Contra Costa County Employees' Retirement Association

2022 ANNUAL COMPREHENSIVE FINANCIAL REPORT

FOR THE YEAR ENDED
- DECEMBER 31, 2022 -

A Pension Trust Fund and Component Unit of the County of Contra Costa California and Participating Employers

CONCORD, CALIFORNIA

CCCERA's mission is to administer pension benefits earned by our members and to be prudent stewards of plan assets.

2022 ANNUAL COMPREHENSIVE FINANCIAL REPORT
For the Year Ended December 31, 2022

Issued by:

GAIL STROHL
Chief Executive Officer

HENRY J. GUDINO, CPA
Accounting Manager

Contra Costa County Employees' Retirement Association
1200 Concord Avenue, Suite 300
Concord, California 94520

www.cccera.org

A Pension Trust Fund and Component Unit of the
County of Contra Costa California and Participating Employers

TABLE OF CONTENTS

INTRODUCTORY SECTION

7 Letter of Transmittal
15 Retirement Board
16 Professional Consultants
17 Administrative Organization Chart
18 GFOA Certificate of Achievement Award
19 PPCC Public Pension Standards Award

FINANCIAL SECTION

21 Independent Auditor's Report
24 Management's Discussion and Analysis (MD&A)

Basic Financial Statements

33 Statement of Fiduciary Net Position
34 Statement of Changes in Fiduciary Net Position
35 Notes to the Financial Statements

Required Supplementary Information

Pension Plan

65 Schedule of Changes in Net Pension Liability (Asset) and Related Ratios
67 Schedule of Employer Contributions
67 Schedule of Investment Returns
68 Notes to the Required Supplementary Information

Other Supplementary Information

70 Schedule of Administrative Expenses
71 Schedule of Investment Expenses
72 Schedule of Payments to Consultants

TABLE OF CONTENTS (continued)

INVESTMENT SECTION

75 Chief Investment Officer's Report
77 General Information
78 Asset Allocation
80 Investment Results Based on Fair Value
81 Investment Managers
82 Investment Summary
83 Schedule of Investment Management Fees
84 Schedule of Brokerage Commissions
85 Schedules of Top Ten Equities and Fixed Income Securities

ACTUARIAL SECTION

87 Actuary Certification Letter
90 Schedule of Funding Progress
91 Latest Actuarial Valuation Methods and Assumptions
95 Summary of December 31, 2021 Valuation Results
96 Summary of Significant Results
97 Schedule of Active Member Valuation Data
98 Schedule of Funded Liabilities by Type
99 Retirants and Beneficiaries Added To and Removed From Retiree Payroll
100 Actuarial Analysis of Financial Experience
101 Summary of Major Pension Plan Provisions
108 OPEB Certification Letter
110 OPEB Schedule of Funding Progress
111 OPEB Key Methods and Assumptions
112 Summary of OPEB Benefits

STATISTICAL SECTION

115 Summary of Statistical Data
116 Changes in Fiduciary Net Position for Years 2013-2022
117 Schedule of Benefit Expenses by Type
118 Schedule of Retired Members by Type of Benefit
119 Schedule of Average Benefit Payment Amounts
125 Participating Employers and Active Members for Years 2013-2022
126 CCCERA OPEB Trust Plan - Changes in Fiduciary Net Position and Participant Data

PAGE INTENTIONALLY LEFT BLANK.

INTRODUCTORY SECTION

LETTER OF TRANSMITTAL

June 14, 2023

Board of Retirement
Contra Costa County Employees' Retirement Association
1200 Concord Avenue, Suite 300
Concord, CA 94520-5728

Dear Board Members:

I am pleased to present the Contra Costa County Employees' Retirement Association's (CCCERA) Annual Comprehensive Financial Report (ACFR) for the year ended December 31, 2022, the 77th year of operation.

CCCERA is a public employee retirement system that was established by the County of Contra Costa (the County) on July 1, 1945, and is administered by the Board of Retirement (Board) to provide service retirement, disability, death, and survivor benefits for County employees and 15 other participating agencies under the California State Government Code, Section 31450 et seq. (County Employees Retirement Law of 1937) and Section 7522 et seq. (California Public Employees' Pension Reform Act of 2013).

REPORT CONTENTS

CCCERA management is responsible for both the accuracy of the data and the completeness and fairness of the presentation of financial information within this Annual Report, including all disclosures. The Annual Report is divided into five sections:

The INTRODUCTORY SECTION includes a description of CCCERA's management and organizational structure, a letter of transmittal, a listing of the members of the Board, and a listing of professional consultants.

The FINANCIAL SECTION presents the financial condition and funding status of CCCERA. This section contains the opinion of the independent certified public accountants, Brown Armstrong Accountancy Corporation, Management's Discussion and Analysis of CCCERA's financial activities, the financial statements, and the related supplementary financial information.

The INVESTMENT SECTION provides an overview of CCCERA's investment program. This section contains reports on investment activity, investment policies, investment results, and various investment schedules, charts, and graphs.

The ACTUARIAL SECTION communicates CCCERA's funding status and presents other actuarial related information including Other Post-Employment Benefits (OPEB). This section contains the certification of the consulting actuary, Segal Consulting, actuarial statistics, and general plan provisions.

The STATISTICAL SECTION presents information on CCCERA's operations on a multi-year basis.

CCCERA AND ITS SERVICES

CCCERA was established on July 1, 1945, to provide retirement allowances and other benefits to the safety and general members employed by the County. Currently, CCCERA has 16 participating employers and district agencies which include:

- County of Contra Costa
- Bethel Island Municipal Improvement District
- Byron-Brentwood-Knightsen Union Cemetery District
- Central Contra Costa Sanitary District
- Contra Costa County Employees' Retirement Association
- Contra Costa County Fire Protection District
- Contra Costa Mosquito and Vector Control District
- First 5 – Contra Costa Children & Families Commission
- Housing Authority of the County of Contra Costa
- In-Home Supportive Services Public Authority (IHSS)
- Local Agency Formation Commission (LAFCO)
- Moraga-Orinda Fire Protection District
- Rodeo-Hercules Fire Protection District
- Rodeo Sanitary District
- San Ramon Valley Fire Protection District
- Superior Court of California, County of Contra Costa

In addition, CCCERA administers retirement, disability, or survivor benefits to retirees or beneficiaries of the following former participating agencies:

- Alamo-Lafayette Cemetery District
- City of Pittsburg
- Delta Diablo Sanitation District
- Diablo Water District
- Ironhouse Sanitary District
- Kensington Fire Protection District
- Superintendent of Schools - Contra Costa County Office of Education
- Stege Sanitary District

CCCERA is governed by the California Constitution, the County Employees Retirement Law of 1937 (CERL), the California Public Employees' Pension Reform Act of 2013 (PEPRA), and the regulations, procedures, and policies adopted by CCCERA's Board of Retirement. The Contra Costa County Board of Supervisors may also adopt resolutions, as permitted by CERL, which may affect benefits of CCCERA members.

The 12 member Board of Retirement is responsible for the general management of CCCERA. Of the 12 members, three are alternates, one for the appointed members, one for safety, and one for retirees. Five board members are appointed by the Contra Costa County Board of Supervisors, one as an alternate. Four board members, including the safety alternate, are elected by CCCERA's active membership. Two board members are elected by the retirees, one as an alternate. The County Treasurer serves as an ex-officio member. Board members, with the exception of the County Treasurer, serve three-year terms in office, with no term limits.

FINANCIAL INFORMATION

This report has been prepared in accordance with generally accepted accounting principles (GAAP) in the United States of America as promulgated by the Governmental Accounting Standards Board (GASB). GAAP requires that management provide a narrative introduction, overview, and analysis to accompany the basic financial statements in the form of management's discussion and analysis ("MD&A"). This letter of transmittal is designed to complement the MD&A and should be read in conjunction with it. CCCERA's MD&A can be found immediately following the independent auditor's report.

Management of CCCERA is responsible for establishing and maintaining an internal control structure designed to ensure CCCERA's assets are protected from loss, theft, or misuse. The internal controls are designed to provide reasonable, but not absolute, assurance that these objectives are met. Reasonable assurance recognizes the cost of a control relative to the benefits likely to be derived and that these judgments by management are based on estimates. Responsibility for the accuracy, completeness, fair representation of information and all disclosures rests with CCCERA's management. The accounting firm of Brown Armstrong Accountancy Corporation, a certified public accounting firm, provides financial statement independent audit services to CCCERA. The financial audit provides reasonable assurance that CCCERA's financial statements are presented in conformity with GAAP and are free from material misstatement.

ACTUARIAL FUNDING STATUS

CCCERA contracts with an independent actuarial consulting firm, Segal Consulting, to act as the pension plan's actuary and conduct annual actuarial valuations, which are presented to the Board annually. On a triennial basis, the actuary also conducts an experience study of the members of CCCERA and makes recommendations to the Board on all economic and non-economic assumptions. The most recent triennial experience study is for the three-year period ended December 31, 2020 which will be used in the preparation of the December 31, 2022 valuation report anticipated to be completed by August 2023.

CCCERA's funding objective is to meet long-term defined benefit obligations through contributions and investment income. Funds are derived from the excess of additions, which include contributions and investment earnings, over deductions, which are comprised of benefits and administrative expenses. Funds are accumulated to meet future benefit obligations to retirees and beneficiaries. This accumulated balance is referred to as the "net position-restricted for benefits" in the Statement of Fiduciary Net Position in the Financial Section of the report. Due to GASB Statement No. 67, the total pension liability is not reported in the basic financial statements but is disclosed in Note 6, *Net Pension Liability (Asset)* to the basic financial statements and in the required supplementary information. The total pension liability is determined by the pension plan's actuary and is a measure of the present value of actuarial accrued liabilities estimated to be payable in the future to current retirees, beneficiaries, and active members for service earned to date. The net pension liability (asset) is measured as the total pension liability less the amount of the pension plan's fiduciary net position. The net pension liability (asset) is an accounting measurement for financial statement purposes.

Segal Consulting's most recent actuarial valuation as of December 31, 2021, determined the funding ratio to be 92.4%, an increase of 0.6% over the prior year, using approved assumptions. This ratio compares the actuarial value of assets of the pension plan to the actuarial accrued liabilities of the pension plan. For a more in-depth review of the funding of the pension plan, see the Actuarial Section of this report on page 86.

For fiscal years ending December 31, 2022 and 2021, CCCERA, as an employer for its staff, contracted with Milliman Inc. to prepare a biennial full and roll-forward actuarial valuation of Other Post-Employment Benefits (OPEB) liabilities in accordance with GASB Statement Nos. 74 and 75, including the creation in 2018 of an IRS Section 115 Trust for pre-funding purposes. More information about OPEB liabilities and funding of the trust may be found in Note 7, *Other Post-Employment Benefits (OPEB) Liability and Section 115 Trust* and in the Actuarial Section of this report.

INVESTMENTS

The Board maintains exclusive control of all retirement system investments and is responsible for establishing investment objectives, strategies, and policies. The California Constitution and Government Code Sections 31594 and 31595 authorize the Board to invest in any investment deemed prudent in the Board's opinion.

The Board has adopted an Investment Policy, which provides the framework for the management of CCCERA's investments. This policy establishes CCCERA's investment objectives and defines the principal duties of the Board, custodian bank, and investment managers. The asset allocation is an integral part of the Investment Policy and is designed to provide an optimum mix of asset classes with return expectations that reflect expected liabilities. Within the Investment Section of this report, a summary of the asset allocation can be found on page 78, along with schedules of investment management fees and brokerage commissions on pages 83 and 84.

On a fair value basis, the total net position-restricted for benefits decreased from $11.5 billion at December 31, 2021, to $10.1 billion at December 31, 2022. For the year ended December 31, 2022, CCCERA's investment portfolio returned -10.6%, net of investment management fees, reflecting market conditions throughout the year. CCCERA's annualized rate of return was 3.6% over the last three years, 4.4% over the last five years, and 6.7% over the last 10 years, net of investment expenses.

2021-2023 STRATEGIC PLAN

The triennial strategic plan for 2021-2023 incorporates the core values of Trust, Innovation and Accountability. These core values are defined in the strategic plan as follows:

Trust – Trust and integrity are the foundation of CCCERA. We will treat all with fairness, dignity, and respect.

Innovation – Enhanced and streamlined processes are beneficial for the plan and its stakeholders. CCCERA will engage in continuous improvement to increase efficiencies and effectiveness.

Accountability – Responsibility and reliability are essential. CCCERA will facilitate a professional environment that fosters ownership of work product and services provided to stakeholders.

The strategic plan's core values are supported with the following strategic initiatives:

- Enhance the timely and accurate delivery of retirement benefits and to improve member communications.
- Provide modernized resources and tools in support of the administration of the pension plan with an emphasis on the development of a new and improved pension administration system.
- Leverage technology across the organization to operate efficiently and achieve goals that are supported by accuracy, data security, and efficient reporting.
- Enhance portfolio strategy, implementation and monitoring to drive cost effective prudent stewardship of plan assets.
- Develop and implement additional training and recognition programs to promote continued employee growth and development.

SERVICE EFFORTS

CCCERA continues to fulfill its mission to administer pension benefits earned by our members and to be prudent stewards of plan assets. It is imperative that CCCERA continue to conduct essential operations. To that end, here is an update regarding how some of the primary functions performed in 2022:

- Retirement Benefit Payments: $563 million in benefit payments paid during the year to almost 11,000 retirees.

- Member Communication: CCCERA responded to over 28,500 phone calls, almost 3,700 email inquiries, sent over 15,000 member letters, and distributed almost 75,000 newsletters during the year.

- CCCERA's website continues to be updated regularly with the latest news and information for our members and employers. We are currently in the process of creating new videos for our website.

- Retirement Applications: CCCERA continues to accept and process service and disability retirement applications effectively. In 2022, the retirement application process was thoroughly evaluated step by step for efficiencies and new processes were designed. They were implemented in early 2023 to streamline and expedite the delivery of retirement benefits.

- Employer Payroll Information and Contribution Payments: CCCERA works closely with all employer districts to submit payroll information accurately and timely via a secure web portal while the majority of employers prepay their employer contributions annually, and remit member contributions via electronic funds transfer to our custodian bank.

- Vendor Payments: CCCERA processed all operating payments, tax withholding, and retiree health deductions promptly, accurately, and securely via electronic fund transfer.

- Retirement Appointments: Member appointments with a retirement counselor continued.

- Investment Program: CCCERA Investment staff continue to effectively monitor the portfolio performance along with Accounting staff managing cash movements at the custodian bank using latest technology online web portals. Frequent update and communication with CCCERA's external investment managers and investment consultants remains one of the top priorities.

ACCOMPLISHMENTS

INVESTMENT PORTFOLIO MANAGEMENT:

As an integral part of the investment policy, CCCERA has an internally developed portfolio construction methodology, known as the Functionally Focused Portfolio (FFP), to assign portfolio allocations according to strategic priorities as defined by the Board. The FFP was approved by the Board in September 2016 and was rolled out in phases over approximately three years. The FFP consists of three sub-portfolios, Liquidity, Growth, and Risk Diversifying, and is designed to accomplish CCCERA's primary function, paying for 2-3 years of pension benefits. CCCERA will continue to allocate the bulk of the remaining assets into a globally diversified growth sub-portfolio of stocks, real estate, and alternative asset strategies and the remaining into risk diversified investments.

PENSION ADMINISTRATION SYSTEM PROJECT:

CCCERA strives to provide excellent customer service, operate the pension plan in an efficient and cost-effective manner, and to safely and accurately maintain member data. To accomplish these principles, a pension administration system contract that is capable of workflow solutions and member and employer-facing web portals was awarded to Sagitec Solutions LLP in April 2021. During 2022, thorough and lengthy design sessions were conducted with staff members to discuss and design the new pension administration system to operate efficiently and provide the excellent customer service CCCERA strives for. Members and participating employers received information related to the upcoming system and the pilot employers began testing contribution reporting designs. Testing of the newly designed functionality by CCCERA staff members began in April 2023.

AWARDS

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to CCCERA for its Annual Report for the year ended December 31, 2021. This was the 22nd consecutive year that CCCERA has received this award. The Certificate of Achievement is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports.

In order to be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized Annual Report, the contents of which meet or exceed program standards. The Annual Report must satisfy both accounting principles generally accepted in the United States of America and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current Annual Report continues to meet the Certificate of Achievement program requirements, and it is being submitted to the GFOA to determine its eligibility for another certificate.

CCCERA is a recipient also of the GFOA Award for Outstanding Achievement in Popular Annual Financial Reporting (PAFR) for the year ended December 31, 2021. This marks the 13th consecutive year to receive this honor.

CCCERA was awarded the Public Pension Coordinating Council's (PPCC) Public Pension Standards Award in 2022. The Public Pension Standards are intended to reflect minimum expectations for public retirement system management and administration, and to serve as a benchmark by which all defined benefit public plans should be measured.

ACKNOWLEDGMENTS

The compilation of this report reflects the combined and dedicated effort of many individuals at CCCERA. It is intended to provide complete and reliable information as the basis for making management decisions, as a means of determining compliance with legal provisions, and as a means of determining responsible stewardship of the funds of CCCERA.

Thank you to the Board, the consultants, and staff for their commitment to CCCERA.

Respectfully submitted,

Gail Strohl
Chief Executive Officer

RETIREMENT BOARD (As of December 31, 2022)

Chairperson
SCOTT W. GORDON
Term Expires June 30, 2025
Appointed by Board of Supervisors

Vice-Chairperson
DAVID J. MACDONALD
Term Expires June 30, 2025
Elected by General Members

Secretary
JERRY R. HOLCOMBE
Term Expires June 30, 2026
Appointed by Board of Supervisors

County Treasurer
RUSSELL V. WATTS
Ex Officio by Statute

JOHN B. PHILLIPS
Term Expires June 30, 2026
Appointed by Board of Supervisors

CANDACE ANDERSEN
Term Expires June 30, 2026
Appointed by Board of Supervisors

DONNIE FINLEY
Term Expires June 30, 2023
Elected by Safety Members

LOUIE KROLL
Term Expires June 30, 2025
Elected by Retirees

DENNIS CHEBOTAREV
Term Expires June 30, 2026
Elected by General Members

(Alternate)
MIKE SLOAN
Term Expires June 30, 2025
Elected by Retirees

(Alternate)
JAY KWON
Term Expires June 30, 2026
Appointed by Board of Supervisors

(Alternate)
SAMSON WONG
Term Expires June 30, 2023
Elected by Safety Members

PROFESSIONAL CONSULTANTS (As of December 31, 2022)

ACTUARIAL SERVICES
Segal Consulting
Milliman Inc.

INDEPENDENT AUDITOR
Brown Armstrong Accountancy Corporation

FIDUCIARY & INVESTMENT COUNSEL
Reed Smith, LLP
DLA Piper, LLP
Foley & Lardner, LLP

GENERAL & TAX COUNSEL
Ice Miller, LLP

DISABILITY COUNSEL
Law Offices of Vivian Shultz

LABOR RELATIONS COUNSEL
Aleshire & Wynder, LLP

INVESTMENT CONSULTANTS
Verus Investments
Stepstone Investments

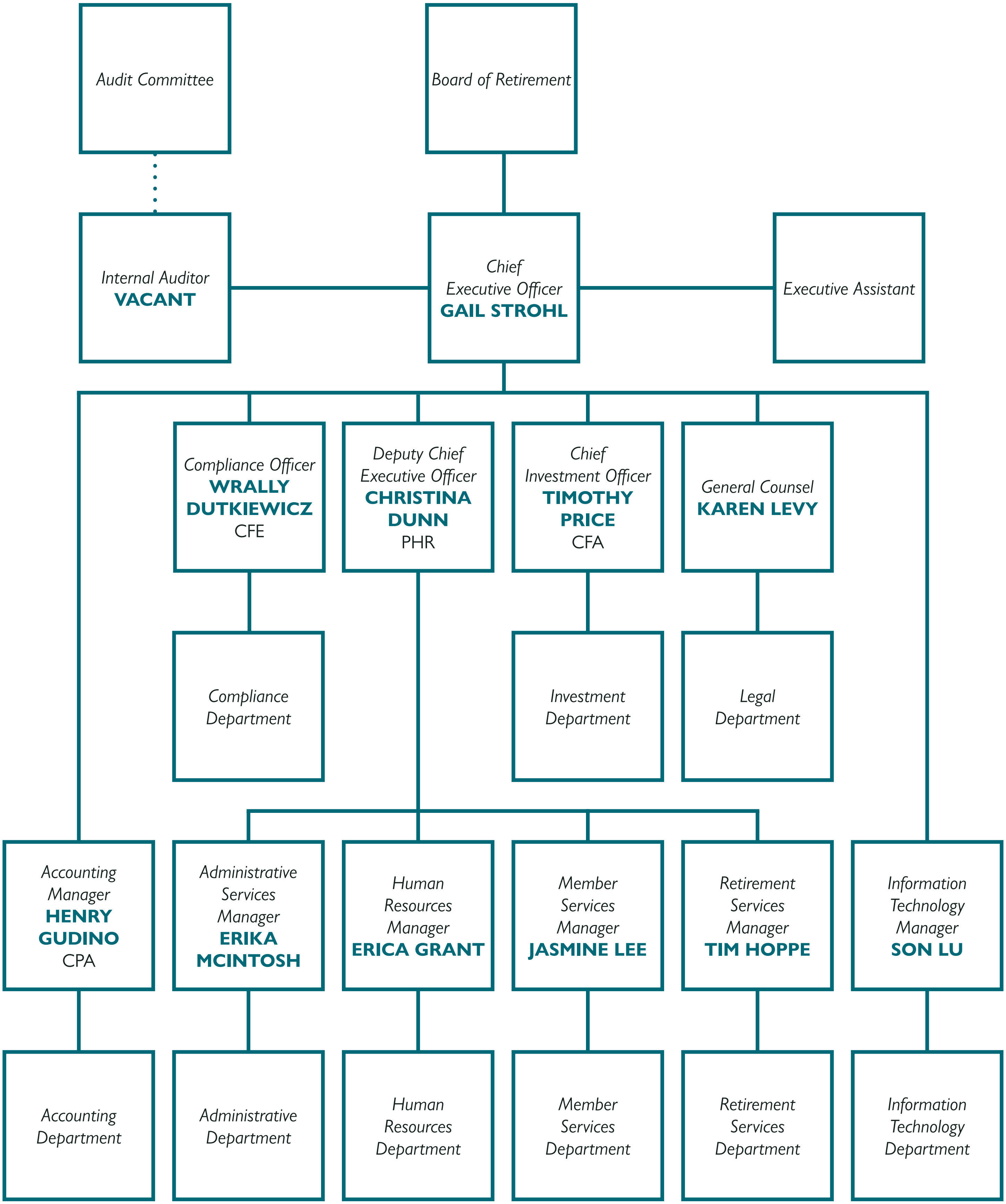
MASTER CUSTODIAN
The Northern Trust Company

FISCAL AGENT
Mechanics Bank

PENSION ADMINISTRATION
Segal Consulting
ICON Integration and Design
Sagitec Solutions
CPAS

Note: Please refer to the Investment Section of this report for a List of Investment Managers located on page 81 and Schedules of Investment Management Fees and Brokerage Commissions located on pages 83 and 84. In addition, refer to Other Supplementary Information in this report for a Schedule of Payments to Consultants on page 72.

ADMINISTRATIVE ORGANIZATION CHART (As of December 31, 2022)



GFOA CERTIFICATE OF ACHIEVEMENT AWARD

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Contra Costa County Employees' Retirement Association California

For its Annual Comprehensive Financial Report For the Fiscal Year Ended

December 31, 2021

Christopher P. Morrill

Executive Director/CEO

PPCC PUBLIC PENSION STANDARDS AWARD

PPCC

Public Pension Coordinating Council

Public Pension Standards Award
For Funding and Administration
2022

Presented to

Contra Costa County Employees' Retirement Association

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)

Alan H. Winkle

Alan H. Winkle
Program Administrator

FINANCIAL SECTION

INDEPENDENT AUDITOR'S REPORT

BROWN ARMSTRONG
CERTIFIED PUBLIC ACCOUNTANTS

www.ba.cpa
661-324-4971

INDEPENDENT AUDITOR'S REPORT

To the Board of Retirement and Audit Committee of
Contra Costa County Employees' Retirement Association
Concord, California

Report on the Audit of the Financial Statements

Opinion

We have audited the accompanying Pension Plan and Other Post-Employment Benefits Trust Statement of Fiduciary Net Position of the Contra County Employees' Retirement Association (CCCERA), a component unit of the County of Contra Costa, California, as of December 31, 2022, and the related Pension Plan and Other Post-Employment Benefits Trust Statement of Changes in Fiduciary Net Position for the year then ended, and the related notes to the financial statements, which collectively comprise CCCERA's basic financial statements as listed in the table of contents.

In our opinion, the basic financial statements referred to above present fairly, in all material respects, the fiduciary net position of the Pension Plan and Other Post-Employment Benefits Trust of CCCERA as of December 31, 2022, and the changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

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

Responsibilities of Management for the Financial Statements

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

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 CCCERA'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.

BAKERSFIELD
4200 Truxtun Avenue, Suite 300
Bakersfield, CA 93309
661-324-4971

FRESNO
10 River Park Place East, Suite 208
Fresno, CA 93720
559-476-3592

STOCKTON
2423 West March Lane, Suite 202
Stockton, CA 95219
209-451-4833

Management is also responsible for maintaining a current plan instrument, including all plan amendments; administering the plan; and determining that the plan's transactions that are presented and disclosed in the financial statements are in conformity with the plan's provisions, including maintaining sufficient records with respect to each of the participants, to determine the benefits due or which may become due to such participants.

Auditor's Responsibilities for the Audit of the Financial Statements

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

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

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of CCCERA'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 CCCERA's ability to continue as a going concern for a reasonable period of time.

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

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis (MD&A) and required supplementary information (RSI), as listed in the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board (GASB), 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 MD&A and RSI 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.

Other Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise CCCERA's basic financial statements. The other supplementary information, as listed in the table of contents, is presented for purposes of additional analysis and is 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 other supplementary information, as listed in the table of contents 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 Comprehensive Financial Report. The other information comprises the introductory, investment, actuarial, and statistical sections but does not include the basic financial statements and our auditor's 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.

Report on Summarized Comparative Information

We have previously audited CCCERA's December 31, 2021 financial statements, and our report dated June 15, 2022, expressed an unmodified opinion on those audited financial statements. In our opinion, the summarized comparative information presented herein as of December 31, 2021, 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 14, 2023, on our consideration of CCCERA's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, 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 CCCERA'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 CCCERA's internal control over financial reporting and compliance.

BROWN ARMSTRONG
ACCOUNTANCY CORPORATION
Brown Armstrong
Accountancy Corporation

Bakersfield, California
June 14, 2023

MANAGEMENT'S DISCUSSION AND ANALYSIS December 31, 2022 and 2021

As management of the Contra Costa County Employees' Retirement Association (CCCERA), we offer readers of CCCERA's financial statements this discussion and analysis (MD&A) of the financial position and results of operation for the years ended December 31, 2022 and 2021. The information presented here, in conjunction with the Notes to the Financial Statements beginning on page 35, provide a clear picture of CCCERA's overall financial status and activities.

FINANCIAL HIGHLIGHTS

Pension Plan

- The Net Position – Restricted for Benefits, as reported in the Statement of Fiduciary Net Position, totaled $10.1 billion and $11.5 billion at the close of December 31, 2022 and 2021, respectively. All of the net position is available to meet CCCERA's ongoing obligations to plan participants and their beneficiaries.

- CCCERA's total Net Position – Restricted for Benefits decreased by $1,400.1 million, or -12.2%, and increased $1,383.6 million, or 13.7%, as of December 31, 2022 and 2021, respectively. Although there were increases in member contributions in both years, and an increase in investment income in prior year, the overall decrease in 2022 over 2021 is primarily due to negative investment earnings in 2022, combined with a decrease in employer contributions due to an employer one-time pay off last year of their unfunded actuarial accrued liability.

- Total Additions, as reflected in the Statement of Changes in Fiduciary Net Position, for the years ended December 31, 2022 and 2021 were $(797.2) million and $1,944.9 million, respectively. This includes employer and plan member contributions of $474.7 million, investment loss of $(1,272.9) million, and net securities lending income of $1.0 million for 2022, along with employer and plan member contributions of $527.8 million, investment income of $1,416.4 million, and net securities lending income of $0.7 million for 2021. The -141.0% decrease in additions to net position over the prior year is attributed to net investment losses earned for the year.

- Total Deductions, as reflected in the Statement of Changes in Fiduciary Net Position, totaled $602.9 million for the year ended December 31, 2022, an increase of $41.6 million over the previous year ended December 31, 2021, or approximately 7.4%, and are mainly attributed to the increase in retiree payroll. Benefits paid to retirees and beneficiaries increased from $532.1 million in 2021 to $562.8 million in 2022, or approximately 5.8%. This increase can be attributed to an increase in the number of new retirees and an annual cost-of-living (COLA) increase.

- CCCERA's funding objective is to meet long-term benefit obligations through contributions and investment income. As of December 31, 2021, the date of CCCERA's latest available actuarial pension plan valuation prepared by Segal Consulting, the funded status for CCCERA (the ratio of the valuation of assets to the actuarial liabilities) was 92.4%, compared to 91.8% in the previous year. The increase in the funding ratio is due to contributions in excess of the value of benefits earned as well as investment earnings in excess of the assumed rate.

- The total investment portfolio finished 2022 with a negative return, net of investment management fees, of -10.6% compared to a positive return, net of investment management fees, of 13.9% in 2021.

- Based on the Governmental Accounting Standards Board (GASB) Statement No. 67, CCCERA has a net pension liability (NPL) (asset) of $1.70 billion and $(0.24) billion as of December 31, 2022 and 2021, respectively. The plan fiduciary net position as a percentage of the total pension liability is 85.6% and 102.2% as of December 31, 2022 and 2021, respectively. The net pension liability (asset) as a percentage of covered payroll is 165.9% and (24.9%) as of December 31, 2022 and 2021, respectively. Refer to Note 6, *Net Pension Liability (Asset)* on page 50, and *Schedule of Changes in Net Pension Liability (Asset) and Related Ratios* in the Required Supplementary Information section on page 65 for more information.

Other Post-Employment Benefits (OPEB) Trust

- The OPEB Trust Net Position – Restricted for Benefits, as reported in the Statement of Fiduciary Position and in the Statement of Changes in Fiduciary Net Position, was implemented in 2018 as a result of GASB Statement Nos. 74 and 75 reporting requirements. The OPEB Trust net position of $4.6 million as of December 31, 2022 represents accumulated employer contributions and investments, net of OPEB Trust benefit related expenses, which are separate from CCCERA's pension plan.

- The total OPEB liability, as calculated by CCCERA's OPEB Trust actuary Milliman Inc., was $4.5 million as of the December 31, 2022 biennial full valuation report. The OPEB Trust net position of $4.6 million offsets the total OPEB liability resulting in a net OPEB liability (asset) of $(0.1) million which is reported as part of CCCERA's pension plan other liabilities. Refer to Note 7, *Other Post-Employment Benefits (OPEB) Liability (Asset) and Section 115 Trust* on page 52 for more information.

Overview of the Financial Statements

This Management's Discussion and Analysis is intended to serve as an introduction to CCCERA's financial statements, which are comprised of these components:

1. Statement of Fiduciary Net Position
2. Statement of Changes in Fiduciary Net Position
3. Notes to the Financial Statements
4. Required Supplementary Information and related Notes
5. Other Supplementary Information

Please note, however, that this report also contains clarifying information to supplement the basic financial statements listed above.

The implementation of GASB Statement No. 67 (GASB 67) in 2014 increased the number of schedules in the Required Supplementary Information section. These new schedules provide a spectrum of financial information, including a pension liability measurement and changes to the liability, historical contributions, money-weighted investment return and additional actuarial related disclosures.

