2021

ANNUAL COMPREHENSIVE FINANCIAL REPORT

FOR THE YEAR ENDED DECEMBER 31, 2021

CCCERA

Contra Costa County Employees' Retirement Association
Concord, California

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

2021 ANNUAL COMPREHENSIVE FINANCIAL REPORT
For the Year Ended December 31, 2021

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

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INTRODUCTORY SECTION

LETTER OF TRANSMITTAL

June 15, 2022

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 (Annual Report) for the year ended December 31, 2021, the 76th 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 16 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, Contra Costa County and 16 other participating agencies are members of CCCERA. The participating agencies include:

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

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) 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, 2021 valuation report anticipated to be completed by September 2022.

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 to the basic financial statements and in the required supplementary information. The total pension liability is determined by the 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 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, 2020, determined the funding ratio to be 91.8%, an increase of 1.2% over the prior year, using approved assumptions. This ratio compares the actuarial value of assets of the Plan to the actuarial accrued liabilities of the Plan. For a more in-depth review of the funding of the Plan, see the actuarial section of this report on page 94.

For fiscal years ending December 31, 2020 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 84, along with schedules of investment management fees and brokerage commissions on pages 90 and 91.

On a fair value basis, the total net position-restricted for benefits increased from $10.1 billion at December 31, 2020, to $11.5 billion at December 31, 2021. For the year ended December 31, 2021, CCCERA's investment portfolio returned 13.9%, net of investment management fees, reflecting market conditions throughout the year. CCCERA's annualized rate of return was 12.6% over the last three years, 9.6% over the last five years, and 9.3% over the last 10 years, net of investment expenses.

2021-2023 STRATEGIC PLAN

In 2021, CCCERA developed its second triennial strategic plan for 2021-2023, which 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.

During the 2021 year, a number of activities were completed to further these initiatives. At the strategic plan's implementation, a strategic plan reference card was distributed to staff to provide a visual, living document, in an effort to make the strategic direction of CCCERA at the forefront of all activities.

SERVICE EFFORTS

All members, active and retired, are affected in some way by COVID-19. 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 2021:

- Retirement Benefit Payments: $540 million in benefit payments paid during the year to over 10,000 retirees along with about 500 new retiree applicants were paid on time and CCCERA continues to meet this essential function.

- Member Communication: CCCERA responded to over 23,000 phone calls, almost 4,000 email inquiries, sent over 7,000 member letters, and distributed almost 100,000 newsletters during the year.

- CCCERA's website is continuously updated with current information and now includes two videos: (1) *How To Use The Pension Calculator*; and (2) *Retirement Overview*. The *Retirement Overview* video is a voice narrated slideshow of the normal in-person presentation which has also been shared remotely to employers. A third video is in the works named *Reciprocity Overview* which explains the meaning and guidelines for establishing reciprocity and forms needed.

- Retirement Applications: CCCERA continues to accept and process service and disability retirement applications effectively.

- Employer Payroll Information and Contribution Payments: CCCERA works closely with all employer districts to submit payroll information timely via a secure web portal and the majority of employer and member contributions are paid electronically when possible.

- 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 have 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.

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. 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.

PENSION ADMINISTRATION SYSTEM PROJECT:

CCCERA strives to provide excellent customer service, operate the plan in an efficient and cost-effective manner, and to safely and accurately maintain member data. To accomplish these objectives, 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. CCCERA's project team and staff are working very hard on the first phase of design specifications with an anticipated go live date of early 2024. Additionally, accurate data is essential in a pension administration system. CCCERA awarded a data services contract in October 2020 to ICON Integration and Design to assist with the conditioning and preparing of data migrated to the new pension system.

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, 2020. This was the 21st 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, 2020. This marks the 12th consecutive year to receive this honor.

CCCERA was awarded the Public Pension Coordinating Council's (PPCC) Public Pension Standards Award in 2021. 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

Gail Strohl
Chief Executive Officer

RETIREMENT BOARD (As of December 31, 2021)

Chairperson
SCOTT W. GORDON
Term Expires June 30, 2022
Appointed by Board of Supervisors

Vice-Chairperson
DAVID J. MACDONALD
Term Expires June 30, 2022
Elected by General Members

Secretary
JERRY R. HOLCOMBE
Term Expires June 30, 2023
Appointed by Board of Supervisors

County Treasurer
RUSSELL V. WATTS
Ex Officio by Statute

JOHN B. PHILLIPS
Term Expires June 30, 2023
Appointed by Board of Supervisors

CANDACE ANDERSEN
Term Expires June 30, 2023
Appointed by Board of Supervisors

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

LOUIE KROLL
Term Expires June 30, 2022
Elected by Retirees

DENNIS CHEBOTAREV
Term Expires June 30, 2023
Elected by General Members

(Alternate)
MIKE SLOAN
Term Expires June 30, 2022
Elected by Retirees

(Alternate)
JAY KWON
Term Expires June 30, 2023
Appointed by Board of Supervisors

(Alternate)
REGGIE POWELL
Term Expires June 30, 2023
Elected by Safety Members

PROFESSIONAL CONSULTANTS (As of December 31, 2021)

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
Laughlin, Falbo, Levy & Moresi, LLP
Law Offices of Vivian Shultz

