	\$3,144	\$2,888	\$2,493	\$1,671
Actual contributions as a percentage of covered payroll	19.17%	16.51%	16.48%	16.43%	16.45%

¹ Contributions do not include disaffiliation payments, if applicable.² Includes an annual contribution from a nonemployer contributing entity required by C.R.S. § 24-51-414 *et seq.* starting on July 1, 2018.³ House Bill 20-1379 suspended the July 2020 contribution from the nonemployer contributing entity for the State's 2020-21 fiscal year.

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—DIVISION TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF EMPLOYER AND NONEMPLOYER CONTRIBUTIONS (CONTINUED)

For the Years Ended December 31

DPS Division	2023	2022	2021	2020	2019
Actuarially determined contribution rate (a)	6.77%	9.25%	8.22%	10.42%	11.14%
Covered payroll (b)	\$894,245	\$810,403	\$823,396	\$771,347	\$736,264
Annual Increase Reserve contribution (c)	6,859	6,160	5,905	5,357	4,989
Actuarially determined contribution (a) x (b) + (c)	67,399	81,122	73,588	85,731	87,009
Contributions in relation to the actuarially determined contribution ^{1,2}	91,619	126,983	84,368	56,245	62,541
Annual contribution deficiency (excess)	(\$24,220)	(\$45,861)	(\$10,780)	\$29,486	\$24,468
Actual contributions as a percentage of covered payroll	10.25%	15.67%	10.25%	7.29%	8.49%
	2018	2017	2016	2015	2014
Actuarially determined contribution rate (a)	13.50%	10.28%	10.46%	11.06%	9.67%
Covered payroll (b)	\$722,040	\$658,198	\$642,177	\$621,115	\$584,319
Annual Increase Reserve contribution (c)	4,624	4,100	3,685	3,186	2,633
Actuarially determined contribution (a) x (b) + (c)	102,099	71,763	70,857	71,881	59,137
Contributions in relation to the actuarially determined contribution ¹	54,615	27,578	17,071	8,494	18,478
Annual contribution deficiency	\$47,484	\$44,185	\$53,786	\$63,387	\$40,659
Actual contributions as a percentage of covered payroll	7.56%	4.19%	2.66%	1.37%	3.16%

¹ Includes an annual contribution from a nonemployer contributing entity required by C.R.S. § 24-51-414 et seq. starting on July 1, 2018.² House Bill 20-1379 suspended the July 2020 contribution from the nonemployer contributing entity for the State's 2020-21 fiscal year.

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

SCHEDULE OF INVESTMENT RETURNS

For the Years Ended December 31

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expenses	13.4%	(13.5%)	16.1%	17.1%	20.4%	(3.3%)	18.1%	7.3%	1.6%	5.8%

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

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)— DIVISION TRUST FUNDS

(Dollars in Thousands)

Note 1—Significant Changes in Plan Provisions Affecting Trends in Actuarial Information

2023 Changes in Plan Provisions Since 2022

- As of the December 31, 2023, measurement date, the fiduciary net position (FNP) and related disclosure components for the Local Government Division reflect payments related to the disaffiliation of Tri-County Health Department (Tri-County Health) as a PERA-affiliated employer, effective December 31, 2022. As of the December 31, 2023, year-end, PERA recognized two additions for accounting and financial reporting purposes: a \$24,000 payment received on December 4, 2023 and a \$2,000 receivable. The employer disaffiliation payment and receivable allocations to the Local Government Division Trust Fund and Health Care Trust Fund (HCTF) were \$24,967 and \$1,033, respectively.
- Senate Bill (SB) 23-056, enacted and effective June 2, 2023, intended to recompense PERA for the remaining portion of the \$225,000 direct distribution originally scheduled for receipt July 1, 2020, suspended due to the enactment of House Bill (HB) 20-1379, but not fully repaid through the provisions within HB 22-1029. Pursuant to SB 23-056, the State Treasurer issued a warrant consisting of the balance of the PERA Payment Cash Fund, created in §24-51-416, plus \$10,000 from the General Fund, totaling \$14,561.
- SB 23-163, enacted and effective June 6, 2023, states beginning July 1, 2023, a wildlife officer and a parks and recreation officer employed by the Division of Parks and Wildlife in the Department of Natural Resources, is classified as a "State Trooper" for the purpose of determining their service retirement eligibility.
- As of the December 31, 2023, measurement date, the total pension liability (TPL) recognizes the change in the default method applied for granting service accruals for certain members, from a "12-pay" method to a "non-12-pay" method. The default service accrual method for positions with an employment pattern of at least eight months but fewer than 12 months (including, but not limited to positions in the School and DPS Divisions) receive a higher ratio of service credit for each month worked, up to a maximum of 12 months of service credit per year.
- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the pension certificates of participation (PCOPs) issued in 1997 and 2008 and refinanced thereafter.

2022 Changes in Plan Provisions Since 2021

- HB 22-1029, effective upon enactment in 2022, required the State Treasurer to issue, in addition to the regularly

scheduled \$225,000 direct distribution, a warrant to PERA in the amount of \$380,000 with reductions to future direct distributions. The July 1, 2023, direct distribution will be reduced by \$190,000 to \$35,000. The July 1, 2024, direct distribution will not be reduced from \$225,000 due to a negative investment return in 2022.

- The TPL for the Local Government Division, as of the December 31, 2022, measurement date, was adjusted to reflect the disaffiliation, as allowable under C.R.S. § 24-51-313, of Tri-County Health, effective December 31, 2022. As of the close of the 2022 fiscal year, no disaffiliation payment associated with Tri-County Health was received, and therefore no disaffiliation dollars were reflected in the FNP as of the December 31, 2022, measurement date.
- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2021 Changes in Plan Provisions Since 2020

- The following changes reflect the anticipated adjustments resulting from the 2020 automatic adjustment provision (AAP) assessment, statutorily recognized July 1, 2021, and effective July 1, 2022:
 - Member contribution rates increase by 0.50%.
 - Employer contribution rates increase by 0.50%.
 - Annual increase (AI) cap is lowered from 1.25% per year to 1.00% per year.
- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2020 Changes in Plan Provisions Since 2019

- HB 20-1379, enacted on June 29, 2020, suspended the \$225,000 direct distribution payable on July 1, 2020 for the State's 2020-21 fiscal year.
- HB 20-1394, enacted on June 29, 2020, requires 5.0% of the Judicial Division base employer contributions rate to be paid by the members of the Judicial Division for the State's 2020-21 and 2021-22 fiscal years. This does not apply to the employer or member contribution rates for judges employed by the Denver County Court.
- SB 18-200 and SB 20-057, enacted in 2018 and 2020, respectively expanded the definition of "State Trooper" under Colorado law as follows:
 - Beginning July 1, 2020, new or existing employees of the Division of Fire Prevention and Control in the Department of Public Safety classified as firefighter I through firefighter VII;

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)— DIVISION TRUST FUNDS

(Dollars in Thousands)

- New members hired on or after January 1, 2020, as a county sheriff, undersheriff, deputy sheriff, noncertified deputy sheriff, or detention officer by a Local Government Division employer; and
- New members hired on or after January 1, 2020, as a corrections officer classified as I through IV by a State Division employer.
- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2019 Changes in Plan Provisions Since 2018

- SB 18-200 was enacted on June 4, 2018, which included the adoption of the AAP. The following changes reflect the anticipated adjustments resulting from the 2018 AAP assessment, statutorily recognized July 1, 2019, and effective July 1, 2020:
 - Member contribution rates increase by 0.50%.
 - Employer contribution rates increase by 0.50%.
 - AI cap is lowered from 1.50% per year to 1.25% per year.
- HB 19-1217, enacted May 20, 2019, repealed the member contribution increases scheduled for the Local Government Division pursuant to SB 18-200.
- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2018 Changes in Plan Provisions Since 2017

- The following changes were made to the plan provisions as part of SB 18-200:
 - Member contribution rates increase by 0.75% effective July 1, 2019, an additional 0.75% effective July 1, 2020, and an additional 0.50% effective July 1, 2021.
 - Employer contribution rates increase by 0.25% effective July 1, 2019 for State, School, Judicial, and DPS Divisions.
 - An annual direct distribution of \$225,000 from the State of Colorado, recognized as a nonemployer contributing entity, is distributed between the State, School, Judicial, and DPS Divisions proportionally based on payroll.
 - AI cap is lowered from 2.00% per year to 1.50% per year.
 - Initial AI waiting period is extended from one year after retirement to three years after retirement.
 - AI payments are suspended for 2018 and 2019.

- The number of years used in the Highest Average Salary calculation for non-vested members as of January 1, 2020, increases from three to five years for the State, School, Local Government, and DPS Divisions and increases from one to three years for the Judicial Division.

- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2017 Changes in Plan Provisions Since 2016

- The Cunningham Fire Protection District (CFPD) disaffiliated from the Local Government Division on December 2, 2017. For the purpose of the December 31, 2017, measurement date, liabilities were determined assuming no additional benefit accruals for the disaffiliated membership of the CFPD that had not refunded their PERA member contribution accounts. The total disaffiliation payment of \$1,159 was allocated to the Local Government Division Trust Fund and the HCTF in the amount of \$1,063 and \$96, respectively.
- Pursuant to HB 17-1265, the amortization equalization disbursement (AED) and supplemental amortization equalization disbursement (SAED) contribution rates are adjusted for employers in the Judicial Division as follows:
 - For the calendar year beginning in 2019, C.R.S. § 24-51-411(4.5) increased the AED payment to 3.40% of PERA-includable salary and requires the AED payment to increase by 0.40% at the start of each of the following four calendar years through 2023 at which time the AED payment will be 5.00% of PERA-includable salary.
 - For the calendar year beginning in 2019, C.R.S. § 24-51-411(7.5) increased the SAED payment to 3.40% of PERA-includable salary and requires the SAED payment to increase by 0.40% at the start of each of the following four calendar years through 2023 at which time the SAED payment will be 5.00% of PERA-includable salary.
- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

2016 Changes in Plan Provisions Since 2015

- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)— DIVISION TRUST FUNDS

(Dollars in Thousands)

2015 Changes in Plan Provisions Since 2014

- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.
- As required under C.R.S. § 24-51-401(1.7)(e), PERA calculated and provided to the Colorado General Assembly an adjustment to the DPS Division's employer contribution rate to assure the equalization of the School Division's and the DPS Division's ratios of unfunded actuarial accrued liability to payroll as of December 31, 2039. Subsequently, the Colorado General Assembly passed HB 15-1391, reducing the employer contribution rate of the DPS Division from 13.75% to 10.15%, effective January 1, 2015.

2014 Changes in Plan Provisions Since 2013

- Actual employer contributions to the DPS Division are reduced by an amount equal to the principal payments plus interest necessary each year to finance the PCOPs issued in 1997 and 2008 and refinanced thereafter.

Note 2—Significant Changes in Assumptions or Other Inputs Affecting Trends in Actuarial Information

2023 Changes in Assumptions or Other Inputs Since 2022

- There were no changes made to the actuarial methods or assumptions.

2022 Changes in Assumptions or Other Inputs Since 2021

- There were no changes made to the actuarial methods or assumptions.

2021 Changes in Assumptions or Other Inputs Since 2020

- The assumption used to value the AI cap benefit provision was changed from 1.25% to 1.00%.

2020 Changes in Assumptions or Other Inputs Since 2019

- The price inflation assumption was lowered from 2.40% to 2.30%.
- The wage inflation assumption was lowered from 3.50% to 3.00%.
- The real rate of investment return assumption was increased to 4.95% per year, net of investment expenses from 4.85% per year, net of investment expenses.
- Salary scale assumptions were revised to align with revised economic assumptions and to more closely reflect actual experience.
- Rates of termination/withdrawal, retirement, and disability were revised to more closely reflect actual experience.

- The pre-retirement mortality assumption for the State and Local Government Divisions (members other than Safety Officers) was changed to the PubG-2010 Employee Table with generational projection using scale MP-2019.
- The pre-retirement mortality assumption for Safety Officers was changed to the PubS-2010 Employee Table with generational projection using scale MP-2019.
- The pre-retirement mortality assumption for the School and DPS Divisions was changed to the PubT-2010 Employee Table with generational projection using scale MP-2019.
- The pre-retirement mortality assumption for the Judicial Division was changed to the PubG-2010(A) Above-Median Employee Table with generational projection using scale MP-2019.
- The post-retirement non-disabled mortality assumption for the State and Local Government Divisions (members other than Safety Officers) was changed to the PubG-2010 Healthy Retiree Table, adjusted as follows:
 - **Males:** 94% of the rates prior to age 80 and 90% of the rates for ages 80 and older, with generational projection using scale MP-2019.
 - **Females:** 87% of the rates prior to age 80 and 107% of the rates for ages 80 and older, with generational projection using scale MP-2019.
- The post-retirement non-disabled mortality assumption for Safety Officers was changed to the unadjusted PubS-2010 Healthy Retiree Table, with generational projection using scale MP-2019.
- The post-retirement non-disabled mortality assumption for the School and DPS Divisions was changed to the PubT-2010 Healthy Retiree Table, adjusted as follows:
 - **Males:** 112% of the rates prior to age 80 and 94% of the rates for ages 80 and older, with generational projection using scale MP-2019.
 - **Females:** 83% of the rates prior to age 80 and 106% of the rates for ages 80 and older, with generational projection using scale MP-2019.
- The post-retirement non-disabled mortality assumption for the Judicial Division was changed to the unadjusted PubG-2010(A) Above-Median Healthy Retiree Table with generational projection using scale MP-2019. The post-retirement non-disabled beneficiary mortality assumption for the Division Trust Funds was changed to the Pub-2010 Contingent Survivor Table, adjusted as follows:
 - **Males:** 97% of the rates for all ages, with generational projection using scale MP-2019.

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)— DIVISION TRUST FUNDS

(Dollars in Thousands)

- **Females:** 105% of the rates for all ages, with generational projection using scale MP-2019.
- The disabled mortality assumption for the Division Trust Funds (members other than Safety Officers) was changed to the PubNS-2010 Disabled Retiree Table using 99% of the rates for all ages with generational projection using scale MP-2019.
- The disabled mortality assumption for Safety Officers was changed to the unadjusted PubS-2010 Disabled Retiree Table with generational projection using scale MP-2019.
- The mortality tables are generational mortality tables developed on a benefit-weighted basis.

2019 Changes in Assumptions or Other Inputs Since 2018

- The assumption used to value the AI cap benefit provision was changed from 1.50% to 1.25%.

2018 Changes in Assumptions or Other Inputs Since 2017

- The single equivalent interest rate (SEIR) for the State Division was increased from 4.72% to 7.25% to reflect the changes to the projection's valuation basis which no longer resulted in a projected year of depletion of the FNP, thereby eliminating the need to apply the municipal bond index rate.
- The SEIR for the School Division was increased from 4.78% to 7.25% to reflect the changes to the projection's valuation basis which no longer resulted in a projected year of depletion of the FNP, thereby eliminating the need to apply the municipal bond index rate.
- The SEIR for the Judicial Division was increased from 5.41% to 7.25% to reflect the changes to the projection's valuation basis which no longer resulted in a projected year of depletion of the FNP, thereby eliminating the need to apply the municipal bond index rate.

2017 Changes in Assumptions or Other Inputs Since 2016

- The SEIR for the State Division was lowered from 5.26% to 4.72% to reflect the changes to the projection's valuation basis, a projected year of depletion of the FNP, and the resulting application of the municipal bond index rate.
- The SEIR for the School Division was lowered from 5.26% to 4.78% to reflect the changes to the projection's valuation basis, a projected year of depletion of the FNP, and the resulting application of the municipal bond index rate.
- The SEIR for the Judicial Division was increased from 5.18% to 5.41% to reflect the changes to the projection's valuation basis, a projected year of depletion of the FNP, and the resulting application of the municipal bond index rate.

- The municipal bond index rate used in the determination of the SEIR for the State, School, and Judicial Divisions changed from 3.86% on the prior measurement date to 3.43% on the measurement date.

2016 Changes in Assumptions or Other Inputs Since 2015

- The investment return assumption was lowered from 7.50% to 7.25%.
- The price inflation assumption was lowered from 2.80% to 2.40%.
- The wage inflation assumption was lowered from 3.90% to 3.50%.
- The post-retirement mortality assumption for healthy lives for the State and Local Government Divisions was changed to the RP-2014 Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 73% factor applied to ages below 80 and a 108% factor applied to age 80 and above, projected to 2018, for males, and a 78% factor applied to ages below 80 and a 109% factor applied to age 80 and above, projected to 2020, for females.
- The post-retirement mortality assumption for healthy lives for the School, Judicial, and DPS Divisions was changed to the RP-2014 White Collar Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 93% factor applied to ages below 80 and a 113% factor applied to age 80 and above, projected to 2018, for males, and a 68% factor applied to ages below 80 and a 106% factor applied to age 80 and above, projected to 2020, for females.
- For disabled retirees, the mortality assumption was changed to reflect 90% of RP-2014 Disabled Retiree Mortality Table.
- The mortality assumption for active members was changed to RP-2014 White Collar Employee Mortality Table, a table specifically developed for actively working people. To allow for an appropriate margin of improved mortality prospectively, the mortality rates incorporate a 70% factor applied to male rates and a 55% factor applied to female rates.
- The rates of retirement, withdrawal, and disability were revised to reflect more closely actual experience.
- The estimated administrative expense as a percentage of covered payroll was increased from 0.35% to 0.40%.
- The SEIR for the State and School Divisions was lowered from 7.50% to 5.26% to reflect the changes to the projection's valuation basis, a projected year of depletion of the FNP, and the resulting application of the municipal bond index rate of 3.86% on the measurement date.

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)— DIVISION TRUST FUNDS

(Dollars in Thousands)

- The SEIR for the Local Government Division was lowered from 7.50% to 7.25%, reflecting the change in the long-term expected rate of return.
- The SEIR for the Judicial Division was lowered from 5.73% to 5.18% to reflect the changes to the projection's valuation basis, a projected year of depletion of the FNP, and the resulting application of the municipal bond index rate from 3.57% on the prior measurement date to 3.86% on the measurement date.
- The SEIR for the DPS Division was lowered from 7.50% to 7.25%, reflecting the change in the long-term expected rate of return.

2015 Changes in Assumptions or Other Inputs Since 2014

- The SEIR for the Judicial Division was lowered from 6.14% to 5.73% to reflect the changes to the projection's valuation basis, a projected year of depletion of the FNP, and the resulting application of the municipal bond index rate from 3.70% on the prior measurement date to 3.57% on the measurement date.
- The following programming changes were made:
 - Valuation of the full survivor benefit without any reduction for possible remarriage.
 - Reflection of the employer match on separation benefits for all eligible years.
 - Reflection of one year of service eligibility for survivor annuity benefit.
 - Refinement of the 18-month AI timing.
 - Refinements to directly value certain and life, modified cash refund and pop-up benefit forms.
- The following methodology changes were made:
 - Recognition of merit salary increases in the first projection year.
 - Elimination of the assumption that 35% of future disabled members elect to receive a refund.
 - Removal of the negative value adjustment for liabilities associated with refunds of future terminating members.
 - Adjustments to the timing of the normal cost and UAAL payment calculations to reflect contributions throughout the year.

2014 Changes in Assumptions or Other Inputs Since 2013

- The SEIR for the Judicial Division was lowered from 6.66% to 6.14% to reflect the changes to the projection's valuation basis, a projected year of depletion of the FNP, and the resulting application of the municipal bond index rate from 4.73% on the prior measurement date to 3.70% on the measurement date.

- In 2012, a lawsuit was initiated to determine the amount owed to PERA by Memorial and the City of Colorado Springs (City) for Memorial's departure from PERA. In September 2014, PERA and the City agreed to resolve the lawsuit. The agreement provided for the City to pay PERA \$190,000 for the liabilities associated with the retirement and health care benefits already earned by 7,666 Memorial employees for the work they performed before Memorial ceased to be a PERA employer. On October 3, 2014, PERA received a disaffiliation payment from the City, which was allocated to the Local Government Division Trust Fund and the HCTF in the amount of \$186,006 and \$3,994, respectively.

Note 3—Methods and Assumptions Used in Calculations of ADC

The ADC rates, as a percentage of covered payroll, used to determine the ADC amounts in the Schedule of Employer and Nonemployer Contributions are calculated as of December 31, two years prior to the end of the year in which ADC amounts are reported. The following actuarial methods and assumptions from the December 31, 2021, actuarial valuation were used to determine contribution rates reported in that schedule for the year ending December 31, 2023:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll
Amortization period	30 years, closed, layered ¹
	24 years (25 years for Judicial and DPS Divisions, 26 years for School Division)
Equivalent single amortization period	
Asset valuation method	4-year smoothed market
Price inflation	2.30%
Real wage growth	0.70%
Wage inflation	3.00%
Salary increases, including wage inflation	2.80% to 12.40% ²
Long-term investment rate of return, net of pension plan investment expense, including price inflation	7.25%
Future post-retirement benefit increases	
PERA benefit structure hired prior to 1/1/07 and DPS benefit structure	1.00% compounded annually
PERA benefit structure hired after 12/31/06	0.00%, as financed by the AIR

¹ Effective with the December 31, 2014, actuarial valuation, gains and losses are to be amortized over a closed period.

² Salary increase range varies by Division Trust Fund.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET OPEB LIABILITY AND RELATED RATIOS—HEALTH CARE TRUST FUND¹

For the Years Ended December 31

	2023	2022	2021	2020	2019
Total OPEB liability					
Service cost	\$15,571	\$15,727	\$18,188	\$18,074	\$18,159
Interest	94,376	101,209	101,172	106,997	117,840
Changes of benefit terms	—	(43)	—	—	—
Difference between expected and actual experience	(18,579)	(59,877)	(52,850)	(68,772)	(224,212)
Changes of assumptions or other inputs	(8,889)	(65,295)	15,483	(69,759)	2,006
Benefit payments and health care claims/ administrative processing fees	(86,025)	(85,592)	(72,465)	(61,522)	(65,019)
Net change in total OPEB liability	(3,546)	(93,871)	9,528	(74,982)	(151,226)
Total OPEB liability – beginning	1,329,183	1,423,054	1,413,526	1,488,508	1,639,734
Total OPEB liability – ending (a)	\$1,325,637	\$1,329,183	\$1,423,054	\$1,413,526	\$1,488,508
Plan fiduciary net position					
Contributions – employer	\$112,931	\$103,818	\$97,974	\$94,634	\$92,011
Contributions – employer disaffiliation	1,033	—	—	—	—
Other additions (includes purchased service transfers)	6,755	9,004	8,108	7,909	6,984
Net investment income (loss)	69,617	(70,476)	68,319	60,280	53,867
Benefit payments	(82,911)	(83,145)	(63,893)	(53,023)	(58,221)
Administrative expense	(8,122)	(7,136)	(12,976)	(10,977)	(9,290)
Other deductions	(96)	(110)	(84)	(32)	(33)
Net change in plan fiduciary net position	99,207	(48,045)	97,448	98,791	85,318
Plan fiduciary net position – beginning	512,704	560,749	463,301	364,510	279,192
Plan fiduciary net position – ending (b)	\$611,911	\$512,704	\$560,749	\$463,301	\$364,510
Net OPEB liability – ending (a)-(b)	\$713,726	\$816,479	\$862,305	\$950,225	\$1,123,998
Plan fiduciary net position as a percentage of the total OPEB liability	46.16%	38.57%	39.40%	32.78%	24.49%
Covered payroll	\$10,656,973	\$9,671,062	\$9,337,899	\$8,988,119	\$8,834,404
Net OPEB liability as a percentage of covered payroll	6.70%	8.44%	9.23%	10.57%	12.72%

Please see next page for footnote references.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET OPEB LIABILITY AND RELATED RATIOS—HEALTH CARE TRUST FUND¹ (CONTINUED)

For the Years Ended December 31

	2018	2017	2016 ²
Total OPEB liability			
Service cost	\$19,328	\$20,036	
Interest	112,849	108,625	
Changes of benefit terms	—	5	
Difference between expected and actual experience	(2,482)	7,354	
Changes of assumptions or other inputs	11,438	—	
Benefit payments and health care claims/ administrative processing fees	(77,221)	(116,960)	
Net change in total OPEB liability	63,912	19,060	
Total OPEB liability – beginning	1,575,822	1,556,762	
Total OPEB liability – ending (a)	\$1,639,734	\$1,575,822	\$1,556,762
Plan fiduciary net position			
Contributions – employer	\$86,559	\$83,077	
Contributions – employer disaffiliation	—	96	
Other additions (includes purchased service transfers)	8,373	9,760	
Net investment income (loss)	(9,678)	44,990	
Benefit payments	(61,777)	(102,665)	
Administrative expense	(20,401)	(19,162)	
Other deductions	(106)	(102)	
Net change in plan fiduciary net position	2,970	15,994	
Plan fiduciary net position – beginning	276,222	260,228	
Plan fiduciary net position – ending (b)	\$279,192	\$276,222	\$260,228
Net OPEB liability – ending (a)-(b)	\$1,360,542	\$1,299,600	\$1,296,534
Plan fiduciary net position as a percentage of the total OPEB liability	17.03%	17.53%	16.72%
Covered payroll	\$8,399,835	\$7,927,280	\$7,716,894
Net OPEB liability as a percentage of covered payroll	16.20%	16.39%	16.80%

¹ Information is not available prior to 2016. In future reports, additional years will be added until 10 years of historical data are presented.

² Amounts for changes in net OPEB liability shaded in gray are not available for 2016.

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET OPEB LIABILITY AND RELATED RATIOS—DPS HEALTH CARE TRUST FUND¹

For the Years Ended December 31

	2023	2022	2021	2020	2019
Total OPEB liability					
Service cost	\$1,138	\$1,095	\$1,237	\$1,291	\$1,342
Interest	4,358	4,675	4,750	5,005	4,970
Changes of benefit terms	—	—	—	—	—
Difference between expected and actual experience	(2,206)	(2,353)	(2,855)	(4,339)	(2,070)
Changes of assumptions or other inputs	134	(3,703)	—	(1,764)	—
Benefit payments and health care claims/ administrative processing fees	(4,105)	(4,162)	(3,873)	(3,453)	(3,968)
Net change in total OPEB liability	(681)	(4,448)	(741)	(3,260)	274
Total OPEB liability – beginning	61,024	65,472	66,213	69,473	69,199
Total OPEB liability – ending (a)	\$60,343	\$61,024	\$65,472	\$66,213	\$69,473
Plan fiduciary net position					
Contributions – employer	\$9,445	\$8,744	\$8,622	\$8,045	\$7,649
Other additions (includes purchased service transfers)	236	306	206	224	188
Net investment income (loss)	7,218	(7,311)	6,963	6,019	4,892
Benefit payments	(3,951)	(4,022)	(3,516)	(3,086)	(3,644)
Administrative expense	(461)	(434)	(639)	(516)	(477)
Other deductions	(1)	(1)	(4)	(1)	(1)
Net change in plan fiduciary net position	12,486	(2,718)	11,632	10,685	8,607
Plan fiduciary net position – beginning	52,235	54,953	43,321	32,636	24,029
Plan fiduciary net position – ending (b)	\$64,721	\$52,235	\$54,953	\$43,321	\$32,636
Net OPEB liability (asset) – ending (a)-(b)	(\$4,378)	\$8,789	\$10,519	\$22,892	\$36,837
Plan fiduciary net position as a percentage of the total OPEB liability	107.26%	85.60%	83.93%	65.43%	46.98%
Covered payroll	\$894,245	\$810,403	\$823,396	\$771,347	\$736,264
Net OPEB liability (asset) as a percentage of covered payroll	(0.49%)	1.08%	1.28%	2.97%	5.00%

Please see next page for footnote references.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF CHANGES IN NET OPEB LIABILITY AND RELATED RATIOS—DPS HEALTH CARE TRUST FUND¹ (CONTINUED)
For the Years Ended December 31

	2018	2017	2016 ²
Total OPEB liability			
Service cost	\$1,420	\$1,591	
Interest	5,245	5,057	
Changes of benefit terms	—	—	
Difference between expected and actual experience	(6,045)	(35)	
Changes of assumptions or other inputs	5	—	
Benefit payments and health care claims/ administrative processing fees	(4,693)	(6,191)	
Net change in total OPEB liability	(4,068)	422	
Total OPEB liability – beginning	73,267	72,845	
Total OPEB liability – ending (a)	\$69,199	\$73,267	\$72,845
Plan fiduciary net position			
Contributions – employer	\$7,417	\$6,930	
Other additions (includes purchased service transfers)	205	242	
Net investment income (loss)	(894)	3,305	
Benefit payments	(4,158)	(5,694)	
Administrative expense	(845)	(808)	
Other deductions	(4)	(4)	
Net change in plan fiduciary net position	1,721	3,971	
Plan fiduciary net position – beginning	22,308	18,337	
Plan fiduciary net position – ending (b)	\$24,029	\$22,308	\$18,337
Net OPEB liability – ending (a)-(b)	\$45,170	\$50,959	\$54,508
Plan fiduciary net position as a percentage of the total OPEB liability	34.72%	30.45%	25.17%
Covered payroll	\$722,040	\$658,198	\$642,177
Net OPEB liability as a percentage of covered payroll	6.26%	7.74%	8.49%

¹ Information is not available prior to 2016. In future reports, additional years will be added until 10 years of historical data are presented.

² Amounts for changes in net OPEB liability shaded in gray are not available for 2016.

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)—HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

SCHEDULE OF EMPLOYER CONTRIBUTIONS

For the Years Ended December 31

Health Care Trust Fund	2023	2022	2021	2020	2019
Actuarially determined contribution rate (a)	0.73%	0.84%	0.89%	0.97%	1.11%
Covered payroll (b)	\$10,656,973	\$9,671,062	\$9,337,899	\$8,988,119	\$8,834,404
Actuarially determined contribution (a) x (b)	77,796	81,237	83,107	87,185	98,062
Contributions in relation to the actuarially determined contribution ¹	112,931	103,818	97,974	94,634	92,011
Annual contribution deficiency (excess)	(\$35,135)	(\$22,581)	(\$14,867)	(\$7,449)	\$6,051
Actual contributions as a percentage of covered payroll	1.06%	1.07%	1.05%	1.05%	1.04%
	2018	2017	2016	2015	2014
Actuarially determined contribution rate (a)	1.12%	1.08%	1.09%	1.15%	1.32%
Covered payroll (b)	\$8,399,835	\$7,927,280	\$7,716,894	\$7,485,545	\$7,211,351
Actuarially determined contribution (a) x (b)	94,078	85,615	84,114	86,084	95,190
Contributions in relation to the actuarially determined contribution ¹	86,559	83,077	80,825	78,463	75,631
Annual contribution deficiency	\$7,519	\$2,538	\$3,289	\$7,621	\$19,559
Actual contributions as a percentage of covered payroll	1.03%	1.05%	1.05%	1.05%	1.05%
DPS Health Care Trust Fund	2023	2022	2021	2020	2019
Actuarially determined contribution rate (a)	0.24%	0.35%	0.44%	0.51%	0.60%
Covered payroll (b)	\$894,245	\$810,403	\$823,396	\$771,347	\$736,264
Actuarially determined contribution (a) x (b)	2,146	2,836	3,623	3,934	4,418
Contributions in relation to the actuarially determined contribution	9,445	8,744	8,622	8,045	7,649
Annual contribution excess	(\$7,299)	(\$5,908)	(\$4,999)	(\$4,111)	(\$3,231)
Actual contributions as a percentage of covered payroll	1.06%	1.08%	1.05%	1.04%	1.04%
	2018	2017	2016	2015	2014
Actuarially determined contribution rate (a)	0.67%	0.68%	0.75%	0.81%	0.87%
Covered payroll (b)	\$722,040	\$658,198	\$642,177	\$621,115	\$584,319
Actuarially determined contribution (a) x (b)	4,838	4,476	4,816	5,031	5,084
Contributions in relation to the actuarially determined contribution	7,417	6,930	6,723	6,371	6,003
Annual contribution excess	(\$2,579)	(\$2,454)	(\$1,907)	(\$1,340)	(\$919)
Actual contributions as a percentage of covered payroll	1.03%	1.05%	1.05%	1.03%	1.03%

¹ Contributions do not include disaffiliation payments, if applicable.

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

SCHEDULE OF INVESTMENT RETURNS

For the Years Ended December 31

	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expenses	13.4%	(13.5%)	16.1%	17.1%	20.4%	(3.3%)	18.1%	7.3%	1.6%	5.8%

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

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)— HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

Note 1—Significant Changes in Plan Provisions Affecting Trends in Actuarial Information

2023 Changes in Plan Provisions Since 2022

- As of the December 31, 2023, measurement date, the fiduciary net position (FNP) and related disclosure components for the Health Care Trust Fund (HCTF) reflect payments related to the disaffiliation of Tri-County Health Department (Tri-County Health) as a PERA-affiliated employer, effective December 31, 2022. As of the December 31, 2023, year-end, PERA recognized two additions for accounting and financial reporting purposes: a \$24,000 payment received on December 4, 2023 and a \$2,000 receivable. The employer disaffiliation payment and receivable allocations to the HCTF and Local Government Division Trust Fund were \$1,033 and \$24,967, respectively.

2022 Changes in Plan Provisions Since 2021

- The total OPEB liability for the HCTF, as of the December 31, 2022, measurement date, was adjusted to reflect the disaffiliation, allowable under C.R.S. § 24-51-313, of Tri-County Health, effective December 31, 2022. As of the close of the 2022 fiscal year, no disaffiliation payment associated with Tri-County Health was received, and therefore no disaffiliation dollars were reflected in the FNP as of the December 31, 2022, measurement date.

2021 Changes in Plan Provisions Since 2020

- There were no changes made to plan provisions.

2020 Changes in Plan Provisions Since 2019

- There were no changes made to plan provisions.

2019 Changes in Plan Provisions Since 2018

- There were no changes made to plan provisions.

2018 Changes in Plan Provisions Since 2017

- There were no changes made to plan provisions.

2017 Changes in Plan Provisions Since 2016

- The Cunningham Fire Protection District (CFPD) disaffiliated from the Local Government Division, thereby ending participation in the HCTF on December 2, 2017. For the purpose of disclosure as of the December 31, 2017, measurement date, liabilities were determined assuming no additional service accruals impacting possible future premium subsidies for the disaffiliated membership of the CFPD that had not refunded their PERA member contribution accounts. The total disaffiliation payment of \$1,159 was allocated to the Local Government Division Trust Fund and the HCTF in the amount of \$1,063 and \$96, respectively.

2016 Changes in Plan Provisions Since 2015

- There were no changes made to plan provisions.

2015 Changes in Plan Provisions Since 2014

- There were no changes made to plan provisions.

2014 Changes in Plan Provisions Since 2013

- There were no changes made to plan provisions.

Note 2—Significant Changes in Assumptions or Other Inputs Affecting Trends in Actuarial Information

2023 Changes in Assumptions or Other Inputs Since 2022

- There were no changes made to the actuarial methods or assumptions.

2022 Changes in Assumptions or Other Inputs Since 2021

- The timing of the retirement decrement was adjusted to middle-of-year.

2021 Changes in Assumptions or Other Inputs Since 2020

- There were no changes made to the actuarial methods or assumptions.

2020 Changes in Assumptions or Other Inputs Since 2019

- The price inflation assumption was lowered from 2.40% to 2.30%.
- The wage inflation assumption was lowered from 3.50% to 3.00%.
- The real rate of investment return assumption was increased to 4.95% per year, net of investment expenses from 4.85% per year, net of investment expenses.
- Rates of termination/withdrawal, retirement, and disability were revised to more closely reflect actual experience.
- The pre-retirement mortality assumption for the State and Local Government Divisions (members other than Safety Officers) was changed to the PubG-2010 Employee Table with generational projection using scale MP-2019.
- The pre-retirement mortality assumption for Safety Officers was changed to the PubS-2010 Employee Table with generational projection using scale MP-2019.
- The pre-retirement mortality assumption for the School and DPS Divisions was changed to the PubT-2010 Employee Table with generational projection using scale MP-2019.
- The pre-retirement mortality assumption for the Judicial Division was changed to the PubG-2010(A) Above-Median Employee Table with generational projection using scale MP-2019.

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)— HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

- The post-retirement non-disabled mortality assumption for the State and Local Government Divisions (members other than Safety Officers) was changed to the PubG-2010 Healthy Retiree Table, adjusted as follows:
 - **Males:** 94% of the rates prior to age 80 and 90% of the rates for ages 80 and older, with generational projection using scale MP-2019.
 - **Females:** 87% of the rates prior to age 80 and 107% of the rates for ages 80 and older, with generational projection using scale MP-2019.
- The post-retirement non-disabled mortality assumption for Safety Officers was changed to the unadjusted PubS-2010 Healthy Retiree Table, with generational projection using scale MP-2019.
- The post-retirement non-disabled mortality assumption for the School and DPS Divisions was changed to the PubT-2010 Healthy Retiree Table, adjusted as follows:
 - **Males:** 112% of the rates prior to age 80 and 94% of the rates for ages 80 and older, with generational projection using scale MP-2019.
 - **Females:** 83% of the rates prior to age 80 and 106% of the rates for ages 80 and older, with generational projection using scale MP-2019.
- The post-retirement non-disabled mortality assumption for the Judicial Division was changed to the unadjusted PubG-2010(A) Above-Median Healthy Retiree Table with generational projection using scale MP-2019.
- The post-retirement non-disabled beneficiary mortality assumption for the Division Trust Funds was changed to the Pub-2010 Contingent Survivor Table, adjusted as follows:
 - **Males:** 97% of the rates for all ages, with generational projection using scale MP-2019.
 - **Females:** 105% of the rates for all ages, with generational projection using scale MP-2019.
- The disabled mortality assumption for the Division Trust Funds (members other than Safety Officers) was changed to the PubNS-2010 Disabled Retiree Table using 99% of the rates for all ages with generational projection using scale MP-2019.
- The disabled mortality assumption for Safety Officers was changed to the unadjusted PubS-2010 Disabled Retiree Table with generational projection using scale MP-2019.
- The mortality tables are generational mortality tables developed on a head-count weighted basis.

2019 Changes in Assumptions or Other Inputs Since 2018

- There were no changes made to the actuarial methods or assumptions.

2018 Changes in Assumptions or Other Inputs Since 2017

- There were no changes made to the actuarial methods or assumptions.

2017 Changes in Assumptions or Other Inputs Since 2016

- There were no changes made to the actuarial methods or assumptions.

2016 Changes in Assumptions or Other Inputs Since 2015

- The following methodology change was made:
 - The Entry Age Normal actuarial cost method allocation basis has been changed from a level dollar amount to a level percentage of pay.
- The following changes were made to the actuarial assumptions:
 - The investment rate of return assumption decreased from 7.50% to 7.25%.
 - The price inflation assumption decreased from 2.80% to 2.40%.
 - The wage inflation assumption decreased from 3.90% to 3.50%.
 - The mortality assumption for active members was changed to RP-2014 White Collar Employee Mortality Table, a table specifically developed for actively working people. To allow for an appropriate margin of improved mortality prospectively, the mortality rates incorporate a 70% factor applied to male rates and a 55% factor applied to female rates.
 - The post-retirement mortality assumption for healthy lives for the State and Local Government Divisions was changed to the RP-2014 Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 73% factor applied to ages below 80 and a 108% factor applied to age 80 and above, projected to 2018, for males, and a 78% factor applied to ages below 80 and a 109% factor applied to age 80 and above, projected to 2020, for females.
 - The post-retirement mortality assumption for healthy lives for the School, Judicial, and DPS Divisions was changed to the RP-2014 White Collar Healthy Annuitant Mortality Table with adjustments for credibility and gender adjustments of a 93% factor applied to ages below 80 and a 113% factor applied to age 80 and above, projected to 2018, for males, and a 68% factor applied to ages below 80 and a 106% factor applied to age 80 and above, projected to 2020, for females.

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)— HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

- For disabled retirees, the mortality assumption was changed to reflect 90% of RP-2014 Disabled Retiree Mortality Table.
- The assumed rates of withdrawal, retirement, and disability have been adjusted to more closely reflect experience.
- The assumed rates of PERACare participation have been revised to reflect more closely actual experience.
- Initial per capita health care costs for those PERACare enrollees under the PERA benefit structure who are expected to attain age 65 and older ages and are not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2017 plan year.
- The percentage of PERACare enrollees who will attain age 65 and older ages and are assumed to not qualify for premium-free Medicare Part A coverage have been revised to reflect more closely actual experience.
- The percentage of disabled PERACare enrollees who are assumed to not qualify for premium-free Medicare Part A coverage has been revised to reflect more closely actual experience.
- The health care cost trend rates for Medicare Part A premiums have been revised to reflect the then-current expectation of future increases in rates of inflation applicable to Medicare Part A premiums.
- Assumed election rates for the PERACare coverage options available to future PERACare enrollees who will qualify for the “No Part A Subsidy” when they retire have been revised to more closely reflect actual experience.
- Assumed election rates for the PERACare coverage options available to those current PERACare enrollees, who qualify for the “No Part A Subsidy” but have not reached age 65, have been revised to more closely reflect actual experience.
- The rates of PERACare coverage election for spouses of eligible inactive members and future retirees was revised to reflect more closely actual experience.
- The assumed age differences between future retirees and their participating spouses have been revised to reflect more closely actual experience.
- costs of those PERACare enrollees under the PERA benefit structure who have attained age 65 and older and are not eligible for premium-free Medicare Part A benefits.
- Adjustments were made to the timing of the normal cost and unfunded actuarial accrued liability (UAAL) payment calculations to reflect contributions throughout the year.
- The following changes were made to the actuarial assumptions:
 - The percentage of PERACare enrollees who will attain age 65 and older ages and are assumed to not qualify for premium-free Medicare Part A coverage have been revised to more closely reflect actual experience.
 - Initial per capita health care costs for those PERACare enrollees under the PERA benefit structure who are expected to attain age 65 and older ages and are not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2016 plan year.
 - The health care cost trend rates for Medicare Part A premiums have been revised to reflect the current expectation of future increases in rates of inflation applicable to Medicare Part A premiums.

2014 Changes in Assumptions or Other Inputs Since 2013

- The following change was made to the actuarial assumptions:
 - Initial per capita health care costs for those PERACare enrollees under the PERA benefit structure who are expected to attain age 65 and older ages and are not eligible for premium-free Medicare Part A benefits have been updated to reflect the change in costs for the 2015 plan year.
- The following other change was made:
 - In 2012, a lawsuit was initiated to determine the amount owed to PERA by Memorial and the City of Colorado Springs (City) for Memorial’s disaffiliation from PERA. In September 2014, PERA and the City agreed to resolve the lawsuit. The agreement provided for the City to pay PERA \$190,000 for the liabilities associated with the retirement and health care benefits already earned by 7,666 Memorial employees for the work performed before Memorial ceased to be a PERA employer. On October 3, 2014, PERA received a disaffiliation payment from the City, which was allocated to the Local Government Division Trust Fund and the HCTF in the amount of \$186,006 and \$3,994, respectively.

2015 Changes in Assumptions or Other Inputs Since 2014

- The following methodology changes were made:
 - Rates of morbidity to model the growth in assumed claims as a PERACare enrollee ages have been added to the process used to project per capita health care

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)— HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

Note 3—Methods and Assumptions Used in Calculations of ADC

The ADC rates, as a percentage of covered payroll, used to determine the ADC amounts in the Schedule of Employer Contributions are calculated as of December 31, two years prior to the end of the year in which ADC amounts are reported. The following actuarial methods and assumptions from the December 31, 2021, actuarial valuation were used to determine contribution rates reported in that schedule for the year ending December 31, 2023:

Actuarial cost method	Entry age
Amortization method	Level percentage of payroll
Amortization period	30 years, closed, layered ¹
Asset valuation method	4-year smoothed market
Price inflation	2.30%
Real wage growth	0.70%
Wage inflation	3.00%
Salary increases, including wage inflation	3.00% in aggregate
Long-term investment rate of return, net of OPEB plan investment expense, including price inflation	7.25%
Health care inflation factors	
PERA benefit structure:	
Service-based premium subsidy	0.00%
Medicare Part A premiums ²	3.75% initial 4.50% ultimate
Carrier premiums ^{2,3}	6.50% initial 4.50% ultimate
DPS benefit structure:	
Service-based premium subsidy	0.00%
Medicare Part A premiums	N/A
Carrier premiums	N/A

¹ Effective with the December 31, 2017, actuarial valuation, gains and losses are to be amortized over a closed period.

² The Medicare Part A and carrier premiums only apply to calculation of the implicit subsidy applicable to the PERA benefit structure.

³ UnitedHealthcare MAPD PPO plans are 0% for 2022 and 2023.

SUPPLEMENTARY SCHEDULES

(Dollars in Thousands)

SCHEDULE OF ADMINISTRATIVE EXPENSES

For the Year Ended December 31

	2023
Personnel Services	
Salaries	\$49,104
Employee benefits	14,944
Total personnel services	64,048
Professional Services	
Actuarial contracts	491
Audit and accounting	423
Payroll services	87
Investment services	3,416
Legal and legislative counsel	4,089
Computer services and consulting	2,696
Management consulting	1,396
Health care consulting	383
Other	1,552
Total professional services	14,533
Miscellaneous	
Equipment rental and services	2,403
Memberships	298
Publications and subscriptions	64
Travel and local	665
Auto	2
Telephone	373
Postage	1,155
Insurance	759
Printing	313
Office supplies	612
Building rent, supplies, and utilities	943
Total miscellaneous	7,587
Direct Expenses	
Health Care Trust Fund	3,124
DPS Health Care Trust Fund	155
Voluntary Investment Program	1,590
Defined Contribution Retirement Plan	180
Deferred Compensation Plan	490
Total direct expenses	5,539
Depreciation and amortization¹	755
Tenant and other expenses/(income)¹	(1,488)
Less internal investment manager expenses	(30,780)
Total administrative expenses	\$60,194

Please see next page for footnote references.

SUPPLEMENTARY SCHEDULES

(Dollars in Thousands)

SCHEDULE OF ADMINISTRATIVE EXPENSES (CONTINUED)

For the Year Ended December 31

	2023
Allocation of Administrative Expenses	
State Division Trust Fund	\$13,979
School Division Trust Fund	26,887
Local Government Division Trust Fund	3,653
Judicial Division Trust Fund	238
DPS Division Trust Fund	3,292
Voluntary Investment Program	1,988
Defined Contribution Retirement Plan	922
Deferred Compensation Plan	608
Health Care Trust Fund	8,122
DPS Health Care Trust Fund	461
Life Insurance Reserve	44
Total administrative expenses	\$60,194

¹ \$1,126 in depreciation of tenant capital assets is included in Tenant and other expenses/(income).

Note: The 2023 ratio of administrative expenses to fiduciary net position is eight basis points (0.08%) for the Division Trust Funds and is nine basis points (0.09%) for all funds.

See accompanying Independent Auditors' Report.

SUPPLEMENTARY SCHEDULES

(Dollars in Thousands)

SCHEDULE OF OTHER ADDITIONS

For the Year Ended December 31

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	DPS Division Trust Fund	Voluntary Investment Program	Defined Contribution Retirement Plan	Deferred Compensation Plan	HCTF	DPS HCTF	Life Insurance Reserve	TOTAL 2023
Administrative fee income	\$—	\$—	\$—	\$—	\$—	\$71	\$3	\$28	\$2,453	\$133	\$—	\$2,688
Participant loan interest	—	—	—	—	—	2,528	—	617	—	—	—	3,145
Net interfund transfers at retirement	8,240	—	88	2,895	2,896	—	—	—	—	—	—	14,119
Purchased service transfer to health care	—	—	—	—	—	—	—	—	4,285	103	—	4,388
Settlement income	50	86	14	1	12	—	—	—	2	—	—	165
Miscellaneous	24	86	10	—	3	12	1,483	7	15	—	—	1,640
Total other additions	\$8,314	\$172	\$112	\$2,896	\$2,911	\$2,611	\$1,486	\$652	\$6,755	\$236	\$—	\$26,145

SCHEDULE OF OTHER DEDUCTIONS

For the Year Ended December 31

	State Division Trust Fund	School Division Trust Fund	Local Government Division Trust Fund	Judicial Division Trust Fund	DPS Division Trust Fund	Voluntary Investment Program	Defined Contribution Retirement Plan	Deferred Compensation Plan	HCTF	DPS HCTF	Life Insurance Reserve	TOTAL 2023
Net interfund transfers at retirement	\$—	\$14,119	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$—	\$14,119
Purchased service transfer to health care	1,579	1,996	686	24	103	—	—	—	—	—	—	4,388
Miscellaneous	671	106	24	—	12	1,094	111	436	96	1	—	2,551
Total other deductions	\$2,250	\$16,221	\$710	\$24	\$115	\$1,094	\$111	\$436	\$96	\$1	\$—	\$21,058

See accompanying Independent Auditors' Report.

SUPPLEMENTARY SCHEDULES

(Dollars in Thousands)

SCHEDULE OF INVESTMENT EXPENSES

For the Year Ended December 31

	2023
Division Trust Funds, Health Care Trust Funds, and Life Insurance Reserve	
External manager expenses	
Global equity	\$25,854
Fixed income	—
Private equity	65,667
Real estate	37,525
Alternatives	55,836
Cash and short-term investments	315
Total external manager expenses	185,197
Internal manager expenses	29,399
Other investment expenses and custody fees	3,854
Defined Contribution Plans	
Internal manager expenses	1,381
Other investment expenses	2,914
Total investment expenses	\$222,745

SCHEDULE OF PAYMENTS TO CONSULTANTS

For the Year Ended December 31

	2023
Professional Services	
Actuarial	\$491
Audit and accounting	423
Payroll services	87
Legal and legislative counsel	4,089
Computer services and consulting	2,696
Management consulting	1,396
Health care consulting	383
Other	1,552
Total payments to consultants¹	\$11,117

¹ Excludes investment advisers.

The Schedule of Commissions and other information related to investment expenses can be found in the Investment Section on pages 129-133.

See accompanying Independent Auditors' Report.



Investment Section





DEFINED BENEFIT PLANS

CHIEF INVESTMENT OFFICER LETTER



June 21, 2024

Dear Colorado PERA Stakeholders:

The focus of the Public Employees' Retirement Association of Colorado (PERA) is on providing benefits for nearly 700,000 members, retirees, and beneficiaries who rely on PERA for a secure retirement. This purpose drives us to strive for the best risk-adjusted returns possible. In addition, by combining experienced in-house management with skilled external advisors, we achieve that performance at a cost that is among the lowest in our industry. This combination of factors has contributed to PERA remaining on target to achieve its long-term funding goal.

Over the 30-year period ending December 31, 2023, the portfolio returned 8.3% (gross-of-fees), above the assumed rate of return of 7.25%. Positive portfolio performance in 2023 increased plan assets by \$5.6 billion with the total defined benefit investment portfolio ending the year at \$61.5 billion. Overviews of 2023 performance for the total portfolio and each asset class appear below.

The Board of Trustees (Board) approved strategic asset allocation policy, determined by a comprehensive asset/liability study completed in 2019, is the major driver of our long-term performance. In 2023, we started updating the asset/liability study and will complete it in 2024. The resulting strategic asset allocation policy will guide long-term performance while balancing expected return and risk in a diversified portfolio.

Our employees remain steadfast in advancing the organization's goals, with several multi-year projects continuing to progress in 2024. PERA is modernizing several of our investment systems, bringing improved data management and investment capabilities to the organization. We continue to make progress on unitizing the defined benefit plan with the fixed income pool being the first to move to this new structure, and equities anticipated in early 2025. This project may expand participants' access to an even more diverse lineup of low-cost investment options in the Capital Accumulation Plans (CAPs).