In 2018, CCCERA implemented GASB Statement No. 74 (GASB 74), *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*, and GASB Statement No. 75 (GASB 75) *Accounting and Financial Reporting for*

Postemployment Benefits Other Than Pensions. GASB 74 revises existing guidance for OPEB plans and benefits provided to employees subsequent to their retirement. GASB 74 addresses the financial report of defined benefit OPEB plans administered through trusts that meet specified criteria. The rule requires a statement of fiduciary net position, as well as a statement of changes in fiduciary net position.

GASB 75 requires plan sponsors to report a liability on the face of the financial statements for the OPEB that they provide. In addition, plan sponsors that are responsible only for OPEB liabilities related to their own employees and that provide OPEB through a defined benefit OPEB plan administered through a trust that meets specified criteria will report a net OPEB liability, the difference between the total OPEB liability and assets accumulated and held in trust restricted to making benefit payments.

Similar to GASB 67, the implementation of GASB 74 and GASB 75 also requires additional note disclosures and required supplementary information (RSI) related to the measurement of the OPEB liabilities for which assets have been accumulated, changes in the liability, contributions, investment return and additional actuarial related disclosures.

The Statement of Fiduciary Net Position is a snapshot of account balances at year-end. It discloses the assets and deferred outflows of resources available for future payments to retirees and their beneficiaries and any current liabilities and deferred inflows of resources that are owed as of year-end. The net position, which is the assets and deferred outflows of resources less liabilities and deferred inflows of resources, reflects the funds available for future use. CCCERA established an irrevocable Other Post-Employment Benefit Trust in 2018. The purpose of this fund is for CCCERA, as an employer, to set aside assets to offset the OPEB retiree health care liability. The OPEB Trust is presented separately in the OPEB Trust's column on the Statement of Fiduciary Net Position.

The Statement of Changes in Fiduciary Net Position provides a view of all the activities that occurred during the fiscal year and shows the impact of those activities as additions to and deductions from the pension plan and the OPEB Trust.

Both financial statements and the required disclosures are in compliance with the accounting principles and reporting guidelines as set forth by the Governmental Accounting Standards Board (GASB), using the accrual basis of accounting. CCCERA complies with all material requirements of these principles and guidelines.

The Statement of Fiduciary Net Position and the Statement of Changes in Fiduciary Net Position report information about CCCERA's activities. These statements include all assets and liabilities, deferred inflows of resources, and deferred outflows of resources, using the accrual basis of accounting, which is similar to the accounting used by most private-sector companies. All of the current year's revenues and expenses are recognized when they are earned and incurred, regardless of when cash is received or paid. All investment purchases and sales are reported as of the trade date, not the settlement date. Investments are reported at current fair value. Both realized and unrealized investment gains and losses are recognized. Each component of capital assets is depreciated over its useful life.

These two statements report CCCERA's net position-restricted for benefits which is one way to measure the pension plan's financial position. Over time, increases and decreases in CCCERA's net position are indicators of whether its financial position is improving or deteriorating. Other factors, such as market conditions, should be considered in measuring CCCERA's overall financial position. The decrease in CCCERA's fiduciary net position for the year ended December 31, 2022, was -12.2%. This decrease is due primarily to negative investment returns generated, combined with less employer contributions received. CCCERA's total portfolio return was -10.6%, net of investment manager fees, for the year ending December 31, 2022. CCCERA's Statement of Fiduciary Net Position and Statement of Changes in Fiduciary Net Position appear on pages 33 and 34.

Notes to the Financial Statements provide additional information that is essential to a full understanding of the data provided in the financial statements. The notes provide detailed discussion of key policies, programs, and activities that occurred during the year. Asset allocation, the long-term expected rate of return, discount rate, key actuarial assumptions, and the Schedule of Net Pension Liability (Asset) based on GASB 67, and schedules for OPEB based on GASB 74, are also included in this section. Notes to the Financial Statements appear on pages 35 to 64.

Required Supplementary Information follows the notes and includes several additional GASB 67 schedules. The Schedule of Net Pension Liability (Asset) in the notes section, together with the Schedule of Changes in Net Pension Liability (Asset) and Related Ratios, provides an up-to-date financial indication of the extent to which the total pension liability is covered by the fiduciary net position of the pension plan. This information will improve the financial statements users' ability to compare the total pension liability for similar types of pension plans. Please note that liabilities on these schedules are calculated solely for financial reporting purposes and are not intended to provide information about the funding of CCCERA's benefits.

Another schedule, the Schedule of Employer Contributions, helps the reader determine if plan sponsors are meeting the actuarially determined contributions over a period of time.
The Schedule of Investment Returns includes a money-weighted return performance calculation which is net of investment expenses. These schedules, as well as Notes to the Required Supplementary Information, appear on pages 68 and 69.

The Schedule of Funding Progress for funding purposes is presented in the Actuarial section on page 90.

Other Supplementary Information includes the Schedule of Administrative Expenses, Schedule of Investment Expenses, and Schedule of Payments to Consultants. It appears on pages 70 through 72.

Financial Analysis

As of December 31, 2022, CCCERA has $10.1 billion in net position-restricted for benefits, which means that assets of $10.6 billion exceed liabilities and deferred inflows of resources of $0.5 billion. As of December 31, 2021, CCCERA's net position-restricted for benefits totaled $11.5 billion. The net position-restricted for benefits is available to meet CCCERA's ongoing obligation to plan participants and their beneficiaries.

As of December 31, 2022, the net position-restricted for benefits decreased by -12.2% over 2021, primarily due to a decrease in the fair value of investments. Current assets and current liabilities also changed by offsetting amounts due to recording of securities lending cash collateral.

Despite market volatility abroad due to Ukraine invasion by Russia coupled with sharply higher interest rate environments, and competitive retirement benefits, CCCERA remains in a good financial position to meet its obligations to plan participants and beneficiaries.

CAPITAL ASSETS – Capital assets with an initial cost of more than $10,000 and an estimated useful life in excess of three years may be capitalized and depreciated/amortized. Depreciation and amortization are calculated using the straight-line method over the estimated useful lives of the assets. CCCERA's capital assets, net of accumulated depreciation and amortization, increased from $2.7 million as of December 31, 2021 to $4.3 million as of December 31, 2022. The investment in capital assets includes servers, equipment, furniture, leasehold improvements, and including intangible assets under development for a pension administration system. The overall increase in CCCERA's capital assets from 2021 to 2022 was 54.9% primarily due to development-in-progress costs for a new pension administration system anticipated to implement in late 2023, offset by normal depreciation and amortization of capitalized assets over remaining useful life.

CCCERA follows Government Code Section 31580.3, which allows expensing of software, hardware, and technology support services used in the administration of the existing pension retirement system including project oversight consulting for the new pension administration system. During 2022 and 2021, CCCERA expensed $1.31 million and $1.09 million of software, hardware, and computer technology project consulting services, respectively.

FIDUCIARY NET POSITION RESTRICTED FOR BENEFITS
(Dollars in Thousands)

	2022	2021	Amount Increase/ (Decrease)	Percent Increase/ (Decrease)
Assets				
Current and Other Assets	$785,559	$1,288,236	$(502,677)	(39.0%)
Investments at Fair Value	9,774,736	10,808,187	(1,033,451)	(9.6%)
Capital Assets	4,258	2,748	1,510	54.9%
Total Assets	**10,564,553**	**12,099,171**	**(1,534,618)**	**(12.7%)**
Liabilities				
Current Liabilities	509,794	644,407	(134,613)	(20.9%)
Total Liabilities	**509,794**	**644,407**	**(134,613)**	**(20.9%)**
Deferred Inflows of Resources - OPEB	**1,090**	**998**	**92**	**9.2%**
NET POSITION - RESTRICTED FOR BENEFITS	**$10,053,669**	**$11,453,766**	**$(1,400,097)**	**(12.2%)**

CCCERA has annual pension plan valuations completed by its independent actuary, Segal Consulting. The purpose of the valuation is to determine the future contributions by the members and employers needed to provide for the prescribed benefits. The valuation takes into account CCCERA's policy to smooth the impact of market volatility by spreading each year's investment gains or losses over five years. Despite variations in the stock market, CCCERA's management and actuary concur that CCCERA remains in a financial position that will enable the plan to meet its obligations to participants and beneficiaries. CCCERA remains focused on the long-term performance of the fund, dependent on a strong and successful investment program, risk management, and strategic planning. CCCERA's latest Actuarial Valuation is as of December 31, 2021, and the Actuarial Valuation as of December 31, 2022 is in-progress and anticipated for completion by August 2023.

RESERVES – Pension plans establish reserves for various anticipated liabilities. CCCERA's reserves have been established to account for the accumulation of employer and employee contributions, the amounts available to meet the obligation of retired members as well as other items. A complete listing of CCCERA's reserves and corresponding balances for December 31, 2022 are presented in Note 10, *Reserves and Designations*.

CCCERA's Activities

CHANGES IN FIDUCIARY NET POSITION RESTRICTED FOR BENEFITS
(Dollars in Thousands)

Additions:	2022	2021	Amount Increase/ (Decrease)	Percent Increase/ (Decrease)
Employer Contributions	$352,384	$410,760	$(58,376)	(14.2%)
Plan Member Contributions	122,304	117,017	5,287	4.5%
Net Investment Income (Loss)	(1,272,930)	1,416,366	(2,689,296)	(189.9%)
Net Securities Lending Income	1,054	732	322	44.0%
Total Additions	**(797,188)**	**1,944,875**	**(2,742,063)**	**(141.0%)**
Deductions:				
Pension Benefits	562,830	532,117	30,713	5.8%
Contribution Prepayment Discount	10,032	9,755	277	2.8%
Administrative	11,538	11,237	301	2.7%
Refunds	13,738	5,884	7,854	133.5%
Other Expenses	4,771	2,354	2,417	102.7%
Total Deductions	**602,909**	**561,347**	**41,562**	**7.4%**
INCREASE (DECREASE) IN NET POSITION - RESTRICTED FOR BENEFITS	**$(1,400,097)**	**$1,383,528**	**$(2,783,625)**	**(201.2%)**

ADDITIONS TO FIDUCIARY NET POSITION – The primary sources of funding for CCCERA member benefits are employer contributions, plan member contributions, and net investment income. Total additions to the pension plan fiduciary net position for the years ended December 31, 2022 and 2021, were $(797.2) million and $1,944.9 million, respectively. The decrease in the current year is primarily due to negative investment gains earned compared to the previous year. The net investment income (loss), before securities lending, for the years ended December 31, 2022 and 2021 totaled $(1,272.9) million and $1,416.4 million, respectively. The investment section of this report reviews the results of investment activity for the year ended December 31, 2022. Employer Contributions were $352.4 million as of December 31, 2022, a decrease of $(58.4) million, or -14.2%, over 2021. Plan Member Contributions were $122.3 million as of December 31, 2022, an increase of $5.3 million, or 4.5%, from the prior year. While there were increases in employer and employee contribution rates, total Employer Contributions were specifically less in 2022, when compared to prior year, due to a one-time pay off in 2021 of the unfunded liability for employer Central Contra Costa Sanitary District.

DEDUCTIONS FROM FIDUCIARY NET POSITION – CCCERA was created to provide lifetime retirement annuities, survivor benefits, and permanent disability benefits to qualified members and their beneficiaries. The cost of such programs includes recurring benefit payments as designated by the plan, refund of contributions to terminated employees, and the cost of administering the system. Total deductions from the pension plan fiduciary net position for the years ended December 31, 2022 and 2021, were $602.9 million and $561.3 million, respectively. Retirement allowances, survivor benefits, and permanent disability benefits were $562.8 million as of December 31, 2022, an increase of $30.7 million, or 5.8%, over 2021. The growth in benefit payments was due to the combined effects of the following: (1) the net increase in the number of retirees and beneficiaries for the year and (2) the increase in the average retirement allowance of those who were added to the retirement payroll.

Administrative expense was $11.5 million for 2022. Administrative expense covers the basic costs of operating the retirement system, including information technology systems. Operating costs include personnel, professional services, insurance, building lease, office supplies and materials, software, hardware, depreciation and amortization, and miscellaneous expenses. The system's administrative expense increased by $300 thousand, or 2.7% in 2022. The increase was mainly due to expected annual staff wage increases combined with project oversight consulting services for the new pension administration system.

Member refunds were $13.7 million in 2022, an increase of $7.9 million, or 133.5% higher than 2021. Member refunds were higher in the current year due to an increase in the number of terminated members requesting withdrawals, combined with a one-time contribution correction refund to affected members relating to the Assembly Bill (AB) 197 compensation earnable lawsuit known as the Alameda Decision.

Other expenses increased by $2.4 million over last year, or 102.7%, to $4.7 million in 2022. The primary reason for the increase was in-house legal expense and retiree payroll and benefit adjustments.

The Board of Retirement approves the annual budget for CCCERA. The California Government Code Section 31580.2(a) limits the annual administrative expense to not exceed the greater of either of the following: (1) twenty-one hundredths of one percent (0.21%) of the accrued actuarial liability of the retirement system; or (2) two million dollars ($2,000,000), as adjusted annually by the amount of the annual cost-of-living adjustment computed in accordance with Article 16.5. CCCERA has consistently met its administrative expense budget for the current year and prior years.

STATUTORY LIMITATION FOR ADMINISTRATIVE EXPENSE
As of December 31, 2022 and 2021
(Dollars in Thousands)

		2022	2021
Actuarial Accrued Liability (AAL)	a	$10,521,628	$10,075,722
Statutory Limit For Administrative Expenses (AAL x 0.21%)		22,095	21,159
Actual Administrative Expenses Subject To Statutory Limit	b	11,538	11,237
Excess Statutory Limit Over Actual Administrative Expenses		$9,922	$9,583
Actual Administrative Expenses as a Percentage of AAL	b/a	0.11%	0.11%

Deductions of $602.9 million combined with negative additions of $(797.2) million, resulted in a decrease of $(1,400.1) million in fiduciary net position for the year ended December 31, 2022.

CHANGE IN FIDUCIARY NET POSITION

The change in fiduciary net position consists of total additions reduced by total deductions. The change in fiduciary net position, as compared to the prior year, decreased by $(2,783.6) million for the year ended December 31, 2022. This decrease is due to the investment losses in 2022 compared to the previous year's investment gains.

NET PENSION LIABILITY (ASSET)

CCCERA is subject to the provisions of GASB Statement No. 67, *Financial Reporting for Pension Plans*, beginning with the year ended December 31, 2014, and CCCERA's participating employers are subject to the provisions of GASB Statement No. 68, *Accounting and Financial Reporting for Pensions*, beginning with the fiscal year ended June 30, 2015. These standards require governments to recognize their long-term obligation for pension benefits as a liability on their balance sheets, to recognize their annual pension expense as a comprehensive measurement of the annual cost of pension benefits, and expands note disclosures and Required Supplementary Information for pension plans and their participating employers.

Pursuant to GASB Statement No. 67, the funded status and unfunded actuarial accrued liability (UAAL) of the plan are no longer presented in the notes or required supplementary information. The UAAL was determined by subtracting the excess of the actuarial accrued liability (discounted at the plan's assumed rate of return) from the actuarial value of assets (determined by smoothing values over a certain number of years to reduce volatility) and represented the costs allocated to date for current plan members that are not covered by the actuarial value of assets. The UAAL has now been replaced by the net pension liability (NPL), which represents the excess of the total pension liability (using an entry age cost method, discounted at a discount rate that reflects the expected return on assets) over fiduciary net position (valued at fair value). NPL is similar to UAAL but uses market assets, not smoothed assets. This is a conceptual shift by the GASB in the measurement of pension liabilities to provide a consistent, standardized methodology that allows comparability of data and increased transparency of the pension liability across all plans. CCCERA has complied with GASB Statement No. 67 for the years ended December 31, 2022 and December 31, 2021.

Based on Segal Consulting's Governmental Accounting Standards Board (GASB) 67 Actuarial Valuation as of December 31, 2022, the net pension liability (NPL) (asset) of participating employers on a market basis is $1.70 billion as of December 31, 2022 and $(0.24) billion as of December 31, 2021. The increase in net pension liability is primarily a result of an unfavorable return on the fair value of assets (about -11.3%) during fiscal year 2022 that was less than the assumed investment return of 6.75%. Refer to Note 6, *Net Pension Liability*, and the Required Supplementary Information section of this report for further information.

Changes in Net Pension Liability (Asset)
As of December 31, 2022 and 2021
(Dollars in Thousands)

	2022 (a)	2021 (b)	Amount Increase/ (Decrease) (c) = (a) - (b)	Percent Increase/ (Decrease) (c) / (b)
Total Pension Liability	$11,752,067	$11,210,812	$541,255	4.8%
Less Plan Fiduciary Net Position	10,053,669	11,453,766	(1,400,097)	(12.2%)
Net Pension Liability (Asset)	**$1,698,398**	**$(242,954)**	**$1,941,352**	**(799.1%)**

Total Pension Liability as calculated by Segal Consulting GASB 67 report as of December 31, 2022.

NET OPEB LIABILITY (ASSET) – GASB Statements Nos. 74 and 75 require CCCERA to report the total OPEB liability of $4.5 million and net OPEB liability (asset) of $(0.1) million as of December 31, 2022 from an actuarial valuation dated within 24 months of the OPEB Trust fiscal year-end. GASB Statements Nos. 74 and 75 also require the OPEB fiduciary net position to be presented as a percentage of the total OPEB liability which is 101.6% as of December 31, 2022. The OPEB liability, which is the responsibility of CCCERA as an employer, is calculated separately from the pension plan liabilities and is presented solely for financial statement purposes. More information is found in Note 7, *Other Post-Employment Benefits (OPEB) Liability and Section 115 Trust.*

Changes in Net OPEB Liability (Asset)
As of December 31, 2022 and 2021
(Dollars in Thousands)

	2022 (a)	2021 (b)	Amount Increase/ (Decrease) (c) = (a) - (b)	Percent Increase/ (Decrease) (c) / (b)
Total OPEB Liability	$4,506	$5,535	($1,029)	(18.6%)
Less OPEB Trust Fiduciary Net Position	4,580	5,265	(685)	(13.0%)
Net OPEB Liability (Asset)	**$(74)**	**$270**	**$(344)**	**(127.4%)**

Total OPEB Liability as calculated by Milliman Inc. GASB 74 actuarial valuation as of December 31, 2022.

PENSION REFORM – Governor Jerry Brown signed the California Public Employees' Pension Reform Act of 2013 (PEPRA), which became effective January 1, 2013. While it has been called one of the largest pieces of pension reform legislation for CERL plans, it had minimal impact on current and retired CCCERA members hired prior to January 1, 2013. Most changes and provisions affected new public employees hired on or after January 1, 2013. Some new provisions that did impact current or retired CCCERA members were changes in what can be included in compensation for retirement purposes, new restrictions on the ability of a retiree to return to work with a CCCERA employer without reinstatement as an active member unless certain conditions are met, and elimination of employers' ability to adopt an enhanced benefit formula and apply it to past service. In addition, for new public employees, the legislation reduces benefit formulas, limits pensionable income, expands the final compensation period from one year to three years, and requires the new employee to pay a larger share of normal costs.

OVERALL ANALYSIS – For the year ended December 31, 2022, CCCERA's financial position and results from operations have experienced a decrease over the prior year. For 2022, CCCERA's net position decreased to $10.1 billion from $11.5 billion in 2021. The overall decrease in net position for December 31, 2022 is primarily attributable to depreciation in the fair value of the plan's broadly diversified portfolio. Despite fluctuations in the financial markets, CCCERA remains in a sound financial position to meet its obligations to plan participants and beneficiaries. The current financial position results from a continued strong and successful investment program, risk management and strategic planning meeting expectations. As a long-term investor, CCCERA can take advantage of price volatility along with a diversified exposure to domestic, global and international equities, fixed income investments, real estate, private equity, private credit, and liquidity programs. The plan has recovered well from the COVID pandemic market downturn as well as weathered general market downturns during 2022 and CCCERA is well positioned with value-focused assets to face market fluctuations.

CCCERA's Fiduciary Responsibilities

CCCERA's Board of Retirement and management are fiduciaries of the pension trust fund. Under the California Constitution and other applicable law, the assets can only be used for the exclusive benefit of plan participants and their beneficiaries and to defray the administrative and investment expenses of the plan.

Requests for Information

The Annual Comprehensive Financial Report is designed to provide the Board of Retirement, our membership, taxpayers, investment managers, and interested parties with a general overview of CCCERA's finances and to show accountability for the funds it administers.

Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to:

Contra Costa County
Employees' Retirement Association
Attn: Accounting Department
1200 Concord Avenue, Suite 300
Concord, CA 94520-5728
www.cccera.org
Telephone: (925) 521-3960 Fax: (925) 521-3969

Respectfully submitted,

Henry J. Gudino

Henry J. Gudino, CPA
Accounting Manager

BASIC FINANCIAL STATEMENTS
STATEMENT OF FIDUCIARY NET POSITION

Statement of Fiduciary Net Position
As of December 31, 2022 (with Comparative Totals)
(Dollars in Thousands)

	2022		2021	
ASSETS	**Pension Plan**	**OPEB Trust**	**Pension Plan**	**OPEB Trust**
Cash & Cash Equivalents:				
Cash equivalents	$466,929	$48	$828,746	$34
Cash collateral - securities lending	269,030		409,049	
TOTAL CASH & CASH EQUIVALENTS	**735,959**	**48**	**1,237,795**	**34**
Receivables:				
Contributions	11,459		10,774	
Investment trades	13,095		14,987	
Investment income	20,648	1	17,822	
Installment contract (see Note 11)	3,887		6,239	
Other	41		6	
TOTAL RECEIVABLES	**49,130**	**1**	**49,829**	**-**
Investments at fair value:				
Equities	4,805,530	2,709	5,648,986	3,466
Fixed income	1,994,157	1,822	2,219,364	1,765
Real assets	45,734		47,315	
Real estate	565,387		601,656	
Alternative investments	2,363,928		2,290,866	
TOTAL INVESTMENTS AT FAIR VALUE	**9,774,736**	**4,531**	**10,808,187**	**5,231**
Other assets:				
Prepaid expenses/deposits	470		612	
Capital assets, net of accumulated depreciation/amortization of $1,980 and $1,714, respectively	4,258		2,748	
TOTAL ASSETS	**10,564,553**	**4,580**	**12,099,171**	**5,265**
LIABILITIES				
Investment Trades	**16,827**		**31,033**	
Securities Lending Collateral	**269,030**		**409,049**	
Employer Contributions Unearned	**167,824**		**151,108**	
Retirement Allowance Payable	**47,206**		**42,194**	
Accounts Payable	**8,786**		**9,411**	
Contributions Refundable	**195**		**1,382**	
Other Liabilities	**(74)**		**230**	
TOTAL LIABILITIES	**509,794**	**-**	**644,407**	**-**
DEFERRED INFLOWS OF RESOURCES:				
Deferred OPEB Inflows	**1,090**		**998**	
TOTAL DEFERRED INFLOWS OF RESOURCES	**1,090**	**-**	**998**	**-**
NET POSITION - RESTRICTED FOR BENEFITS	**$10,053,669**	**$4,580**	**$11,453,766**	**$5,265**

See accompanying notes to the financial statements.

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

Statement of Changes in Fiduciary Net Position
For the Year Ended December 31, 2022 (with Comparative Totals)
(Dollars in Thousands)

	2022		2021	
ADDITIONS	**Pension Plan**	**OBEB Trust**	**Pension Plan**	**OBEB Trust**
Contributions:				
Employer contributions	$352,384	$268	$410,760	$268
Plan member contributions	122,304		117,017	
TOTAL CONTRIBUTIONS	**474,688**	**268**	**527,777**	**268**
Investment income:				
Net appreciation in fair value of investments	(1,388,259)	(886)	1,201,227	348
Net appreciation (depreciation) in fair value of real estate	(19,059)		100,714	
Interest	83,377	2	78,568	
Dividends	58,272	120	48,298	109
Real estate income, net	5,368		13,380	
Alternative income	35,141		22,098	
Investment expense	(47,717)	(33)	(49,349)	(43)
Other income/(expense)	(53)		1,430	
NET INVESTMENT INCOME (LOSS), BEFORE SECURITIES LENDING	**(1,272,930)**	**(797)**	**1,416,366**	**414**
Securities lending income (expense):				
Earnings	1,318		915	
Fees	(264)		(183)	
NET SECURITIES LENDING INCOME	**1,054**	**-**	**732**	**-**
NET INVESTMENT INCOME (LOSS)	**(1,271,876)**	**(797)**	**1,417,098**	**414**
TOTAL ADDITIONS	**(797,188)**	**(529)**	**1,944,875**	**682**
DEDUCTIONS				
Benefits paid	**562,830**		**532,117**	
Contribution prepayment discount	**10,032**		**9,755**	
Administrative	**11,538**	**156**	**11,237**	**83**
Refunds of contributions	**13,738**		**5,884**	
Other	**4,771**		**2,354**	
TOTAL DEDUCTIONS	**602,909**	**156**	**561,347**	**83**
NET INCREASE (DECREASE) IN NET POSITION	**(1,400,097)**	**(685)**	**1,383,528**	**599**
NET POSITION - RESTRICTED FOR BENEFITS				
Beginning of year	**11,453,766**	**5,265**	**10,070,238**	**4,666**
End of year	**$10,053,669**	**$4,580**	**$11,453,766**	**$5,265**

See accompanying notes to the financial statements.

NOTES TO THE FINANCIAL STATEMENTS For the Year Ended December 31, 2022

Note 1.
PLAN DESCRIPTION

The Contra Costa County Employees' Retirement Association (CCCERA) is governed by the Board of Retirement (Board) under the County Employees Retirement Law of 1937 (CERL) and the California Public Employees' Pension Reform Act of 2013 (PEPRA). Members should refer to CERL and PEPRA for more complete information.

General

CCCERA is a contributory defined benefit pension plan initially organized under the provisions of CERL on July 1, 1945. It provides benefits upon retirement, death or disability of members. CCCERA operates as a cost-sharing, multiple-employer defined benefit pension plan that covers substantially all of the employees of the County of Contra Costa (the County) and 15 other participating employers.

Because of its close financial relationship with the County (the primary plan sponsor), CCCERA is classified as a blended component unit of the County and reported as a pension trust fund in the County's financial statements.

CCCERA's membership as of December 31, 2022 and 2021 is presented as follows.

CCCERA Membership
As of December 31, 2022 and 2021

	2022[1]	2021	Amount Increase/ (Decrease)	Percent Increase/ (Decrease)
Active members	10,082	10,005	77	0.8%
Retired members or beneficiaries	10,563	10,278	285	2.8%
Terminated members entitled to, but not yet receiving, benefits [2]	3,990	3,812	178	4.7%
TOTAL MEMBERSHIP	**24,635**	**24,095**	**540**	**2.2%**

[1] 2022 total membership is preliminary and will be finalized upon completion of December 31, 2022 Actuarial Valuation report anticipated in August 2023.
[2] Includes members who terminate with less than 5 years of service and leave accumulated contributions on deposit.

CCCERA, with its own governing board, is an independent governmental entity, separate and distinct from the County of Contra Costa. Costs of administering the plan are financed through contributions and investment earnings. With California legislation (Senate Bill 673) signed January 1, 2015, and made part of CERL, CCCERA became an independent public agency and employer for its entire staff, subject to terms and conditions approved by the Board.

Benefit Provisions

The plan is currently divided into thirteen benefit levels in accordance with CERL and PEPRA. These levels are known as General Tier 1 (Enhanced and Non-enhanced); General Tier 2, General Tier 3 Enhanced, General Tier 4 (2% and 3% maximum Cost-of-Living Adjustments (COLAs)), General Tier 5 (2% and 3%/4% maximum COLAs), Safety Tier A (Enhanced and Non-enhanced), Safety Tier C Enhanced, Safety Tier D, and Safety Tier E.

General Tier 1 includes members not mandated to be in General Tier 2 or General Tier 3 and reciprocal members who were eligible for General Tier 1 membership.

On October 1, 2002, the Contra Costa County Board of Supervisors adopted Resolution No. 2002/608, which provides enhanced benefit changes commonly known as 3% at 50 for Safety members and 2% at 55 for General members, effective on July 1, 2002 and January 1, 2003, respectively. Each Special District that is a participant of CCCERA, and whose staff are not County employees covered by Resolution No. 2002/608, may elect to participate in the enhanced benefits. Nine (9) General member agencies and four (4) Safety member agencies have adopted enhanced benefits for their employees. Under PEPRA, which became effective January 1, 2013, districts that did not adopt enhanced benefits are no longer allowed to do so.

Legislation was signed by the Governor in 2002 which allowed the County, effective October 1, 2002, to provide Tier 3 to all new employees, to move those previously in Tier 2 to Tier 3 as of that date, and to apply all future service as Tier 3.

Members who moved to General Tier 3 continue to have General Tier 2 benefits for service prior to that date unless the service is converted to General Tier 3. As of December 31, 2006, there are no active Tier 2 member accounts.

Safety includes members in active law enforcement, active fire suppression work, or certain other "Safety" classifications as defined in sections of CERL made operative by the Board of Supervisors.

Effective January 1, 2007, the County and the Deputy Sheriffs' Association agreed to adopt a new Safety Tier C Enhanced for sworn employees hired by the County after December 31, 2006. A Deputy Sheriff hired on or after January 1, 2007 through November 30, 2012, had a 3% at 50 benefit formula with a 2% maximum COLA and a 36 month final average salary period.

Effective January 1, 2012, members employed by the County and within certain bargaining units are responsible for the payment of 100% of the employees' basic retirement benefit contributions, determined annually by the Board. See Note 9, Contributions, for further description.

California Public Employees' Pension Reform Act (PEPRA)

In September 2012, the California Public Employees' Pension Reform Act of 2013 (PEPRA) was signed into law by the Governor of California, establishing new retirement tiers for General and Safety members entering CCCERA membership on or after January 1, 2013. These Tiers were titled General Tier 4, General Tier 5, Safety Tier D, and Safety Tier E. The benefit formula for General members is 2.5% at age 67 and the Safety formula is 2.7% at age 57. Benefits under the new PEPRA tiers are based on a three-year final average compensation period. Additionally, PEPRA limits the amount of compensation CCCERA can use to calculate a retirement benefit. The PEPRA annual compensation limits are adjusted each year based on changes in the Consumer Price Index.

Beginning in November 2012, the County adopted PEPRA retirement benefits that are subject to a maximum annual COLA of 2%. As a result, CCCERA created a second General Tier 5 and second General Tier 4.

Benefits are administered by the Board under the provisions of CERL and PEPRA. Annual COLAs to retirement benefits are provided for under CERL. Service retirements are based on age, length of service, and final compensation. Members may withdraw contributions plus interest credited or leave them on deposit for a deferred retirement when they terminate or transfer to a reciprocal retirement system.

Pertinent provisions for each section follow:

General – Tier 1

Members may elect service retirement at age 70 regardless of service, at age 50 with 10 years of service, or with 30 years of service regardless of age. Disability retirements may be granted as service connected with no minimum service credit required or non-service connected with five years of service credit required. The retirement benefit is based on Government Code Section 31676.11 for the Non-enhanced tier and Section 31676.16 for the Enhanced tier. The final compensation is based on a one-year average.

General – Tier 2

Members may elect service retirement at age 70 regardless of service, at age 50 with 10 years of service, or with 30 years of service regardless of age. The retirement benefit is based on Government Code Section 31752. The final compensation is based on a three-year average.

General – Tier 3

Members may elect service retirement at age 70 regardless of service, at age 50 with 10 years of service, or with 30 years of service regardless of age. Disability retirements may be granted as service connected with no minimum service credit or non-service connected with ten years of service credit required. The retirement benefit is based on Government Code Section 31676.16. The final compensation is based on a one-year average.