LABOR RELATIONS COUNSEL
Alehire & Wynder, LLP

INVESTMENT CONSULTANTS
Verus Investments
Stepstone Investments

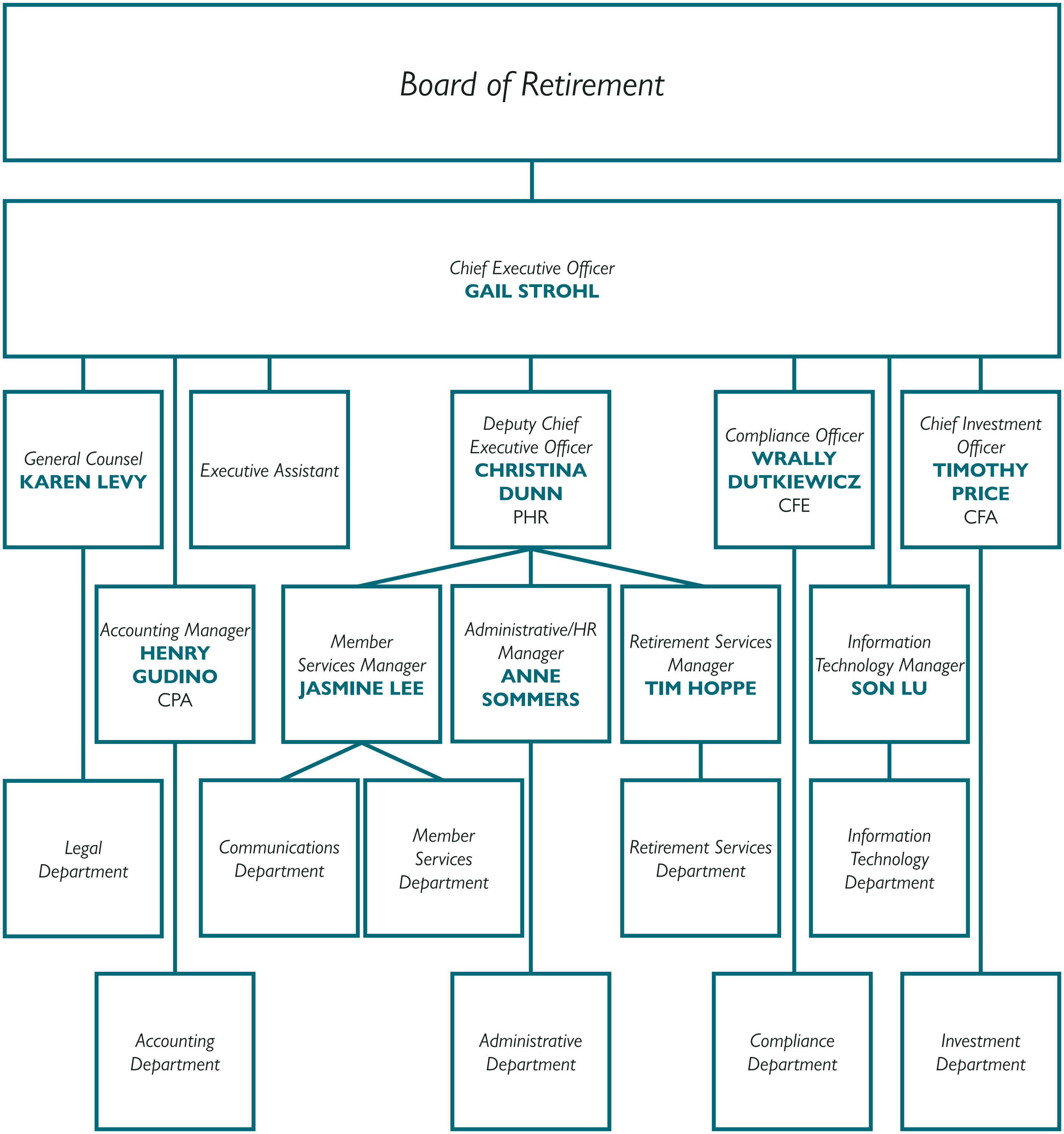
MASTER CUSTODIAN
The Northern Trust Company

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 88 and Schedules of Investment Management Fees and Brokerage Commissions located on pages 90 and 91. In addition, refer to Other Supplementary Information in this report for a Schedule of Payments to Consultants on page 78.

ADMINISTRATIVE ORGANIZATION CHART (As of December 31, 2021)



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, 2020

Christopher P. Morrill

Executive Director/CEO

PPCC PUBLIC PENSION STANDARDS AWARD

Public Pension Coordinating Council

Public Pension Standards Award For Funding and Administration 2021

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
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 Retirement Plan and Postemployment Health Care Plan Statement of Fiduciary Net Position of the Contra County Employees' Retirement Association (CCCERA), a pension trust fund of the County of the County of Contra Costa, California, as of and for the year December 31, 2021, and the related Retirement Plan and Postemployment Health Care Plan 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 Retirement Plan and Postemployment Health Care Plan of CCCERA as of December 31, 2021, 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

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.

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 supplementary information as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with GAAS. In our opinion, the supplementary information as listed in the table of contents are 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, 2020 financial statements, and our report dated June 15, 2021, expressed an unmodified opinion on those audited financial statements. In our opinion, the summarized comparative information presented herein as of December 31, 2020, 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 15, 2022, 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 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 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 15, 2022

MANAGEMENT'S DISCUSSION AND ANALYSIS December 31, 2021 and 2020

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, 2021 and 2020. 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 $11.5 billion and $10.1 billion at the close of December 31, 2021 and 2020, 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 increased by $1,383.5 million, or 13.7%, and $813.2 million, or 8.8%, as of December 31, 2021 and 2020, respectively. The increases in 2021 and 2020 are primarily the result of positive investment returns as well as increases in employer and plan member contributions.

- Total Additions, as reflected in the Statement of Changes in Fiduciary Net Position, for the years ended December 31, 2021 and 2020 were $1,944.9 million and $1,341.9 million, respectively. This includes 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, along with employer and plan member contributions of $449.9 million, investment income of $890.9 million, and net securities lending income of $1.1 million for 2020. The 44.9% increase in additions to net position over the prior year is attributed to net investment income earned for the year.

- Total Deductions, as reflected in the Statement of Changes in Fiduciary Net Position, totaled $561.3 million for the year ended December 31, 2021, an increase of $32.7 million over the year ended December 31, 2020, or approximately 6.2%, mainly attributed to the increase in retiree payroll. Benefits paid to retirees and beneficiaries increased from $500.2 million in 2020 to $532.1 million in 2021, or approximately 6.4%. 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, 2020, the date of CCCERA's last 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 91.8%, compared to 90.6% 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 2021 with a positive return, net of investment management fees, of 13.9% compared to 9.2% in 2020.

- Based on the Governmental Accounting Standards Board (GASB) Statement No. 67, CCCERA has a net pension liability (NPL) (asset) of $(0.24) billion and $0.46 billion as of December 31, 2021 and 2020, respectively. The plan fiduciary net position as a percentage of the total pension liability is 102.2% and 95.6% as of December 31, 2021 and 2020, respectively. The net pension liability (Asset) as a percentage of covered payroll is (24.9)% and 48.9% as of December 31, 2021 and 2020, respectively. Refer to Note 6, *Net Pension Liability (Asset)* on page 53, and *Schedule of Changes in Net Pension Liability (Asset) and Related Ratios* in the Required Supplementary Information section on page 71 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 $5.3 million as of December 31, 2021 represents accumulated employer contributions and investments, net of OPEB Trust benefit related expenses, separate from CCCERA's Pension Plan.