PERA remains committed to actively engaging with our constituents and adapting to the evolving needs of today's retirees and tomorrow's workforce. We are honored to serve our members and are dedicated to ensuring stable retirement income for generations of Coloradans.

Total Portfolio Performance

Global markets enjoyed a welcomed rebound in 2023 with major stock and bond indices up across nearly all regions and asset classes. PERA's performance was driven by double-digit returns in domestic equity (MSCI USA IMI +25.6%) and international equity (MSCI ACWI ex U.S. IMI +15.6%) with fixed income contributing healthy positive returns following consecutive years of negative performance (Bloomberg U.S. Aggregate +5.5%).

A resilient workforce and easing inflation helped support the markets in 2023. The U.S. consumer continued to spend as wage growth finally outpaced inflation, allowing real wages to rise. The Federal Reserve (Fed) raised rates in smaller quarter point increments four times throughout 2023 with only one rate increase in the second half of the year, contributing to an expectation of rate cuts in 2024. This mix of consumer confidence and the Fed's target inflation rate being approached raised the probability of a smooth landing for the economy and hopes of avoiding a recession.

Long-term relative outperformance has been anchored by PERA's low-cost internal management of public equity and fixed income assets and the Board's strategic asset allocation policy. The equity portfolio's high quality tilt contributed to strong returns as these holdings have outperformed, while historically low interest rates and accommodative monetary policy boosted fixed income performance over the last decade. Private asset performance was helped by these same forces and generally outperformed public markets.



Amy C. McGarrity
Chief Investment Officer/
Chief Operating Officer

DEFINED BENEFIT PLANS

For the year ended December 31, 2023, PERA's total fund returned 13.4%, compared to the policy benchmark's return of 14.4%. PERA's policy benchmark is a passive representation of the asset allocation policy adopted by the Board. The total fund has outperformed the policy benchmark over the three-, five-, and 10-year periods (4.5% versus 3.9%, 10.0% versus 8.9%, and 7.8% versus 6.9%, for the three-, five-, and 10-year periods, respectively).

The total fund 2023 return of 13.4% underperformed a hypothetical portfolio consisting of 60% global equities, based on the MSCI ACWI IMI, and 40% fixed income, based on the Bloomberg U.S. Aggregate Bond Index, which collectively returned 15.2%. The total fund has performed better than this hypothetical portfolio over the three-, five-, and 10-year periods (4.5% versus 2.2%, 10.0% versus 7.7%, and 7.8% versus 5.8%, for the three-, five-, and 10-year periods, respectively). The total fund 2023 return of 13.4% outperformed the BNY Mellon Performance & Risk Analytics in conjunction with the Investment Metrics Median Public Fund Universe return of 10.9%. As of December 31, 2023, this universe was comprised of 108 public pension funds with assets of approximately \$2.4 trillion. The total fund has performed better than this universe median over the one-, three-, five-, and 10-year periods.

Global Equity

The global stock market rallied in 2023 as there was growing consensus the Fed had raised interest rates for the last time at its July 2023 meeting. The expectation the Fed would pivot to rate cuts in 2024 calmed investors' hard-landing fears and gave way to a broader economic soft-landing scenario. The excitement over artificial intelligence (AI) helped power select stocks to new highs with the "Magnificent Seven" replacing FAANG as the favored nickname for the market's leaders. Over the last 10 years, as interest rates remained relatively low, growth-oriented stocks have trounced value stocks. Portfolio returns were also aided by the strong performance of large cap U.S. stocks relative to small cap and international equities.

PERA's Global Equity portfolio returned 23.8%, outperforming its custom benchmark's return of 21.9%. The Global Equity portfolio has outperformed its custom benchmark over the one-, five-, and 10-year periods and trailed over the three-year period.

Fixed Income

The Fed raised rates an additional 100 basis points (bps) in 2023 to a range of 5.25% to 5.50% to combat above-target inflation. The personal consumption expenditure (PCE) index gradually declined from a generational high but remained slightly above the Fed's 2% target at year end. Elevated rates propped up the 10-year Treasury with yields fluctuating between a low of 3.3% during the regional bank scare in April 2023 and a high of 4.9% in October 2023. Fixed income markets experienced significant volatility in the run up to the pandemic and through 2023. The Fed lowered rates to a range of 0% to 0.25% in 2020 and resumed a quantitative easing program that increased their balance sheet to \$9 trillion, pushing 10-year Treasury yields down to 0.50%. As the global economy emerged from the pandemic, the world was significantly undersupplied in goods and services leading to elevated inflation levels and a rapid unwinding of accommodative monetary policy. Longer-term, large fiscal deficits and rising inflation have led to higher bond yields with the Bloomberg U.S. Aggregate Bond Index up 1.8% over the last 10 years.

PERA's Fixed Income portfolio returned 6.2%, outperforming its custom benchmark's return of 5.5%. The Fixed Income portfolio has outperformed its custom benchmark over the one-, three-, five-, and 10-year periods.

Private Equity

Despite a relatively strong 2023 in terms of dollars raised by private equity (PE) sponsors, capital scarcity led to extended fundraising timelines and volume, as a larger proportion of capital raised went to larger, well-established funds. Recent interest rate increases tempered valuations and debt levels for PE-backed investments. Initial public offering (IPO) exits remained anemic, reaching their lowest level in over a decade. Deal activity, exit activity, and valuations have trended downward since 2021 with exit activity reaching its lowest level in 10 years, while deal activity remained robust relative to 10-year averages. Debt levels steadily increased over the last few years but have since decreased and returned to 10-year averages.

PERA's Private Equity portfolio returned 4.7%, compared with its custom benchmark's return of 23.4%. The Private Equity portfolio has outperformed its custom benchmark over the three-year period and trailed over the one-, five-, and 10-year periods. The ultimate goal of private equity is to outperform public equities over the long term. As such, the PE benchmark is the Global Equities benchmark plus a premium (the premium is designed to "compensate" for opacity, illiquidity, etc). Global equities had a very strong year in 2023, as discussed previously, with the benchmark up just under 22%. Over the past 10 years, the Private Equity portfolio has outperformed the Global Equity custom benchmark by 4.1%. The portfolio's since inception internal rate of return as of December 31, 2023, was 10.7% compared to its custom benchmark's since inception internal rate of return of 6.9%.

DEFINED BENEFIT PLANS

Real Estate

A rising interest rate environment adversely impacted real asset valuations. Uncertainty in pricing metrics and capital availability drove many investors to the sideline, leading to fewer transactions and smaller buyer/seller pools. Although there was limited optimism toward the end of 2023 and some investors became more involved, activity was still depressed with total 2023 volume at the lowest level in 10 years. The Real Estate portfolio has been aided by implementation of a long-term holding strategy and has benefited from property fundamentals, stabilized cash flows, and a strategic overweight to industrial and multifamily assets, while underweighting office and retail. The long-term strategy has been implemented through a strategic shift to direct investing allowing for greater control and decision rights over assets, allowing capital to remain invested longer and reducing the drag often associated with cycling in and out of investments.

PERA's Real Estate portfolio returned negative 9.9%, outperforming its custom benchmark's return of negative 12.2%. The Real Estate portfolio has outperformed its custom benchmark over the one-, three-, five-, and 10-year periods.

Alternatives

All sub-portfolios earned positive returns in 2023. The opportunistic and real asset portfolios trailed their benchmarks for the year, while the risk mitigation portfolio outperformed its benchmark. The opportunistic portfolio benefited from strong performance within private credit and special situations due to higher interest rates on new credit issuances and moderating inflation, while returns for tactical strategies were muted due to subdued merger and acquisition volume and fewer than expected distressed opportunities. Strong performance from infrastructure, leasing, and secondaries in the real assets portfolio was offset by disappointing returns from agriculture, which faced rising input costs and unfavorable supply and demand conditions. Within the risk mitigation portfolio, multi-strategy funds took advantage of more return dispersion between asset classes and securities, while global macro funds lagged other strategies due to trend reversals across several markets. Over the last 10 years, opportunistic strategies produced the highest returns and were able to take advantage of periodic market dislocations, which created opportunities to deploy capital at attractive prices. Real assets have generated solid absolute returns with strong demand for tangible assets, providing consistent returns with high yields and long-term contracted revenue streams. Risk mitigation funds have earned meaningful excess returns by capitalizing on higher levels of volatility and extreme market moves.

PERA's Alternatives portfolio returned 7.8%, compared with its custom benchmark's return of 9.4%. The Alternatives portfolio has outperformed its custom benchmark over the three- and 10-year periods and trailed over the one- and five-year periods.

Sincerely,

Amy C. McGarrity
Chief Investment Officer/Chief Operating Officer
Colorado PERA

DEFINED BENEFIT PLANS

REPORT ON INVESTMENT ACTIVITY

(The Report on Investment Activity was prepared by internal staff.)

The Division Trust Funds, the Health Care Trust Funds, and the Life Insurance Reserve are included in the information discussed in this subsection on Colorado PERA's defined benefit plans.

State Law

State law gives complete responsibility for the investment of PERA's funds to the Board, with some stipulations including:

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

Additionally, Colorado Revised Statutes (C.R.S.) § 24-54.8-201 *et seq.* imposes targeted divestment from companies that have economic prohibitions against Israel.

PERA Board's Statutory Fiduciary Responsibility

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

Goal

The function of PERA is to provide present and future retirement or survivor benefits for its members. The investment function is managed in a manner to promote long-term financial security for our membership while maintaining the stability of the fund.

Overview of Investment Policy

PERA's investment policy outlines the investment philosophy and guidelines within which the fund's investments will be managed, and includes the following:

- Strategic asset allocation is the most significant factor influencing long-term investment performance and asset volatility.

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

The Board determines the strategic asset allocation for the fund. This strategic asset allocation contains a long-term target allocation and specific ranges within which each asset class may operate. Because the long-term target allocation will be achieved over time, a yearly policy benchmark weight is also specified. For 2023 the fund achieved the long-term target allocation. The asset allocation targets and ranges in effect for 2023 are listed as follows:

ASSET ALLOCATION TARGETS AND RANGES¹

	2023 Policy Benchmark Weight	Long-Term Asset Allocation Target	Target Range
Global Equity	54.0%	54.0%	48.0% – 60.0%
Fixed Income	23.0%	23.0%	18.0% – 28.0%
Private Equity	8.5%	8.5%	4.0% – 13.0%
Real Estate	8.5%	8.5%	4.0% – 13.0%
Alternatives	6.0%	6.0%	0.0% – 12.0%
Cash and Short-Term Investments	0.0%	0.0%	0.0% – 3.0%

¹ See Note 5 of the Notes to the Financial Statements in the Financial Section for detailed disclosures about each asset class.

The asset allocation policy is determined by an intensive asset/liability study which considers expected investment returns, risks, and correlations of returns. The characteristics of the fund's liabilities are analyzed in conjunction with expected investment risks and returns. The targeted strategic asset allocation is designed to provide appropriate diversification and to balance the expected total rate of return with the volatility of expected returns, while ensuring an appropriate level of risk is incurred. The Board commissioned an asset/liability study during 2019, which was prepared by Aon Investments USA Inc. (Aon). The objective of the study was to determine the optimal strategic asset allocation that will ultimately allow PERA to meet its financial obligations, while also ensuring that PERA incurs appropriate levels of risk and liquidity. As a result of this study, the Board slightly modified the asset allocation ranges and targets effective January 1, 2020, while reaffirming the investment return assumption of 7.25%. PERA is undergoing an asset/liability study which is scheduled to be completed in 2024.

DEFINED BENEFIT PLANS

The asset allocation targets are adhered to through the implementation of portfolio rebalancing. Investments are managed and monitored in a manner which seeks to balance return and risk within the asset/liability framework. The Chief Investment Officer is authorized to execute investment transactions on behalf of the Board. Assets are managed both internally and externally. In making investment decisions, the Board and staff utilize external experts in various fields.

Basis of Presentation

Aon, the Board's Investment Performance consultant, provides the investment returns for the fund based on data made available by the fund's custodian, The Northern Trust Company (Northern Trust). Performance calculations were prepared using time-weighted rates of return and are net-of-fees unless otherwise indicated. Returns for periods longer than one year are annualized.

Investment Stewardship

It is the fiduciary duty of the Board and Investment staff to manage plan assets with prudence and care in pursuit of long-term financial sustainability for the benefit of members and plan participants. PERA staff demonstrate stewardship of plan assets by: protecting members' interests through cost-conscious investments; integrating financially material factors into investment decisions; advocating for robust market practices that support long-term value; and evaluating portfolio exposures and performance on an ongoing basis.

Investment staff initiatives and philosophy supporting the pursuit of financial sustainability through stewardship are discussed in greater detail in PERA's *Investment Stewardship Report*. The *Investment Stewardship Report* is updated annually, and can be found on PERA's website at copera.org.

Proxy Voting

As part of investment stewardship, PERA promotes corporate governance and other business practices expected to contribute to financial sustainability through proxy voting. The Board views the right to vote as an asset of the plans to be managed under fiduciary duty, and has charged the Investment Committee with oversight in fulfilling that responsibility.

The Board and the Investment Committee have delegated to Investment Stewardship Division staff the authority to review and vote on proxy proposals in compliance with PERA's *Proxy Voting Policy (Policy)*. Accordingly, staff vote proxies for domestic and international equity shares held in separately managed public market portfolios.

The *Policy* sets forth guidance on a broad range of issues that may present risks and opportunities for the public companies in which PERA invests. The Board regularly updates the *Policy* in seeking alignment of corporate management interests with the interests of long-term shareholders, as relevant to PERA's investment thesis. The *Policy* and a link to disclosure of votes cast can be viewed on PERA's website at copera.org.

DEFINED BENEFIT PLANS

Aon provides the investment returns for the fund based on data made available by Northern Trust. The annualized one-, three-, five-, and 10-year net-of-fees time-weighted rates of return for each asset class and their respective benchmarks are as follows:

SCHEDULE OF INVESTMENT RESULTS

As of December 31, 2023

	2023	3-Year	5-Year	10-Year
PERA Total Portfolio	13.4%	4.5%	10.0%	7.8%
Total Fund Policy Benchmark ¹	14.4%	3.9%	8.9%	6.9%
Median Plan (BNY Mellon Performance & Risk Analytics in conjunction with Investment Metrics Median Public Fund Universe)	10.9%	4.4%	8.4%	6.4%
Global Equity	23.8%	5.2%	13.1%	9.0%
Global Equity Custom Benchmark ²	21.9%	5.7%	11.8%	7.9%
Fixed Income	6.2%	(3.0%)	1.5%	2.2%
Fixed Income Custom Benchmark ³	5.5%	(3.3%)	1.1%	2.0%
Private Equity	4.7%	10.9%	13.2%	12.0%
Private Equity Custom Benchmark ⁴	23.4%	7.2%	13.3%	12.4%
Real Estate	(9.9%)	8.5%	7.8%	10.1%
Real Estate Custom Benchmark ⁵	(12.2%)	4.5%	3.8%	6.8%
Alternatives	7.8%	8.2%	7.8%	6.2%
Alternatives Custom Benchmark ⁶	9.4%	6.2%	7.9%	5.9%
Cash and Short-Term Investments	5.2%	2.3%	1.9%	1.3%
ICE BofAML U.S. 3-Month Treasury Bill Index	5.0%	2.2%	1.9%	1.3%

Note: Performance calculations were prepared using net-of-fees time-weighted rates of return.

¹ The PERA Board adopted benchmarks beginning April 1, 2004, for each of the various asset classes. The adopted benchmarks have changed over time and, accordingly, the benchmark returns presented represent a blend, as follows:

- The Total Fund Policy Benchmark—A combination of 54.0% of the Global Equity Custom Benchmark, 23.0% of the Fixed Income Custom Benchmark, 8.5% of the Private Equity Custom Benchmark, 8.5% of the Real Estate Custom Benchmark, and 6.0% of the Alternatives Custom Benchmark. Prior to January 2023, 55.0% of the Global Equity Custom Benchmark, 23.5% of the Fixed Income Custom Benchmark, 8.5% of the Private Equity Custom Benchmark, 8.5% of the Real Estate Custom Benchmark, and 4.5% of the Alternatives Custom Benchmark. Prior to January 2022, 55.5% of the Global Equity Custom Benchmark, 23.5% of the Fixed Income Custom Benchmark, 8.5% of the Private Equity Custom Benchmark, 8.5% of the Real Estate Custom Benchmark, and 4.0% of the Alternatives Custom Benchmark. Prior to January 2021, 56.0% of the Global Equity Custom Benchmark, 23.5% of the Fixed Income Custom Benchmark, 8.5% of the Private Equity Custom Benchmark, 8.5% of the Real Estate Custom Benchmark, and 3.5% of the Alternatives Custom Benchmark. Prior to January 2020, 53.5% of the Global Equity Custom Benchmark, 23.5% of the Fixed Income Custom Benchmark, 8.5% of the Private Equity Custom Benchmark, 8.5% of the Real Estate Custom Benchmark, 5.0% of the Alternatives Custom Benchmark, and 1.0% of the ICE BofAML U.S. 3-Month Treasury Bill Index. Prior to July 2016, 55.0% of the Global Equity Custom Benchmark, 24.0% of the Fixed Income Custom Benchmark, 7.5% of the Real Estate Custom Benchmark, 7.5% of the Private Equity Custom Benchmark, 5.0% of the Alternatives Custom Benchmark, and 1.0% of the ICE BofAML U.S. 3-Month Treasury Bill Index. Prior to July 2015, 56.0% of the Global Equity Custom Benchmark, 25.0% of the Fixed Income Custom Benchmark, 7.0% of the Real Estate Custom Benchmark, 7.0% of the Private Equity Custom Benchmark, and 5.0% of the Alternatives Custom Benchmark.

² MSCI ACWI IMI (Net) with USA Gross. Prior to July 2018, MSCI ACWI IMI.

³ Bloomberg U.S. Aggregate Bond Index. Prior to August 2018, Bloomberg U.S. Universal Bond Index. Prior to July 2015, 98.0% of the Bloomberg U.S. Universal Bond Index and 2.0% of the Bloomberg U.S. Long Government/Credit Index.

⁴ MSCI ACWI IMI (Net) with USA Gross plus 150 basis points. Prior to January 2019, Burgiss Time Weighted Rate of Return Benchmark. Prior to January 2015, DJ U.S. Total Stock Market Index plus 250 basis points annually.

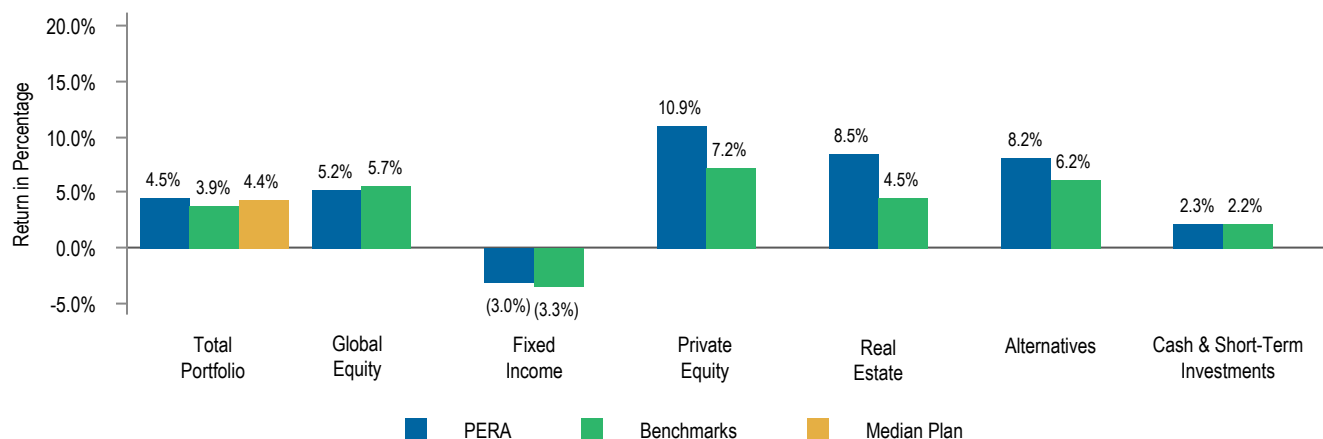
⁵ NCREIF Open End Diversified Core Equity Index (NFI-ODCE) plus 50 basis points annually.

⁶ Weighted average of each of the three objectives (Risk Mitigation: HFRI FOF Market Defensive Index, Real Assets: CPI plus 400 basis points, Opportunistic: PERA Public Markets plus 150 basis points). Prior to January 2019, weighted aggregate of the benchmarks of the individual strategies included in Alternatives.

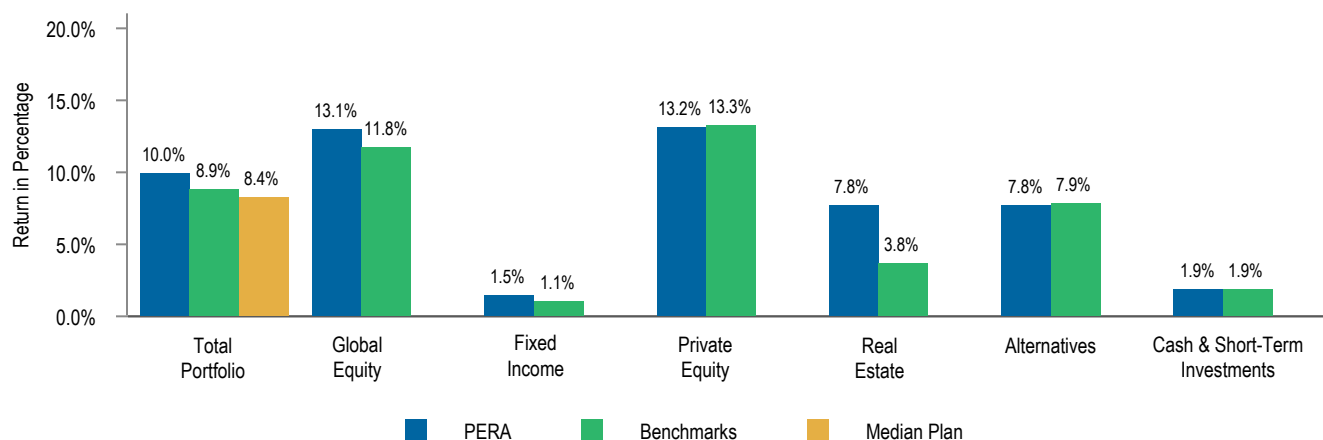
DEFINED BENEFIT PLANS

The three-, five-, and 10-year net-of-fees time-weighted rates of return for the total fund and each asset class and their respective benchmarks are as follows:

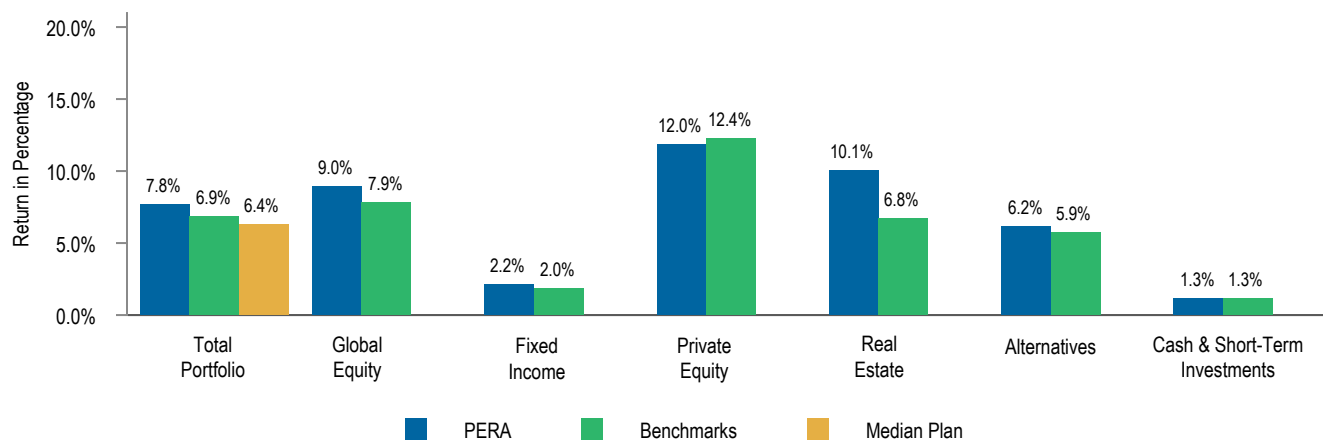
Three-Year Net-of-Fees Time-Weighted Rates of Return



Five-Year Net-of-Fees Time-Weighted Rates of Return



Ten-Year Net-of-Fees Time-Weighted Rates of Return



DEFINED BENEFIT PLANS

(Dollars in Thousands)

INVESTMENT SUMMARY

	Fair Value per Financial Statements December 31, 2023	Reallocation of Investment Amounts ¹	Non- Investment Amounts ²	Fair Value per Investment Portfolio December 31, 2023	2023 Policy Benchmark Weight ³	Actual Asset Allocation (% of Fair Value)		
						12/31/23	12/31/22	12/31/21
Global Equity	\$33,427,354	\$355,992	\$—	\$33,783,346	54.0%	55.0%	52.8%	58.3%
Fixed Income	11,474,884	165,297	—	11,640,181	23.0%	18.9%	19.4%	18.4%
Private Equity	5,358,065	272	—	5,358,337	8.5%	8.7%	9.2%	9.2%
Real Estate	6,222,787	(1,065)	—	6,221,722	8.5%	10.1%	11.9%	8.8%
Alternatives	4,230,082	5,875	—	4,235,957	6.0%	6.9%	6.3%	4.7%
Cash and Short-Term Investments								
Operating Cash	15,389	—	(15,389)	—				
Cash and Short-Term Investments	922,652	(690,162)	—	232,490	0.0%	0.4%	0.4%	0.6%
Net securities lending collateral and obligations	11,522	(11,522)	—	—				
Net investment settlements and income and other liabilities ⁴	(271,244)	175,313	95,931	—				
Benefit, interfund, and other receivables, and capital assets ⁵	241,794	—	(241,794)	—				
Deferred inflows of resources	(1,337)	—	1,337	—				
Total	\$61,631,948	\$—	(\$159,915)	\$61,472,033	100.0%	100.0%	100.0%	100.0%

¹ Investment receivables, payables, accruals, securities lending collateral, securities lending obligations, and cash and short-term investments are allocated back to the investment portfolios that hold them.

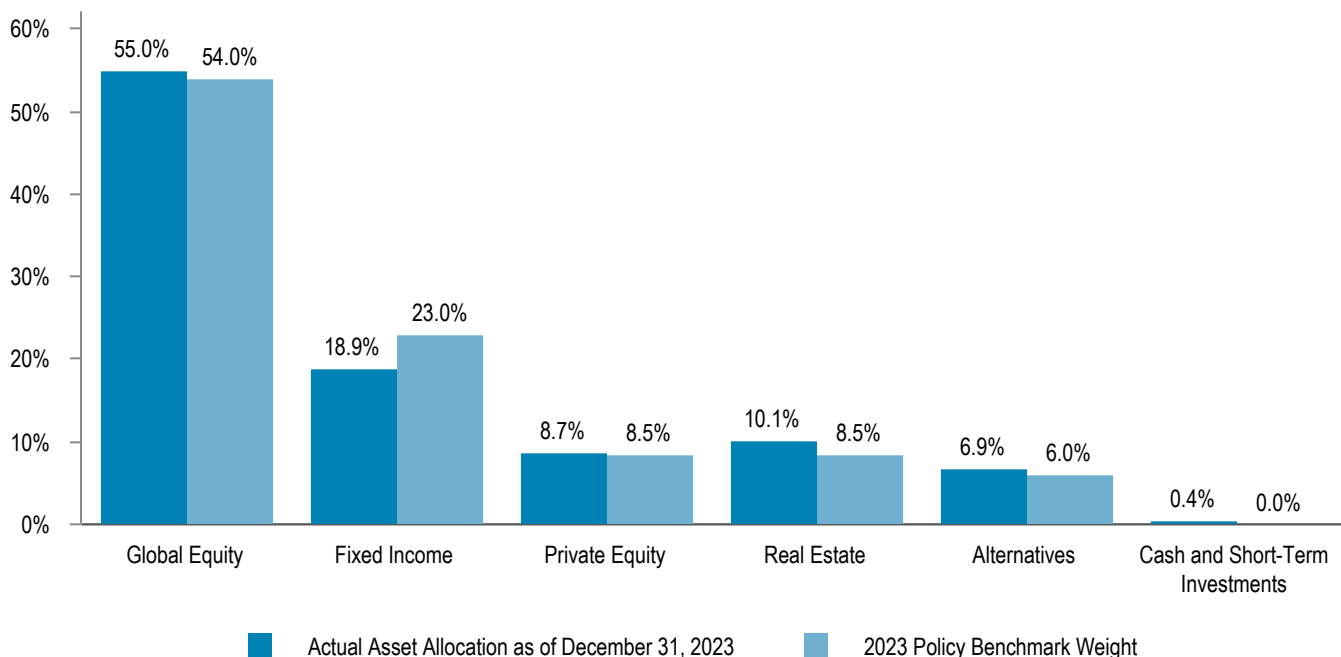
² Non-investment amounts are not included in the determination of actual investment asset allocation.

³ See page 124 for more information about the strategic asset allocation of the fund.

⁴ Includes non-investment payables of \$95,931.

⁵ Includes benefit receivables of \$222,525, interfund receivables of \$337, other receivables of \$3,827, and capital assets of \$15,105.

Actual Asset Allocation versus Policy Benchmark Weight



DEFINED BENEFIT PLANS

(Dollars in Thousands)

(In actual dollars for this paragraph only)

Total investment expenses for internal and external asset management of PERA's \$61.5 billion investment portfolio were \$218.5 million representing about 35.5 bps. PERA strives to manage the investment assets in a cost efficient manner. The driving factor in the low overall cost is the use of internal management. PERA staff manages 59.8% of total fund assets in-house at a calculated cost for internal asset management of \$19.7 million (5.3 bps); outsourcing such management would cost an estimated \$101.9 million (27.7 bps). The remaining portion of the \$29.4 million internal manager expenses shown in the following table is for PERA staff oversight of externally-managed assets.

SCHEDULE OF INVESTMENT EXPENSES¹

As of December 31, 2023

	Investment Expenses
Global Equity	\$25,854
Fixed Income	—
Private Equity	65,667
Real Estate	37,525
Alternatives	55,836
Cash and Short-Term Investments	315
Total external manager expenses	185,197
Internal manager expenses	29,399
Other investment expenses and custody fees	3,854
Total investment expenses	\$218,450

¹ See the Investment Summary on page 128 for information about fair value of investments.

The following table breaks out both the dollar amount and percentage of each asset class managed internally. It is important to note that all accounts, both internal and external, are held to the same high performance standards.

SCHEDULE OF INTERNAL AND EXTERNAL ASSET MANAGEMENT

As of December 31, 2023

Asset Class	Internal		External		Total Amount
	Amount	Percent	Amount	Percent	
Global Equity	\$25,145,029	74.4%	\$8,638,317	25.6%	\$33,783,346
Fixed Income	11,640,181	100.0%	—	—	11,640,181
Private Equity	—	—	5,358,337	100.0%	5,358,337
Real Estate	—	—	6,221,722	100.0%	6,221,722
Alternatives	—	—	4,235,957	100.0%	4,235,957
Cash and Short-Term Investments	—	—	232,490	100.0%	232,490
Total	\$36,785,210	59.8%	\$24,686,823	40.2%	\$61,472,033

DEFINED BENEFIT PLANS

(Dollars in Thousands)

SCHEDULE OF INVESTMENT INCOME AND EXPENSES BY ASSET CLASS

As of December 31, 2023

Asset Class	Net Appreciation/ (Depreciation) in Fair Value ¹	Interest and Dividends	Net Operating Income ²	Investment Expenses ³	Net Income from Securities Lending	Net Investment Income/(Loss)
Global Equity	\$6,186,449	\$601,713	\$—	(\$43,130)	\$6,752	\$6,751,784
Fixed Income	274,977	392,816	—	(6,927)	15,175	676,041
Private Equity	295,626	16	11,224	(69,926)	—	236,940
Real Estate	(824,163)	—	184,551	(39,720)	—	(679,332)
Alternatives	240,821	6	109,503	(58,403)	—	291,927
Cash and Short-Term Investments	59,885	16,969	—	(344)	—	76,510
Total	\$6,233,595	\$1,011,520	\$305,278	(\$218,450)	\$21,927	\$7,353,870

¹ Global Equity and Fixed Income include realized gain/(loss) recognized on securities sold during 2023, current year unrealized gain/(loss) and unrealized translation gain/(loss), and class action revenue. Private Equity, Real Estate, and Alternatives include current year realized and unrealized gain/(loss), paid carried interest, and adjustments to accrued carried interest as reported by the General Partner.

² Private Equity, Real Estate, and Alternatives include investment income and expenses as reported by the General Partner.

³ Includes external and internal investment management, custody, and other investment expenses.

SCHEDULE OF PRIVATE MARKET INVESTMENT CONTRIBUTIONS, DISTRIBUTIONS, AND PAID CARRIED INTEREST

As of December 31, 2023

Asset Class	Contributions ¹	Distributions ²	Paid Carried Interest ³
Private Equity	\$598,545	\$641,431 ⁴	\$45,629
Real Estate	429,315	675,356	61,191
Alternatives	715,332	286,630	18,472
Total	\$1,743,192	\$1,603,417	\$125,292

¹ Represents money sent to external entities for the purpose of funding private market investments and/or fees during the current fiscal year.

² Represents money or shares of companies received from external entities during the current fiscal year, generally due to PERA receiving its proportionate share of an investment's exited value.

³ Represents the share of profits paid to external entities due to investment returns surpassing agreed-upon thresholds. Amounts will vary, potentially significantly, from year to year depending on the timing of sales of the underlying investments and the magnitude of the gains. Amounts are based on best available information provided by external entities. Actual results could differ from those amounts.

⁴ Includes money received from the sale of PERA's partnership interests on the secondary market.

DEFINED BENEFIT PLANS

(Dollars in Thousands)

PROFILE OF INVESTMENTS IN COLORADO

As of December 31, 2023

	Fair Value
Public Equity¹	\$89,295
Fixed Income¹	25,452
Private Equity	
Portfolio investments ²	209,610
Future commitments to Colorado-based general partnerships or funds	41,038
Total Private Equity	250,648
Real Estate	
Portfolio investments ²	109,744
Future commitments to Colorado-based general partnerships or funds	61,484
Total Real Estate	171,228
Alternatives	
Portfolio investments ²	137,419
Future commitments to Colorado-based general partnerships or funds	114,848
Total Alternatives	252,267
Total	\$788,890

¹ Companies headquartered in Colorado.

² Portfolio investments domiciled in Colorado.

DEFINED BENEFIT PLANS

(Dollars in Thousands)

LARGEST EQUITY HOLDINGS BY FAIR VALUE¹

As of December 31, 2023

	Shares	Fair Value
Apple Inc.	7,563,604	\$1,456,221
Microsoft Corp.	3,496,890	1,314,971
Amazon.com, Inc.	6,106,105	927,762
Alphabet Inc.	6,085,680	850,109
Nvidia Corp.	1,495,644	740,673
Meta Platforms, Inc.	1,239,647	438,785
UnitedHealth Group Inc.	743,425	391,391
Visa Inc.	1,354,613	352,673
Costco Wholesale Corp.	529,048	349,214
Salesforce, Inc.	1,101,513	289,852

¹ Does not include commingled funds.

Note: A complete list of holdings is available on copera.org.

LARGEST FIXED INCOME HOLDINGS BY FAIR VALUE¹

As of December 31, 2023

	Par Value	Income Rate	Maturity Date	Fair Value
US Treasury Notes	\$377,117	4.500%	11/15/33	\$396,739
FNMA Pool #MA5166	263,749	6.000%	10/1/53	268,005
US Treasury Bonds	221,287	4.750%	11/15/43	238,195
FNMA Pool #MA5216	166,973	6.000%	12/1/53	169,668
US Treasury Bonds	177,029	3.875%	5/15/43	169,395
US Treasury Notes	167,194	5.000%	8/31/25	168,762
FNMA TBA	122,937	5.500%	1/16/54	123,561
US Treasury Bonds	167,194	1.875%	2/15/41	120,687
US Treasury Bonds	159,327	2.500%	2/15/46	120,067
US Treasury Bonds	118,020	3.875%	2/15/43	112,939

¹ Based on the allocated portion of the unitized PERA Fixed Income Pool.

Note: A complete list of holdings is available on copera.org.

DEFINED BENEFIT PLANS

(Dollars in Thousands)

INVESTMENT BROKERS/ADVISERS (INTERNALLY MANAGED ASSETS)

Barclays Capital Inc.	Liquidnet, Inc.
BMO Capital Markets Corp.	MarketAxess Corp.
BNP Paribas Securities Corp.	Mizuho Securities USA LLC
BofA Securities, Inc.	Morgan Stanley & Co. LLC
Brean Capital, LLC	MUFG Securities Americas Inc.
Cantor Fitzgerald & Co.	NatWest Markets Securities Inc.
CIBC World Markets Corp.	Nomura Securities International, Inc.
Citadel Securities LLC	PNC Capital Market LLC
Citigroup Global Markets Inc.	RBC Capital Markets, LLC
Credit Agricole (USA) Inc.	Santander US Capital Markets LLC
DASH Financial Technologies LLC	Stifel, Nicolaus & Company Incorporated
Deutsche Bank Securities Inc.	Sumitomo Mitsui Banking Corp
Federal National Mortgage Association (Fannie Mae)	TD Securities (USA) LLC
Goldman Sachs & Co. LLC	Themis Trading LLC
HSBC Securities (USA) Inc.	Tradeweb Markets Inc.
J.P. Morgan Securities, Inc.	Truist Securities, Inc.
Jefferies Group LLC	U.S. Bancorp
Jones Trading Institutional Services LLC	UBS Securities, LLC
KeyBanc Capital Markets Inc.	Wells Fargo Securities, LLC

Note: A list of investment managers is available upon request.

SCHEDULE OF COMMISSIONS¹

As of December 31, 2023

Asset Class	Internally Managed Investments		Externally Managed Investments		Total Commissions
	Commissions	Percentage of Asset Class	Commissions	Percentage of Asset Class	
Global Equity ²	\$604	74.4%	\$934	25.6%	\$1,538
Fixed Income ³	4,480	100.0%	—	—	4,480
Total commissions	\$5,084		\$934		\$6,018

¹ Does not include commissions from futures trading, Private Equity, Real Estate, or Alternatives.² Does not include commissions from commingled funds.³ Fixed Income commissions are estimated, with the exception of commissions on exchange-traded funds.

DEFINED CONTRIBUTION PLANS

REPORT ON INVESTMENT ACTIVITY

(The Report on Investment Activity was prepared by internal staff.)

Overview

The Voluntary Investment Program, Defined Contribution Retirement Plan, and the Deferred Compensation Plan are included in the information discussed in this subsection on Colorado PERA's defined contribution plans. These three Plans are known collectively as the Capital Accumulation Plans (CAPs). PERA publishes an Annual Report for the CAPs and distributes it to all plan participants.

PERA established the Voluntary Investment Program (PERAPlus 401(k) Plan) on January 1, 1985, under Section 401(k) of the Internal Revenue Code (IRC). The PERAPlus 401(k) Plan includes voluntary contributions made by employees of PERA-affiliated employers in the State, School, Local Government, Judicial, and Denver Public Schools Division Trust Funds. These contributions are entirely separate from those members make to the defined benefit plan each month.

The Defined Contribution Retirement Plan (DC Plan) was established on January 1, 2006, as an IRC § 401(a) governmental profit-sharing plan. The DC Plan offers a defined contribution alternative to the PERA defined benefit plan for certain employees of the State or Local Government Divisions, classified employees at State colleges and universities, most community colleges, as well as the District Attorney within each Judicial District, and if authorized by the county and the District Attorney, the attorneys within that Judicial District (see Note 1 of the Notes to the Financial Statements in the Financial Section for additional details).

On July 1, 2009, PERA assumed the administrative and fiduciary responsibility for the State of Colorado Deferred Compensation Plan, now known as the PERAPlus 457 Plan. The PERAPlus 457 Plan includes voluntary contributions made by employees working for a PERA-affiliated employer that have also affiliated with the PERAPlus 457 Plan.

YEAR END STATISTICS

(Dollars in Thousands)

	2023	2022	% Chg
Fiduciary Net Position			
PERAPlus 401(k) Plan	\$4,337,956	\$3,786,273	14.57%
DC Plan	422,432	339,452	24.45%
PERAPlus 457 Plan	1,278,624	1,106,210	15.59%
Number of Accounts			
PERAPlus 401(k) Plan	66,394	67,040	(0.96%)
DC Plan	8,083	7,846	3.02%
PERAPlus 457 Plan	20,205	20,063	0.71%

Outline of Investment Policies

Objectives

The Board is responsible for approving an appropriate range of investments that addresses the needs of the participants in the CAPs. The objectives of selecting the investment options under each CAP are to:

- Provide a wide range of investment opportunities in various asset classes so as to allow for diversification and to cover a wide risk/return spectrum.
- Achieve returns within reasonable and prudent levels of risk.
- Provide returns comparable to returns for similar investment options.
- Control administrative and investment management costs to the plan and participants.

Investment Stewardship

The CAPs adhere to the same principles of investment stewardship as the defined benefit plans. For more information, please refer to the Investment Stewardship section on page 125.

Loans

Participants in the PERAPlus 401(k) and PERAPlus 457 Plans may access their funds through loans as allowed under plan policy and the Internal Revenue Service. The DC Plan prohibits participant loans.

Administrative Fees

Plan administrative fees pay for recordkeeping, custodial services, consulting, and internal PERA administrative expenses.

The administrative fee for the PERAPlus 401(k) Plan and the DC Plan consists of a flat \$1.00 per month per participant per plan and an asset-based fee of up to 0.03% on each underlying PERAdvantage fund. The PERAPlus 401(k) Plan asset-based fee was waived through 2024. The administrative fee for the PERAPlus 457 Plan consists of a flat \$1.50 per month per participant per plan and an asset based fee of up to 0.03% on each underlying PERAdvantage fund.

2023 Changes

The PERAdvantage Target Retirement Date funds transitioned entirely to securities lending. Previously, these funds were 90% securities lending and 10% non-lending.

Schwab completed its acquisition of TD Ameritrade and is now the Self-Directed Brokerage provider.

DEFINED CONTRIBUTION PLANS

PERAdvantage Investment Options

The PERAdvantage funds provide diversification within each of the seven primary funds and 10 target retirement date funds. The white label structure of the PERAdvantage funds simplifies choices, increases diversification, and helps participants identify investments based on how the fund invests the money rather than name familiarity. In addition, the CAPs provide a self-directed brokerage account for participants to select their own investments.

Participants invest assets in one or more of the following investments:

Primary Investment Options***PERAdvantage Capital Preservation Fund***

The fund seeks to provide consistent investment income with a stable net asset value primarily by investing in a portfolio of high-quality, low volatility fixed income securities to produce the income. Since the underlying fixed income investments fluctuate in fair value with changes in the market, the portfolio is paired with an insurance contract to provide a more stable return and to offer participants the ability to withdraw or transfer their funds, subject to plan rules, without any fair value risk or other penalty for premature withdrawal. The fund is managed by Empower Capital Management (100%).

PERAdvantage Fixed Income Fund

The fund seeks to generate income, preserve capital, and provide long-term capital appreciation by investing in a diversified portfolio of fixed income instruments. This fund primarily invests in investment grade debt securities, but may invest a portion of its assets in high-yield securities. The fund may invest in derivative instruments or in mortgage- or asset-backed securities. The fund is managed by PERA (50% unitized Fixed Income) and BlackRock (50% Core Alpha).

PERAdvantage Real Return Fund

The fund seeks to provide broad exposure to real assets and U.S. inflation protected bonds and to produce a return over a full market cycle that exceeds the rate of inflation. This fund invests in U.S. inflation-linked bonds, real estate investment trusts (REITs), commodities, and global natural resources and infrastructure stocks. The fund is managed by State Street Global Advisors (70% Real Asset Strategy and 30% U.S. Inflation Protected Index).

PERAdvantage Socially Responsible Investment (SRI) Fund

The fund seeks to produce a return above the index by investing in a portfolio of global equities and investment grade fixed income securities. The equity portion seeks to replicate the return of the MSCI ACWI ESG Focus Index.

The fixed income portion invests in U.S. dollar denominated securities that demonstrate environmental, social, and governance (ESG) leadership and direct and measurable environmental and social impact. The fund is managed by BlackRock (60% ACWI ESG Focus Index) and TIAA-CREF (40% Core Impact Bond).

PERAdvantage U.S. Large Cap Stock Fund

The fund seeks to provide long-term capital appreciation and dividend income primarily by investing in the common stock of companies located in the United States with large market capitalizations. This fund invests in a wide array of U.S. stocks with market capitalizations similar to those found in the MSCI USA Large Cap Index. The fund is managed by PERA (60% Large Cap Index and 40% Large Cap Core).

PERAdvantage U.S. Small and Mid Cap Stock Fund

The fund seeks to provide long-term capital appreciation and dividend income primarily by investing in the common stock of companies located in the United States with small and mid-market capitalizations. This fund invests in a wide array of U.S. stocks with market capitalizations similar to those found in the MSCI USA SMID Cap Index. The fund is managed by PERA (50% Small Cap Core) and Dimensional Fund Advisors (50% Mid Cap Core).

PERAdvantage International Stock Fund

The fund seeks to provide long-term capital appreciation and dividend income primarily by investing in the common stock of companies located outside the United States. This fund invests in a wide array of international stocks similar to those found in the MSCI All Country World Index (ACWI) ex USA. The fund is managed by Schroder Investment Management (60% International Alpha) and PERA (40% International Multi-Factor).

Additional Investment Options***PERAdvantage Target Retirement Date Funds***

There are 10 funds with varying asset mixes and risk levels based on expected retirement date. Each fund is comprised of the corresponding BlackRock LifePath Index Target Retirement Date Fund. These funds seek a combination of capital appreciation and income and will automatically adjust the underlying asset allocation to become more conservative as they reach their target retirement date, at which time the fund will be blended into the PERAdvantage Income Fund. The funds are managed by BlackRock (100%).

Schwab Self-Directed Brokerage Account

This account allows selection from numerous mutual funds and other types of securities, such as stocks and bonds, for an additional fee. Investment in the self-directed brokerage account is offered through Schwab.

DEFINED CONTRIBUTION PLANS

Callan provides the investment returns for the CAPs based on data made available by Empower. The annualized one-, three-, five-, and 10-year net-of-fees time-weighted rates of return for each PERAdvantage fund and their respective benchmarks are as follows:

SCHEDULE OF INVESTMENT RESULTS

As of December 31, 2023

Fund/Benchmark	2023	3-Year	5-Year	10-Year
PERAdvantage Capital Preservation Fund	2.1%	1.7%	1.9%	1.9%
ICE BofAML U.S. 3-Month Treasury Bill Index ¹	5.0%	2.2%	1.9%	1.9%
PERAdvantage Fixed Income Fund	5.9%	(3.4%)	1.3%	1.8%
Bloomberg U.S. Aggregate Bond Index	5.5%	(3.3%)	1.1%	1.8%
PERAdvantage Real Return Fund	1.9%	5.4%	6.8%	3.4%
Real Return Custom Index ²	2.0%	5.4%	6.7%	3.5%
PERAdvantage Socially Responsible Investment Fund	15.3%	1.8%	7.7%	5.7%
SRI Custom Index ³	15.1%	1.8%	7.8%	5.7%
PERAdvantage U.S. Large Cap Stock Fund	29.7%	9.3%	16.2%	12.0%
MSCI USA Large Cap Index ⁴	28.3%	9.1%	15.5%	11.8%
PERAdvantage U.S. Small and Mid Cap Stock Fund	13.6%	7.2%	12.6%	7.8%
MSCI USA SMID Cap Index ⁵	16.1%	5.2%	12.3%	8.7%
PERAdvantage International Stock Fund	18.1%	2.8%	10.1%	5.5%
MSCI ACWI ex USA Index	15.6%	1.6%	7.1%	3.8%
PERAdvantage Income Fund	11.1%	0.5%	5.6%	4.3%
BlackRock LifePath® Retirement Index	11.1%	0.5%	5.6%	4.4%
PERAdvantage 2025 Fund	12.0%	1.1%	6.6%	5.2%
BlackRock LifePath® 2025 Index	11.9%	1.2%	6.6%	5.2%
PERAdvantage 2030 Fund	14.3%	2.3%	7.8%	5.9%
BlackRock LifePath® 2030 Index	14.2%	2.3%	7.8%	5.9%
PERAdvantage 2035 Fund	16.3%	3.3%	9.0%	6.6%
BlackRock LifePath® 2035 Index	16.3%	3.3%	9.0%	6.6%
PERAdvantage 2040 Fund	18.3%	4.3%	10.0%	7.2%
BlackRock LifePath® 2040 Index	18.3%	4.3%	10.0%	7.2%
PERAdvantage 2045 Fund	20.1%	5.1%	10.9%	7.7%
BlackRock LifePath® 2045 Index	20.1%	5.1%	10.9%	7.7%
PERAdvantage 2050 Fund	21.3%	5.6%	11.4%	8.0%
BlackRock LifePath® 2050 Index	21.2%	5.5%	11.3%	7.9%
PERAdvantage 2055 Fund	21.6%	5.7%	11.5%	8.0%
BlackRock LifePath® 2055 Index	21.6%	5.6%	11.4%	8.0%
PERAdvantage 2060 Fund	21.6%	5.7%	11.5%	N/A
BlackRock LifePath® 2060 Index	21.6%	5.6%	11.4%	N/A
PERAdvantage 2065 Fund	21.6%	5.7%	N/A	N/A
BlackRock LifePath® 2065 Index	21.6%	5.6%	N/A	N/A

Note: Performance is net of investment management fees (and net of administrative fees prior to 12/03/2021) and calculated using time-weighted net asset values. Returns for periods greater than one year are annualized.

¹ ICE BofAML U.S. 3-Month Treasury Bill Index represents the Huebel Index through December 2019 and the ICE BofAML U.S. 3-Month Treasury Bill Index from January 2020 forward.

² 70% State Street Real Asset Strategy DC Index/30% Bloomberg U.S. TIPS Index.

³ 60% MSCI World ESG Leaders/40% Bloomberg U.S. Gov't Bond through September 2019, 60% MSCI ACWI ESG Focus/40% Bloomberg U.S. Gov't Bond through December 2019, and 60% MSCI ACWI ESG Focus/40% Bloomberg U.S. Aggregate from January 2020 forward.

⁴ MSCI USA Large Cap Index represents the Russell 1000 Index through December 2018 and the MSCI USA Large Cap Index from January 2019 forward.

⁵ MSCI USA SMID Cap Index represents the Russell 2500 Index through December 2018 and the MSCI USA SMID Cap Index from January 2019 forward.