General – Tier 4

Members may elect service retirement at age 70 regardless of service, or at age 52 with 5 years of service. Disability retirements may be granted as service connected with no minimum service credit or non-service connected with five years of service credit required. The retirement benefit is based on Government Code Section 7522.20. The final compensation is based on a three-year average.

General – Tier 5

Members may elect service retirement at age 70 regardless of service, or at age 52 with 5 years of service. Disability retirements may be granted as service connected with no minimum service credit or non-service connected with ten years of service credit required. The retirement benefit is based on Government Code Section 7522.20. The final compensation is based on a three-year average.

Safety – Tier A and Tier C

Members may elect service retirement at age 70 regardless of service, or at age 50 with 10 years of service, or with 20 years of service regardless of age. Disability retirements may be granted as service connected with no minimum service credit required or non-service connected with five years of service credit required. The retirement benefit is based on Government Code Section 31664 for the Non-enhanced tier and Section 31664.1 for the Enhanced tier. The final compensation is based on a one-year average. Safety Tiers A and C differ only in the COLA provision.

Safety – Tier D and Tier E

Members may elect service retirement at age 70 regardless of service, or at 50 with 5 years of service. Disability retirements may be granted as service connected with no minimum service credit required or non-service connected with five years of service credit required. The retirement benefit is based on Government Code Section 7522.25(d). The final compensation is based on a three-year average. Safety Tiers D and E differ only in the COLA provision.

Additional information regarding CCCERA's benefits is included in the Benefit Handbook, available at www.cccera.org.

Cost-of-Living Adjustments (COLA)

The CERL authorizes the Board to grant annual automatic and ad hoc cost-of-living increases to all eligible retired members. Article 16.5 requires the Board to apply a COLA effective April 1st of each year. This adjustment is based on the change in the San Francisco-Oakland-San Jose area Consumer Price Index and is limited to the maximum of two percent for certain Tier 4 and Tier 5 members, depending on Memoranda of Understanding (MOU), and all Safety Tier C and Safety Tier E members; a maximum of three percent for Tier 1, Tier 3 (service retirement), certain Tier 4 and Tier 5 (service retirement), Safety Tier A and Safety Tier D members; and a maximum of four percent for Tier 2, Tier 3 (disability retirement), and Tier 5 (disability retirement) members. Government Code Section 31874.3 allows the granting of a supplemental cost-of-living benefit, on a prefunded basis, to eligible retirees whose unused Consumer Price Index increase accumulations equal or exceed 20 percent. This supplemental increase is a permanent part of the retirees' monthly benefit and is known as "New Dollar Power".

Terminations

A member may elect to leave accumulated contributions on deposit in the retirement fund regardless of years of service and be granted a deferred status which is subject to the same age, service, and disability requirements that apply to other members for service or disability retirement.

Other Post-Employment Benefits (OPEB) Trust

On January 1, 2015, CCCERA became an independent employer. As a single-employer defined benefit plan, CCCERA is responsible for the cost of retiree health benefits for CCCERA employees who retire on or after January 1, 2015. CCCERA contracts with California Public Employees' Retirement System (CalPERS) and Delta Dental, as health and dental insurance providers for those retired employees. For the retiree health benefits provided to employees that retire from CCCERA on or after January 1, 2015, Milliman Inc. (Milliman), CCCERA's OPEB actuary, prepares an actuarial valuation report of OPEB liability for those benefits in accordance with Governmental Accounting Standards Board (GASB) Statement No. 74 (GASB 74) and GASB Statement No. 75 (GASB 75) to determine the liability, annual required contribution, and other required financial disclosures.

Staff employees who retire directly from CCCERA may receive certain retiree benefits if they meet certain eligibility requirements. CCCERA will contribute an amount toward the cost of retiree health benefits for staff retirees consistent with the bargaining agreements between CCCERA and its bargaining units.

As to the cost of retiree health benefits for County employees who worked at CCCERA and retired prior to January 1, 2015, before CCCERA became an independent employer, those liabilities are included with the County's OPEB Trust for funding purposes. CCCERA currently provides payments to the County for these pre-January 1, 2015 retirees and expenses the payments on a "pay-as-you-go" basis.

CCCERA's membership in the OPEB Trust single-employer defined benefit plan as of December 31, 2022 and 2021 is presented as follows:

CCCERA OPEB Plan Membership
As of December 31, 2022 and 2021

	2022	2021	Amount Increase/ (Decrease)	Percent Increase/ (Decrease)
Active members	60	59	1	1.7%
Retired members or beneficiaries	7	7	-	-
Terminated members entitled to, but not yet receiving, benefits	-	-	-	-
TOTAL OPEB PLAN MEMBERSHIP	**67**	**66**	**1**	**1.5%**

Note 2.
SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

CCCERA follows the accounting principles and reporting guidelines set forth by the Governmental Accounting Standards Board (GASB). The financial statements are prepared using the accrual basis of accounting in accordance with generally accepted accounting principles (GAAP) in the United States of America, under which revenues are recognized when earned and deductions are recorded when the liability is incurred. Plan member and employer contributions are recognized in the period in which the contributions are due, pursuant to formal commitments, as well as statutory or contractual requirements. Investment income is recognized as revenue when earned. Retirement benefits and refunds of prior contributions are recognized when due and payable in accordance with the terms of the plan. Other expenses are recognized when the corresponding liabilities are incurred. All investment purchases and sales are recorded on the trade date. The net appreciation and/or depreciation in fair value of investments held by CCCERA is recorded as an increase or decrease to investment income based on the valuation of investments on a quarterly basis.

Component Unit

CCCERA was established to provide retirement benefits to employees of the County and 15 other participating employers. CCCERA provides a majority of its services for the benefit of the County and is reported as a Pension Trust Fund in the County's Annual Comprehensive Financial Report (ACFR). CCCERA's fiscal year is as of December 31 and reported in the County's ACFR as of their fiscal year which ends as of June 30.

Cash and Cash Equivalents

Cash and cash equivalents include deposits in the plan's custodian bank, The Northern Trust Company, the plan's local retail bank, Mechanics Bank, investment managers, and County of Contra Costa Treasurer's commingled cash pool. Cash equivalents are highly liquid investments with maturities of three months or less when purchased. Short-term investments with the custodian bank include foreign currencies, cash held in short-term investment funds and other short-term, highly liquid investments. Short-term investments considered cash equivalents are recorded at cost, which approximates fair value.

Methods Used to Value Investments

Investments are carried at fair value. Fair values for investments are derived by various methods, as indicated in the following chart:

Investment Fair Value Sources

Investments	Source
Publicly Traded Securities, such as equities and fixed income. Fixed income include obligations of the U.S. Treasury, U.S. agencies, non-U.S. governments, and both U.S. and non-U.S. corporations. Also included are mortgage-backed securities and asset-backed securities.	Valuations are provided by CCCERA's custodian bank Northern Trust, based on end-of-day prices from external pricing vendors, Non-U.S. securities reflect currency exchange rates in effect at December 31, 2022 and 2021.
Private Real Estate	Fair value as provided by real estate fund managers, based on review of cash flow, exit capitalization rates, and market trends; fund managers commonly subject each property to independent third-party appraisal annually. Investments under development are carried at cumulative cost until developed.
Alternatives (Private Equity and Private Credit)	"Fair value provided by investment managers as follows: Private investments - valued by the General Partner giving consideration to financial condition and operating results of the portfolio companies, nature of investment, marketability, and other factors deemed relevant. Public investments - valued based on quoted market prices, less a discount, if appropriate, for restricted securities."
Public Market Equity and Fixed Income Investments held in Institutional Commingled Fund/ Partnership	Fair value is typically provided by third-party fund administrator, who performs this service for the fund manager.

Investment Asset Allocation Policy

The allocation of investment assets within CCCERA's portfolio is approved by the Board as outlined in the investment policy. The asset allocation is an integral part of the Investment Policy and is designed to provide an optimum mix of asset classes with return expectations that reflect expected liabilities. Plan assets are managed on a total return basis with a long-term objective of achieving and maintaining a fully funded status for the benefits provided through the plan. In September 2016, the Board adopted a revised Investment Policy Statement, referred to as Functionally Focused Portfolio (FFP), that implemented long-term asset allocation targets in phases over a three year roll out period.

The FFP consists of three sub-portfolios, Liquidity, Growth, and Risk Diversifying, and is designed to accomplish CCCERA's primary function, paying for 2-3 years of pension benefits. CCCERA will continue to allocate the bulk of the remaining assets into a globally diversified growth sub-portfolio of stocks, real estate, and alternative asset strategies and the remaining into risk diversified investments.

The Board conducted a review of the strategic asset allocation in late 2020. The FFP structure was maintained, but the target allocation to the Liquidity sub-portfolio was reduced to three years from the prior four years. Other allocations were changed as well, most notably an increased target to private equity. A change to the Liquidity sub-portfolio was implemented in 2021 and the increased allocation to private markets will be implemented over the next several years.

As of 2022, the long-term asset allocation targets determined by the Board are as follows:

- Liquidity 17%
- Growth 76%
- Diversifying 7%

Long-Term Asset Allocation Policy
As of December 31, 2022

Asset Class	Target Allocation
Liquidity	**17%**
Growth:	
Domestic Equity	13%
Global & International Equity	19%
Private Equity	18%
Private Credit	13%
Real Estate - Value Add	5%
Real Estate - Opportunistic & Distressed	5%
Risk Parity	3%
Total Growth	**76%**
Risk Diversifying	**7%**
TOTAL	**100%**

Receivables

Receivables consist primarily of interest, dividends, installment contracts, investments in transition (i.e., traded not settled) and contributions owed by plan sponsor employers as of December 31, 2022 and 2021.

Capital Assets

Capital assets, consisting of computer hardware, software, leasehold improvements, furniture and office equipment, are presented at historical cost, less accumulated depreciation and amortization. Capital assets with an initial cost of more than $10,000 and an estimated useful life in excess of three years are capitalized and depreciated or amortized. Depreciation or amortization is calculated using the straight-line method, with estimated lives ranging from three years for software, five years for hardware and office equipment, and ten years for leasehold improvements and pension administration system assets.

Income Taxes

The Internal Revenue Service has ruled that plans such as CCCERA qualify under Section 401(a) of the Internal Revenue Code and are not subject to tax under present tax laws. In December 2014, CCCERA received a favorable letter of determination from the Internal Revenue Service (IRS). Accordingly, no provision for income taxes has been made in the accompanying basic financial statements, as the plan is exempt from federal and state income taxes under provisions of the Internal Revenue Code, Section 401, and California Revenue and Taxation Code, Section 23701, respectively.

Use of Estimates

The preparation of CCCERA's financial statements in conformity with accounting principles generally accepted in the United States of America (i.e., GAAP) requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying notes to the financial statements. Actual results could differ from those estimates.

Reclassifications

Comparative data for the prior year have been presented in the selected sections of the accompanying Statement of Fiduciary Net Position and Statement of Changes in Fiduciary Net Position. Also, certain accounts presented in the prior year's data may have been reclassified to be consistent with the current year's presentation.

Implementation of New GASB Pronouncements

CCCERA did not implement any new applicable GASB pronouncements in 2022. For subsequent years, CCCERA is determining if GASB Statement No. 96 (GASB 96) *Subscription-Based Information Technology Arrangements (SBITA)* will have an effect for reporting in the ACFR. A SBITA is defined as a contract that conveys control of the right to use another party's information technology software, alone or in combination with tangible capital assets, as specified in the contract for a period of time in an exchange or exchange-like transaction. The requirements for GASB 96 are effective for reporting periods beginning after June 15, 2022.

Note 3.
DEPOSITS AND INVESTMENT RISK DISCLOSURES

Investment Stewardship

Except as otherwise expressly restricted by the California Constitution and by law, the Board may, at its discretion, invest, or delegate CCCERA to invest the assets of CCCERA through the purchase, holding, or sale of any form or type of instrument, or financial transaction when prudent in the informed opinion of the Board. In addition, the Board has established an investment policy, which places limits on the compositional mix of cash, fixed income and equity securities, real assets, alternative investments, and real estate investments. CCCERA currently employs external investment managers to manage its assets subject to the guidelines of the investment policy.

Investment Risk

Investments are subject to certain types of risks, including interest rate risk, credit risk (including custodial credit risk and concentrations of credit risk), and foreign currency risk. The Board recognizes that the assumption of investment risk is necessary to meet the plan's objectives. The goal in managing investment risk is to ensure that an acceptable level of risk is being taken at the total plan portfolio level. CCCERA has no formal policy relating to investment risks. The following describes those risks:

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. The fair value of fixed maturity investments fluctuates in response to changes in market interest rates. Increases in prevailing interest rates generally translate into decreases in fair value of those investments. The fair value of interest sensitive instruments may also be affected by the creditworthiness of the issuer, prepayment options, relative values of alternative investments, and other general market conditions. Certain fixed maturity investments may have call provisions that could result in shorter maturity periods.

Holdings of Fixed Income Futures are allowed, on an unleveraged basis, such that the market notional value of long contracts shall be covered by cash, cash receivables, or cash equivalents with one year or less in duration.

The following schedule is a list of fixed income and short-term investments and the related maturity schedule for CCCERA as of December 31, 2022:

Investment Maturities (In Years)
As of December 31, 2022
(Dollars in Thousands)

Investment Type	Less than 1 year	1-5 years	6- 10 years	More than 10 years	Maturity Not Determined	Fair Value
Asset-Backed Securities	$-	$56,039	$9,557	$-	$-	$65,596
Commercial Mortgage-Backed	-	-	-	6,905	-	6,905
Commercial Paper	8,755	-	-	-	-	8,755
Corporate Bonds*	160,290	537,682	67,902	-	766,188	1,532,062
Funds-Corporate Bond	-	-	-	-	246,052	246,052
Funds-Corporate Convertible Bond	-	-	-	-	1,766	1,766
Funds-Fixed Income ETF	-	-	-	-	1,345	1,345
Funds-Government Agencies	-	-	-	-	3,210	3,210
Funds-Municipal/Provincial Bond	-	-	-	-	170	170
Funds-Other Fixed Income	-	-	-	-	6,207	6,207
Funds-Short-Term Investment	-	-	-	-	307,422	307,422
Government Agencies	-	21,428	-	-	-	21,428
Government Bonds	97,878	63,174	-	2,823	-	163,875
Government Mortgage-Backed Securities	35	1,923	49,170	456,462	-	507,590
Government Issued Commercial Mortgage-Backed	4,904	-	-	844	-	5,748
Hedge Multi Strategy*	-	-	-	-	254,025	254,025
Municipal Provincial Bonds	5,534	104,623	34,504	36,733	-	181,394
Non-Government Backed CMO's	-	-	195	16,802	-	16,997
Short-Term Bills and Notes	87,729	-	-	-	-	87,729
TOTALS:	**$365,125**	**$784,869**	**$161,328**	**$520,569**	**$1,586,385**	**$3,418,276**

*Includes securities reported in the Statement of Fiduciary Net Position as Alternative Investments, Equities, and Cash Equivalents.

Custodial Credit Risk

Custodial credit risk for deposits is the risk that, in the event of a financial institution's failure, CCCERA would not be able to recover its deposits. Deposits are exposed to custodial credit risk if they are not insured or not collateralized. Under the California Government Code, a financial institution is required to secure deposits in excess of $250,000 made by state or local governmental units by pledging securities held in the form of an undivided collateral pool. The fair value of the pledged securities in the collateral pool must equal at least 110% of the total amount deposited by the public agencies. California law also allows financial institutions to secure governmental deposits by pledging first deed mortgage notes having a value of 150% of the secured public deposits. Such collateral is held by the pledging financial institution's trust department or agent in CCCERA's name.

At year-end, the carrying amount of CCCERA's cash deposits in non-interest bearing accounts was $52,730,558 (which are included in cash equivalents) and the bank balance was $53,504,072. The difference between the bank balance and the carrying amount represents outstanding checks and deposits in transit. Effective January 1, 2013, funds deposited in a non-interest bearing account no longer receive unlimited deposit insurance coverage by the Federal Deposit Insurance Corporation (FDIC). Non-interest bearing bank account balances in excess of the FDIC insurance coverage of $250,000 are collateralized with qualifying securities held in pooled pledged custodial accounts earmarked as collateral against public fund deposits.

CCCERA's investment securities are not exposed to custodial credit risk because all securities held by CCCERA's custodial bank are in CCCERA's name. CCCERA has no general policy on custodial credit risk for deposits.

Money-Weighted Rate of Return

For the years ended December 31, 2022 and 2021, the annual money-weighted rate of return on the assets of the plan, net of investment expense, was -11.02% and 13.90%, respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the timing of cash flows and the changing amounts actually invested.

At the April 13, 2022 Board meeting, the Board adopted an investment return assumption for financial reporting purposes that is net of investment expenses and not net of administrative expenses equal to 6.75% per year. This rate was used in the preparation of the December 31, 2021 actuarial valuation report.

Investment Concentrations

The Board's investment policies and guidelines permit investments in numerous specified asset classes to take advantage of professional investment management advice and a well-diversified portfolio. At December 31, 2022, CCCERA has no individual securities that represent five percent (5%) or more of the plan's fiduciary net position. Investments issued or explicitly guaranteed by the U.S. government and pooled investments are excluded from this requirement. However, there are four portfolio positions that exceed the 5% threshold, but each of these positions represents a diversified portfolio. As of December 31, 2022, the portfolios that exceed 5% of the plan's fiduciary net position are:

- Insight Short-Duration Fixed Income 5.4%
- SIT Short-Duration Fixed Income 5.3%
- Blackrock Index Fund 8.7%
- Stepstone CC Opportunities 10.2%

As of December 31, 2021, CCCERA held positions in Insight Short-Duration Fixed Income, Blackrock Index, Artisan Global, and Stepstone CC Opportunities that represented more than 5% of the plan's fiduciary net position.

Credit Risk

Credit risk is the risk that an issuer, or other counterparty to an investment, will not fulfill its obligations. CCCERA's general investment policy is to apply the prudent-person rule. Investments are made as a prudent person would be expected to act, with discretion and for the exclusive purposes of providing benefits, minimizing contributions, and defraying reasonable expenses of administering the plan. Investments should be diversified so as to minimize the risk of loss and to maximize the rate of return unless, under the circumstances, it is clearly prudent not to do so.

Nationally recognized statistical rating organizations provide ratings of debt securities' quality based on a variety of factors. For example, the financial condition of the issuer provides investors with some idea of the issuer's ability to meet its obligations. Fixed-maturity investments may consist of rated or non-rated securities. Ratings can range from AAA (highest quality) to D (default). An investment grade is a rating that indicates that a bond has a relatively low risk of default. Debt securities with ratings of BBB or higher are considered investment grade issues, and debt securities with ratings of BB or lower are non-investment grade issues. Debt securities in the non-investment grade category are more speculative and are often referred to as "high-yield". This is due to the fact that lower rated debt securities generally carry a higher interest rate to compensate the buyer for taking on additional risk.

The following is a schedule of the credit risk ratings of CCCERA's fixed income and short-term investments as of December 31, 2022 as rated by Standard & Poor's (S&P):

Credit Risk Ratings
As of December 31, 2022
(Dollars in Thousands)

Quality Ratings	**Fair Value**
AAA	$63,544
AA+	39,744
AA	58,655
AA-	25,248
A+	74,569
A	52,138
A-	200,281
BBB+	115,616
BBB	135,613
BBB-	73,499
BB+	10,631
BB	26,619
BB-	25,191
B+	27,115
B	22,665
B-	14,627
CCC+	4,490
Not Rated	1,686,531
Guaranteed	761,500
TOTAL SECURITIES SUBJECT TO CREDIT RISK	**$3,418,276**

Investment Type	**Quality Rating Range**
Asset-backed securities*	AAA
Convertible bonds	Not Rated
CMBS*	Not Rated
CMO*	AAA to D
Corporate bonds*	AAA to CCC-
Municipals	AAA to BBB+
Private placements	AAA to BBB+
Real estate investment trust*	A- to B+
Short-term	AA to A+
U.S. & foreign agencies*	AAA to CCC+
Mutual funds	Not Rated

*Investment type contained one or more investments that were not rated.

Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates may adversely affect the fair value of an investment. CCCERA has no formal policy related to foreign currency risk. CCCERA's external investment managers may invest in international securities and must follow CCCERA's investment guidelines pertaining to these types of investments.

CCCERA's exposure to foreign currency risk in U.S. dollars as of December 31, 2022 is as follows:

Foreign Currency Risk
As of December 31, 2022
(Dollars in Thousands)

Currency	**Fixed Income**	**Equity**	**Total**
Australian Dollar	$-	$1,202	$1,202
Brazilian Real	-	1,899	1,899
British Pound Sterling	-	25,074	25,074
Canadian Dollar	-	11,418	11,418
Colombian Peso	820	-	820
Euro Currency	-	33,845	33,845
Hong Kong Dollar	-	8,106	8,106
Indonesian Rupiah	593	-	593
Japanese Yen	-	33,413	33,413
Mexican Peso	1,829	415	2,244
Norwegian Krone	-	1,221	1,221
Peruvian Nuevo Sol	471	-	471
Republic of Korea Won	1,280	8,197	9,477
Swedish Krona	-	4,576	4,576
Swiss Franc	-	14,932	14,932
Thailand Baht	-	1,964	1,964
TOTAL SECURITIES SUBJECT TO FOREIGN CURRENCY RISK	**$4,993**	**$146,262**	**$151,255**

Note 4.
FAIR VALUE MEASUREMENTS

CCCERA implemented GASB Statement No. 72 (GASB 72), *Fair Value Measurements and Application*, in the year ending December 31, 2016. GASB 72 was issued to address accounting and financial reporting issues related to fair value measurements and disclosures. The plan's investments, including investments held in the OPEB Trust, are measured and reported within the fair value hierarchy established by generally accepted accounting principles. The fair value hierarchy, which has three levels, is based on the valuation inputs used to measure an asset's fair value 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). The three levels of the fair value hierarchy are as follows:

- *Level 1* inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets.
- *Level 2* inputs are inputs other than quoted prices included in Level 1 that are observable for an asset or liability, either directly or indirectly. Inputs to the valuation include: 1) quoted prices for similar assets or liabilities in active markets; 2) quoted prices for identical or similar assets or liabilities in markets that are not active; 3) inputs other than quoted prices that are observable for the asset or liability; and 4) market-corroborated inputs.
- *Level 3* inputs are unobservable inputs for an asset or liability where there are little market activities. The inputs into the determination of fair value are based upon the best information in the circumstances and may require management judgment or estimation.

Schedule of Investments by Fair Value Hierarchy

Equity securities, real estate investment trusts, and commodities exchange traded funds classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities.

The exchange traded Options Contracts classified in Level 1 of the fair value hierarchy are valued using a daily settlement when available or as a daily mark-to-market.

Fixed income and equity securities classified in Levels 1 or 2 of the fair value hierarchy are valued using a matrix pricing technique based on the availability of the market price, the pricing source and type, and the country of incorporation of the securities. The hierarchy levels are determined based on the level of corroborative information obtained from other market sources to assert that the prices provided represent observable data.

Equity mutual funds classified in Level 2 of the fair value hierarchy are valued based on the availability of market price of the underlying assets and using either a discounted cash flow or Comparable Company Analysis with internal assumptions.

Fixed income securities classified in Level 3 relate to unlisted securities with little to no market activity and based on best information available.

Certain investments which do not have a readily determinable fair value have been valued at Net Asset Value (NAV) per share (or its equivalent) provided that the NAV is calculated and used as a practical expedient to estimate fair value in accordance with GAAP requirements. These investments are not categorized within the fair value hierarchy but disclosed in the Schedule of Investments Measured at the NAV.

CCCERA has the following recurring fair value measurements as of December 31, 2022:

Schedule of Investments by Fair Value Hierarchy
The plan has the following recurring fair value measurements as of December 31, 2022 (in thousands)

		Fair Value Measurements Using		
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Investments by Fair Value Level:				
Equities:				
Domestic Equity	$760,925	$760,925	$-	$-
Global & International Equity	378,885	378,885	-	-
Real Estate - REIT	186,635	186,635	-	-
High Yield	3	3		
Risk Diversifying	57,859	57,859	-	-
Total Equity Securities	**1,384,307**	**1,384,307**	**-**	**-**
Fixed Income:				
Liquidity Program	1,407,073	-	1,407,073	-
Global & International Held in Equity Portfolios	4,993	-	4,993	-
High Yield	131,972	-	131,972	-
Risk Diversifying	230,364	38,994	191,370	-
Total Fixed Income Securities	**1,774,402**	**38,994**	**1,735,408**	-
Real Assets:				
Global & International Equity	45,620	45,620	-	-
Total Real Asset Securities	45,620	45,620	-	-
Total Investments By Fair Value Level	**3,204,329**	**1,468,921**	**1,735,408**	**-**
Investments Measured at the Net Asset Value (NAV):				
Public Market Commingled Funds	3,639,715			
Real Estate:				
Value Added, Opportunistic & Distressed Funds	565,387			
Alternatives:				
Private Equity & Private Credit Funds	2,363,928			
Total Investments Measured at the NAV	**6,569,030**			
TOTAL INVESTMENTS MEASURED AT FAIR VALUE	**$9,773,359**			
Investment Derivative Instruments:				
Options Contracts	**$1,377**	**$1,377**	**$-**	**$-**
Total Investment Derivative Instruments	**$1,377**	**$1,377**	**$-**	**$-**

Investments Measured at the Net Asset Value (NAV)
(Dollars in Thousands)

	Fair Value	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Public Market Commingled Funds [1]	$3,639,715	$ -	1-90 days	1-30 days
Real Estate:				
Value Added, Opportunistic & Distressed Funds [2]	565,387	452,667	N/A	N/A
Alternatives:				
Private Equity & Private Credit Funds [3]	2,363,928	1,057,701	N/A	N/A
Total Investments Measured at the NAV	**$6,569,030**	**$1,510,368**		

(1) Public Market Commingled Funds: This investment type consists of eleven public market commingled funds that primarily invest in publicly traded equities and fixed income securities. The fair value of these investments has been determined using a practical expedient based on the investments' NAV per share (or its equivalent). These investments typically have monthly liquidity with ten day notice.

(2) Value Added, Opportunistic & Distressed Funds: This investment type consists of twenty-five real estate funds that invest primarily in commercial real estate. The fair value of these investments has been determined using a practical expedient based on the investments' NAV. All of the funds are in closed-end fund vehicles and are not redeemable. It is expected that these investments will be held for the entire lives of the funds and will not be sold in the secondary market. These funds typically have a 10-year lock up period and distributions from each fund will be received as underlying assets are liquidated by the fund managers.

(3) Private Equity & Private Credit Funds: This investment type consists of forty-one private equity and five private credit funds. The private equity funds invest primarily in other private equity funds, privately held U.S. companies, and privately held non-U.S. companies. The private credit funds invest primarily in other private credit funds, commercial real estate debt and other specialty/opportunistic debt instruments. The fair value of these investments has been determined using a practical expedient based on the investments' NAV. It is expected that the Private Equity and Private Credit investments will be held for the entire lives of the funds and will not be sold in the secondary market. These funds typically have a 10-year lock up period and distributions from each fund will be received as the underlying assets are liquidated by the fund managers.

The OPEB Trust has the following recurring fair value measurements as of December 31, 2022 (in thousands). OPEB Trust assets are administered by Public Agency Retirement Services (PARS) with US Bank as trustee custodian, and HighMark Capital Management as investment manager. OPEB Trust investments are invested in a diversified portfolio of passively managed equity funds and actively managed fixed income funds. The investments are measured at NAV.

OPEB Trust - Schedule of Investments by Fair Value Hierarchy
As of December 31, 2022
(in thousands)

		Fair Value Measurements Using		
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Other Unobservable Inputs (Level 3)
Total Investments By Fair Value Level	$-	$-	$-	$-

Total Investments Measured at the NAV:

	Fair Value	Redemption Frequency	Redemption Notice Period
Public Market Commingled Funds(4)	$4,531	1-90 days	1-30 days
Total Investments Measured at the NAV	4,531		
Total Investments Measured at Fair Value	**$4,531**		

Note 5
SECURITIES LENDING TRANSACTIONS

The Investment Policy, adopted by the Board, permits the use of a securities lending program with its principal custodian bank. Securities lending is an investment management activity that mirrors the fundamentals of a loan transaction. Securities are loaned to brokers and dealers (borrower), and in turn CCCERA receives cash as collateral and invests the collateral with the goal of earning a higher yield than the interest rate paid to the borrower. Earnings generated above and beyond the interest paid to the borrower represent the net income to CCCERA from the transaction. The custodian bank provides loss indemnification to CCCERA if the borrower fails to return the securities.

The custodian bank manages the securities lending program and receives cash and/or securities as collateral. Cash collateral is invested in a short-term investment pool. Non-cash collateral securities cannot be pledged or sold by CCCERA unless the borrower defaults. The collateral is marked-to-market daily, and if the market value of the securities rises, CCCERA receives additional collateral.

Securities on loan must be collateralized at 102 percent and 105 percent of the fair value of domestic securities and international equity securities, respectively, plus accrued interest (in the case of debt securities).

There are no restrictions on the amount of securities that can be loaned at one time. CCCERA has the right to terminate any loan in whole or in part by providing the custodian bank with written notice (a "Recall Notice"). Because the loans are terminable at will, the term to maturity of the security loans is generally not matched with the term to maturity of the cash collateral. At year-end, CCCERA had no credit risk exposure to borrowers, because the amount of collateral received exceeded the value of securities on loan. As of December 31, 2022, there were no violations of legal or contractual provisions. CCCERA had no losses on securities lending transactions resulting from the default of a borrower for the years ended December 31, 2022 and 2021.

The fair value of investments on loan at December 31, 2022 is $324.0 million which was collateralized by cash and securities in the amount of $332.2 million. The fair value of the cash collateral in the amount of $269.0 million has been reported both as an asset and liability in the accompanying Statement of Fiduciary Net Position.

Securities Lending
Securities on Loan as of December 31, 2022
(Dollars in Thousands)

Securities on Loan	Fair Value of Securities on Loan	Cash Collateral	Non-Cash Collateral
U.S. Corporate Fixed	$97,439	$97,034	$2,573
U.S. Equities	155,230	118,398	41,259
U.S. Government Fixed	71,317	53,598	19,301
TOTAL	**$323,986**	**$269,030**	**$63,133**

NOTE 6.
NET PENSION LIABILITY (ASSET)

Statement No. 67 of the Governmental Accounting Standards Board (GASB) requires public pension plans to provide a net pension liability (asset). The net pension liability (asset) is measured as the total pension liability less the amount of the pension plan's fiduciary net position. The net pension liability (asset) is an accounting measurement for financial statement reporting purposes.

The net pension liability (asset) was measured as of December 31, 2022 and December 31, 2021. The pension plan's fiduciary net position (plan assets) was valued as of the measurement dates and the total pension liability was determined based upon rolling forward the total pension liability from actuarial valuations as of December 31, 2021 and December 31, 2020, respectively. The components of CCCERA's net pension liability (asset) as of December 31, 2022 and 2021 are as follows:

Net Pension Liability (Asset)
(Dollars in Thousands)

	December 31, 2022	December 31, 2021
Total Pension Liability (a)	$11,752,067	$11,210,812
Plan Fiduciary Net Position (b)	10,053,669	11,453,766
Net Pension Liability (Asset) (a-b)	**$1,698,398**	**$(242,954)**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (b/a)	**85.5%**	**102.2%**

Actuarial Assumptions

In preparing an actuarial valuation, the actuary employs generally accepted actuarial methods and assumptions to evaluate the plan's assets, liabilities, and future contributions requirements. The actuary utilizes member data and financial information provided by the plan with economic and demographic assumptions made about the future to estimate the plan's financial status as of a specified point in time. Examples of estimates include assumptions about future employment, mortality, future investment returns, future salary increases, expected retirements and other relevant factors. Actuarially determined amounts are subject to continual review or modification. The Board reviews the economic and demographic assumptions of the plan every three years.