- The total OPEB liability, as calculated by CCCERA's OPEB actuary Milliman Inc., was $5.5 million as of the December 31, 2021 biennial valuation report. The OPEB Trust net position of $5.2 million offsets the total OPEB liability resulting in a net OPEB liability of $0.3 million, which is reported as part of CCCERA's Pension Plan other liabilities. Refer to Note 7, *Other Post-Employment Benefits (OPEB) Liability and Section 115 Trust* on page 55 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 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, deferred outflows of resources, and additions and deductions 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 and 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 increase in CCCERA's fiduciary net position for the year ended

December 31, 2021, was 13.7%. This increase is due primarily to positive investment returns generated as well as contributions received. CCCERA's total portfolio return was 13.9%, net of investment manager fees, for the year ending December 31, 2021. 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 for OPEB based on GASB 74, are also included in this section. Notes to the Financial Statements appear on pages 35 through 70.

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 73 through 75.

The Schedule of Funding Progress for funding purposes is presented in the Actuarial section on page 98.

Other Supplementary Information includes the Schedule of Administrative Expenses, Schedule of Investment Expenses, and Schedule of Payments to Consultants. It appears on pages 76 through 78.

Financial Analysis

As of December 31, 2021, CCCERA has $11.5 billion in net position-restricted for benefits, which means that assets of $12.1 billion exceed liabilities and deferred inflows of resources of $0.6 billion. As of December 31, 2020, CCCERA's net position-restricted for benefits totaled $10.1 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, 2021, the net position-restricted for benefits increased by 13.7% over 2020, primarily due to an increase 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 recent market volatility relating to the COVID-19 pandemic 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 $1.0 million as of December 31, 2020 to $2.7 million as of December 31, 2021. The investment in capital assets includes servers, equipment, furniture, leasehold improvements, including intangible assets under development for a pension administration system. The overall increase in CCCERA's investment in capital assets from 2020 to 2021 was 165.3%, primarily due to development costs for a new pension administration system offset by normal depreciation and amortization of assets over remaining useful lives.

CCCERA follows Government Code Section 31580.3, which allows expensing of software, hardware, and computer technology project consulting services, that are not related to development costs for a new pension administration system, but in support of the software or hardware used in the administration of the existing retirement system. During 2021 and 2020, CCCERA expensed $1.09 million and $852 thousand of software, hardware, and computer technology project consulting services, respectively.

FIDUCIARY NET POSITION FOR BENEFITS
(Dollars in Thousands)

	2021	2020	Amount Increase/ (Decrease)	Percent Increase/ (Decrease)
Assets				
Current and Other Assets	$1,288,236	$932,302	$355,934	38.2%
Investments at Fair Value	10,808,187	9,622,472	1,185,715	12.3%
Capital Assets	2,748	1,036	1,712	165.3%
Total Assets	**12,099,171**	**10,555,810**	**1,543,361**	**14.6%**
Liabilities				
Current Liabilities	644,407	484,574	159,833	33.0%
Total Liabilities	**644,407**	**484,574**	**159,833**	**33.0%**
Deferred Inflows of Resources - OPEB	**998**	**998**	**-**	**-**
NET POSITION - RESTRICTED FOR BENEFITS	**$11,453,766**	**$10,070,238**	**$1,383,528**	**13.7%**

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, 2020.

RESERVES – Pension plans establish reserves for various anticipated liabilities. CCCERA's reserves have been established to account for the accumulation of employer and plan member 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, 2021 are presented in Note 10, *Reserves and Designations*.

CCCERA's Activities

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

Additions:	**2021**	**2020**	**Amount Increase/ (Decrease)**	**Percent Increase/ (Decrease)**
Employer Contributions	$410,760	$336,357	$74,403	22.1%
Plan Member Contributions	117,017	113,494	3,523	3.1%
Net Investment Income	1,416,366	890,943	525,423	59.0%
Net Security Lending Income	732	1,069	(337)	(31.5%)
Total Additions	**1,944,875**	**1,341,863**	**603,012**	**44.9%**
Deductions:				
Pension Benefits	532,117	500,234	31,883	6.4%
Contribution Prepayment Discount	9,755	9,618	137	1.4%
Administrative	11,237	10,750	487	4.5%
Refunds	5,884	5,925	(41)	(0.7%)
Other Expenses	2,354	2,111	243	11.5%
Total Deductions	**561,347**	**528,638**	**32,709**	**6.2%**
INCREASE (DECREASE) IN NET POSITION - RESTRICTED FOR BENEFITS	**$1,383,528**	**$813,225**	**$570,303**	**70.1%**

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, 2021 and 2020, were $1,944.9 million and $1,341.9 million, respectively. The increase in the current year is primarily due to higher investment gains earned compared to the previous year. The net investment income, before securities lending, for the years ended December 31, 2021 and 2020 totaled $1,416.4 million and $890.9 million, respectively. The investment section of this report reviews the results of investment activity for the year ended December 31, 2021. Employer Contributions were $410.8 million as of December 31, 2021, an increase of $74.4 million, or 22.1%, over 2020. Plan Member Contributions were $117.0 million as of December 31, 2021, an increase of $3.5 million, or 3.1%, from prior year. While the increases are due to higher employer and plan member contribution rates, the Employer Contributions were specifically higher due to a one-time pay off of 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, 2021 and 2020, were $561.3 million and $528.6 million, respectively. Retirement allowances, survivor benefits, and permanent disability benefits were $532.1 million as of December 31, 2021, an increase of $31.9 million, or 6.4%, over 2020. 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 $11.2 million for 2021. 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 expenses increased by $487 thousand, or 4.5% in 2021. The increase was mainly due to expected annual staff wage increases combined with consulting fees for hiring a project manager for the new pension administration system.

Member refunds were $5.9 million in 2021, a decrease of $41 thousand, or 0.7% lower than 2020. Member refunds were lower in the current year due to a decrease in the number of terminated members requesting withdrawals.

Other expenses increased by $243 thousand over last year, or 11.5%, to $2.4 million in 2021. The primary reason for the increase was in-house legal expense and retiree 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 EXPENSES
As of December 31, 2021 and 2020
(Dollars in Thousands)

		2021	2020
Actuarial Accrued Liability (AAL)	a	$10,075,722	$9,682,144
Statutory Limit For Administrative Expenses (AAL x 0.21%)		21,159	20,333
Actual Administrative Expenses Subject To Statutory Limit	b	11,237	10,750
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 $561.3 million were less than additions of $1,944.9 million, resulting in an increase of $1,383.5 million in fiduciary net position for the year ended December 31, 2021.