DEFINED CONTRIBUTION PLANS

(Dollars in Thousands)

INVESTMENT SUMMARY

Fund	Fair Value as of December 31, 2023		
	Voluntary Investment Program	Defined Contribution Retirement Plan	Deferred Compensation Plan
PERAdvantage Capital Preservation Fund ¹	\$289,269	\$15,673	\$148,461
PERAdvantage Fixed Income Fund	291,550	16,472	86,872
Fixed Income Funds	580,819	32,145	235,333
PERAdvantage Real Return Fund	28,530	2,525	13,958
PERAdvantage Socially Responsible Investment Fund	29,125	3,939	14,457
Multi-Asset Funds	57,655	6,464	28,415
PERAdvantage U.S. Large Cap Stock Fund	1,888,103	78,006	363,486
PERAdvantage U.S. Small and Mid Cap Stock Fund	229,787	33,144	142,267
PERAdvantage International Stock Fund	341,075	33,602	124,774
Equity Funds	2,458,965	144,752	630,527
PERAdvantage Income Fund	209,507	12,514	48,394
PERAdvantage 2025 Fund	160,188	13,501	41,117
PERAdvantage 2030 Fund	172,974	18,339	45,843
PERAdvantage 2035 Fund	176,765	22,266	53,815
PERAdvantage 2040 Fund	138,232	25,619	49,176
PERAdvantage 2045 Fund	108,891	41,245	35,299
PERAdvantage 2050 Fund	80,783	37,524	26,011
PERAdvantage 2055 Fund	49,101	31,479	14,198
PERAdvantage 2060 Fund	22,737	12,842	10,007
PERAdvantage 2065 Fund	7,815	3,392	4,507
Target Retirement Date Funds	1,126,993	218,721	328,367
Schwab Self-Directed Brokerage Account	51,204	9,829	38,556
Self-Directed Brokerage	51,204	9,829	38,556
Total Investment Portfolio²	\$4,275,636	\$411,911	\$1,261,198

Reconciliation to fair value per financial statements³

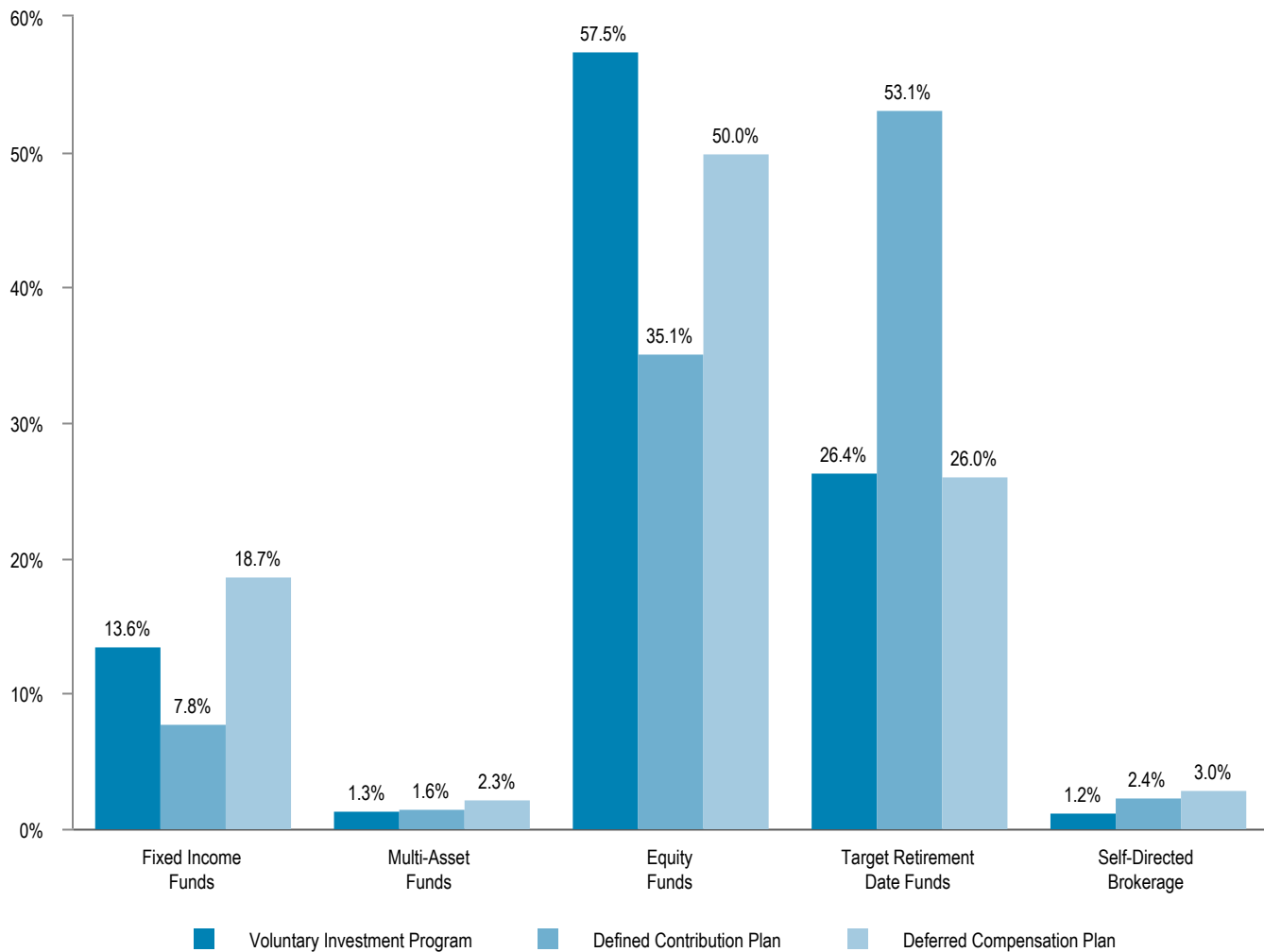
Adjustments:

Cash and short term-investments	(20,766)	(2,586)	(9,458)
Net securities lending collateral and obligations	(458)	13	26
Net investment settlements and income and other liabilities	11,053	609	2,928
Fair value per financial statements	\$4,265,465	\$409,947	\$1,254,694

¹ The Stable Value Fund in the PERAdvantage Capital Preservation Fund is reported at contract value.² The total investment portfolio managed by PERA for the defined contribution plans is \$5,948,745.³ Investment receivables, payables, accruals, securities lending collateral, securities lending obligations, and cash and short-term investments are excluded from investments in the financial statements.

DEFINED CONTRIBUTION PLANS

Asset Breakdown
As of December 31, 2023





Actuarial Section





ACTUARY'S CERTIFICATION LETTER



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June 6, 2024

Board of Trustees
Public Employees' Retirement Association of Colorado
1301 Pennsylvania Street
Denver, CO 80203-2386

Re: Actuarial Certification of PERA Division and Health Care Trust Funds

Dear Members of the Board:

Per the "Colorado PERA Defined Benefit Pension Plan Funding Policy", adopted by the Board of Trustees on March 20, 2015, and most recently revised on January 19, 2024, and the "Colorado PERA Defined Benefit OPEB Plan Funding Policy", adopted by the Board of Trustees on January 19, 2018, and most recently revised on January 19, 2024, the main funding objectives of the Public Employees' Retirement Association of Colorado (Colorado PERA) are:

- Preservation of the defined benefit plan structure;
- Demonstration of transparency and accountability;
- Achievement of a funded ratio greater than or equal to 110%;
- Balance of contribution rate stability and intergenerational equity;
- Reduction of Unfunded Actuarial Accrued Liabilities; and
- Recognition of beneficial elements of pooled risk.

With these goals in mind, an annual actuarial valuation is performed as a measure of the progress towards meeting them. The most recent valuations are based on the plan provisions and actuarial assumptions and methods in effect on December 31, 2023. In completing the valuation of the five defined benefit pension plans, referred to as the Division Trust Funds, and the two defined benefit Other Post-employment Benefit (OPEB) plans, referred to as the Health Care Trust Funds (HCTFs), Segal relied on membership and financial data provided by Colorado PERA. We have reviewed the membership data for reasonableness and consistency. We have not audited the membership data, but we have reconciled the membership data to the data used in the prior year's valuation.

6427416v6/14923.001

ACTUARY'S CERTIFICATION LETTER

Board of Trustees
June 6, 2024
Page 2

This actuarial valuation reflects the following changes from the prior valuation including:

The following legislation, enacted in 2022, 2023, and 2024 was reflected, to the extent possible, in this actuarial valuation:

- HB 22-1029, effective upon enactment in 2022, required the State Treasurer to (in addition to the regularly scheduled \$225 million direct distribution) issue a warrant to PERA in the amount of \$380 million, upon enactment, with potential reductions to future direct distributions scheduled to occur July 1, 2023, and July 1, 2024, based upon the actual investment returns reported by PERA for 2021 and 2022, respectively. The payment scheduled for July 1, 2023, was reduced by \$190 million, from \$225 million to \$35 million, based on the total fund investment return in 2021 of 16.1%. No reduction is required for the payment scheduled to occur July 1, 2024, due to a negative investment return in 2022.
- SB 23-056, enacted and effective June 2, 2023, intended to recompense PERA for the remaining portion of the \$225 million direct distribution originally scheduled for receipt July 1, 2020, suspended due to the enactment of HB 20-1379, but not fully repaid through the provisions within HB 22-1029. Pursuant to SB 23-056, the State Treasurer issued a warrant to PERA consisting of the balance of the PERA Payment Cash Fund, created in §24-51-416, plus \$10 million from the General Fund, totaling \$14.56 million.
- SB 23-163, enacted and effective June 6, 2023, states that beginning July 1, 2023, a wildlife officer and a parks and recreation officer (officer), employed by the Division of Parks and Wildlife in the Department of Natural Resources, is classified as a State Trooper for the purpose of determining the officer's service retirement eligibility and benefit under PERA.
- SB 24-099, enacted April 11, 2024, and effective 90 days following adjournment, adds superintendents and principals to the list of service retirees (along with teachers, school bus drivers, food services cooks, school nurses and paraprofessionals) that may be hired by a rural school district and employed without a reduction in retirement benefits. This legislation clarifies that the exemption for a rural school district also includes a small rural school district which has a funded pupil count for the prior budget year of less than 1,000 pupils. The bill extends the BOCES critical shortage provisions through June 30, 2030, and also clarifies that the two-year moratorium for those who have not met full-service retirement applies to all critical shortage positions and aligns the designation date for reporting critical shortage positions to September 1st of each year.
- HB 24-1044, enacted April 19, 2024, and effective July 1, 2024, increases the number of retirees that can be designated under the 140-day provision. This legislation increases the current retiree limit of 10 "140-day provision" designees, for certain districts. For districts with over 10,000 students, an additional retiree may be designated under the "140-day provision" for each thousand students in excess of 10,000. In addition, this bill modifies the requirement that positions be filled based on a "critical shortage of qualified candidates" test to filling positions based on "need". The bill places a 6-year cap on the total years a retiree may be designated under the "140-day provision" and aligns the designation date for all "140-day" designees to September 1st of each year.

6427416v6/14923.001



ACTUARY'S CERTIFICATION LETTER

Board of Trustees
June 6, 2024
Page 3

- SB 24-169, enacted May 24, 2024, and effective July 1, 2025, modifies the definition of "state trooper" to include a duly sworn employee of the division of fire prevention and control in the department of public safety. The bill applies the "state trooper" member and employer contribution rates and benefit structure to eligible employees whose duties include structural or wildfire management, wildfire response, live-fire training, or wildfire leadership, as determined by the executive director of the department of public safety.
- SB 24-186, enacted June 5, 2024, and effective January 1, 2025, modifies the definition of "state trooper" to include employees of a local government division employer classified as a coroner or deputy coroner who were elected, reelected, or appointed on or after January 1, 2021, which includes the Boulder County Coroner. The bill applies the "state trooper" member and employer contribution rates and benefit structure to eligible employees meeting these criteria.

Note that 2022, 2023, and 2024 PERA-related legislation listed above had minimal impact on the results of the funding actuarial valuation as of December 31, 2023, however, HB 22-1029 and SB 23-056 directly impact the market and actuarial value of assets as of the December 31, 2023, valuation date for all divisions except the Local Government Division.

Other changes, include:

- As of December 31, 2023, plan assets for the Local Government Division Trust Fund and Health Care Trust Fund (HCTF) reflect payments related to the disaffiliation of Tri-County Health Department as a PERA-affiliated employer, effective December 31, 2022. As of the December 31, 2023, year-end, PERA recognized two additions for funding actuarial valuation purposes: a \$24.000 million payment received on December 4, 2023, and a \$2.000 million receivable. The employer disaffiliation payment and receivable allocations to the Local Government Division Trust Fund and HCTF were \$24.967 million and \$1.033 million, respectively.
- Annual assumption changes for the HCTFs were recognized, resulting from updates to retiree health care cost and health care cost trend assumptions based upon a review of historical experience, Medicare health care plan elections (based upon review or recent experience), health care cost trend survey data, and available retiree premium increases for 2024.
 - These changes increased the total actuarial accrued liability for the HCTFs by \$15.7 million and increased the total normal cost by \$23.2 thousand.

In our opinion, the assumptions are individually reasonable, taking into account the experience of the Division Trust Funds and the HCTFs and reasonable expectations, are internally consistent, and, in combination, offer our best estimate of anticipated experience affecting the Division Trust Funds and the HCTFs. In addition, in our opinion, the combined effect of these assumptions is expected to have no significant bias.

Future actuarial results may differ significantly from the current results 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;

6427416v6/14923.001



ACTUARY'S CERTIFICATION LETTER

Board of Trustees
June 6, 2024
Page 4

- Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and
- Changes in plan provisions or applicable law.

Additionally, retiree group benefits models necessarily rely on the use of approximations and estimates and are sensitive to changes in these approximations and estimates. Small variations may lead to significant changes in actuarial measurements. Since the potential impact of such factors is outside the scope of a normal annual actuarial valuation, an analysis of the range of results is not presented herein.

Segal provided the following information and/or schedules for the December 31, 2023, Annual Report:

Financial Section

- Prepared for the Division Trust Funds and HCTFs
 - Yearly Contribution Deficiency
 - Required Discount Rate Sensitivity Information providing the Net Pension Liability and the Net OPEB Liability at a discount rate that is one percentage point lower and one percentage point higher than the discount rate at Measurement Date
 - Membership Data
 - Notes to Required Supplementary Information
- Prepared for the Division Trust Funds Only
 - Average Monthly Benefit By Division for 2023, considering entire retired population and those retiring in 2023
 - Required Supplementary Information
 - Schedule of Changes in Net Pension Liability
 - Schedule of the Net Pension Liability
 - Schedule of Employer Contributions
- Prepared for the HCTFs Only
 - Required Health Care Cost Trend Rate Sensitivity Information at health care cost trend rates that are one percentage point lower and one percentage point higher than the health care cost trend rates applied at Measurement Date
 - Participation Data
 - Required Supplementary Information
 - Schedule of Changes in Net OPEB Liability
 - Schedule of the Net OPEB Liability
 - Schedule of Employer Contributions

Actuarial Section

- Prepared for the Division Trust Funds and HCTFs
 - Schedule of Retirees and Beneficiaries Added to and Removed from the Benefit Payroll
 - Schedule of Funded Liabilities by Type (formerly known as the Solvency Test)
 - Schedule of Funding Progress
 - Analysis of Financial Experience
 - Schedule of Gains and Losses in Accrued Liabilities and Reconciliation of Unfunded Actuarial Accrued Liabilities
 - Schedule of Computed Employer Contribution Rates for the 2025 Fiscal Year

6427416v6/14923.001



ACTUARY'S CERTIFICATION LETTER

Board of Trustees
June 6, 2024
Page 5

- Actuarial Statistics
- Actuarially Determined Contributions (ADCs)
- Alternative ADCs using 25-year, 20-year and 15-year amortization periods
- Funded Ratios
- Funded Ratio, Unfunded Actuarial Accrued Liability and Actuarially Determined Contributions using 6.25%, 7.25% and 8.25% investment return assumptions
- Schedule of Active Member Actuarial Valuation Data
- Prepared for the Division Trust Funds Only
 - Member – Retiree Comparison

Statistical Section

- Prepared for the Division Trust Funds and HCTFs
 - Schedule of Average Benefit Payments
- Prepared for the Division Trust Funds Only
 - Member and Benefit Recipient Statistics
 - Breakdown of Membership by Tiers
 - PERA Benefit Payments
 - Benefit Payments by Benefit Range
 - Benefit Payments by Benefit Range including RBA amounts
 - Benefit Payments by Decile
 - Schedule of Average Retirement Benefits Payable by Year of Retirement
 - For all retirees
 - For members who retired during the year
 - Schedule of Retirees and Survivors by Types of Benefits

In aggregate, the Division Trust Funds have a funded ratio of 69.6% based on the Actuarial Value of Assets and 66.3% based on the Fair Value of Assets. For the HCTFs combined, the funded ratios are 51.1% on an Actuarial Value of Assets basis and 49.2% on a Fair Value of Assets basis.

The results indicate that for all Division Trust Funds, the combined employer and member contribution rates, including the direct distribution from the State, as appropriate, are sufficient to fund the normal cost for all members and each division's UAAL, with consideration of the amounts allocated to finance the Annual Increase Reserve (AIR) Funds, and provide additional contributions to help finance both Health Care Trust Funds. In addition, the employer contribution rate with anticipated service purchase transfers is sufficient to eventually finance benefits for the HCTFs.

Shown in the tables on the following pages are the resulting effective amortization periods for each division as of December 31, 2023, recognizing all current sources of income from employer contributions, member contributions, and the direct distribution as applicable, and any future changes to the base employer contributions, member contributions, Amortization Equalization Disbursement (AED), Supplemental Amortization Equalization Disbursement (SAED), and Pension Certificates of Participation (PCOP). Based upon the current effective amortization periods, all Trust Funds are on schedule to meet the funding policy goal:

6427416v6/14923.001



ACTUARY'S CERTIFICATION LETTER

Board of Trustees
June 6, 2024
Page 6

Trust Fund	Amortization Period ¹
State Division	18 years
School Division	23 years
Local Government Division	8 years
Judicial Division	5 years
Denver Public Schools (DPS) Division	6 years
HCTF	8 years
DPS HCTF	N/A

¹ Calculations completed on an actuarial valuation basis with a closed population (i.e., based upon the membership, normal cost rate and UAAL as of December 31, 2023). For the DPS Division, the resulting amortization period assumes a declining Pension Certificates of Participation (PCOP) offset rate as described in statute.

At the direction of PERA, Segal has prepared deterministic financial projections for all Division Trust Funds with the lower cost benefit structure for new members and using the following assumptions:

- All actuarial assumptions, including assuming 7.25% investment returns are realized each year
- Performed on an open-group basis with assumed active membership growth, as follows:
 - For School, Local Government and Denver Public Schools – 1.00% per year
 - For State and Judicial – 0.25% each year

These projections² indicate that fully funding the actuarial accrued liability under the PERA revised benefit structure created by SB 18-200 is achievable within a projection period of 27 years and includes the impact of legislative changes pursuant to HB 22-1029 and SB 23-056. The projected number of years² until each trust fund is expected to be 100% funded is shown in the table below:

Trust Fund	Projected Years ² Until 100% Funded
State Division	23 years
School Division	27 years
Local Government Division	14 years
Judicial Division	8 years
DPS Division	9 years
HCTF	9 years
DPS HCTF	N/A

² Calculations completed on a projected basis with an open, increasing population (i.e., active members expected to retire, terminate, or die are replaced by new members who will accrue pension benefits under a lower cost basis).

The AAP assessment, performed as of December 31, 2023, resulted in a ratio of 106.52%. Since this ratio falls between 98% and 120%, no additional modifications to contribution rates, the AI cap, or the direct distribution payments are required as of July 1, 2025.

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ACTUARY'S CERTIFICATION LETTER

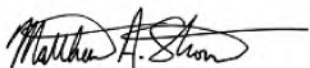
Board of Trustees
June 6, 2024
Page 7

Actuarial computations presented in the December 31, 2023, actuarial valuation reports are for purposes of determining the actuarially determined contribution rates and evaluating the funding of the Division Trust Funds and HCTFs. Determinations for purposes other than meeting these requirements may be significantly different from the results shown in the December 31, 2023, actuarial valuation reports.

We also prepared actuarial computations as of December 31, 2023, for purposes of fulfilling financial accounting requirements for PERA under Governmental Accounting Standards Board (GASB) Statement No. 67 and Statement No. 74. The actuarial assumptions used in the funding valuations were also used for GASB 67 and GASB 74 reporting except GASB 74 reporting reflects health care cost and trend assumptions effective as of December 31, 2022. In addition, the entry age actuarial cost method, which is required to be used under GASB 67 and GASB 74, is also used for purposes of the funding valuations. The actuarial assumptions used in the funding and the GASB 67 and GASB 74 accounting valuations, as detailed in Segal's reports, meet the parameters set by the Actuarial Standards of Practice (ASOPs), as issued by the Actuarial Standards Board, and generally accepted accounting principles (GAAP) applicable in the United States of America as promulgated by the Governmental Accounting Standards Board.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this information is complete and accurate and that the valuation was performed in accordance with standards of practice and by qualified actuaries as prescribed by the American Academy of Actuaries and the Actuarial Standards Board. The undersigned are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. All of the consultants listed below have experience in performing valuations for large statewide public retirement systems.

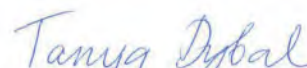
Sincerely yours,



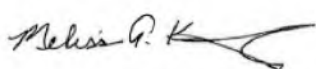
Matthew Strom, FSA, MAAA, EA
Senior Vice President and Actuary



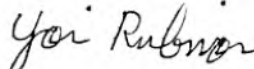
Brad Ramirez, FSA, MAAA, EA
Vice President and Actuary



Tanya Dybal, FSA, MAAA, EA
Vice President and Actuary



Melissa A. Krumholz, FSA, MAAA
Vice President and Actuary



Yori Robinson, FSA, MAAA
Vice President and Retiree Health
Actuary

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DIVISION TRUST FUNDS—PENSION

Actuarial Topics

The standard promulgated by the Governmental Accounting Standards Board (GASB) Statement No. 67, results in the preparation of two actuarial valuations—one for funding purposes and one for accounting and financial reporting purposes. Unless otherwise noted, this Division Trust Funds subsection reports on the actuarial valuation performed for funding purposes, but also includes information on specific differences between the two actuarial valuations.

The plan provisions in effect on December 31, 2023, are summarized in Note 1 of the Notes to the Financial Statements in the Financial Section. Changes to plan provisions enacted into law after December 31, 2023, and included in the actuarial valuation are summarized under “Changes Since Last Actuarial Valuation” on page 156.

PERA BOARD GOVERNANCE - FIVE DEFINED BENEFIT PENSION PLANS

PERA Defined Benefit Pension Plans	The five defined benefit pension plans of the Public Employees' Retirement Association of Colorado (PERA), include the State Division, School Division, Local Government Division, Judicial Division, and Denver Public Schools (DPS) Division Trust Funds. All but the DPS Division Trust Fund are cost-sharing multiple-employer plans and the DPS Division Trust Fund is a single-employer plan.
PERA Board Pension Funding Policy	The PERA Board of Trustees (Board) is responsible for maintaining a pension funding policy applicable to these plans. The current pension funding policy initially was adopted by the Board on March 20, 2015, effective for the December 31, 2014, funding actuarial valuation and last amended on January 19, 2024. The pension funding policy requires the calculation of an actuarially determined contribution (ADC) for each of the five Division Trust Funds for the purpose of assessing the adequacy of the statutory contribution rates of each division. The ADC is determined in accordance with the pension plan provisions in effect as of the date of the actuary's Letter of Certification and is expressed as a level percentage of assumed future covered payroll.
Actuarial Service Provider	The Board retains an external actuary, and effective November 1, 2018, Segal was retained to perform annual actuarial valuations and sustainability projections as well as periodic experience studies to review the actuarial assumptions versus actual plan experience. The Board's initial contract agreement with Segal was extended effective January 1, 2024, for an additional five-year period ending December 31, 2028.
Actuarial Service Provider Funding Method Statement	Per their actuarial valuation report, “Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and a portion of the principal balance. The pension funding policy adopted by PERA...meets this standard.”

ACTUARIAL METHODS

Actuarial Methods	The Board is responsible for the actuarial methods and assumptions used in the actuarial valuations in accordance with Colorado Revised Statutes (C.R.S.) § 24-51-204(5). Through formal action, the Board updates, replaces, or adopts new actuarial methods and assumptions as deemed necessary.
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Actuarial Methods	Type	Description / Source / Basis	Adoption / Effective Date
Asset Valuation Method	Smoothed Actuarial Value of Assets	In 1992, the Board adopted a method for valuing assets that determines a smoothed market value of assets to help mitigate volatile investment market experience. Note, the term “market value” used in the Board's pension funding policy regarding the description of the determination of the asset valuation method applied for funding purposes, is synonymous with the term “fair value” used consistently throughout the Actuarial Section and all other sections of this <i>Annual Comprehensive Financial Report (ACFR)</i>. The smoothed fair value of assets recognizes the differences between actual and expected investment experience for each year in equal amounts over a four-year period. The smoothed fair value of assets excludes the Annual Increase Reserve (AIR).	Initially Adopted: 1992; Effective: Dec 31, 1992; Reinitialized to Fair Value as of: Dec 31, 2004; Effective: Dec 31, 2005

DIVISION TRUST FUNDS—PENSION

Actuarial Methods	Type	Description / Source / Basis	Adoption / Effective Date
Actuarial Cost Method	Entry Age Actuarial Cost Method (EA)	The EA funding or cost method is designed to keep annual costs level as a percent of covered payroll and for this reason, was selected by the Board to be used in the actuarial valuations. Under the EA cost method, early and service retirement, termination (including the possibility of refunds), disability, and death benefits are projected for all active members. Cost factors, which are developed to produce level annual costs in each year from the age at hire (entry age) to the assumed retirement age, are applied to the projected benefits to determine the normal cost. The normal cost is the portion of the total plan cost allocated to the current year. Normal cost is determined only for active members currently accruing benefits. The actuarial accrued liability (AAL) for active members is the portion of the total plan cost allocated to prior years. The total AAL for the plan includes the AAL for active members and the present value of the expected benefit payments to members currently receiving benefits and inactive members entitled to future benefits. The excess of the total AAL over the actuarial value of plan assets is the unfunded actuarial accrued liability (UAAL). The effect of differences between the actuarial assumptions and the actual experience of the plan is determined within each annual actuarial valuation. These differences produce actuarial gains or losses that result in an adjustment of the UAAL.	State, School, and Local Government (Municipal) Divisions - Effective: Jun 30, 1968; Judicial Division - Effective: Dec 31, 1980 DPS Division - Initially Adopted: Jun 30, 1950; Last Revised: Merger, Jan 1, 2010
Amortization Method	Defined, Closed, and Layered Periods	The ADC is determined by adding the normal cost and the cost to amortize, over defined, closed periods, any existing UAAL or new UAAL, including the impact of any experience actuarial gains and losses, actuarial assumption changes, and changes in plan provisions. Each amortized item is tracked over the closed period defined for that category. The 30-year period used to amortize the legacy UAAL was initialized as of December 31, 2017. All gains, losses, and changes in actuarial methods and assumptions on and after January 1, 2018, are recognized each year and amortized separately over closed 30-year periods. The impact of any changes in plan provisions will be recognized over a closed period relating to the demographics of the group affected and/or the duration of the enhancement provided, not to exceed 25 years. If any future actuarial valuation indicates a division has a negative UAAL, the ADC shall be set equal to the normal cost until such time as the funded ratio equals or exceeds 120%. At that time, the ADC shall be equal to the normal cost less an amount equal to 15-year amortization of the portion of the negative UAAL above the 120% funded ratio.	Initially Adopted: Mar 20, 2015; Amended: Nov 16, 2018; Effective: Dec 31, 2018; Last Amended: Jan 19, 2024

DIVISION TRUST FUNDS—PENSION

ACTUARIAL ASSUMPTIONS

Actuarial Assumptions¹	Unless otherwise noted, it can be assumed the economic and demographic actuarial assumptions applied to the actuarial valuation for funding purposes also were applied to the actuarial valuation for accounting and financial reporting purposes. Periodically, the Board participates in discussions related to actuarial assumptions to ensure understanding and to provide for the retention or adoption of all economic and non-economic assumptions under the guidance provided by Actuarial Standards of Practice (ASOP) No. 27, <i>Selection of Economic Assumptions for Measuring Pension Obligations</i>, and ASOP No. 35, <i>Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations</i>, as prescribed by the Actuarial Standards Board. The discussions typically occur during asset/liability or experience analysis studies and include participation of the Board's actuarial service provider, their investment consultant, and other actuarial and investment experts who also may provide their market outlook.
Basis for Actuarial Assumptions Used	Unless otherwise noted, the basis of all selected economic and non-economic actuarial assumptions resulted from the 2020 experience analysis and related discussions that took place during the November 20, 2020, Board meeting. As a result of the 2019 asset/liability study, concluded at the November 15, 2019, Board meeting, the Board reaffirmed the 7.25% assumed long-term rate of investment return effective as of January 1, 2020, which was supported by the analysis provided by Segal in the 2020 Experience Analysis report.

¹ See Exhibits A through G for detailed assumption information.

Economic Assumptions	Value(s) / Type	Description / Source / Basis	Adoption / Effective Date
Rate of Investment Return	7.25%	Long-term assumed rate of investment return represented as a percent per year, compounded annually, net of investment expenses.	Assumed rate of investment return - Last Revised: Nov 18, 2016;
Real Rate of Investment Return	4.95%	Long-term assumed rate of real investment return (net of price inflation) represented as a percent per year, compounded annually, net of investment expenses.	Effective: Dec 31, 2016
Price Inflation	2.30%	Long-term assumed rate of price inflation represented as a percent per year, compounded annually.	All actuarial assumptions - Last Revised/Reaffirmed: Nov 20, 2020;
Wage Inflation	3.00%	Long-term assumed rate of wage inflation composed of the plan's assumed price inflation and the assumed real wage growth, represented as a percent per year, compounded annually.	Effective: Dec 31, 2020
Pay Increases	Exhibit A	Sample pay increase assumptions for individual members as developed and recommended by the Board's retained actuary.	
Board Crediting Interest Rate	3.00%	Annually, the Board reviews the rate at which interest is credited to member accounts. On November 17, 2023, the Board voted to continue the annual interest rate at 3.00% for interest earned during 2024. Basis: Board Crediting Interest Rate Policy and Board annual discussion at the November 17, 2023, Board meeting.	Annual Review Policy initiated in 2006, slight revisions since. Last Adopted: Nov 17, 2023; Effective: Jan 1, 2024

DIVISION TRUST FUNDS—PENSION

Non-Economic Assumptions	Value(s) / Type	Description / Source / Basis	Adoption / Effective Date
Rates of Withdrawal	Select and Ultimate Withdrawal Rates - Exhibit B	Beginning in 1986, PERA uses a select and ultimate approach for all members (except members of the Judicial Division and those classified under the Safety Officers and DPS benefit structures) in applying rates of withdrawal or termination when estimating the number of members who will leave service prior to retirement. The 2020 experience analysis indicated, in the aggregate, fewer active member terminations prior to retirement than expected, resulting in a reduction in withdrawal rates across all divisions except for members under the PERA benefit structure within the DPS Division.	Separation from active service assumptions - Last Revised: Nov 20, 2020; Effective: Dec 31, 2020
Rates of Disability	Exhibit C	The 2020 experience analysis indicated, in the aggregate, fewer active members retired with disability benefits than expected. This resulted in a 19% uniform reduction of disability rates across all divisions with no rate changes for members under the Safety Officers benefit structure.	
Rates of Retirement	Reduced Early Retirement Rates - Exhibit E	The 2020 experience analysis indicated, in the aggregate, slightly more reduced early retirements than expected with certain groups experiencing fewer reduced early retirements than expected. Retirement experience was analyzed on a benefit-weighted basis separately for males and females, resulting in modifications to reduced early retirement rates at several ages across most divisions.	
	Unreduced Retirement Rates - Exhibit F	The 2020 experience analysis indicated, in the aggregate, fewer unreduced retirements than expected with certain groups experiencing more unreduced retirements than expected. Retirement experience was analyzed on a benefit-weighted basis separately for males and females, resulting in modifications to unreduced retirement rates at several ages across most divisions.	

DIVISION TRUST FUNDS—PENSION

Non-Economic Assumptions	Value(s) / Type	Description / Source / Basis	Adoption / Effective Date
Rates of Mortality	Healthy Pre-Retirement Mortality - Exhibit D	Healthy pre-retirement mortality is based on the Pub-2010 mortality tables, by category, as associated with each group with generational projection applied using scale MP-2019: --State and Local Government Divisions (other than Safety Officers): PubG-2010 Employee Table; --State and Local Government Divisions (Safety Officers): PubS-2010 Employee Table; --School and DPS Divisions: PubT-2010 Employee Table; and --Judicial Division: PubG-2010(A) Above-Median Employee Table. The tables are benefit-weighted.	First implemented use of separate mortality tables for different groups / divisions Effective: Dec 31, 2016; Mortality - Last Revised: Nov 20, 2020; Effective: Dec 31, 2020 First implemented generational mortality and use of a separate mortality table for beneficiaries Effective: Dec 31, 2020
	Healthy Post-Retirement Mortality - Exhibit G	The 2020 experience analysis employed a benefit-weighted approach and indicated, in the aggregate, generally fewer deaths than expected for all groups of retirees, with the exception of females age 80 and older. As a result, updated base tables to appropriate Pub-2010 mortality tables, with adjustments based on PERA-specific experience where credible data exists. To reflect future improvements in mortality, application of the MP-2019 mortality projection scale was recommended. Healthy post-retirement non-disability retiree mortality is based on the Pub-2010 mortality tables, by category, as associated with each group with generational projection applied using scale MP-2019: --State and Local Government Divisions (other than Safety Officers): PubG-2010 Healthy Retiree Table with credibility adjustments by gender and age. For males, the adjustments are 94% of the rates prior to age 80 and 90% of the rates for ages 80 and older; for females, the adjustments are 87% of the rates prior to age 80 and 107% of the rates for ages 80 and older; --State and Local Government Divisions (Safety Officers): Unadjusted PubS-2010 Healthy Retiree Table for males and females; --School and DPS Divisions: PubT-2010 Healthy Retiree Table with credibility adjustments by gender and age. For males, the adjustments are 112% of the rates prior to age 80 and 94% of the rates for ages 80 and older; for females, the adjustments are 83% of the rates prior to age 80 and 106% of the rates for ages 80 and older; and --Judicial Division: Unadjusted PubG-2010(A) Above-Median Healthy Retiree Table for males and females. The tables are benefit-weighted.	
	Beneficiary Post-Retirement Mortality - Exhibit G	The 2020 experience analysis indicated more deaths than expected for beneficiaries. As a result, post-retirement non-disabled beneficiary mortality was updated to the Pub-2010 Contingent Survivor Table (benefit weighted) adjusted for credibility and gender with generational projection applied using scale MP-2019. For males, the adjustments are 97% of the rates for all ages; for females, the adjustments are 105% of the rates for all ages.	
	Disabled Post-Retirement Mortality	The 2020 experience analysis indicated disabled retiree deaths generally consistent with expectations. Disabled post-retirement mortality is based on the Pub-2010 mortality tables with generational projection applied using scale MP-2019: --All Divisions (other than Safety Officers): PubNS-2010 Disabled Retiree Table using 99% of the rates for all ages; and --State and Local Government Divisions (Safety Officers): Unadjusted PubS-2010 Disabled Retiree Table for males and females. The tables are benefit-weighted.	

DIVISION TRUST FUNDS—PENSION

Non-Economic Assumptions	Value(s) / Type	Description / Source / Basis	Adoption / Effective Date
Rate of Vested Terminated Members to Refund Member Account	Non-Judicial - 35%	The 2020 experience analysis confirmed the current assumption that 35% of the vested members who terminate will elect to withdraw their accounts while the remaining 65% will elect to leave their accounts in the plan to be eligible for a benefit at retirement date.	Last Revised: 2009; Effective: Dec 31, 2009
	Judicial - 0%	The 2020 experience analysis confirmed the current assumption that none of the vested members who terminate will elect to withdraw their accounts while 100% will elect to leave their accounts in the plan to be eligible for a benefit at retirement date.	
Rate of Non-Vested Terminated Members to Refund Member Account	100%	The 2020 experience analysis confirmed the current assumption that 100% of the non-vested members who terminate will elect to withdraw their accounts.	Since inception of termination benefits, first mentioned in Dec 31, 2011 actuarial valuation report
Administrative Expense Load	0.40%	The element of the normal cost for each division, referred to as the administrative expense load, was first adopted by the Board as of November 5, 2012, effective for the December 31, 2012, actuarial valuation. The 2020 experience analysis confirmed the current 0.40% administrative expense load continues to be appropriate for this purpose.	Initially adopted: Nov 5, 2012; Effective: Dec 31, 2012; Last Revised: Nov 18, 2016; Effective: Dec 31, 2016

Annual Increase (AI) Assumptions	Value(s)	Description / Source / Basis	Adoption / Effective Date
AI Rate Cap (Membership Prior to Jan 1, 2007 under the PERA Benefit Structure & Members under the DPS Benefit Structure)	1.00%	The AI cap that may be awarded by the Board in 2022 and thereafter is assumed to be 1.00% per year after payments begin and eligibility requirements for payment of the AI have been met. Basis: Adjusted pursuant to C.R.S. § 24-51-413, based on results of the 2018 and 2020 AAP assessments.	Effective: Dec 31, 2021
AI Rate Cap (Membership After Dec 31, 2006 under the PERA Benefit Structure)	0.00%	An AIR was established for each Division Trust Fund to provide AIs, to the extent affordable, once benefits become payable for these members. Therefore, the AI actuarial assumption applied to these members is 0.00%, since members in this category receive AIs through the affiliated AIR only to the extent affordable in accordance with C.R.S. § 24-51-1009. Basis: AI provisions Pursuant to Senate Bill (SB) 06-235, enacted May 25, 2006.	Enacted: May 25, 2006; Effective: Dec 31, 2006
AI Waiting Period	36 months	The waiting period to meet the eligibility for AI payments was extended from 12 months to 36 months. Basis: Pursuant to SB 18-200, enacted June 4, 2018	Enacted: Jun 4, 2018; Effective: Dec 31, 2017

DIVISION TRUST FUNDS—PENSION

ACTUARIAL STUDIES				
Governance Studies	Following their adopted governance procedures and practices, the Board performs periodic asset/liability modeling studies, actuarial audits, and actuarial experience analyses approximately every three to five years.			
Actuarial Studies	Description / Result	Last Conducted By	Completed	Next Scheduled
Asset Liability Modeling (ALM) Study	The Board commissioned an asset/liability study during 2019, which was prepared by Aon Investments USA, Inc. (Aon). The objective of the study was to determine the optimal strategic asset allocation that will ultimately allow PERA to meet its financial obligations, while also ensuring that PERA incurs appropriate levels of risk and cash liquidity. As a result of this study, the Board slightly modified the asset allocation ranges and targets effective January 1, 2020, while reaffirming the investment return assumption of 7.25%.	Aon	Nov 15, 2019	2023 - 2024
Actuarial Audit	The primary focus of an actuarial audit is to ensure independence, accuracy, and conformity with the accepted ASOPs with regard to results of the annual actuarial valuation and the appropriateness of the actuarial assumptions used to calculate those results. The most recent actuarial audit was conducted in 2022 by Buck, an independent actuarial consulting firm with significant experience performing actuarial services within the public plan sector. Buck's October 14, 2022, actuarial audit report states: "Based on our review of the census data, experience study documents, liability replication, review of individual sample life calculations, and the actuarial valuation reports, we believe the December 31, 2021, actuarial valuations for Division Trust Funds and Health Care Trust Funds are reasonable, based on appropriate assumptions and methods, and the reports generally comply with the Actuarial Standards of Practice (ASOPs)", and, additionally, "Our review has indicated that the actuarial process followed by Colorado PERA is thorough, complete, and complies with applicable Actuarial Standards of Practice (ASOPs) and U.S. Qualification Standards (USQ) of the American Academy of Actuaries (AAA)."	Buck	Oct 14, 2022	2027
Experience Analysis	In October of 2020, Segal completed an experience analysis covering plan experience for the four-year period from 2016 through 2019, to provide the Board an updated view of all economic and demographic assumptions. In addition to the recommendations regarding revised assumptions, the Board's 2019 decision to reaffirm the assumed long-term rate of investment return of 7.25% was supported by the analysis provided in the 2020 report. Based on the results of the experience analysis, the presentation by Segal, and related discussion, the Board adopted the recommended revised economic and demographic assumptions, as proposed, during the November 20, 2020, Board meeting effective for the December 31, 2020, actuarial valuation.	Segal	Reports Delivered: Oct 28, 2020 & Nov 4, 2020; Revised Assumptions Adopted: Nov 20, 2020 Effective: Dec 31, 2020	2024-2025

DIVISION TRUST FUNDS—PENSION

CHANGES SINCE LAST ACTUARIAL VALUATION

Changes in Actuarial Methods	There are no changes in actuarial methods incorporated in the December 31, 2023, actuarial valuation since the last actuarial valuation as of December 31, 2022.
Changes in Actuarial Assumptions	There are no changes in economic and demographic actuarial assumptions incorporated in the December 31, 2023, actuarial valuation, since the last actuarial valuation as of December 31, 2022.
Changes in Plan Provisions	Except for the items noted below, there are no changes to contribution and plan provisions incorporated in the December 31, 2023, actuarial valuation since the last actuarial valuation as of December 31, 2022. As of December 31, 2023, plan assets for the Local Government Division Trust Fund reflect payments related to the disaffiliation of Tri-County Health Department as a PERA-affiliated employer, effective December 31, 2022. As of the December 31, 2023, year-end, PERA recognized two additions for funding actuarial valuation purposes: a \$24.000 million payment received on December 4, 2023, and a \$2.000 million receivable. The employer disaffiliation payment and receivable allocations to the Local Government Division Trust Fund and Health Care Trust Fund (HCTF) were \$24.967 million and \$1.033 million, respectively. The following legislation, enacted in 2024, is reflected to the extent possible in the actuarial valuation as of December 31, 2023: • SB 24-099, enacted April 11, 2024, and effective 90 days following adjournment, adds superintendents and principals to the list of service retirees (along with teachers, school bus drivers, food services cooks, school nurses and paraprofessionals) that may be hired by a rural school district and employed without a reduction in retirement benefits. This legislation clarifies that the exemption for a rural school district also includes a small rural school district which has a funded pupil count for the prior budget year of less than 1,000 pupils. The bill extends the BOCES critical shortage provisions through June 30, 2030, and also clarifies that the two-year moratorium for those who have not met full-service retirement applies to all critical shortage positions and aligns the designation date for reporting critical shortage positions to September 1st of each year. • House Bill (HB) 24-1044, enacted April 19, 2024, and effective July 1, 2024, increases the number of retirees that can be designated under the 140-day provision. This legislation increases the current retiree limit of 10 "140-day provision" designees, for certain districts. For districts with over 10,000 students, an additional retiree may be designated under the "140-day provision" for each thousand students in excess of 10,000. In addition, this bill modifies the requirement that positions be filled based on a "critical shortage of qualified candidates" test to filling positions based on "need". The bill places a 6-year cap on the total years a retiree may be designated under the "140-day provision" and aligns the designation date for all "140-day" designees to September 1st of each year. • SB 24-169, enacted May 24, 2024, and effective July 1, 2025, modifies the definition of "State Trooper" to include a duly sworn employee of the Division of Fire Prevention and Control in the Department of Public Safety. The bill applies the "State Trooper" member and employer contribution rates and benefit structure to eligible employees whose duties include structural or wildfire management, wildfire response, live-fire training, or wildfire leadership, as determined by the Executive Director of the Department of Public Safety. • SB 24-186, enacted June 5, 2024, and effective January 1, 2025, modifies the definition of "State Trooper" to include employees of a Local Government Division employer classified as a coroner or deputy coroner who were elected, reelected, or appointed on or after January 1, 2021, which includes the Boulder County Coroner. The bill applies the "State Trooper" member and employer contribution rates and benefit structure to eligible employees meeting these criteria.

SIGNIFICANT EVENTS

There were no significant events during 2023.

DIFFERENCES IN ACTUARIAL VALUATION METHODS AND ASSUMPTIONS

- The actuarial valuation for funding purposes was performed as of December 31, 2023. The actuarial valuation for accounting and financial reporting purposes was performed as of December 31, 2022, and the total pension liability (TPL) was rolled forward to the measurement date as of December 31, 2023.
- Census data used for the actuarial valuation for funding purposes reflects membership data as of December 31, 2023, and the census data used for the actuarial valuation for accounting and financial reporting purposes reflects membership data as of December 31, 2022. Therefore, all summaries and schedules, regarding actuarial valuation results for funding purposes, shown in the Actuarial Section, reflect census data as of December 31, 2023.
- The actuarial valuation for funding purposes applies an asset valuation method that recognizes a four-year smoothed fair value of assets for purposes of determining the UAAL. The actuarial valuation for accounting and financial reporting purposes applies the fair value of assets to determine the net pension liability.
- The actuarial valuation for funding purposes does not apply an AI assumption for members under the PERA benefit structure hired on or after January 1, 2007, in the determination of the AAL. Therefore, the ADC established by the funding valuation does not consider future increases for this member group and the assets attributable to the AIR are not included in the actuarial value of assets. A separate annual actuarial valuation is performed on the AIR to determine the applicable AI payable to eligible members after benefit commencement. AIR plan provisions are deemed substantively automatic, ad hoc cost-of-living adjustments. Liabilities associated with the AIR statutorily can never exceed available assets. As a result, the actuarial valuation for accounting and financial reporting purposes includes the balance of the AIR both in the plan assets, at fair value, and in the TPL of the applicable division.

DIVISION TRUST FUNDS—PENSION

Actuarial Assumptions: Exhibits A–G

Exhibit A: Individual Pay Increase Assumptions—All Divisions and Benefit Structures

AGE-BASED PAY INCREASE ASSUMPTIONS FOR AN INDIVIDUAL MEMBER—
STATE DIVISION, SCHOOL DIVISION, LOCAL GOVERNMENT DIVISION, SAFETY OFFICERS, AND DPS DIVISION

Sample Ages	Merit and Seniority					Inflation and Productivity All Divisions / Groups	Total Increase (Next Year)				
	State ¹	School ²	Local Government ¹	Safety Officers ³	DPS ²		State ¹	School ²	Local Government ¹	Safety Officers ³	DPS ²
20	7.90%	8.00%	8.30%	9.40%	8.50%	3.00%	10.90%	11.00%	11.30%	12.40%	11.50%
25	5.50%	5.60%	5.70%	5.90%	6.40%	3.00%	8.50%	8.60%	8.70%	8.90%	9.40%
30	3.80%	4.00%	3.80%	3.80%	4.80%	3.00%	6.80%	7.00%	6.80%	6.80%	7.80%
35	2.90%	3.30%	2.80%	2.90%	3.90%	3.00%	5.90%	6.30%	5.80%	5.90%	6.90%
40	2.20%	2.70%	2.20%	2.20%	3.20%	3.00%	5.20%	5.70%	5.20%	5.20%	6.20%
45	1.60%	2.10%	1.80%	1.70%	2.50%	3.00%	4.60%	5.10%	4.80%	4.70%	5.50%
50	1.10%	1.60%	1.50%	1.30%	2.00%	3.00%	4.10%	4.60%	4.50%	4.30%	5.00%
55	0.70%	1.20%	1.20%	0.90%	1.60%	3.00%	3.70%	4.20%	4.20%	3.90%	4.60%
60	0.50%	0.80%	0.90%	0.60%	1.30%	3.00%	3.50%	3.80%	3.90%	3.60%	4.30%
65	0.30%	0.50%	0.40%	0.30%	0.90%	3.00%	3.30%	3.50%	3.40%	3.30%	3.90%
70	0.30%	0.40%	0.20%	0.20%	0.80%	3.00%	3.30%	3.40%	3.20%	3.20%	3.80%

¹ Rates shown do not apply to Safety Officers.

² Rates shown apply to the division indicated regardless of benefit structure.

³ Rates shown apply to Safety Officers in the State or Local Government Divisions.

SERVICE-BASED PAY INCREASE ASSUMPTIONS FOR AN
INDIVIDUAL MEMBER—JUDICIAL DIVISION

Sample Years of Service	Merit and Seniority	Inflation and Productivity	Total Increase (Next Year)
0	2.30%	3.00%	5.30%
5	2.00%	3.00%	5.00%
10	1.50%	3.00%	4.50%
15	1.20%	3.00%	4.20%
20	0.90%	3.00%	3.90%
25	0.70%	3.00%	3.70%
30	0.40%	3.00%	3.40%
35	0.20%	3.00%	3.20%
40	0.00%	2.80%	2.80%

DIVISION TRUST FUNDS—PENSION

Exhibit B: Withdrawal Assumptions—All Divisions and Benefit Structures
SELECT RATES OF WITHDRAWAL—PERCENT OF MEMBERS WITH LESS THAN FIVE YEARS OF SERVICE WITHDRAWING FROM EMPLOYMENT WITHIN THE NEXT YEAR

Completed Years of Service	State Division ¹		School Division ²		Local Government Division ¹		DPS Division ³	
	Male	Female	Male	Female	Male	Female	Male	Female
0	34.00%	34.00%	30.00%	30.00%	34.00%	34.00%	26.00%	26.00%
1	21.00%	21.00%	18.00%	18.00%	21.00%	21.00%	19.00%	19.00%
2	16.00%	16.00%	14.00%	14.00%	16.00%	16.00%	14.00%	14.00%
3	12.00%	12.00%	11.00%	11.00%	12.00%	12.00%	12.00%	12.00%
4	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%	10.00%

ULTIMATE RATES OF WITHDRAWAL—PERCENT OF MEMBERS WITH FIVE OR MORE YEARS OF SERVICE WITHDRAWING FROM EMPLOYMENT WITHIN THE NEXT YEAR

Sample Ages	State Division ¹		School Division ²		Local Government Division ¹		Safety Officers ⁴
	Male	Female	Male	Female	Male	Female	Unisex
20	30.00%	16.45%	20.00%	17.00%	30.00%	16.45%	7.30%
25	13.60%	12.30%	11.26%	11.56%	13.60%	12.30%	5.15%
30	7.10%	9.50%	6.54%	7.34%	7.10%	9.50%	3.65%
35	5.90%	7.30%	4.60%	5.51%	5.90%	7.30%	2.98%
40	4.75%	5.75%	3.64%	4.34%	4.75%	5.75%	2.62%
45	3.95%	4.95%	3.34%	4.00%	3.95%	4.95%	2.50%
50	3.66%	4.60%	3.24%	4.00%	3.66%	4.60%	2.50%
55	3.54%	4.50%	3.20%	4.00%	3.54%	4.50%	2.50%
60	3.50%	4.50%	3.20%	4.00%	3.50%	4.50%	2.50%
65	3.50%	4.50%	3.20%	4.00%	3.50%	4.50%	2.50%
70	3.50%	4.50%	3.20%	4.00%	3.50%	4.50%	2.50%

Sample Ages	Judicial Division	DPS Division ³		DPS Benefit Structure ⁵	
	Unisex	Male	Female	Male	Female
20	1.50%	19.20%	12.80%	8.00%	10.00%
25	1.50%	11.20%	10.80%	7.40%	8.80%
30	1.50%	7.70%	9.40%	6.85%	7.70%
35	1.50%	6.60%	7.80%	6.60%	7.20%
40	1.50%	6.00%	6.40%	5.45%	5.95%
45	1.50%	6.00%	6.00%	4.69%	4.41%
50	1.50%	6.00%	5.40%	4.50%	3.85%
55	1.50%	6.00%	5.00%	4.31%	3.85%
60	1.50%	6.00%	5.00%	4.25%	3.85%
65	1.50%	6.00%	5.00%	4.25%	3.85%
70	1.50%	6.00%	5.00%	4.25%	3.85%

¹ Rates shown do not apply to Safety Officers.

² Rates shown apply to PERA benefit structure members in the School Division.

³ Rates shown apply to PERA benefit structure members in the DPS Division.

⁴ Rates shown apply to Safety Officers in the State or Local Government Divisions.