The actuarial assumptions used to determine the total pension liability as of December 31, 2022 were based on the results of an experience study for the three year period from January 1, 2018 through December 31, 2020 approved by the Board on April 13, 2022. The total pension liability as of December 31, 2022, that was measured by an actuarial valuation as of December 31, 2021, was re-valued as of December 31, 2021 (before roll forward) using the latest actuarial assumptions resulting from the 2018-2020 experience study. This revalued total pension liability was then rolled forward to December 31, 2022 to determine the final total pension liability as of December 31, 2022. The Board also approved the 2018-2020 experience study actuarial assumptions to be used in the preparation of the actuarial valuation as of December 31, 2022, which is anticipated to be completed by August 2023.

Key methods and assumptions used in determining the final total pension liability are presented below. For key methods and assumptions used in the latest actuarial valuation, see page 99 in the Actuarial section.

Key Methods and Assumptions Used In Total Pension Liability	
Valuation Date	December 31, 2022
Actuarial Experience Study	3 Year Period Ending December 31, 2020
Actuarial Cost Method	Entry Age Actuarial Cost Method
Amortization Method	Level percent of payroll
Investment Rate of Return	6.75%, net of pension plan investment expenses, including inflation.
Inflation Rate	2.50%
Administrative Expenses for December 31, 2022	1.13% of payroll allocated to both the employer and member based on the components of the Normal Cost rates for the employer and member.
Salary Increase	3.50% to 14.00% for General 4.00% to 15.00% for Safety varying by service, including inflation.
Cost-of-Living Adjustments	2.75% of retirement income for Tiers with 3% or 4% COLA. 2.00% of retirement income for Tiers with 2% COLA.
Other Assumptions	Same as those used in analysis of actuarial experience during the period January 1, 2018 through December 31, 2020.

Long-Term Expected Real Rate of Return

The long-term expected rate of return on plan investments was determined in 2022 using a building-block method in which expected future real rates of return (expected returns, net of inflation) are developed for each major asset class. This information is combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adding expected inflation, and subtracting expected investment expenses and a risk margin. The Board approved target allocations and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expenses, used in the derivation of the long-term expected investment rate of return assumption for each major asset class, which are summarized in the table below.

Long-Term Expected Real Rate of Return

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Arithmetic)
Large Cap Equity	10.00%	5.40%
Small Cap Equity	3.00%	6.17%
Developed International Equity	10.00%	6.13%
Emerging Market Equity	9.00%	8.17%
Core Fixed	4.00%	0.39%
Short-Term Credit	14.00%	-0.14%
Cash & Equivalents	3.00%	-0.73%
Private Equity	15.00%	10.83%
Private Credit	13.00%	5.93%
Infrastructure	3.00%	6.30%
Value Add Real Estate	5.00%	7.20%
Opportunistic Real Estate	5.00%	8.50%
Risk Parity	3.00%	3.80%
Hedge Funds	3.00%	2.40%
TOTAL	**100%**	**5.60%**

Discount Rate

The discount rate used to measure the total pension liability as of December 31, 2022 and December 31, 2021 was 6.75%. The projection of cash flows used to determine the discount rate assumed plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the actuarially determined contribution rates. For this purpose, only plan member and employer contributions that are intended to fund benefits for current plan members and their beneficiaries are included. Projected employer contributions that are intended to fund the service costs for future plan members and their beneficiaries, as well as projected contributions from future plan members, are not included. Based on those assumptions, the plan's fiduciary net position was projected to be available to make all projected future benefit payments for current plan members.

Therefore, the long-term expected rate of return on pension plan investments of 6.75% was applied to all periods of projected benefit payments to determine the total pension liability as of December 31, 2022 and December 31, 2021.

The following table presents the net pension liability (asset) of participating employers calculated using the discount rate of 6.75% as of December 31, 2022 as well as what the net pension liability (asset) would be if it were calculated using a discount rate that is 1-percentage-point lower (5.75%) or 1-percentage-point higher (7.75%) than the current rate.

Sensitivity of Net Pension Liability to Changes in the Discount Rate
As of December 31, 2022
(Dollars in Thousands)

	1% Decrease (5.75%)	Current Discount Rate (6.75%)	1% Increase (7.75%)
Net Pension Liability	$3,272,925	$1,698,398	$408,339

Note 7.
OTHER POST-EMPLOYMENT BENEFITS (OPEB) LIABILITY AND SECTION 115 TRUST

GASB 74 and GASB 75 require CCCERA to report the total OPEB liability and net OPEB liability (asset) as calculated by its actuary, Milliman Inc. GASB 74 and GASB 75 allows a biennial actuarial valuation referred to as a full valuation, and a roll-forward valuation for the subsequent (in between) fiscal year using the same census and demographic assumptions as the last full valuation. A full valuation as of December 31, 2022 was adopted by the Board on March 22, 2023.

For the current year, the OPEB fiduciary net position as a percentage of the total OPEB liability was 101.6% as of December 31, 2022. The total OPEB liability, which is the responsibility of CCCERA as a single-employer defined benefit plan, is calculated separately from the pension plan liabilities and is presented solely for financial statement purposes.

In the 2018 year of inception, the Board adopted the OPEB actuarial valuation by Milliman Inc. and authorized the Chief Executive Officer (CEO) to establish an Irrevocable Trust agreement per IRS Code Section 115 for the purpose of pre-funding OPEB obligations. The Board authorized the CEO to execute a contract with Public Agency Retirement Services (PARS) for OPEB Trust fund management services, and appointed the CEO as CCCERA plan administrator whose authority includes selection of an appropriate investment option offered by PARS.

In 2019, the Board adopted a funding policy to contribute to the OPEB Trust equal to the actuarial determined contribution (ADC) each year and changed the amortization period of the net OPEB liability (asset) from 30 years to 10 years. For the current year's valuation, the ADC is defined as the annual service cost, plus an amount to amortize the net OPEB liability (asset) over 10 years beginning 2018 (year of inception) on a level dollar basis, plus interest to account for the timing of contributions during the year.

Net OPEB Liability (Asset) And Changes To Net OPEB Liability

The net OPEB liability (asset) is measured as the total OPEB liability (asset) less the amount of the OPEB Trust fiduciary net position. The net OPEB liability (asset) and schedule of changes in net OPEB liability (asset) and related ratios displays the components in conformity with GASB 74/75 for financial statement reporting purposes as of December 31, 2022 as follows:

Total OPEB Liability and Schedule of Changes in Net OPEB Liability (Asset) and Related Ratios
As of December 31, 2022 and 2021
(Dollars in Thousands)

	2022	2021
Total OPEB Liability		
Service cost	$211	$198
Interest	368	341
Changes in benefit terms	-	-
Differences between actual and expected experience with regard to economic or demographic factors	(1,245)	-
Changes of assumptions	(169)	-
Benefit payments	(194)	(96)
Net Change in Total OPEB Liability	**(1,029)**	**443**
Total OPEB Liability - Beginning	**5,535**	**5,092**
Total OPEB Liability - Ending (a)	**$4,506**	**$5,535**
OPEB Trust Fiduciary Net Position		
Contributions from employer	$268	$268
Net Investment income (loss)	(797)	414
Administrative expenses	(156)	(83)
Net Change in OPEB Trust Fiduciary Net Position	**(685)**	**599**
OPEB Trust Fiduciary Net Position - Beginning	**5,265**	**4,666**
OPEB Trust Fiduciary Net Position - Ending (b)	**$4,580**	**$5,265**
Net OPEB Liability (Asset) (a)-(b) = (c)	**$(74)**	**$270**
OPEB TRUST FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL OPEB LIABILITY (b)/(a)	**101.6%**	**95.1%**
COVERED EMPLOYER PAYROLL (d)	**$6,155**	**$6,329**
NET OPEB LIABILITY (ASSET) AS A PERCENTAGE OF COVERED PAYROLL (c)/(d)	**-1.2%**	**4.3%**

Deferred (Inflows)/Outflows Of Resources

Investment (gains)/losses are recognized in OPEB expense over a period of 5 years. Economic/demographic (gains)/losses and assumption changes or inputs are recognized over the average remaining service life for all active and inactive members.

OPEB Schedule of Deferred (Inflows) / Outflows of Resources
As of December 31, 2022
(Dollars in Thousands)

Asset Class	Deferred Inflows of Resources	Deferred Outflows of Resources
Differences between expected and actual experience	$(1,442)	$-
Changes of assumptions	(369)	-
Net difference between projected and actual earnings	-	721
Contributions made subsequent to measurement date	-	-
TOTAL	**$(1,811)**	$721

Fiscal Year Ending December 31	Recognized Deferred (Inflows) and Outflows of Resources
2023	$(114)
2024	(114)
2025	(52)
2026	(31)
2027	(258)
2026	(99)
THEREAFTER	**$(521)**

Contributions

As a single-employer defined benefit plan, CCCERA has adopted a policy to fully fund the ADC to the OPEB Trust each year as an employer contribution, which is not based on covered payroll to employees.

Schedule of Employer Contributions
For Years ended December 31, 2018 through 2022
(Dollars in Thousands)

Fiscal Year	Actuarially Determined Contributions (a)	Contributions in Relation to the Actuarially Determined Contributions (b)	Contribution Deficiency/ (Excess) (b) - (a)	Employer-Covered Payroll [1] (c)	Contributions as a Percentage of Covered Payroll (b)/(c)
2018	$536	$2,542	N/A	$4,997	50.9%
2019	536	828	N/A	5,385	15.4%
2020	268	536	N/A	5,910	9.1%
2021	257	268	N/A	6,329	4.2%
2022	158	268	N/A	6,155	4.4%

[1] Employer-Covered payroll is informational only due to contributions are all funded by employer.

Key Methods and Assumptions Used In Actuarial Valuation of Total OPEB Liability

Key Methods and Assumptions Used In Actuarial Valuation of Total OPEB Liability	
Valuation Date	January 1, 2022
Measurement Date	December 31, 2022
Valuation Type	Full
Actuarial Cost Method	Entry Age Normal Cost
Amortization Method	Level dollar basis
Amortization Period	10 years (6 years remaining as of December 31, 2022)
Asset Valuation Method	Fair value of assets
Investment Rate of Return	6.50%
Investment Rate	2.75%
Assumed Salary Increases	3.53% to 14.34% varying by years of service
Other Assumptions	Consistent with those used in the December 31, 2020 actual valuation for CCCERA pension plan

Investment Rate of Return

The assumed investment rate of return used was 6.50%, net of expenses. This is based on the investment policy set by CCCERA for the OPEB Trust managed by PARS, annual funding equal to the ADC, and assumes a 2.75% long-term inflation. The actual total portfolio performance rate of returns, net of investment expenses, since inception date of 2018 is shown in the following table.

Schedule of Investment Returns
For Years ended December 31, 2018 through 2022
(Dollars in Thousands)

	2022	2021	2020	2019	2018
Total portfolio performance returns, net of investment expenses	-14.82%	9.27%	13.12%	15.38%	0.01%

Discount Rate

Under GASB 74/75, the discount rate should be the single rate that reflects the long-term rate of return on OPEB plan investments that are expected to be used to finance the payment of benefits. To the extent that OPEB plan assets, along with expected future investment returns and expected future contributions are sufficient to finance all OPEB benefits, the discount rate should be based on the assumed investment on assets. CCCERA's current policy is to fund the actuarial determined contribution each year. Based on CCCERA's funding policy, plan assets are projected to be sufficient to fund OPEB liabilities. Therefore, a discount rate of 6.50% and a 2.75% rate of long-term inflation was assumed. Based on the OPEB Trust portfolio's target allocation table below, the expected annual return of OPEB Trust assets over the next 30 years is expected to be 6.47%.

OPEB Trust Long-Term Expected Real Rate of Return

Asset Class	Current Asset Allocation	Expected 1 -Year Nominal Return
Cash	2.48%	1.0%
Core Fixed Income	4.06%	18.0%
Short-Term Fixed Income	3.20%	10.0%
U.S.Treasuries	2.96%	5.0%
Domestic Equity Large Cap	6.29%	23.0%
Domestic Equity Small Cap	7.02%	7.0%
International Developed Equity	7.38%	21.0%
International Emerging Market Equity	8.18%	12.0%
Real Estate	6.31%	3.0%
TOTAL	**100%**	**6.53%**
Expected annual return of Trust assets over next 30 years	6.47%	

Demographic Assumptions

A summary of the assumed rates for mortality, retirement, disability, and withdrawal, which are consistent with assumptions used in the December 31, 2021 CCCERA pension actuarial valuation is included in the OPEB Key Methods and Assumptions table in the Actuarial Section of this report on page 111.

Sensitivity of Net OPEB Liability (Asset)

GASB 74/75 requires disclosure of the sensitivity of the Net OPEB Liability (NOL) (Asset) to changes in the discount rate and healthcare cost trend rates. The liabilities shown below are based as of December 31, 2022. The following tables show what CCCERA's Net OPEB Liability (Asset) would be if it were calculated using a rate that is 1 percentage point lower or 1 percentage point higher than the current discount rate and the current healthcare cost trend rate.

Sensitivity of Net OPEB Liability to Changes in the Discount Rate
As of December 31, 2022
(Dollars in Thousands)

	1% Decrease (5.50%)	Current Discount Rate (6.50%)	1% Increase (7.50%)
Net OPEB Liability (Asset)	$505	$(74)	$(556)

Sensitivity of Net OPEB Liability to Changes in the Healthcare Costs Trend Rate
As of December 31, 2022
(Dollars in Thousands)

	1% Decrease	Current Healthcare Costs Trend Rate	1% Increase
Net OPEB Liability (Asset)	$(621)	$(74)	$601

Note 8.
DERIVATIVE FINANCIAL INSTRUMENTS

A derivative is a security with a price that is dependent upon or derived from one or more underlying assets. As of December 31, 2022, the derivative instruments held by CCCERA are considered investments and not hedges for accounting purposes. The term hedging, as it is used elsewhere in the notes to these financial statements, denotes an economic activity and not an accounting method. The gains and losses from this activity are recognized as incurred in the Statement of Changes in Fiduciary Net Position.

CCCERA currently employs external investment managers to manage its assets as permitted by the California Government Code and CCCERA's investment policy and specific managers hold investments in swaps, options, futures, forward settlement contracts, and warrants and enter into forward foreign currency exchange security contracts within fixed income financial instruments. The fair value of options, futures, and warrants is determined based upon quoted market prices. The fair value of derivative investments that are not exchange traded, such as swaps, and TBAs (To Be Announced) is determined by an external pricing service using various proprietary methods, based upon the type of derivative instrument. Futures contracts are marked to market at the end of each trading day, and the settlement of gains or losses occur on the following business day through variation margins. The fair value of international currency forwards represents the unrealized gain or loss on the related contracts, which is calculated as the difference between the specified contract exchange rate and the exchange rate at the end of the reporting period.

Forward foreign currency exchange contracts are used primarily to hedge against changes in exchange rates related to foreign securities. Due to the level of risk associated with certain derivative investment securities, it is conceivable that changes in the values of investment securities will occur in the near term, and such changes could affect the amounts reported in the financial statements.

CCCERA could be exposed to risk if the counterparties to contracts are unable to meet the terms of the contracts. CCCERA's investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, and exposure monitoring procedures. CCCERA anticipates that the counterparties will be able to satisfy their obligations under the contracts. The following is a summary of derivative instruments as of December 31, 2022 with the net appreciation/(depreciation) that has occurred during the year:

Investment Derivatives
As of December 31, 2022
(Dollars in Thousands)

Investment Derivatives by Type	**Net Appreciation/ (Depreciation) in Fair Value**	**Classifications**	**Fair Value**	**Notional Amount**
Interest Rate Contracts-Futures	$(10,892)	Futures	$-	$60,303
Interest Rate Contracts-Options	1,432	Options	-	-
Forward Foreign Exchange Contracts	417	Forwards	(119)	-
Equity Contracts-Futures	(78,230)	Futures	-	155,860
Equity Contracts-Options	(2,468)	Options	1,377	-
Equity Contracts-Rights/Warrants	(22)	Rights/ Warrants	94	-
Equity Contracts-Other Contracts	2	Futures	-	-
TOTAL	**$(89,761)**		**$1,352**	

Valuation methods are more fully described in Note 2, *Summary of Significant Accounting Policies*, to the basic financial statements. CCCERA's derivative instruments that are not exchange traded, including any swaps, are valued using methods employed for debt securities. CCCERA's investment policy does not require collateral to be held for derivative investments.

Futures contracts are instruments that derive their value from underlying indices or reference rates and are marked to market daily. Settlement of gains or losses occur the following business day. As a result, those instruments and other similar instruments do not have a fair value at December 31, 2022, or any other trading day. Daily settlement of gains and losses enhances internal controls as it limits counterparty credit risk. Futures variation margin accounts are also settled daily and recognized in the financial statements under net appreciation/(depreciation) in fair value as they are incurred.

Foreign currency contracts are obligations to buy or sell a currency at a contractual exchange rate and quantity on a specific date in the future. The fair value of the foreign currency forwards is the unrealized gain or loss calculated as the difference between the contractual exchange rate and the closing exchange rate as of December 31, 2022.

Counterparty Credit Risk

Credit risk of cash securities containing derivative features is based upon the creditworthiness of the issuers of such securities. It includes the risk that counterparties to contracts will not perform and/or the public exchange will not meet its obligation to assume the counterparty risk. Exchange traded derivatives are generally considered to be of lower credit risk than over-the-counter derivatives due to the exchange's margin requirements.

The following Credit Risk Analysis schedule discloses the counterparty credit ratings of CCCERA's derivative investments as of December 31, 2022:

Credit Risk Analysis
As of December 31, 2022
(Dollars in Thousands)

	S&P Credit Rating		
Derivative Type	**Not Available or Not Rated**	**Exchange Traded**	**Total Fair Value**
Assets:			
Options - Equity Contracts	$ -	$1,377	$1,377
Rights/Warrants - Equity Contracts	94		94
Forwards - Foreign Exchange Contracts	12		12
Liabilities:			
Forwards - Foreign Exchange Contracts	(131)		(131)
TOTAL	**$(25)**	**$1,377**	**$1,352**

Custodial Credit Risk

The custodial credit risk for exchange traded derivative instruments is made in accordance with custodial credit risk disclosure requirements outlined in Generally Accepted Accounting Principles (GAAP). As of December 31, 2022, all of CCCERA's investments are held in CCCERA's name and are not subject to custodial credit risk.

Interest Rate Risk-Derivatives

CCCERA's investment in interest rate contracts are highly sensitive to changes in interest rates. CCCERA measures interest rate risk using duration with varying maturities of less than three months to more than 10 years. The investment maturities for the majority of derivative investments are three months or less. The investment maturity of $93 thousand of investments in derivatives is six to twelve months, the investment maturity of $1 thousand of investments in derivatives is three to six months, and the investment maturity of $1,258 thousand of investments in derivatives is three months or less.

Foreign Currency Risk-Derivatives

CCCERA is exposed to foreign currency risk on its various investments denominated in foreign currencies. Currency forward contracts are derivatives and generally serve to hedge or offset the impact of foreign currency exchange rate fluctuations. CCCERA does not have a formal policy on foreign currency risk.

Note 9.
CONTRIBUTIONS

Participating employers and active plan members are required to contribute a percentage of covered salary to the plan. This requirement is pursuant to Government Code Sections 31453.5, 31454 and 7522.52, for participating employers, and Government Code Sections 31621.6, 31639.25 and 7522.30 for active plan members. The contribution requirements are established and may be amended by the Board pursuant to Article 1 of CERL, which is consistent with the plan's actuarial funding policy. The contribution rates are adopted yearly, based on an annual actuarial valuation, conducted by an independent actuary, that considers the mortality, service (including age at entry into the plan, if applicable, and tier), and compensation experience of the members and beneficiaries, and also includes an evaluation of the plan's assets and liabilities. Participating employers may pay a portion of the active plan members' contributions through negotiations and bargaining agreements subject to restrictions in CERL and PEPRA.

Employers are required to contribute at an actuarially determined rate calculated on the alternate funding method permitted by Government Code Section 31453.5. Pursuant to provisions of CERL, the Retirement Board recommends annual contribution rates for approval by the Board of Supervisors. These contribution rates are determined in accordance with the plan's actuarial funding policy, which has the following goals:

1. To determine future contributions that, together with current plan assets, are expected to be sufficient to provide for all benefits provided by CCCERA;

2. To seek reasonable and equitable allocation of the cost of benefits over time including the goal that annual contributions should, to the extent reasonably possible, maintain a close relationship to both the expected cost of each year of service and to variations around that expected cost;

3. To manage and control future contribution volatility to the extent reasonably possible, consistent with other policy goals; and,

4. To support the general public policy goals of accountability and transparency by being clear as to both intent and effect, allowing for an assessment of whether, how and when the plan sponsors will meet the funding requirements of the plan.

The "Entry Age" method is used to determine the normal cost and the Actuarial Accrued Liability (AAL). Under this method, the employer contribution rate provides for current cost (normal cost) plus a level percentage of payroll to amortize the Unfunded Actuarial Accrued Liability (UAAL). Normal cost under the Entry Age method is the annual contribution rate that, if paid annually from a member's first year of membership through the year of retirement, would accumulate to the amount necessary to fully fund the member's retirement benefit if all underlying assumptions are met. The UAAL is the difference between the Actuarial Accrued Liability and the Actuarial Value of Assets.

The rates for Legacy members (those subject to a benefit formula in CERL) are set to provide a retirement benefit equal to a fractional portion of the highest year(s) salary, based on membership and tier. The rates for PEPRA members (new members on or after January 1, 2013) are equal to one-half the normal cost of their defined benefit plan.

The recommended average member contribution rate for CCCERA members is 12.17% of annual covered salary, based on the most recent valuation. Certain Safety members contribute an additional percent of base pay towards the employer's increase in cost of the enhanced (3% at 50) safety benefit. Certain Safety members at Moraga-Orinda Fire District contribute 9% of base pay pursuant to a Memorandum of Understanding. San Ramon Valley Fire Protection District members contribute 8% of base pay. Member contributions are refundable upon termination of employment.

As of December 31, 2022, the County of Contra Costa and six other CCCERA employers subsidize some portion of the employee basic retirement contribution for at least some employees.

During the year ended December 31, 2022, contributions totaled approximately $474.7 million which included $352.4 million in employer contributions and $122.3 million in plan member contributions. The contribution figures also include plan member and employer purchase, redeposit, and conversion amounts.

Government Code Section 31582(b) allows the Board of Supervisors to authorize the County auditor to make an advance payment of all or part of the County's estimated annual contribution to the retirement fund, provided that the payment is made no later than 30 days after the beginning of the County's fiscal year. If the advance is only a partial payment of the County's estimated annual contribution, remaining transfers will be done monthly or at the end of each pay period until the total amount required for the year is contributed.

Government Code Section 31582(b) was amended on July 17, 2017 with Senate Bill 671 approved by the Governor, to also allow the Board of Supervisors to authorize the County auditor to make a second advance payment for an additional year or partial year of contributions, provided that the payment is made no later than 30 days after the beginning of the County's fiscal year.

Government Code Section 31585(c) allows governing bodies of employer districts authorization for the same appropriations and transfers for all, part, or second additional annual advance payments. The County of Contra Costa and ten other participating employer districts "prepay" or make advance payments of all of the employer's estimated annual contributions discounted by the assumed interest rate in effect on July 1. At the end of the fiscal year, a "true-up" is completed and employers are either billed for an underpayment or apply their overpayment towards the following year contributions.

Ten-year historical trend information, designed to provide information about CCCERA's progress in accumulating sufficient assets to pay benefits when due, is presented in the Actuarial Section of this report on page 90.

CERL requires an actuarial valuation be performed at least every three years for the purpose of measuring the plan's funding progress and setting contribution rates. CCCERA exceeds this requirement by engaging an independent actuarial consulting firm to perform an actuarial valuation for the pension plan annually. The purpose of the valuation is to evaluate the assets and liabilities of the plan and determine necessary changes in employer and plan member contribution rates. The actuarial assumptions and methods have been selected in order to help ensure the systematic funding of future benefit payments for CCCERA members, and to maintain equity among generations of participants and taxpayers.

Actuarial standards guide the frequency to which an investigation of experience (experience study) is performed. CCCERA engages an independent actuarial consulting firm to perform the experience study at least every three years. The economic and demographic assumptions are reviewed and updated as required each time an experience study is performed. If assumptions are modified as a result of the experience study, employer and plan member contribution requirements are adjusted to take into account the change in the projected experience of the plan.

The actuarial assumptions used to determine the latest actuarial valuation as of December 31, 2021 are based on the results of the three-year actuarial experience study for the three-year period January 1, 2018, through December 31, 2020, which was adopted by CCCERA's Board on April 13, 2022.

The latest actuarial valuation as of December 31, 2021 discloses the actuarial value of assets at $10.5 billion with an actuarial accrued liability of $11.3 billion for a funded ratio of 92.4%. The UAAL is $0.9 billion, which is 84.1% of the $1,015.8 million projected covered payroll. A schedule of CCCERA's funding progress may be found in the Actuarial Section on page 90. The schedule of funding progress presents multi-year trend information about whether the actuarial value of plan assets is increasing or decreasing relative to the actuarial accrued liability for benefits over time. Additional information regarding the actuarial policies, methods and assumptions used as of the latest actuarial valuation of plan assets and liabilities is shown as follows.

Methods and Assumptions Used to Establish Actuarially Determined Contribution Rates	
Valuation Date	Actuarially determined contribution rates are calculated as of December 31, two and a half years prior to the end of the fiscal year in which contributions are reported.
Actuarial Cost Method	Entry Age Actuarial Cost Method. Entry Age is the age on the valuation date minus years of service. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are based on costs allocated as a level percentage of compensation, as if the current benefit formula for each individual has always been in effect.
Amortization Policy	The UAAL (i.e., the difference between the AAL and the Valuation Value of Assets) as of December 31, 2014 will continue to be amortized over separate amortization layers based on the valuations during which each separate layer was previously established. •Any new UAAL as a result of actuarial gains or losses identified in the annual valuation as of December 31 will be amortized over a period of 18 years. •Any new UAAL as a result of change in actuarial assumptions or methods will be amortized over a period of 18 years. Unless the Board adopts an alternative amortization period after receiving an actuarial analysis: The increase in UAAL due to plan amendments (with the exception of a change due to temporary retirement incentives) will be amortized over a period of 10 years. The entire increase in UAAL resulting from a temporary retirement incentive will be funded in full upon adoption of the incentive.
Actuarial Value of Assets	Fair value of assets less unrecognized returns in each of the last nine semi-annual accounting periods. Unrecognized returns are equal to the difference between the actual market return and the expected return on the fair value, and are recognized semi-annually over a five-year period.
Valuation Value of Assets	The Actuarial Value of Assets reduced by the value of non-valuation reserves and designations.
Actuarial Assumptions:	
Investment Rate of Return	6.75%, net of pension plan investment expenses, including inflation
Administrative Expenses for December 31, 2021 Valuation	1.15% of payroll allocated to both the employer and plan member based on normal cost (before expenses) for the employer and plan member.
Payroll Growth	Inflation of 2.50% per year plus "across the board" real salary increases of 0.50% per year, used to amortize the Unfunded Actuarial Accrued Liability as a level percentage of payroll.
Consumer Price Index (CPI):	Increases of 2.50% per year.
Cost-of-Living Adjustments (COLA)	Increases of 2.75% per year. Benefits for General Tier 1, Tier 3 (non-disability), Tier 4 and Tier 5 (non-disability) and Safety Tier A and Tier D are subject to a 3.00% maximum COLA increase due to CPI per year (valued as a 2.75% increase). Benefits for General Tier 2, Tier 3 (disability) and Tier 5 (disability) are subject to a 4.00% maximum change per year (valued as a 2.75% increase). Benefits for General Tier 4 and Tier 5 members covered under certain memoranda of understanding and Safety Tier C and Tier E are subject to a 2.00% maximum change per year (valued as a 2.00% increase). For members that have COLA banks, they are reflected in projected future COLAs. The actual COLA granted by CCCERA on April 1, 2022 has been reflected for non-active members in the December 31, 2021 valuation.
Other Assumptions	Same as those used in the December 31, 2021 funding actuarial valuation.

OPEB Contributions

On January 23, 2019, the Board adopted a funding policy for CCCERA, as a single-employer defined benefit plan, to contribute to the OPEB Trust equal to the actuarially determined contribution (ADC) each year. The latest OPEB biennial valuation as of December 31, 2022 defined the ADC as the annual service cost, plus an amount to amortize the net OPEB liability (asset) over 10 years from 2018 year of inception, on a level dollar basis, plus interest to account for the timing of contributions during the year. The chart below details the ADC used as of December 31, 2022:

OPEB Actuarially Determined Contribution (ADC)
As of December 31, 2022
(Dollars in Thousands)

	2022
Service Cost as of January 1, 2022	$148
Amortization of net OPEB liability (asset) as of December 31, 2022	-
Interest to January 1, 2023	10
ADC as of January 1, 2023	**$158**

Note 10.
RESERVES AND DESIGNATIONS

All employer and plan member contributions are allocated to various reserve accounts based on the recommendation of the plan's actuary, as approved by the Board and, where applicable, as required by CERL. CCCERA currently does not set aside a separate reserve for purposes of benefit increases or reduced employer contributions. Reserves are established from employer and plan member contributions and the accumulations of investment income after satisfying investment and administrative expenses. The reserves do not represent the present value of assets needed, as determined by actuarial valuation, to satisfy retirements and other benefits as they become due. Following are brief explanations of the major classes of reserves and designations used by CCCERA:

Member Deposits Reserve represents the balance of members' accumulated contributions. Additions include member contributions and credited interest; deductions include refunds of member contributions and transfers to Retired Member Reserve upon retirement.

Employer Advance Reserve represents the balance of employer contributions for future retirement payments to current active members. Additions include contributions from the employer and related earnings; deductions include transfers to Retired Member Reserve, lump sum death benefits, and supplemental disability payments under legislated rehabilitation programs.

Retired Member Reserve represents transfers of accumulated contributions of members who have retired, employer contributions needed to fund retired member benefits as determined by the actuary, and credited interest less payments to retired members.

Contra Tracking Account represents the amount of interest credited to the reserve accounts that has not been paid for out of current or excess earnings. A balance in this account is the result of applying the full interest crediting policy of the Board and will be reduced to zero before replenishing the Contingency Reserve or allocating earnings to any discretionary uses.

Post Retirement Death Benefit Reserve represents the balance of transfers from excess earnings and related earnings, less lump sum death benefit payments to the beneficiaries of retirees.

Contingency Reserve represents reserves accumulated for future earnings deficiencies, investment losses and other contingencies. Additions include investment income and other revenues. Deductions include investment expenses, administrative expenses, interest allocated to other reserves, funding of Supplemental COLA, and transfers of excess earnings to other Reserves and other Designations. The Contingency Reserve is used to satisfy the California Government Code requirement that CCCERA reserve one percent of its assets against deficiencies in interest earnings in other years, losses on investments, and other contingencies. As of December 31, 2003, the Contingency Reserve was completely used to pay interest to the reserve accounts. This account will be replenished in subsequent periods when there are sufficient earnings according to the interest crediting policy for CCCERA.

Total Deferred Return represents the unrecognized return after smoothing of investment gains and losses based on a five-year smoothing method. This method smooths only the semi-annual deviation of total market return (net of expenses) from the actuarial assumption, currently 6.75 percent per annum.