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, increased by $570.3 million for the year ended December 31, 2021. This increase is due to higher investment gains in 2021 compared to the previous year.

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) (Asset), 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 (Asset) 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, 2021 and December 31, 2020.

Based on Segal Consulting's Governmental Accounting Standards Board (GASB) 67 Actuarial Valuation as of December 31, 2021, the Net Pension Liability (NPL) (asset) of participating employers on a market basis is $(0.24) billion as of December 31, 2021 and $0.46 billion as of December 31, 2020. The decrease is primarily a result of a favorable return on the fair value of assets (about 14.0%) during fiscal year 2021 that was greater than the assumed return of 7.00%. Refer to Note 6, *Net Pension Liability (Asset),* and the Required Supplementary Information section of this report for further information.

Changes in Net Pension Liability (Asset)
As of December 31, 2021 and 2020
(Dollars in Thousands)

	2021 (a)	2020 (b)	Amount Increase/ (Decrease) (c) = (a) - (b)	Percent Increase/ (Decrease) (c) / (b)
Total Pension Liability	$11,210,814	$10,531,688	$679,126	6.4%
Less Plan Fiduciary Net Position	11,453,766	10,070,238	1,383,528	13.7%
Net Pension Liability (Asset)	**$(242,952)**	**$461,450**	**$(704,402)**	**(152.6%)**

Total Pension Liability as calculated by Segal Consulting GASB 67 report as of December 31, 2021.

OPEB NET LIABILITY – GASB Statements Nos. 74 and 75, require CCCERA to report the total OPEB liability of $5.5 million and net OPEB liability of $0.3 million as of December 31, 2021 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 95.1% as of December 31, 2021. 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
As of December 31, 2021 and 2020
(Dollars in Thousands)

	2021 (a)	2020 (b)	Amount Increase/ (Decrease) (c) = (a) - (b)	Percent Increase/ (Decrease) (c) / (b)
Total OPEB Liability	$5,535	$5,092	$443	8.7%
Less OPEB Trust Fiduciary Net Position	5,265	4,666	599	12.8%
Net OPEB Liability	**$270**	**$426**	**$(156)**	**(36.6%)**

Total OPEB Liability as calculated by Milliman Inc. GASB 74 actuarial valuation as of December 31, 2021.

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 on record, 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, 2021, CCCERA's financial position and results from operations have experienced an increase over the prior year. For 2021, CCCERA's net position increased to $11.5 billion from $10.1 billion in 2020. The overall increase in net position for December 31, 2021 is primarily attributable to appreciation 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 general market downturns 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, 2021 (with Comparative Totals)
(Dollars in Thousands)

	2021		2020	
ASSETS	**Pension Plan**	**OPEB Trust**	**Pension Plan**	**OPEB Trust**
Cash & Cash Equivalents:				
Cash equivalents	$828,746	$34	$622,371	$33
Cash collateral - securities lending	409,049		260,297	
TOTAL CASH & CASH EQUIVALENTS	**1,237,795**	**34**	**882,668**	**33**
Receivables:				
Contributions	10,774		11,013	
Investment trades	14,987		10,046	
Investment income	17,822		19,539	
Installment contract (see Note 12)	6,239		8,418	
Other	6		158	
TOTAL RECEIVABLES	**49,829**	**-**	**49,174**	**-**
Investments at fair value:				
Equities	5,648,986	3,466	4,660,909	3,078
Fixed Income	2,219,364	1,765	2,486,583	1,621
Real assets	47,315		49,393	
Real estate	601,656		595,613	
Alternative investments	2,290,866		1,829,974	
TOTAL INVESTMENTS AT FAIR VALUE	**10,808,187**	**5,231**	**9,622,472**	**4,699**
Other assets:				
Prepaid expenses/deposits	612		460	
Capital assets, net of accumulated depreciation/amortization of $1,714 and $3,379 respectively	2,748		1,036	
TOTAL ASSETS	**12,099,171**	**5,265**	**10,555,810**	**4,732**
LIABILITIES				
Investment Trades	**31,033**		**11,231**	
Securities Lending Collateral	**409,049**		**260,297**	
Employer Contributions Unearned	**151,108**		**161,369**	
Retirement Allowance Payable	**42,194**		**40,368**	
Accounts Payable	**9,411**		**8,207**	
Contributions Refundable	**1,382**		**2,716**	
Other Liabilities	**230**	**-**	**386**	**66**
TOTAL LIABILITIES	**644,407**	**-**	**484,574**	**66**
DEFERRED INFLOWS OF RESOURCES:				
Deferred OPEB Inflows	**998**		**998**	
TOTAL DEFERRED INFLOWS OF RESOURCES	**998**	**-**	**998**	**-**
NET POSITION - RESTRICTED FOR BENEFITS	**$11,453,766**	**$5,265**	**$10,070,238**	**$4,666**

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, 2021 (with Comparative Totals)
(Dollars in Thousands)

	2021		2020	
ADDITIONS	**Pension Plan**	**OBEB Trust**	**Pension Plan**	**OBEB Trust**
Contributions:				
Employer contributions	$410,760	$268	$336,357	$536
Plan member contributions	117,017		113,494	
TOTAL CONTRIBUTIONS	**527,777**	**268**	**449,851**	**536**
Investment income:				
Net appreciation in fair value of investments	1,201,227	348	831,288	498
Net appreciation (depreciation) in fair value of real estate	100,714		(34,324)	
Interest	78,568		84,930	
Dividends	48,298	109	40,829	92
Real estate income, net	13,380		3,068	
Alternative income	22,098		8,805	
Investment expense	(49,349)	(43)	(45,230)	(24)
Other income/(expense)	1,430		1,577	
NET INVESTMENT INCOME, BEFORE SECURITIES LENDING	**1,416,366**	**414**	**890,943**	**566**
Securities lending income (expense):				
Earnings	915		1,336	
Rebates	-		-	
Fees	(183)		(267)	
NET SECURITIES LENDING INCOME	**732**	**-**	**1,069**	**-**
NET INVESTMENT INCOME	**1,417,098**	**414**	**892,012**	**566**
TOTAL ADDITIONS	**1,944,875**	**682**	**1,341,863**	**1,102**
DEDUCTIONS				
Benefits paid	**532,117**		**500,234**	
Contribution prepayment discount	**9,755**		**9,618**	
Administrative	**11,237**	**83**	**10,750**	**66**
Refunds of contributions	**5,884**		**5,925**	
Other	**2,354**		**2,111**	
TOTAL DEDUCTIONS	**561,347**	**83**	**528,638**	**66**
NET INCREASE IN NET POSITION	**1,383,528**	**599**	**813,225**	**1,036**
NET POSITION - RESTRICTED FOR BENEFITS				
Beginning of year	**10,070,238**	**4,666**	**9,257,013**	**3,630**
End of year	**$11,453,766**	**$5,265**	**$10,070,238**	**$4,666**

See accompanying notes to the financial statements.