⁵ Rates shown apply to DPS benefit structure members in any division.

DIVISION TRUST FUNDS—PENSION

Exhibit C: Disability Assumptions—All Divisions and Benefit Structures
RATES OF DISABILITY—PERCENT OF MEMBERS DISABLING FROM EMPLOYMENT WITHIN THE NEXT YEAR

Sample Ages	State Division ¹	School and DPS Divisions ²	Local Government ¹	Safety Officers ³	Judicial Division	DPS Benefit Structure ⁴
	Unisex	Unisex	Unisex	Unisex	Unisex	Unisex
20	0.008%	0.008%	0.008%	0.010%	0.008%	0.008%
25	0.008%	0.008%	0.008%	0.020%	0.008%	0.008%
30	0.008%	0.008%	0.008%	0.040%	0.008%	0.008%
35	0.024%	0.016%	0.024%	0.060%	0.016%	0.016%
40	0.039%	0.033%	0.039%	0.100%	0.033%	0.033%
45	0.076%	0.050%	0.076%	0.250%	0.050%	0.050%
50	0.156%	0.078%	0.156%	0.300%	0.078%	0.078%
55	0.203%	0.126%	0.203%	0.300%	0.126%	0.126%
60	0.236%	0.180%	0.236%	0.300%	0.180%	0.180%
65	0.236%	0.180%	0.236%	0.300%	0.180%	0.180%
70	0.236%	0.180%	0.236%	0.300%	0.180%	0.180%

¹ Rates shown do not apply to Safety Officers.

² Rates shown apply to PERA benefit structure members in the School or DPS Divisions.

³ Rates shown apply to Safety Officers in the State or Local Government Divisions.

⁴ Rates shown apply to DPS benefit structure members in any division.

Exhibit D: Pre-Retirement Mortality Assumptions—All Divisions and Benefit Structures
2023 RATES OF PRE-RETIREMENT MORTALITY¹—PERCENT OF ACTIVE MEMBERS DECEASING WITHIN THE NEXT YEAR

Sample Ages	State and Local Government Divisions ²		School and DPS Divisions ³		Safety Officers ⁴		Judicial Division	
	Male	Female	Male	Female	Male	Female	Male	Female
20	0.040%	0.015%	0.036%	0.015%	0.044%	0.018%	0.038%	0.013%
25	0.034%	0.011%	0.020%	0.011%	0.045%	0.025%	0.029%	0.010%
30	0.051%	0.021%	0.031%	0.019%	0.059%	0.038%	0.044%	0.018%
35	0.071%	0.032%	0.045%	0.028%	0.071%	0.050%	0.062%	0.029%
40	0.087%	0.043%	0.055%	0.037%	0.078%	0.059%	0.075%	0.040%
45	0.103%	0.056%	0.071%	0.048%	0.086%	0.067%	0.090%	0.051%
50	0.140%	0.079%	0.104%	0.070%	0.112%	0.087%	0.121%	0.072%
55	0.210%	0.127%	0.165%	0.110%	0.168%	0.127%	0.182%	0.115%
60	0.327%	0.197%	0.271%	0.170%	0.271%	0.178%	0.283%	0.179%
65	0.469%	0.286%	0.436%	0.260%	0.411%	0.220%	0.406%	0.260%
70	0.652%	0.437%	0.657%	0.433%	0.710%	0.405%	0.564%	0.397%

¹ Assumptions shown are used for pension plans, developed on a benefit-weighted basis, whereas those used for OPEB plans are headcount-weighted, using the same underlying mortality tables. For more detail, please see the mortality descriptions in the Pension and OPEB introduction subsections.

² Rates shown do not apply to Safety Officers.

³ Rates shown apply to all members in the School and DPS Divisions, regardless of benefit structure.

⁴ Rates shown apply to Safety Officers in the State or Local Government Divisions.

DIVISION TRUST FUNDS—PENSION

Exhibit E: Reduced Retirement Assumptions—All Divisions and Benefit Structures
RATES OF REDUCED RETIREMENT—PERCENT OF MEMBERS ELIGIBLE FOR REDUCED RETIREMENT BENEFITS RETIRING WITHIN THE NEXT YEAR

Retirement Ages	State Division ¹		School and DPS Divisions ²		Local Government Division ¹		Safety Officers ³	Judicial Division	DPS Benefit Structure ⁴	
	Male	Female	Male	Female	Male	Female	Unisex	Unisex	Male	Female
50	9.5%	9.0%	8.0%	7.0%	9.5%	9.0%	10.0%	6.0%	8.0%	5.0%
51	11.0%	8.0%	8.0%	7.0%	11.0%	8.0%	10.0%	6.0%	8.0%	7.0%
52	11.0%	8.0%	9.0%	8.0%	11.0%	8.0%	10.0%	6.0%	8.0%	10.0%
53	12.0%	9.0%	9.0%	10.0%	12.0%	9.0%	10.0%	6.0%	10.0%	10.0%
54	12.0%	12.0%	12.0%	14.0%	12.0%	12.0%	10.0%	10.0%	10.0%	10.0%
55	12.0%	15.0%	9.0%	12.0%	12.0%	15.0%	5.0%	10.0%	10.0%	10.0%
56	9.5%	11.0%	9.0%	12.0%	9.5%	11.0%	5.0%	10.0%	10.0%	10.0%
57	15.0%	12.0%	9.0%	12.0%	15.0%	12.0%	5.0%	10.0%	10.0%	10.0%
58	15.0%	15.0%	12.0%	16.0%	15.0%	15.0%	5.0%	8.0%	10.0%	10.0%
59	35.0%	35.0%	24.0%	34.0%	35.0%	35.0%	5.0%	8.0%	15.0%	14.0%
60	7.5%	8.0%	8.0%	9.0%	7.5%	8.0%	10.0%	10.0%	15.0%	17.0%
61	7.5%	8.0%	9.0%	9.0%	7.5%	8.0%	10.0%	10.0%	16.0%	17.0%
62	7.5%	9.0%	10.0%	10.0%	7.5%	9.0%	10.0%	10.0%	16.0%	17.0%
63	7.5%	9.0%	10.0%	10.0%	7.5%	9.0%	10.0%	10.0%	16.0%	17.0%
64	7.5%	9.0%	10.0%	10.0%	7.5%	9.0%	10.0%	8.0%	16.0%	17.0%
65 and over	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

¹ Rates shown do not apply to Safety Officers.

² Rates shown apply to PERA benefit structure members in the School or DPS Divisions.

³ Rates shown apply to Safety Officers in the State or Local Government Divisions.

⁴ Rates shown apply to DPS benefit structure members in any division.

DIVISION TRUST FUNDS—PENSION

Exhibit F: Unreduced Retirement Assumptions—All Divisions and Benefit Structures

ADDITIONAL INCREASE IN RATES DURING THE FIRST FIVE YEARS OF UNREDUCED RETIREMENT ELIGIBILITY FOR AGES 55 THROUGH 64

First Five Years of Unreduced Retirement Eligibility	State Division ¹		School and DPS Divisions ²		Local Government Division ¹		Safety Officers ³
	Male	Female	Male	Female	Male	Female	Unisex
1	30%	20%	28%	28%	30%	20%	20%
2	13%	9%	4%	10%	13%	9%	0%
3	13%	9%	4%	10%	13%	9%	0%
4	13%	9%	4%	10%	13%	9%	0%
5	13%	9%	4%	10%	13%	9%	0%

RATES OF UNREDUCED RETIREMENT—PERCENT OF MEMBERS ELIGIBLE FOR UNREDUCED RETIREMENT BENEFITS RETIRING WITHIN THE NEXT YEAR

Retirement Ages	State Division ¹		School and DPS Divisions ²		Local Government Division ¹		Safety Officers ³	Judicial Division	DPS Benefit Structure ⁴	
	Male	Female	Male	Female	Male	Female	Unisex	Unisex	Male	Female
50	56%	48%	52%	55%	56%	48%	40%	6%	35%	40%
51	43%	35%	43%	45%	43%	35%	28%	6%	35%	40%
52	38%	34%	41%	41%	38%	34%	28%	6%	30%	30%
53	34%	28%	39%	37%	34%	28%	28%	6%	30%	30%
54	33%	30%	37%	34%	33%	30%	28%	10%	25%	30%
55	26%	25%	27%	28%	26%	25%	28%	10%	30%	34%
56	19%	20%	22%	24%	19%	20%	28%	10%	20%	24%
57	18%	19%	21%	23%	18%	19%	28%	10%	26%	25%
58	17%	18%	19%	22%	17%	18%	28%	8%	22%	20%
59	20%	18%	21%	22%	20%	18%	28%	8%	26%	28%
60	20%	21%	25%	24%	20%	21%	28%	10%	26%	25%
61	19%	18%	24%	23%	19%	18%	28%	10%	18%	28%
62	23%	20%	22%	26%	23%	20%	28%	10%	27%	30%
63	20%	18%	22%	24%	20%	18%	28%	10%	40%	31%
64	22%	21%	26%	24%	22%	21%	28%	8%	24%	42%
65	27%	27%	28%	31%	27%	27%	100%	20%	38%	38%
66	29%	27%	31%	29%	29%	27%	100%	20%	30%	35%
67	28%	25%	25%	26%	28%	25%	100%	20%	30%	32%
68	24%	24%	26%	25%	24%	24%	100%	20%	30%	27%
69	24%	24%	26%	25%	24%	24%	100%	20%	30%	29%
70	24%	24%	24%	28%	24%	24%	100%	40%	30%	28%
71	24%	24%	24%	23%	24%	24%	100%	40%	30%	30%
72	24%	24%	24%	23%	24%	24%	100%	40%	30%	30%
73	24%	24%	24%	23%	24%	24%	100%	40%	30%	30%
74	24%	24%	24%	23%	24%	24%	100%	40%	30%	30%
75 and over	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

¹ Rates shown do not apply to Safety Officers.

² Rates shown apply to PERA benefit structure members in the School or DPS Divisions.

³ Rates shown apply to Safety Officers in the State or Local Government Divisions.

⁴ Rates shown apply to DPS benefit structure members in any division.

DIVISION TRUST FUNDS—PENSION

**Exhibit G: Post-Retirement Mortality Assumptions and Single Life Retirement Values—
All Divisions and Benefit Structures**
2023 RATES OF POST-RETIREMENT MORTALITY^{1,2} AND SINGLE LIFE RETIREMENT VALUES

(In Actual Dollars)

Sample Attained Ages	Percent of Retirees Deceasing Within the Next Year		Present Value of \$1 Monthly for Life		Present Value of \$1 Monthly Increasing 1.00% Annually		Future Life Expectancy in Years	
	Male	Female	Male	Female	Male	Female	Male	Female
State and Local Government Divisions								
50	0.262%	0.184%	\$151.90	\$155.71	\$169.63	\$174.48	36.68	38.97
55	0.389%	0.256%	145.45	150.20	161.17	167.04	31.75	33.94
60	0.593%	0.353%	137.26	142.87	150.75	157.48	26.99	29.01
65	0.860%	0.515%	127.00	133.13	138.12	145.26	22.43	24.19
70	1.329%	0.826%	114.22	120.46	122.88	129.97	18.10	19.53
75	2.243%	1.459%	99.02	104.51	105.33	111.40	14.10	15.11
80	3.854%	3.303%	82.23	85.23	86.48	89.74	10.57	11.04
85	7.055%	6.235%	64.84	66.79	67.45	69.51	7.59	7.84
Safety Officers								
45	0.129%	0.087%	\$157.35	\$159.05	\$176.75	\$179.11	41.05	43.13
50	0.180%	0.142%	152.04	154.11	169.56	172.37	35.89	37.90
55	0.294%	0.266%	144.88	147.57	160.24	163.77	30.82	32.78
60	0.521%	0.471%	135.65	139.33	148.62	153.27	25.91	27.86
65	0.883%	0.743%	124.28	129.15	134.76	140.68	21.28	23.19
70	1.453%	1.187%	110.55	116.57	118.54	125.62	16.96	18.77
75	2.525%	2.043%	94.47	101.51	100.13	108.16	13.01	14.67
80	4.577%	3.640%	76.85	84.70	80.52	89.22	9.56	11.04
85	8.336%	6.426%	59.44	67.54	61.62	70.37	6.75	8.00
School and DPS Divisions								
55	0.240%	0.165%	\$148.35	\$153.02	\$164.70	\$170.60	32.99	35.54
60	0.410%	0.252%	140.16	146.20	154.22	161.57	28.03	30.50
65	0.664%	0.357%	129.79	137.05	141.39	149.95	23.28	25.55
70	1.111%	0.571%	116.89	124.77	125.96	134.97	18.78	20.72
75	2.032%	1.080%	101.66	108.88	108.31	116.34	14.65	16.09
80	3.243%	2.745%	85.42	89.39	89.94	94.32	11.07	11.80
85	6.207%	5.362%	66.87	70.53	69.59	73.54	7.85	8.40
Judicial Division								
50	0.250%	0.202%	\$152.17	\$155.28	\$169.93	\$174.01	36.63	39.05
55	0.372%	0.284%	145.73	149.75	161.47	166.56	31.69	34.05
60	0.566%	0.392%	137.52	142.45	151.01	157.08	26.91	29.15
65	0.822%	0.574%	127.16	132.86	138.24	145.07	22.33	24.38
70	1.280%	0.921%	114.16	120.59	122.75	130.25	17.96	19.80
75	2.177%	1.627%	98.57	105.52	104.77	112.65	13.91	15.50
80	3.939%	2.995%	81.08	88.12	85.17	92.96	10.31	11.62
85	7.268%	5.653%	63.40	69.74	65.86	72.71	7.33	8.32

Please see next page for footnote references.

DIVISION TRUST FUNDS—PENSION

2023 RATES OF POST-RETIREMENT MORTALITY^{1,2} AND SINGLE LIFE RETIREMENT VALUES (CONTINUED)

(In Actual Dollars)

Sample Attained Ages	Percent of Retirees Deceasing Within the Next Year		Present Value of \$1 Monthly for Life		Present Value of \$1 Monthly Increasing 1.00% Annually		Future Life Expectancy in Years	
	Male	Female	Male	Female	Male	Female	Male	Female
Beneficiaries (All Divisions)								
40	0.702%	0.332%	\$152.77	\$158.97	\$171.91	\$179.73	42.26	46.61
45	0.561%	0.276%	150.11	155.99	168.00	175.42	38.06	41.82
50	0.637%	0.320%	145.36	151.36	161.63	169.12	33.60	36.92
55	0.768%	0.483%	139.05	145.26	153.46	161.11	29.19	32.11
60	1.007%	0.690%	130.94	137.82	143.28	151.58	24.87	27.51
65	1.345%	0.911%	120.91	128.59	131.06	140.08	20.73	23.09
70	1.914%	1.268%	108.71	116.80	116.63	125.90	16.81	18.83
75	2.931%	2.011%	94.51	102.20	100.31	108.92	13.19	14.78
80	4.664%	3.447%	78.80	85.32	82.72	89.86	9.97	11.10
85	7.739%	6.228%	62.58	67.47	65.00	70.26	7.23	7.96

¹ Rates are shown for healthy benefit recipients. Separate disability mortality tables are used for disabled retirees.

² Assumptions shown are used for pension plans, developed on a benefit-weighted basis, whereas those used for OPEB plans are headcount-weighted, using the same underlying mortality tables. For more detail, please see the mortality descriptions in the Pension and OPEB introduction subsections.

Summary of Funding Progress

The PERA funding objective is to pay long-term benefit promises through contributions that remain approximately level from year to year as a percent of covered payroll earned by PERA members. The following schedules presented in this section provide an overview of funding progress:

- The Schedule of Funded Liabilities by Type shows the degree to which existing liabilities are funded, including prior history.
- The Schedule of Funding Progress shows the UAAL as a percentage of annual covered payroll, including prior history.
- Schedules detailing actuarial gains and losses, by source, including prior history and a reconciliation of UAAL considering the total of all five Division Trust Funds, over the past five years.
- The scheduled contribution requirements based on the December 31, 2023, actuarial valuation for the period ending December 31, 2025.

Schedule of Funded Liabilities by Type

The Schedule of Funded Liabilities by Type, formerly known as the “solvency test,” compares the plan’s actuarial value of assets with: (A) member contributions (with interest) on deposit, (B) the liabilities for future benefits to persons who have retired, died or become disabled, and to those who have terminated service with the right to a future benefit, and (C) the liabilities for service already rendered by active members.

The actuarial valuation of December 31, 2023, shows plan assets fully cover liability A. In addition, the remainder of plan assets covers 100% of the liabilities for future benefits to persons who have retired or terminated service with the right to a future benefit (liability B) regarding the Local Government, Judicial, and DPS Division Trust Funds and a significant portion of these liabilities for the State and School Division Trust Funds. Generally, if the system follows the discipline of level contribution rate financing, the funded portion of liability B and C is expected to increase over time.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF FUNDED LIABILITIES BY TYPE

(Dollars in Thousands)

Valuation Date	Aggregate Accrued Liabilities			Actuarial Value of Plan Assets	Portion of Actuarial Accrued Liabilities Covered by Valuation Assets		
	Active Member Contributions (A) ¹	Retirees, Beneficiaries, and Inactive Members (B)	Employer-Financed Portion of Active Members (C)		Liability (A)	Liability (B)	Liability (C)
State Division							
12/31/2014	\$2,688,514	\$15,846,200	\$4,873,607	\$13,523,488	100.0%	68.4%	0.0%
12/31/2015	2,685,014	16,470,370	4,930,287	13,882,820	100.0%	68.0%	0.0%
12/31/2016	2,678,312	17,933,227	5,058,377	14,026,332	100.0%	63.3%	0.0%
12/31/2017	2,668,406	17,395,423	4,718,256	14,256,410	100.0%	66.6%	0.0%
12/31/2018	2,682,956	18,095,951	4,730,945	14,303,726	100.0%	64.2%	0.0%
12/31/2019	2,737,022	18,157,929	4,822,697	14,922,050	100.0%	67.1%	0.0%
12/31/2020	2,820,780	18,876,016	5,420,009	16,039,287	100.0%	70.0%	0.0%
12/31/2021	2,881,533	19,079,270	5,199,043	17,379,516	100.0%	76.0%	0.0%
12/31/2022	2,909,654	19,514,493	5,223,224	18,371,697	100.0%	79.2%	0.0%
12/31/2023	3,146,892	19,746,746	5,567,177	18,851,972	100.0%	79.5%	0.0%
School Division							
12/31/2014	\$3,915,705	\$24,247,868	\$8,222,959	\$22,143,356	100.0%	75.2%	0.0%
12/31/2015	4,003,251	25,133,168	8,540,734	22,871,661	100.0%	75.1%	0.0%
12/31/2016	4,108,961	27,922,423	9,321,584	23,263,344	100.0%	68.6%	0.0%
12/31/2017	4,212,088	26,937,539	8,896,588	23,780,045	100.0%	72.6%	0.0%
12/31/2018	4,344,574	27,922,414	9,331,412	24,094,442	100.0%	70.7%	0.0%
12/31/2019	4,551,132	28,014,055	9,859,874	25,412,014	100.0%	74.5%	0.0%
12/31/2020	4,748,885	29,376,412	11,406,778	27,581,088	100.0%	77.7%	0.0%
12/31/2021	5,019,414	29,763,775	11,553,599	30,253,176	100.0%	84.8%	0.0%
12/31/2022	5,273,925	30,576,351	12,476,471	32,393,722	100.0%	88.7%	0.0%
12/31/2023	5,671,239	31,352,518	13,307,694	33,565,369	100.0%	89.0%	0.0%
Local Government Division							
12/31/2014	\$534,695	\$3,114,436	\$961,836	\$3,629,400	100.0%	99.4%	0.0%
12/31/2015	533,262	3,275,093	972,343	3,777,161	100.0%	99.0%	0.0%
12/31/2016	545,507	3,573,344	1,094,201	3,879,197	100.0%	93.3%	0.0%
12/31/2017	544,525	3,482,526	1,018,881	4,009,413	100.0%	99.5%	0.0%
12/31/2018	549,499	3,679,915	1,011,471	4,070,679	100.0%	95.7%	0.0%
12/31/2019	565,273	3,713,892	1,037,268	4,288,325	100.0%	100.0%	0.9%
12/31/2020	579,211	3,895,852	1,183,840	4,663,031	100.0%	100.0%	15.9%
12/31/2021	597,770	3,978,148	1,169,092	5,090,566	100.0%	100.0%	44.0%
12/31/2022	591,991	4,112,331	1,209,122	5,379,487	100.0%	100.0%	55.8%
12/31/2023	630,121	4,211,744	1,306,293	5,576,371	100.0%	100.0%	56.2%

Please see next page for footnote references.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF FUNDED LIABILITIES BY TYPE (CONTINUED)

(Dollars in Thousands)

Valuation Date	Aggregate Accrued Liabilities				Portion of Actuarial Accrued Liabilities Covered by Valuation Assets		
	Active Member Contributions (A) ¹	Retirees, Beneficiaries, and Inactive Members (B)	Employer-Financed Portion of Active Members (C)	Actuarial Value of Plan Assets	Liability (A)	Liability (B)	Liability (C)
Judicial Division							
12/31/2014	\$60,973	\$214,541	\$95,739	\$270,866	100.0%	97.8%	0.0%
12/31/2015	60,118	232,303	109,545	286,891	100.0%	97.6%	0.0%
12/31/2016	58,119	273,416	115,582	297,888	100.0%	87.7%	0.0%
12/31/2017	54,973	277,542	95,593	310,085	100.0%	91.9%	0.0%
12/31/2018	57,922	286,045	103,790	315,970	100.0%	90.2%	0.0%
12/31/2019	57,145	304,173	100,720	342,071	100.0%	93.7%	0.0%
12/31/2020	58,779	318,647	100,779	376,437	100.0%	99.7%	0.0%
12/31/2021	61,353	331,715	94,970	419,256	100.0%	100.0%	27.6%
12/31/2022	61,421	360,922	88,859	452,509	100.0%	100.0%	33.9%
12/31/2023	64,824	373,298	90,276	471,111	100.0%	100.0%	36.5%
DPS Division							
12/31/2014	\$379,240	\$2,665,352	\$771,501	\$3,151,456	100.0%	100.0%	13.9%
12/31/2015	394,306	2,732,879	778,055	3,207,327	100.0%	100.0%	10.3%
12/31/2016	402,849	2,999,767	843,814	3,220,935	100.0%	93.9%	0.0%
12/31/2017	419,239	2,867,254	802,033	3,257,770	100.0%	99.0%	0.0%
12/31/2018	438,008	2,941,988	868,606	3,261,338	100.0%	96.0%	0.0%
12/31/2019	461,075	2,906,773	895,537	3,410,264	100.0%	100.0%	4.7%
12/31/2020	501,422	2,975,191	1,055,933	3,682,072	100.0%	100.0%	19.5%
12/31/2021	569,134	2,921,569	1,147,171	4,029,095	100.0%	100.0%	46.9%
12/31/2022	586,071	2,991,715	1,200,823	4,313,602	100.0%	100.0%	61.3%
12/31/2023	645,167	3,020,554	1,331,333	4,476,377	100.0%	100.0%	60.9%
All Division Trust Funds ²							
12/31/2014	\$7,579,127	\$46,088,397	\$14,925,642	\$42,718,566	100.0%	76.2%	0.0%
12/31/2015	7,675,951	47,843,813	15,330,964	44,025,860	100.0%	76.0%	0.0%
12/31/2016	7,793,748	52,702,177	16,433,558	44,687,696	100.0%	70.0%	0.0%
12/31/2017	7,899,231	50,960,284	15,531,351	45,613,723	100.0%	74.0%	0.0%
12/31/2018	8,072,959	52,926,313	16,046,224	46,046,155	100.0%	71.7%	0.0%
12/31/2019	8,371,647	53,096,822	16,716,096	48,374,724	100.0%	75.3%	0.0%
12/31/2020	8,709,077	55,442,118	19,167,339	52,341,915	100.0%	78.7%	0.0%
12/31/2021	9,129,204	56,074,477	19,163,875	57,171,609	100.0%	85.7%	0.0%
12/31/2022	9,423,062	57,555,812	20,198,499	60,911,017	100.0%	89.5%	0.0%
12/31/2023	10,158,243	58,704,860	21,602,773	62,941,200	100.0%	89.9%	0.0%

¹ Includes accrued interest on member contributions.² The data in this table is aggregated for informational purposes. The assets of each trust fund are for the sole purpose of its members and cannot be used by another fund.

DIVISION TRUST FUNDS—PENSION

Unfunded Actuarial Accrued Liability

UAAL is the difference between actuarially calculated liability for service already rendered and the valuation assets of the retirement fund.

In 2022, the ratio of PERA's valuation assets to accrued liabilities was 69.9% and decreased to 69.6% by the end of 2023.

Following are the most impactful factors resulting in higher liabilities (or losses) to PERA during 2023:

- Lower than assumed investment return (based on the smoothed actuarial value of assets) for 2023.
- Member pay increases were greater than expected.
- New PERA members had some service resulting in accrued liabilities.

Following are the most impactful factors resulting in lower liabilities (or gains) during 2023:

- Actual payroll contributions were greater than the determined ADC.
- Retirees experienced shorter lifespans than expected.

In 2016, PERA's funded status was negatively affected primarily by the recognition of adverse economic experience and by the adoption of more conservative economic and demographic assumptions to better reflect anticipated future behaviors, longevity, and economic conditions.

In 2017, PERA's funded status improved due to a decrease in plan liabilities reflecting the adoption of SB 18-200 pension reforms along with better than expected investment performance.

PERA's funded status was, again, negatively impacted in 2018, reflecting unfavorable demographic experience and lower than assumed investment performance.

In 2019 and 2021, PERA's funded status was positively impacted by better than expected investment performance and reductions in the AI cap resulting from the 2018 and 2020 AAP assessments, respectively.

In 2020, PERA's funded status was positively impacted by better than expected investment performance and a small mortality gain and negatively impacted by the adoption of generally more conservative actuarial assumptions, including the application of generational mortality.

In 2022, PERA's funded status increased. The funded status is determined based on an actuarial or "smoothed" value of assets, recognizing only a portion of each year's investment gain or loss over a four-year period. Therefore, even though the 2022 investment return was lower than the 7.25% expected rate of investment return, the favorable investment performance for 2019, 2020, and 2021 helped mitigate the adverse effect of the 2022 investment performance as well as other demographic actuarial losses.

In 2023, PERA's funded status, based on the actuarial value of assets, was negatively impacted by lower than expected investment return even though rate of return on the fair value of assets was greater than the expected 7.25%. The funded status also was negatively impacted by net unfavorable demographic experience during 2023.

Since inflation decreases the dollar's value, it is important to examine more than basic actuarial metrics and data when assessing the plan's financial status. The ratio of UAAL dollars divided by member covered payroll, as shown in the following table, can provide a meaningful index. Opposite of the desired trend of a funded status ratio increasing toward 100%, a downward trend in the ratio of UAAL to covered payroll is the more desired outcome, indicating the positive impact additional contributions can have in funding the system.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF FUNDING PROGRESS

(Dollars in Thousands)

(A) Valuation Date	(B) Actuarial Value of Plan Assets	(C) Actuarial Accrued Liabilities	(D) Unfunded Actuarial Accrued Liabilities (UAAL) (C) – (B)	(E) Funded Ratio (B)/(C)	(F) Annual Covered Payroll	(G) UAAL As a Percentage of Covered Payroll (D)/(F)
State Division						
12/31/2014	\$13,523,488	\$23,408,321	\$9,884,833	57.8%	\$2,564,670	385.4%
12/31/2015	13,882,820	24,085,671	10,202,851	57.6%	2,641,867	386.2%
12/31/2016	14,026,332	25,669,916	11,643,584	54.6%	2,710,651	429.5%
12/31/2017	14,256,410	24,782,085	10,525,675	57.5%	2,774,207	379.4%
12/31/2018	14,303,726	25,509,852	11,206,126	56.1%	2,898,827	386.6%
12/31/2019	14,922,050	25,717,648	10,795,598	58.0%	2,995,453	360.4%
12/31/2020	16,039,287	27,116,805	11,077,518	59.1%	3,089,161	358.6%
12/31/2021	17,379,516	27,159,846	9,780,330	64.0%	3,092,509	316.3%
12/31/2022	18,371,697	27,647,371	9,275,674	66.5%	3,183,955	291.3%
12/31/2023	18,851,972	28,460,815	9,608,843	66.2%	3,576,201	268.7%
School Division						
12/31/2014	\$22,143,356	\$36,386,532	\$14,243,176	60.9%	\$4,063,236	350.5%
12/31/2015	22,871,661	37,677,153	14,805,492	60.7%	4,235,290	349.6%
12/31/2016	23,263,344	41,352,968	18,089,624	56.3%	4,349,320	415.9%
12/31/2017	23,780,045	40,046,215	16,266,170	59.4%	4,471,357	363.8%
12/31/2018	24,094,442	41,598,400	17,503,958	57.9%	4,789,503	365.5%
12/31/2019	25,412,014	42,425,061	17,013,047	59.9%	5,104,431	333.3%
12/31/2020	27,581,088	45,532,075	17,950,987	60.6%	5,146,118	348.8%
12/31/2021	30,253,176	46,336,788	16,083,612	65.3%	5,465,866	294.3%
12/31/2022	32,393,722	48,326,747	15,933,025	67.0%	5,670,280	281.0%
12/31/2023	33,565,369	50,331,451	16,766,082	66.7%	6,176,713	271.4%
Local Government Division						
12/31/2014	\$3,629,400	\$4,610,967	\$981,567	78.7%	\$540,468	181.6%
12/31/2015	3,777,161	4,780,698	1,003,537	79.0%	561,518	178.7%
12/31/2016	3,879,197	5,213,052	1,333,855	74.4%	608,223	219.3%
12/31/2017	4,009,413	5,045,932	1,036,519	79.5%	632,768	163.8%
12/31/2018	4,070,679	5,240,885	1,170,206	77.7%	660,998	177.0%
12/31/2019	4,288,325	5,316,433	1,028,108	80.7%	681,093	150.9%
12/31/2020	4,663,031	5,658,903	995,872	82.4%	698,060	142.7%
12/31/2021	5,090,566	5,745,010	654,444	88.6%	723,744	90.4%
12/31/2022	5,379,487	5,913,444	533,957	91.0%	760,262	70.2%
12/31/2023	5,576,371	6,148,158	571,787	90.7%	843,453	67.8%
Judicial Division						
12/31/2014	\$270,866	\$371,253	\$100,387	73.0%	\$42,977	233.6%
12/31/2015	286,891	401,966	115,075	71.4%	46,870	245.5%
12/31/2016	297,888	447,117	149,229	66.6%	48,700	306.4%
12/31/2017	310,085	428,108	118,023	72.4%	48,948	241.1%
12/31/2018	315,970	447,757	131,787	70.6%	50,506	260.9%
12/31/2019	342,071	462,038	119,967	74.0%	53,427	224.5%
12/31/2020	376,437	478,205	101,768	78.7%	54,780	185.8%
12/31/2021	419,256	488,038	68,782	85.9%	55,780	123.3%
12/31/2022	452,509	511,202	58,693	88.5%	56,565	103.8%
12/31/2023	471,111	528,398	57,287	89.2%	60,606	94.5%

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF FUNDING PROGRESS (CONTINUED)

(Dollars in Thousands)

(A) Valuation Date	(B) Actuarial Value of Plan Assets	(C) Actuarial Accrued Liabilities	(D) Unfunded Actuarial Accrued Liabilities (UAAL) (C) – (B)	(E) Funded Ratio (B)/(C)	(F) Annual Covered Payroll	(G) UAAL As a Percentage of Covered Payroll (D)/(F)
DPS Division						
12/31/2014	\$3,151,456	\$3,816,093	\$664,637	82.6%	\$584,319	113.7%
12/31/2015	3,207,327	3,905,240	697,913	82.1%	621,115	112.4%
12/31/2016	3,220,935	4,246,430	1,025,495	75.9%	642,177	159.7%
12/31/2017	3,257,770	4,088,526	830,756	79.7%	658,198	126.2%
12/31/2018	3,261,338	4,248,602	987,264	76.8%	722,040	136.7%
12/31/2019	3,410,264	4,263,385	853,121	80.0%	736,264	115.9%
12/31/2020	3,682,072	4,532,546	850,474	81.2%	771,347	110.3%
12/31/2021	4,029,095	4,637,874	608,779	86.9%	823,396	73.9%
12/31/2022	4,313,602	4,778,609	465,007	90.3%	810,403	57.4%
12/31/2023	4,476,377	4,997,054	520,677	89.6%	894,245	58.2%
All Division Trust Funds¹						
12/31/2014	\$42,718,566	\$68,593,166	\$25,874,600	62.3%	\$7,795,670	331.9%
12/31/2015	44,025,860	70,850,728	26,824,868	62.1%	8,106,660	330.9%
12/31/2016	44,687,696	76,929,483	32,241,787	58.1%	8,359,071	385.7%
12/31/2017	45,613,723	74,390,866	28,777,143	61.3%	8,585,478	335.2%
12/31/2018	46,046,155	77,045,496	30,999,341	59.8%	9,121,874	339.8%
12/31/2019	48,374,724	78,184,565	29,809,841	61.9%	9,570,668	311.5%
12/31/2020	52,341,915	83,318,534	30,976,619	62.8%	9,759,466	317.4%
12/31/2021	57,171,609	84,367,556	27,195,947	67.8%	10,161,295	267.6%
12/31/2022	60,911,017	87,177,373	26,266,356	69.9%	10,481,465	250.6%
12/31/2023	62,941,200	90,465,876	27,524,676	69.6%	11,551,218	238.3%

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

Note: A history of contributions by Division Trust Fund, the ADC compared to the actual contributions paid, including the deficiency or (excess), for each of the last 10 years, is shown in the Schedule of Employer and Nonemployer Contributions, found on pages 98-100 in the Required Supplementary Information (RSI) in the Financial Section.

DIVISION TRUST FUNDS—PENSION

Actuarial Gains and Losses

ANALYSIS OF FINANCIAL EXPERIENCE

(Dollars in Millions)

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Amounts					
From differences between assumed and actual experience on liabilities					
Age and service retirements ¹	(\$5.7)	(\$4.8)	\$4.4	\$0.3	\$4.5
Disability retirements ²	0.2	1.6	0.4	(0.1)	(0.4)
Deaths ³	(37.8)	(68.5)	(5.1)	1.4	(19.0)
Withdrawals ⁴	42.2	35.4	3.6	(0.5)	(41.4)
New members ⁵	132.7	145.0	21.4	4.4	58.6
Pay increases ⁶	175.9	512.1	50.5	0.1	53.3
Administrative expenses and other ⁷	41.2	56.3	7.6	0.9	13.2
Subtotal	348.7	677.1	82.8	6.5	68.8
From differences between assumed and actual experience on assets	140.3	250.8	41.4	3.7	33.2
From changes in plan assumptions and methods	—	—	—	—	—
From changes in plan provisions	—	—	—	—	—
Total actuarial losses on 2023 activities	\$489.0	\$927.9	\$124.2	\$10.2	\$102.0
Total actuarial (gains)/losses on 2022 activities	(\$318.0)	\$117.3	(\$77.3)	\$4.5	(\$82.9)

¹ *Age and service retirements*: If members retire at older ages than assumed, there is a gain. If members retire at younger ages than assumed, there is a loss.

² *Disability retirements*: If disability claims are lower than assumed, there is a gain. If disability claims are higher than assumed, there is a loss.

³ *Deaths*: If survivor claims are lower than assumed, there is a gain. If survivor claims are higher than assumed, there is a loss. If retirees die sooner than assumed, there is a gain. If retirees live longer than assumed, there is a loss.

⁴ *Withdrawal from employment*: If more members terminate and more liabilities are released by withdrawals than assumed, there is a gain. If fewer liabilities are released by terminations than assumed, there is a loss.

⁵ *New members*: If new members entering the plan have prior service, there is a loss.

⁶ *Pay increases*: If there are smaller salary increases than assumed, there is a gain. If greater salary increases occur than assumed, there is a loss.

⁷ *Administrative expenses and other*: Includes miscellaneous gains and losses resulting from valuation software updates and refinements, data adjustments, timing of financial transactions, etc.

DIVISION TRUST FUNDS—PENSION

The following table identifies the components that contributed to the change in the underfunded status of the Division Trust Funds for the period 2019 to 2023:

SCHEDULE OF GAINS AND LOSSES IN ACCRUED LIABILITIES AND RECONCILIATION OF UNFUNDED ACTUARIAL ACCRUED LIABILITIES

(Dollars in Millions)

Type of Activity	(Gain) or Loss for Years Ended December 31					2019 - 2023
	2019	2020	2021	2022	2023	
UAAL beginning of year	\$30,999.3	\$29,809.8	\$30,976.6	\$27,195.9	\$26,266.4	\$30,999.3
Experience (gains) and losses						
Age and service retirements	95.4	91.0	44.9	56.6	(1.3)	286.6
Disability retirements	9.5	4.2	6.6	5.6	1.7	27.6
Deaths	4.7	(164.3)	(159.4)	(256.6)	(129.0)	(704.6)
Withdrawal from employment	150.1	296.5	114.1	(74.2)	39.3	525.8
New members	213.4	176.5	266.2	400.1	362.1	1,418.3
Pay increases	391.6	(24.8)	207.2	454.4	791.9	1,820.3
Investment (income) loss	(1,176.7)	(2,754.3)	(3,033.7)	(1,139.3)	469.4	(7,634.6) ¹
Other	47.5	(78.7)	47.7	197.0	119.2	332.7
Experience (gain) loss during year	(264.5)	(2,453.9)	(2,506.4)	(356.4)	1,653.3	(3,927.9)
Non-recurring items						
Change in plan assumptions and methods	—	3,107.9 ²	—	—	—	3,107.9
Change in plan provisions	(1,494.3) ³	—	(1,579.0) ⁴	—	—	(3,073.3)
Non-recurring items	(1,494.3)	3,107.9	(1,579.0)	—	—	34.6
Contribution deficiency/(surplus)	132.9	280.2	(216.6)	(417.4)	(162.6)	(383.5) ⁵
Expected change in UAAL	436.4	232.6	521.3	(155.7)	(232.4)	802.2 ⁶
Total (gain)/loss for year	(1,189.5)	1,166.8	(3,780.7)	(929.5)	1,258.3	(3,474.6)
UAAL end of year	\$29,809.8	\$30,976.6	\$27,195.9	\$26,266.4	\$27,524.7	\$27,524.7

This schedule shows where gains and losses occurred over the five-year period compared to what was expected or assumed. These include the following significant gains and losses:

¹ \$7.6 billion cumulative gain resulting from favorable investment experience for 2019, 2020, 2021, and 2022.

² \$3.1 billion loss in 2020, due to the recognition of revised actuarial assumptions, including the implementation of generational mortality, adopted November 20, 2020, effective December 31, 2020.

³ \$1.5 billion gain in 2019, due to the reduction in the AI cap from 1.50% to 1.25%, effective July 1, 2020, as required by the 2018 AAP assessment.

⁴ \$1.6 billion gain in 2021, due to the reduction in the AI cap from 1.25% to 1.00%, effective July 1, 2022, as required by the 2020 AAP assessment.

⁵ \$0.4 billion cumulative gain resulting from contribution surplus; occurring when actual contributions flowing into the plans are greater than the determined ADC.

⁶ \$0.8 billion cumulative loss indicating the five-year difference between each prior year's UAAL and the expected current year UAAL considering the normal cost earned, less the required employer contributions all of which is adjusted for interest.

DIVISION TRUST FUNDS—PENSION

Actuarial Valuation Results

Contribution rates for the year ending December 31, 2025, are derived from the results of the December 31, 2023, annual actuarial valuation and are determined in advance for purposes of budgeting, completing the required assessments related to the automatic adjustment provision (AAP) and consideration of any necessary legislative action.

SCHEDULE OF COMPUTED EMPLOYER CONTRIBUTION AND DIRECT DISTRIBUTION RATES FOR THE 2025 FISCAL YEAR

	Expressed as a Percentage of Covered Payroll				
	State Division	School Division	Local Government Division	Judicial Division	DPS Division
Contributions					
Service retirement benefits	8.33%	10.28%	8.43%	14.66%	8.74%
Disability retirement benefits	0.34%	0.21%	0.31%	0.39%	0.21%
Survivor benefits	0.25%	0.20%	0.28%	0.47%	0.18%
Termination withdrawals	2.85%	2.85%	2.65%	1.02%	3.44%
Refunds	0.82%	0.66%	0.82%	0.07% ¹	0.42%
Administrative expense load	0.40%	0.40%	0.40%	0.40%	0.40%
Total normal cost	12.99%	14.60%	12.89%	17.01%	13.39%
Less member contributions	(11.14%) ²	(11.00%)	(9.02%) ²	(11.00%)	(11.00%)
Employer normal cost	1.85%	3.60%	3.87%	6.01%	2.39%
Percentage available to amortize unfunded actuarial accrued liabilities	17.98%	16.14%	9.08%	17.22%	7.55%
Amortization period ³	18 Years	23 Years	8 Years	5 Years	6 Years
Total employer contribution rate for actuarially funded benefits	11.58% ²	11.40%	11.02% ²	14.91%	11.40%
Amortization equalization disbursement	5.00%	4.50%	2.20%	5.00%	4.50%
Supplemental amortization equalization disbursement	5.00%	5.50%	1.50%	5.00%	5.50%
Less Health Care Trust Fund	(1.02%)	(1.02%)	(1.02%)	(1.02%)	(1.02%)
Less Annual Increase Reserve	(0.73%)	(0.64%)	(0.75%)	(0.66%)	(0.75%)
Less PCOP credit ⁴	N/A	N/A	N/A	N/A	(9.69%)
Employer contribution rate for defined benefit plan	19.83%	19.74%	12.95%	23.23%	9.94%
Direct distribution⁵	1.98%	1.98%	N/A	1.98%	1.98%
DC supplement rates⁶	0.23%	N/A	0.11%	N/A	N/A

¹ Assumes no judge will elect a refund of contributions made for the 17th through the 20th year of service.

² Weighted average of more than one statutory rate.

³ The amortization periods consider ongoing employer, member, AED, SAED, and DC supplement contributions and the direct distribution, where and when applicable, including any known future changes.

⁴ An offset to the DPS Division rate is provided for under C.R.S. § 24-51-412. See Note 4 of the Notes to the Financial Statements in the Financial Section.

⁵ Rates for the direct distribution have been estimated and are shown as a percentage of 2025 projected covered payroll.

⁶ The DC supplement will be paid to the State and Local Government Divisions on behalf of all employees of these divisions, calculated pursuant to employees hired on or after January 1, 2019, who chose to participate in the PERAChoice DC Plan in lieu of participating in PERA's DB Plan. Designed to compensate for the employer contributions paid to the DC Plan participant accounts that otherwise would have been payment toward the UAAL, this supplement is determined separately for the State and Local Government Divisions as a rate of pay and is payable as of January 1, 2025, by all employers of the two divisions.

Note: The underlying calculations involve more precision than what is presented in the schedule and the rounded numbers shown may not add as a result.

DIVISION TRUST FUNDS—PENSION

With the passage of SB 10-001, the AED and the SAED can be adjusted based on the year-end funded status within a particular Division Trust Fund. If a particular Division Trust Fund reaches a funded status of 103%, a decrease in the AED and SAED is mandated and if it subsequently falls below a funded status of 90%, an increase is mandated. For the Local Government and Judicial Divisions, if the funded ratio reaches 90% and subsequently falls below 90%, an increase in the AED and SAED is mandated. Increases cannot exceed the following maximum allowable limitations.

FUTURE AED AND SAED RATES

Trust Fund	2024 Rates		Future Annual Increases in Rates Prescribed by Colorado Revised Statutes		Maximum Allowable Limitations	
	AED	SAED	AED	SAED	AED	SAED
State Division	5.00%	5.00%	N/A	N/A	5.00%	5.00%
School Division	4.50%	5.50%	N/A	N/A	4.50%	5.50%
Local Government Division	2.20%	1.50%	No	No	5.00%	5.00%
Judicial Division	5.00%	5.00%	N/A	N/A	5.00%	5.00%
DPS Division ¹	4.50%	5.50%	N/A	N/A	4.50%	5.50%

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

Note: A history of contributions by Division Trust Fund, the ADC compared to the actual contributions paid, including the deficiency or (excess), for each of the last 10 years, is shown in the Schedule of Employer and Nonemployer Contributions, found on pages 98-100 in the RSI in the Financial Section.

Annual Actuarial Valuation Statistics

As of December 31, 2023, the Funded Ratio, the UAAL, the ADC for 2025 as a percentage of covered payroll, and the amortization period considering current funding and future increases prescribed by Colorado statute, for each division, are shown in the following table. The results in this table are based on the actuarial valuation for funding purposes, which does not consider the impact of reduced benefits for those hired in the future as provided for in Colorado law.

ACTUARIAL STATISTICS

(Dollars in Thousands)

Trust Fund	Funded Ratio	UAAL	ADC ¹	Amortization Period ²
State Division	66.2%	\$9,608,843	18.78%	18 Years
School Division	66.7%	16,766,082	20.49%	23 Years
Local Government Division	90.7%	571,787	8.22%	8 Years
Judicial Division	89.2%	57,287	12.20%	5 Years
DPS Division	89.6%	520,677	6.08%	6 Years

All Division Trust Funds³

\$27,524,676

¹ Determined considering the 30-year target amortization period defined in the pension funding policy for purposes of funding benchmarks and RSI reporting as shown in the Financial Section.

² The amortization periods consider ongoing employer, member, AED, SAED and DC supplement contributions, and the direct distribution, where and when applicable, including any known future changes.

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

Pursuant to the pension funding policy, for reporting purposes, alternative ADCs also are determined by applying the layered amortization methodology as previously described. Under the target and alternative calculations, the legacy UAAL as of December 31, 2017, was amortized using a 30-year period, but the alternative ADCs use a 25-year closed period, a 20-year closed period, and a 15-year closed period, in lieu of the 30-year period, for amortization of any "new" UAAL recognized on and after January 1, 2018. The 2025 target and alternative ADCs, by division, are displayed as follows:

Trust Fund	Target ADC	Alternative ADCs		
	30-Year ¹	25-Year ²	20-Year ²	15-Year ²
State Division	18.78%	18.69%	18.55%	18.32%
School Division	20.49%	20.61%	20.81%	21.19%
Local Government Division	8.22%	8.02%	7.70%	7.14%
Judicial Division	12.20%	11.76%	11.02%	9.71%
DPS Division	6.08%	5.92%	5.66%	5.20%

¹ Refers to the amortization period used to amortize the legacy UAAL as of December 31, 2017, and any "new" UAAL recognized on and after January 1, 2018.

² Refers to the amortization period used to amortize any "new" UAAL recognized on and after January 1, 2018.

DIVISION TRUST FUNDS—PENSION

Automatic Adjustment Provision

The primary intent of the AAP is to gauge the adequacy of the contributions coming into the pension trust fund against the amount required, and if determined necessary, to initiate automatic changes to member and employer contribution rates, the AI cap, and, under certain circumstances, the direct distribution from the State of Colorado, to better insure achievement of the targeted 30-year funding goal, as delineated in SB 18-200. Pursuant to C.R.S. § 24-51-413, this assessment commenced with the December 31, 2018, actuarial valuation and is performed annually thereafter.

The AAP assessment compares two blended rates, weighted across all five Division Trust Funds, defined as: the "Blended Total Contribution Amount" (employer contribution rate + member contribution rate + direct distribution as a rate of pay) divided by the "Blended Total Required Contribution" (ADC Rate + member contribution rate), determining a resulting ratio. If the resulting ratio falls within an acceptable corridor (98% to 119%), no adjustments are made. If the resulting ratio does not achieve a minimum benchmark (is less than 98%) or exceeds a maximum benchmark (is 120% or greater), adjustments are applied in an equitable manner of impact.

The following table shows the results of the AAP assessment which was conducted to determine if adjustments are necessary as of July 1, 2025:

Elements of Test Ratio (Shown as a percentage of pay)	2025 Input Percentages	Resulting Ratio	Adjustments, if Necessary (Effective July 1, 2025)	Revised Resulting Ratio
2025 Blended Total Contribution Amount ¹ (Divided by):	32.34% (Divided by):	(Equals) 106.52%	N/A	N/A
2025 Blended Total Required Contribution ¹	30.36%			

¹ The blended rates are based on the 2025 contribution rates shown on page 171, weighted based on the UAAL of each Division Trust Fund and are not appropriate for any other use.

A summary of the AAP guidelines, found in C.R.S. § 24-51-413, is as follows:

An automatic adjustment will occur under the following conditions:

- If the resulting ratio is less than 98%, there will be adjustments of equitable impact, increasing each of the employer and member contribution rates, decreasing the AI cap, and increasing the direct distribution (if permitted).
- If the resulting ratio is greater than or equal to 120%, there will be adjustments of equitable impact, decreasing each of the employer and member contribution rates, increasing the AI cap, and decreasing the direct distribution.

The AAP defines the limited amounts of total adjustment available in each category, and the increments of adjustments that can occur in any year. Multiple steps over multiple years are allowed for a required adjustment as necessary, but cannot exceed the ultimate limits as set forth in statute, detailed as follows:

- Adjustment (increase or decrease) to each of the employer and member contribution rates cannot exceed 0.50% in any one year, and
 - Cannot exceed 2.00% above the contribution rates reflecting SB 18-200 statutory reforms.
 - Cannot fall below the contribution rates in effect immediately prior to the passage of SB 18-200.
- Adjustment (increase or decrease) to the AI rate cannot exceed 0.25% in any one year, and
 - Cannot exceed a 2.00% AI cap maximum.
 - Cannot fall below a 0.50% AI cap minimum.
- Adjustment to the direct distribution cannot exceed \$20 million in any one year, and
 - Cannot exceed the initial \$225 million amount.
 - Can be reduced to \$0.
- Adjustments required because:
 - Funding is below the 98% threshold, will be made to an extent that will bring the revised ratio to 103% following the corrective efforts, but in no event can the adjustments in one year be greater than the limit described above.
 - Funding has reached the 120% threshold, must not cause the ratio to fall below 103%.

DIVISION TRUST FUNDS—PENSION

AAP ASSESSMENT HISTORY

Assessment	Information Based on Valuation Date	Compare Contribution Rates for Plan Year	Triggered Adjustments?	Adjustments to be Made	Effective Date for Adjustments
2018	December 31, 2018	2020	Yes	0.50% increase to member rate 0.50% increase to employer rate 0.25% decrease to AI cap No change to \$225M direct distribution ¹	July 1, 2020
2019	December 31, 2019	2021	No	N/A	N/A
2020	December 31, 2020	2022	Yes	0.50% increase to member rate 0.50% increase to employer rate 0.25% decrease to AI cap No change to \$225M direct distribution	July 1, 2022
2021	December 31, 2021	2023	No	N/A	N/A
2022	December 31, 2022	2024	No	N/A	N/A
2023	December 31, 2023	2025	No	N/A	N/A

¹ Pursuant to HB 20-1379, the direct distribution, payable July 1, 2020, was suspended.