Reserves and designated fiduciary net position as of December 31, 2022 and 2021 are as follows:

Reserves and Designated Fiduciary Net Position
As of December 31, 2022 and 2021
(Dollars in Thousands)

	2022		2021	
	Pension Plan	OPEB Trust	Pension Plan	OPEB Trust
Valuation Reserves:				
Member Deposits Reserve				
Basic	$1,077,188	$ -	$1,029,848	$ -
Cost-of-Living	537,733	-	522,964	-
Member Deposits - Contra Tracking Account	(290,624)	-	(255,770)	-
Employer Advance Reserve				
Basic	2,957,524	-	3,139,041	-
Cost-of-Living	705,911	-	2,190,243	-
Employer Advance - Contra Tracking Account	(1,225,995)	-	(1,114,833)	-
Retired Member Reserve				
Basic	4,396,244	-	3,797,564	-
Cost-of-Living	3,939,921	-	2,179,760	-
Retired Member Cost-of-Living Supplement	(1,796)	-	(820)	-
Retired Member - Contra Tracking Account	(1,228,665)	-	(1,048,367)	-
TOTAL VALUATION RESERVES	**10,867,441**	**-**	**10,439,630**	**-**
Supplemental Reserves:				
Post Retirement Death Benefit Reserve	**16,996**	**-**	**16,713**	**-**
Post Retirement Death - Contra Tracking Account	**(5,619)**	**-**	**(5,218)**	**-**
Other Reserves/ Designations				
Contingency Reserve (one percent)	**-**	**-**	**-**	**-**
TOTAL ALLOCATED RESERVES/ DESIGNATIONS	**10,878,818**	**-**	**10,451,125**	**-**
TOTAL DEFERRED RETURN	**(825,149)**	**-**	**1,002,641**	**-**
OPEB TRUST	**-**	**4,580**	**-**	**5,265**
NET POSITION - RESTRICTED FOR PENSIONS	**$10,053,669**	**$4,580**	**$11,453,766**	**$5,265**

Note 11.
PAULSON LAWSUIT SETTLEMENT

During the year ended December 31, 1999, CCCERA settled its litigation, entitled *Vernon D. Paulson, et al. vs. Board of Retirement of the Contra Costa County Employees' Retirement Association, et al.* The lawsuit was brought on behalf of a class of retired members of CCCERA regarding the inclusions and the exclusions from "final" compensation that are used in calculating members' retirement benefits. A settlement agreement was entered into with all parties and each employer invoiced for their share of the $34.2 million additional liability plus interest up to the date of the payment. All employers except the County of Contra Costa have paid off their liability. The County of Contra Costa chose to pay its share of the liability due over 19.5 years and entered into an agreement with CCCERA. The following summary lists the pertinent details of the County's agreement plus the amounts due at December 31, 2022:

Installment Payments Due from Paulson Final Liability
(Dollars in Thousands)

Agreement Details:	**County of Contra Costa**
Effective Date of Agreement	December 16, 2003
First Payment Due	August 1, 2004
Last Payment Due	February 1, 2024
Rate of Interest	8%
Annual Principal and Interest Payment	$2,760
Original Principal	$28,065
Receivable at December 31, 2022	
Future Principal Payments	$3,762
Interest Accrued for 2022	125
	$3,887

NOTE 12.
LITIGATION, COMMITMENTS, AND CONTINGENCIES

CCCERA is subject to legal proceedings and claims arising in the ordinary course of its operations. CCCERA's management and legal counsel estimate that the ultimate outcome of such litigation will not have a material effect on CCCERA's financial statements.

A CCCERA retired member, Jon Wilmot, filed a claim challenging the Board's decision to reduce his retirement allowance as mandated by applicable felony forfeiture law following the member's conviction for a job-related felony. The trial court found in favor of CCCERA, and the case was appealed. On February 5, 2021, the Court of Appeal upheld the felony forfeiture and judgment was entered in favor of CCCERA. In February 2022, the member filed an additional lawsuit seeking the reversal of the felony forfeiture.

As of December 31, 2022, CCCERA was committed to funding future investments in real estate of $452.7 million and $1,057.7 million in alternative investments.

NOTE 13.
ADMINISTRATIVE EXPENSES

The Board of Retirement annually adopts in the preceding year, the current year operating budget for the administration of CCCERA. The administrative expenses are charged against the earnings of the plan.

California Government Code Section 31580.2(a) states that the annual budget for administrative expenses of a CERL retirement system may not exceed the greater of either of the following:

(1) Twenty-one hundredths of one percent (0.21 percent) of the actuarial accrued liability (AAL) of the retirement system or,

(2) Two million dollars ($2,000,000), as adjusted annually by the amount of the annual cost-of-living adjustment computed in accordance with Article 16.5 (commencing with Section 31870).

CCCERA has adopted the provisions of CERL which allows CCCERA to exclude actuarial, investment, legal, and disaster recovery costs from administrative expenses subject to the budget limits described above. Therefore, actuarial and investment costs are offset against investment income, and legal and disaster recovery costs are all reported on the Statement of Changes in Fiduciary Net Position as other expense.

The Board approved the administrative budget for fiscal year 2022 in November 2021, and a budget amendment in September 2022, which was prepared based upon the twenty-one hundredths of one percent (0.21 percent) of the AAL of CCCERA, as of the date of Board approval.

The following budget-to-actual analysis of administrative expenses as of December 31, 2022 and December 31, 2021 is based upon the budgets as approved by the CCCERA Board in comparison to actual administrative expenses:

Budget-to-Actual Analysis of Pension Plan Administrative Expense
As of December 31, 2022 and 2021
(Dollars in Thousands)

	2022	2021
Basis for Budget Limitation, Actuarial Accrued Liability (AAL)[1]	$10,521,628	$10,075,722
Maximum Allowable For Administrative Expenses (AAL x 0.21%)	22,095	21,159
Approved Administrative Budget	$13,128	$12,504
Actual Administrative Expenses	(11,538)	(11,237)
Actual Expenses (over) under Administrative Budget	$1,590	$1,267
Actual Administrative Expenses	$11,538	$11,237
Actuarial Accrued Liability (AAL)	10,521,628	10,075,722
Actual Administrative Expenses as a Percentage of AAL	0.11%	0.11%
Statutory Limit Allowable For Administrative Expenses per CERL		0.21%

[1]The most recent AAL, as determined by CCCERA's actuary in each year's valuation, is used to calculate the statutory limit for administrative expenses for the year after next. For example, the AAL as of December 31, 2020 valuation was approved by the Board in August 2021, and was used to establish the statutory limit for budgeted administrative expenses for the next fiscal year ended December 31, 2022.

Note 14.
SUBSEQUENT EVENTS

In compliance with governmental accounting standards generally accepted in the United States of America, management has evaluated subsequent events through June 14, 2023, which is the date the financial statements were available to be issued. The purpose of the evaluation is to determine if these events are required to be disclosed in these financial statements. CCCERA did not have any other events requiring recording or disclosure in the financial statements for the year ended December 31, 2022.

REQUIRED SUPPLEMENTARY INFORMATION
SCHEDULE OF CHANGES IN NET PENSION LIABILITY (ASSET) AND RELATED RATIOS

Schedule of Changes in the Net Pension Liability (Asset) and Related Ratios
For the years ended December 31, 2013 through 2022
(Dollars in Thousands)

The schedule of changes in net pension liability (asset) and related ratios displays the components of the total pension liability and plan fiduciary net position for the pension plan, calculated in conformity with the requirements of GASB 67. Covered payroll represents payroll on which contributions to the pension plan are based.

	2022	2021	2020	2019	2018
Total Pension Liability					
Service cost	$262,621	$251,752	$238,569	$231,469	$229,098
Interest	754,962	735,972	707,427	678,035	647,734
Changes of benefit terms	-	-	-	-	-
Differences between expected and actual experience	101,291	6,602	(10,633)	119,869	52,853
Changes of assumptions or other inputs	-	223,911	(17,638)	-	(92,419)
Benefit payments, including refunds of member contributions	(577,619)	(539,112)	(507,135)	(486,305)	(461,254)
Net Change in Total Pension Liability	**541,255**	**679,126**	**410,590**	**543,068**	**376,012**
Total Pension Liability - Beginning	**11,210,812**	**10,531,688**	**10,121,098**	**9,578,030**	**9,202,018**
Total Pension Liability - Ending (a)	**$11,752,067**	**$11,210,814**	**$10,531,688**	**$10,121,098**	**$9,578,030**
Plan Fiduciary Net Position					
Contributions- employer [1]	$352,384	$410,760	$336,357	$327,983	$325,117
Contributions- plan members [1]	122,304	117,017	113,494	108,488	103,541
Net investment income (loss), including prepayment discount	(1,281,908)	1,407,344	882,394	1,168,171	(195,031)
Benefit payments, including refunds of member contributions	(577,619)	(539,113)	(507,135)	(486,305)	(461,254)
Administrative expense	(11,538)	(11,237)	(10,750)	(10,200)	(9,337)
Other expenses	(3,720)	(1,243)	(1,135)	(1,110)	(3,631)
Net Change in Plan Fiduciary Net Position	**(1,400,097)**	**1,383,528**	**813,225**	**1,107,027**	**(240,595)**
Plan Fiduciary Net Position - Beginning	**11,453,766**	**10,070,238**	**9,257,013**	**8,149,986**	**8,390,581**
Plan Fiduciary Net Position - Ending (b)	**$10,053,669**	**$11,453,766**	**$10,070,238**	**$9,257,013**	**$8,149,986**
Net Pension Liability (Asset) (a)-(b) = (c)	**$1,698,398**	**$(242,952)**	**$461,450**	**$864,085**	**$1,428,044**
PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY (b)/(a)	**85.5%**	**102.2%**	**95.6%**	**91.5%**	**85.1%**
COVERED PAYROLL (d)	**$1,023,663**	**$976,332**	**$943,422**	**$892,379**	**$850,929**
NET PENSION LIABILITY (ASSET) AS A PERCENTAGE OF COVERED PAYROLL (c)/(d)	**165.9%**	**-24.9%**	**48.9%**	**96.8%**	**167.8%**

[1] In accordance with GASB Statement No. 82, starting with the year ended December 31, 2016, employer-paid member contributions (employer subvention) are classified as plan member contributions. Vice versa, plan member-paid employer contributions (reverse subvention) are classified as employer contributions.

SCHEDULE OF CHANGES IN NET PENSION LIABILITY (ASSET) AND RELATED RATIOS *(CONTINUED)*

Schedule of Changes in the Net Pension Liability (Asset) and Related Ratios
For the years ended December 31, 2013 through 2022
(Dollars in Thousands)

The schedule of changes in net pension liability (asset) and related ratios displays the components of the total pension liability and plan fiduciary net position for the pension plan, calculated in conformity with the requirements of GASB 67. Covered payroll represents payroll on which contributions to the pension plan are based.

	2017	2016	2015	2014	2013
Total Pension Liability					
Service cost	$212,258	$202,697	$192,923	$192,257	$196,463
Interest	616,273	591,972	582,343	561,216	564,441
Changes of benefit terms	-	-	-	-	-
Differences between expected and actual experience	(29,192)	(19,957)	(62,118)	(183,605)	(77,223)
Changes of assumptions or other inputs	-	-	72,186	(76)	(232,887)
Benefit payments, including refunds of member contributions	(436,295)	(419,446)	(406,236)	(394,948)	(374,639)
Net Change in Total Pension Liability	**363,043**	**355,266**	**379,098**	**174,844**	**76,156**
Total Pension Liability - Beginning	**8,838,975**	**8,483,709**	**8,104,611**	**7,929,767**	**7,853,611**
Total Pension Liability - Ending (a)	**$9,202,018**	**$8,838,975**	**$8,483,709**	**$8,104,611**	**$7,929,767**
Plan Fiduciary Net Position					
Contributions- employer [1]	$314,836	$307,909	$323,720	$293,760	$235,017
Contributions- plan members [1]	96,467	88,788	85,360	78,258	72,373
Net investment income (loss), including prepayment discount	987,416	493,874	73,611	480,502	877,761
Benefit payments, including refunds of member contributions	(436,295)	(419,446)	(406,236)	(394,948)	(374,639)
Administrative expense	(9,146)	(8,486)	(8,115)	(6,980)	(6,776)
Other expenses	(1,217)	(701)	(668)	-	-
Net Change in Plan Fiduciary Net Position	**952,061**	**461,938**	**67,672**	**450,592**	**803,736**
Plan Fiduciary Net Position - Beginning	**7,438,520**	**6,976,582**	**6,908,910**	**6,458,318**	**5,654,581**
Plan Fiduciary Net Position - Ending (b)	**$8,390,581**	**$7,438,520**	**$6,976,582**	**$6,908,910**	**6,458,318**
Net Pension Liability (Asset) (a)-(b) = (c)	**$811,437**	**$1,400,455**	**$1,507,127**	**$1,195,701**	**$1,471,449**
PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY (b)/(a)	**91.2%**	**84.2%**	**82.2%**	**85.3%**	**81.4%**
COVERED PAYROLL (d)	**$809,960**	**$755,139**	**$709,819**	**$671,486**	**$638,636**
NET PENSION LIABILITY (ASSET) AS A PERCENTAGE OF COVERED PAYROLL (c)/(d)	**100.2%**	**185.5%**	**212.3%**	**178.1%**	**230.4%**

(1) In accordance with GASB Statement No. 82, starting with the year ended December 31, 2016, employer-paid member contributions (employer subvention) are classified as plan member contributions. Vice versa, plan member-paid employer contributions (reverse subvention) are classified as employer contributions.

SCHEDULE OF EMPLOYER CONTRIBUTIONS

Schedule of Employer Contributions
For the Years 2013 through 2022
(Dollars in Thousands)

Year Ended December 31	Actuarially Determined Contributions (a)	Contributions in Relation to the Actuarially Determined Contributions (b)[1]		Contribution Deficiency/(Excess) (b) - (a)	Covered Payroll [2] (c)	Contributions as a Percentage of Covered Payroll (b)/(c)
2013	$228,017	$228,017	(3)	$-	$638,636	35.70%
2014	288,760	288,760	(4)	-	671,486	43.00%
2015	321,220	321,220	(5)	-	709,819	45.25%
2016	307,909	307,909		-	755,139	40.78%
2017	314,512	314,512	(6)	-	809,960	38.83%
2018	324,863	324,863	(7)	-	850,929	38.18%
2019	326,717	326,717	(8)	-	892,379	36.61%
2020	336,067	336,067	(9)	-	943,422	35.62%
2021	339,703	339,703	(10)	-	976,332	34.79%
2022	348,760	348,760	(11)	-	1,023,663	34.07%

(1) Starting with the year ended December 31, 2016, includes "member subvention of employer contributions" and excludes "employer subvention of member contributions". Prior to that year, the contributions excluded "member subvention of employer contributions" and included "employer subvention of member contributions".
(2) Covered payroll represents payroll on which contributions to the pension plan are based.
(3) Excludes additional contributions towards UAAL of $7,000,000.
(4) Excludes additional contributions towards UAAL of $5,000,000.
(5) Excludes additional contributions towards UAAL of $2,500,000.
(6) Excludes additional contributions towards UAAL of $324,000.
(7) Excludes additional contributions towards UAAL of $254,000.
(8) Excludes additional contributions towards UAAL of $1,266,000.
(9) Excludes additional contributions towards UAAL of $290,000.
(10) Excludes additional contributions towards UAAL of $71,056,669.
(11) Excludes additional contributions towards UAAL of $3,623,437.

SCHEDULE OF INVESTMENT RETURNS

Schedule of Investment Returns
For the years 2013 through 2022

The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the timing of cash flows and the changing amounts actually invested.

Annual Money-Weighted Rate of Return, Net of Investment Expense

2013	15.62%
2014	7.51%
2015	1.19%
2016	7.10%
2017	13.23%
2018	-2.18%
2019	14.26%
2020	9.50%
2021	13.90%
2022	-11.02%

NOTES TO THE REQUIRED SUPPLEMENTARY INFORMATION

Note 1.
SCHEDULE OF CHANGES IN NET PENSION LIABILITY (ASSET) AND RELATED RATIOS

The total pension liability contained in this schedule was provided by the plan's actuary, Segal Consulting. The net pension liability (asset) is measured as the total pension liability less the amount of the fiduciary net position of the plan.

Note 2
SCHEDULE OF EMPLOYER CONTRIBUTIONS

The required employer contributions and percent of those contributions actually made are presented in this schedule. Actuarial assumptions used for this schedule are presented in the following table.

Additional Actuarial Information for 2022 Methods and Assumptions Used to Establish Actuarially Determined Contribution Rates:		
Valuation Date	Actuarially determined contribution rates are calculated as of December 31, two and a half years prior to the end of the fiscal year in which contributions are reported.	
Actuarial Cost Method	Entry Age Actuarial Cost Method	
Amortization Method	Level Percent of Payroll	
Remaining Amortization Period	Remaining balance of December 31, 2007 UAAL is amortized over a fixed (decreasing or closed) period with 2 years remaining as of December 31, 2020 and 3 years remaining as of December 31, 2019. Any changes in UAAL after December 31,2007 will be separately amortized over a fixed 18-year period effective with that valuation. Effective December 31, 2013, any changes in UAAL due to plan amendments (with the exception of a change due to retirement incentives) will be amortized over a 10-year fixed period effective with that valuation. The entire increase in UAAL resulting from a temporary retirement incentive will be funded in full upon adoption of the incentive.	
Asset Valuation Method	Fair value of assets less unrecognized returns in each of the last nine semi-annual accounting periods. Unrecognized return is equal to the difference between the actual market return and the expected return on the fair value, and is recognized semi-annually over a five-year period. The Actuarial Value of Assets is reduced by the value of the non-valuation reserves and designations.	
Actuarial Assumptions:		
Valuation Date:	**December 31, 2020 Valuation Date** (1)	**December 31, 2019 Valuation Date** (1)
Investment Rate of Return	7.00%, net of pension plan investment expenses, including inflation	7.00%, net of pension plan investment expenses, including inflation
Inflation Rate	2.75%	2.75%
Administrative Expenses	1.14% of payroll allocated to both the employer and member based on the components of the Normal Cost rates for the employer and member	1.14% of payroll allocated to both the employer and member based on the components of the Normal Cost rates for the employer and member.
Real Across-the-Board Salary Increases	0.50%	0.50%
Projected Salary Increases(2)	General 3.75% to 15.25% and Safety 4.25% to 16.25%	General 3.75% to 15.25% and Safety 4.25% to 16.25%
Cost-of-Living Adjustments (COLA)	Retiree COLA increases of 2.75% per year except for Safety Tier C, PEPRA Tier E benefits and PEPRA Tier 4 (2% COLA) and Tier 5 (2% COLA) benefits for members covered under certain memoranda of understanding are assumed to increase at 2% per year. All increases are contingent upon actual increases in CPI.	Retiree COLA increases of 2.75% per year except for Safety Tier C, PEPRA Tier E benefits and PEPRA Tier 4 (2% COLA) and Tier 5 (2% COLA) benefits for members covered under certain memoranda of understanding are assumed to increase at 2% per year. All increases are contingent upon actual increases in CPI.
Other Assumptions	Same as those that will be used in the December 31, 2020 funding actuarial valuation	Same as those that will be used in the December 31, 2019 funding actuarial valuation

(1) Actuarially determined contribution rates for the first six months of calendar year 2022 (or the second half of fiscal year 2021-2022) are calculated based on the December 31, 2019 valuation. Actuarially determined contribution rates for the last six months of calendar year 2022 (or the first half of fiscal year 2022-2023) are calculated based on the December 31, 2020 valuation.
(2) For December 31, 2020 and December 31, 2019 valuation dates, includes inflation of 2.75% plus real across-the-board salary increases of 0.50% plus merit and promotion increases that vary by service.

The information presented in the required supplementary schedules was determined as part of the Governmental Accounting Standards Board (GASB) 67 actuarial valuation as of December 31, 2022 provided by the plan's actuary. The GASB 67 actuarial valuation, which is separate from the actuarial funding valuation, contains information necessary for CCCERA to properly report pension plan results in the Annual Comprehensive Financial Report (ACFR). Additional information relating to the actuarial funding valuation as of December 31, 2021 is in the Actuarial Section.

CCCERA implemented GASB Statement No. 82, *Pension Issues, an Amendment of GASB Statements No. 67, No. 68, and No. 73,* during the fiscal year ended December 31, 2017. GASB 82 was issued to address definition of payroll-related measures such as using covered payroll instead of covered-employee payroll; the selection of assumptions used to determine total pension liability and related measures; and classification of payments made by employers to satisfy employee contribution requirements.

OTHER SUPPLEMENTARY INFORMATION
SCHEDULE OF ADMINISTRATIVE EXPENSES

Schedule of 2022 Administrative Expenses
For The Year Ended December 31, 2022 (with Comparative Totals)
(Dollars in Thousands)

	2022		2021	
	Pension Plan	**OPEB Trust**	**Pension Plan**	**OPEB Trust**
Personnel Services:				
Salaries and Wages	$5,259	$-	$5,183	$-
Employee Benefits and Retirement	3,352	156	3,585	83
TOTAL PERSONNEL SERVICES	8,611	156	8,768	83
Operational Expenses:				
Professional Services:				
Audit Services	66	-	35	-
Actuary - Benefit Statements	88	-	72	-
Disability Hearing/Medical Reviews	51	-	134	-
Other Professional Services	90	-	6	-
Total Professional Services	295	-	247	-
Office Expenses:				
Office Lease	504	-	477	-
Telephone & Internet Services	81	-	77	-
Equipment Lease & Maintenance	20	-	21	-
Furniture & Equipment	-	-	-	-
Office Supplies & Maintenance	66	-	65	-
Printing & Postage	205	-	147	-
Training & Education	85	-	43	-
Travel & Transportation	51	-	9	-
Insurance	323	-	301	-
Total Office Expenses	1,335	-	1,140	-
Information Technology (IT) Systems:				
Support Service & Software Contracts	466	-	497	-
Hardware & Equipment Maintenance	28	-	16	-
Project Consulting	593	-	347	-
Total IT Systems	1,087	-	860	-
ASSETS DEPRECIATION/AMORTIZATION	210	-	222	-
TOTAL ADMINISTRATIVE EXPENSES	**$11,538**	**$156**	**$11,237**	**$83**

SCHEDULE OF INVESTMENT EXPENSES

Schedule of 2022 Investment Expenses
For the Year Ended December 31, 2022 (with Comparative Totals)
(Dollars in Thousands)

	2022		2021	
	Pension Plan	**OPEB Trust**	**Pension Plan**	**OPEB Trust**
Schedule of Investment Expenses				
Equities Managers				
Domestic Equity	$4,206	$-	$4,919	$-
Global & International Equity	3,239	-	3,429	-
Real Estate - REIT	667	-	534	-
Risk Diversifying	168	-	45	-
Public Market Commingled Funds	8,374	17	9,049	19
Total Equities Managers	**16,654**	**17**	**17,976**	**19**
Fixed Income Managers				
Liquidity Program	1,795	-	1,727	-
Held in Equity Portfolios	43	-	39	-
High Yield	648	-	720	-
Risk Diversifying	661	-	921	-
Public Market Commingled Funds	761	11	834	10
Total Fixed Income Managers	**3,908**	**11**	**4,241**	**10**
Real Asset Managers				
Global & International Equity	390	-	387	-
Public Market Commingled Funds	-	-	-	-
Total Real Asset Managers	**390**	**-**	**387**	**-**
Real Asset Managers				
Value Added, Opportunistic & Distressed Funds	7,405	-	8,677	-
Alternative Investment Managers				
Private Equity & Private Credit Funds	15,302	-	14,104	-
TOTAL INVESTMENT MANAGEMENT FEES	**43,659**	**28**	**45,385**	**29**
Investment Consulting Fees:				
Consulting Services	1,001	-	970	-
Legal Services	113	-	58	-
Actuarial Services	298	5	231	14
TOTAL INVESTMENT CONSULTING FEES	**1,412**	**5**	**1,259**	**14**
MASTER CUSTODIAN & FISCAL AGENT SERVICES	**553**	**-**	**556**	**-**
OTHER INVESTMENT RELATED EXPENSES	**2,093**	-	**2,149**	-
TOTAL INVESTMENT EXPENSES	**$47,717**	**$33**	**$49,349**	**$43**

SCHEDULE OF PAYMENTS TO CONSULTANTS

Schedule of 2022 Payments to Consultants
For the Years Ended December 31, 2022 (with Comparative Totals)
(Dollars in Thousands)

	2022		2021	
Type of Service	Pension Plan	OPEB Trust	Pension Plan	OPEB Trust
Actuarial Services & Consulting	$298	$5	$231	$14
Benefit Statement Services	88	-	72	-
Information Technology Consulting	593	-	347	-
Audit & Pension System Services	66	-	35	-
Other Professional Services	90	-	5	-
Legal Services:				
Outside Legal - General, Fiduciary & Tax	225	-	251	-
Investments	113	-	58	-
Disabilities	18	-	38	-
Other Legal Services	17	-	34	-
TOTAL LEGAL SERVICES	373	-	381	-
Investment Consultant Services	971	28	940	29
Investment Custodian & Fiscal Agent Fees	553	-	556	-
Proxy Guideline Voting Agent Service	30	-	30	-
TOTAL PAYMENTS TO CONSULTANTS	**$3,062**	**$33**	**$2,597**	**$43**

PAGE INTENTIONALLY LEFT BLANK.

INVESTMENT SECTION

CHIEF INVESTMENT OFFICER'S REPORT

March 28, 2023

Trustees, Board of Retirement
Contra Costa County Employees' Retirement Association

Re: Chief Investment Officer Review of 2022 Investment Activity

Members of the Board:

While the beginning of 2022 saw continued peak valuations in tech-heavy equity markets, the invasion of Ukraine by Russia caused a stark reassessment over geopolitical risks. Coupled with a sharply higher interest rate environment in most developed economies, there was a steep decline in risk assets over the first half of the year. Year over year inflation peaked in the US in June at 9.1% but remained stubbornly high at year-end with a reading of 6.5%. The Federal Reserve continued to fight inflation by raising rates. The Fed funds rate, which started the year at near zero, ended 2022 at over 4%. While this is not abnormally high, the speed of rate hikes was jarring and caused long-dated risk assets to decline in value sharply.

Given these challenges, the equity markets finished 2022 with one of the weakest performances on record. The Russell 3000 Index of domestic stocks returned -19.2% for the year while the MSCI ACWI returned -18.4%. Emerging market securities sold off along with the U.S. market with a return of -20.1%. The higher interest rates negatively impacted the debt markets, with the Bloomberg Aggregate returning -13.0% and the 1-3 Year Government/Credit Index returning -3.7%. Real estate benefitted from the continued post-Covid re-opening of the economy and the NCREIF Property Index returned 5.5%. All return figures in this review are presented net of fees and time-weighted, and are calculated by CCCERA's investment consultant, Verus Investments.

Total Fund Performance

CCCERA's Total Fund returned -10.6% (net of investment management fees) for the year ending December 31, 2022. This return was lower than the policy index return of -8.3%. Relative to the peer universe, CCCERA's conservative positioning resulted in a slightly better return than the median public fund return of -11.1% and ranked in the 48th percentile of public funds. Over the past 10 years ending December 31, 2022, CCCERA has returned 6.7% and ranked in the 62nd percentile.

Importantly, CCCERA has achieved these returns while assuming a lower risk posture than our peers, resulting in superior risk adjusted returns as measured by our Sharpe ratio. Over the trailing ten years ending December 31, 2022, the fund achieved a Sharpe Ratio of 0.8, ranking in the 38th percentile of public funds.

Strategic Review of Asset Allocation and Portfolio Construction

CCCERA's primary function is to deliver timely and accurate pension benefits to Association members. Pension benefits represent the total of employer and member contributions, and market returns on the investment of those contributions over time. Pension fund trustees have a fiduciary responsibility to carefully invest plan assets to generate market returns while being mindful of the safety of the hard-earned contributions. Pension funds typically accomplish that balance between investment returns and safety by allocating plan assets among several different types of investments, each with its own prospects for growth and safety.

Most pension funds, including CCCERA, have historically attempted to strike the right balance by allocating plan investments into three broad areas:

1. Bonds issued by governments and corporations, intended to provide income and reduce overall portfolio volatility
2. Equities (stocks) intended to provide long-term growth
3. Diversified alternative investments including real estate and private equity

In 2016, the CCCERA Board of Trustees approved a significant change to CCCERA's investment allocation. The new allocation was dubbed a Functionally Focused Portfolio (FFP). The strategic asset allocation was reviewed in late 2020 and the Board opted to lower the allocation to short-term, highly liquid fixed income instruments. This allocation is used to accomplish CCCERA's primary function, paying for the next 2-3 years of pension benefits. CCCERA will continue to allocate the bulk of the remaining assets into a globally diversified growth sub-portfolio of stocks, real estate and alternative asset strategies and the remaining into risk diversified investments.

The Board believes that in addition to focusing more investable resources into short-term instruments intended to achieve the plan's primary function of paying near-term pension benefits, the new Functionally Focused Portfolio allocation strategy will reduce the inherently higher volatility of the returns generated by our historical allocation. The Trustees recognize that by reducing the volatility of investment returns, some higher returns may not necessarily be achieved during the up markets. Conversely, CCCERA returns will be less likely to be as negatively impacted during the inevitable down years. The Board realizes that with this new strategy, CCCERA may not necessarily capture all the market highs, nor have to endure all the market lows either. This pattern was observed in 2022 when the fund lagged when markets were rebounding in the fourth quarter , but offered protection during the sharp selloff in the first half of the year.

Asset Allocation

As of December 31, 2022, CCCERA's market value of investment assets was $10.2 billion, a decline of approximately $1.4 billion from the December 31, 2021 market value of $11.6 billion. This was the result of investment losses of $1.2 billion and net cash flow of -$103 million. All asset classes as of December 31, 2022 were within their respective target allocations.

Sincerely,

Timothy Price, CFA
Chief Investment Officer

GENERAL INFORMATION

CCCERA's funding objective is to meet long-term benefit obligations through contributions and investment income. The plan's main investment objective is for the total fund return to exceed the Consumer Price Index (CPI) plus 400 basis points over a market cycle. This is accomplished by the implementation of a carefully planned and executed long-term investment program.

The California Constitution and Government Code Sections 31594 and 31595 authorize the Board of Retirement (Board) to invest in any investment deemed prudent in the Board's opinion. Investment decisions are to be made in the sole interest and for the exclusive purpose of providing benefits, minimizing employer contributions, and defraying reasonable expenses for administering the system. Investments are to be diversified to minimize the risk of loss and to maximize the rate of return, unless under the circumstances it is clearly prudent to not do so. The Board has adopted an Investment Policy, which provides the framework for the management of CCCERA's investments. This policy establishes CCCERA's investment policies and objectives and defines the principal duties of the Board and staff, the Custodian bank and investment managers. For the year ended December 31, 2022, the total fund returned -10.6% net of fees; less than the policy index return of 8.3% and higher than the median public fund return of -11.1%.

Summary of Proxy Voting Guidelines and Procedures

Voting of proxy ballots shall be in accordance with CCCERA's Proxy Voting Guidelines. CCCERA utilizes the services of Institutional Shareholder Services to research and vote CCCERA's U.S. proxy ballots in order to protect and enhance returns.

ASSET ALLOCATION

The asset allocation is an integral part of the Investment Policy. When a new asset class is implemented or a current asset class is expanded, the plan's policy is modified to reflect the change or revision. The Board implements the asset allocation plan by hiring investment managers to invest assets on CCCERA's behalf, subject to specific guidelines incorporated into each firm's contract.