NOTES TO THE FINANCIAL STATEMENTS For the Year Ended December 31, 2021

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 (the 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 16 other member agencies.

In October 2009, the Board de-pooled CCCERA's assets, actuarial accrued liability (AAL), and normal cost both by tier and employer for determining employer contribution rates. This Board action yielded 12 separate cost groups by employer, with the exception of smaller employers (those with less than 50 active members at that time) who continue to be pooled with the applicable County tier. The December 31, 2009 valuation was the first to incorporate the new "de-pooled" employer contribution rates, and those rates were effective July 1, 2011.

Prior to the preparation of the December 31, 2019 actuarial valuation, Safety members at Contra Costa County Fire Protection District were pooled with Safety members from East Contra Costa Fire Protection District in Cost Group 8. Upon a request made by East Contra Costa Fire Protection District to de-pool their Safety members from Safety members of the Contra Costa County Fire Protection District, the Board took action to de-pool the members effective with the December 31, 2019 actuarial valuation. The de-pooled assets for the two employers were allocated based on their respective actuarial accrued liability as of December 31, 2018. Safety members of the East Contra Costa Fire Protection District are under their own cost group (Cost Group 13).

Subsequently, an annexation of East Contra Costa Fire Protection District by Contra Costa County Fire Protection District was approved by Local Agency Formation Commission of Costa Costa County (LAFCO) on March 19, 2022. This annexation transaction between employers will combine district members into one cost group for valuation purposes and may involve member tier changes for the preparation of the December 31, 2021 actuarial valuation report.

CCCERA's membership as of December 31, 2021 and 2020 is presented below.

CCCERA Membership
As of December 31, 2021 and 2020

	2021[1]	2020	Amount Increase/ (Decrease)	Percent Increase/ (Decrease)
Active members	10,006	10,099	(93)	-0.9%
Retired members or beneficiaries	10,279	10,018	261	2.6%
Terminated members entitled to, but not yet receiving, benefits [2]	3,830	3,591	239	6.7%
TOTAL MEMBERSHIP	**24,115**	**23,708**	**407**	**1.7%**

[1] 2021 total membership is preliminary and will be finalized upon completion of December 31, 2021 Actuarial Valuation report anticipated in September 2022.
[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.

Effective January 1, 2015, California Senate Bill 673 (SB 673) makes the CCCERA retirement system an independent "district" and the employer for its entire staff, subject to terms and conditions of employment established 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.

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. Effective January 1, 2005, the enhanced benefits were applied to the bargaining units represented by the California Nurses Association and the non-represented employees within similar classifications as employees in bargaining units represented by the California Nurses Association, as well as the supervisors and managers of those employees. Effective July 1, 2005, East Contra Costa Fire Protection District adopted the enhanced benefit structure for its employees. In addition, 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. As of December 31, 2012, nine (9) general member agencies and four (4) safety member agencies adopted enhanced benefits for their employees. A fifth safety member agency adopted enhanced benefits for its general members only in 2003. Under PEPRA, which became effective January 1, 2013, districts that have not adopted enhanced benefits will no longer be 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. Tier 3 was originally created on October 1, 1998 and made available to all members with five or more years of Tier 2 service who elected to transfer to Tier 3 coverage.

All members who moved to Tier 3 with five or more years of service prior to October 1, 2002, or were moved to Tier 3 effective October 1, 2002, January 1, 2005, or February 1, 2006, continue to have Tier 2 benefits for service prior to that date unless the service is converted to Tier 3. As of December 31, 2006, there are no active Tier 2 member accounts. Tier 1 includes members not mandated to be in Tier 2 or Tier 3 and reciprocal members who were placed in Tier 1 membership.

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, Contra Costa County and the Deputy Sheriffs' Association agreed to adopt a new Safety Tier C 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. Due to PEPRA, a Deputy Sheriff hired on or after January 1, 2013, has a 2.7% at 57 benefit formula with a 36 month final average salary period with compensation limited as noted below. The 2% maximum annual COLA is unchanged.

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, without the County paying any part of the plan members' contributions. 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 tiers for General and Safety members entering CCCERA membership on or after January 1, 2013. 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 2021 compensation limits are $128,059 for members covered by Social Security and $153,671 for members not covered by Social Security, and these limits increase to $134,974 and $161,969, respectively, in 2022. The PEPRA annual compensation limits will be adjusted in future years based on changes in the Consumer Price Index. The majority of CCCERA General members are covered by Social Security, while CCCERA Safety members are not covered by Social Security.

In September 2013, the Governor approved Assembly Bill 1380 (AB 1380), which makes various technical corrections and conforming changes that align the CERL with the provisions of PEPRA. In particular, the bill clarifies that Tier 4, Tier 5, Safety Tier D and Safety Tier E members are eligible to retire at age 70, regardless of years of service; that the Board may, but is not required to, round these members contribution rates to the nearest quarter of one percent; and those rates may be adjusted for any change in the normal cost rate. AB 1380 was effective January 1, 2014. On January 22, 2014, CCCERA's Board exercised the discretion made available by AB 1380 to no longer round the members' contribution rates for PEPRA members to the nearest quarter of one percent as previously required by PEPRA. This allows for exactly one-half of the Normal Cost to be paid by the plan members and by the employers covered under the PEPRA tiers.

In November 2012, the County Board of Supervisors approved two memoranda of understanding (Deputy District Attorneys' Association and Contra Costa County Public Defenders' Association) that stipulated new CCCERA members who become members after December 31, 2012 within these bargaining units will earn retirement benefits that will be subject to a maximum annual COLA of 2%. As a result, CCCERA created a second Tier 5 for general members subject to this COLA provision. Other bargaining units (including units covering Tier 4 members) have since agreed to this COLA provision for those who become members after a certain date. Members in bargaining units subject to this COLA provision will be placed in General Tier 4 or Tier 5 (2% maximum COLA) or Safety Tier E.