Funded Ratio

(Dollars in Thousands)

The funded ratio for the plan is determined by dividing the actuarial value of assets by the AAL. The actuarial value of assets is not the current fair value but a market-related value, which recognizes the differences between actual and expected investment experience for each year in equal amounts over a four-year period. The actuarial value of the assets as of December 31, 2023, was \$62,941,200 compared to a fair value of assets of \$60,014,087, and to the AAL of \$90,465,876. The funded ratio for each of the funds, based on the actuarial value of assets, at December 31 for each of the last five years is as follows:

Trust Fund	2019	2020	2021	2022	2023
State Division	58.0%	59.1%	64.0%	66.5%	66.2%
School Division	59.9%	60.6%	65.3%	67.0%	66.7%
Local Government Division	80.7%	82.4%	88.6%	91.0%	90.7%
Judicial Division	74.0%	78.7%	85.9%	88.5%	89.2%
DPS Division	80.0%	81.2%	86.9%	90.3%	89.6%
All Division Trust Funds¹	61.9%	62.8%	67.8%	69.9%	69.6%

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

The Board's pension funding policy states that the targeted actuarial funded ratio is greater than or equal to 110% on a combined Division Trust Fund basis. The funded ratios listed give an indication of progress made toward achieving the stated objective. A larger funded ratio indicates a plan is better funded. As an example, in actual dollars, for every \$1.00 of the actuarially determined benefits earned for the School Division Trust Fund as of December 31, 2023, approximately \$0.67 of assets are available for payment based on the actuarial value of assets. These benefits earned will be payable over the life span of members after their retirement and therefore, it is not imperative the AAL equal the actuarial value of assets at any given moment in time.

DIVISION TRUST FUNDS—PENSION

At December 31, 2022, and December 31, 2023, PERA had the following funded status for the Division Trust Funds:

FUNDED STATUS FOR THE DIVISION TRUST FUNDS

(Dollars in Thousands)

	Fair Value of Assets		Actuarial Value of Assets ¹	
	12/31/2022	12/31/2023	12/31/2022	12/31/2023
State Division Trust Fund				
Actuarial accrued liability ²	\$27,647,371	\$28,460,815	\$27,647,371	\$28,460,815
Assets held to pay those liabilities	16,490,174	17,958,261	18,371,697	18,851,972
Unfunded actuarial accrued liability	\$11,157,197	\$10,502,554	\$9,275,674	\$9,608,843
Funded ratio	59.6%	63.1%	66.5%	66.2%
School Division Trust Fund				
Actuarial accrued liability ²	\$48,326,747	\$50,331,451	\$48,326,747	\$50,331,451
Assets held to pay those liabilities	29,089,361	32,020,642	32,393,722	33,565,369
Unfunded actuarial accrued liability	\$19,237,386	\$18,310,809	\$15,933,025	\$16,766,082
Funded ratio	60.2%	63.6%	67.0%	66.7%
Local Government Division Trust Fund				
Actuarial accrued liability ²	\$5,913,444	\$6,148,158	\$5,913,444	\$6,148,158
Assets held to pay those liabilities	4,825,367	5,315,185	5,379,487	5,576,371
Unfunded actuarial accrued liability	\$1,088,077	\$832,973	\$533,957	\$571,787
Funded ratio	81.6%	86.5%	91.0%	90.7%
Judicial Division Trust Fund				
Actuarial accrued liability ²	\$511,202	\$528,398	\$511,202	\$528,398
Assets held to pay those liabilities	406,382	449,692	452,509	471,111
Unfunded actuarial accrued liability	\$104,820	\$78,706	\$58,693	\$57,287
Funded ratio	79.5%	85.1%	88.5%	89.2%
DPS Division Trust Fund				
Actuarial accrued liability ²	\$4,778,609	\$4,997,054	\$4,778,609	\$4,997,054
Assets held to pay those liabilities	3,873,515	4,270,307	4,313,602	4,476,377
Unfunded actuarial accrued liability	\$905,094	\$726,747	\$465,007	\$520,677
Funded ratio	81.1%	85.5%	90.3%	89.6%
All Division Trust Funds³				
Actuarial accrued liability ²	\$87,177,373	\$90,465,876	\$87,177,373	\$90,465,876
Assets held to pay those liabilities ⁴	54,684,799	60,014,087	60,911,017	62,941,200
Unfunded actuarial accrued liability	\$32,492,574	\$30,451,789	\$26,266,356	\$27,524,676
Funded ratio	62.7%	66.3%	69.9%	69.6%

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

² Based upon an assumed rate of return on investments of 7.25% and an assumed rate of 7.25% to discount the liabilities to be paid in the future to a value as of December 31, 2022, and December 31, 2023.

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

⁴ In aggregate, the fair value of the assets as of December 31, 2023, is \$2,927,113 less than the actuarial value of assets calculated by the actuaries, as they are recognizing the gains and losses in value over four years, rather than only in the year they occurred. The remaining gains and (losses) to be smoothed for 2021 are \$1,244,491, for 2022 are (\$6,632,484), and for 2023 are \$2,460,880.

DIVISION TRUST FUNDS—PENSION

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

The most important long-term driver of a pension plan is investment income. The investment return assumption and the discount rate for liabilities should be based on an estimated long-term investment yield for the plan, considering the nature and mix of current and expected plan investments and the basis used to determine the actuarial value of assets.

To understand the importance of the investment rate of return assumption, which is used to discount the actuarial liabilities of PERA, a 1% fluctuation in the assumed investment rate of return and discount rate would change the funded ratio, UAAL, and ADC (for contributions for the fiscal year ended December 31, 2025) as shown in the following tables:

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 6.25%
(Dollars in Thousands)

Trust Fund	Actuarial Value of Assets			Fair Value of Assets
	Funded Ratio	UAAL	ADC	UAAL
State Division	59.8%	\$12,698,005	24.81%	\$13,591,716
School Division	59.7%	22,692,402	27.58%	24,237,129
Local Government Division	81.4%	1,272,086	15.22%	1,533,272
Judicial Division	81.0%	110,798	19.84%	132,217
DPS Division	79.7%	1,139,436	12.71%	1,345,506
All Division Trust Funds¹		\$37,912,727		\$40,839,840

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

CURRENT INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 7.25%
(Dollars in Thousands)

Trust Fund	Actuarial Value of Assets			Fair Value of Assets
	Funded Ratio	UAAL	ADC	UAAL
State Division	66.2%	\$9,608,843	18.78%	\$10,502,554
School Division	66.7%	16,766,082	20.49%	18,310,809
Local Government Division	90.7%	571,787	8.22%	832,973
Judicial Division	89.2%	57,287	12.20%	78,706
DPS Division	89.6%	520,677	6.08%	726,747
All Division Trust Funds¹		\$27,524,676		\$30,451,789

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

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 8.25%
(Dollars in Thousands)

Trust Fund	Actuarial Value of Assets			Fair Value of Assets
	Funded Ratio	UAAL	ADC	UAAL
State Division	72.9%	\$7,003,638	13.37%	\$7,897,349
School Division	74.0%	11,807,901	14.20%	13,352,628
Local Government Division	100.3%	(16,636)	1.81%	244,550
Judicial Division	97.6%	11,474	5.05%	32,893
DPS Division	99.8%	8,785	0.23%	214,855
All Division Trust Funds¹		\$18,815,162		\$21,742,275

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

Note: The time-weighted, net-of-fees annualized rate of return for the pooled investment assets was 10.0% for the past five years and 7.8% for the past 10 years. The 30-year annualized gross-of-fees rate of return for the pooled investment assets was 8.3%.

DIVISION TRUST FUNDS—PENSION

Plan Data

SCHEDULE OF RETIREES, BENEFICIARIES, AND SURVIVORS ADDED TO AND REMOVED FROM THE BENEFIT PAYROLL

(In Actual Dollars)

	Added to Payroll		Removed from Payroll		Payroll—End of Year		Average Annual Benefits	Increase (Decrease) in Average Benefits
Valuation Date	No. ¹	Annual Benefits	No. ¹	Annual Benefits	No. ¹	Annual Benefits		
State Division ²								
12/31/2014					35,806	\$1,369,243,770	\$38,241	—
12/31/2015	1,862	\$92,808,306	803	\$20,891,508	36,865	1,441,160,568	39,093	2.2%
12/31/2016	1,953	90,963,480	805	22,828,296	38,013	1,509,295,752	39,705	1.6%
12/31/2017	2,029	96,524,376	810	23,794,584	39,232	1,582,025,544	40,325	1.6%
12/31/2018	1,948	64,439,160	865	29,030,196	40,315	1,617,434,508	40,120	(0.5%)
12/31/2019	1,805	60,004,122	939	33,418,682	41,181	1,644,019,948	39,922	(0.5%)
12/31/2020	1,939	63,669,828	1,252	20,885,946	41,868	1,686,803,830	40,289	0.9%
12/31/2021	2,049	74,357,738	980	16,651,788	42,937	1,744,509,780	40,630	0.8%
12/31/2022	2,098	73,553,004	1,281	28,133,745	43,754	1,789,929,039	40,909	0.7%
12/31/2023	1,707	58,197,922	1,046	20,345,040	44,415	1,827,781,921	41,152	0.6%
School Division ²								
12/31/2014					57,981	\$2,066,588,532	\$35,643	—
12/31/2015	2,990	\$130,162,524	1,027	\$23,409,984	59,944	2,173,341,072	36,256	1.7%
12/31/2016	3,023	123,292,224	1,027	25,461,636	61,940	2,271,171,660	36,667	1.1%
12/31/2017	3,249	130,564,260	1,026	26,635,332	64,163	2,375,100,588	37,017	1.0%
12/31/2018	3,319	90,191,556	1,106	32,160,792	66,376	2,433,131,352	36,657	(1.0%)
12/31/2019	3,149	84,865,404	1,163	39,402,271	68,362	2,478,594,485	36,257	(1.1%)
12/31/2020	3,506	98,641,497	1,629	15,175,838	70,239	2,562,060,144	36,476	0.6%
12/31/2021	3,834	115,785,385	1,383	16,732,525	72,690	2,661,113,004	36,609	0.4%
12/31/2022	3,954	123,361,006	1,705	26,877,020	74,939	2,757,596,990	36,798	0.5%
12/31/2023	3,612	111,936,452	1,544	25,607,199	77,007	2,843,926,243	36,931	0.4%
Local Government Division ²								
12/31/2014					6,446	\$233,231,957	\$36,182	—
12/31/2015	408	\$18,760,927	97	\$2,215,488	6,757	249,777,396	36,966	2.2%
12/31/2016	388	15,843,636	100	2,491,764	7,045	263,129,268	37,350	1.0%
12/31/2017	420	18,329,400	114	2,916,156	7,351	278,542,512	37,892	1.5%
12/31/2018	421	14,336,628	128	3,227,280	7,644	289,651,860	37,893	0.0%
12/31/2019	426	13,283,210	137	4,898,210	7,933	298,036,860	37,569	(0.9%)
12/31/2020	418	13,867,438	171	544,659	8,180	311,359,639	38,064	1.3%
12/31/2021	500	16,208,420	110	(64,326)	8,570	327,632,385	38,230	0.4%
12/31/2022	445	14,515,357	207	2,779,130	8,808	339,368,612	38,530	0.8%
12/31/2023	418	14,122,072	151	1,738,237	9,075	351,752,447	38,761	0.6%

Please see next page for footnote references.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF RETIREES, BENEFICIARIES, AND SURVIVORS ADDED TO AND REMOVED FROM THE BENEFIT PAYROLL (CONTINUED)

(In Actual Dollars)

	Added to Payroll		Removed from Payroll		Payroll—End of Year			Increase (Decrease) in Average Benefits
Valuation Date	No. ¹	Annual Benefits	No. ¹	Annual Benefits	No. ¹	Annual Benefits	Average Annual Benefits	
Judicial Division ²								
12/31/2014					330	\$19,919,431	\$60,362	—
12/31/2015	20	\$2,111,405	6	\$323,940	344	21,706,896	63,101	4.5%
12/31/2016	28	2,406,072	12	287,580	360	23,825,388	66,182	4.9%
12/31/2017	24	2,554,728	9	398,184	375	25,981,932	69,285	4.7%
12/31/2018	8	696,864	3	129,084	380	26,549,712	69,868	0.8%
12/31/2019	27	2,115,235	8	400,305	399	28,264,642	70,839	1.4%
12/31/2020	25	2,141,893	10	387,294	414	30,019,241	72,510	2.4%
12/31/2021	28	2,213,671	10	298,792	432	31,934,120	73,922	1.9%
12/31/2022	24	2,168,626	12	201,176	444	33,901,570	76,355	3.3%
12/31/2023	22	1,838,436	8	87,553	458	35,652,453	77,844	2.0%
DPS Division ²								
12/31/2014					6,686	\$250,204,744	\$37,422	—
12/31/2015	295	\$14,799,992	178	\$5,884,980	6,803	259,119,756	38,089	1.8%
12/31/2016	322	14,412,348	190	5,854,992	6,935	267,677,112	38,598	1.3%
12/31/2017	283	13,847,400	181	6,388,008	7,037	275,136,504	39,099	1.3%
12/31/2018	297	9,717,816	184	6,345,060	7,150	278,509,260	38,952	(0.4%)
12/31/2019	234	6,854,297	241	9,248,121	7,143	276,115,436	38,655	(0.8%)
12/31/2020	256	7,957,106	271	5,910,106	7,128	278,162,436	39,024	1.0%
12/31/2021	281	8,318,920	230	5,665,898	7,179	280,815,458	39,116	0.2%
12/31/2022	314	10,103,383	245	6,432,639	7,248	284,486,202	39,250	0.3%
12/31/2023	288	8,687,254	229	6,191,380	7,307	286,982,076	39,275	0.1%
All Division Trust Funds ²								
12/31/2014					107,249	\$3,939,188,434	\$36,729	—
12/31/2015	5,575	\$258,643,154	2,111	\$52,725,900	110,713	4,145,105,688	37,440	1.9%
12/31/2016	5,714	246,917,760	2,134	56,924,268	114,293	4,335,099,180	37,930	1.3%
12/31/2017	6,005	261,820,164	2,140	60,132,264	118,158	4,536,787,080	38,396	1.2%
12/31/2018	5,993	179,382,024	2,286	70,892,412	121,865	4,645,276,692	38,118	(0.7%)
12/31/2019	5,641	167,122,268	2,488	87,367,589	125,018	4,725,031,371	37,795	(0.8%)
12/31/2020	6,144	186,277,762	3,333	42,903,843	127,829	4,868,405,290	38,085	0.8%
12/31/2021	6,692	216,884,134	2,713	39,284,677	131,808	5,046,004,747	38,283	0.5%
12/31/2022	6,835	223,701,376	3,450	64,423,710	135,193	5,205,282,413	38,503	0.6%
12/31/2023	6,047	194,782,136	2,978	53,969,409	138,262	5,346,095,140	38,666	0.4%

¹ The number does not include deferred survivors.

² Amounts derived on an accrual basis.

DIVISION TRUST FUNDS—PENSION

The number of persons receiving monthly retirement benefits has grown steadily in relation to membership. As shown in the following table, this trend has substantially stabilized over the last few years as PERA has reached a mature plan status. The retirement benefit disbursements shown in the right-hand column include cost-of-living increases paid in years since 1970. Prior to 1981, figures are for years ended June 30.

MEMBER-RETIREE COMPARISON—ALL DIVISION TRUST FUNDS¹

(In Actual Dollars)

Year	Number of Retiree Accounts on 12/31	Number of Member Accounts on 12/31 ²	Retiree Accounts as a Percentage of Members on 12/31	Total Benefits Paid—Year Ended 12/31
1940	93	3,715	2.5%	\$72,588
1945	171	5,585	3.1%	137,442
1950	280	11,853	2.4%	237,866
1955	747	21,185	3.5%	745,679
1960	1,775	33,068	5.4%	2,055,139
1965	3,631	49,701	7.3%	5,486,225
1970	6,308	65,586	9.6%	13,115,234
1975	11,650	84,781	13.7%	32,820,433
1980	17,301	96,473	17.9%	71,289,456
1985	24,842	101,409	24.5%	192,456,029
1990	32,955	115,350	28.6%	350,398,094
1995	41,909	203,102	20.6%	639,501,796
2000	53,015	248,104	21.4%	1,093,779,068
2005	69,416	306,139	22.7%	1,973,240,491
2010	91,412	378,264	24.2%	3,161,773,781
2015	108,426	436,465	24.8%	4,073,789,897
2020	125,363	502,972	24.9%	4,825,842,185
2021	129,325	517,470	25.0%	4,984,778,874
2022	132,676	536,426	24.7%	5,153,727,994
2023	135,681	557,284	24.3%	5,308,423,650

¹ Amounts derived on a cash basis. Data prior to 2010 does not include the DPS Division.

² Includes inactive member accounts.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF MEMBERS IN ACTUARIAL VALUATION

By Attained Age and Years of Service as of December 31, 2023

(In Actual Dollars)

State Division

For State Division members (excluding Safety Officers) the average age was 45.3 years, the average service was 9.1 years, and the average expected remaining service life was 9.1 years. For Safety Officers the average age was 35.3 years, the average service was 4.8 years, and the average expected remaining service life was 15.7 years.

Attained Age	Years of Service to Valuation Date							Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	Annual Valuation Payroll
Up to 20	277	—	—	—	—	—	—	277	\$7,671,461
20-24	2,284	19	—	—	—	—	—	2,303	95,855,361
25-29	4,287	521	5	—	—	—	—	4,813	254,185,358
30-34	4,054	1,837	338	13	—	—	—	6,242	378,460,724
35-39	3,168	1,974	1,129	338	11	—	—	6,620	441,612,785
40-44	2,491	1,728	1,242	1,084	297	21	—	6,863	486,684,059
45-49	2,520	1,506	1,124	1,063	801	300	18	7,332	534,312,574
50-54	1,725	1,262	1,012	1,066	877	716	149	6,807	512,406,429
55-59	1,292	1,001	844	928	694	477	268	5,504	406,882,080
60	224	170	163	182	122	76	53	990	69,019,784
61	203	180	145	171	114	79	58	950	66,438,447
62	139	149	107	167	110	78	47	797	56,764,671
63	153	138	125	141	102	69	47	775	53,178,633
64	131	133	100	131	97	52	58	702	47,480,125
65+	586	475	459	480	319	175	218	2,712	165,248,303
Total	23,534	11,093	6,793	5,764	3,544	2,043	916	53,687	\$3,576,200,794

School Division

For School Division members the average age was 44.5 years, the average service was 8.9 years, and the average expected remaining service life was 9.9 years.

Attained Age	Years of Service to Valuation Date							Total	
	0-4	5-9	10-14	15-19	20-24	25-29	30+	No.	Annual Valuation Payroll
Up to 20	1,734	—	—	—	—	—	—	1,734	\$17,301,646
20-24	6,106	161	—	—	—	—	—	6,267	151,217,540
25-29	8,560	2,061	62	—	—	—	—	10,683	411,830,840
30-34	6,635	4,763	1,355	54	—	—	—	12,807	569,545,488
35-39	6,714	3,861	3,397	1,145	48	—	—	15,165	709,437,970
40-44	6,714	3,850	2,853	3,435	1,098	45	1	17,996	919,233,975
45-49	10,311	3,720	2,466	2,668	3,010	826	32	23,033	1,127,067,993
50-54	3,951	2,930	2,230	2,564	2,388	2,180	383	16,626	986,704,461
55-59	2,680	2,035	1,689	2,222	1,857	1,080	541	12,104	666,044,218
60	504	346	280	382	331	187	111	2,141	110,772,510
61	502	330	297	342	280	148	84	1,983	95,111,296
62	494	293	222	309	253	152	81	1,804	83,911,907
63	440	286	233	262	243	162	54	1,680	76,084,380
64	343	247	178	248	237	109	49	1,411	62,442,694
65+	2,226	1,159	658	694	505	303	209	5,754	190,005,577
Total	57,914	26,042	15,920	14,325	10,250	5,192	1,545	131,188	\$6,176,712,495

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF MEMBERS IN ACTUARIAL VALUATION (CONTINUED)

By Attained Age and Years of Service as of December 31, 2023

(In Actual Dollars)

Local Government Division

For Local Government Division members (excluding Safety Officers) the average age was 44.4 years, the average service was 7.7 years, and the average expected remaining service life was 9.0 years. For Safety Officers the average age was 37.2 years, the average service was 1.9 years, and the average expected remaining service life was 16.1 years.

Attained Age	Years of Service to Valuation Date							Total	
	0–4	5–9	10–14	15–19	20–24	25–29	30+	No.	Annual Valuation Payroll
Up to 20	536	—	—	—	—	—	—	536	\$5,109,254
20–24	591	6	—	—	—	—	—	597	19,109,502
25–29	847	148	7	—	—	—	—	1,002	54,750,532
30–34	870	393	75	8	—	—	—	1,346	88,620,421
35–39	750	458	175	75	14	—	—	1,472	108,669,468
40–44	615	402	195	174	81	8	—	1,475	114,242,396
45–49	732	333	218	220	127	76	5	1,711	125,017,018
50–54	430	292	177	285	172	110	21	1,487	125,409,153
55–59	368	222	180	201	144	84	37	1,236	97,152,792
60	79	41	31	36	31	20	8	246	17,789,964
61	67	34	39	57	32	16	6	251	17,948,960
62	53	32	21	43	18	7	5	179	12,615,578
63	48	37	29	26	21	16	15	192	13,447,546
64	59	45	20	25	19	11	8	187	11,677,364
65+	393	125	85	98	36	25	21	783	31,893,310
Total	6,438	2,568	1,252	1,248	695	373	126	12,700	\$843,453,258

Judicial Division

For Judicial Division members the average age was 53.1 years, the average service was 11.6 years, and the average expected remaining service life was 11.8 years.

Attained Age	Years of Service to Valuation Date							Total	
	0–4	5–9	10–14	15–19	20–24	25–29	30+	No.	Annual Valuation Payroll
Up to 20	—	—	—	—	—	—	—	—	\$—
20–24	—	—	—	—	—	—	—	—	—
25–29	—	—	—	—	—	—	—	—	—
30–34	3	2	—	—	—	—	—	5	879,400
35–39	9	1	3	—	—	—	—	13	1,958,282
40–44	25	10	10	4	—	—	—	49	8,360,575
45–49	20	19	12	6	4	2	—	63	10,930,585
50–54	16	17	8	13	9	—	—	63	11,457,357
55–59	11	15	14	17	11	4	2	74	12,602,868
60	2	1	2	1	3	1	2	12	2,221,661
61	2	1	2	3	1	2	1	12	2,036,014
62	3	1	3	3	2	—	1	13	2,456,402
63	—	2	3	1	—	—	1	7	1,303,814
64	1	2	3	2	2	1	1	12	2,225,120
65+	1	6	2	5	3	3	4	24	4,174,061
Total	93	77	62	55	35	13	12	347	\$60,606,139

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF MEMBERS IN ACTUARIAL VALUATION (CONTINUED)

By Attained Age and Years of Service as of December 31, 2023

(In Actual Dollars)

DPS Division

For DPS Division members the average age was 41.2 years, the average service was 7.7 years, and the average expected remaining service life was 9.6 years.

Attained Age	Years of Service to Valuation Date							Total	
	0–4	5–9	10–14	15–19	20–24	25–29	30+	No.	Annual Valuation Payroll
Up to 20	186	—	—	—	—	—	—	186	\$3,157,822
20-24	1,010	15	—	—	—	—	—	1,025	29,174,150
25-29	1,525	342	9	—	—	—	—	1,876	85,833,244
30-34	1,237	899	228	2	—	—	—	2,366	133,439,107
35-39	840	739	576	104	4	—	—	2,263	139,932,352
40-44	935	610	551	293	48	4	—	2,441	154,206,595
45-49	454	375	342	242	199	36	6	1,654	111,884,483
50-54	361	296	349	178	222	117	17	1,540	106,569,310
55-59	242	166	235	118	122	85	41	1,009	65,397,678
60	53	37	52	20	12	15	5	194	10,951,624
61	37	33	40	25	24	10	4	173	10,885,904
62	44	22	31	18	13	11	9	148	8,105,761
63	23	18	33	11	12	6	10	113	6,267,090
64	21	30	31	16	13	6	6	123	7,086,787
65+	179	100	130	31	32	27	16	515	21,353,106
Total	7,147	3,682	2,607	1,058	701	317	114	15,626	\$894,245,013

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF ACTIVE MEMBER ACTUARIAL VALUATION DATA

As of December 31

(In Actual Dollars)

Year	Number of Participating Employers ¹	Number of Active Members	Annual Payroll for Active Members	Average Annual Pay for Active Members	Percentage Increase (Decrease) in Average Annual Pay
State Division					
2014	32	55,300	\$2,564,669,718	\$46,377	—
2015	32	55,291	2,641,866,650	47,781	3.03%
2016	32	55,725	2,710,650,565	48,643	1.80%
2017	32	55,686	2,774,207,203	49,819	2.42%
2018	32	55,511	2,898,827,271	52,221	4.82%
2019	32	55,252	2,995,452,821	54,214	3.82%
2020	32	53,643	3,089,161,069	57,587	6.22%
2021	32	53,477	3,092,509,212	57,829	0.42%
2022	32	50,892	3,183,955,204	62,563	8.19%
2023	32	53,687	3,576,200,794	66,612	6.47%
School Division					
2014	224	119,618	\$4,063,235,757	\$33,968	—
2015	227	120,239	4,235,290,282	35,224	3.70%
2016	229	121,945	4,349,319,783	35,666	1.25%
2017	234	122,990	4,471,356,847	36,355	1.93%
2018	234	126,333	4,789,503,451	37,912	4.28%
2019	235	128,938	5,104,430,888	39,588	4.42%
2020	234	119,421	5,146,117,910	43,092	8.85%
2021	233	125,007	5,465,866,064	43,724	1.47%
2022	234	128,057	5,670,279,844	44,279	1.27%
2023	234	131,188	6,176,712,495	47,083	6.33%
Local Government Division					
2014	141	12,084	\$540,468,037	\$44,726	—
2015	140	12,176	561,518,205	46,117	3.11%
2016	141	12,736	608,222,609	47,756	3.55%
2017	140	12,770	632,768,337	49,551	3.76%
2018	141	13,260	660,998,127	49,849	0.60%
2019	141	13,086	681,093,520	52,047	4.41%
2020	141	12,757	698,059,659	54,720	5.14%
2021	141	12,745	723,744,103	56,787	3.78%
2022	141	12,103	760,261,752	62,816	10.62%
2023	141	12,700	843,453,258	66,414	5.73%
Judicial Division					
2014	2	334	\$42,976,979	\$128,674	—
2015	2	334	46,869,730	140,329	9.06%
2016	2	335	48,699,531	145,372	3.59%
2017	2	332	48,947,607	147,433	1.42%
2018	2	332	50,505,856	152,126	3.18%
2019	2	339	53,427,351	157,603	3.60%
2020	2	344	54,780,086	159,244	1.04%
2021	2	345	55,779,834	161,681	1.53%
2022	2	340	56,565,330	166,369	2.90%
2023	2	347	60,606,139	174,657	4.98%

Please see next page for footnote references.

DIVISION TRUST FUNDS—PENSION

SCHEDULE OF ACTIVE MEMBER ACTUARIAL VALUATION DATA (CONTINUED)

As of December 31

(In Actual Dollars)

Year	Number of Participating Employers ¹	Number of Active Members	Annual Payroll for Active Members	Average Annual Pay for Active Members	Percentage Increase (Decrease) in Average Annual Pay
DPS Division					
2014	1	15,414	\$584,319,269	\$37,908	—
2015	1	15,929	621,114,573	38,993	2.86%
2016	1	15,950	642,177,158	40,262	3.25%
2017	1	15,991	658,198,306	41,161	2.23%
2018	1	16,148	722,040,073	44,714	8.63%
2019	1	15,679	736,263,798	46,959	5.02%
2020	1	14,693	771,347,604	52,498	11.80%
2021	1	15,695	823,395,477	52,462	(0.07%)
2022	1	15,254	810,402,643	53,127	1.27%
2023	1	15,626	894,245,013	57,228	7.72%
All Division Trust Funds					
2014	400	202,750	\$7,795,669,760	\$38,450	—
2015	402	203,969	8,106,659,440	39,745	3.37%
2016	405	206,691	8,359,069,646	40,442	1.75%
2017	409	207,769	8,585,478,300	41,322	2.18%
2018	410	211,584	9,121,874,778	43,112	4.33%
2019	411	213,294	9,570,668,378	44,871	4.08%
2020	410	200,858	9,759,466,328	48,589	8.29%
2021	409	207,269	10,161,294,690	49,025	0.90%
2022	410	206,646	10,481,464,773	50,722	3.46%
2023	410	213,548	11,551,217,699	54,092	6.64%

¹ The employer counts are presented for purposes of complying with GASB 67 only, which classifies a primary government and its component units as one employer. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

HEALTH CARE TRUST FUNDS—OPEB

Actuarial Topics

The standard promulgated by the GASB Statement No. 74 results in the preparation of two actuarial valuations—one for funding purposes and one for accounting and financial reporting purposes. Unless otherwise noted, this Health Care Trust Funds subsection reports on the actuarial valuation performed for funding purposes, but also includes information on specific differences between the two actuarial valuations.

The other postemployment benefit (OPEB) plan provisions in effect on December 31, 2023, are summarized in Note 9 of the Notes to the Financial Statements in the Financial Section.

PERA BOARD GOVERNANCE - TWO DEFINED BENEFIT OPEB PLANS	
PERA Defined Benefit OPEB Plans	PERA's two defined benefit OPEB plans include the Health Care Trust Fund (HCTF), a cost-sharing multiple-employer plan, and the Denver Public Schools Health Care Trust Fund (DPS HCTF), a single-employer plan. The HCTF and the DPS HCTF provide a subsidy for PERACare, PERA's health benefits program. Participation in the HCTF and the DPS HCTF is voluntary pursuant to C.R.S. § 24-51-1201. Employer contributions and investment earnings on the assets of the plans primarily pay for the costs. The HCTF was established as of July 1, 1985, and the DPS HCTF was established January 1, 2010, with the asset transfer from the Denver Public Schools Retiree Health Benefit Trust held by the DPS Board of Education. The HCTF and the DPS HCTF provide a health care premium subsidy based upon the benefit structure under which a member retires and the member's years of service credit. There is an allocation of the premium subsidy between the trust funds for members who retire with service credit in the DPS Division and one or more of the other divisions, as set forth in C.R.S. § 24-51-1206.5. The basis for the allocation of the premium subsidy is the percentage of the member contribution balance from each division as it relates to the total member contribution account balance.
PERA Board OPEB Funding Policy	The PERA Board is responsible for maintaining an OPEB funding policy applicable to these plans. The current OPEB funding policy initially was adopted by the Board on January 19, 2018, effective for the December 31, 2017, funding actuarial valuation, and last amended on January 19, 2024. The OPEB funding policy requires the calculation of an ADC for each of the two Health Care Trust Funds for the purpose of assessing the adequacy of the statutory contribution rate of each fund. The ADC is determined in accordance with the OPEB plan provisions in effect as of the date of the actuary's Letter of Certification and is expressed as a level percentage of assumed future covered payroll.
Actuarial Service Provider & Other Responsibilities	The Board retains an external actuary, and effective November 1, 2018, Segal was retained to perform annual actuarial valuations and sustainability projections as well as periodic experience studies to review the actuarial assumptions versus actual plan experience. The Board's initial contract agreement with Segal was extended effective January 1, 2024, for an additional five-year period ending December 31, 2028. In addition, the Board has the authority to contract, self-insure, and authorize disbursements necessary in order to carry out the purposes of the PERACare program including the administration of the health care subsidies.
Actuarial Service Provider Funding Method Statement	Per their actuarial valuation report, "Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and a portion of the principal balance. The OPEB funding policy adopted by PERA meets this standard."

ACTUARIAL METHODS	
Actuarial Methods	The Board is responsible for the actuarial methods and assumptions used in the actuarial valuations in accordance with C.R.S. § 24-51-204(5). Through formal action, the Board updates, replaces, or adopts new actuarial methods and assumptions as deemed necessary. Initial valuations were performed on an "open group" basis approximately once every two years. Annual valuations commenced with the December 31, 1998, actuarial valuation.

HEALTH CARE TRUST FUNDS—OPEB

Actuarial Methods	Type	Description / Source / Basis	Adoption / Effective Date
Asset Valuation Method	Smoothed Actuarial Value of Assets	In 1992, the Board adopted a method for valuing assets that determines a smoothed fair value (synonymous with the term "market value," as is used in the Board's OPEB funding policy) of assets to help mitigate volatile investment market experience. The smoothed fair value of assets recognizes the differences between actual and expected investment experience for each year in equal amounts over a four-year period.	Initially Adopted: 1992; Effective: Jan 1, 1993; Reinitialized to Fair Value as of: Dec 31, 2004; Effective: Dec 31, 2005
Actuarial Cost Method	Entry Age Actuarial Cost Method (EA)	The EA funding or cost method is designed to keep annual costs level as a percent of covered payroll and for this reason, was selected by the Board to be used in the actuarial valuations. The method to determine normal cost, original based on credited service, is determined based on compensation as of the December 31, 2016, actuarial valuation. The effect of differences between the actuarial assumptions and the actual experience of the plan is determined within each annual actuarial valuation. These differences produce actuarial gains or losses that result in an adjustment of the UAAL.	EA Effective: Jan 1, 1991; Normal Cost basis changed from service to compensation Effective: Dec 31, 2016
Amortization Method	Defined, Closed, and Layered Periods	The ADC is determined by adding the normal cost and the cost to amortize, over defined, closed periods, any existing UAAL or new UAAL, including the impact of any experience actuarial gains and losses, actuarial assumption changes, and changes in plan provisions. Each amortized item is tracked over the closed period defined for that category. The 30-year period used to amortize the legacy UAAL was initialized as of December 31, 2017. All gains, losses, and changes in actuarial methods and assumptions on and after January 1, 2018, are recognized each year and amortized separately over closed 30-year periods. The impact of any changes in plan provisions will be recognized over a closed period relating to the demographics of the group affected and/or the duration of the enhancement provided, not to exceed 25 years. If any future actuarial valuation indicates a division has a negative UAAL, the ADC shall be set equal to the normal cost until such time as the funded ratio equals or exceeds 120%. At that time, the ADC shall be equal to the normal cost less an amount equal to 15-year amortization of the portion of the negative UAAL above the 120% funded ratio.	Initially Adopted: Jan 19, 2018; Effective: Dec 31, 2017; Last Amended: Jan 19, 2024

HEALTH CARE TRUST FUNDS—OPEB

ACTUARIAL ASSUMPTIONS

Actuarial Assumptions¹	Unless otherwise noted, it can be assumed the economic and demographic actuarial assumptions applied to the actuarial valuation for funding purposes also were applied to the actuarial valuation for accounting and financial reporting purposes. All actuarial methods and assumptions necessary to assess OPEB liabilities, in addition to those already previously, are described as follows. The actuary followed ASOP No. 6, <i>Measuring Retiree Group Benefit Obligations</i>, for purposes of recommending appropriate OPEB-specific assumptions.		
	<table border="1"> <tr> <td data-bbox="394 401 662 550">Basis of Actuarial Assumptions Used</td><td data-bbox="662 401 1453 550"> Unless otherwise noted, the basis of all selected economic and non-economic actuarial assumptions resulted from the 2020 experience analysis and related discussions that took place during the November 20, 2020, Board meeting. As a result of the 2019 asset/liability study, concluded at the November 15, 2019, Board meeting, the Board reaffirmed the 7.25% assumed long-term rate of investment return effective as of January 1, 2020, which was supported by the analysis provided by Segal in the 2020 Experience Analysis report. </td></tr> </table>	Basis of Actuarial Assumptions Used	Unless otherwise noted, the basis of all selected economic and non-economic actuarial assumptions resulted from the 2020 experience analysis and related discussions that took place during the November 20, 2020, Board meeting. As a result of the 2019 asset/liability study, concluded at the November 15, 2019, Board meeting, the Board reaffirmed the 7.25% assumed long-term rate of investment return effective as of January 1, 2020, which was supported by the analysis provided by Segal in the 2020 Experience Analysis report.
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¹ See Exhibits H through L for detailed assumption information.

Economic Assumptions	Value(s) / Type	Description / Source / Basis	Adoption / Effective Date
Initial Per Capita Health Care Costs	Exhibit H	Exhibit H contains the assumptions used in determining the additional liability for PERACare enrollees under the PERA benefit structure (and in certain circumstances, the DPS benefit structure), who are age 65 or older and who are not eligible for premium-free Medicare Part A. Shown are the monthly costs/premiums assumed for 2024, which are subject to the morbidity rates and health care cost trend rates. Basis: Reviewed and updated annually	Updated Effective: Dec 31, 2023
Age-Related Morbidity Rates	Exhibit H	These rates assist in anticipating the pace at which a defined population ages through an eligibility period and for PERA, apply only to Medicare-eligible members who retire under the PERA benefit structure (and in certain circumstances, the DPS benefit structure) and do not qualify for premium-free Medicare Part A. Where the actual premiums for the selected plan are less than the service-based premium subsidy, age-related morbidity assumptions are applied accordingly; i.e. the 2024 Medicare Advantage #2 is lower than the service-based subsidy. Basis: Updated for the December 31, 2022, valuation, the revised morbidity rate factors are based on a review of historical claims experience by age, gender, and status (active vs. retired) from Segal's claims data warehouse, developed by Segal for use in client valuations—annually monitored and updated as appropriate.	Initially Effective: Dec 31, 2015; Last Updated Effective: Dec 31, 2022
Health Care Cost Trend Rates	Exhibit H	Health care cost trends reflect the change in per capita costs over time and include such factors as unit cost, utilization of health care services, plan design, and technological improvements. These factors impact overall cost (and thus retiree share after the fixed subsidy) as well as the costs for Medicare beneficiaries not eligible for premium-free Medicare Part A under the PERA benefit structure (and in certain circumstances, the DPS benefit structure.) Basis: Reviewed and updated annually	Updated Effective: Dec 31, 2023
Additional Premium Subsidy Assumptions - DPS Benefit Structure	Exhibit I	Plan defined dollar subsidy amounts used in determining the additional liability for PERACare enrollees under the DPS benefit structure who are age 65 or older and who are not eligible for premium-free Medicare Part A. Basis: Additional subsidy for DPS Benefit Structure in effect as of January 1, 2010	Subsidy amounts in effect as of Merger of the DPS Retirement System into PERA Effective: Jan 1, 2010

HEALTH CARE TRUST FUNDS—OPEB

Non-Economic Assumptions	Value(s) / Type	Description / Source / Basis	Adoption / Effective Date
Health Care Participation Rate Assumptions	Exhibit J	Current PERACare participants are assumed to maintain their current health care benefit elections in perpetuity. For active members retiring directly from covered employment, Exhibit J provides the assumed participation rates. The participation of current PERACare enrollees and members retiring directly from active service is adjusted to reflect the increasing rate of participation with age, as described in Exhibit J. The 2020 experience analysis supported a reduction in anticipated participation for retiring active members at certain ages for all divisions.	Last Revised: Nov 20, 2020; Effective: Dec 31, 2020
Survivors of Retirees Choosing Joint & Survivor Payment Options	Portion of Male Retirees with Surviving Spouse: 60%; Portion of Female Retirees with Surviving Spouse: 35%	Survivors of retirees under the PERA benefit structure electing health care coverage are eligible to receive the subsidy. To anticipate future liabilities driven by these survivors, it is assumed a percent of the current members assumed to elect PERACare coverage will choose a joint and survivor optional payment and thus, their survivors will qualify for the subsidy. The 2020 experience analysis supported separate assumptions for male and female retirees.	Last Revised: Nov 20, 2020; Effective: Dec 31, 2020
Age Differences	Male Retiree: Three Years Older; Female Retiree: One Year Older	The assumed average number of years a covered male spouse is older than a covered female spouse is three years for a male retiree and one year for a female retiree. These assumptions initially were determined from actual census data and were revised from the previous non-gender specific assumptions used in prior actuarial valuations. The 2020 experience analysis confirmed the current assumptions.	Last Revised: Nov 18, 2016; Effective: Dec 31, 2016
Health Care Participation Election Assumption for Inactive Members	Inactive Members: 20%	It is assumed a certain percent of eligible inactive members will elect health care coverage upon commencement of their monthly benefit. The 2020 experience analysis supported a reduction in anticipated participation for inactive members.	Last Revised: Nov 20, 2020; Effective: Dec 31, 2020
Health Care Participation Spousal Election Assumption	5%	It is assumed a certain percent of participating members, regardless of prior status, retirement benefit payment selection, or eligibility for premium-free Medicare Part A, will elect coverage for their spouses. The 2020 experience analysis supported consolidation of spousal election assumptions and a reduction in the resulting spousal election assumption.	Last Revised: Nov 20, 2020; Effective: Dec 31, 2020
Commencement Age Assumed for Inactive Members	Ranging From Age 50 to Age 60, depending on Inactive Member Group	For eligible inactive members, an average age at which health benefits are to begin must be assumed. Here, the assumed age of initial benefit receipt is determined using the same approach used for terminating active members who are assumed to leave their contributions in the plan in order to be eligible for a pension benefit at their retirement date. This assumption varies depending on benefit structure and years of service. The 2020 experience analysis confirmed the assumed initial benefit age for all inactive member groups except those under the DPS benefit structure, for whom the assumption was lowered.	Last Confirmed/ Revised: Nov 20, 2020; Effective: Dec 31, 2020
Medicare Health Care Plan Election Rate Assumptions	Exhibit K	Exhibit K shows the assumed plan elections for current and future Medicare-eligible retirees who are not eligible for premium-free Medicare Part A. Basis: Updated for the December 31, 2023, valuation, the revised Medicare Health Care Plan election rate assumptions are based on an experience analysis of recent data.	Updated Effective: Dec 31, 2023

HEALTH CARE TRUST FUNDS—OPEB

Non-Economic Assumptions	Value(s) / Type	Description / Source / Basis	Adoption / Effective Date
Percent Qualifying for “No Part A” Subsidy Assumptions	Exhibit L	For those current PERACare enrollees who are age 65 and older, the premium-free Medicare Part A eligibility status is provided by PERA and is assumed to be maintained in perpetuity. For current PERACare enrollees not yet age 65, estimated to have been hired prior to April 1, 1986, and not assumed eligible for premium-free Medicare Part A coverage through their spouse, and for those active employees hired prior to April 1, 1986, Exhibit L lists the percentage, by estimated age at hire, of PERACare enrollees assumed to not qualify for premium-free Medicare Part A benefits, thus qualifying for the applicable “No Part A” subsidy. The 2020 experience analysis confirmed the current assumptions for healthy PERACare enrollees, but supported revised assumptions for certain groups, stated as follows: Of the PERACare enrollees under the PERA benefit structure assumed to qualify for the “No Part A” subsidy, 5% are assumed to cover a spouse. Of the disability retirees enrolled in PERACare 5% are assumed to qualify for the “No Part A” subsidy. Of the eligible inactive (or deferred vested) members enrolled in PERACare, 100% are assumed to obtain the 40 or more quarters of Medicare-covered employment required for premium-free Medicare Part A coverage as a result of their subsequent employment, therefore 0% are assumed to qualify for the “No Part A” subsidy.	Last Confirmed/Revised: Nov 20, 2020; Effective: Dec 31, 2020
Mortality	Exhibit D and Exhibit G	The revised pre- and post-retirement and disability retirement mortality assumptions described in the Division Trust Funds subsection of this Actuarial Section appropriately reflect PERA's recent and anticipated plan experience and are used to estimate the value of expected future subsidy payments. Exhibit D in the Division Trust Funds subsection of this Actuarial Section, lists the healthy pre-retirement mortality rates at sample ages and Exhibit G lists the healthy post-retirement mortality rates and values at sample ages. As a result of the 2020 experience analysis, a separate beneficiary mortality table was implemented to recognize differing mortality for beneficiaries versus retirees. All mortality tables for purpose of valuing the Health Care Trust Funds are headcount-weighted.	First implemented use of separate mortality tables for different groups / divisions Effective: Dec 31, 2016; Mortality - Last Revised: Nov 20, 2020; Effective: Dec 31, 2020 First implemented generational mortality and use of a separate mortality table for beneficiaries Effective: Dec 31, 2020
AI Rate	N/A	As the service-based premium subsidy does not increase over time, there is no need for an assumption regarding increasing benefit amounts. Basis: N/A	N/A

ACTUARIAL STUDIES

Governance Studies	All actuarial studies described in the Division Trust Funds subsection of this Actuarial Section titled, Actuarial Studies, incorporated a review and analysis of actuarial methods and assumptions pertaining to the HCTF and the DPS HCTF.
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HEALTH CARE TRUST FUNDS—OPEB

CHANGES SINCE LAST ACTUARIAL VALUATION	
Changes in Actuarial Methods	There are no changes in actuarial methods incorporated in the December 31, 2023, actuarial valuation, since the last actuarial valuation as of December 31, 2022.
Changes in Actuarial Assumptions	The actuarial assumption changes, specific to the HCTF and the DPS HCTF, incorporated into the December 31, 2023, actuarial valuation, since the last actuarial valuation as of December 31, 2022 are listed as follows: Revisions were made to the following assumptions based on annual analysis: - Per capita health care costs in effect as of the December 31, 2023, valuation date for those PERACare enrollees under the PERA benefit structure who are expected to be age 65 and older and are not eligible for premium-free Medicare Part A benefits were updated to reflect the costs for the 2024 plan year. - The health care cost trend rates applicable to health plan premiums were revised to reflect the current expectation of future increases in those premiums. A separate trend rate assumption set was added for MAPD PPO #2 as the first-year rate is still below the maximum subsidy and also the assumption set reflects the estimated impact of the Inflation Reduction Act for that plan option. - The Medicare health care plan election rate assumptions were updated effective as of the December 31, 2023, valuation date based on an experience analysis of recent data.
Changes in Plan Provisions	Except for the item noted below, there are no changes in OPEB plan provisions incorporated in the December 31, 2023, actuarial valuation since the last actuarial valuation as of December 31, 2022. As of December 31, 2023, plan assets for the HCTF reflect payments related to the disaffiliation of Tri-County Health Department as a PERA-affiliated employer, effective December 31, 2022. As of the December 31, 2023, year-end, PERA recognized two additions for funding actuarial valuation purposes: a \$24.000 million payment received on December 4, 2023, and a \$2.000 million receivable. The employer disaffiliation payment and receivable allocations to the HCTF and Local Government Division Trust Fund were \$1.033 million and \$24.967 million, respectively.

SIGNIFICANT EVENTS
There were no significant events during 2023.

DIFFERENCES IN ACTUARIAL VALUATION METHODS AND ASSUMPTIONS
- The actuarial valuation for funding purposes was performed as of December 31, 2023. The actuarial valuation for accounting and financial reporting purposes was performed as of December 31, 2022, and the total OPEB liability was rolled forward to the measurement date as of December 31, 2023. - Census data used for the actuarial valuation for funding purposes reflects membership data as of December 31, 2023, and the census data used for the actuarial valuation for accounting and financial reporting purposes reflects membership data as of December 31, 2022. Therefore, all summaries and schedules, regarding actuarial valuation results for funding purposes, shown in the Actuarial Section, reflect census data as of December 31, 2023. - The actuarial valuation for funding purposes applies an asset valuation method that recognizes a four-year smoothed fair value of assets for purposes of determining the UAAL. The actuarial valuation for accounting and financial reporting purposes applies the fair value of assets to determine the net OPEB liability. - The actuarial valuation for funding purposes reflects updated initial per capita health care costs and health care trend rates to 2024. The actuarial valuation for accounting and financial reporting purposes reflects updated initial per capita health care costs and health care trend rates to 2023.

HEALTH CARE TRUST FUNDS—OPEB

Actuarial Assumptions: Exhibits H–L

The following exhibits (Exhibits H through L) show the actuarial assumptions employed to determine the actuarial valuation results. The basic economic and demographic actuarial assumptions as detailed in Exhibits A through G, in the Division Trust Funds subsection of the Actuarial Section, also were applied, as applicable, for purposes of determining OPEB liabilities.

Exhibit H: Initial Health Care Costs, Age-Related Morbidity, and Trend Rate Assumptions—PERA Benefit Structure

PER CAPITA HEALTH CARE COST DEVELOPMENT

Continuing from the prior year, the per capita health care costs are developed by plan option. This approach applies for all members and is adjusted accordingly for those not eligible for premium-free Medicare Part A.

MAPD PPO #1:

Based on January 1, 2024, premium rates for the UnitedHealthcare Medicare Advantage Prescription Drug (MAPD) PPO plan #1. Actuarial factors were then applied to estimate individual retiree and spouse costs by age and by gender and health care cost trend.

MAPD PPO #2:

Based on January 1, 2024, premium rates for the UnitedHealthcare Medicare Advantage Prescription Drug (MAPD) PPO plan #2. Actuarial factors were then applied to estimate individual retiree and spouse costs by age and by gender and health care cost trend.

MAPD HMO:

Based on January 1, 2024, premium rates for the Kaiser Permanente Medicare Advantage Prescription Drug (MAPD) HMO plan. Actuarial factors were then applied to estimate individual retiree and spouse costs by age and by gender and health care cost trend.

AGE-RELATED MORBIDITY ASSUMPTIONS

Participant Age	Annual Increase (Male)	Annual Increase (Female)
65-68	2.2%	2.3%
69	2.8%	2.2%
70	2.7%	1.6%
71	3.1%	0.5%
72	2.3%	0.7%
73	1.2%	0.8%
74	0.9%	1.5%
75-85	0.9%	1.3%
86 and older	0.0%	0.0%

HEALTH CARE TRUST FUNDS—OPEB

PER CAPITA HEALTH CARE COSTS BEGINNING JANUARY 1, 2024

(In Actual Dollars)

Sample Age	MAPD PPO #1 with Medicare Part A		MAPD PPO #2 with Medicare Part A		MAPD HMO (Kaiser) with Medicare Part A	
	Male	Female	Male	Female	Male	Female
65	\$1,710	\$1,420	\$585	\$486	\$1,897	\$1,575
70	1,921	1,589	657	544	2,130	1,763
75	2,122	1,670	726	571	2,353	1,853

Sample Age	MAPD PPO #1 without Medicare Part A		MAPD PPO #2 without Medicare Part A		MAPD HMO (Kaiser) without Medicare Part A	
	Male	Female	Male	Female	Male	Female
65	\$6,536	\$5,429	\$4,241	\$3,523	\$7,063	\$5,866
70	7,341	6,073	4,764	3,941	7,933	6,563
75	8,110	6,385	5,262	4,143	8,763	6,900

The 2024 Medicare Part A Premium is \$505 per month.

HEALTH CARE COST TREND RATE ASSUMPTIONS¹

Year	PERACare Medicare Plans ²	MAPD PPO #2 ²	Medicare Part A Premiums
2024	16.00%	105.00%	3.50%
2025	6.75%	8.55%	3.75%
2026	6.50%	8.10%	3.75%
2027	6.25%	7.65%	4.00%
2028	6.00%	7.20%	4.00%
2029	5.75%	6.75%	4.25%
2030	5.50%	6.30%	4.25%
2031	5.25%	5.85%	4.25%
2032	5.00%	5.40%	4.25%
2033	4.75%	4.95%	4.50%
2034	4.50%	4.50%	4.50%

¹ Applies only to PERACare enrollees who are age 65 or older and who are not eligible for premium-free Medicare Part A. Where the actual premiums for the selected plan are less than the service-based premium subsidy, trend rate assumptions are applied accordingly.

² Increase in 2024 trend rates due to the effect of the Inflation Reduction Act.

Exhibit I: Additional Premium Subsidy Assumptions—DPS Benefit Structure¹

Years of Service	Monthly Subsidy for Members without Medicare Part A	Years of Service	Monthly Subsidy for Members without Medicare Part A
20+	\$115.00	10	\$57.50
19	109.25	9	51.75
18	103.50	8	46.00
17	97.75	7	40.25
16	92.00	6	34.50
15	86.25	5	28.75
14	80.50	4	23.00
13	74.75	3	17.25
12	69.00	2	11.50
11	63.25	1	5.75

¹ Health care assumptions for future PERACare enrollees who are age 65 or older and who are assumed to not be eligible for premium-free Medicare Part A.