The Board adopted an Investment Policy Statement in September 2016, and updated in May 2021, in which the Board is to periodically set, review, and revise its asset allocation targets. As of July 2022, the long-term asset allocation targets determined by the Board are as follows:

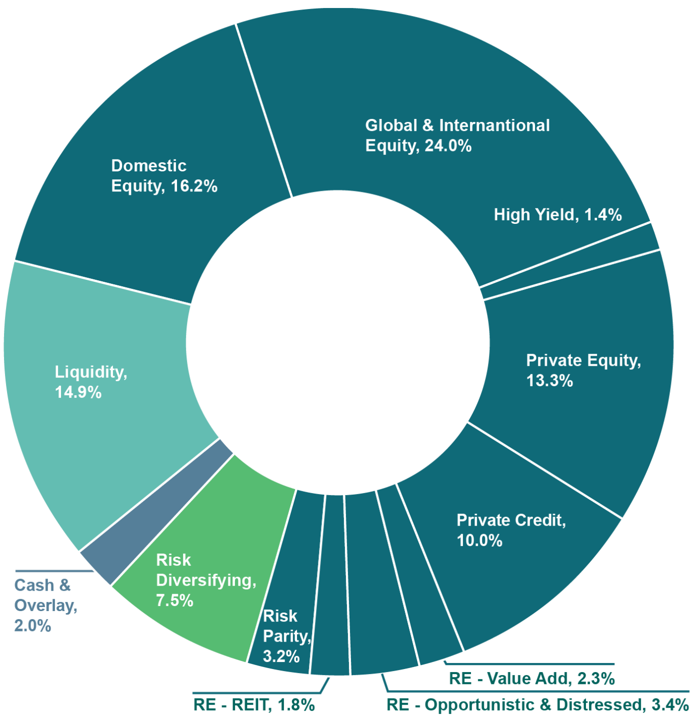
	Long-Term	Current Target
Liquidity	17%	17%
Growth	76%	75.5%
Risk Diversifying	7%	7.5%

The Board conducted a review of the strategic asset allocation in late 2020. The Functionally Focused Portfolio (FFP) methodology was maintained, but the target allocation to the Liquidity sub-portfolio was reduced to three years from the prior four years to fund benefit payments. Other allocations were changed as well, most notably an increased target to private equity. The change to the Liquidity sub-portfolio was implemented in 2021 and the increased allocation to private markets will be implemented over the next several years.

CCCERA's Chief Investment Officer and the outside investment consultant (Verus) assist the Board with the design and implementation of the new asset allocation as depicted in the following charts:

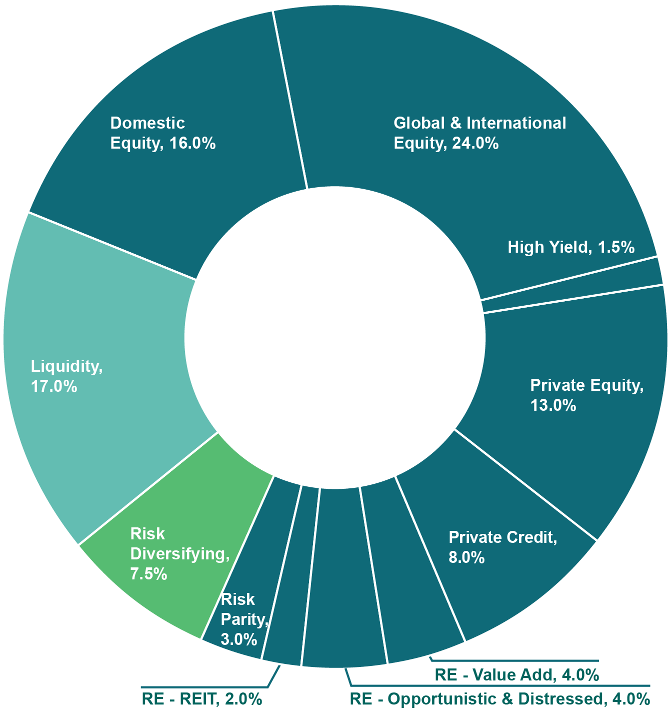
PERCENTAGE OF TOTAL FUND

Asset Class	Actual % Allocation
Liquidity	14.9%
Growth:	
Domestic Equity	16.2%
Global & International Equity	24.0%
High Yield	1.4%
Private Equity	13.3%
Private Credit	10.0%
Real Estate - Value Add	2.3%
Real Estate - Opportunistic & Distressed	3.4%
Real Estate - REIT	1.8%
Risk Parity	3.2%
Total Growth	75.6%
Risk Diversifying	7.5%
Cash & Overlay	2.0%
Total	**100.0%**



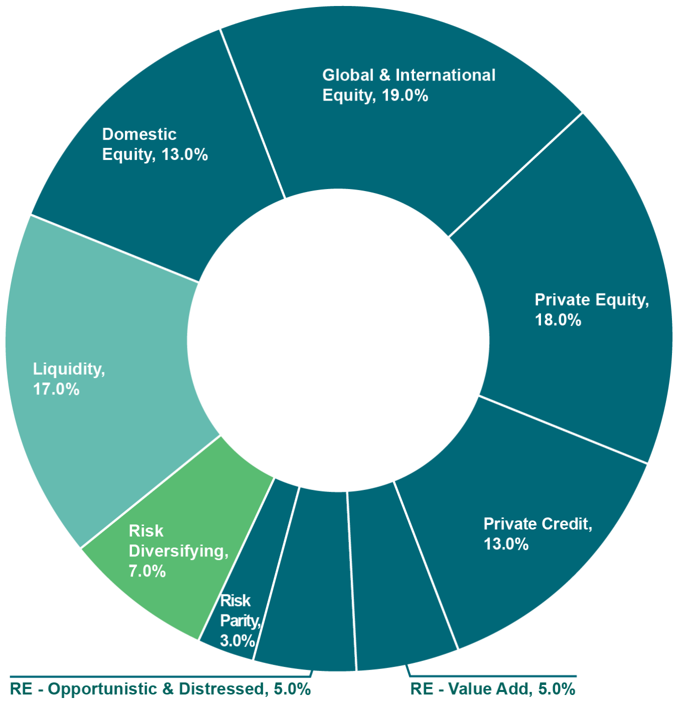
CURRENT

Asset Class	Actual % Allocation
Liquidity	17.0%
Growth:	
Domestic Equity	16.0%
Global & International Equity	24.0%
High Yield	1.5%
Private Equity	13.0%
Private Credit	8.0%
Real Estate - Value Add	4.0%
Real Estate - Opportunistic & Distressed	4.0%
Real Estate - REIT	2.0%
Risk Parity	3.0%
Total Growth	75.5%
Risk Diversifying	7.5%
Total	**100.0%**



LONG-TERM

Asset Class	Actual % Allocation
Liquidity	17.0%
Growth:	
Domestic Equity	13.0%
Global & International Equity	19.0%
Private Equity	18.0%
Private Credit	13.0%
Real Estate - Value Add	5.0%
Real Estate - Opportunistic & Distressed	5.0%
Risk Parity	3.0%
Total Growth	76.0%
Risk Diversifying	7.0%
Total	**100.0%**



INVESTMENT RESULTS BASED ON FAIR VALUE*

Investment Results Based on Fair Value*
As of December 31, 2022

		Annualized (net of fees)		
	Current Year	**3 Year**	**5 Year**	**10 Year**
Liquidity	-3.5%	-0.2%	1.2%	-
Benchmark:				
Bloomberg US Govt/Credit 1-3 Yr. TR	-3.7%	-0.3%	0.9%	-
Total Domestic Equity	-18.5%	6.1%	6.8%	11.2%
Benchmark:				
Russell 3000	-19.2%	7.1%	8.8%	12.1%
Total Global Equity	-19.4%	4.3%	5.8%	8.6%
Benchmark:				
MSCI ACWI	-18.4%	4.0%	5.2%	8.0%
Total International Equity	-18.6%	0.3%	1.2%	4.4%
Benchmarks:				
MSCI ACWI ex-USA Gross	-15.6%	0.5%	1.4%	4.3%
MSCI EAFE Gross	-14.0%	1.3%	2.0%	5.2%
Total High Yield	-10.9%	-0.7%	1.6%	3.2%
Benchmark:				
ICE BofA ML High Yield Master II	-11.2%	-0.2%	2.1%	3.9%
Private Equity	-0.5%	20.2%	16.1%	13.9%
Private Credit	10.5%	8.1%	8.1%	9.7%
Total Real Estate	-4.9%	2.1%	4.3%	7.7%
Benchmarks:				
Real Estate Benchmark	-4.1%	4.8%	5.7%	7.6%
NCREIF - ODCE Index	7.5%	9.9%	8.7%	10.1%
NCREIF Property Index	5.5%	8.1%	7.5%	8.8%
Risk Parity	-21.8%	-2.2%	-	-
Diversifying	-5.7%	-2.0%	-0.3%	-
Benchmark:				
Custom Diversifying Benchmark	-5.4%	0.2%	1.6%	2.3%
Total Cash	2.4%	1.3%	1.8%	1.6%
Benchmark:				
91 Day T-Bills	1.5%	0.6%	1.2%	0.7%
Total Fund	-10.6%	3.6%	4.4%	6.7%
Benchmark:				
Policy Index	-8.3%	5.4%	5.9%	7.6%
Total Fund excl. Overlay & Cash	-10.1%	4.0%	4.7%	6.9%
Benchmark:				
Policy Index	-8.3%	5.4%	5.9%	7.6%

*Using time-weighted rate of return based on the market rate of return.

INVESTMENT MANAGERS (As of December 31, 2022)

LIQUIDITY

- Dimensional Fund Advisors
- Insight Investment
- Sit Investments

GROWTH

Domestic Equity
- BlackRock Institutional Trust
- Ceredex Value Advisors
- Emerald Advisors
- Robeco Boston Partners

Global & International Equity
- Artisan Global Opportunities
- First Eagle Investment Management
- Pimco/RAE
- Pyrford International
- TT Emerging Markets
- William Blair & Company

High Yield Fixed Income
- Voya Investment Management

Private Equity
- Adams Street Partners
- AE Industrial Partners
- Ares Energy Investors Funds
- DBL Investors (Bay Area Equity)
- EQT Partners
- Genstar Capital
- GTCR
- Hellman & Friedman Capital Partners
- Leonard Green & Partners
- Oaktree Capital
- Ocean Avenue Capital Partners
- Paladin Capital Management
- Pathway Capital Management
- Siguler Guff
- Siris Capital Group
- Symphony Technology
- Stone Point Capital (Trident)
- TPG Healthcare Partners
- TA Associates
- Aether Investment Partners
- Commonfund
- Equilibrium Capital (Wastewater)

Private Credit
- Angelo Gordon Energy
- Torchlight Investors
- StepStone Group

Real Estate
- Angelo Gordon
- Blackstone
- DLJ Real Estate Capital Partners LP
- Invesco Real Estate
- LaSalle Investment Management
- Long Wharf Real Estate Partners
- Oaktree Capital
- Paulson & Co.
- PCCP, LLC
- Siguler Guff

Real Estate Investment Trust (REIT)
- Adelante Capital Management
- Invesco

Risk Parity
- AQR GRP EL Fund
- PanAgora Asset Management

RISK DIVERSIFYING

- Acadian Asset Management
- AFL-CIO Housing Investment Trust
- Sit Investments

CASH OVERLAY

- The Northern Trust Company

SECURITIES LENDING PROGRAM

- The Northern Trust Company

INVESTMENT SUMMARY

Investment Summary
For The Year Ended December 31, 2022
(Dollars in Thousands)

	Pension Plan		OPEB Trust	
Type of Investment	Fair Value	Percent of Total Fair Value	Fair Value	Percent of Total Fair Value
Short-Term				
Cash Equivalents	$466,929	4.6%	$48	1.0%
TOTAL SHORT-TERM INVESTMENTS	**466,929**	**4.6%**	**48**	**1.0%**
Long-Term				
Investments By Fair Value Level				
Equities				
Domestic Equity	760,925	7.4%	-	-
Global & International Equity	378,885	3.7%	-	-
Real Estate - REIT	186,635	1.8%	-	-
Real Estate - REIT	3	0.1%	-	-
Risk Diversifying	59,236	0.6%	-	-
Public Market Commingled Funds	3,419,846	33.4%	2,709	59.2%
Total Equity Securities	4,805,530	47.0%	2,709	59.2%
Fixed Income				
Liquidity Program	1,407,072	13.7%	-	-
Held In Equity Portfolios	4,993	0.1%	-	-
High Yield	131,972	1.3%	-	-
Risk Diversifying	230,364	2.2%	-	-
Public Market Commingled Funds	219,756	2.1%	1,822	39.8%
Total Fixed Income Securities	1,994,157	19.4%	1,822	39.8%
Real Assets				
Global & International Equity	45,620	0.4%	-	-
Public Market Commingled Funds	114	0.0%	-	-
Total Real Assets	**45,734**	**0.4%**	**-**	**-**
Real Estate				
Value Added, Opportunistic & Distressed Funds	565,387	5.5%	-	-
Alternatives				
Private Equity & Private Credit Funds	2,363,928	23.1%	-	-
TOTAL LONG-TERM INVESTMENTS AT FAIR VALUE	**9,774,736**	**95.4%**	**4,531**	**99.0%**
TOTAL SHORT AND LONG-TERM INVESTMENTS	**$10,241,665**	**100.0%**	**$4,579**	**100.0%**

SCHEDULE OF INVESTMENT MANAGEMENT FEES

Investment Management Fees
For the year ended December 31, 2022
(Dollars in Thousands)

	Pension Plan		OPEB Trust	
Investment Activity	**Assets Managed**	**Fees**	**Assets Managed**	**Fees**
Equities Managers				
Domestic Equity	$760,925	$4,206	$ -	$ -
Global & International Equity	378,885	3,239	-	-
Real Estate - REIT	186,635	667	-	-
Real Estate - REIT	3	-	-	-
Risk Diversifying	59,236	168	-	-
Public Market Commingled Funds	3,419,846	8,374	2,709	17
TOTAL EQUITIES MANAGERS	**4,805,530**	**16,654**	**2,709**	**17**
Fixed Income Managers				
Liquidity Program	1,407,072	1,795	-	-
Held in Equity Portfolios	4,993	43	-	-
High Yield	131,972	648	-	-
Risk Diversifying	230,364	661	-	-
Public Market Commingled Funds	219,756	761	1,822	11
TOTAL FIXED INCOME MANAGERS	**1,994,157**	**3,908**	**1,822**	**11**
Real Asset Managers				
Global & International Equity	45,620	390	-	-
Public Market Commingled Funds	114	-	-	-
TOTAL REAL ASSET MANAGERS	**45,734**	**390**	**-**	**-**
Real Estate Managers				
Value Added, Opportunistic & Distressed Funds	565,387	7,405	-	-
Alternative Investment Managers				
Private Equity & Private Credit Funds	2,363,928	15,302	-	-
TOTAL FEES FROM INVESTMENT ACTIVITY	**9,774,736**	**43,659**	**4,531**	**28**
Custodian Cash and Cash Equivalents	466,929	553	48	-
Securities Lending Activity				
Securities Lending Fees	-	263	-	-
TOTAL FEES FROM SECURITIES LENDING ACTIVITY	**N/A**	**263**	**N/A**	**-**
TOTAL INVESTMENT MANAGEMENT FEES	**$10,241,665**	**$44,475**	**$4,579**	**$28**

SCHEDULE OF BROKERAGE COMMISSIONS

Schedule of Brokerage Commissions
For the Year Ended December 31, 2022
(Dollars and Shares in Thousands)

Brokerage Firm	Commissions	Shares/Par Value Traded	Commission Per Share
CLEAR STREET LLC	$82	4,189	$0.020
CAPITAL INSTITUTIONAL SERV NEW YORK	70	4,250	0.016
J.P. MORGAN SECURITIES LLC	54	250,324	0.000
DERIVATIVES	49	147	0.333
UBS AG STAMFORD BRANCH	47	7,154	0.007
JEFFERIES LLC.	42	10,681	0.004
RBC CAPITAL MARKETS, LLC	38	69,292	0.001
COWEN AND COMPANY LLC	38	1,402	0.027
GOLDMAN, SACHS AND CO.	38	218,916	0.000
MORGAN STANLEY AND CO., LLC	30	105,074	0.000
SOUTHWEST SECURITIES	23	57,137	0.000
SANFORD C. BERNSTEIN AND CO., LLC	22	1,577	0.014
PIPER JAFFRAY & CO.	20	18,941	0.001
BANK OF AMERICA CORPORATION	18	116,124	0.000
NATIONAL FINANCIAL SERVICES LLC	17	884	0.019
ISI GROUP INC.	16	2,730	0.006
CITIGROUP GLOBAL MARKETS INC	15	161,836	0.000
LOOP CAPITAL MARKETS LLC	15	13,597	0.001
CREDIT SUISSE SECURITIES (USA) LLC	12	16,160	0.001
STURDIVANT	12	403	0.030
TOP 20 Firms by Commission Dollars	**658**	**1,060,818**	**0.001**
All Other Brokerage Firms	**109**	**9,371,399**	**0.000**
TOTAL BROKERAGE COMMISSIONS	**$767**	**10,432,217**	**$0.000**

SCHEDULES OF TOP TEN EQUITIES AND FIXED INCOME SECURITIES*

Schedule of Top 10 Equity Securities
As of December 31, 2022
(Dollars and Shares in Thousands)

CUSIP	Shares	Security Name	Fair Value
C527995MI2	14,246	CF RUSSELL 1000 INDEX NON-LENDABLE FUND	$871,083
C282999S44	15,702	CF ARTISAN GLOBAL OPPORTUNITIES TRUST FD	464,457
C96999CX25	32,026	CF INTERNATIONAL STOCK FUND LLC	436,309
C785998915	16,741	CF WILLIAM BLAIR INTERNATIONAL GROWTH COLLECTIVE FUND	406,935
C2D9999SE4	3,208	CF TT EMERGING MARKETS OPPORTUNITIES FUND II LIMITED CLASS B SHARES	314,179
SBTLJSX7	4,083	MFC CORNERSTONE STRATEGIC VALUE FD INC COM PAR $0.001 COM PAR $0.001	30,089
S2779201	332	SCHLUMBERGER LTD COM COM	17,738
S2475833	86	JOHNSON & JOHNSON COM USD1	15,191
S2190385	108	JPMORGAN CHASE & CO COM	14,533
S2073390	46	BERKSHIRE HATHAWAY INC-CL B	14,165
		TOTAL LARGEST EQUITY HOLDINGS	**$2,584,679**

Schedule of Top 10 Fixed Income Securities
As of December 31, 2022
(Dollars in Thousands)

CUSIP	Security Name	Cost	Fair Value
C9934FC991	STEPSTONE CC OPPORTUNITIES FUND, LLC - SERIES B	$278,382	$385,088
C060993201	CF AFL CIO HOUSING INVESTMENT TRUST	249,877	219,756
C9934FB993	STEPSTONE CC OPPORTUNITIES FUND, LLC - SERIES A	199,154	198,730
C9934FD999	STEPSTONE CC OPPORTUNITIES FUND, LLC - SERIES C	137,267	182,369
C999599GH0	FUT MAR 23 10 YR T-NOTES	60,543	60,303
SBN7JWS2	UNITED STS TREAS NTS 0.25% 11-15-2023	24,080	24,039
SBYM4Z91	PVTPL ERAC USA FIN LLC GTD NT 144A 2.7% DUE 11-01-2023/10-18-2016 BEO	21,766	20,316
C05578QAB9	PVTPL BPCE SUB NTS BOOK ENTRY 5.15 DUE 07-21-2024 BEO	23,089	20,073
SBDR7093	WI TREASURY NOTE 2.125% DUE 11-30-2023 REG	18,774	18,556
SBLB6070	TOYOTA MTR CR CORP MEDIUM TERM NTS BOOK .5% DUE 08-14-2023	17,986	17,513
	TOTAL LARGEST FIXED INCOME HOLDINGS		**$1,146,743**

ACTUARIAL SECTION

ACTUARY CERTIFICATION LETTER

Segal

180 Howard Street
Suite 1100
San Francisco, CA 94105-6147
T 415.263.8200
segalco.com

Via Email

June 2, 2023

Board of Retirement
Contra Costa County Employees' Retirement Association
1200 Concord Avenue, Suite 300
Concord, CA 94520

Re: Contra Costa County Employees' Retirement Association (CCCERA)
December 31, 2021 Actuarial Valuation for Funding Purposes

Dear Members of the Board:

Segal prepared the December 31, 2021 annual actuarial valuation of the CCCERA. We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices and CCCERA's funding policy that was last reviewed with the Board in 2020. In particular, it is our understanding that the assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice (ASOPs).

As part of the December 31, 2021 actuarial valuation, Segal conducted an examination of all participant data for reasonableness. However, the scope of this examination does not qualify as an audit. Summaries of the employee data used in performing the actuarial valuations over the past several years are provided in our valuation report. We did not audit the Association's financial statements, however, the Association's auditor attested to the Association's financial statements. For actuarial valuation purposes, retirement plan assets are valued at Actuarial Value. Under this method, the assets used to determine employer contribution rates take into account market value by recognizing the semi-annual differences between the total return at market value and the expected investment return over a five-year period.

One of the general goals of an actuarial valuation is to establish contribution rates, which, over time, will remain level as a percentage of payroll for each generation of active members. Actuarial funding is based on the Entry Age Cost Method. Under this method, the employer contribution rate provides for current cost (normal cost) plus a level percentage of payroll to amortize any unfunded actuarial accrued liability (UAAL).

In 2008, the Board of Retirement elected to amortize the remaining balance of the Association's unfunded actuarial accrued liability as of December 31, 2007 over a declining (or closed) period with 1 year remaining as of December 31, 2021. Any change in unfunded actuarial accrued liability that arises due to actuarial gains or losses or due to changes in actuarial assumptions or methods at each valuation after December 31, 2007 is amortized over its own declining (or closed) 18-year period. Effective with the December 31, 2013 valuation, any change in

5760966v1/05337.001

Board of Retirement
Contra Costa County Employees' Retirement Association
June 2, 2023
Page 2

unfunded actuarial accrued liability that arises due to plan amendments is amortized over its own declining (or closed) 10-year period (with the exception of a change due to retirement incentives, which is funded in full upon adoption of the incentive). The progress being made towards meeting the funding objective through December 31, 2021 is illustrated in the Schedule of Funding Progress.

Certain information found in the Notes to Basic Financial Statements and the Required Supplementary Information (RSI) included in the Financial Section was prepared by the Association based on the results of the Governmental Accounting Standards Board (GASB) Statement No. 67 actuarial valuation as of December 31, 2022 prepared by Segal. For the Financial Section of the Annual Comprehensive Financial Report ("Annual Report" or ACFR), Segal provided the Schedule of Changes in Net Pension Liability of Participating Employers and Schedule of Employer Contributions as shown in the RSI. A listing of the other supporting schedules prepared by the Association based on additional information provided by Segal and the results of the actuarial valuation as of December 31, 2021 for funding purposes is listed below.

- Schedule of Funding Progress
- Schedule of Employer Contributions
- Latest Actuarial Valuation Methods and Assumptions
- Summary of Valuation Results
- Summary of Significant Results
- Schedule of Active Member Valuation Data
- Retirants and Beneficiaries Added to and Removed from Retiree Payroll
- Schedule of Funded Liabilities by Type
- Actuarial Analysis of Financial Experience
- Summary of Statistical Data
- Schedule of Benefits Expenses by Type
- Schedule of Retired Members by Type of Benefit
- Schedule of Average Benefit Payment Amounts
- Participating Employers and Active Members

The valuation assumptions included in the Actuarial Section were adopted by the Retirement Board based on the December 31, 2020 Experience Study (for both the economic and non-economic assumptions). It is our opinion that the assumptions used in the December 31, 2021 valuation produce results, which in the aggregate, reflect the future experience of the retirement plan. Actuarial valuations are performed on an annual basis. An experience analysis is performed every three years and the next experience analysis is due to be performed after the December 31, 2023 valuation.

5760966v1/05337.001

Segal

Board of Retirement
Contra Costa County Employees' Retirement Association
June 2, 2023
Page 3

In the December 31, 2021 valuation, the ratio of the valuation value of assets to actuarial accrued liabilities (funded percentage) increased from 91.8% to 92.4% while the funded percentage on a market value of assets basis increased from 95.6% to 101.3%. The average employer contribution rate has increased from 33.87%[1] of payroll to 35.55% of payroll, while the average member contribution rate has increased from 11.85% of payroll to 12.17% of payroll.

Under the asset smoothing method, the total unrecognized net investment gains are $1.0 billion as of December 31, 2021. These net investment gains will be recognized in the determination of the actuarial value of assets for funding purposes in the next few years. The net deferred gains of $1.0 billion represent about 8.8% of the market value of assets as of December 31, 2021. Unless offset by future investment losses or other unfavorable experience, the recognition of the $1.0 billion market gains is expected to have an impact on the Association's future funded percentage and contribution rate requirements. This potential impact may be illustrated as follows:

- If the net deferred gains were recognized immediately in the valuation value of assets, the funded percentage would increase from 92.4% to 101.3%.
- If the net deferred gains were recognized immediately in the valuation value of assets, the average employer rate would decrease from 35.55% to about 27.98% of payroll.

The actuarial calculations were directed under the supervision of Andy Yeung, ASA, MAAA, FCA and Enrolled Actuary. We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President & Actuary

Andy Yeung, ASA, MAAA, FCA, EA
Vice President & Actuary

EK/hy

[1] The average employer contribution rate as of December 31, 2020 has been recalculated since the prior valuation to reflect the UAAL prepayment made by Central Contra Costa Sanitary District in the amount of $70.8 million on June 25, 2021 as well as the UAAL prepayment made by East Fire in the amount of $3.3 million on June 30, 2022.

5760966v1/05337.001

SCHEDULE OF FUNDING PROGRESS

Funded Ratio is a measurement of the funded status of the plan. The Funded Ratio is calculated by dividing the Valuation Assets by the Actuarial Accrued Liability. In the following table, CCCERA's Funded Ratio indicates assets are approximately 8% less than liabilities. The most significant reasons for the increase in the funded ratio have been the market appreciation of investments and contributions by the employer and plan members.

Schedule of Funding Progress
For Years 2012 through 2021
(Dollars in Thousands)

Actuarial Valuation Date	Valuation Value of Assets* (a)	Actuarial Accrued Liability (AAL)** (b)	Unfunded AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Projected Covered Payroll (c)	UAAL as a Percentage of Projected Covered Payroll [(b) - (a)] / (c)
12/31/2012	$5,482,257	$7,761,316	$2,279,059	70.6%	$652,312	349.4%
12/31/2013	5,907,416	7,731,097	1,823,681	76.4%	679,429	268.4%
12/31/2014	6,557,496	8,027,438	1,469,942	81.7%	697,832	210.6%
12/31/2015	7,136,801	8,448,624	1,311,823	84.5%	746,353	175.8%
12/31/2016	7,606,997	8,794,434	1,187,437	86.5%	784,412	151.4%
12/31/2017	8,179,891	9,239,247	1,059,356	88.5%	860,625	123.1%
12/31/2018	8,650,178	9,682,144	1,031,966	89.3%	896,391	115.1%
12/31/2019	9,128,669	10,075,722	947,053	90.6%	937,531	101.0%
12/31/2020	9,662,283	10,521,628	859,345	91.8%	990,042	86.8%
12/31/2021	10,434,412	11,288,973	854,561	92.4%	1,015,755	84.1%

*Excludes assets for non-valuation reserves.
**Excludes liabilities for non-valuation reserves.

LATEST ACTUARIAL VALUATION METHODS AND ASSUMPTIONS

The entry age actuarial cost method was used in conjunction with the following actuarial assumptions. The actuarial assumptions used in the valuations are intended to estimate the future experience of the members of CCCERA and of CCCERA itself in areas that affect the projected benefit flow and anticipated investment earnings.

The actuarial assumptions used to determine the liabilities for the December 31, 2021 valuation are based on the results of the actuarial experience study for the period January 1, 2018, through December 31, 2020. The study was prepared using updated economic and demographic assumptions, and mortality rates adopted by the Board of Retirement in April 2022. An actuarial valuation is performed annually.

The actuarial assumptions and methods listed below were recommended by the plan's independent actuary, Segal Consulting, and were approved by the Board.

Latest Actuarial Valuation Methods and Assumptions of Plan Assets and Liabilities	
Valuation Date	December 31, 2021
Actuarial Funding Policy:	
Actuarial Cost Method	Entry Age Actuarial Cost Method
Amortization Method	Level Percent of payroll for total unfunded liability (3.00% payroll growth assumed)
Actuarial Value of Assets	Fair value of assets less unrecognized returns in each of the last nine semi-annual accounting periods. Unrecognized return is equal to the difference between the actual market return and the expected return on the fair value, and is recognized semi-annually over a five-year period.
Valuation Value of Assets	The Actuarial Value of Assets reduced by the value of the non-valuation reserves and designations.
Amortization Policy	The UAAL (i.e., the difference between the AAL and the Valuation Value of Assets) as of December 31, 2014 will continue to be amortized over separate amortization layers based on the valuations during which each separate layer was previously established. • Any new UAAL as a result of actuarial gains or losses identified in the annual valuation as of December 31 will be amortized over a period of 18 years. • Any new UAAL as a result of change in actuarial assumptions or methods will be amortized over a period of 18 years.
Economic Assumptions:	
Investment Rate of Return	6.75%, net of pension plan investment expenses
Inflation Rate	2.50%
Administrative Expenses	1.15% of payroll allocated to both the employer and member based on the components of the normal cost rates for the employer and member
Real Across-the-Board Salary Increases	0.50%
Consumer Price Index	Increases of 2.50% per year
Payroll Growth	Inflation of 2.50% per year plus "across the board" real salary increases of 0.50% per year, used to amortize the Unfunded Actuarial Accrued Liability as a level percentage of payroll.
Salary Increases	The average total assumed salary increase for active members in the December 31, 2021 actuarial valuation is 4.9%.
Other Assumptions	Same as those used in the December 31, 2021 funding actuarial valuation.

Demographic Assumptions-Changed Actuarial Assumptions	
Post Retirement Mortality Rates	
Healthy	
General members	Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2021.
Safety members	Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females) increased by 5% for males and decreased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.
Disabled	
General Members	Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females) increased by 5% for males and unadjusted for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.
Safety Members	Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females) increased by 5% for males and unadjusted for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.
Beneficiary	
Beneficiaries not currently in Pay Status	Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two dimensional mortality improvement scale MP-2021.
Beneficiaries in Pay Status	Pub-2010 Contingent Survivor Amount-Weighted Above-Median Mortality Table (separate tables for males and females) increased by 5% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

The Pub-2010 mortality tables and adjustments as shown above reasonably reflect the mortality experience as of the measurement date. These mortality tables were adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Mortality Rates for Member Contributions	
General members	Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected 30 years with the two-dimensional mortality improvement scale MP-2021, weighted 30% male and 70% female.
Safety members	Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females) increased by 5% for males and decreased by 5% for females, projected 30 years with the two-dimensional mortality improvement scale MP-2021, weighted 85% male and 15% female.
Pre-Retirement Mortality Rates	
General members	Pub-2010 General Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2021.
Safety members	Pub-2010 Safety Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females), projected generationally with the two-dimensional mortality improvement scale MP-2021.
Disability Rates	65% of General Tier 1 and Tier 4 disabilities are assumed to be service connected disabilities. The other 35% are assumed to be non-service connected disabilities. 25% of General Tier 3 and Tier 5 disabilities are assumed to be service connected disabilities. The other 75% are assumed to be non-service connected disabilities. 100% of Safety disabilities are assumed to be service connected disabilities.
Withdrawal Rates	The member is assumed to receive the greater of the member's contribution balance or a deferred retirement benefit. No termination is assumed after a member is first assumed to retire.
Service Retirement Rates	Based upon the Experience Analysis as of 12/31/20
Salary Scales	The average total assumed salary increase for active members of 4.9% per year reflecting approximately 2.50% for inflation, 0.50% for additional real "across-the-board" salary increases and approximately 1.90% for merit and longevity.
Value of Assets for Contribution Rate Purposes	Actuarial Value as described in Actuarial Valuation Basis of Valuation Report.