In September 2013, the Board approved using base pay only for purposes of pensionable compensation for PEPRA members and to exclude all other special compensation beyond base pay. In addition, the Board clarified that separate pay items for premium pay to comply with the Fair Labor Standards Act (FLSA) and the Fire Retirement Allotment for the Moraga-Orinda Fire Protection District are to be excluded from pensionable compensation. In September 2014, the Board adopted a written policy to this effect, "Policy On Determining Pensionable Compensation Under PEPRA For Purposes Of Calculating Retirement Benefits."

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. Previously, disability retirements were granted as service connected with no minimum service credit required or non-service connected with ten years of service credit required. Those members who elected in 1980 to transfer from Tier 1 to Tier 2 were eligible for non-service connected disability retirement with five years of service. The definition of a disability is stricter under Tier 2 than under Tier 1. 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 definition of disability is the same as Tier 2. 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 definition of disability is the same as Tier 1. 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 definition of disability is the same as Tier 3. The retirement benefit is based on Government Code Section 7522.20. The final compensation is based on a three-year average.

Safety – Tier A

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 – 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 requirements 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 31664.1. The final compensation is based on a three-year average.

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

Effective January 1, 2003, a member with less than five years of service may elect to leave accumulated contributions on deposit in the retirement fund regardless of years of service as a result of the enactment of AB 2766, which amends Section 31629.5 of CERL. A member who continues membership under this ruling is granted a deferred status and 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, prepared 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 Contra Costa County employees who worked at CCCERA and retired prior to January 1, 2015, before CCCERA became an independent employer, those liabilities are included with Contra Costa County's OPEB Trust for funding purposes. CCCERA currently provides payments to Contra Costa 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 single-employer defined benefit plan as of December 31, 2021 and 2020 is presented below:

CCCERA OPEB Plan Membership
As of December 31, 2021 and 2020

	2021	2020	Amount Increase/ (Decrease)	Percent Increase/ (Decrease)
Active members	59	55	4	7.3%
Retired members or beneficiaries	7	7	0	0.0%
Terminated members entitled to, but not yet receiving, benefits	0	0	0	0.0%
TOTAL OPEB PLAN MEMBERSHIP	**66**	**62**	**4**	**6.5%**

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.

Cash and Cash Equivalents

Cash and cash equivalents include deposits in the Plan's custodian bank, The Northern Trust Company (Northern Trust), the Plan's local retail bank, Mechanics Bank, investment managers, and Contra Costa County 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, 2021 and 2020.
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/ Partership	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 assets 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. 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.

As December 31, of 2021, 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, 2021

LONG-TERM ***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, 2021 and 2020.

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/amortized. Depreciation/amortization is calculated using the straight-line method, with estimated lives ranging from three years for software, five to ten years for all hardware, leasehold improvements, and pension administration system assets, and five years for office equipment.

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

In 2020, CCCERA implemented GASB Statement No. 98 (GASB 98), *The Annual Comprehensive Financial Report,* and acronym ACFR. The new term and acronym replace instances of comprehensive annual financial report and its acronym in generally accepted accounting principles for state and local governments. The statement was early implemented in 2020 in CCCERA's financial statements.

GASB Statement No. 87 (GASB 87), *Leases,* was released for implementation with fiscal years beginning after June 15, 2021. GASB 87 requires the recognition of capital assets and liabilities for leases that were previously classified as operating leases, and recognizes inflows or outflows of resources depending on the lease contract payment provisions. CCCERA has determined that the lease at 1200 Concord Avenue does not meet the threshold for reporting in the ACFR and is not required to implement GASB 87.

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 than 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.

On following page is a list of fixed income and short-term investments and the related maturity schedule for CCCERA as of December 31, 2021.

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.

Investment Maturities (In Years)
As of December 31, 2021
(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	$-	$17,520	$-	$-	$-	$17,520
Commercial Mortgage-Backed	-	-	-	6,978	-	6,978
Corporate Bonds*	255,878	547,237	111,421	3,671	659,592	1,577,799
Funds-Corporate Bond	-	-	-	-	270,860	270,860
Funds-Corporate Convertible Bond	-	-	-	-	308	308
Funds-Government Agencies	-	-	-	-	9,241	9,241
Funds-Other Fixed Income	-	-	-	-	2,157	2,157
Funds-Short Term Investment	-	-	-	-	418,309	418,309
Government Agencies	5,100	74,138	-	-	-	79,238
Government Bonds	99,003	63,276	-	4,693	-	166,972
Government Mortgage-Backed Securities	6	1,549	23,587	452,480	-	477,622
Government Issued Commercial Mortgage-Backed	-	-	-	1,420	-	1,420
Hedge Multi Strategy*	-	-	-	-	254,392	254,392
Index Linked Government Bonds	-	98,712	-	3,714	-	102,426
Municipal / Provincial Bonds	9,406	74,503	41,600	34,286	-	159,796
Non-Government Backed CMOs	-	-	284	6,281	-	6,564
Short-Term Bills and Notes*	**66,572**	**-**	**-**	**-**	**-**	**66,572**
TOTALS:	**$435,965**	**$876,935**	**$176,892**	**$513,523**	**$1,614,859**	**$3,618,174**

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

At year-end, the carrying amount of CCCERA's cash deposits in non-interest bearing accounts was $54,994,201 (which are included in cash equivalents) and the bank balance was $55,408,938. 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, 2021 and 2020, the annual money-weighted rate of return on the assets of the Plan, net of investment expense, was 13.90% and 9.50%, 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.

On June 8, 2016, 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 7.00% per year.

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. The new rate will be used in the preparation of the December

31, 2021 actuarial valuation report anticipated to be completed by September 2022.