HEALTH CARE TRUST FUNDS—OPEB

Exhibit J: Health Care Participation Rate Assumptions

Attained Age(s)	Percent Electing Health Care Coverage		Attained Age(s)	Percent Electing Health Care Coverage	
	Other Divisions	DPS Division		Other Divisions	DPS Division
15 – 48	20%	20%	61	45%	60%
49	25%	25%	62	45%	60%
50	25%	25%	63	45%	60%
51	35%	35%	64	45%	60%
52	35%	35%	65	45%	55%
53	40%	40%	66	45%	55%
54	40%	50%	67	45%	55%
55	40%	50%	68	45%	55%
56	40%	50%	69	45%	55%
57	40%	50%	70	45%	55%
58	45%	50%	71	45%	55%
59	45%	50%	72+	55%	65%
60	45%	50%			

Exhibit K: Medicare Health Care Plan Election Rate Assumptions

Medicare Plans ¹	Percent of Future Medicare Benefit Recipients Electing Medicare Plan
	All Divisions
UnitedHealthcare MAPD PPO ²	75%
Kaiser Permanente Medicare Advantage HMO	25%

¹ These assumptions are applicable to members under the PERA benefit structure only.

² Of the PERACare enrollees participating in the UnitedHealthcare MAPD PPO plans, it is assumed 73% elect MA #1 and 27% elect MA #2.

Exhibit L: Percent Qualifying for “No Part A” Subsidy Assumptions

Hire Age	HCTF ^{1,2}	DPS HCTF ²
15 – 24	17%	17%
25 – 29	11%	11%
30+	4%	4%

¹ Of the PERACare enrollees under the PERA benefit structure assumed to qualify for the “No Part A” subsidy, 5% are assumed to cover a spouse.

² Of the PERACare enrollees receiving health care benefits as a result of disability retirement, 5% are assumed to qualify for the “No Part A” subsidy. Of the eligible inactive (or deferred vested) members enrolled in PERACare, 100% are assumed to obtain the 40 or more quarters of Medicare-covered employment required for premium-free Medicare Part A coverage as a result of their subsequent employment.

HEALTH CARE TRUST FUNDS—OPEB

Summary of Funding Progress

The PERA funding objective is to pay long-term benefit promises through contributions that remain approximately level from year to year as a percent of covered payroll earned by PERA members. The following schedules presented in this section provide an overview of funding progress:

- The Schedule of Funded Liabilities by Type shows the degree to which existing liabilities are funded, including prior history.
- The Schedule of Funding Progress shows the UAAL as a percentage of annual covered payroll, including prior history.
- A schedule detailing actuarial gains and losses, by source, for the current year.
- The scheduled contribution requirements based on the December 31, 2023, actuarial valuation for the period ending December 31, 2025.

Schedule of Funded Liabilities by Type

The Schedule of Funded Liabilities by Type, formerly known as the “solvency test,” compares the plan’s actuarial value of assets with: (A) member contributions (with interest) on deposit, (B) the liabilities for future benefits to persons who have retired, died or become disabled, and to those who have terminated service with the right to a future benefit, and (C) the liabilities for service already rendered by active members. Since the HCTF and the DPS HCTF are funded only through employer contributions, there are no member contribution accounts (liability A).

The following table shows the funded level of the liabilities for future benefits to current retirees (liability B) and the funded or unfunded level, as applicable, of liabilities associated with service already rendered by active members (liability C):

SCHEDULE OF FUNDED LIABILITIES BY TYPE

(Dollars in Thousands)

Valuation Date	Aggregate Accrued Liabilities			Actuarial Value of Plan Assets	Portion of Actuarial Accrued Liabilities Covered by Valuation Assets		
	Active Member Contributions (A)	Retirees, Beneficiaries, and Inactive Members (B)	Employer-Financed Portion of Active Members (C)		Liability (A)	Liability (B)	Liability (C)
HCTF							
12/31/2014	N/A	\$1,085,995	\$448,466	\$297,377	N/A	27.4%	0.0%
12/31/2015	N/A	1,099,045	457,224	285,588	N/A	26.0%	0.0%
12/31/2016	N/A	1,153,015	403,747	270,150	N/A	23.4%	0.0%
12/31/2017	N/A	1,178,160	403,062	260,282	N/A	22.1%	0.0%
12/31/2018	N/A	1,084,313	393,801	288,323	N/A	26.6%	0.0%
12/31/2019	N/A	1,048,219	398,950	348,433	N/A	33.2%	0.0%
12/31/2020	N/A	1,041,551	376,340	430,256	N/A	41.3%	0.0%
12/31/2021	N/A	973,039	372,432	511,143	N/A	52.5%	0.0%
12/31/2022	N/A	965,100	352,056	571,710	N/A	59.2%	0.0%
12/31/2023	N/A	956,764	357,447	635,906	N/A	66.5%	0.0%
DPS HCTF							
12/31/2014	N/A	\$50,998	\$25,028	\$16,502	N/A	32.4%	0.0%
12/31/2015	N/A	49,891	25,006	17,557	N/A	35.2%	0.0%
12/31/2016	N/A	51,357	21,488	18,945	N/A	36.9%	0.0%
12/31/2017	N/A	50,796	19,496	21,117	N/A	41.6%	0.0%
12/31/2018	N/A	48,268	21,184	25,018	N/A	51.8%	0.0%
12/31/2019	N/A	46,398	21,539	31,189	N/A	67.2%	0.0%
12/31/2020	N/A	45,306	20,252	39,853	N/A	88.0%	0.0%
12/31/2021	N/A	40,643	21,417	49,719	N/A	100.0%	42.4%
12/31/2022	N/A	39,157	20,524	58,134	N/A	100.0%	92.5%
12/31/2023	N/A	39,156	21,657	67,109	N/A	100.0%	100.0%

HEALTH CARE TRUST FUNDS—OPEB

SCHEDULE OF FUNDED LIABILITIES BY TYPE (CONTINUED)

(Dollars in Thousands)

Aggregate Accrued Liabilities					Portion of Actuarial Accrued Liabilities Covered by Valuation Assets		
Valuation Date	Active Member Contributions (A)	Retirees, Beneficiaries, and Inactive Members (B)	Employer-Financed Portion of Active Members (C)	Actuarial Value of Plan Assets	Liability (A)	Liability (B)	Liability (C)
Total of Health Care Trust Funds ¹							
12/31/2014	N/A	\$1,136,993	\$473,494	\$313,879	N/A	27.6%	0.0%
12/31/2015	N/A	1,148,936	482,230	303,145	N/A	26.4%	0.0%
12/31/2016	N/A	1,204,372	425,235	289,095	N/A	24.0%	0.0%
12/31/2017	N/A	1,228,956	422,558	281,399	N/A	22.9%	0.0%
12/31/2018	N/A	1,132,581	414,985	313,341	N/A	27.7%	0.0%
12/31/2019	N/A	1,094,617	420,489	379,622	N/A	34.7%	0.0%
12/31/2020	N/A	1,086,857	396,592	470,109	N/A	43.3%	0.0%
12/31/2021	N/A	1,013,682	393,849	560,862	N/A	55.3%	0.0%
12/31/2022	N/A	1,004,257	372,580	629,844	N/A	62.7%	0.0%
12/31/2023	N/A	995,920	379,104	703,015	N/A	70.6%	0.0%

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

Unfunded Actuarial Accrued Liability

UAAL is the difference between actuarially calculated liability for service already rendered and the valuation assets of the fund.

The following factors resulted in higher liabilities (or losses) during 2023:

- Lower than assumed investment return (based on the smoothed actuarial value of assets) for 2023.
- Of the members who terminated PERA-covered employment fewer withdrew their accounts than expected.
- New PERA members had some service resulting in accrued liabilities.

The following factors resulted in lower liabilities (or gains) during 2023:

- Retirees experienced shorter lifespans than expected.
- Favorable benefit utilization and claims experience.
- Fewer members retired at earlier ages than expected.
- Fewer service and disability retirements were experienced than expected.
- Actual payroll contributions were greater than the determined ADC for the HCTF and the DPS HCTF.

HEALTH CARE TRUST FUNDS—OPEB

SCHEDULE OF FUNDING PROGRESS

(Dollars in Thousands)

(A) Valuation Date	(B) Actuarial Value of Plan Assets	(C) Actuarial Accrued Liabilities	(D) Unfunded Actuarial Accrued Liabilities (UAAL) (C)–(B)	(E) Funded Ratio (B)/(C)	(F) Annual Covered Payroll	(G) UAAL As a Percentage of Covered Payroll (D)/(F)
HCTF						
12/31/2014	\$297,377	\$1,534,461	\$1,237,084	19.4%	\$7,211,351	17.2%
12/31/2015	285,588	1,556,269	1,270,681	18.4%	7,485,545	17.0%
12/31/2016	270,150	1,556,762	1,286,612	17.4%	7,716,894	16.7%
12/31/2017	260,282	1,581,222	1,320,940	16.5%	7,927,280	16.7%
12/31/2018	288,323	1,478,114	1,189,791	19.5%	8,399,835	14.2%
12/31/2019	348,433	1,447,169	1,098,736	24.1%	8,834,404	12.4%
12/31/2020	430,256	1,417,891	987,635	30.3%	8,988,119	11.0%
12/31/2021	511,143	1,345,471	834,328	38.0%	9,337,899	8.9%
12/31/2022	571,710	1,317,156	745,446	43.4%	9,671,062	7.7%
12/31/2023	635,906	1,314,211	678,305	48.4%	10,656,973	6.4%
DPS HCTF						
12/31/2014	\$16,502	\$76,026	\$59,524	21.7%	\$584,319	10.2%
12/31/2015	17,557	74,897	57,340	23.4%	621,115	9.2%
12/31/2016	18,945	72,845	53,900	26.0%	642,177	8.4%
12/31/2017	21,117	70,292	49,175	30.0%	658,198	7.5%
12/31/2018	25,018	69,452	44,434	36.0%	722,040	6.2%
12/31/2019	31,189	67,937	36,748	45.9%	736,264	5.0%
12/31/2020	39,853	65,558	25,705	60.8%	771,347	3.3%
12/31/2021	49,719	62,060	12,341	80.1%	823,396	1.5%
12/31/2022	58,134	59,681	1,547	97.4%	810,403	0.2%
12/31/2023	67,109	60,813	(6,296)	110.4%	894,245	(0.7%)
Total of Health Care Trust Funds¹						
12/31/2014	\$313,879	\$1,610,487	\$1,296,608	19.5%	\$7,795,670	16.6%
12/31/2015	303,145	1,631,166	1,328,021	18.6%	8,106,660	16.4%
12/31/2016	289,095	1,629,607	1,340,512	17.7%	8,359,071	16.0%
12/31/2017	281,399	1,651,514	1,370,115	17.0%	8,585,478	16.0%
12/31/2018	313,341	1,547,566	1,234,225	20.2%	9,121,875	13.5%
12/31/2019	379,622	1,515,106	1,135,484	25.1%	9,570,668	11.9%
12/31/2020	470,109	1,483,449	1,013,340	31.7%	9,759,466	10.4%
12/31/2021	560,862	1,407,531	846,669	39.8%	10,161,295	8.3%
12/31/2022	629,844	1,376,837	746,993	45.7%	10,481,465	7.1%
12/31/2023	703,015	1,375,024	672,009	51.1%	11,551,218	5.8%

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

Note: A history of contributions by Health Care Trust Fund, the ADC compared to the actual contributions paid, including the deficiency or (excess), for each of the last 10 years, is shown in the Schedule of Employer Contributions, found on page 110 in the RSI in the Financial Section.

HEALTH CARE TRUST FUNDS—OPEB

Actuarial Gains and Losses

ANALYSIS OF FINANCIAL EXPERIENCE

(Dollars in Millions)

	HCTF	DPS HCTF
Amounts		
From differences between assumed and actual experience on liabilities		
Age and service retirements ¹	(\$20.9)	(\$0.8)
Disability retirements ²	(0.5)	—
Deaths ³	(9.5)	(0.4)
Withdrawals ⁴	2.9	0.1
New members ⁵	2.2	0.2
Administrative expenses and other ⁶	(9.8)	(0.3)
Subtotal	(35.6)	(1.2)
From differences between assumed and actual experience on assets	7.9	0.7
From change in plan assumptions	14.4	1.4
From change in actuarial methods	—	—
From change in plan provisions	—	—
Total actuarial (gains)/losses on 2023 activities	(\$13.3)	\$0.9
Total actuarial (gains) on 2022 activities⁷	(\$51.1)	(\$3.6)

¹ Age and service retirements: If members retire at older ages than assumed, there is a gain. If members retire at younger ages than assumed, there is a loss.

² Disability retirements: If disability claims are lower than assumed, there is a gain. If disability claims are higher than assumed, there is a loss.

³ Deaths: If survivor claims are lower than assumed, there is a gain. If survivor claims are higher than assumed, there is a loss. If retirees die sooner than assumed, there is a gain. If retirees live longer than assumed, there is a loss.

⁴ Withdrawal from employment: If more members terminate and more liabilities are released by withdrawals than assumed, there is a gain. If fewer liabilities are released by terminations than assumed, there is a loss.

⁵ New members: If new members entering the plan have prior service, there is a loss.

⁶ Administrative expenses and other: Includes miscellaneous gains and losses resulting from purchased service transfers, claims experience, benefit utilization, software updates and refinements, data adjustments, timing of financial transactions, etc.

⁷ Values have been updated for both Health Care Trust Funds to reflect corrected "Administrative expenses and other" (gain)/loss items for 2022. The 2022 error only impacted this (gains)/losses presentation. It did not affect the assets, liabilities, funding periods, or any funding measure reported for the HCTFs.

Actuarial Valuation Results

Contribution rates for the year ending December 31, 2025, are derived from the results of the December 31, 2023, annual actuarial valuation and are determined in advance for purposes of budgeting and consideration of any necessary legislative action.

SCHEDULE OF COMPUTED EMPLOYER CONTRIBUTION RATES FOR THE 2025 FISCAL YEAR

	Expressed as a Percentage of Member Payroll	
	HCTF	DPS HCTF
Contributions		
Service retirement benefits	0.13%	0.10%
Disability retirement benefits	0.00%	0.00%
Survivor benefits	0.00%	0.00%
Separation benefits	0.02%	0.02%
Total normal cost	0.15%	0.12%
Less member contributions	(0.00%)	(0.00%)
Employer normal cost	0.15%	0.12%
Percentage available to amortize unfunded actuarial accrued liabilities	0.87%	0.90%
Amortization period	8 Years	N/A ¹
Total employer contribution rate for actuarially funded benefits	0.57%	0.12%

¹ Since the funded status of the DPS HCTF is greater than 100% but less than 120%, the ADC is set equal to the normal cost rate, as dictated by the Board's OPEB Funding Policy.

HEALTH CARE TRUST FUNDS—OPEB

Annual Actuarial Valuation Statistics

As of December 31, 2023, the Funded Ratio, the UAAL, the ADC for 2025 as a percentage of covered payroll, and the amortization period are shown in the following table. The results in this table are based on the actuarial valuation for funding purposes.

ACTUARIAL STATISTICS

(Dollars in Thousands)

Trust Fund	Funded Ratio	UAAL	ADC ¹	Amortization Period
HCTF	48.4%	\$678,305	0.57%	8 Years
DPS HCTF ²	110.4%	(6,296)	0.12%	N/A
Total of Health Care Trust Funds³		\$672,009		

¹ Determined considering the 30-year target amortization period defined in the OPEB funding policy for purposes of funding benchmarks and RSI reporting as shown in the Financial Section.

² Since the funded status of the DPS HCTF is greater than 100% but less than 120%, the ADC is set equal to the normal cost rate, as dictated by the Board's OPEB Funding Policy.

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

Pursuant to the OPEB funding policy, for reporting purposes, alternative ADCs also are determined by applying the layered amortization methodology as previously described. Under the target and alternative calculations, the legacy UAAL as of December 31, 2017, was amortized using a 30-year period, but the alternative ADCs use a 25-year closed period, a 20-year closed period, and a 15-year closed period, in lieu of the 30-year period, for amortization of any "new" UAAL recognized on and after January 1, 2018. The 2025 target and alternative ADCs, by division, are displayed as follows:

Trust Fund	Target ADC	Alternative ADCs		
	30-Year ¹	25-Year ²	20-Year ²	15-Year ²
HCTF	0.57%	0.53%	0.45%	0.31%
DPS HCTF ³	0.12%	0.12%	0.12%	0.12%

¹ Refers to the amortization period used to amortize the legacy UAAL as of December 31, 2017, and any "new" UAAL recognized on and after January 1, 2018.

² Refers to the amortization period used to amortize any "new" UAAL recognized on and after January 1, 2018.

³ Since the funded status of the DPS HCTF is greater than 100% but less than 120%, the ADC is set equal to the normal cost rate, as dictated by the Board's OPEB Funding Policy.

Funded Ratio

(Dollars in Thousands)

The funded ratio for the plan is determined by dividing the actuarial value of assets by the AAL. The actuarial value of assets is not the current fair value but a market-related value, which recognizes the differences between actual and expected investment experience for each year in equal amounts over a four-year period. The actuarial value of the assets as of December 31, 2023, was \$703,015 compared to a fair value of assets of \$676,632, and to the AAL of \$1,375,024. The funded ratio for each of the funds, based on the actuarial value of assets, at December 31 for each of the last five years is as follows:

Trust Fund	2019	2020	2021	2022	2023
HCTF	24.1%	30.3%	38.0%	43.4%	48.4%
DPS HCTF	45.9%	60.8%	80.1%	97.4%	110.4%
Total of Health Care Trust Funds¹	25.1%	31.7%	39.8%	45.7%	51.1%

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

HEALTH CARE TRUST FUNDS—OPEB

The Board's OPEB funding policy states that the targeted actuarial funded ratio is greater than or equal to 110% on a combined trust fund basis. The funded ratios listed give an indication of progress made toward achieving the stated objective. A larger funded ratio indicates a plan is better funded. As an example, in actual dollars, for every \$1.00 of the actuarially determined benefits earned for the HCTF as of December 31, 2023, approximately \$0.48 of assets are available for payment based on the actuarial value of assets. These benefits earned will be payable over a period dependent upon factors, such as, the life span of members after their retirement and participation in PERACare. Therefore, it is not imperative the AAL equal the actuarial value of assets at any given moment in time.

At December 31, 2022, and December 31, 2023, PERA had the following funded status for the Health Care Trust Funds:

FUNDED STATUS FOR THE HEALTH CARE TRUST FUNDS

(Dollars in Thousands)

	Fair Value of Assets		Actuarial Value of Assets ¹	
	12/31/2022	12/31/2023	12/31/2022	12/31/2023
Health Care Trust Fund				
Actuarial accrued liability ²	\$1,317,156	\$1,314,211	\$1,317,156	\$1,314,211
Assets held to pay those liabilities	512,704	611,911	571,710	635,906
Unfunded actuarial accrued liability	\$804,452	\$702,300	\$745,446	\$678,305
Funded ratio	38.9%	46.6%	43.4%	48.4%
DPS Health Care Trust Fund				
Actuarial accrued liability ²	\$59,681	\$60,813	\$59,681	\$60,813
Assets held to pay those liabilities	52,235	64,721	58,134	67,109
Unfunded actuarial accrued liability	\$7,446	(\$3,908)	\$1,547	(\$6,296)
Funded ratio	87.5%	106.4%	97.4%	110.4%
Total of Health Care Trust Funds³				
Actuarial accrued liability ²	\$1,376,837	\$1,375,024	\$1,376,837	\$1,375,024
Assets held to pay those liabilities ⁴	564,939	676,632	629,844	703,015
Unfunded actuarial accrued liability	\$811,898	\$698,392	\$746,993	\$672,009
Funded ratio	41.0%	49.2%	45.7%	51.1%

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

² Based upon an assumed rate of return on investments of 7.25% and an assumed rate of 7.25% to discount the liabilities to be paid in the future to a value as of December 31, 2022, and December 31, 2023.

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

⁴ In aggregate, the fair value of the assets as of December 31, 2023, is \$26,383 less than the actuarial value of assets calculated by the actuaries, as they are recognizing the gains and losses in value over four years, rather than only in the year they occurred. The remaining gains and (losses) to be smoothed for 2021 are \$9,331, for 2022 are (\$61,702), and for 2023 are \$25,988.

HEALTH CARE TRUST FUNDS—OPEB

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

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

To understand the importance of the investment rate of return, which is used to discount the actuarial liabilities, a 1% fluctuation in the investment rate of return and discount rate would change the funded ratio, UAAL, and ADC (for contributions for the fiscal year ended December 31, 2025) as shown in the following tables:

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 6.25%

(Dollars in Thousands)

Trust Fund	Actuarial Value of Assets			Fair Value of Assets
	Funded Ratio	UAAL	ADC	UAAL
HCTF	44.1%	\$806,258	0.63%	\$830,253
DPS HCTF ¹	100.2%	(128)	0.15%	2,261
Total of Health Care Trust Funds²		\$806,130		\$832,514

¹ Since the funded status of the DPS HCTF is greater than 100% but less than 120%, the ADC is set equal to the normal cost rate, as dictated by the Board's OPEB Funding Policy.

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

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

(Dollars in Thousands)

Trust Fund	Actuarial Value of Assets			Fair Value of Assets
	Funded Ratio	UAAL	ADC	UAAL
HCTF	48.4%	\$678,305	0.57%	\$702,300
DPS HCTF ¹	110.4%	(6,296)	0.12%	(3,908)
Total of Health Care Trust Funds²		\$672,009		\$698,392

¹ Since the funded status of the DPS HCTF is greater than 100% but less than 120%, the ADC is set equal to the normal cost rate, as dictated by the Board's OPEB Funding Policy.

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

INVESTMENT RETURN ASSUMPTION (DISCOUNT RATE) EQUAL TO 8.25%

(Dollars in Thousands)

Trust Fund	Actuarial Value of Assets			Fair Value of Assets
	Funded Ratio	UAAL	ADC	UAAL
HCTF	52.8%	\$568,793	0.52%	\$592,788
DPS HCTF ¹	120.8%	(11,540)	0.09%	(9,152)
Total of Health Care Trust Funds²		\$557,253		\$583,636

¹ Since the funded status of the DPS HCTF is greater than 100% but less than 120%, the ADC is set equal to the normal cost rate, as dictated by the Board's OPEB Funding Policy.

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

Note: The time-weighted, net-of-fees annualized rate of return for the pooled investment assets was 10.0% for the past five years and 7.8% for the past 10 years. The 30-year annualized gross-of-fees rate of return for the pooled investment assets was 8.3%.

HEALTH CARE TRUST FUNDS—OPEB

Plan Data

Except for the “Inactive members not eligible for benefits,” the PERA membership is potentially eligible for participation in OPEB benefits through receipt of a PERA-provided benefit and enrollment in PERACare. The following table represents all individuals included in the assessment of the AAL associated with the Health Care Trust Funds as of December 31, 2023:

MEMBERSHIP—HEALTH CARE TRUST FUNDS

As of December 31, 2023

	HCTF	DPS HCTF	Total
Retirees and beneficiaries ¹	131,237	7,316	138,553
Inactive members eligible but not yet receiving benefits ²	37,651	3,364	41,015
Inactive members not eligible for benefits	N/A	N/A	N/A
Active members ²	197,922	15,626	213,548
Total	366,810	26,306	393,116

¹ Currently receiving or eligible for OPEB benefits.

² May be eligible for future OPEB benefits.

PARTICIPATION IN PERACARE HEALTH PLANS FOR ELIGIBLE RETIREES AND BENEFICIARIES

As of December 31, 2023

	HCTF	DPS HCTF	Total
Enrolled in PERACare			
Under age 65	6,636	281	6,917
Age 65 and older	49,616	2,937	52,553
	56,252	3,218	59,470
Not enrolled in PERACare			
Under age 65	16,621	640	17,261
Age 65 and older	58,364	3,458	61,822
	74,985	4,098	79,083
Total eligible retirees and beneficiaries	131,237	7,316	138,553

HEALTH CARE TRUST FUNDS—OPEB

SCHEDULE OF RETIREES, BENEFICIARIES, AND SURVIVORS ADDED TO AND REMOVED FROM THE BENEFIT PAYROLL

(In Actual Dollars)

	Added to Payroll		Removed from Payroll		Payroll—End of Year		Average Annual Benefits	Increase (Decrease) in Average Benefits
Valuation Date	No.	Annual Benefits	No.	Annual Benefits	No. ^{1,2}	Annual Benefits		
HCTF ³								
12/31/2014					54,076	\$91,222,002	\$1,687	—
12/31/2015	3,271	\$6,998,325	2,255	\$3,920,028	55,092	91,545,543	1,662	(1.5%)
12/31/2016	3,217	6,921,114	2,520	4,463,334	55,789	91,567,554	1,641	(1.3%)
12/31/2017	3,352	7,255,971	2,667	7,153,713	56,474	91,669,812	1,623	(1.1%)
12/31/2018	3,337	7,068,843	3,169	5,498,610	56,642	89,984,901	1,589	(2.1%)
12/31/2019	3,265	6,495,867	3,455	6,074,346	56,452	89,033,598	1,577	(0.8%)
12/31/2020	2,743	5,640,819	2,922	6,801,192	56,273	87,873,225	1,562	(1.0%)
12/31/2021	2,969	5,509,620	3,064	5,562,987	56,178	80,751,402	1,437	(8.0%)
12/31/2022	2,985	5,212,041	2,705	4,463,307	56,458	79,917,060	1,416	(1.5%)
12/31/2023	2,573	4,251,594	2,779	4,630,527	56,252	78,067,185	1,388	(2.0%)
DPS HCTF ³								
12/31/2014					3,962	\$5,961,324	\$1,505	—
12/31/2015	174	\$360,111	206	\$330,648	3,930	5,829,741	1,483	(1.5%)
12/31/2016	156	322,230	201	302,220	3,885	5,703,954	1,468	(1.0%)
12/31/2017	149	325,128	218	445,188	3,816	5,583,894	1,463	(0.3%)
12/31/2018	160	346,794	351	550,827	3,625	5,905,296	1,629	11.3%
12/31/2019	276	468,441	281	492,591	3,620	5,805,591	1,604	(1.5%)
12/31/2020	112	218,592	213	424,626	3,519	5,599,557	1,591	(0.8%)
12/31/2021	109	188,670	240	420,486	3,388	4,851,156	1,432	(10.0%)
12/31/2022	105	180,891	308	449,127	3,185	4,522,734	1,420	(0.8%)
12/31/2023	103	182,460	201	317,466	3,087	4,341,885	1,407	(0.9%)
Total of Health Care Trust Funds ³								
12/31/2014					58,038	\$97,183,326	\$1,674	—
12/31/2015	3,445	\$7,358,436	2,461	\$4,250,676	59,022	97,375,284	1,650	(1.4%)
12/31/2016	3,373	7,243,344	2,721	4,765,554	59,674	97,271,508	1,630	(1.2%)
12/31/2017	3,501	7,581,099	2,885	7,598,901	60,290	97,253,706	1,613	(1.0%)
12/31/2018	3,497	7,415,637	3,520	6,049,437	60,267	95,890,197	1,591	(1.4%)
12/31/2019	3,541	6,964,308	3,736	6,566,937	60,072	94,839,189	1,579	(0.8%)
12/31/2020	2,855	5,859,411	3,135	7,225,818	59,792	93,472,782	1,563	(1.0%)
12/31/2021	3,078	5,698,290	3,304	5,983,473	59,566	85,602,558	1,437	(8.1%)
12/31/2022	3,090	5,392,932	3,013	4,912,434	59,643	84,439,794	1,416	(1.5%)
12/31/2023	2,676	4,434,054	2,980	4,947,993	59,339 ⁴	82,409,070	1,389	(1.9%)

¹ Enrolled in PERACare.² Excludes beneficiaries enrolled in PERACare who are not receiving a subsidy.³ The annual benefit is based upon creditable service and varies by attained age.⁴ Excludes 131 beneficiaries enrolled in PERACare who are not receiving a subsidy.

HEALTH CARE TRUST FUNDS—OPEB

SCHEDULE OF ACTIVE MEMBER ACTUARIAL VALUATION DATA

As of December 31

(In Actual Dollars)

Year	Number of Participating Employers ^{1,2}	Total Number of Active Members	Medicare Eligible Active Members ³	Annual Payroll for Active Members	Average Annual Pay for Active Members	% Increase (Decrease) in Average Annual Pay
HCTF						
2014	531	187,336		\$7,211,350,491	\$38,494	—
2015	534	188,040		7,485,544,867	39,808	3.41%
2016	542	190,741		7,716,892,488	40,457	1.63%
2017	408	191,778		7,927,279,994	41,336	2.17%
2018	409	195,436	8,826	8,399,834,705	42,980	3.98%
2019	410	197,615	9,035	8,834,404,580	44,705	4.01%
2020	409	186,165	7,881	8,988,118,724	48,280	8.00%
2021	408	191,574	8,595	9,337,899,213	48,743	0.96%
2022	409	191,392	8,655	9,671,062,130	50,530	3.67%
2023	409	197,922	9,269	10,656,972,686	53,844	6.56%
DPS HCTF						
2014	34	15,414		\$584,319,269	\$37,908	—
2015	38	15,929		621,114,573	38,993	2.86%
2016	42	15,950		642,177,158	40,262	3.25%
2017	1	15,991		658,198,306	41,161	2.23%
2018	1	16,148	510	722,040,073	44,714	8.63%
2019	1	15,679	518	736,263,798	46,959	5.02%
2020	1	14,693	410	771,347,604	52,498	11.80%
2021	1	15,695	472	823,395,477	52,462	(0.07%)
2022	1	15,254	467	810,402,643	53,127	1.27%
2023	1	15,626	514	894,245,013	57,228	7.72%
Total of Health Care Trust Funds						
2014	565	202,750		\$7,795,669,760	\$38,450	—
2015	572	203,969		8,106,659,440	39,745	3.37%
2016	584	206,691		8,359,069,646	40,442	1.75%
2017	409	207,769		8,585,478,300	41,322	2.18%
2018	410	211,584	9,336	9,121,874,778	43,112	4.33%
2019	411	213,294	9,553	9,570,668,378	44,871	4.08%
2020	410	200,858	8,291	9,759,466,328	48,589	8.29%
2021	409	207,269	9,067	10,161,294,690	49,025	0.90%
2022	410	206,646	9,122	10,481,464,773	50,722	3.46%
2023	410	213,548	9,783	11,551,217,699	54,092	6.64%

¹ Prior to 2017, employer counts were based on separate units of government. Effective in 2017, GASB 74 classifies a primary government and its component units as one employer. Employer counts for the years 2017 and beyond are presented for purposes of complying with GASB 74 only. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

² Participating employer counts prior to 2017 include charter schools operating within the School and DPS Divisions.

³ Information prior to 2017 was not required.





Statistical Section





Overview

The Statistical Section presents detailed information to assist users in utilizing the Basic Financial Statements, Notes to the Basic Financial Statements, and Required Supplementary Information to better understand and assess PERA's overall economic condition.

Financial Trends

The following schedules include information about the trends of key sources of additions and deductions for the past 10 years to provide context on how PERA's financial position has changed over time:

- *Changes in Fiduciary Net Position*
- *Benefits and Refund Deductions from Fiduciary Net Position by Type*

Operating Information

The following schedules contain demographic, economic, operating, and trend information related to membership and the retirement and health benefits PERA provides:

- *Member and Benefit Recipient Statistics¹*
- *Breakdown of Membership by Percentage¹*
- *Schedule of Average Retirement Benefits Payable—All Division Trust Funds¹*
- *Schedule of Average Retirement Benefits Payable¹*
- *Benefit Payments—All Division Trust Funds¹*
- *Schedule of Retirees and Survivors by Types of Benefits¹*
- *Schedule of Average Benefit Payments¹*
- *Schedule of Contribution Rate History*
- *Principal Participating Employers*

¹ Data for schedules are provided by the consulting actuary, Segal

Note: Schedules and information are derived from PERA internal sources unless otherwise noted.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

State Division Trust Fund

	2023	2022	2021	2020	2019
Additions					
Employer contributions ¹	\$790,373	\$704,797	\$664,304	\$646,386	\$612,282
Nonemployer contributions ¹	16,233	198,247	76,706	—	77,088
Member contributions ¹	407,449	360,523	329,652	298,264	257,803
Purchased service	30,910	35,699	39,514	28,522	29,494
Net investment income (loss)	2,187,360	(2,657,031)	2,806,442	2,652,870	2,764,719
Other	8,314	171	6,038	9,390	22
Total additions	3,440,639	(1,357,594)	3,922,656	3,635,432	3,741,408
Deductions					
Benefit payments	1,820,823	1,778,067	1,726,503	1,675,048	1,637,168
Refunds	77,229	82,321	74,520	57,921	61,832
Disability insurance premiums	994	849	1,013	1,360	1,965
Administrative expenses	13,979	13,312	12,051	11,385	11,294
Other	2,250	9,139	2,950	2,634	2,707
Total deductions	1,915,275	1,883,688	1,817,037	1,748,348	1,714,966
Change in fiduciary net position	1,525,364	(3,241,282)	2,105,619	1,887,084	2,026,442
Fiduciary net position held at beginning of year	16,744,284	19,985,566	17,879,947	15,992,863	13,966,421
Fiduciary net position held at end of year	\$18,269,648	\$16,744,284	\$19,985,566	\$17,879,947	\$15,992,863
	2018	2017	2016	2015	2014
Additions					
Employer contributions ¹	\$583,164	\$563,977	\$521,804	\$484,005	\$444,372
Nonemployer contributions ¹	78,489	—	—	—	—
Member contributions ¹	236,313	228,978	223,005	217,980	211,610
Purchased service	25,227	27,442	24,528	26,946	22,446
Net investment income (loss)	(497,562)	2,391,683	947,981	210,337	780,762
Other	7,888	15,860	8,708	5,023	3,289
Total additions	433,519	3,227,940	1,726,026	944,291	1,462,479
Deductions					
Benefit payments	1,608,534	1,554,290	1,483,828	1,417,862	1,352,293
Refunds	65,253	58,696	60,137	63,567	61,152
Disability insurance premiums	2,093	2,035	2,106	2,088	2,309
Administrative expenses	11,903	11,745	11,271	10,779	10,067
Other	3,017	3,652	3,040	3,406	3,171
Total deductions	1,690,800	1,630,418	1,560,382	1,497,702	1,428,992
Change in fiduciary net position	(1,257,281)	1,597,522	165,644	(553,411)	33,487
Fiduciary net position held at beginning of year	15,223,702	13,626,180	13,460,536	14,013,947	13,980,460
Fiduciary net position held at end of year	\$13,966,421	\$15,223,702	\$13,626,180	\$13,460,536	\$14,013,947

¹ Employer, nonemployer, and member contribution rate history is shown on pages 243-244.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

School Division Trust Fund

	2023	2022	2021	2020	2019
Additions					
Employer contributions ¹	\$1,317,476	\$1,201,265	\$1,113,636	\$1,048,992	\$1,002,760
Nonemployer contributions ¹	28,908	350,393	127,781	—	127,367
Member contributions ¹	711,530	642,202	574,948	501,214	436,899
Purchased service	48,270	57,469	55,901	35,633	25,992
Net investment income (loss)	3,871,069	(4,623,013)	4,847,781	4,556,622	4,676,607
Other	172	5,545	130	123	364
Total additions	5,977,425	(2,366,139)	6,720,177	6,142,584	6,269,989
Deductions					
Benefit payments	2,818,703	2,723,667	2,624,924	2,535,509	2,468,021
Refunds	97,538	88,355	81,725	67,873	73,871
Disability insurance premiums	1,823	1,435	1,679	2,286	3,338
Administrative expenses	26,887	25,562	22,608	22,779	22,619
Other	16,221	3,935	8,702	11,349	8,293
Total deductions	2,961,172	2,842,954	2,739,638	2,639,796	2,576,142
Change in fiduciary net position	3,016,253	(5,209,093)	3,980,539	3,502,788	3,693,847
Fiduciary net position held at beginning of year	29,445,631	34,654,724	30,674,185	27,171,397	23,477,550
Fiduciary net position held at end of year	\$32,461,884	\$29,445,631	\$34,654,724	\$30,674,185	\$27,171,397
	2018	2017	2016	2015	2014
Additions					
Employer contributions ¹	\$923,910	\$857,740	\$812,740	\$754,182	\$686,323
Nonemployer contributions ¹	126,505	—	—	—	—
Member contributions ¹	386,811	368,740	359,059	348,537	334,585
Purchased service	27,525	30,313	27,422	23,841	21,935
Net investment income (loss)	(838,899)	3,982,275	1,569,026	344,000	1,274,862
Other	7,957	106	109	96	112
Total additions	633,809	5,239,174	2,768,356	1,470,656	2,317,817
Deductions					
Benefit payments	2,413,387	2,334,003	2,231,475	2,134,754	2,032,628
Refunds	76,035	74,637	65,715	70,298	77,171
Disability insurance premiums	3,506	3,347	3,454	3,400	3,748
Administrative expenses	23,560	23,019	21,991	20,865	19,290
Other	2,501	22,484	17,443	9,178	4,376
Total deductions	2,518,989	2,457,490	2,340,078	2,238,495	2,137,213
Change in fiduciary net position	(1,885,180)	2,781,684	428,278	(767,839)	180,604
Fiduciary net position held at beginning of year	25,362,730	22,581,046	22,152,768	22,920,607	22,740,003
Fiduciary net position held at end of year	\$23,477,550	\$25,362,730	\$22,581,046	\$22,152,768	\$22,920,607

¹ Employer, nonemployer, and member contribution rate history is shown on page 245.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

Local Government Division Trust Fund

	2023	2022	2021	2020	2019
Additions					
Employer contributions ¹	\$119,470	\$108,748	\$96,481	\$89,662	\$85,597
Member contributions ¹	78,567	71,339	63,035	58,067	55,003
Purchased service	6,954	9,420	14,061	8,891	7,820
Employer disaffiliation	24,967	—	—	—	—
Net investment income (loss)	643,967	(781,550)	820,403	771,556	792,219
Other	112	73	23	24	14
Total additions	874,037	(591,970)	994,003	928,200	940,653
Deductions					
Benefit payments	348,662	336,721	322,106	307,795	297,447
Refunds	16,300	13,391	16,034	12,828	14,761
Disability insurance premiums	236	195	235	296	421
Administrative expenses	3,653	3,450	3,065	2,459	2,476
Other	710	5,794	3,084	3,146	3,975
Total deductions	369,561	359,551	344,524	326,524	319,080
Change in fiduciary net position	504,476	(951,521)	649,479	601,676	621,573
Fiduciary net position held at beginning of year	4,892,596	5,844,117	5,194,638	4,592,962	3,971,389
Fiduciary net position held at end of year	\$5,397,072	\$4,892,596	\$5,844,117	\$5,194,638	\$4,592,962

	2018	2017	2016	2015	2014
Additions					
Employer contributions ¹	\$81,358	\$78,291	\$75,132	\$70,415	\$68,719
Member contributions ¹	52,421	50,472	48,470	45,400	43,792
Purchased service	5,642	6,325	3,981	6,586	5,498
Employer disaffiliation	—	1,063	—	—	186,006
Net investment income (loss)	(142,476)	669,011	261,276	56,328	200,394
Other	840	14	17	15	14
Total additions	(2,215)	805,176	388,876	178,744	504,423
Deductions					
Benefit payments	286,745	274,258	258,967	244,948	232,055
Refunds	15,716	14,530	12,938	20,410	24,436
Disability insurance premiums	442	430	439	431	481
Administrative expenses	2,621	2,541	2,395	2,253	2,091
Other	3,958	3,837	1,140	1,661	2,204
Total deductions	309,482	295,596	275,879	269,703	261,267
Change in fiduciary net position	(311,697)	509,580	112,997	(90,959)	243,156
Fiduciary net position held at beginning of year	4,283,086	3,773,506	3,660,509	3,751,468	3,508,312
Fiduciary net position held at end of year	\$3,971,389	\$4,283,086	\$3,773,506	\$3,660,509	\$3,751,468

¹ Employer and member contribution rate history is shown on page 246.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

Judicial Division Trust Fund

	2023	2022	2021	2020	2019
Additions					
Employer contributions ¹	\$14,920	\$12,318	\$9,787	\$10,402	\$10,649
Nonemployer contributions ¹	288	3,576	1,360	—	1,344
Member contributions ¹	6,888	7,844	8,589	6,637	4,575
Purchased service	795	978	800	1,060	612
Net investment income (loss)	53,800	(63,501)	66,030	61,634	61,719
Other	2,896	4,525	5,436	2,546	6,697
Total additions	79,587	(34,260)	92,002	82,279	85,596
Deductions					
Benefit payments	35,134	32,715	31,201	29,409	28,056
Refunds	76	218	266	48	—
Disability insurance premiums	29	18	21	28	41
Administrative expenses	238	212	186	87	84
Other	24	33	53	90	27
Total deductions	35,501	33,196	31,727	29,662	28,208
Change in fiduciary net position	44,086	(67,456)	60,275	52,617	57,388
Fiduciary net position held at beginning of year	409,670	477,126	416,851	364,234	306,846
Fiduciary net position held at end of year	\$453,756	\$409,670	\$477,126	\$416,851	\$364,234
	2018	2017	2016	2015	2014
Additions					
Employer contributions ¹	\$8,299	\$8,080	\$8,024	\$7,702	\$7,070
Nonemployer contributions ¹	1,385	—	—	—	—
Member contributions ¹	4,064	3,955	3,928	3,772	3,461
Purchased service	636	908	109	425	835
Net investment income (loss)	(11,006)	51,173	19,783	4,149	15,299
Other	225	2,379	2,800	3,247	256
Total additions	3,603	66,495	34,644	19,295	26,921
Deductions					
Benefit payments	26,236	25,250	22,734	21,158	19,800
Refunds	186	7	109	—	60
Disability insurance premiums	41	41	45	42	43
Administrative expenses	86	86	81	77	72
Other	70	153	122	166	100
Total deductions	26,619	25,537	23,091	21,443	20,075
Change in fiduciary net position	(23,016)	40,958	11,553	(2,148)	6,846
Fiduciary net position held at beginning of year	329,862	288,904	277,351	279,499	272,653
Fiduciary net position held at end of year	\$306,846	\$329,862	\$288,904	\$277,351	\$279,499

¹ Employer, nonemployer, and member contribution rate history is shown on page 247.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

DPS Division Trust Fund

	2023	2022	2021	2020	2019
Additions					
Employer contributions ¹	\$87,487	\$74,199	\$65,215	\$56,245	\$43,340
Nonemployer contributions ¹	4,132	52,784	19,153	—	19,201
Member contributions ¹	101,887	92,164	86,184	73,939	62,961
Purchased service	3,029	3,960	3,970	1,517	2,535
Net investment income (loss)	517,546	(619,265)	649,370	610,847	632,669
Other	2,911	875	15	12	3,030
Total additions	716,992	(395,283)	823,907	742,560	763,736
Deductions					
Benefit payments	285,102	282,557	280,045	278,081	277,849
Refunds	16,780	16,913	11,527	9,344	10,738
Disability insurance premiums	193	190	227	294	397
Administrative expenses	3,292	3,133	2,829	2,667	2,713
Other	115	223	3,130	1,022	55
Total deductions	305,482	303,016	297,758	291,408	291,752
Change in fiduciary net position	411,510	(698,299)	526,149	451,152	471,984
Fiduciary net position held at beginning of year	3,935,428	4,633,727	4,107,578	3,656,426	3,184,442
Fiduciary net position held at end of year	\$4,346,938	\$3,935,428	\$4,633,727	\$4,107,578	\$3,656,426
	2018	2017	2016	2015	2014
Additions					
Employer contributions ¹	\$35,994	\$27,578	\$17,071	\$8,494	\$18,478
Nonemployer contributions ¹	18,621	—	—	—	—
Member contributions ¹	58,172	54,354	52,740	49,973	47,083
Purchased service	2,926	2,466	2,112	3,585	2,326
Net investment income (loss)	(114,070)	548,585	218,415	49,172	182,823
Other	770	3,870	3,264	11	13
Total additions	2,413	636,853	293,602	111,235	250,723
Deductions					
Benefit payments	276,223	271,189	263,152	255,068	247,005
Refunds	11,197	10,277	8,521	7,897	8,063
Disability insurance premiums	405	378	398	358	366
Administrative expenses	2,919	2,857	2,754	2,599	2,377
Other	5,267	89	129	1,775	1,560
Total deductions	296,011	284,790	274,954	267,697	259,371
Change in fiduciary net position	(293,598)	352,063	18,648	(156,462)	(8,648)
Fiduciary net position held at beginning of year	3,478,040	3,125,977	3,107,329	3,263,791	3,272,439
Fiduciary net position held at end of year	\$3,184,442	\$3,478,040	\$3,125,977	\$3,107,329	\$3,263,791

¹ Employer, nonemployer, and member contribution rate history is shown on page 248.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

Voluntary Investment Program

	2023	2022	2021	2020	2019
Additions					
Employer contributions	\$7,362	\$6,792	\$6,170	\$5,917	\$5,701
Member contributions	152,567	147,445	145,612	140,656	140,519
Net investment income (loss)	711,748	(761,880)	679,465	558,980	700,274
Other	2,611	2,284	5,484	2,402	2,443
Total additions	874,288	(605,359)	836,731	707,955	848,937
Deductions					
Distributions	319,523	318,144	287,582	207,260	213,010
Administrative expenses	1,988	1,961	2,034	3,926	3,592
Other	1,094	1,275	1,933	1,746	1,656
Total deductions	322,605	321,380	291,549	212,932	218,258
Change in fiduciary net position	551,683	(926,739)	545,182	495,023	630,679
Fiduciary net position held at beginning of year	3,786,273	4,713,012	4,167,830	3,672,807	3,042,128
Fiduciary net position held at end of year	\$4,337,956	\$3,786,273	\$4,713,012	\$4,167,830	\$3,672,807
	2018	2017	2016	2015	2014
Additions					
Employer contributions	\$5,409	\$5,072	\$4,740	\$3,889	\$3,866
Member contributions	132,189	135,303	129,909	129,990	126,112
Net investment income (loss)	(165,371)	469,233	206,933	(11,773)	188,199
Other	2,322	2,207	2,170	2,237	2,291
Total additions	(25,451)	611,815	343,752	124,343	320,468
Deductions					
Distributions	202,684	162,019	154,202	158,215	144,329
Administrative expenses	3,310	2,877	2,814	3,010	3,050
Other	1,598	1,411	1,172	1,019	839
Total deductions	207,592	166,307	158,188	162,244	148,218
Change in fiduciary net position	(233,043)	445,508	185,564	(37,901)	172,250
Fiduciary net position held at beginning of year	3,275,171	2,829,663	2,644,099	2,682,000	2,509,750
Fiduciary net position held at end of year	\$3,042,128	\$3,275,171	\$2,829,663	\$2,644,099	\$2,682,000

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

Defined Contribution Retirement Plan

	2023	2022	2021	2020	2019
Additions					
Employer contributions	\$21,556	\$19,553	\$18,046	\$16,780	\$15,184
Member contributions	23,567	20,956	18,720	15,753	12,967
Net investment income (loss)	63,126	(63,490)	51,234	41,820	48,559
Other	1,486	1,456	50	16	21
Total additions	109,735	(21,525)	88,050	74,369	76,731
Deductions					
Distributions	25,722	25,334	23,798	15,100	15,445
Administrative expenses	922	849	753	1,118	997
Other	111	118	165	147	135
Total deductions	26,755	26,301	24,716	16,365	16,577
Change in fiduciary net position	82,980	(47,826)	63,334	58,004	60,154
Fiduciary net position held at beginning of year	339,452	387,278	323,944	265,940	205,786
Fiduciary net position held at end of year	\$422,432	\$339,452	\$387,278	\$323,944	\$265,940

	2018	2017	2016	2015	2014
Additions					
Employer contributions	\$13,201	\$14,309	\$13,060	\$12,428	\$11,531
Member contributions	10,573	11,411	10,382	9,830	9,179
Net investment income (loss)	(15,381)	29,372	12,601	(2,466)	6,745
Other	11	39	92	9	8
Total additions	8,404	55,131	36,135	19,801	27,463
Deductions					
Distributions	12,722	10,593	8,932	9,419	8,690
Administrative expenses	819	739	726	774	738
Other	166	116	97	48	69
Total deductions	13,707	11,448	9,755	10,241	9,497
Change in fiduciary net position	(5,303)	43,683	26,380	9,560	17,966
Fiduciary net position held at beginning of year	211,089	167,406	141,026	131,466	113,500
Fiduciary net position held at end of year	\$205,786	\$211,089	\$167,406	\$141,026	\$131,466

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

Deferred Compensation Plan

	2023	2022	2021	2020	2019
Additions					
Employer contributions	\$46	\$37	\$38	\$40	\$32
Member contributions	85,629	80,757	78,549	70,764	64,151
Net investment income (loss)	180,566	(188,999)	164,189	137,023	163,879
Other	652	496	678	553	578
Total additions	266,893	(107,709)	243,454	208,380	228,640
Deductions					
Distributions	93,435	93,974	77,334	51,559	55,317
Administrative expenses	608	574	589	1,329	1,188
Other	436	532	846	777	759
Total deductions	94,479	95,080	78,769	53,665	57,264
Change in fiduciary net position	172,414	(202,789)	164,685	154,715	171,376
Fiduciary net position held at beginning of year	1,106,210	1,308,999	1,144,314	989,599	818,223
Fiduciary net position held at end of year	\$1,278,624	\$1,106,210	\$1,308,999	\$1,144,314	\$989,599

	2018	2017	2016	2015	2014
Additions					
Employer contributions	\$29	\$50	\$26	\$27	\$43
Member contributions	57,981	57,088	51,601	49,719	50,370
Net investment income (loss)	(47,542)	105,027	51,372	(6,427)	32,133
Other	574	510	496	484	478
Total additions	11,042	162,675	103,495	43,803	83,024
Deductions					
Distributions	56,568	47,067	41,922	39,945	35,584
Administrative expenses	1,094	993	963	1,071	1,074
Other	756	698	604	562	517
Total deductions	58,418	48,758	43,489	41,578	37,175
Change in fiduciary net position	(47,376)	113,917	60,006	2,225	45,849
Fiduciary net position held at beginning of year	865,599	751,682	691,676	689,451	643,602
Fiduciary net position held at end of year	\$818,223	\$865,599	\$751,682	\$691,676	\$689,451

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

Health Care Trust Fund

	2023	2022	2021	2020	2019
Additions					
Employer contributions ¹	\$112,931	\$103,818	\$97,974	\$94,634	\$92,011
Employer disaffiliation	1,033	—	—	—	—
Net investment income (loss)	69,617	(70,476)	68,319	60,280	53,867
Other	6,755	9,004	8,108	7,909	6,984
Total additions	190,336	42,346	174,401	162,823	152,862
Deductions					
Benefit payments	82,911	83,145	63,893	53,023	58,221
Administrative expenses	8,122	7,136	12,976	10,977	9,290
Other	96	110	84	32	33
Total deductions	91,129	90,391	76,953	64,032	67,544
Change in fiduciary net position	99,207	(48,045)	97,448	98,791	85,318
Fiduciary net position held at beginning of year	512,704	560,749	463,301	364,510	279,192
Fiduciary net position held at end of year	\$611,911	\$512,704	\$560,749	\$463,301	\$364,510
	2018	2017	2016	2015	2014
Additions					
Employer contributions ¹	\$86,559	\$83,077	\$80,825	\$78,463	\$75,631
Retiree health care premiums	—	—	138,021	127,873	105,459
Employer disaffiliation	—	96	—	—	3,994
Net investment income (loss)	(9,678)	44,990	19,021	4,807	18,203
Other	8,373	9,760	9,175	9,993	9,813
Total additions	85,254	137,923	247,042	221,136	213,100
Deductions					
Benefit payments	61,777	102,665	243,662	234,414	200,627
Administrative expenses	20,401	19,162	19,166	19,261	16,612
Other	106	102	491	594	832
Total deductions	82,284	121,929	263,319	254,269	218,071
Change in fiduciary net position	2,970	15,994	(16,277)	(33,133)	(4,971)
Fiduciary net position held at beginning of year	276,222	260,228	276,505	309,638	314,609
Fiduciary net position held at end of year	\$279,192	\$276,222	\$260,228	\$276,505	\$309,638

¹ Employer contribution rate history is shown on page 248.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

DPS Health Care Trust Fund

	2023	2022	2021	2020	2019
Additions					
Employer contributions ¹	\$9,445	\$8,744	\$8,622	\$8,045	\$7,649
Net investment income (loss)	7,218	(7,311)	6,963	6,019	4,892
Other	236	306	206	224	188
Total additions	16,899	1,739	15,791	14,288	12,729
Deductions					
Benefit payments	3,951	4,022	3,516	3,086	3,644
Administrative expenses	461	434	639	516	477
Other	1	1	4	1	1
Total deductions	4,413	4,457	4,159	3,603	4,122
Change in fiduciary net position	12,486	(2,718)	11,632	10,685	8,607
Fiduciary net position held at beginning of year	52,235	54,953	43,321	32,636	24,029
Fiduciary net position held at end of year	\$64,721	\$52,235	\$54,953	\$43,321	\$32,636
	2018	2017	2016	2015	2014
Additions					
Employer contributions ¹	\$7,417	\$6,930	\$6,723	\$6,371	\$6,003
Retiree health care premiums	—	—	6,738	6,275	4,442
Net investment income (loss)	(894)	3,305	1,235	254	938
Other	205	242	289	301	281
Total additions	6,728	10,477	14,985	13,201	11,664
Deductions					
Benefit payments	4,158	5,694	12,748	12,442	10,432
Administrative expenses	845	808	818	822	668
Other	4	4	18	22	32
Total deductions	5,007	6,506	13,584	13,286	11,132
Change in fiduciary net position	1,721	3,971	1,401	(85)	532
Fiduciary net position held at beginning of year	22,308	18,337	16,936	17,021	16,489
Fiduciary net position held at end of year	\$24,029	\$22,308	\$18,337	\$16,936	\$17,021

¹ Employer contribution rate history is shown on page 248.