Service Retirement Rates for General (%)

	General						Service Retirement Rates for Safety (%)			
	Tier 1 (Enhanced)		Tier 3 (Enhanced)		Tier 1 (Non-Enhanced)	Tiers 4 and 5 (PEPRA)	Tier A (Enhanced)		Tier C (Enhanced)	Tier A (Non-Enhanced) Tiers D and E (PEPRA)
Age	**Less than 30 Years of Service**	**Over 30 Years of Service**	**Less than 30 Years of Service**	**Over 30 Years of Service**			**Less than 30 Years of Service**	**Over 30 Years of Service**		
45	-	-	-	-	-	-	7.00	7.00	2.00	-
50	4.00	10.00	4.00	10.00	3.00	-	22.00	30.00	20.00	5.00
55	15.00	24.00	8.00	15.00	10.00	4.00	16.00	30.00	18.00	15.00
60	20.00	20.00	12.00	15.00	25.00	8.00	20.00	35.00	25.00	20.00
65	35.00	35.00	30.00	32.00	40.00	25.00	100.00	100.00	100.00	100.00
70	40.00	40.00	35.00	35.00	40.00	35.00				
75 & Over	100.00	100.00	100.00	100.00	100.00	100.00				

Termination Rates (%) Before Retirement

Mortality

	Rate(%)			
	General[1]		Safety[1]	
Age	**Male**	**Female**	**Male**	**Female**
20	0.04	0.01	0.04	0.02
25	0.02	0.01	0.03	0.02
30	0.03	0.01	0.04	0.02
35	0.04	0.02	0.04	0.03
40	0.06	0.03	0.05	0.04
45	0.09	0.05	0.07	0.06
50	0.13	0.08	0.10	0.08
55	0.19	0.11	0.15	0.11
60	0.28	0.17	0.23	0.14
65	0.41	0.27	0.35	0.20
70	0.61	0.44	0.66	0.39

All pre-retirement deaths are assumed to be non-service connected.
[1]Generational projections beyond the base year (2010) are not reflected in the above mortality rates.

Termination Rates (%) Before Retirement
Disability

Age	General Tier 1 and Tier 4*	General Tier 3 and Tier 5**	Safety***
20	0.01	0.01	0.02
25	0.02	0.02	0.16
30	0.04	0.03	0.32
35	0.08	0.05	0.46
40	0.22	0.07	0.56
45	0.36	0.09	0.96
50	0.52	0.12	2.88
55	0.60	0.16	4.00
60	0.60	0.18	4.30
65	0.60	0.18	4.50
70	0.60	0.18	4.50

*65% of General Tier 1 and Tier 4 disabilities are assumed to be service-connected disabilities. The other 35% are assumed to be ordinary disabilities.
**25% of General Tier 3 and Tier 5 disabilities are assumed to be service-connected disabilities. The other 75% are assumed to be ordinary disabilities.
***100% of Safety disabilities are assumed to be service-connected disabilities.

Termination Rates (%) Before Retirement
Termination*

Years of Service	General	Safety
Less than 1	14.00	11.00
1-2	9.50	9.00
2-3	9.00	7.00
3-4	6.25	5.00
4-5	6.25	4.00
5-6	5.00	3.50
6-7	4.50	3.00
7-8	4.00	2.50
8-9	3.75	2.50
9-10	3.75	2.00
10-11	3.50	2.00
11-12	3.25	2.00
12-13	2.75	2.00
13-14	2.50	1.80
14-15	2.50	1.60
15-16	2.25	1.50
16-17	2.25	1.40
17-18	2.00	1.30
18-19	2.00	1.20
19-20	1.50	1.00
20 & Over	1.50	0.50

*The member is assumed to receive the greater of the member's contribution balance or a deferred retirement benefit. No termination is assumed after a member is first assumed to retire.

SUMMARY OF DECEMBER 31, 2021 VALUATION RESULTS

Summary of December 31, 2021 Valuation Results
(Dollars in Thousands)

	December 31, 2021	
***Average Employer Contribution Rates**:**	**Total Rate**	**Estimated Annual Amount**
General		
Cost Group #1 - County and Small Districts (Tiers 1 and 4)	33.98%	$8,213
Cost Group #2 - County and Small Districts (Tiers 3 and 5)	26.90%	198,950
Cost Group #3 - Central Contra Costa Sanitary District	15.82%	6,179
Cost Group #4 - Housing Authority of County of Contra Costa	42.67%	2,817
Cost Group #5 - Contra Costa County Fire Protection District	36.18%	2,715
Cost Group #6 - Small Districts (Non-Enhanced Tiers 1 and 4)	16.11%	165
Safety		
Cost Group #7 - County (Tiers A and D)	75.47%	38,320
Cost Group #8 - Contra Costa County Fire Protection District	68.30%	35,149
Cost Group #9 - County (Tiers C and E)	65.29%	39,307
Cost Group #10 - Moraga-Orinda Fire Protection District	78.11%	6,831
Cost Group #11 - San Ramon Valley Fire Protection District	82.92%	19,893
Cost Group #12 - Rodeo-Hercules Fire Protection District	95.72%	2,561
ALL EMPLOYERS COMBINED	**35.55%**	**$361,100**
***Average Member Contribution Rates**:**		
General		
Cost Group #1 - County and Small Districts (Tiers 1 and 4)	11.32%	$2,736
Cost Group #2 - County and Small Districts (Tiers 3 and 5)	10.79%	79,797
Cost Group #3 - Central Contra Costa Sanitary District	11.58%	4,524
Cost Group #4 - Housing Authority of County of Contra Costa	11.82%	780
Cost Group #5 - Contra Costa County Fire Protection District	11.96%	898
Cost Group #6 - Small Districts (Non-Enhanced Tiers 1 and 4)	14.06%	144
Safety		
Cost Group #7 - County (Tiers A and D)	18.86%	9,576
Cost Group #8 - Contra Costa County Fire Protection District	17.59%	9,052
Cost Group #9 - County (Tiers C and E)	16.91%	10,180
Cost Group #10 - Moraga-Orinda Fire Protection District	18.25%	1,596
Cost Group #11 - San Ramon Valley Fire Protection District	16.57%	3,975
Cost Group #12 - Rodeo-Hercules Fire Protection District	12.54%	335
ALL CATEGORIES COMBINED	**12.17%**	**$123,593**

Key Actuarial Assumptions	**2021**	**2020**
Annual Interest Rate	6.75%	7.00%
Annual Inflation Rate	2.50%	2.75%
Across-the-Board Real Salary Increase	0.50%	0.50%
Average Total Assumed Salary Increase for Active Members	4.90%	5.00%

*Based on projected payroll as of each valuation date shown. These rates do not include any employer subvention of member contributions or any member subvention of employer contributions. The rates shown are averages based on all members regardless of their membership date.

SUMMARY OF SIGNIFICANT RESULTS

Summary of Significant Results	
Association Membership	**December 31, 2021**
Active Members:	
1. Number of Members	10,005
2. Average Age	46.3
3. Average Service	10.2
4. Projected Total Payroll (Compensation)	$1,015,755,387
5. Average Projected Compensation	$101,525
Retired Members and Beneficiaries:	
1. Number of Members:	
Service Retirement	7,908
Disability Retirement	885
Beneficiaries	1,485
2. Average Age of Retired Members	70.9
3. Actual Retired Payroll	$530,203,441
4. Average Monthly Benefit	$4,353
Vested Terminated Members:	
1. Number of Terminated Vested Members*	3,812
2. Average Age	46.6
Summary of Financial Data:	
Market Value of Assets	$11,453,765,753
Return on Market Value of Assets	13.99%
Actuarial Value of Assets	$10,451,125,236
Return on Actuarial Value of Assets	8.24%
Valuation Value of Assets	$10,434,412,288
Return on Valuation Value of Assets (VVA)	8.24%
Funded Status:	
Actuarial Accrued Liability (AAL)	$11,288,973,487
Unfunded Actuarial Accrued	
Liability (UAAL) on VVA basis	$854,561,199
Funded Ratio	
GASB Statement No. 25	92.4%

* Includes 2,147 inactive non-vested members with member contributions on deposit as of December 31, 2021.

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

Schedule of Active Member Valuation Data

Valuation Date	Plan Type	Number	Projected Compensation	Average Projected Compensation	% Increase/ (Decrease) in Average Compensation
12/31/2012	General	7,244	$513,920,662	$70,944	(1.66%)
	Safety	1,396	$138,391,516	99,134	(3.26%)
	Total	**8,640**	**$652,312,178**	**75,499**	**(2.24%)**
12/31/2013	General	7,682	$540,431,355	70,350	(0.84%)
	Safety	1,442	$138,997,556	96,392	(2.77%)
	Total	**9,124**	**$679,428,911**	**74,466**	**(1.37%)**
12/31/2014	General	7,774	$561,430,096	72,219	2.66%
	Safety	1,385	$136,401,741	98,485	2.17%
	Total	**9,159**	**$697,831,837**	**76,191**	**2.32%**
12/31/2015	General	8,213	$602,047,448	73,304	1.50%
	Safety	1,429	$144,305,217	100,983	2.54%
	Total	**9,642**	**$746,352,665**	**77,406**	**1.60%**
12/31/2016	General	8,378	$634,246,734	75,704	3.27%
	Safety	1,470	$150,165,527	102,153	1.16%
	Total	**9,848**	**$784,412,261**	**79,652**	**2.90%**
12/31/2017	General	8,565	$697,418,709	81,427	7.56%
	Safety	1,473	$163,205,904	110,798	8.46%
	Total	**10,038**	**$860,624,613**	**85,737**	**7.64%**
12/31/2018	General	8,562	$724,903,207	84,665	3.98%
	Safety	1,459	$171,487,561	117,538	6.08%
	Total	**10,021**	**$896,390,768**	**89,451**	**4.33%**
12/31/2019	General	8,599	$756,790,042	88,009	3.95%
	Safety	1,476	$180,741,222	122,453	4.18%
	Total	**10,075**	**$937,531,264**	**93,055**	**4.03%**
12/31/2020	General	8,612	$799,204,378	92,801	5.45%
	Safety	1,487	$190,837,321	128,337	4.80%
	Total	**10,099**	**$990,041,699**	**98,034**	**5.35%**
12/31/2021	General	8,536	$817,910,429	95,819	3.25%
	Safety	1,469	$197,844,958	134,680	4.94%
	Total	**10,005**	**$1,015,755,387**	**101,525**	**3.56%**

SCHEDULE OF FUNDED LIABILITIES BY TYPE

Schedule of Funded Liabilities by Type
(Dollars in Thousands)

	Aggregate Accrued Liabilities For				*Portion of Accrued Liabilities Covered by Valuation Value of Assets*		
Valuation Date	**1 Active Member Contributions***	**2 Retirants and Beneficiaries**	**3 Active Members Employer Portion**	**Valuation Value of Assets (VVA)**	**1**	**2**	**3**
12/31/2012	$653,236	$4,990,760	$2,117,320	$5,482,257	100%	97%	0%
12/31/2013	844,668	5,086,529	1,799,900	5,907,416	100%	100%	0%
12/31/2014	899,220	5,328,622	1,799,596	6,557,496	100%	100%	18%
12/31/2015	1,011,434	5,525,212	1,911,978	7,136,801	100%	100%	31%
12/31/2016	1,116,824	5,670,811	2,006,799	7,606,998	100%	100%	41%
12/31/2017	1,216,116	5,873,018	2,150,113	8,179,891	100%	100%	51%
12/31/2018	1,301,626	6,186,519	2,193,999	8,650,178	100%	100%	53%
12/31/2019	1,372,772	6,459,417	2,243,533	9,128,669	100%	100%	58%
12/31/2020	1,476,735	6,719,971	2,324,922	9,662,283	100%	100%	63%
12/31/2021	1,552,812	7,301,323	2,434,838	10,434,412	100%	100%	65%

*Beginning 12/31/2013, Active Member Contributions are set equal to the reserve account maintained for member contributions.

RETIRANTS AND BENEFICIARIES ADDED TO AND REMOVED FROM RETIREE PAYROLL

Retirants and Beneficiaries Added To and Removed From Retiree Payroll

Year	At Beginning of Year	Added During Year	Allowances Added	Removed During Year	Allowances Removed	At End of Year	Retiree Payroll*	% Increase in Retiree Payroll	Average Annual Allowance	% Increase in Annual Allowance
2012	8,085	657	$34,622,498	(225)	$(7,351,271)	8,517	$347,569,044	8.51%	$40,809	3.01%
2013	8,517	379	30,637,741	(271)	(8,397,382)	8,625	369,809,403	6.40%	42,876	5.07%
2014	8,625	494	25,732,590	(248)	(8,515,665)	8,871	387,026,328	4.66%	43,628	1.75%
2015	8,871	391	19,997,703	(194)	(7,180,211)	9,068	399,843,820	3.31%	44,094	1.07%
2016	9,068	418	25,627,155	(386)	(13,691,575)	9,100	411,779,400	2.99%	45,250	2.62%
2017	9,100	396	26,242,182	(229)	(8,447,387)	9,267	429,574,195	4.32%	46,355	2.44%
2018	9,267	551	31,870,441	(271)	(10,072,991)	9,547	451,371,645	5.07%	47,279	1.99%
2019	9,547	487	36,835,136	(297)	(10,795,943)	9,737	477,410,838	5.77%	49,031	3.71%
2020	9,737	548	33,345,624	(267)	(11,455,388)	10,018	499,301,074	4.59%	49,840	1.65%
2021	10,018	562	43,585,233	(302)	(12,682,866)	10,278	530,203,441	6.19%	51,586	3.50%

*Beginning 12/31/2015, Retiree Payroll excludes death benefits.

ACTUARIAL ANALYSIS OF FINANCIAL EXPERIENCE

Actuarial Analysis of Financial Experience
Changes in the Unfunded Actuarial Accrued Liability (UAAL) During the Years Ended December 31, 2012 through 2021
(Dollars in Thousands)

				Actuarial (Gain) or Loss Due to All Changes				
December 31	Expected UAAL	Change in Plan Provisions	Change in Assumptions/ Methods	Investment Return	Salary Increases (Decreases)	Other*	Total Changes	UAAL
2012	$1,463,568	$-	$570,155	$297,515	$(102,697)	$50,818	$245,336	$2,279,059
2013	2,238,120	-	(205,332)	(96,259)	(114,771)	1,923	(209,107)	1,823,681
2014	1,773,291	-	(52)	(244,463)	(42,976)	(15,858)	(303,297)	1,469,942
2015	1,409,789	-	115,137	(100,727)	(9,036)	(103,340)	(213,103)	1,311,823
2016	1,234,411	-	-	(2,853)	11,445	(55,566)	(46,974)	1,187,437
2017	1,099,936	-	-	(76,209)	59,574	(23,945)	(40,580)	1,059,356
2018	960,617	-	(89,872)	55,253	20,984	84,984	161,221	1,031,966
2019	918,865	-	(19,522)	65,571	38,641	(56,501)	47,711	947,054
2020	820,981	-	-	34,593	60,050	(56,279)	38,364	859,345
2021	717,852	-	234,858	(119,692)	25,657	(4,114)	(98,149)	854,561

*Other experience includes employer and employee contributions, COLA increases, mortality, disability, withdrawal, retirement, and leave cash out other than expected. .

SUMMARY OF MAJOR PENSION PLAN PROVISIONS

Major Provisions of the Present System

Briefly summarized below are the major provisions of CERL and PEPRA, as amended through December 31, 2013, and as adopted by Contra Costa County and special district employers.

A. GENERAL MEMBERS –

- Tier 1 and Tier 3 Plans Non-Enhanced (Government Code (GC) 31676.11))
- Tier 1 and Tier 3 Plans Enhanced (GC 31676.16)
- Tier 2 Plan (GC 31752)
- PEPRA Tier 4 and Tier 5 Plans (GC 7522.20 (a))

Coverage

Tier 1:

a. All General Members hired before July 1, 1980, and electing not to transfer to Tier 2.

b. Reciprocal General Members hired before October 1, 2002, electing to not enter Tier 2.

c. Participating agencies who have elected Tier 1.

d. Certain General Members with membership dates before January 1, 2013 hired by specific employers who did not adopt Tier 2 are placed in Tier 1.

Tier 2:

a. All General Members hired before July 1, 1980, and most General Members hired on or after August 1,1980, electing to transfer to Tier 2. Effective October 1, 2002, Tier 2 was eliminated for all County employees (except California Nurses Association (CNA) employees) and employees hired by the Contra Costa Mosquito and Vector Control District.

Employees represented by CNA in Tier 2 were placed in Tier 3 as of January 1, 2005.

The Contra Costa Mosquito and Vector Control District's Tier 2 employees were placed in Tier 3 effective February 1, 2006.

Tier 3:
General Members with membership dates before January 1, 2013 who are not placed in Tier 1 are placed in Tier 3.

PEPRA Tier 4:
General Members hired on or after January 1, 2013 by employers who did not adopt Tier 2 are placed in Tier 4.

PEPRA Tier 5:
General Members hired on or after January 1, 2013 who are not placed in Tier 4 are placed in Tier 5.

Final Compensation (FC)

Tier 1 and Tier 3 Plans (GC 31462.1, 31462):

a. Highest consecutive twelve months of compensation earnable.

Tier 2 Plan (GC 31462):

a. Highest consecutive thirty-six months of compensation earnable.

PEPRA Tier 4 and Tier 5 Plans (GC 7522.32, 7522.34):

a. Highest consecutive thirty-six months of pensionable compensation. Base compensation subject to annual limit.

Service Retirement

Tier 1 and Tier 3 Plans:

a. Requirement (GC 31672): Age 50 with 10 years of service, or age 70 regardless of service, or after 30 years of service, regardless of age.

b. Non-Enhanced Benefit (GC 31676.11)

Retirement Age	Benefit Formula
50:	(1.24%xFC-$1,400*)xYrs
55:	(1.67%xFC-$1,400*)xYrs
60:	(2.18%xFC-$1,400*)xYrs
62:	(2.35%xFC-$1,400*)xYrs
65 or later:	(2.61%xFC-$1,400*)xYrs

Maximum Benefit: 100% of Final Compensation.

Tier 2 Plan:

a. Requirement: Age 50 with 10 years of service, or age 70 regardless of service, or after 30 years of service, regardless of age.

b. Benefit (GC 31752)

Retirement Age	Benefit Formula
50:	(0.83% x FC x Yrs-0.57% x Yrs* x PIA)
55:	(1.13% x FC x Yrs-0.87% x Yrs* x PIA)
60:	(1.43% x FC x Yrs-1.37% x Yrs* x PIA)
62:	(1.55% x FC x Yrs-1.67% x Yrs* x PIA)
65 or later:	(1.73% x FC x Yrs-1.67% x Yrs* x PIA)

Maximum Benefit: None.

**Not greater than 30 years, where PIA is the Social Security Primary Insurance Amount.*

c. Tier 1 and 3 Plan Enhanced Benefit (GC 31676.16)

Retirement Age	Benefit Formula
50:	(1.43%xFC-$1,400*)xYrs
55:	(2.00%xFC-$1,400*)xYrs
60:	(2.26%xFC-$1,400*)xYrs
62:	(2.37%xFC-$1,400*)xYrs
65 or later:	(2.42%xFC-$1,400*)xYrs**

Maximum Benefit:100% of Final Compensation

*** Current Tier 1 and Tier 3 members retiring at age 62½ or older will receive the higher benefits formula under GC 31676.11. Employees with membership dates on or after the benefit enhancement effective date will retire with benefits computed under GC 31676.16.*

The offsets shown in all of the above formulas only apply to members integrated with Social Security.

PEPRA Tier 4 and Tier 5 Plans

a. Requirement (GC 7522.20 (a), 31672.3): Age 52 with 5 years of service, or age 70 regardless of service.

b. Benefit (GC 7522.20 (a))

Retirement Age	Benefit Formula
52:	1.00% x FC3 x Yrs
55:	1.30% x FC3 x Yrs
60:	1.80% x FC3 x Yrs
62:	2.00% x FC3 x Yrs
65:	2.30% x FC3 x Yrs
67 or later:	2.50% x FC3 x Yrs

Maximum Benefit: None.

Disability Retirement

Tier 1 and Tier 4:

a. Requirements (GC 31720)
   (1) Service-connected: None
   (2) Nonservice-connected: five years of service

b. Benefit
   (1) Service-connected: 50% Final Compensation or Service retirement benefit, if greater. (GC 31727.4)
   (2) Nonservice-connected: 1.5% per year of service. If the benefit does not exceed one-third of Final Compensation, the service is projected to 65, but total benefit cannot be more than one-third of Final Compensation. (GC 31727)

Tier 2, Tier 3, and Tier 5:

a. Requirements (GC 31720.1)
   (1) Service-connected: None
   (2) Nonservice-connected: ten years of service

b. Benefit (GC 31727.01)
   (1) Service-connected or nonservice-connected is 40% Final Compensation plus 10% Final Compensation for each minor child (maximum of three).
   (2) Disability benefits are offset by other plans of the County except Workers' Compensation and Social Security.

Death Before Retirement

All tiers other than General Tier 2:

a. No eligibility requirement: Refund of employee contributions with interest plus one month's compensation for each year of service to a maximum of 6 months compensation (GC 31781); 50% of Final Compensation payable to spouse if Service-Connected Death (GC 31787);

- OR -

b. 5 years of service (10 years for Tiers 3 and 5): Option 2 (100%) continuance of Nonservice-Connected Disability benefit payable to designated eligible beneficiary, if Form 104 is on file with CCCERA and granted by the Board.

General Tier 2:

a. Prior to eligibility to retire (less than ten years):
   (1) $2,000 lump sum benefit offset by any Social Security payment and a refund of employee of contributions with interest.

b. While eligible to retire (ten years or service-connected death) 60% of Service or Disability Retirement Benefit (minimum benefit is 24% of Final Compensation) plus, for each minor child, 10% of the allowance otherwise paid to the member. Minimum family benefit is 60% of the member's allowance. Maximum family benefit is 100% of member's allowance.

Death After Retirement

All tiers other than General Tier 2 (GC 31760.1, 31760.2)

a. After Service Retirement or Nonservice-Connected Disability - 60% of unmodified allowance continued to eligible spouse unless another option was selected at retirement.

- OR -

b. After Service-Connected Disability - 100% of the allowance continued to eligible spouse. (GC 31786, 31786.1)

- AND -

c. Lump sum payment of $5,000. (GC 31789.5)

General Tier 2 (GC 31760.11)

a. After Service or Disability Retirement 60% of unmodified allowance continued to eligible spouse plus 20% of allowance to each minor child. Minimum benefit is 60% of allowance, unless another option was selected at retirement. Maximum benefit is 100% of allowance.

- AND -

b. Lump sum payment of $7,000 less any Social Security lump sum payment. (GC 31789.01, 31789.5)

Withdrawal Benefits

May elect a refund of employee contributions with interest or defer retirement until eligible.

Less than five years of service: Eligible at age 70

At least five years of service:

Tier 1, Tier 2 and Tier 3
The later of age 50 and when the member would have reached 10 years of service had the member remained a full-time employee.

Tier 4 and Tier 5
Eligible at Age 52

Cost-of-Living (COL) Benefits

Tier 1, Tier 3, Tier 4 and Tier 5

Based on changes in Consumer Price Index (CPI).

3% maximum change per year except for Tier 3 and PEPRA Tier 5 disability benefits which can increase 4% per year. Benefits for PEPRA Tier 4 and Tier 5 members covered under certain Memoranda of Understanding have a maximum of 2% per year. Any additional CPI percentage over the maximum is "banked".

Tier 2
Based on changes in CPI.

4% maximum change per year. Any additional CPI percentage over the maximum is "banked".

Employee's Contribution Rates

Tier 1 Non-Enhanced (GC 31621.1)
a. Basic: to provide for an average annuity at age 55 equal to 1/120 of FC1.

b. COL: to provide for one-half of future COL costs.

Tier 1 and Tier 3 Enhanced (GC 31621)
a. Basic: to provide for an average annuity at age 60 equal to 1/120 of FC1.

b. COL: to provide for one-half of future COL costs.

PEPRA General Tiers 4 and 5 (GC 7522.30)
a. 50% of the total normal cost rate.

Employer Contribution Rates

Tier 1, Tier 3, Tier 4 and Tier 5
Enough to make up for the balance of the basic and COL contributions needed plus the amount required to amortize the Unfunded Actuarial Accrued Liability.

Other Information

Transfers from Tier 1 to Tier 2 were made on an individual voluntary irrevocable basis. The COL maximum is 4% only for the credit under the Tier 2 Plan.

Transferred Tier 2 Plan members keep the five year requirement for nonservice-connected disability. Those who were members on or before March 7, 1973 will be exempt from paying member contributions after 30 years of service.

B. SAFETY MEMBERS –

- Tiers A and C (GC 31664 and 31664.1)
- PEPRA Safety Members Tiers D and E (GC 7522.25(d))

Coverage

Tiers A and C

a. Safety members with membership dates before January 1, 2013.

b. County Sheriff's Department Safety members hired on or after January 1, 2007, but before January 1, 2013 are placed in Safety Tier C Enhanced.

Tiers D and E

a. Safety members with membership dates on or after January 1, 2013. Safety members from certain bargaining units are placed in Safety Tier E.

Final Compensation (FC)

Tiers A and C (GC 31462.1, 31462)

a. Highest consecutive twelve months of compensation earnable.

b. Highest consecutive thirty-six months of compensation earnable for Safety Tier C.

Tiers D and E (GC 7522.32, 7522.34)

a. Highest consecutive thirty-six months of pensionable compensation. Base compensation will be subject to annual limit.

Service Retirement

Tiers A and C

a. Requirement (GC 31663.25): Age 50 with 10 years of service, or age 70 regardless of service, or after 20 years of service, regardless of age.

b. Non-Enhanced Benefit at Retirement (GC 31664) (Rodeo-Hercules Fire Protection District)

Age	Benefit Formula
50	2.00% x FC1 x Yrs
55 or later	2.62% x FC1 x Yrs

Maximum Benefit: 100% of Final Compensation

c. Enhanced Benefit at Retirement (GC 31664.1) - (All others)

Age	Benefit Formula
50 or later	3.00% x FC1 x Yrs (Tier A); 3.00% x FC3 x Yrs (Tier C)

Maximum Benefit: 100% of Final Compensation

PEPRA Tiers D and E

a. Requirement (GC 7522.25(a) and 31672.3): Age 50 with 5 years of service, or age 70 regardless of service.

b. Benefit at Retirement (GC 7522.25 (d))

Age	Benefit Formula
50	2.00% x FC3 x Yrs
55	2.50% x FC3 x Yrs
57 or later	2.70% x FC3 x Yrs

Maximum Benefit: None

Disability Retirement

a. Requirements (GC 31720)
   (1) Service-connected: None
   (2) Nonservice-Connected: five years of service

b. Benefit
   (1) Service-connected: 50% Final Compensation or Service Retirement benefit if greater. (GC 31727.4)
   (2) Nonservice-Connected: 1.8% per year of service. If the benefit does not exceed one-third of Final Compensation, the service projected to 55, but total benefit cannot be more than one-third of Final Compensation. (GC 31727.2)

Death Before Retirement

Nonservice-Connected
a. Prior to retirement eligibility (less than 5 years)
   (1) One month's salary for each year of service to a maximum of six month's compensation.
   (2) Return of employee contributions with interest.

b. While eligible to retire (after five years) 60% of Service or Disability Retirement Benefit.

Service-connected
a. 50% of Final Compensation

Death After Retirement

a. After Service Retirement or Nonservice-Connected Disability - 60% of unmodified allowance continued to eligible spouse. (GC 31785, 31785.1)

- OR -

b. After Service-Connected Disability - 100% of the allowance continued to eligible spouse. (GC 31786, 31786.1)

- AND -

c. Lump sum payment of $5,000. (GC 31789.5)

Withdrawal Benefits

May elect a refund of employee contributions with interest or defer retirement until eligible.

Less than five years of service: Eligible at age 70

At least five years of service:

Tier A and Tier C
The later of age 50 and when the member would have reached 10 years of service had the member remained a full-time employee.

Tier D and Tier E
Eligible at age 50

Cost-of-Living (COL) Benefits

a. Based on change in CPI; 3% maximum change per year or Safety Tier A and Tier D. Any additional CPI percentage over the maximum is "banked".

b. Based on change in CPI; 2% maximum change per year for Safety Tier C and Tier E. Any additional CPI percentage over the maximum is "banked".

Employees' Safety Tier A Non-Enhanced (Section 31664) Contribution Rates

a. Basic - to provide for an average annuity at age 50 equal to 1/100 of FC1 (Tier A). (GC 31639.25)

b. COL - to provide for one-half of future COL costs.

Employees' Safety Tier A and Tier C Enhanced (Section 31664.1) Contribution Rates

a. Basic - to provide for an average annuity at age 50 equal to 1/100 of FC1 (Tier A). (GC 31139.25)

   Basic - to provide for an average annuity at age 50 equal to 1/100 of FC3 (Tier C).

b. COL - to provide for one-half of future COL costs.

PEPRA Safety Tiers D and E (GC 7522.30) Contribution Rates

a. 50% of the total normal cost rate.

Employer Contribution Rate

Tiers A, C, D, and E
Enough to make up the balance of the basic and COL contributions needed plus the amount required to amortize the Unfunded Actuarial Accrued Liability.

Other Information

Safety members under the enhanced benefit formula with membership dates on or before January 1, 2013 will be exempt from paying member contributions after 30 years of service.

OPEB CERTIFICATION LETTER

Milliman

2175 N. California Blvd., Suite 810
Walnut Creek, CA 94596
USA

Tel +1 888 881 4015
Fax +1 888 884 0329

milliman.com

March 14, 2023

Contra Costa County Employees' Retirement Association
1200 Concord Avenue, Suite 300
Concord, CA 94520

Actuarial Valuation of Other Post Employment Benefits for Staff Employees and Retirees as of January 1, 2022 and GASB 74/75 Disclosures as of December 31, 2022

At the request of the Contra Costa County Employees' Retirement Association ("CCCERA"), we have prepared an actuarial valuation of Other Post Employment Benefits as of January 1, 2022 for CCCERA's staff employees and retirees, and GASB 74 and 75 disclosures for the fiscal year ending December 31, 2022, to comply with Statements No. 74 and 75 of the Governmental Accounting Standards Board (GASB).

In preparing this report, we relied, without audit, on information supplied by the CCCERA's staff. This information includes but is not limited to employee census data, financial information and plan provisions. While Milliman has not audited the financial and census data, they have been reviewed for reasonableness and are, in our opinion, sufficient and reliable for the purposes of our calculations. If any of this information as summarized in this report is inaccurate or incomplete, the results shown could be materially affected and this report may need to be revised.

All costs, liabilities, rates of interest, and other factors for CCCERA have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of CCCERA and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting CCCERA. Further, in our opinion, each actuarial assumption used is reasonably related to the experience of the Plan and to reasonable expectations which, in combination, represent our best estimate of anticipated experience for CCCERA. The valuation results were developed using models intended for valuations that use standard actuarial techniques. We have reviewed the models, including their inputs, calculations, and outputs for consistency, reasonableness, and appropriateness to the intended purpose and in the compliance with generally accepted actuarial practice and relevant Actuarial Standards of Practice (ASOPs).

This valuation report is only an estimate of the Plan's financial condition as of a single date. It can neither predict the Plan's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of Plan benefits, only the timing of CCCERA's contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report 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; increases or decreases expected as part of the natural operation of the methodology used for these

Offices in Principal Cities Worldwide

Milliman

Contra Costa County Employees' Retirement Association
March 14, 2023
Page 2

measurements (such as the end of an amortization period); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. CCCERA has the final decision regarding the appropriateness of the assumptions.

Actuarial computations presented in this report under GASB Statements No. 74 and 75 are for purposes of assisting CCCERA in fulfilling its financial accounting requirements. The computations prepared for this purpose may differ as disclosed in our report. The calculations in the enclosed report have been made on a basis consistent with our understanding of CCCERA's funding policy and goals. The calculations in this report have been made on a basis consistent with our understanding of the OPEB plan provisions described in Appendix A of this report, and of GASB Statements No. 74 and 75. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

Milliman's work is prepared solely for the internal business use of CCCERA. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exceptions:

a) CCCERA may provide a copy of Milliman's work, in its entirety, to CCCERA's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit CCCERA.

b) CCCERA may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs. The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel. The signing actuary is independent of the plan sponsor. I am not aware of any relationship that would impair the objectivity of my work.