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, 2021, 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, 2021, the portfolios that exceed 5% of the Plan's fiduciary net position are:

- Insight Short-Duration Fixed Income 5.8%
- Blackrock Index Fund 5.6%
- Artisan Global Opportunities 5.5%
- Stepstone CC Opportunities 7.2%

As of December 31, 2020, CCCERA held the same portfolio positions 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, 2021 as rated by Standard & Poor's (S&P) (Dollars in Thousands):

Credit Risk Ratings
As of December 31, 2021

Quality Ratings	Fair Value
AAA	$88,124
AA+	30,352
AA	66,538
AA-	61,132
A+	93,420
A	74,328
A-	220,264
BBB+	178,002
BBB	117,835
BBB-	40,652
BB+	15,994
BB	40,914
BB-	28,816
B+	34,463
B	26,438
B-	16,436
CCC+	17,321
CCC	1,400
CCC-	478
Not Rated	1,660,282
Guaranteed	804,985
TOTAL SECURITIES SUBJECT TO CREDIT RISK	**$3,618,174**

Investment Type	Quality Rating Range
Asset-backed securities*	AAA
Convertible bonds	Not rated
CMBS*	Not rated
CMO*	Not rated
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, 2021 is as follows:

Foreign Currency Risk
As of December 31, 2021
(Dollars in Thousands)

Currency	Fixed Income	Equity	Total
Australian Dollar	$0	$1,529	$1,529
Brazilian Real	-	1,717	1,717
British Pound Sterling	-	25,774	25,774
Canadian Dollar	-	10,732	10,732
Colombian Peso	1,164	-	1,164
Euro Currency	-	40,541	40,541
Hong Kong Dollar	-	4,423	4,423
Indonesian Rupiah	683	-	683
Japanese Yen	-	42,182	42,182
Malaysian Ringgit	829	-	829
Mexican Peso	1,522	389	1,911
Norwegian Krone	-	1,421	1,421
Peruvian Nuevo Sol	553	-	553
Republic of Korea Won	-	8,032	8,032
Swedish Krona	-	5,908	5,908
Swiss Franc	-	13,947	13,947
Thailand Baht	-	1,671	1,671
TOTAL SECURITIES SUBJECT TO FOREIGN CURRENCY RISK	**$4,751**	**$158,266**	**$163,017**

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, 2021 (in thousands):

Schedule of Investments by Fair Value Hierarchy
The Plan has the following recurring fair value measurements as of December 31, 2021 (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	$1,191,963	$1,191,963	$ -	$ -
Global & International Equity	418,036	418,036	-	-
Real Estate - REIT	110,039	110,039		
Risk Diversifying	20,310	17,226	-	3,084
Total Equity Securities	**1,740,348**	**1,737,264**	**-**	**3,084**
Fixed Income:				
Liquidity Program	1,511,252	-	1,511,252	-
Global & International Held in Equity Portfolios	4,750	-	4,750	-
High Yield	174,863	-	174,863	-
Risk Diversifying	267,754	21,876	245,878	-
Total Fixed Income Securities	**1,958,619**	**21,876**	**1,936,743**	-
Real Assets:				
Global & International Equity	47,183	47,183	-	-
Total Real Asset Securities	47,183	47,183	-	-
Total Investments By Fair Value Level	**3,746,150**	**$ 1,806,323**	**$ 1,936,743**	**$ 3,084**
Investments Measured at the Net Asset Value (NAV):				
Public Market Commingled Funds	4,169,668			
Real Estate:				
Value Added, Opportunistic & Distressed Funds	601,656			
Alternatives:				
Private Equity & Private Credit Funds	2,290,866			
Total Investments Measured at the NAV	**7,062,190**			
TOTAL INVESTMENTS MEASURED AT FAIR VALUE	**$10,808,340**			
Investment Derivative Instruments:				
Options Contracts	**$(153)**	**$(153)**	**$-**	**$-**
Total Investment Derivative Instruments	**$(153)**	**$(153)**	**$-**	**$-**

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)	$4,169,668	$-	1-90 days	1-30 days
Real Estate:				
Value Added, Opportunistic & Distressed Funds (2)	601,656	192,150	N/A	N/A
Alternatives:				
Private Equity & Private Credit Funds (3)	2,290,866	900,408	N/A	N/A
Total Investments Measured at the NAV	**$7,062,190**	**$1,092,558**		

(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-one 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 thirty-five private equity and five private credit funds. The private equity funds invest primarily in other private equity funds, privately held U.S., and non-U.S. companies. The private credit funds invest primarily in other private credit funds, commercial real estate debt and debt instruments of upstream energy firms. The fair value of these investments has been determined using a practical expedient based on the investments' NAV. 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 the underlying assets are liquidated by the fund managers.

The OPEB Trust has the following recurring fair value measurements as of December 31, 2021 (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, 2021
(in thousands)

		Fair Value Measurements Using		
		Quoted Prices in Active Markets for Identical Assets	Significant Other Observable Inputs	Significant Other Unobservable Inputs
	Total	**(Level 1)**	**(Level 2)**	**(Level 3)**
Total Investments By Fair Value Level	$-	$-	$-	$-
Investments Measured at the Net Asset Value (NAV):				
	Fair Value	Redemption Frequency	Redemption Notice Period	
Public Market Commingled Funds	$5,230	1-90 days	1-30 days	
Total Investments Measured at the NAV	5,230			
Total Investments Measured at Fair Value	**$5,230**			

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 open 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 the 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, 2021, 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, 2021 and 2020.

The fair value of investments on loan at December 31, 2021 is $473.1 million which was collateralized by cash and securities in the amount of $483.6 million. The fair value of the cash collateral in the amount of $409.0 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, 2021
(Dollars in Thousands)

Securities on Loan	**Fair Value of Securities on Loan**	**Cash Collateral**	**Non-Cash Collateral**
Global Agencies	$1,054	$1,075	$-
Global Equities	3,766	229	3,733
Total Non U.S. Securities	**4,820**	**1,304**	**3,733**
U.S. Agencies	2,958	1,330	1,694
U.S. Corporate Fixed	99,773	92,467	9,556
U.S. Equities	244,515	211,364	38,608
U.S. Government Fixed	120,985	102,584	20,955
Total U.S. Securities	**468,231**	**407,745**	**70,813**
TOTAL	**$473,051**	**$409,049**	**$74,546**

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, 2021 and December 31, 2020. 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, 2020 and December 31, 2019, respectively. The components of CCCERA's net pension liability (asset) as of December 31, 2021 and 2020 are as follows:

Net Pension Liability (Asset)
(Dollars in Thousands)

	December 31, 2021	December 31, 2020
Total Pension Liability (a)	$11,210,812	$10,531,688
Plan Fiduciary Net Position (b)	11,453,766	10,070,238
Net Pension Liability (Asset) (a-b)	**$(242,954)**	**$461,450**
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability (b/a)	**102.2%**	**95.6%**

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, 2021 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, 2021, that was measured by an actuarial valuation as of December 31, 2020, was re-valued as of December 31, 2020 (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, 2021 to determine the final total pension liability as of December 31, 2021. The Board also approved the 2018-2020 experience study actuarial assumptions to used in the preparation of the actuarial valuation as of December 31, 2021 which is anticipated to be completed by September 2022.

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, 2021
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, 2021	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.
Salary Increase	3.50% to 14.00% 4.00% to 15.00% 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 anaysis 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 2021 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, are summarized in the following table.