CHANGES IN FIDUCIARY NET POSITION

For the Years Ended December 31

(Dollars in Thousands)

Life Insurance Reserve

	2023	2022	2021	2020	2019
Additions					
Net investment income (loss)	\$3,293	(\$3,927)	\$4,125	\$3,909	\$3,901
Total additions	3,293	(3,927)	4,125	3,909	3,901
Deductions					
Life insurance premiums	511	533	540	512	479
Administrative expenses	44	79	80	224	123
Total deductions	555	612	620	736	602
Change in fiduciary net position	2,738	(4,539)	3,505	3,173	3,299
Fiduciary net position held at beginning of year	23,280	27,819	24,314	21,141	17,842
Fiduciary net position held at end of year	\$26,018	\$23,280	\$27,819	\$24,314	\$21,141
	2018	2017	2016	2015	2014
Additions					
Net investment income (loss)	(\$684)	\$3,241	\$1,289	\$302	\$1,068
Other	4	—	—	—	—
Total additions	(680)	3,241	1,289	302	1,068
Deductions					
Life insurance premiums	433	373	306	250	196
Administrative expenses	111	493	1,032	805	871
Total deductions	544	866	1,338	1,055	1,067
Change in fiduciary net position	(1,224)	2,375	(49)	(753)	1
Fiduciary net position held at beginning of year	19,066	16,691	16,740	17,493	17,492
Fiduciary net position held at end of year	\$17,842	\$19,066	\$16,691	\$16,740	\$17,493

BENEFITS AND REFUND DEDUCTIONS FROM FIDUCIARY NET POSITION BY TYPE

For the Years Ended December 31

(Dollars in Thousands)

State Division Trust Fund

	2023	2022	2021	2020	2019
Type of Benefit					
Retirees	\$1,730,042	\$1,686,686	\$1,634,075	\$1,581,249	\$1,540,738
Disability	74,550	76,539	77,589	78,987	81,434
Survivors	16,231	14,842	14,839	14,812	14,996
Total benefits	\$1,820,823	\$1,778,067	\$1,726,503	\$1,675,048	\$1,637,168
Type of Refund					
Separation	\$68,878	\$76,132	\$67,128	\$50,097	\$55,782
Death	8,270	6,102	7,301	7,791	5,909
Purchased service	81	87	91	33	141
Total refunds	\$77,229	\$82,321	\$74,520	\$57,921	\$61,832
	2018	2017	2016	2015	2014
Type of Benefit					
Retirees	\$1,510,747	\$1,456,159	\$1,387,374	\$1,322,592	\$1,257,767
Disability	82,947	83,280	82,221	81,310	80,753
Survivors	14,840	14,851	14,233	13,960	13,773
Total benefits	\$1,608,534	\$1,554,290	\$1,483,828	\$1,417,862	\$1,352,293
Type of Refund					
Separation	\$59,508	\$52,079	\$54,606	\$58,274	\$57,895
Death	5,728	6,561	5,464	5,213	3,058
Purchased service	17	56	67	80	199
Total refunds	\$65,253	\$58,696	\$60,137	\$63,567	\$61,152

School Division Trust Fund

	2023	2022	2021	2020	2019
Type of Benefit					
Retirees	\$2,737,326	\$2,642,395	\$2,542,456	\$2,452,428	\$2,384,406
Disability	63,992	65,199	66,230	67,467	67,737
Survivors	17,385	16,073	16,238	15,614	15,878
Total benefits	\$2,818,703	\$2,723,667	\$2,624,924	\$2,535,509	\$2,468,021
Type of Refund					
Separation	\$87,107	\$81,507	\$74,409	\$61,755	\$70,200
Death	10,155	6,602	7,183	6,101	3,412
Purchased service	276	246	133	17	259
Total refunds	\$97,538	\$88,355	\$81,725	\$67,873	\$73,871
	2018	2017	2016	2015	2014
Type of Benefit					
Retirees	\$2,329,157	\$2,249,855	\$2,149,415	\$2,053,108	\$1,952,989
Disability	68,774	68,537	67,416	67,203	65,780
Survivors	15,456	15,611	14,644	14,443	13,859
Total benefits	\$2,413,387	\$2,334,003	\$2,231,475	\$2,134,754	\$2,032,628
Type of Refund					
Separation	\$70,227	\$68,265	\$60,873	\$66,494	\$73,522
Death	5,678	6,313	4,756	3,621	3,521
Purchased service	130	59	86	183	128
Total refunds	\$76,035	\$74,637	\$65,715	\$70,298	\$77,171

BENEFITS AND REFUND DEDUCTIONS FROM FIDUCIARY NET POSITION BY TYPE

For the Years Ended December 31

(Dollars in Thousands)

(CONTINUED)

Local Government Division Trust Fund

	2023	2022	2021	2020	2019
Type of Benefit					
Retirees	\$330,357	\$318,330	\$303,545	\$288,944	\$278,543
Disability	15,240	15,481	15,868	16,215	16,315
Survivors	3,065	2,910	2,693	2,636	2,589
Total benefits	\$348,662	\$336,721	\$322,106	\$307,795	\$297,447
Type of Refund					
Separation	\$14,188	\$12,740	\$14,725	\$11,734	\$13,070
Death	2,112	610	1,279	1,053	1,691
Purchased service	—	41	30	41	—
Total refunds	\$16,300	\$13,391	\$16,034	\$12,828	\$14,761
	2018	2017	2016	2015	2014
Type of Benefit					
Retirees	\$267,669	\$255,105	\$240,432	\$226,400	\$213,962
Disability	16,582	16,775	16,274	16,327	16,045
Survivors	2,494	2,378	2,261	2,221	2,048
Total benefits	\$286,745	\$274,258	\$258,967	\$244,948	\$232,055
Type of Refund					
Separation	\$14,587	\$13,095	\$12,017	\$18,062	\$23,034
Death	1,128	1,434	921	2,317	1,401
Purchased service	1	1	—	31	1
Total refunds	\$15,716	\$14,530	\$12,938	\$20,410	\$24,436

Judicial Division Trust Fund

	2023	2022	2021	2020	2019
Type of Benefit					
Retirees	\$34,106	\$31,660	\$30,121	\$28,181	\$26,812
Disability	777	790	800	887	893
Survivors	251	265	280	341	351
Total benefits	\$35,134	\$32,715	\$31,201	\$29,409	\$28,056
Type of Refund					
Separation	\$29	\$218	\$266	\$48	\$—
Death	47	—	—	—	—
Total refunds	\$76	\$218	\$266	\$48	\$—
	2018	2017	2016	2015	2014
Type of Benefit					
Retirees	\$24,982	\$23,993	\$21,485	\$19,901	\$18,573
Disability	926	933	939	938	917
Survivors	328	324	310	319	310
Total benefits	\$26,236	\$25,250	\$22,734	\$21,158	\$19,800
Type of Refund					
Separation	\$50	\$7	\$109	\$—	\$60
Death	136	—	—	—	—
Total refunds	\$186	\$7	\$109	\$—	\$60

BENEFITS AND REFUND DEDUCTIONS FROM FIDUCIARY NET POSITION BY TYPE

For the Years Ended December 31

(Dollars in Thousands)

(CONTINUED)

DPS Division Trust Fund

	2023	2022	2021	2020	2019
Type of Benefit					
Retirees	\$275,630	\$272,927	\$270,210	\$268,201	\$267,956
Disability	7,857	8,017	8,216	8,335	8,358
Survivors	1,615	1,613	1,619	1,545	1,535
Total benefits	\$285,102	\$282,557	\$280,045	\$278,081	\$277,849
Type of Refund					
Separation	\$16,272	\$16,295	\$10,851	\$8,913	\$10,486
Death	508	617	673	431	250
Purchased service	—	1	3	—	2
Total refunds	\$16,780	\$16,913	\$11,527	\$9,344	\$10,738
	2018	2017	2016	2015	2014
Type of Benefit					
Retirees	\$266,260	\$261,361	\$253,641	\$245,683	\$237,955
Disability	8,278	8,221	7,929	7,804	7,482
Survivors	1,685	1,607	1,582	1,581	1,568
Total benefits	\$276,223	\$271,189	\$263,152	\$255,068	\$247,005
Type of Refund					
Separation	\$10,652	\$9,873	\$7,894	\$7,685	\$7,424
Death	545	349	616	207	631
Purchased service	—	55	11	5	8
Total refunds	\$11,197	\$10,277	\$8,521	\$7,897	\$8,063

MEMBER AND BENEFIT RECIPIENT STATISTICS¹

(In Actual Dollars)

	State Division	School Division	Local Government Division	Judicial Division	DPS Division	Total
Active Members						
Active members as of 12/31/2023	53,687	131,188	12,700	347	15,626	213,548
Retirements during 2023						
Disability retirements	34	42	4	—	4	84
Service retirements	1,581	3,447	390	21	269	5,708
Total	1,615	3,489	394	21	273	5,792
Retirement Benefits						
Total receiving disability and service retirement benefits on 12/31/2022	42,800	73,693	8,630	435	7,118	132,676
Total retiring during 2023	1,615	3,489	394	21	273	5,792
Cobeneficiaries continuing after retiree's death	875	988	157	10	178	2,208
Returning to retirement rolls from suspension	15	27	3	1	4	50
Total	45,305	78,197	9,184	467	7,573	140,726
Retirees and cobeneficiaries deceased during year	1,853	2,429	298	17	397	4,994
Retirees suspending benefits to return to work	14	32	2	—	3	51
Total receiving retirement benefits on 12/31/2023	43,438	75,736	8,884	450	7,173	135,681²
Annual retirement benefits for retirees as of 12/31/2023	\$1,805,159,441	\$2,822,838,816	\$347,396,217	\$35,343,500	\$284,507,289	\$5,295,245,263
Average monthly benefit on 12/31/2023	\$3,463	\$3,106	\$3,259	\$6,545	\$3,305	\$3,252
Average monthly benefit for all members who retired during 2023	\$2,898	\$2,620	\$2,892	\$6,930	\$2,594	\$2,731
Survivor Benefits						
Total survivors being paid on 12/31/2023	977	1,271	191	8	134	2,581 ²
Annual benefits payable to survivors as of 12/31/2023	\$22,622,480	\$21,087,427	\$4,356,230	\$308,953	\$2,474,787	\$50,849,877
Future Benefits						
Future retirements	9,887	24,561	3,174	29	3,364	41,015
Total annual future benefits	\$132,785,576	\$221,294,926	\$46,275,366	\$1,532,149	\$40,958,968	\$442,846,985
Future survivor beneficiaries of inactive members	102	158	20	2	9	291 ²
Total annual future benefits	\$1,256,661	\$2,129,425	\$229,203	\$9,124	\$92,433	\$3,716,846

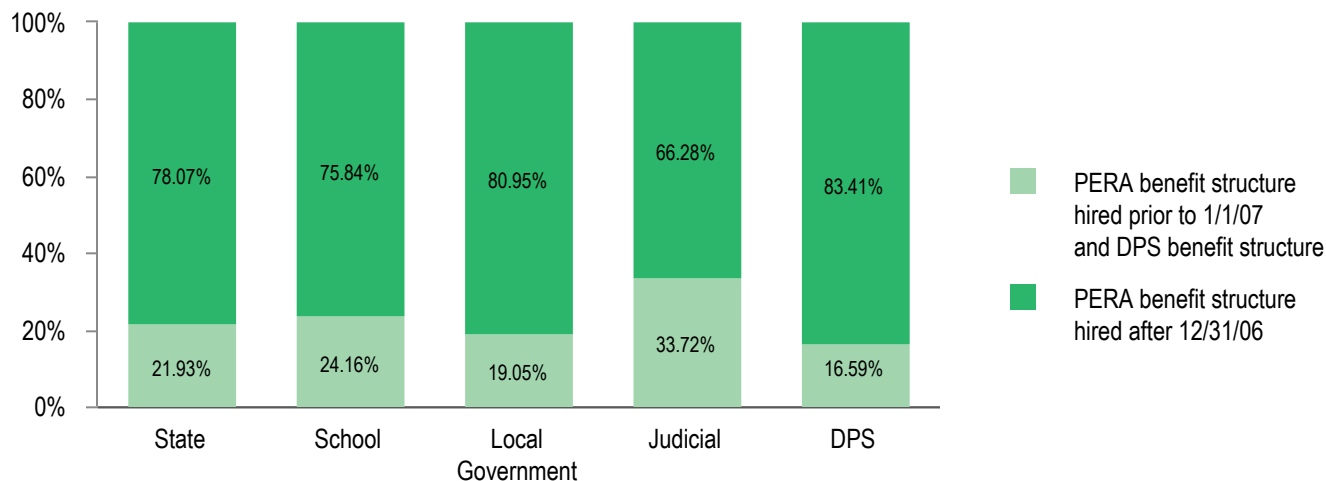
¹ In addition, as of December 31, 2023, there was a total of 302,721 non-vested inactive members due a refund of their contributions as follows: State Division—94,780; School Division—159,333; Local Government Division—31,426; Judicial Division—9; and DPS Division—17,173.

² These line items make up the total for retirees and beneficiaries reported on page 48 in Note 1 of the Notes to the Financial Statements in the Financial Section.

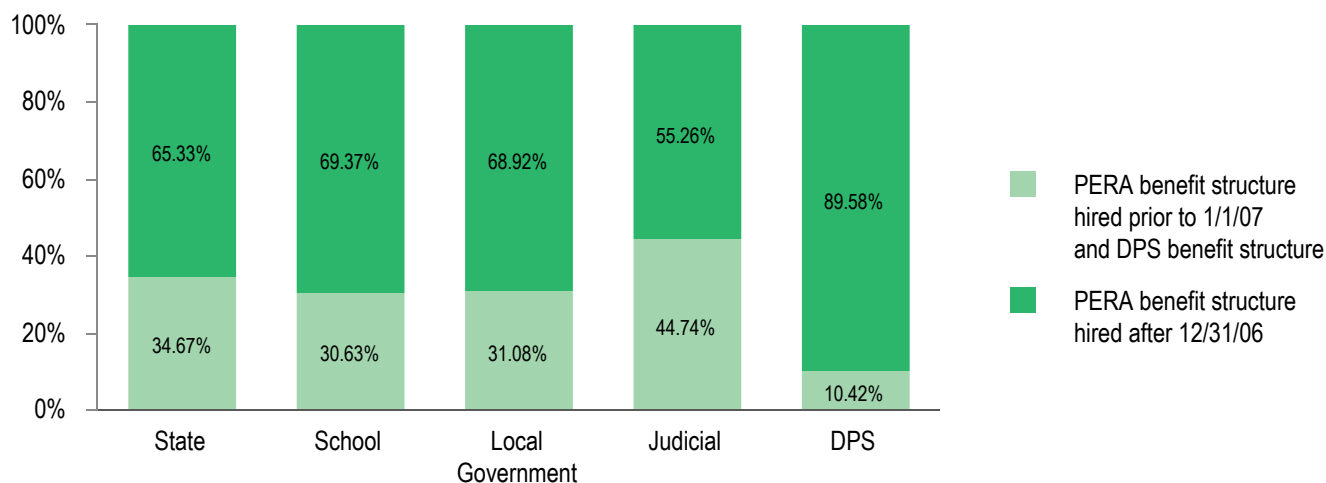
BREAKDOWN OF MEMBERSHIP BY PERCENTAGE

As of December 31, 2023

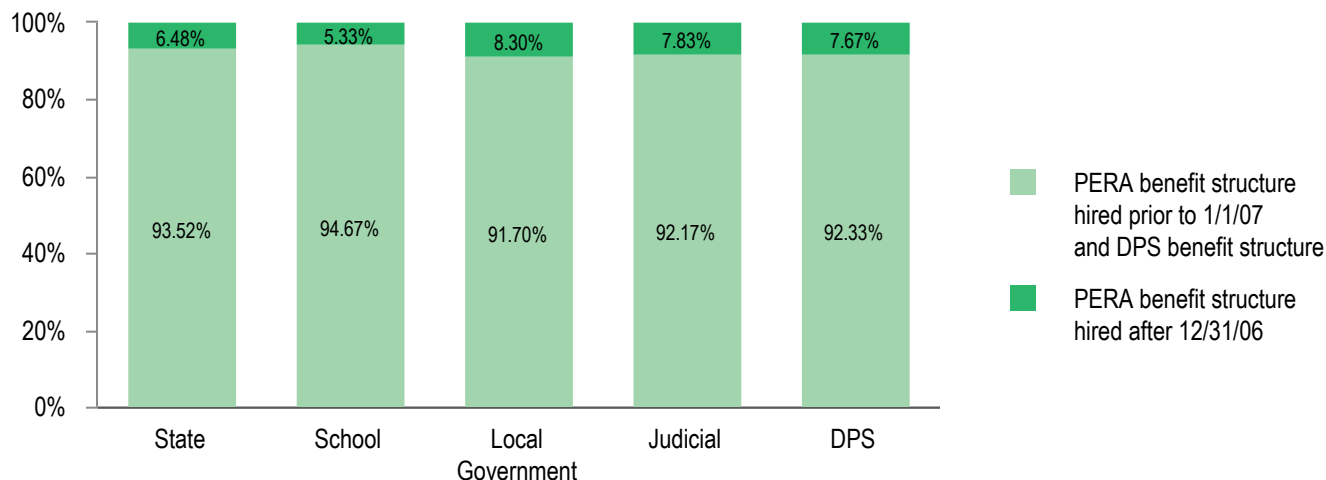
Active Members by Division



Inactive Members by Division (Vested and Non-Vested)



Retirees and Survivors by Division (Includes Deferred Survivors)



SCHEDULE OF AVERAGE RETIREMENT BENEFITS PAYABLE—ALL DIVISION TRUST FUNDS¹

(In Actual Dollars)

Year Ended	Average Monthly Benefit	Average Age at Retirement	Average Current Age of Retirees	Average Years of Service at Retirement	Average Age at Death
12/31/2023	\$3,252	59.2	73.0	22.5	81.2
12/31/2022	3,238	59.1	72.7	22.6	81.2
12/31/2021	3,220	59.0	72.5	22.7	83.0
12/31/2020	3,204	58.9	72.3	22.8	81.5
12/31/2019	3,179	58.8	72.0	22.9	82.3
12/31/2018	3,208	58.8	71.7	23.0	82.5
12/31/2017	3,232	58.6	71.5	23.1	82.5
12/31/2016	3,193	58.5	71.2	23.2	82.5
12/31/2015	3,153	58.4	70.9	23.3	82.2
12/31/2014	3,112	58.3	70.7	23.4	82.8

¹ Includes disability retirements, but not survivor benefits.SCHEDULE OF AVERAGE RETIREMENT BENEFITS PAYABLE¹

(In Actual Dollars)

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
For All Retirees Year Ended 12/31/2023					
Average monthly benefit	\$3,463	\$3,106	\$3,259	\$6,545	\$3,305
Average age at retirement	59.0	59.3	59.2	62.7	59.8
Average age	73.2	72.9	71.6	75.4	75.2
Average years of service at retirement	22.4	22.7	20.8	23.2	23.0
Average age at death	80.5	81.6	78.5	86.0	83.0
For Members Who Retired During 2023					
Average monthly benefit	\$2,898	\$2,620	\$2,892	\$6,930	\$2,594
Average age at retirement	62.7	62.0	62.5	66.5	63.8
Average years of service	19.0	20.0	17.7	20.3	18.4
For All Retirees Year Ended 12/31/2022					
Average monthly benefit	\$3,442	\$3,095	\$3,236	\$6,433	\$3,302
Average age at retirement	58.9	59.2	59.1	62.6	59.7
Average age	72.8	72.6	71.1	75.2	75.0
Average years of service at retirement	22.5	22.8	20.9	23.2	23.2
Average age at death	81.0	81.4	78.6	87.1	83.0
For Members Who Retired During 2022					
Average monthly benefit	\$2,960	\$2,626	\$2,731	\$7,530	\$2,694
Average age at retirement	62.5	61.8	62.9	64.0	62.8
Average years of service	19.6	20.5	17.3	21.8	18.7

Please see next page for footnote references.

SCHEDULE OF AVERAGE RETIREMENT BENEFITS PAYABLE¹ (CONTINUED)

(In Actual Dollars)

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
For All Retirees Year Ended 12/31/2021					
Average monthly benefit	\$3,419	\$3,079	\$3,212	\$6,237	\$3,293
Average age at retirement	58.8	59.1	58.9	62.5	59.6
Average age	72.6	72.4	70.8	75.2	75.0
Average years of service at retirement	22.5	22.9	21.0	23.2	23.5
Average age at death	82.7	83.1	79.8	85.4	85.8
For Members Who Retired During 2021					
Average monthly benefit	\$3,034	\$2,542	\$2,696	\$6,588	\$2,375
Average age at retirement	62.5	62.0	62.7	65.4	63.5
Average years of service	20.5	20.6	17.7	21.8	18.2
For All Retirees Year Ended 12/31/2020					
Average monthly benefit	\$3,393	\$3,067	\$3,201	\$6,123	\$3,284
Average age at retirement	58.7	59.0	58.8	62.3	59.5
Average age	72.4	72.2	70.4	74.9	74.8
Average years of service at retirement	22.6	23.0	21.2	23.2	23.8
Average age at death	81.0	81.7	79.0	87.9	83.6
For Members Who Retired During 2020					
Average monthly benefit	\$2,772	\$2,353	\$2,798	\$7,140	\$2,500
Average age at retirement	62.6	62.2	62.9	66.9	63.8
Average years of service	19.9	20.2	18.9	23.8	18.6
For All Retirees Year Ended 12/31/2019					
Average monthly benefit	\$3,360	\$3,050	\$3,160	\$5,984	\$3,252
Average age at retirement	58.6	58.9	58.6	62.0	59.4
Average age	72.1	71.9	70.0	74.8	74.6
Average years of service at retirement	22.7	23.1	21.3	23.1	24.0
Average age at death	82.4	82.1	79.2	86.2	84.9
For Members Who Retired During 2019					
Average monthly benefit	\$2,767	\$2,267	\$2,622	\$6,529	\$2,464
Average age at retirement	62.2	61.7	61.9	63.8	63.6
Average years of service	19.7	20.0	17.9	21.0	18.4
For All Retirees Year Ended 12/31/2018					
Average monthly benefit	\$3,379	\$3,085	\$3,187	\$5,915	\$3,278
Average age at retirement	58.6	58.8	58.6	62.0	59.4
Average age	71.9	71.6	69.7	75.0	74.3
Average years of service at retirement	22.8	23.2	21.4	23.3	24.2
Average age at death	82.7	82.4	79.8	83.2	84.6
For Members Who Retired During 2018					
Average monthly benefit	\$2,795	\$2,291	\$2,853	\$7,556	\$2,749
Average age at retirement	63.2	62.8	62.8	67.5	63.3
Average years of service	20.1	20.3	18.8	25.1	20.1

Please see next page for footnote references.

SCHEDULE OF AVERAGE RETIREMENT BENEFITS PAYABLE¹ (CONTINUED)

(In Actual Dollars)

	State Division	School Division	Local Government Division	Judicial Division	DPS Division
For All Retirees Year Ended 12/31/2017					
Average monthly benefit	\$3,397	\$3,115	\$3,188	\$5,864	\$3,290
Average age at retirement	58.4	58.7	58.4	61.8	59.3
Average age	71.7	71.3	69.3	74.3	74.2
Average years of service at retirement	22.9	23.3	21.5	23.2	24.4
Average age at death	82.1	82.8	78.2	82.9	85.2
For Members Who Retired During 2017					
Average monthly benefit	\$2,866	\$2,304	\$2,669	\$7,747	\$2,608
Average age at retirement	61.7	61.7	61.9	66.1	62.0
Average years of service	20.6	20.4	18.7	25.6	19.3
For All Retirees Year Ended 12/31/2016					
Average monthly benefit	\$3,345	\$3,086	\$3,145	\$5,624	\$3,248
Average age at retirement	58.3	58.6	58.2	61.6	59.2
Average age	71.4	71.0	69.0	74.2	74.0
Average years of service at retirement	22.9	23.4	21.7	23.0	24.7
Average age at death	82.4	82.7	80.1	84.2	83.3
For Members Who Retired During 2016					
Average monthly benefit	\$2,812	\$2,303	\$2,467	\$6,192	\$2,520
Average age at retirement	61.6	61.4	61.2	65.6	62.6
Average years of service	20.7	20.7	18.1	21.4	19.2
For All Retirees Year Ended 12/31/2015					
Average monthly benefit	\$3,294	\$3,052	\$3,114	\$5,379	\$3,206
Average age at retirement	58.2	58.5	58.1	61.4	59.1
Average age	71.2	70.7	68.6	74.5	73.9
Average years of service at retirement	23.0	23.5	21.8	22.9	25.0
Average age at death	81.7	82.2	79.6	78.9	85.3
For Members Who Retired During 2015					
Average monthly benefit	\$2,828	\$2,293	\$2,750	\$7,030	\$2,493
Average age at retirement	61.4	61.3	61.1	65.1	62.9
Average years of service	21.0	20.7	19.7	25.7	18.7
For All Retirees Year Ended 12/31/2014					
Average monthly benefit	\$3,241	\$3,019	\$3,067	\$5,158	\$3,169
Average age at retirement	58.1	58.4	58.0	61.4	59.0
Average age	71.0	70.4	68.3	74.5	73.7
Average years of service at retirement	23.0	23.6	21.9	22.7	25.3
Average age at death	82.2	83.1	78.8	81.1	85.2
For Members Who Retired During 2014					
Average monthly benefit	\$2,760	\$2,405	\$2,352	\$4,969	\$2,593
Average age at retirement	61.3	60.9	61.3	66.2	63.2
Average years of service	20.8	21.0	18.4	20.0	19.6

¹ Includes disability retirements, but not survivor benefits

BENEFIT PAYMENTS—ALL DIVISION TRUST FUNDS

As of December 31, 2023

(In Actual Dollars)

Benefit Payments^{1,2}

At the end of 2023, PERA was paying benefits to more than 138,000 retired public employees and their beneficiaries who received an average benefit of \$3,225 per month. For benefit recipients, this may be the primary source of retirement income as most PERA benefit recipients do not qualify for Social Security payments.

The PERA service retirement formula for calculating benefits, specified in State law as of December 31, 2023, is 2.5% multiplied by years of service multiplied by Highest Average Salary (HAS). HAS³ is defined in State law as one-twelfth of the average of the highest annual salaries on which contributions were paid that are associated with three periods of 12 consecutive months of service credit. The three 12-month periods do not have to be consecutive, nor do they have to be the last three years of employment. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year salary increase limitation for HAS calculation purposes. The year-to-year limit for members who were eligible to retire on January 1, 2011, and hired before January 1, 2007, is 15%. All other members are subject to an 8% year-to-year limit in their HAS calculation. This annual limit applied to salaries in the HAS years is designed to moderate salary "spiking."

Approximately 67.6% (93,475) of recipients receive less than \$50,000 a year in PERA benefits, as the following graph demonstrates. Slightly more than 2.2% (3,100) of PERA benefit recipients receive an annual benefit payment of \$100,000 or more. Generally, these benefit recipients had high salaries and a significant number of years of service credit.

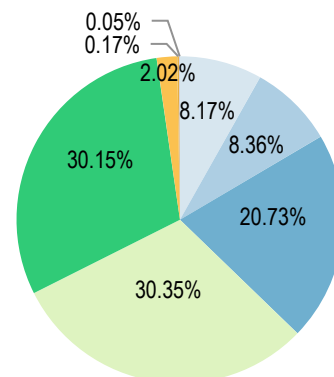
¹ Includes amounts paid under replacement benefit arrangements.

² Does not include deferred survivors and benefits that ended or were suspended in 2023.

³ Some members of the DPS benefit structure, members in the Judicial Division, and members who did not have five years of service credit on December 31, 2019, have different HAS calculations. Please see Note 1 of the Notes to the Financial Statements in the Financial Section for more information.

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

Benefit Range ¹	Number of Benefit Recipients ²
\$0 - \$4,999	11,296
\$5,000 - \$9,999	11,552
\$10,000 - \$24,999	28,667
\$25,000 - \$49,999	41,960
\$50,000 - \$99,999	41,687
\$100,000 - \$149,999	2,793
\$150,000 - \$199,999	234
\$200,000+	73
Total Benefit Recipients	138,262



¹ Includes amounts paid under replacement benefit arrangements.

² Does not include 291 deferred survivors.

BENEFIT PAYMENTS—ALL DIVISION TRUST FUNDS

As of December 31, 2023

(In Actual Dollars)

Benefit Payments by Decile

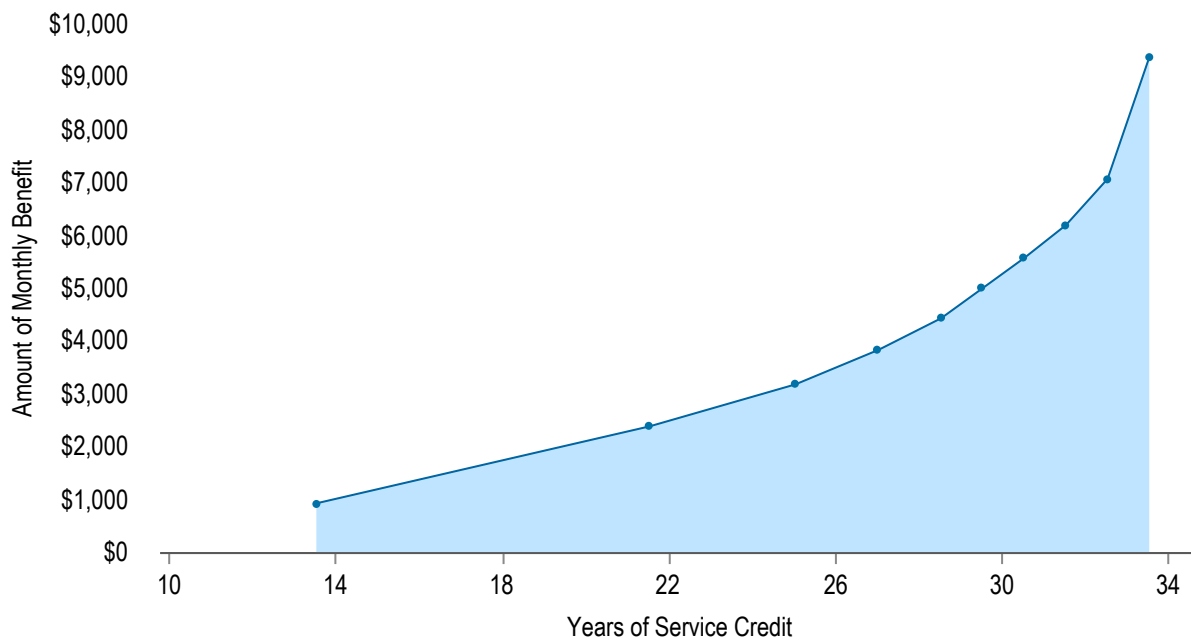
Another way to examine the data is to group benefit recipients and the benefits they receive into benefit payment ranges as a percentage of the total. The following table shows that, for the one-third of PERA benefit recipients (48,413) in the lowest decile, the average benefit is \$11,052 a year. This group retired at an average age of 61 with over 13 years of service credit. For the top decile, on the other end of the scale, the average benefit is \$112,212 a year. However, this group, on average, had just over 33 years of service credit, which is more than twice the length of the average service credit of those in the lowest decile. For the 5,792 new retirees in 2023, the average monthly benefit is \$2,734. These members retired at an average age of 62 with 19.45 years of service credit.

Decile	Number of Benefit Recipients ¹	Percent of Benefit Recipients	Average Monthly Benefit ²	Average Age at Retirement	Average Service Credit
1%–10%	48,413	35.01%	\$921	61	13.25
11%–20%	18,763	13.57%	2,376	59	21.41
21%–30%	14,072	10.18%	3,169	58	24.56
31%–40%	11,665	8.44%	3,823	58	26.83
41%–50%	10,091	7.30%	4,419	57	28.40
51%–60%	8,937	6.46%	4,989	57	29.63
61%–70%	8,019	5.80%	5,560	57	30.50
71%–80%	7,213	5.22%	6,182	57	31.20
81%–90%	6,320	4.57%	7,055	57	32.07
91%–100%	4,769	3.45%	9,351	58	33.15
Total	138,262	100.00%	3,225	59	22.00

¹ Does not include 291 deferred survivors.

² Includes amounts paid under replacement benefit arrangements.

Average Monthly Benefit Payment by Years of Service Credit



SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS

As of December 31, 2023

Types of Benefits

- 1—Age and service retirement.
- 2—Disability retirement.
- 3—Survivor payment—Option 3.
- 4—Survivor payment—children, spouse, or dependent parent.
- 5—Surviving spouse with future benefit.
- 6—Former member with future benefit.

Option Selected

Retirees select one of the following options at retirement:

- 1—Single-life benefit.
- 2—Joint benefit with 1/2 to surviving cobeneficiary.
- 3—Joint and survivor benefit.
- 4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary

Retiree has predeceased the cobeneficiary.

Surviving Retiree

Cobeneficiary has predeceased the retiree.

State Division

Amount of Monthly Benefit (In Actual Dollars)	Total (Columns 1–5)	Types of Benefits					
		1	2	3	4	5	6
\$1-\$1,000	6,889	6,355	198	29	249	58	5,871
\$1,001-\$2,000	7,328	5,845	1,079	47	322	35	2,732
\$2,001-\$3,000	7,752	6,513	1,082	37	117	3	825
\$3,001-\$4,000	6,924	6,483	348	33	56	4	260
\$4,001-\$5,000	5,429	5,290	96	20	21	2	104
\$5,001+	10,195	10,116	33	38	8	—	95
Total	44,517	40,602	2,836	204	773	102	9,887

Amount of Monthly Benefit ¹ (In Actual Dollars)	Option Selected				Surviving Cobeneficiary	Surviving Retiree
	1	2	3	4		
\$1-\$1,000	4,352	420	1,206	1	569	5
\$1,001-\$2,000	3,989	744	1,215	1	960	15
\$2,001-\$3,000	4,290	1,008	1,374	1	897	25
\$3,001-\$4,000	3,747	1,131	1,365	—	578	10
\$4,001-\$5,000	2,774	1,022	1,214	1	364	11
\$5,001+	4,911	2,132	2,591	—	504	11
Total	24,063	6,457	8,965	4	3,872	77

¹ For Types of Benefits 1 and 2 above.

SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS

As of December 31, 2023

Types of Benefits

- 1—Age and service retirement.
- 2—Disability retirement.
- 3—Survivor payment—Option 3.
- 4—Survivor payment—children, spouse, or dependent parent.
- 5—Surviving spouse with future benefit.
- 6—Former member with future benefit.

Option Selected

Retirees select one of the following options at retirement:

- 1—Single-life benefit.
- 2—Joint benefit with 1/2 to surviving cobeneficiary.
- 3—Joint and survivor benefit.
- 4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary

Retiree has predeceased the cobeneficiary.

Surviving Retiree

Cobeneficiary has predeceased the retiree.

School Division

Amount of Monthly Benefit (In Actual Dollars)	Total (Columns 1–5)	Types of Benefits					
		1	2	3	4	5	6
\$1-\$1,000	17,492	16,138	643	58	566	87	18,933
\$1,001-\$2,000	12,445	11,072	972	46	310	45	4,231
\$2,001-\$3,000	10,749	9,946	634	22	132	15	969
\$3,001-\$4,000	10,236	9,844	307	22	57	6	286
\$4,001-\$5,000	9,630	9,475	121	11	21	2	98
\$5,001+	16,613	16,538	46	18	8	3	44
Total	77,165	73,013	2,723	177	1,094	158	24,561

Amount of Monthly Benefit ¹ (In Actual Dollars)	Option Selected				Surviving Cobeneficiary	Surviving Retiree
	1	2	3	4		
\$1-\$1,000	11,836	1,170	2,718	1	1,034	22
\$1,001-\$2,000	7,736	1,517	1,807	2	949	33
\$2,001-\$3,000	6,307	1,719	1,674	—	853	27
\$3,001-\$4,000	6,213	1,896	1,593	1	431	17
\$4,001-\$5,000	5,515	2,102	1,643	—	325	11
\$5,001+	10,323	3,505	2,341	4	402	9
Total	47,930	11,909	11,776	8	3,994	119

¹ For Types of Benefits 1 and 2 above.

SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS

As of December 31, 2023

Types of Benefits

- 1—Age and service retirement.
- 2—Disability retirement.
- 3—Survivor payment—Option 3.
- 4—Survivor payment—children, spouse, or dependent parent.
- 5—Surviving spouse with future benefit.
- 6—Former member with future benefit.

Option Selected

Retirees select one of the following options at retirement:

- 1—Single-life benefit.
- 2—Joint benefit with 1/2 to surviving cobeneficiary.
- 3—Joint and survivor benefit.
- 4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary

Retiree has predeceased the cobeneficiary.

Surviving Retiree

Cobeneficiary has predeceased the retiree.

Local Government Division

Amount of Monthly Benefit (In Actual Dollars)	Total (Columns 1–5)	Types of Benefits					
		1	2	3	4	5	6
\$1-\$1,000	1,700	1,596	47	5	44	8	1,785
\$1,001-\$2,000	1,724	1,418	217	9	68	12	888
\$2,001-\$3,000	1,510	1,255	222	10	23	—	300
\$3,001-\$4,000	1,291	1,198	78	3	12	—	117
\$4,001-\$5,000	936	914	13	6	3	—	41
\$5,001+	1,934	1,920	6	6	2	—	43
Total	9,095	8,301	583	39	152	20	3,174

Amount of Monthly Benefit ¹ (In Actual Dollars)	Option Selected				Surviving Cobeneficiary	Surviving Retiree
	1	2	3	4		
\$1-\$1,000	1,089	129	311	—	113	1
\$1,001-\$2,000	950	183	320	1	175	6
\$2,001-\$3,000	776	239	323	—	136	3
\$3,001-\$4,000	685	250	252	—	87	2
\$4,001-\$5,000	453	213	213	—	47	1
\$5,001+	826	456	567	—	77	—
Total	4,779	1,470	1,986	1	635	13

¹ For Types of Benefits 1 and 2 above.

SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS

As of December 31, 2023

Types of Benefits

- 1—Age and service retirement.
- 2—Disability retirement.
- 3—Survivor payment—Option 3.
- 4—Survivor payment—children, spouse, or dependent parent.
- 5—Surviving spouse with future benefit.
- 6—Former member with future benefit.

Option Selected

Retirees select one of the following options at retirement:

- 1—Single-life benefit.
- 2—Joint benefit with 1/2 to surviving cobeneficiary.
- 3—Joint and survivor benefit.
- 4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary

Retiree has predeceased the cobeneficiary.

Surviving Retiree

Cobeneficiary has predeceased the retiree.

Judicial Division

Amount of Monthly Benefit (In Actual Dollars)	Total (Columns 1–5)	Types of Benefits					
		1	2	3	4	5	6
\$1-\$1,000	19	16	1	—	—	2	1
\$1,001-\$2,000	26	24	—	—	2	—	5
\$2,001-\$3,000	32	29	2	—	1	—	7
\$3,001-\$4,000	32	27	2	—	3	—	6
\$4,001-\$5,000	34	28	5	—	1	—	4
\$5,001+	317	311	5	1	—	—	6
Total	460	435	15	1	7	2	29

Amount of Monthly Benefit ¹ (In Actual Dollars)	Option Selected				Surviving Cobeneficiary	Surviving Retiree
	1	2	3	4		
\$1-\$1,000	7	1	4	—	5	—
\$1,001-\$2,000	8	1	5	—	10	—
\$2,001-\$3,000	7	4	11	—	9	—
\$3,001-\$4,000	10	4	9	—	6	—
\$4,001-\$5,000	11	3	12	—	7	—
\$5,001+	109	72	109	—	26	—
Total	152	85	150	—	63	—

¹ For Types of Benefits 1 and 2 above.

SCHEDULE OF RETIREES AND SURVIVORS BY TYPES OF BENEFITS

As of December 31, 2023

Types of Benefits

- 1—Age and service retirement.
- 2—Disability retirement.
- 3—Survivor payment—Option 3.
- 4—Survivor payment—children, spouse, or dependent parent.
- 5—Surviving spouse with future benefit.
- 6—Former member with future benefit.

Option Selected

Retirees select one of the following options at retirement:

- 1—Single-life benefit.
- 2—Joint benefit with 1/2 to surviving cobeneficiary.
- 3—Joint and survivor benefit.
- 4—Joint benefit with 1/2 to either survivor. (No longer offered to members retiring.)

Surviving Cobeneficiary

Retiree has predeceased the cobeneficiary.

Surviving Retiree

Cobeneficiary has predeceased the retiree.

DPS Division

Amount of Monthly Benefit (In Actual Dollars)	Total (Columns 1–5)	Types of Benefits					
		1	2	3	4	5	6
\$1-\$1,000	1,175	1,042	60	3	63	7	2,108
\$1,001-\$2,000	1,149	1,031	94	2	21	1	915
\$2,001-\$3,000	1,098	983	88	9	18	—	247
\$3,001-\$4,000	1,154	1,102	38	9	4	1	63
\$4,001-\$5,000	1,225	1,199	23	1	2	—	20
\$5,001+	1,515	1,508	5	1	1	—	11
Total	7,316	6,865	308	25	109	9	3,364

Amount of Monthly Benefit ¹ (In Actual Dollars)	Option Selected ²				Surviving Cobeneficiary	Surviving Retiree	Cobeneficiaries Both Deceased
	1	2	3	4			
\$1-\$1,000	778	61	168	—	72	21	2
\$1,001-\$2,000	713	95	161	—	114	42	—
\$2,001-\$3,000	628	85	199	—	97	60	2
\$3,001-\$4,000	618	110	240	—	116	54	2
\$4,001-\$5,000	596	117	286	—	126	95	2
\$5,001+	791	155	341	—	137	87	2
Total	4,124	623	1,395	—	662	359	10

¹ For Types of Benefits 1 and 2 above.² The equivalent DPS benefit structure options are as follows:

PERA Option 1 = Options A, B, and D (D is discontinued)

PERA Option 2 = Options P2 and E (E is discontinued)

PERA Option 3 = Options P3 and C (C is discontinued)

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

(In Actual Dollars)

State Division

Year Retired	Years of Service Credit						
	0-5	5-10	10-15	15-20	20-25	25-30	30+
Period 1/1/2023 to 12/31/2023							
Average monthly benefit	\$167	\$681	\$1,363	\$2,068	\$3,232	\$4,598	\$6,128
Average highest average salary	\$2,802	\$3,924	\$4,866	\$5,054	\$6,184	\$7,104	\$7,791
Number of service retirees	143	230	206	205	264	262	271
Period 1/1/2022 to 12/31/2022							
Average monthly benefit	\$178	\$751	\$1,417	\$2,141	\$3,151	\$4,389	\$5,955
Average highest average salary	\$2,928	\$4,196	\$5,020	\$5,305	\$5,990	\$6,740	\$7,492
Number of service retirees	146	267	258	261	365	302	379
Period 1/1/2021 to 12/31/2021							
Average monthly benefit	\$155	\$767	\$1,342	\$2,050	\$3,118	\$4,249	\$5,782
Average highest average salary	\$2,484	\$4,449	\$4,724	\$4,872	\$5,966	\$6,574	\$7,404
Number of service retirees	110	239	253	242	364	325	421
Period 1/1/2020 to 12/31/2020							
Average monthly benefit	\$183	\$634	\$1,166	\$1,990	\$2,888	\$4,105	\$5,660
Average highest average salary	\$2,948	\$3,700	\$4,229	\$4,844	\$5,538	\$6,459	\$7,169
Number of service retirees	129	228	262	240	333	290	359
Period 1/1/2019 to 12/31/2019							
Average monthly benefit	\$146	\$674	\$1,212	\$1,948	\$2,897	\$4,102	\$5,660
Average highest average salary	\$2,608	\$3,902	\$4,401	\$4,743	\$5,607	\$6,358	\$7,235
Number of service retirees	110	229	237	231	287	282	325
Period 1/1/2018 to 12/31/2018							
Average monthly benefit	\$153	\$596	\$1,250	\$1,997	\$2,880	\$3,981	\$5,571
Average highest average salary	\$2,721	\$3,531	\$4,332	\$4,838	\$5,559	\$6,179	\$7,111
Number of service retirees	83	281	228	234	306	303	379
Period 1/1/2017 to 12/31/2017							
Average monthly benefit	\$233	\$704	\$1,287	\$2,102	\$3,025	\$4,355	\$5,618
Average highest average salary	\$3,134	\$3,869	\$4,312	\$4,860	\$5,532	\$6,465	\$7,162
Number of service retirees	102	238	253	271	338	357	322
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	\$240	\$641	\$1,285	\$2,050	\$2,983	\$4,128	\$5,593
Average highest average salary	\$3,010	\$3,477	\$4,394	\$4,790	\$5,397	\$6,130	\$6,957
Number of service retirees	103	244	233	238	319	357	319
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	\$241	\$770	\$1,339	\$2,111	\$2,934	\$4,121	\$5,232
Average highest average salary	\$2,851	\$4,043	\$4,506	\$4,766	\$5,260	\$6,074	\$6,490
Number of service retirees	82	246	214	222	293	348	324
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	\$228	\$626	\$1,239	\$1,996	\$2,930	\$4,002	\$5,438
Average highest average salary	\$2,960	\$3,421	\$4,046	\$4,609	\$5,351	\$5,904	\$6,642
Number of service retirees	64	204	218	212	278	327	261

Note: HAS is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate "spiking." Some members of the DPS benefit structure, members in the Judicial Division, and members who did not have five years of service credit on December 31, 2019, have different HAS calculations. Please see Note 1 of the Notes to the Financial Statements in the Financial Section for more information.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

(In Actual Dollars)

School Division

Year Retired	Years of Service Credit						
	0-5	5-10	10-15	15-20	20-25	25-30	30+
Period 1/1/2023 to 12/31/2023							
Average monthly benefit	\$118	\$417	\$820	\$1,624	\$2,660	\$4,114	\$5,575
Average highest average salary	\$1,811	\$2,456	\$3,052	\$4,014	\$5,063	\$6,256	\$7,171
Number of service retirees	180	483	385	429	788	591	591
Period 1/1/2022 to 12/31/2022							
Average monthly benefit	\$106	\$431	\$836	\$1,548	\$2,607	\$3,872	\$5,319
Average highest average salary	\$1,634	\$2,516	\$3,055	\$3,768	\$4,922	\$5,908	\$6,789
Number of service retirees	200	466	402	472	810	705	718
Period 1/1/2021 to 12/31/2021							
Average monthly benefit	\$121	\$434	\$839	\$1,536	\$2,489	\$3,730	\$5,225
Average highest average salary	\$1,915	\$2,600	\$3,038	\$3,757	\$4,751	\$5,730	\$6,741
Number of service retirees	151	476	426	477	799	640	707
Period 1/1/2020 to 12/31/2020							
Average monthly benefit	\$85	\$416	\$821	\$1,504	\$2,266	\$3,579	\$5,046
Average highest average salary	\$1,447	\$2,522	\$2,957	\$3,604	\$4,349	\$5,440	\$6,460
Number of service retirees	167	379	464	485	702	564	608
Period 1/1/2019 to 12/31/2019							
Average monthly benefit	\$138	\$396	\$786	\$1,440	\$2,321	\$3,503	\$4,911
Average highest average salary	\$1,981	\$2,339	\$2,854	\$3,519	\$4,428	\$5,374	\$6,356
Number of service retirees	141	366	440	377	635	509	512
Period 1/1/2018 to 12/31/2018							
Average monthly benefit	\$124	\$436	\$805	\$1,440	\$2,254	\$3,580	\$4,833
Average highest average salary	\$1,951	\$2,574	\$2,917	\$3,535	\$4,296	\$5,435	\$6,175
Number of service retirees	122	365	451	474	640	551	541
Period 1/1/2017 to 12/31/2017							
Average monthly benefit	\$185	\$433	\$925	\$1,582	\$2,418	\$3,794	\$4,891
Average highest average salary	\$1,980	\$2,351	\$3,118	\$3,615	\$4,393	\$5,547	\$6,067
Number of service retirees	159	370	463	485	611	590	428
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	\$127	\$430	\$879	\$1,684	\$2,304	\$3,727	\$4,695
Average highest average salary	\$1,796	\$2,325	\$2,924	\$3,799	\$4,156	\$5,388	\$5,851
Number of service retirees	118	384	388	408	565	589	422
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	\$221	\$436	\$899	\$1,565	\$2,400	\$3,682	\$4,621
Average highest average salary	\$2,015	\$2,317	\$3,058	\$3,538	\$4,322	\$5,347	\$5,741
Number of service retirees	110	372	398	397	544	618	395
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	\$194	\$467	\$939	\$1,661	\$2,407	\$3,726	\$4,778
Average highest average salary	\$2,108	\$2,580	\$3,189	\$3,706	\$4,372	\$5,422	\$5,908
Number of service retirees	106	362	401	392	531	597	465

Note: HAS is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate "spiking." Some members of the DPS benefit structure, members in the Judicial Division, and members who did not have five years of service credit on December 31, 2019, have different HAS calculations. Please see Note 1 of the Notes to the Financial Statements in the Financial Section for more information.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