On the basis of the foregoing, I hereby certify that, to the best of our knowledge and belief, the report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the applicable Actuarial Standards of Practice of the American Academy of Actuaries. The undersigned is a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

Reid Earnhardt

Reid Earnhardt, ASA, MAAA
Consulting Actuary

OPEB SCHEDULE OF FUNDING PROGRESS

Funded Ratio is a measurement of the funded status of the OPEB liabilities. The Funded Ratio is calculated by dividing the Fiduciary Net Position of plan assets of the OPEB Trust by the Total OPEB Liability. In the table below, CCCERA's OPEB of Trust indicates plan assets are approximately 2% less than the Total OPEB Liability. The reason for the increase in the funded ratio is market appreciation of plan asset investments combined with employer contributions from CCCERA.

OPEB Schedule of Funding Progress
As of December 31, 2018 through 2022
(Dollars in Thousands)

Actuarial Valuation Date	Fiduciary Net Position (a)	Total OPEB Liability (TOL) (b)	Net OPEB Liability (NOL) (Asset) (b-a)	Funded Ratio (a) / (b)	Projected Employer - Covered Payroll (c)	NOL (Asset) as a Percentage of Covered Payroll (b-a)/c)
12/31/2018	$2,542	$4,710	$2,168	54.0%	$4,997	43.4%
12/31/2019	$3,630	$5,139	$1,509	70.6%	$5,385	28.0%
12/31/2020	$4,666	$5,092	$426	91.6%	$5,910	7.2%
12/31/2021	$5,265	$5,535	$270	95.1%	$6,329	4.3%
12/31/2022	$4,580	$4,506	$(74)	101.6%	$6,155	-1.2%

OPEB KEY METHODS AND ASSUMPTIONS

Key Methods and Assumptions Used in Biennial Actuarial Valuation of Total OPEB Liability	
Valuation Date	January 1, 2022
Measurement Date	December 31, 2022
Valuation Type	Full
Actuarial Cost Method	Entry Age Normal Cost
Amortization Method	Level Dollar Basis
Amortization Period	10 years (6 years remaining as of December 31, 2022)
Asset Valuation Method	Fair value of assets
Investment Rate of Return	6.50%
Inflation Rate	2.75%
Assumed Salary Increases	3.53% to 14.34% varying by years of service
Other Assumptions	Consistent with those used in the December 31, 2021 Actuarial Valuation for CCCERA Pension Plan

Demographic Assumptions

Below is a summary of the assumed rates for mortality, retirement, disability, and withdrawal, which are consistent with assumptions used in the December 31, 2021 Actuarial Valuation for CCCERA Pension Plan

Pre/Post Retirement Mortality	
Healthy	
General Members	Pub-2010 General Healthy Retiree Head Count Weighted Mortality Tables for males and females, projected generationally with the two-dimensional MP-2021 projection scale.
Disabled	
General Members	Pub-2010 General Disabled Retiree Head Counted Weighted Mortality Tables for males and females, projected generationally with the two-dimensional MP-2021 projection scale.
Beneficiaries	Pub-2010 Contingent Survivor Head Count Weighted Mortality Tables for males and females, projected generationally with the two-dimensional MP-2021 projection scale.
Withdrawal	Sample probabilities of terminating employment from CCCERA are shown below for selected years of CCCERA Service.

Years of Service	**General**
Less than 1	14.00%
1	9.50%
2	9.00%
3	6.25%
4	6.25%
5	5.00%
10	3.50%
10	2.25%
20 or more	1.50%

SUMMARY OF OPEB BENEFITS

ELIGIBILITY

Eligible for the Premium Subsidy

- Unrepresented CCCERA staff employees who are hired prior to January 1, 2009 with completion of 5 years of CCCERA service and retire with a CCCERA pension benefit.
- AFSCME CCCERA staff employees who are hired prior to January 1, 2010, with completion of 5 years of CCCERA service and retire with a CCCERA pension benefit.

PEMHCA Minimum Contribution

- Unrepresented CCCERA staff employees who are hired on or after January 1, 2009 with completion of 5 years of CCCERA service and retire with a CCCERA pension benefit.
- AFSCME CCCERA staff employees who are hired on or after January 1, 2010 with completion of 5 years of CCCERA service and retire with a CCCERA pension benefit.

HEALTH BENEFITS

(Retirement date on or after January 1, 2015)

Eligible CCCERA staff retirees and their dependents may elect coverage under the health plans sponsored by CalPERS. For retirees who meet the eligibility requirements to receive the premium subsidy, CCCERA will pay the monthly premium subject to maximum subsidies shown in the table below by rate tier for plan 2019 as listed in the Memorandum of Understandings between CCCERA and its bargaining units.

Employer Monthly Maximum Premium Subsidy

CalPERS Health Plans	Employee Only	Employee & 1 Dependent	Employee & 2+ Dependents
Anthem HMO Select	$782.95	$1,565.89	$2,035.66
Anthem HMO Traditional	746.47	1,492.94	1,940.82
BSC Access+	746.47	1,492.94	1,940.82
HealthNet Smartcare	804.97	1,609.95	2,092.93
Kaiser Permanente	763.16	1,526.33	1,984.23
PERS Choice	746.47	1,492.94	1,940.82
PERS Select	543.19	1,086.38	1,412.29
PERSCare	746.47	1,492.94	1,940.82
Western Health Advantage	746.47	1,492.94	1,940.82

For 2019 and beyond, if there is an increase in the monthly premium charged by a medical plan, CCCERA and the employee will each pay fifty percent (50%) of the monthly increase that is above the amount of the 2019 plan premium. The fifty percent (50%) share of the monthly medical plan increase paid by CCCERA is in addition to the amount paid by CCCERA for the 2019 plan year.

For dental coverage, CCCERA's monthly premium subsidy is a set dollar amount as shown in the table below. For 2020 and beyond, if there is an increase in the monthly dental premium charged by the dental carrier, CCCERA and the employee will each pay fifty percent (50%) of the monthly increase that is above the amount of the 2020 plan premium. The fifty percent (50%) share of the monthly dental plan increase paid by CCCERA is in addition to the amount paid by CCCERA for the 2020 plan year.

Dental Coverage

	2020
Employee Only	$46.21
Employee and Spouse	103.72
Employee and Child	103.41
Family	169.38

For employees who meet the eligibility to receive the PEMHCA minimum contribution the benefit is $149 per month for 2022 and $151 for 2023, subject to an annual increase based on the medical Consumer Price Index.

PAGE INTENTIONALLY LEFT BLANK.

STATISTICAL SECTION

SUMMARY OF STATISTICAL DATA

The objective of the Statistical Section is to provide users with additional detailed information in order to promote a more comprehensive understanding of CCCERA's financial statements, note disclosures and supplemental information. In addition, the multi-year trend information for the financial and operating segments of CCCERA provided in this section is intended to facilitate understanding of how the financial activities and positions have changed over time. The information is presented in two major categories: Financial Trends Information and Operating Information.

Financial Trends Information is intended to assist readers in understanding how CCCERA's financial activities and positions have changed over time. The Changes in Fiduciary Net Position for Years 2013 – 2022 presents additions by source, deductions by type, and the total change in fiduciary net position for each year. The Schedule of Benefit Expenses by Type for the last ten years presents benefit deductions by type of benefit, such as by Service Retirement and Disability Retirement, as well as by General and Safety benefits.

Operating Information is intended to provide contextual information about CCCERA's operations and membership to assist readers in using financial statement information to comprehend and evaluate CCCERA's fiscal condition. This section includes the Schedule of Retired Members by Type of Benefit, which presents information as of the current valuation period. The Schedule of Average Benefit Payment Amounts for the last ten years shows the average monthly benefit, and number of retirees and beneficiaries, organized by five-year increments. Participating Employers and Active Members for Years 2013 – 2022 presents the employers and number of their corresponding covered employees.

CCCERA reports current year information for 2022 on a one-year lag basis in the Schedule of Benefits Expenses by Type, Schedule of Retired Members by Type of Benefit, and Schedule of Average Benefit Payment Amounts. Due to current year 2022 information not available until calculated by outside actuary as part of the 2022 actuarial valuation, which is after publication of the ACFR, the current year 2022 information is reported in the following year's ACFR.

The Statistical Section includes brief information on Other Post-Employment Benefits Plan (OPEB) which is a single-employer defined benefit plan for CCCERA employees separate from CCCERA Pension Plan.

CHANGES IN FIDUCIARY NET POSITION FOR YEARS 2013 - 2022

Changes in Fiduciary Net Position
For Years 2013 - 2022
(Dollars in Thousands)

	2022	2021	2020	2019	2018
Additions					
Employer Contributions	$352,384	$410,760	$336,357	$327,983	$325,117
Plan Member Contributions	122,304	117,017	113,494	108,488	103,542
Net Investment Income (Loss)	(1,272,930)	1,416,366	890,943	1,176,419	(187,339)
Securities Lending Income	1,054	732	1,069	1,120	1,582
Total Additions	**(797,188)**	**1,944,875**	**1,341,863**	**1,614,010**	**242,902**
Deductions					
Benefits Paid	562,830	532,117	500,234	477,760	452,512
Refunds of Contributions	13,738	5,884	5,925	7,617	8,093
Administrative Expense	11,538	11,237	10,750	10,200	9,337
Other Expenses	14,803	12,109	11,729	11,406	13,555
Total Deductions	**602,909**	**561,347**	**528,638**	**506,983**	**483,497**
CHANGE IN FIDUCIARY NET POSITION	**$(1,400,097)**	**$1,383,528**	**$813,225**	**$1,107,027**	**$(240,595)**

	2017	2016	2015	2014	2013
Additions					
Employer Contributions	$314,836	$307,909	$323,720	$293,760	$235,017
Plan Member Contributions	96,467	88,788	85,361	78,258	72,373
Net Investment Income (Loss)	995,678	501,733	82,429	488,873	884,870
Securities Lending Income	878	1,630	1,165	1,167	1,148
Total Additions	**1,407,859**	**900,060**	**492,675**	**862,058**	**1,193,408**
Deductions					
Benefits Paid	430,037	412,073	400,759	387,026	369,809
Refunds of Contributions	5,518	7,154	4,434	6,798	3,844
Administrative Expense	9,146	8,486	8,115	6,980	6,776
Other Expenses	11,097	10,409	11,695	10,662	9,243
Total Deductions	**455,798**	**438,122**	**425,003**	**411,466**	**389,672**
CHANGE IN FIDUCIARY NET POSITION	**$952,061**	**$461,938**	**$67,672**	**$450,592**	**$803,736**

SCHEDULE OF BENEFIT EXPENSES BY TYPE (Annual Benefit Amounts)

Schedule of Benefit Expenses by Type
Annual Benefit Amounts as of December 31, of each year
(Dollars in Thousands)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Service Retirement Payroll:										
General	$278,566	$260,375	$247,225	$234,128	$223,019	$213,394	$205,761	$198,783	$188,945	$179,079
Safety	143,393	134,736	128,711	121,563	115,069	110,178	107,643	107,104	102,791	96,403
Total	421,959	395,111	375,936	355,691	338,088	323,572	313,404	305,887	291,736	275,482
Disability Retirement Payroll:										
General	12,545	12,550	12,514	12,286	12,315	12,432	12,531	12,215	12,371	12,049
Safety	44,325	42,529	41,869	39,726	37,111	35,664	35,168	33,631	32,346	29,725
Total	56,870	55,079	54,383	52,012	49,426	48,096	47,699	45,846	44,717	41,774
Beneficiary Payroll:										
General	28,652	27,139	25,798	24,849	23,971	22,877	22,938	20,249	19,511	18,011
Safety	24,636	22,905	21,643	19,960	18,552	17,528	16,718	15,044	13,845	12,302
Total	53,288	50,044	47,441	44,809	42,523	40,405	39,656	35,293	33,356	30,313
Total Benefit Expense:										
General	319,763	300,064	285,537	271,263	259,305	248,703	241,230	231,248	220,827	209,139
Safety	212,354	200,170	192,223	181,249	170,732	163,370	159,529	155,778	148,982	138,430
TOTAL	**$532,117**	**$500,234**	**$477,760**	**$452,512**	**$430,037**	**$412,073**	**$400,759**	**$387,026**	**$369,809**	**$347,569**

SCHEDULE OF RETIRED MEMBERS BY TYPE OF BENEFIT

Schedule of Years of Retired Members by Type of Benefit
Summary of Monthly Allowances Being Paid as of December 31, 2021

Amount of Monthly Benefit	Number of Retirees & Beneficiaries	Service	Disability	Beneficiary
General Members				
$0 to $999	1,326	1,029	2	295
$1,000 to $1,999	1,712	1,388	44	280
$2,000 to $2,999	1,469	1,133	149	187
$3,000 to $3,999	971	803	76	92
$4,000 to $4,999	696	597	45	54
$5,000 to $5,999	458	409	12	37
$6,000 to $6,999	331	292	8	31
$7,000 to $7,999	237	220	2	15
$8,000 to $8,999	194	180	1	13
$9,000 to $9,999	129	119	-	10
$10,000 & Over	317	309	-	8
TOTALS	**7,840**	**6,479**	**339**	**1,022**
Safety Members				
$0 to $999	106	64	6	36
$1,000 to $1,999	146	76	3	67
$2,000 to $2,999	143	56	25	62
$3,000 to $3,999	186	78	55	53
$4,000 to $4,999	315	96	139	80
$5,000 to $5,999	255	104	95	56
$6,000 to $6,999	190	113	41	36
$7,000 to $7,999	153	113	21	19
$8,000 to $8,999	143	102	29	12
$9,000 to $9,999	150	124	16	10
$10,000 & Over	651	503	116	32
TOTALS	**2,438**	**1,429**	**546**	**463**

SCHEDULE OF AVERAGE BENEFIT PAYMENT AMOUNTS

Schedule of Average Benefit Payment Amounts
Estimates Based on Years of Credited Service - General and Safety Combined

	Years of Credited Service							
Retirement Effective Date	**0 - 5**	**5 - 10**	**10 - 15**	**15 - 20**	**20 - 25**	**25 - 30**	**30+**	**Totals**
1/1/2021 - 12/31/2021								
Average monthly benefit	$526	$1,472	$2,415	$4,020	$5,321	$7,090	$7,790	$4,276
Average Final Compensation	$8,407	$8,025	$7,928	$9,747	$9,928	$11,255	$10,854	$9,476
Number of retired members	27	63	81	92	89	59	55	466
1/1/2020 - 12/31/2020								
Average monthly benefit	$1,042	$1,646	$2,319	$3,302	$5,231	$6,397	$6,728	$3,803
Average Final Compensation	$8,010	$8,661	$8,170	$8,273	$9,675	$9,871	$9,615	$8,884
Number of retired members	30	73	77	86	74	55	51	446
1/1/2019 - 12/31/2019								
Average monthly benefit	$1,180	$1,528	$2,060	$3,848	$4,728	$6,469	$7,273	$3,859
Average Final Compensation	$10,816	$8,003	$6,958	$8,633	$8,991	$9,554	$10,725	$8,712
Number of retired members	21	47	76	103	67	47	36	397
1/1/2018 - 12/31/2018								
Average monthly benefit	$664	$1,309	$2,247	$3,360	$4,991	$6,367	$5,524	$3,384
Average Final Compensation	$8,021	$7,448	$7,452	$7,829	$9,144	$9,653	$7,984	$8,165
Number of retired members	41	64	87	101	65	60	29	447
1/1/2017 - 12/31/2017								
Average monthly benefit	$929	$1,290	$1,982	$2,943	$3,697	$5,907	$5,253	$3,196
Average Final Compensation	$9,131	$6,537	$6,669	$7,566	$7,477	$9,326	$8,101	$7,605
Number of retired members	12	52	59	72	32	48	34	309
1/1/2016 - 12/31/2016								
Average monthly benefit	$988	$1,445	$1,887	$2,611	$3,569	$4,158	$4,590	$2,719
Average Final Compensation	$8,064	$7,085	$6,616	$6,783	$7,368	$7,953	$7,674	$7,208
Number of retired members	19	48	59	67	51	47	21	312
1/1/2015 - 12/31/2015								
Average monthly benefit	$1,344	$1,151	$1,990	$2,478	$3,351	$4,409	$3,619	$2,257
Average Final Compensation	$8,753	$6,379	$6,536	$6,418	$7,670	$8,065	$7,706	$6,867
Number of retired members	13	55	83	53	34	17	7	262
1/1/2014 - 12/31/2014								
Average monthly benefit	$1,292	$1,139	$1,976	$3,048	$4,431	$6,048	$5,318	$3,408
Average Final Compensation	$7,236	$6,426	$6,959	$7,834	$8,740	$9,941	$8,260	$7,959
Number of retired members	11	51	98	77	68	66	33	404

Schedule of Average Benefit Payment Amounts
Estimates Based on Years of Credited Service - General and Safety Combined

	Years of Credited Service							
Retirement Effective Date	**0 - 5**	**5 - 10**	**10 - 15**	**15 - 20**	**20 - 25**	**25 - 30**	**30+**	**Totals**
1/1/2013 - 12/31/2013								
Average monthly benefit	$533	$1,150	$1,824	$3,215	$4,454	$5,020	$4,991	$2,739
Average Final Compensation	$7,171	$6,454	$6,399	$8,744	$8,625	$8,993	$9,138	$7,537
Number of retired members	12	52	87	41	43	27	15	277
1/1/2012 - 12/31/2012								
Average monthly benefit	$1,953	$1,160	$2,096	$3,690	$4,897	$5,991	$6,272	$3,871
Average Final Compensation	$10,284	$5,938	$6,949	$8,901	$9,206	$9,710	$8,780	$8,344
Number of retired members	19	70	126	77	149	81	58	580

Schedule of Average Benefit Payment Amounts
Estimates Based on Annualized Benefit Amounts at December 31 of Each Year

	Years of Retirement								
GENERAL TIER 1	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**
2021 Average Monthly Benefit	$3,869	$3,520	$5,801	$5,297	$4,613	$3,519	$3,233	$2,520	$2,393
Number Retirees & Beneficiaries	197	253	520	598	516	372	264	197	142
2020 Average Monthly Benefit	$3,449	$4,727	$5,353	$5,099	$4,072	$3,430	$3,007	$2,277	$2,161
Number Retirees & Beneficiaries	228	388	488	613	478	369	259	205	127
2019 Average Monthly Benefit	$2,999	$5,070	$5,028	$4,844	$3,863	$3,291	$2,598	$2,218	$2,284
Number Retirees & Beneficiaries	212	479	507	587	469	374	276	191	111
2018 Average Monthly Benefit	$3,151	$5,041	$4,999	$4,441	$3,580	$3,099	$2,432	$2,142	$2,306
Number Retirees & Beneficiaries	219	511	544	576	467	388	304	184	100
2017 Average Monthly Benefit	$2,978	$5,246	$4,753	$4,236	$3,127	$2,917	$2,198	$2,333	$2,066
Number Retirees & Beneficiaries	227	538	616	563	447	414	301	182	90
2016 Average Monthly Benefit	$3,364	$5,011	$4,649	$3,853	$3,116	$2,694	$2,188	$2,117	$2,011
Number Retirees & Beneficiaries	282	534	622	586	478	377	303	187	81
2015 Average Monthly Benefit	$4,178	$4,674	$4,452	$3,570	$3,025	$2,519	$2,006	$2,081	$1,627
Number Retirees & Beneficiaries	387	503	650	550	489	395	341	194	78
2014 Average Monthly Benefit	$4,505	$4,453	$4,203	$3,336	$2,952	$2,325	$1,927	$2,069	$1,543
Number Retirees & Beneficiaries	471	515	612	543	482	405	322	169	59
2013 Average Monthly Benefit	$4,531	$4,417	$3,861	$3,123	$2,784	$2,240	$1,868	$1,999	$1,465
Number Retirees & Beneficiaries	500	559	602	528	487	435	317	158	47
2012 Average Monthly Benefit	$4,697	$4,202	$3,693	$2,854	$2,618	$2,055	$1,986	$1,773	$1,490
Number Retirees & Beneficiaries	535	631	594	510	514	434	324	141	40

Schedule of Average Benefit Payment Amounts
Estimates Based on Annualized Benefit Amounts at December 31 of Each Year

	Years of Retirement								
GENERAL TIER 2	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**
2021 Average Monthly Benefit	$626	$477	$849	$1,001	$1,199	$1,167	$1,328	$855	-
Number Retirees & Beneficiaries	35	40	55	86	169	122	30	6	-
2020 Average Monthly Benefit	$632	$354	$894	$1,077	$1,266	$1,042	$1,395	$705	-
Number Retirees & Beneficiaries	44	36	67	117	167	94	14	5	-
2019 Average Monthly Benefit	$528	$439	$822	$1,046	$1,248	$1,071	$1,307	$851	-
Number Retirees & Beneficiaries	43	42	68	131	180	71	12	4	-
2018 Average Monthly Benefit	$486	$492	$762	$1,169	$1,093	$1,230	$942	$506	
Number Retirees & Beneficiaries	47	45	76	150	174	63	9	2	
2017 Average Monthly Benefit	$456	$715	$734	$1,118	$1,098	$1,137	$947	$405	
Number Retirees & Beneficiaries	38	55	80	174	154	54	8	1	
2016 Average Monthly Benefit	$303	$698	$905	$1,115	$945	$1,356	$1,030		
Number Retirees & Beneficiaries	34	66	94	197	129	42	8		
2015 Average Monthly Benefit	$366	$731	$940	$1,091	$929	$1,643	$681		
Number Retirees & Beneficiaries	37	72	122	193	120	25	6		
2014 Average Monthly Benefit	$413	$671	$762	$1,109	$1,005	$1,365	$732		
Number Retirees & Beneficiaries	39	73	114	206	100	21	4		
2013 Average Monthly Benefit	$440	$654	$919	$1,003	$1,140	$922	$524		
Number Retirees & Beneficiaries	45	77	136	202	85	15	3		
2012 Average Monthly Benefit	$602	$613	$943	$1,016	$1,082	$951	$517		
Number Retirees & Beneficiaries	58	78	161	186	75	11	2		

Schedule of Average Benefit Payment Amounts
Estimates Based on Annualized Benefit Amounts at December 31 of Each Year

	Years of Retirement								
GENERAL TIER 3	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**
2021 Average Monthly Benefit	$3,351	$2,885	$3,462	$2,902	$1,728	$1,629	$1,703	$-	$-
Number Retirees & Beneficiaries	1197	1142	1094	588	143	2	1	-	-
2020 Average Monthly Benefit	$2,972	$3,131	$3,240	$2,399	$1,687	$2,336	$1,660	$-	$3,518
Number Retirees & Beneficiaries	1232	1349	803	444	69	1	1	-	1
2019 Average Monthly Benefit	$2,699	$3,169	$3,045	$2,073	$1,791	$1,940	$-	$-	$145
Number Retirees & Beneficiaries	1140	1345	786	333	36	2	-	-	1
2018 Average Monthly Benefit	$2,566	$3,172	$2,730	$1,740	$1,491	$1,558			
Number Retirees & Beneficiaries	1148	1285	731	259	2	1			
2017 Average Monthly Benefit	$2,388	$3,182	$2,529	$1,581	$1,447	$1,513			
Number Retirees & Beneficiaries	1043	1261	683	175	2	1			
2016 Average Monthly Benefit	$2,549	$3,043	$2,307	$1,494	$1,398	$1,466			
Number Retirees & Beneficiaries	1150	1105	568	140	2	1			
2015 Average Monthly Benefit	$2,721	$2,742	$2,053	$1,464	$1,986	$1,423			
Number Retirees & Beneficiaries	1368	858	476	77	1	1			
2014 Average Monthly Benefit	$2,772	$2,577	$1,811	$1,520	$1,634				
Number Retirees & Beneficiaries	1364	844	375	46	2				
2013 Average Monthly Benefit	$2,769	$2,374	$1,518	$1,677	$1,594				
Number Retirees & Beneficiaries	1297	776	306	3	2				
2012 Average Monthly Benefit	$2,798	$2,210	$1,397	$680	$1,563				
Number Retirees & Beneficiaries	1286	724	220	1	2				

GENERAL TIER 4 (PEPRA)	
2021 Average Monthly Benefit	$1,403
Number Retirees & Beneficiaries	4

NOTE: 2021 was the first year for which there were retirees in General Tier 4 (PEPRA).

GENERAL TIER 5 (PEPRA)	
2021 Average Monthly Benefit	$748
Number Retirees & Beneficiaries	67
2020 Average Monthly Benefit	$719
Number Retirees & Beneficiaries	39
2019 Average Monthly Benefit	$586
Number Retirees & Beneficiaries	20
2018 Average Monthly Benefit	$383
Number Retirees & Beneficiaries	11

NOTE: 2018 was the first year for which there were retirees in General Tier 5 (PEPRA).

Schedule of Average Benefit Payment Amounts
Estimates Based on Annualized Benefit Amounts at December 31 of Each Year

	Years of Retirement								
SAFETY TIER A and TIER C	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40+**
2021 Average Monthly Benefit	$6,600	$6,395	$8,784	$9,093	$7,248	$6,090	$5,873	$4,501	$4,627
Number Retirees & Beneficiaries	391	335	458	494	276	193	108	93	80
2020 Average Monthly Benefit	$6,162	$7,568	$8,546	$8,348	$6,874	$5,769	$5,227	$4,241	$4,682
Number Retirees & Beneficiaries	401	435	402	422	274	192	102	75	73
2019 Average Monthly Benefit	$5,963	$7,756	$8,326	$7,749	$6,497	$5,860	$4,656	$4,514	$4,484
Number Retirees & Beneficiaries	348	487	416	383	254	185	105	70	66
2018 Average Monthly Benefit	$5,949	$7,651	$7,991	$7,493	$5,863	$5,594	$4,476	$4,629	$4,206
Number Retirees & Beneficiaries	328	502	414	383	215	169	110	72	57
2017 Average Monthly Benefit	$5,640	$7,737	$7,899	$6,943	$5,574	$5,144	$4,182	$4,553	$4,023
Number Retirees & Beneficiaries	292	495	461	347	199	139	110	70	47
2016 Average Monthly Benefit	$6,069	$7,582	$7,890	$6,126	$5,409	$4,857	$4,176	$4,459	$3,833
Number Retirees & Beneficiaries	341	459	470	298	208	123	108	64	43
2015 Average Monthly Benefit	$6,590	$7,444	$7,262	$5,984	$5,033	$4,775	$3,983	$4,336	$3,676
Number Retirees & Beneficiaries	440	412	438	288	213	122	94	69	49
2014 Average Monthly Benefit	$6,837	$7,376	$6,771	$5,715	$5,227	$4,298	$4,157	$4,170	$3,397
Number Retirees & Beneficiaries	487	426	403	263	205	121	89	73	38
2013 Average Monthly Benefit	$6,858	$7,145	$6,583	$5,150	$5,117	$4,155	$4,255	$3,986	$3,093
Number Retirees & Beneficiaries	493	421	404	226	186	123	90	69	33
2012 Average Monthly Benefit	$6,946	$7,113	$6,165	$5,023	$4,738	$3,951	$4,108	$3,599	$3,272
Number Retirees & Beneficiaries	487	471	364	205	158	125	91	61	28

SAFETY TIER D and TIER E (PEPRA)		
2021 Average Monthly Benefit	$1,828	$2,360
Number Retirees & Beneficiaries	9	1
2020 Average Monthly Benefit	$2,099	
Number Retirees & Beneficiaries	4	
2019 Average Monthly Benefit	$1,679	
Number Retirees & Beneficiaries	3	
2018 Average Monthly Benefit	$2,160	
Number Retirees & Beneficiaries	1	

NOTE: 2018 was the first year for which there were retirees in Safety Tiers D and E (PEPRA).

PARTICIPATING EMPLOYERS AND ACTIVE MEMBERS FOR YEARS 2013 - 2022

Participating Employers and Active Members for Years 2013- 2022

County of Contra Costa:	2022[1]	% of Totals	2021	2020	2019	2018	2017	2016	2015	2014	2013
General Members	7667	76.04%	7627	7672	7657	7608	7,643	7,436	7,306	6,897	6,784
Safety Members	880	8.73%	906	911	910	937	947	951	936	894	951
TOTAL:	**8,547**	**84.77%**	**8,533**	**8,583**	**8,567**	**8,545**	**8,590**	**8,387**	**8,242**	**7,791**	**7,735**
Participating Agencies:											
Bethel Island Municipal Improvement District	5	0.05%	5	5	4	4	4	1	1	1	2
Byron-Brentwood-Knightsen Union Cemetery District	5	0.05%	5	4	3	4	4	4	5	5	5
Central Contra Costa Sanitary District	281	2.79%	277	272	283	278	279	282	272	262	260
Contra Costa County Employees' Retirement Association	59	0.59%	61	59	58	56	51	47	48	43	44
Contra Costa County Fire Protection District	481	4.76%	391	396	380	348	326	337	304	297	286
Contra Costa Mosquito and Vector Control District	31	0.31%	33	35	34	36	35	33	33	33	34
First 5 - Contra Costa Children & Families Commission	28	0.28%	29	30	28	30	29	28	26	22	21
Housing Authority of the County of Contra Costa	80	0.79%	82	84	81	82	82	87	84	82	83
In-Home Supportive Services Authority (IHSS)	14	0.14%	14	15	16	15	15	15	13	12	12
Local Agency Formation Commission (LAFCO)	1	0.01%	1	1	1	2	2	2	2	2	2
Moraga-Orinda Fire Protection District	65	0.64%	67	71	65	61	64	63	62	62	70
Rodeo-Hercules Fire Protection District	20	0.20%	21	21	19	21	19	18	24	23	15
Rodeo Sanitary District	6	0.06%	6	7	6	7	7	7	8	7	7
San Ramon Valley Fire Protection District	173	1.72%	163	169	170	164	172	164	152	155	155
Superior Court of California, County of Contra Costa	286	2.84%	276	303	318	331	323	330	331	324	344
East Contra Costa Fire Protection District [2]	0	0.00%	41	44	42	37	36	43	35	38	49
TOTAL PARTICIPATING AGENCIES:	**1,535**	**15.23%**	**1,472**	**1,516**	**1,508**	**1,476**	**1,448**	**1,461**	**1,400**	**1,368**	**1,389**
TOTAL ACTIVE MEMBERSHIP	**10,082**	**100.00%**	**10,005**	**10,099**	**10,075**	**10,021**	**10,038**	**9,848**	**9,642**	**9,159**	**9,124**

(1) 2022 total active membership is preliminary and will be finalized upon completion of Actuarial Valuation report as of December 31, 2022 anticipated in August 2023.
(2) East Contra Costa Fire Protection District was annexed by Contra Costa County Fire Protection District in June 2022.

CCCERA OPEB TRUST PLAN

Changes in Fiduciary Net Position and Participant Data
For Years 2022 - 2018*
(Dollars in Thousands)

	2022	2021	2020	2019	2018
Additions					
Employer Contribution	$268	$268	$536	$828	$2,542
Net Investment Income (Loss)	(797)	414	566	313	-
Total Additions	**(529)**	**682**	**1,102**	**1,141**	**2,542**
Deductions					
Benefits Paid	156	83	66	53	-
Total Deductions	**156**	**83**	**66**	**53**	**-**
CHANGE IN FIDUCIARY NET POSITION	**$(685)**	**$599**	**$1,036**	**$1,088**	**$2,542**

* OPEB Plan information only available from inception date 2018.

Participant Data from 2022 Valuation	
Active employees:	60
Average age at valuation date:	48.59
Current retirees:	7
Average age at retirement:	63.43