(In Actual Dollars)

Local Government Division

Year Retired	Years of Service Credit						
	0-5	5-10	10-15	15-20	20-25	25-30	30+
Period 1/1/2023 to 12/31/2023							
Average monthly benefit	\$218	\$926	\$1,678	\$2,548	\$3,498	\$4,361	\$6,721
Average highest average salary	\$3,597	\$5,769	\$6,068	\$6,515	\$6,885	\$6,875	\$8,759
Number of service retirees	32	71	59	64	58	51	55
Period 1/1/2022 to 12/31/2022							
Average monthly benefit	\$274	\$790	\$1,568	\$2,475	\$3,579	\$4,662	\$6,077
Average highest average salary	\$3,981	\$5,094	\$5,515	\$6,203	\$6,990	\$7,218	\$7,749
Number of service retirees	37	87	49	63	91	50	48
Period 1/1/2021 to 12/31/2021							
Average monthly benefit	\$211	\$798	\$1,535	\$2,388	\$3,233	\$4,747	\$6,020
Average highest average salary	\$3,890	\$4,900	\$5,714	\$5,572	\$6,306	\$7,384	\$7,580
Number of service retirees	40	99	68	71	77	65	65
Period 1/1/2020 to 12/31/2020							
Average monthly benefit	\$175	\$785	\$1,443	\$2,156	\$3,169	\$4,339	\$5,914
Average highest average salary	\$2,982	\$5,165	\$5,315	\$5,477	\$6,390	\$6,877	\$7,724
Number of service retirees	26	75	50	58	68	60	67
Period 1/1/2019 to 12/31/2019							
Average monthly benefit	\$204	\$737	\$1,336	\$2,127	\$3,042	\$4,447	\$5,849
Average highest average salary	\$3,752	\$4,816	\$5,056	\$5,270	\$6,155	\$7,081	\$7,701
Number of service retirees	26	66	71	62	64	62	54
Period 1/1/2018 to 12/31/2018							
Average monthly benefit	\$224	\$600	\$1,496	\$2,232	\$3,054	\$4,745	\$6,276
Average highest average salary	\$3,698	\$3,820	\$5,655	\$5,428	\$5,865	\$7,485	\$8,237
Number of service retirees	19	63	82	43	76	60	61
Period 1/1/2017 to 12/31/2017							
Average monthly benefit	\$240	\$621	\$1,282	\$2,202	\$3,241	\$4,687	\$5,720
Average highest average salary	\$4,224	\$3,889	\$4,675	\$5,056	\$6,165	\$6,969	\$7,260
Number of service retirees	29	60	72	52	78	54	55
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	\$323	\$686	\$1,401	\$2,195	\$2,761	\$4,569	\$5,378
Average highest average salary	\$4,580	\$4,031	\$5,104	\$5,506	\$5,255	\$6,796	\$6,648
Number of service retirees	15	73	77	49	55	52	46
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	\$252	\$663	\$1,202	\$2,255	\$3,152	\$3,970	\$5,814
Average highest average salary	\$3,727	\$4,141	\$4,581	\$5,481	\$5,960	\$5,896	\$7,317
Number of service retirees	16	64	62	36	76	70	60
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	\$241	\$680	\$1,185	\$2,190	\$3,110	\$4,068	\$4,796
Average highest average salary	\$4,005	\$3,912	\$4,206	\$5,106	\$5,805	\$6,299	\$6,037
Number of service retirees	15	87	63	42	61	59	48

Note: HAS is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate "spiking." Some members of the DPS benefit structure, members in the Judicial Division, and members who did not have five years of service credit on December 31, 2019, have different HAS calculations. Please see Note 1 of the Notes to the Financial Statements in the Financial Section for more information.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

(In Actual Dollars)

Judicial Division

Year Retired	Years of Service Credit						
	0-5	5-10	10-15	15-20	20-25	25-30	30+
Period 1/1/2023 to 12/31/2023							
Average monthly benefit	\$—	\$2,302	\$4,823	\$5,464	\$7,450	\$9,099	\$11,310
Average highest average salary	\$—	\$15,132	\$14,603	\$15,123	\$15,196	\$14,532	\$15,637
Number of service retirees	—	3	2	2	7	6	1
Period 1/1/2022 to 12/31/2022							
Average monthly benefit	\$—	\$3,157	\$5,535	\$6,021	\$7,462	\$8,665	\$11,757
Average highest average salary	\$—	\$15,239	\$15,357	\$15,041	\$14,590	\$14,567	\$14,630
Number of service retirees	—	2	1	3	12	3	3
Period 1/1/2021 to 12/31/2021							
Average monthly benefit	\$230	\$2,878	\$3,366	\$5,796	\$6,473	\$8,659	\$9,838
Average highest average salary	\$2,704	\$15,526	\$12,689	\$14,582	\$12,528	\$13,876	\$13,822
Number of service retirees	1	1	7	3	4	3	9
Period 1/1/2020 to 12/31/2020							
Average monthly benefit	\$—	\$1,655	\$3,737	\$2,485	\$7,289	\$7,859	\$11,031
Average highest average salary	\$—	\$9,117	\$13,912	\$6,658	\$14,385	\$12,619	\$14,277
Number of service retirees	—	2	2	3	6	5	7
Period 1/1/2019 to 12/31/2019							
Average monthly benefit	\$—	\$505	\$3,822	\$5,548	\$6,389	\$9,190	\$11,134
Average highest average salary	\$—	\$4,208	\$13,596	\$13,969	\$13,267	\$13,950	\$13,458
Number of service retirees	—	2	4	7	3	7	3
Period 1/1/2018 to 12/31/2018							
Average monthly benefit	\$—	\$2,763	\$—	\$5,841	\$6,403	\$8,926	\$11,277
Average highest average salary	\$—	\$13,617	\$—	\$13,351	\$13,378	\$13,548	\$15,287
Number of service retirees	—	1	—	1	2	1	2
Period 1/1/2017 to 12/31/2017							
Average monthly benefit	\$—	\$1,929	\$3,419	\$6,000	\$—	\$8,369	\$11,366
Average highest average salary	\$—	\$13,295	\$9,786	\$12,308	\$—	\$12,825	\$13,840
Number of service retirees	—	3	3	2	—	8	8
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	\$679	\$1,868	\$3,471	\$5,044	\$5,641	\$8,291	\$10,086
Average highest average salary	\$6,905	\$12,839	\$12,526	\$12,043	\$11,450	\$13,030	\$13,340
Number of service retirees	2	2	1	6	3	7	5
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	\$—	\$—	\$4,012	\$4,158	\$5,913	\$7,635	\$9,227
Average highest average salary	\$—	\$—	\$13,045	\$11,602	\$11,664	\$12,097	\$12,331
Number of service retirees	—	—	2	1	6	4	6
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	\$—	\$1,505	\$2,767	\$4,432	\$6,197	\$7,806	\$7,287
Average highest average salary	\$—	\$9,209	\$10,444	\$10,910	\$11,182	\$12,370	\$9,350
Number of service retirees	—	3	3	1	4	2	3

Note: HAS is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate "spiking." Some members of the DPS benefit structure, members in the Judicial Division, and members who did not have five years of service credit on December 31, 2019, have different HAS calculations. Please see Note 1 of the Notes to the Financial Statements in the Financial Section for more information.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

(In Actual Dollars)

DPS Division

Year Retired	Years of Service Credit						
	0–5	5–10	10–15	15–20	20–25	25–30	30+
Period 1/1/2023 to 12/31/2023							
Average monthly benefit	\$130	\$617	\$994	\$2,328	\$3,219	\$4,765	\$5,863
Average highest average salary	\$2,460	\$3,729	\$3,298	\$6,163	\$6,503	\$7,592	\$7,833
Number of service retirees	13	42	76	24	29	47	38
Period 1/1/2022 to 12/31/2022							
Average monthly benefit	\$74	\$689	\$967	\$2,058	\$3,604	\$4,384	\$5,983
Average highest average salary	\$1,917	\$3,849	\$3,407	\$5,655	\$6,964	\$6,931	\$7,623
Number of service retirees	10	45	76	24	37	66	39
Period 1/1/2021 to 12/31/2021							
Average monthly benefit	\$116	\$558	\$893	\$2,119	\$2,821	\$4,257	\$5,537
Average highest average salary	\$2,188	\$3,279	\$3,238	\$5,596	\$5,618	\$6,617	\$7,155
Number of service retirees	10	51	52	32	29	45	33
Period 1/1/2020 to 12/31/2020							
Average monthly benefit	\$22	\$595	\$837	\$2,163	\$2,893	\$4,307	\$5,498
Average highest average salary	\$795	\$3,388	\$3,142	\$5,382	\$5,959	\$6,833	\$7,201
Number of service retirees	5	27	61	29	25	35	36
Period 1/1/2019 to 12/31/2019							
Average monthly benefit	\$119	\$519	\$1,361	\$2,205	\$2,644	\$4,237	\$5,801
Average highest average salary	\$2,828	\$3,093	\$5,082	\$5,691	\$5,223	\$6,601	\$7,292
Number of service retirees	8	56	34	28	28	37	32
Period 1/1/2018 to 12/31/2018							
Average monthly benefit	\$77	\$475	\$1,369	\$1,748	\$2,727	\$4,334	\$5,337
Average highest average salary	\$1,890	\$2,972	\$4,821	\$4,714	\$5,464	\$6,788	\$6,831
Number of service retirees	5	65	23	34	35	51	61
Period 1/1/2017 to 12/31/2017							
Average monthly benefit	\$176	\$555	\$1,305	\$2,089	\$3,242	\$4,544	\$5,416
Average highest average salary	\$2,466	\$2,926	\$4,325	\$5,263	\$5,682	\$6,625	\$6,835
Number of service retirees	8	59	21	38	52	58	20
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	\$163	\$611	\$1,462	\$1,989	\$3,415	\$4,133	\$5,342
Average highest average salary	\$1,938	\$3,536	\$4,816	\$4,955	\$6,055	\$5,876	\$6,785
Number of service retirees	4	59	40	60	59	56	24
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	\$230	\$702	\$1,588	\$1,994	\$3,147	\$4,159	\$5,254
Average highest average salary	\$1,908	\$4,275	\$5,022	\$4,808	\$5,523	\$7,318	\$6,391
Number of service retirees	12	55	36	37	60	56	19
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	\$472	\$810	\$1,379	\$2,233	\$3,091	\$4,243	\$4,862
Average highest average salary	\$3,399	\$4,593	\$4,489	\$5,569	\$5,607	\$6,250	\$5,891
Number of service retirees	15	39	44	49	72	44	32

Note: HAS is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate "spiking." Some members of the DPS benefit structure, members in the Judicial Division, and members who did not have five years of service credit on December 31, 2019, have different HAS calculations. Please see Note 1 of the Notes to the Financial Statements in the Financial Section for more information.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

(In Actual Dollars)

All Division Trust Funds

Year Retired	Years of Service Credit						
	0-5	5-10	10-15	15-20	20-25	25-30	30+
Period 1/1/2023 to 12/31/2023							
Average monthly benefit	\$146	\$551	\$1,072	\$1,866	\$2,878	\$4,323	\$5,815
Average highest average salary	\$2,374	\$3,258	\$3,867	\$4,632	\$5,512	\$6,639	\$7,474
Number of service retirees	368	829	728	724	1,146	957	956
Period 1/1/2022 to 12/31/2022							
Average monthly benefit	\$148	\$585	\$1,091	\$1,838	\$2,897	\$4,088	\$5,591
Average highest average salary	\$2,343	\$3,390	\$3,903	\$4,538	\$5,507	\$6,273	\$7,099
Number of service retirees	393	867	786	823	1,315	1,126	1,187
Period 1/1/2021 to 12/31/2021							
Average monthly benefit	\$145	\$578	\$1,081	\$1,798	\$2,734	\$3,983	\$5,499
Average highest average salary	\$2,380	\$3,428	\$3,890	\$4,351	\$5,237	\$6,144	\$7,074
Number of service retirees	312	866	806	825	1,273	1,078	1,235
Period 1/1/2020 to 12/31/2020							
Average monthly benefit	\$130	\$595	\$837	\$2,163	\$2,893	\$4,307	\$5,498
Average highest average salary	\$2,151	\$3,230	\$3,534	\$4,177	\$4,909	\$5,929	\$6,851
Number of service retirees	327	711	839	815	1,134	954	1,077
Period 1/1/2019 to 12/31/2019							
Average monthly benefit	\$147	\$526	\$1,005	\$1,738	\$2,549	\$3,831	\$5,280
Average highest average salary	\$2,408	\$3,128	\$3,670	\$4,264	\$4,919	\$5,919	\$6,798
Number of service retirees	285	719	786	705	1,017	897	926
Period 1/1/2018 to 12/31/2018							
Average monthly benefit	\$142	\$514	\$1,023	\$1,668	\$2,516	\$3,824	\$5,227
Average highest average salary	\$2,373	\$3,070	\$3,671	\$4,090	\$4,829	\$5,876	\$6,691
Number of service retirees	229	775	784	786	1,059	966	1,044
Period 1/1/2017 to 12/31/2017							
Average monthly benefit	\$207	\$553	\$1,088	\$1,819	\$2,707	\$4,102	\$5,302
Average highest average salary	\$2,606	\$3,064	\$3,684	\$4,196	\$4,940	\$6,039	\$6,662
Number of service retirees	298	730	812	848	1,079	1,067	833
Period 1/1/2016 to 12/31/2016							
Average monthly benefit	\$192	\$540	\$1,096	\$1,882	\$2,621	\$3,955	\$5,137
Average highest average salary	\$2,530	\$2,979	\$3,730	\$4,375	\$4,746	\$5,783	\$6,402
Number of service retirees	242	762	739	761	1,001	1,061	816
Period 1/1/2015 to 12/31/2015							
Average monthly benefit	\$231	\$587	\$1,101	\$1,802	\$2,686	\$3,879	\$5,006
Average highest average salary	\$2,445	\$3,198	\$3,753	\$4,112	\$4,848	\$5,738	\$6,225
Number of service retirees	220	737	712	693	979	1,096	804
Period 1/1/2014 to 12/31/2014							
Average monthly benefit	\$229	\$564	\$1,084	\$1,839	\$2,674	\$3,863	\$5,005
Average highest average salary	\$2,620	\$3,135	\$3,641	\$4,207	\$4,875	\$5,674	\$6,165
Number of service retirees	200	695	729	696	946	1,029	809

Note: HAS is defined as one-twelfth of the average of the highest annual salaries associated with three periods of 12 consecutive months of service credit. These three periods are tied to a fourth 12-month period which becomes the base year for the year-to-year increase limitation, which is designed to moderate "spiking." Some members of the DPS benefit structure, members in the Judicial Division, and members who did not have five years of service credit on December 31, 2019, have different HAS calculations. Please see Note 1 of the Notes to the Financial Statements in the Financial Section for more information.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

(In Actual Dollars)

Health Care Trust Fund¹

Year Retired	Years of Service Credit						
	0-5	5-10	10-15	15-20	20-25	25-30	30+
Period 1/1/2023 to 12/31/2023							
Average monthly benefit	\$16	\$50	\$80	\$113	\$151	\$180	\$185
Number of service retirees ²	28	80	112	139	279	209	249
Period 1/1/2022 to 12/31/2022							
Average monthly benefit	\$25	\$57	\$79	\$127	\$167	\$187	\$195
Number of service retirees ²	33	75	111	180	324	271	323
Period 1/1/2021 to 12/31/2021							
Average monthly benefit	\$16	\$55	\$89	\$132	\$190	\$197	\$196
Number of service retirees ²	21	62	130	152	334	286	412
Period 1/1/2020 to 12/31/2020							
Average monthly benefit	\$14	\$60	\$101	\$148	\$189	\$197	\$203
Number of service retirees ²	18	56	106	187	346	325	459
Period 1/1/2019 to 12/31/2019							
Average monthly benefit	\$15	\$57	\$102	\$147	\$195	\$203	\$205
Number of service retirees ²	19	57	120	184	316	319	416
Period 1/1/2018 to 12/31/2018							
Average monthly benefit	\$20	\$62	\$110	\$154	\$201	\$201	\$209
Number of service retirees ²	7	56	131	177	394	365	482

¹ Information is not available prior to 2018. In future reports, additional years will be added until 10 years of historical data are presented.

² Only includes those service retirees participating in PERACare.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

(In Actual Dollars)

DPS Health Care Trust Fund¹

Year Retired	Years of Service Credit						
	0-5	5-10	10-15	15-20	20-25	25-30	30+
Period 1/1/2023 to 12/31/2023							
Average monthly benefit	\$—	\$49	\$81	\$146	\$164	\$215	\$172
Number of service retirees ²	—	2	11	6	7	15	9
Period 1/1/2022 to 12/31/2022							
Average monthly benefit	\$—	\$29	\$75	\$115	\$188	\$186	\$196
Number of service retirees ²	—	2	10	5	10	16	10
Period 1/1/2021 to 12/31/2021							
Average monthly benefit	\$29	\$92	\$85	\$130	\$148	\$203	\$216
Number of service retirees ²	1	1	4	7	5	13	13
Period 1/1/2020 to 12/31/2020							
Average monthly benefit	\$—	\$69	\$78	\$141	\$129	\$212	\$212
Number of service retirees ²	—	1	7	10	8	13	18
Period 1/1/2019 to 12/31/2019							
Average monthly benefit	\$6	\$68	\$99	\$131	\$201	\$208	\$203
Number of service retirees ²	1	4	9	7	13	16	17
Period 1/1/2018 to 12/31/2018							
Average monthly benefit	\$—	\$65	\$67	\$170	\$203	\$208	\$208
Number of service retirees ²	—	8	3	6	13	21	36

¹ Information is not available prior to 2018. In future reports, additional years will be added until 10 years of historical data are presented.

² Only includes those service retirees participating in PERACare.

SCHEDULE OF AVERAGE BENEFIT PAYMENTS

(In Actual Dollars)

All Health Care Trust Funds¹

Year Retired	Years of Service Credit						
	0-5	5-10	10-15	15-20	20-25	25-30	30+
Period 1/1/2023 to 12/31/2023							
Average monthly benefit	\$16	\$50	\$80	\$114	\$152	\$183	\$185
Number of service retirees ²	28	82	123	145	286	224	258
Period 1/1/2022 to 12/31/2022							
Average monthly benefit	\$25	\$56	\$79	\$127	\$168	\$187	\$195
Number of service retirees ²	33	77	121	185	334	287	333
Period 1/1/2021 to 12/31/2021							
Average monthly benefit	\$16	\$56	\$89	\$132	\$190	\$197	\$197
Number of service retirees ²	22	63	134	159	339	299	425
Period 1/1/2020 to 12/31/2020							
Average monthly benefit	\$14	\$60	\$100	\$148	\$187	\$198	\$203
Number of service retirees ²	18	57	113	197	354	338	477
Period 1/1/2019 to 12/31/2019							
Average monthly benefit	\$14	\$58	\$102	\$147	\$195	\$203	\$205
Number of service retirees ²	20	61	129	191	329	335	433
Period 1/1/2018 to 12/31/2018							
Average monthly benefit	\$20	\$62	\$109	\$154	\$201	\$201	\$209
Number of service retirees ²	7	64	134	183	407	386	518

¹ Information is not available prior to 2018. In future reports, additional years will be added until 10 years of historical data are presented.

² Only includes those service retirees participating in PERACare.

SCHEDULE OF CONTRIBUTION RATE HISTORY

State Division (Members other than Safety Officers)¹

		Percent of Covered Payroll						
Years ²		Member Contribution Rate	Employer Contribution Rate ³	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Nonemployer Contribution Rate ⁴	Defined Contribution Supplement ⁵	Total Contribution Rate
1/1/2006	to 12/31/2006	8.00%	10.15%	0.50%	—	—	—	18.65%
1/1/2007	to 12/31/2007	8.00%	10.15%	1.00%	—	—	—	19.15%
1/1/2008	to 12/31/2008	8.00%	10.15%	1.40%	0.50%	—	—	20.05%
1/1/2009	to 12/31/2009	8.00%	10.15%	1.80%	1.00%	—	—	20.95%
1/1/2010	to 6/30/2010	8.00%	10.15%	2.20%	1.50%	—	—	21.85%
7/1/2010	to 12/31/2010	10.50% ⁶	7.65% ⁶	2.20%	1.50%	—	—	21.85%
1/1/2011	to 12/31/2011	10.50% ⁶	7.65% ⁶	2.60%	2.00%	—	—	22.75%
1/1/2012	to 6/30/2012	10.50% ⁶	7.65% ⁶	3.00%	2.50%	—	—	23.65%
7/1/2012	to 12/31/2012	8.00%	10.15%	3.00%	2.50%	—	—	23.65%
1/1/2013	to 12/31/2013	8.00%	10.15%	3.40%	3.00%	—	—	24.55%
1/1/2014	to 12/31/2014	8.00%	10.15%	3.80%	3.50%	—	—	25.45%
1/1/2015	to 12/31/2015	8.00%	10.15%	4.20%	4.00%	—	—	26.35%
1/1/2016	to 12/31/2016	8.00%	10.15%	4.60%	4.50%	—	—	27.25%
1/1/2017	to 12/31/2017	8.00%	10.15%	5.00%	5.00%	—	—	28.15%
1/1/2018	to 12/31/2018	8.00%	10.15%	5.00%	5.00%	2.71%	—	30.86%
1/1/2019	to 6/30/2019	8.00%	10.15%	5.00%	5.00%	2.57%	—	30.72%
7/1/2019	to 12/31/2019	8.75%	10.40%	5.00%	5.00%	2.57%	—	31.72%
1/1/2020	to 6/30/2020	8.75%	10.40%	5.00%	5.00%	— ⁷	—	29.15%
7/1/2020	to 12/31/2020	10.00%	10.90%	5.00%	5.00%	— ⁷	—	30.90%
1/1/2021	to 6/30/2021	10.00%	10.90%	5.00%	5.00%	2.48%	0.05%	33.43%
7/1/2021	to 12/31/2021	10.50%	10.90%	5.00%	5.00%	2.48%	0.05%	33.93%
1/1/2022	to 6/30/2022	10.50%	10.90%	5.00%	5.00%	6.23% ⁸	0.10%	37.73%
7/1/2022	to 12/31/2022	11.00%	11.40%	5.00%	5.00%	6.23% ⁸	0.10%	38.73%
1/1/2023	to 12/31/2023	11.00%	11.40%	5.00%	5.00%	0.45%⁸	0.17%	33.02%

¹ See Note 1 of the Notes to the Financial Statements in the Financial Section for the definition of "Safety Officers".

² This informational schedule begins in 2006, the year the amortization equalization disbursement for employers became effective.

³ All employer contribution rates shown include the Health Care Trust Fund (HCTF) allocation.

⁴ Contributions from a nonemployer contributing entity are required by C.R.S. § 24-51-414 *et seq.* and are remitted to PERA as a single sum in July of each year. For purposes of this schedule, the amount allocated to the State Division is expressed as a percentage of annual covered payroll. If applicable, the amount allocated is shown in both six-month segment contribution summaries for improved comparative analysis to the prior year.

⁵ C.R.S. § 24-51-415 adjusts employer contribution rates for the State Division. See Note 4 of the Notes to the Financial Statements in the Financial Section for additional information.

⁶ Senate Bills 10-146 and 11-076 required member contributions to increase by 2.50% and employer contributions to decrease by 2.50%.

⁷ House Bill 20-1379 suspended the July 2020 contribution from the nonemployer contributing entity for the State's 2020-21 fiscal year.

⁸ In 2022, House Bill 22-1029 required a restorative payment to recompense PERA for the suspended 2020 contribution, which also advanced part of the 2023 contribution.

SCHEDULE OF CONTRIBUTION RATE HISTORY

State Division (Safety Officers)¹

Years ²		Percent of Covered Payroll						
		Member Contribution Rate	Employer Contribution Rate ³	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Nonemployer Contribution Rate ⁴	Defined Contribution Supplement ⁵	Total Contribution Rate
1/1/2006	to 12/31/2006	10.00%	12.85%	0.50%	—	—	—	23.35%
1/1/2007	to 12/31/2007	10.00%	12.85%	1.00%	—	—	—	23.85%
1/1/2008	to 12/31/2008	10.00%	12.85%	1.40%	0.50%	—	—	24.75%
1/1/2009	to 12/31/2009	10.00%	12.85%	1.80%	1.00%	—	—	25.65%
1/1/2010	to 6/30/2010	10.00%	12.85%	2.20%	1.50%	—	—	26.55%
7/1/2010	to 12/31/2010	12.50% ⁶	10.35% ⁶	2.20%	1.50%	—	—	26.55%
1/1/2011	to 12/31/2011	12.50% ⁶	10.35% ⁶	2.60%	2.00%	—	—	27.45%
1/1/2012	to 6/30/2012	12.50% ⁶	10.35% ⁶	3.00%	2.50%	—	—	28.35%
7/1/2012	to 12/31/2012	10.00%	12.85%	3.00%	2.50%	—	—	28.35%
1/1/2013	to 12/31/2013	10.00%	12.85%	3.40%	3.00%	—	—	29.25%
1/1/2014	to 12/31/2014	10.00%	12.85%	3.80%	3.50%	—	—	30.15%
1/1/2015	to 12/31/2015	10.00%	12.85%	4.20%	4.00%	—	—	31.05%
1/1/2016	to 12/31/2016	10.00%	12.85%	4.60%	4.50%	—	—	31.95%
1/1/2017	to 12/31/2017	10.00%	12.85%	5.00%	5.00%	—	—	32.85%
1/1/2018	to 12/31/2018	10.00%	12.85%	5.00%	5.00%	2.71%	—	35.56%
1/1/2019	to 6/30/2019	10.00%	12.85%	5.00%	5.00%	2.57%	—	35.42%
7/1/2019	to 12/31/2019	10.75%	13.10%	5.00%	5.00%	2.57%	—	36.42%
1/1/2020	to 6/30/2020	10.75%	13.10%	5.00%	5.00%	— ⁷	—	33.85%
7/1/2020	to 12/31/2020	12.00%	13.60%	5.00%	5.00%	— ⁷	—	35.60%
1/1/2021	to 6/30/2021	12.00%	13.60%	5.00%	5.00%	2.48%	0.05%	38.13%
7/1/2021	to 12/31/2021	12.50%	13.60%	5.00%	5.00%	2.48%	0.05%	38.63%
1/1/2022	to 6/30/2022	12.50%	13.60%	5.00%	5.00%	6.23% ⁸	0.10%	42.43%
7/1/2022	to 12/31/2022	13.00%	14.10%	5.00%	5.00%	6.23% ⁸	0.10%	43.43%
1/1/2023	to 12/31/2023	13.00%	14.10%	5.00%	5.00%	0.45%⁸	0.17%	37.72%

¹ See Note 1 of the Notes to the Financial Statements in the Financial Section for the definition of "Safety Officers".

² This informational schedule begins in 2006, the year the amortization equalization disbursement for employers became effective.

³ All employer contribution rates shown include the HCTF allocation.

⁴ Contributions from a nonemployer contributing entity are required by C.R.S. § 24-51-414 *et seq.* and are remitted to PERA as a single sum in July of each year. For purposes of this schedule, the amount allocated to the State Division is expressed as a percentage of annual covered payroll. If applicable, the amount allocated is shown in both six-month segment contribution summaries for improved comparative analysis to the prior year.

⁵ C.R.S. § 24-51-415 adjusts employer contribution rates for the State Division. See Note 4 of the Notes to the Financial Statements in the Financial Section for additional information.

⁶ Senate Bills 10-146 and 11-076 required member contributions to increase by 2.50% and employer contributions to decrease by 2.50%.

⁷ House Bill 20-1379 suspended the July 2020 contribution from the nonemployer contributing entity for the State's 2020-21 fiscal year.

⁸ In 2022, House Bill 22-1029 required a restorative payment to recompense PERA for the suspended 2020 contribution, which also advanced part of the 2023 contribution.

SCHEDULE OF CONTRIBUTION RATE HISTORY

School Division

		Percent of Covered Payroll					
Years ¹		Member Contribution Rate	Employer Contribution Rate ²	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Nonemployer Contribution Rate ³	Total Contribution Rate
1/1/2006	to 12/31/2006	8.00%	10.15%	0.50%	—	—	18.65%
1/1/2007	to 12/31/2007	8.00%	10.15%	1.00%	—	—	19.15%
1/1/2008	to 12/31/2008	8.00%	10.15%	1.40%	0.50%	—	20.05%
1/1/2009	to 12/31/2009	8.00%	10.15%	1.80%	1.00%	—	20.95%
1/1/2010	to 12/31/2010	8.00%	10.15%	2.20%	1.50%	—	21.85%
1/1/2011	to 12/31/2011	8.00%	10.15%	2.60%	2.00%	—	22.75%
1/1/2012	to 12/31/2012	8.00%	10.15%	3.00%	2.50%	—	23.65%
1/1/2013	to 12/31/2013	8.00%	10.15%	3.40%	3.00%	—	24.55%
1/1/2014	to 12/31/2014	8.00%	10.15%	3.80%	3.50%	—	25.45%
1/1/2015	to 12/31/2015	8.00%	10.15%	4.20%	4.00%	—	26.35%
1/1/2016	to 12/31/2016	8.00%	10.15%	4.50%	4.50%	—	27.15%
1/1/2017	to 12/31/2017	8.00%	10.15%	4.50%	5.00%	—	27.65%
1/1/2018	to 12/31/2018	8.00%	10.15%	4.50%	5.50%	2.64%	30.79%
1/1/2019	to 6/30/2019	8.00%	10.15%	4.50%	5.50%	2.50%	30.65%
7/1/2019	to 12/31/2019	8.75%	10.40%	4.50%	5.50%	2.50%	31.65%
1/1/2020	to 6/30/2020	8.75%	10.40%	4.50%	5.50%	— ⁴	29.15%
7/1/2020	to 12/31/2020	10.00%	10.90%	4.50%	5.50%	— ⁴	30.90%
1/1/2021	to 6/30/2021	10.00%	10.90%	4.50%	5.50%	2.34%	33.24%
7/1/2021	to 12/31/2021	10.50%	10.90%	4.50%	5.50%	2.34%	33.74%
1/1/2022	to 6/30/2022	10.50%	10.90%	4.50%	5.50%	6.18% ⁵	37.58%
7/1/2022	to 12/31/2022	11.00%	11.40%	4.50%	5.50%	6.18% ⁵	38.58%
1/1/2023	to 12/31/2023	11.00%	11.40%	4.50%	5.50%	0.47%⁵	32.87%

¹ This informational schedule begins in 2006, the year the amortization equalization disbursement for employers became effective.

² All employer contribution rates include the HCTF allocation.

³ Contributions from a nonemployer contributing entity are required by C.R.S. § 24-51-414 *et seq.* and are remitted to PERA as a single sum in July of each year. For purposes of this schedule, the amount allocated to the School Division is expressed as a percentage of annual covered payroll. If applicable, the amount allocated is shown in both six-month segment contribution summaries for improved comparative analysis to the prior year.

⁴ House Bill 20-1379 suspended the July 2020 contribution from the nonemployer contributing entity for the State's 2020-21 fiscal year.

⁵ In 2022, House Bill 22-1029 required a restorative payment to recompense PERA for the suspended 2020 contribution, which also advanced part of the 2023 contribution.

SCHEDULE OF CONTRIBUTION RATE HISTORY

Local Government Division (Members other than Safety Officers)¹

		Percent of Covered Payroll					
Years ²		Member Contribution Rate	Employer Contribution Rate ³	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Defined Contribution Supplement ⁴	Total Contribution Rate
1/1/2006	to 12/31/2006	8.00%	10.00%	0.50%	—	—	18.50%
1/1/2007	to 12/31/2007	8.00%	10.00%	1.00%	—	—	19.00%
1/1/2008	to 12/31/2008	8.00%	10.00%	1.40%	0.50%	—	19.90%
1/1/2009	to 12/31/2009	8.00%	10.00%	1.80%	1.00%	—	20.80%
1/1/2010	to 6/30/2020	8.00%	10.00%	2.20%	1.50%	—	21.70%
7/1/2020	to 12/31/2020	8.50%	10.50%	2.20%	1.50%	—	22.70%
1/1/2021	to 12/31/2021	8.50%	10.50%	2.20%	1.50%	0.02%	22.72%
1/1/2022	to 6/30/2022	8.50%	10.50%	2.20%	1.50%	0.03%	22.73%
7/1/2022	to 12/31/2022	9.00%	11.00%	2.20%	1.50%	0.03%	23.73%
1/1/2023	to 12/31/2023	9.00%	11.00%	2.20%	1.50%	0.06%	23.76%

¹ See Note 1 of the Notes to the Financial Statements in the Financial Section for the definition of "Safety Officers".

² This informational schedule begins in 2006, the year the amortization equalization disbursement for employers became effective.

³ All employer contribution rates include the HCTF allocation.

⁴ C.R.S. § 24-51-415 adjusts employer contribution rates for the Local Government Division. See Note 4 of the Notes to the Financial Statements in the Financial Section for additional information.

Local Government Division (Safety Officers)¹

		Percent of Covered Payroll					
Years		Member Contribution Rate	Employer Contribution Rate ²	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Defined Contribution Supplement ³	Total Contribution Rate
1/1/2020	to 6/30/2020	10.75%	13.10%	2.20%	1.50%	—	27.55%
7/1/2020	to 12/31/2020	12.00%	13.60%	2.20%	1.50%	—	29.30%
1/1/2021	to 6/30/2021	12.00%	13.60%	2.20%	1.50%	0.02%	29.32%
7/1/2021	to 12/31/2021	12.50%	13.60%	2.20%	1.50%	0.02%	29.82%
1/1/2022	to 6/30/2022	12.50%	13.60%	2.20%	1.50%	0.03%	29.83%
7/1/2022	to 12/31/2022	13.00%	14.10%	2.20%	1.50%	0.03%	30.83%
1/1/2023	to 12/31/2023	13.00%	14.10%	2.20%	1.50%	0.06%	30.86%

¹ C.R.S. § 24-51-101 (46), as amended, expanded the definition of "Safety Officers" to include certain employees within the Local Government Division. See Note 1 of the Notes to the Financial Statements in the Financial Section for the definition of "Safety Officers".

² All employer contribution rates include the HCTF allocation.

³ C.R.S. § 24-51-415 adjusts employer contribution rates for the Local Government Division. See Note 4 of the Notes to the Financial Statements in the Financial Section for additional information.

SCHEDULE OF CONTRIBUTION RATE HISTORY

Judicial Division

Years ¹	Percent of Covered Payroll					
	Member Contribution Rate	Employer Contribution Rate ²	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Nonemployer Contribution Rate ³	Total Contribution Rate
1/1/2006 to 12/31/2006	8.00%	13.66%	0.50%	—	—	22.16%
1/1/2007 to 12/31/2007	8.00%	13.66%	1.00%	—	—	22.66%
1/1/2008 to 12/31/2008	8.00%	13.66%	1.40%	0.50%	—	23.56%
1/1/2009 to 12/31/2009	8.00%	13.66%	1.80%	1.00%	—	24.46%
1/1/2010 to 6/30/2010	8.00%	13.66%	2.20%	1.50%	—	25.36%
7/1/2010 to 6/30/2012	10.50% ⁴	11.16% ⁴	2.20%	1.50%	—	25.36%
7/1/2012 to 12/31/2017	8.00%	13.66%	2.20%	1.50%	—	25.36%
1/1/2018 to 12/31/2018	8.00%	13.66%	2.20%	1.50%	2.74%	28.10%
1/1/2019 to 6/30/2019	8.00%	13.66%	3.40%	3.40%	2.51%	30.97%
7/1/2019 to 12/31/2019	8.75%	13.91%	3.40%	3.40%	2.51%	31.97%
1/1/2020 to 6/30/2020	8.75%	13.91%	3.80%	3.80%	— ⁵	30.26%
7/1/2020 to 12/31/2020	15.00% ⁶ / 10.00% ⁷	9.41% ⁶ / 14.41% ⁷	3.80%	3.80%	— ⁵	32.01%
1/1/2021 to 6/30/2021	15.00% ⁶ / 10.00% ⁷	9.41% ⁶ / 14.41% ⁷	4.20%	4.20%	2.44%	35.25%
7/1/2021 to 12/31/2021	15.50% ⁶ / 10.50% ⁷	9.41% ⁶ / 14.41% ⁷	4.20%	4.20%	2.44%	35.75%
1/1/2022 to 6/30/2022	15.50% ⁶ / 10.50% ⁷	9.41% ⁶ / 14.41% ⁷	4.60%	4.60%	6.32% ⁸	40.43%
7/1/2022 to 12/31/2022	11.00%	14.91%	4.60%	4.60%	6.32% ⁸	41.43%
1/1/2023 to 12/31/2023	11.00%	14.91%	5.00%	5.00%	0.48%⁸	36.39%

¹ This informational schedule begins in 2006, the year the amortization equalization disbursement for employers became effective.

² All employer contribution rates include the HCTF allocation.

³ Contributions from a nonemployer contributing entity are required by C.R.S. § 24-51-414 *et seq.* and are remitted to PERA as a single sum in July of each year. For purposes of this schedule, the amount allocated to the Judicial Division is expressed as a percentage of annual covered payroll. If applicable, the amount allocated is shown in both six-month segment contribution summaries for improved comparative analysis to the prior year.

⁴ Senate Bills 10-146 and 11-076 required member contributions to increase by 2.50% and employer contributions to decrease by 2.50%.

⁵ House Bill 20-1379 suspended the July 2020 contribution from the nonemployer contributing entity for the State's 2020-21 fiscal year.

⁶ House Bill 20-1394 required member contributions to increase by 5.00% and employer contributions to decrease by 5.00% for all members of the Judicial Division except those employed by the Denver County Court.

⁷ Contribution rates for members of the Judicial Division employed by the Denver County Court.

⁸ In 2022, House Bill 22-1029 required a restorative payment to recompense PERA for the suspended 2020 contribution, which also advanced part of the 2023 contribution.

SCHEDULE OF CONTRIBUTION RATE HISTORY

DPS Division¹

		Percent of Covered Payroll						
Years		Member Contribution Rate	Employer Contribution Rate ²	Amortization Equalization Disbursement	Supplemental Amortization Equalization Disbursement	Employer Contribution PCOP Offset ³	Nonemployer Contribution Rate ⁴	Total Contribution Rate
1/1/2010	to 12/31/2010	8.00%	13.75%	2.20%	1.50%	(15.04%)	—	10.41%
1/1/2011	to 12/31/2011	8.00%	13.75%	2.60%	2.00%	(14.72%)	—	11.63%
1/1/2012	to 12/31/2012	8.00%	13.75%	3.00%	2.50%	(15.37%)	—	11.88%
1/1/2013	to 12/31/2013	8.00%	13.75%	3.40%	3.00%	(14.51%)	—	13.64%
1/1/2014	to 12/31/2014	8.00%	13.75%	3.80%	3.50%	(16.89%)	—	12.16%
1/1/2015	to 12/31/2015	8.00%	10.15% ⁵	4.20%	4.00%	(15.97%)	—	10.38%
1/1/2016	to 12/31/2016	8.00%	10.15%	4.50%	4.50%	(15.54%)	—	11.61%
1/1/2017	to 12/31/2017	8.00%	10.15%	4.50%	5.00%	(14.56%)	—	13.09%
1/1/2018	to 12/31/2018	8.00%	10.15%	4.50%	5.50%	(14.18%)	2.58%	16.55%
1/1/2019	to 6/30/2019	8.00%	10.15%	4.50%	5.50%	(13.35%) ⁶	2.61%	17.41%
7/1/2019	to 12/31/2019	8.75%	10.40%	4.50%	5.50%	(13.60%) ⁶	2.61%	18.16%
1/1/2020	to 6/30/2020	8.75%	10.40%	4.50%	5.50%	(12.25%) ⁶	— ⁷	16.90%
7/1/2020	to 12/31/2020	10.00%	10.90%	4.50%	5.50%	(12.75%) ⁶	— ⁷	18.15%
1/1/2021	to 6/30/2021	10.00%	10.90%	4.50%	5.50%	(12.09%)	2.33%	21.14%
7/1/2021	to 12/31/2021	10.50%	10.90%	4.50%	5.50%	(12.09%)	2.33%	21.64%
1/1/2022	to 6/30/2022	10.50%	10.90%	4.50%	5.50%	(11.22%) ⁶	6.51% ⁸	26.69%
7/1/2022	to 12/31/2022	11.00%	11.40%	4.50%	5.50%	(11.72%) ⁶	6.51% ⁸	27.19%
1/1/2023	to 12/31/2023	11.00%	11.40%	4.50%	5.50%	(10.93%)	0.46%⁸	21.93%

¹ The DPS Division Trust Fund was established on January 1, 2010, and received the net assets of the DPSRS.

² All employer contribution rates include the DPS HCTF allocation.

³ An offset to the DPS Division rate is provided for under C.R.S. § 24-51-412. See Note 4 of the Notes to the Financial Statements in the Financial Section.

⁴ Contributions from a nonemployer contributing entity are required by C.R.S. § 24-51-414 *et seq.* and are remitted to PERA as a single sum in July of each year. For purposes of this schedule, the amount allocated to the DPS Division is expressed as a percentage of annual covered payroll. If applicable, the amount allocated is shown in both six-month segment contribution summaries for improved comparative analysis to the prior year.

⁵ On June 3, 2015, House Bill 15-1391 reduced the employer contribution rate with a retroactive effective date of January 1, 2015.

⁶ To conform with this presentation of contribution rates, the annual PCOP offset for the calendar year has been adjusted based on the portion of the PCOP offset used to satisfy employer contribution requirements for each-six month segment.

⁷ House Bill 20-1379 suspended the July 2020 contribution from the nonemployer contributing entity for the State's 2020-21 fiscal year.

⁸ In 2022, House Bill 22-1029 required a restorative payment to recompense PERA for the suspended 2020 contribution, which also advanced part of the 2023 contribution.

Employer Contributions to Health Care Trust Funds

Division/Years		Percent of Covered Payroll Allocated from Employer Contribution to Health Care Trust Funds
State Division		
1/1/2006	to 12/31/2023	1.02%
School Division		
1/1/2006	to 12/31/2023	1.02%
Local Government Division		
1/1/2006	to 12/31/2023	1.02%
Judicial Division		
1/1/2006	to 12/31/2023	1.02%
DPS Division¹		
1/1/2010	to 12/31/2023	1.02%

¹ The DPS HCTF was established on January 1, 2010, and received the balance of the Denver Public Schools Retiree Health Benefit Trust.

PRINCIPAL PARTICIPATING EMPLOYERS

State Division Trust Fund¹

Employer	2023			2014		
	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
State of Colorado	51,975	1	96.81%	50,508	1	91.33%

School Division Trust Fund¹

Employer	2023			2014		
	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
Jefferson County School District R-1	11,897	1	9.07%	12,184	1	10.19%
Douglas County School District Re 1	9,208	2	7.02%	8,345	2	6.98%
Cherry Creek School District 5	8,633	3	6.58%	7,670	3	6.41%
Adams-Arapahoe School District 28J	5,768	4	4.40%	5,453	4	4.56%
Adams 12 Five Star Schools	5,476	5	4.17%	5,261	5	4.40%
Poudre School District R-1	5,271	6	4.02%	4,425	7	3.70%
Boulder Valley School District RE2	4,899	7	3.73%	4,678	6	3.91%
St. Vrain Valley School District RE1J	4,786	8	3.65%	4,189	9	3.50%
Academy School District #20	4,238	9	3.23%	3,660	10	3.06%
Colorado Springs School District 11	4,140	10	3.16%	4,292	8	3.59%

Local Government Division Trust Fund¹

Employer	2023			2014		
	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
City of Colorado Springs	3,591	1	28.28%	3,054	1	25.27%
Boulder County Government	2,313	2	18.21%	2,067	2	17.11%
City of Boulder	1,558	3	12.27%	1,413	3	11.69%

Judicial Division Trust Fund¹

Employer	2023			2014		
	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
Judicial Department	341	1	98.27%	318	1	95.21%

DPS Division Trust Fund¹

Employer	2023			2014		
	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
Denver Public School District No. 1	15,626	1	100.00%	15,414	1	100.00%

¹ The employer counts are presented for purposes of complying with GASB 67 only, which classifies a primary government and its component units as one employer. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

PRINCIPAL PARTICIPATING EMPLOYERS (CONTINUED)

Health Care Trust Fund^{1,2}

Employer	2023			2017		
	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
State of Colorado	51,975	1	26.26%	51,022	1	26.60%
Jefferson County School District R-1	11,897	2	6.01%	12,295	2	6.41%
Douglas County School District Re 1	9,208	3	4.65%	9,100	3	4.75%
Cherry Creek School District 5	8,633	4	4.36%	7,929	4	4.13%
Adams-Arapahoe School District 28J	5,768	5	2.91%	5,271	5	2.75%
Adams 12 Five Star Schools	5,476	6	2.77%	5,075	6	2.65%
Poudre School District R-1	5,271	7	2.66%			
Boulder Valley School District RE2	4,899	8	2.48%	4,763	7	2.48%
Colorado Springs School District 11				4,448	8	2.32%

DPS Health Care Trust Fund^{1,2}

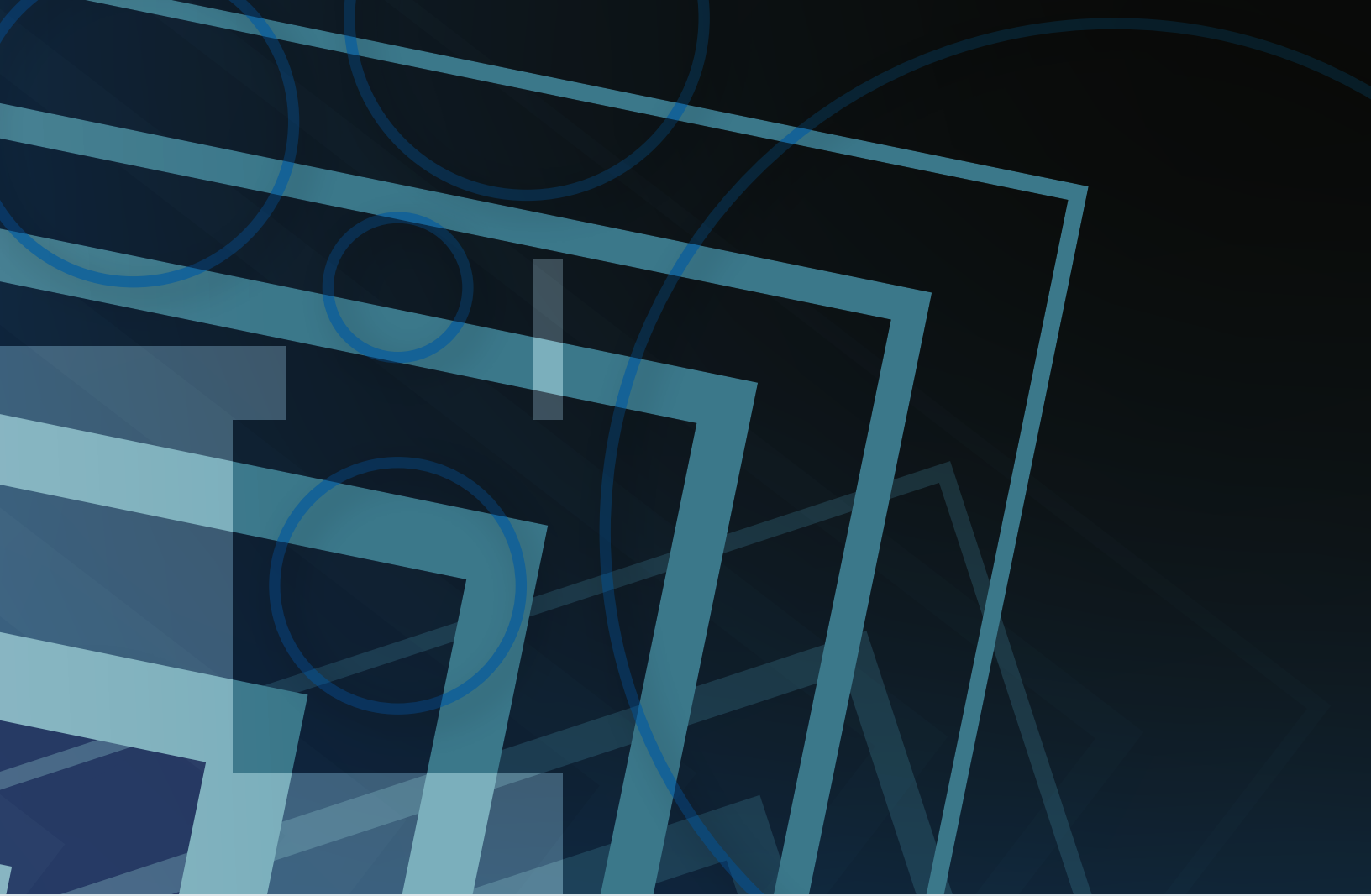
Employer	2023			2017		
	Covered Active Members December 31	Rank	Percentage of Total System	Covered Active Members December 31	Rank	Percentage of Total System
Denver Public School District No. 1	15,626	1	100.00%	15,991	1	100.00%

¹ Guidance under GASB Statement No. 74 classifies a primary government and its component units as one employer. Due to this change, data for the number of members by employer for years prior to 2017 is not available.

² This employer count is presented for purposes of complying with GASB 74 only. For all other purposes, the definition of an employer is governed by Title 24, Article 51 of the C.R.S., PERA's Rules, 8 CCR 1502-1, and, if applicable, the employer's affiliation agreement with PERA.

AFFILIATED EMPLOYERS LIST

A list of affiliated employers can be found on PERA's website on the Employers Page under Affiliating with PERA.



Acronym Section





AAL	Actuarial Accrued Liability	GASB	Governmental Accounting Standards Board
AAP	Automatic Adjustment Provision	GDP	Gross Domestic Product
ACFR	Annual Comprehensive Financial Report	HAS	Highest Average Salary
ADC	Actuarially Determined Contribution	HB	House Bill
AED	Amortization Equalization Disbursement	HCTF	Health Care Trust Fund
AI	Annual Increase	IRC	Internal Revenue Code
AIR	Annual Increase Reserve	MBS	Mortgage-Backed Securities
ASOP	Actuarial Standards of Practice	MD&A	Management's Discussion and Analysis
BOCES	Boards of Cooperative Educational Services	NAV	Net Asset Value
CAPs	Capital Accumulation Plans	NOA	Net OPEB Asset
CIF	Combined Investment Fund	NOL	Net OPEB Liability
CMBS	Commercial Mortgage-Backed Securities	NPA	Net Pension Asset
COF	Common Operating Fund	NPL	Net Pension Liability
C.R.S.	Colorado Revised Statutes	OPEB	Other Postemployment Benefit
DB	Defined Benefit	PCOP	Pension Certificates of Participation
DC	Defined Contribution	RSI	Required Supplementary Information
DC Plan	Defined Contribution Retirement Plan	SAED	Supplemental Amortization Equalization Disbursement
DPS	Denver Public Schools	SB	Senate Bill
DPS HCTF . . .	Denver Public Schools Health Care Trust Fund	SBITAs	Subscription-Based Information Technology Arrangements
DPSRS	Denver Public Schools Retirement System	SEIR	Single Equivalent Interest Rate
EA	Entry Age Actuarial Cost Method	SRI	Socially Responsible Investment
ESG	Environmental, Social, and Governance	TOL	Total OPEB Liability
FNP	Fiduciary Net Position	TPL	Total Pension Liability
GAAP	Generally Accepted Accounting Principles	UAAL	Unfunded Actuarial Accrued Liability







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5/20 (REV 6-24)