Long-Term Expected Real Rate of Return

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return (Arithmetic)
Large Cap U.S. 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%
Intrastructure	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 rates used to measure the total pension liability as of December 31, 2021 and December 31, 2020 were 6.75% and 7.00%, respectively. 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 member plan 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% and 7.00% was applied to all periods of projected benefit payments to determine the total pension liability as of December 31, 2021 and December 31, 2020, respectively.

The following table presents the net pension liability (asset) of participating employers calculated using the discount rate of 6.75% as of December 31, 2021 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 (Asset) to Changes in the Discount Rate
As of December 31, 2021
(Dollars in Thousands)

	1% Decrease (5.75%)	Current Discount Rate (6.75%)	1% Increase (7.75%)
Net Pension Liability (Asset)	$1,264,896	$(242,953)	$(1,477,980)

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 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. The most recent OPEB actuarial valuation was a December 31, 2021 Roll-Forward from the last Full valuation as of December 31, 2020.

For the current year, the OPEB Fiduciary Net Position as a percentage of the Total OPEB Liability was 95.1% as of December 31, 2021. 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 and calculated solely for financial statement purposes.

On February 14, 2018, the Board adopted the 2018 OPEB actuarial valuation by Milliman, 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, and to issue a Request For Proposal for OPEB Trust fund management services.

On November 28, 2018, the Board authorized the CEO to execute a contract with Public Agency Retirement Services (PARS) for OPEB Trust fund management services, appointed the CEO as CCCERA's plan administrator for the program, whose authority includes the selection of an appropriate investment option offered by PARS, and approved an initial employer contribution transfer of $2.5 million from the previously set-aside liability to pre-fund the OPEB Trust.

On January 23, 2019, the Board adopted a funding policy to contribute to the OPEB Trust equal to the Actuarially Determined Contribution (ADC) each year and establish an amortization period of 30 years.

On July 24, 2019, the Board adopted a policy to change the amortization period and fully fund the ADC from 30 years to 10 years. For this valuation, the ADC is defined as the annual service cost, plus an amount to amortize the net OPEB liability over 10 years from 2018 on a level dollar basis, plus interest to account for the timing of contributions during the year.

On April 28, 2021, the Board adopted a biennial Full OPEB actuarial valuation as of December 31, 2020 in accordance with GASB 74/ 75 with a Roll-Forward actuarial valuation as of December 31, 2021 adopted on April 13, 2022.

Net OPEB Liability And Changes To Net OPEB Liability

The net OPEB liability is measured as the total OPEB liability less the amount of the OPEB Trust fiduciary net position. The net OPEB liability and schedule of changes in net OPEB liability and related ratios displays the components in conformity with GASB 74/ 75 for financial statement reporting purposes as of December 31, 2021 as follows:

Total OPEB Liability and Schedule of Changes in Net OPEB Liability and Related Ratios
As of December 31, 2021 and 2020
(Dollars in Thousands)

	2021	2020
Total OPEB Liability		
Service cost	$198	$192
Interest on the total OPEB liability	341	358
Changes in benefit terms		329
Differences between actual and expected experience with regard to economic or demographic factors		(517)
Changes of assumptions		(336)
Benefit payments	(96)	(73)
Net Change in Total OPEB Liability	**443**	**(47)**
Total OPEB Liability - Beginning	**5,092**	**5,139**
Total OPEB Liability - Ending (a)	**$5,535**	**$5,092**
OPEB Trust Fiduciary Net Position		
Contributions from employer	$268	$536
Net Investment income	414	566
Administrative expenses	(83)	(66)
Net Change in OPEB Trust Fiduciary Net Position	**599**	**1,036**
OPEB Trust Fiduciary Net Position - Beginning	**4,666**	**3,630**
OPEB Trust Fiduciary Net Position - Ending (b)	**$5,265**	**$4,666**
Net OPEB Liability (a)-(b) = (c)	**$270**	**$426**
OPEB TRUST FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL OPEB LIABILITY (b)/(a)	**95.1%**	**91.6%**
COVERED PAYROLL (d)	**$6,329**	**$5,910**
NET OPEB LIABILITY AS A PERCENTAGE OF COVERED PAYROLL (c)/(d)	**4.3%**	**7.2%**

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, 2021
(Dollars in Thousands)

Asset Class	**Deferred Inflows of Resources**	**Deferred Outflows of Resources**
Differences between expected and actual experience	$(397)	$-
Changes of assumptions	(258)	-
Net difference between projected and actual earnings	(343)	-
Contributions made subsequent to measurement date	-	-
TOTAL	**$(998)**	

Fiscal Year Ending December 31	**Recognized Deferred (Inflows) and Outflows of Resources**
2022	$(184)
2023	(184)
2024	(184)
2025	(122)
2026	(99)
THEREAFTER	**$(160)**

Contributions

Schedule of Employer Contributions
For Years ended December 31, 2018 through 2021
(Dollars in Thousands)

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

[1] Covered payroll is informational only and does not represent how employer contributions to the OPEB Trust are funded.

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	December 31, 2021
Valuation Type	Roll-Forward
Actuarial Cost Method	Entry Age Normal Cost
Amortization Method	Level dollar basis
Amortization Period	10 years (7 years remaining as of December 31, 2021)
Asset Valuation Method	Fair value of assets
Investment Rate of Return	6.50%
Investment Rate	2.75%
Assumed Salary Increases	3.75% to 15.25% 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 returns, net of investment expenses is shown in the following table.

Schedule of Investment Returns
For Years ended December 31, 2018 through 2021
(Dollars in Thousands)

	2021	2020	2019	2018
Total portfolio performance returns, net of investment expenses	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 finvance 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 Actuarially 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 Trust assets over the next 50 years is expected to be 6.53%.

OPEB Trust Long-Term Expected Real Rate of Return

Asset Class	Current Asset Allocation	Expected 1 -Year Nominal Return
Core Fixed Income	14.0%	3.25%
Short-Term Fixed Income	7.0%	2.86%
Intermediate-Term Fixed Income	7.0%	2.89%
U.S. Treasuries	7.0%	2.71%
Domestic Equity Large Cap	21.0%	6.32%
Domestic Equity Small Cap	5.0%	6.96%
International Developed Equity	20.0%	8.05%
International Emerging Market Equity	17.0%	8.78%
Real Estate	2.0%	6.86%
TOTAL	**100%**	**6.53%**

Expected annual return of OPEB Trust assets over 50 years

Demographic Assumptions

A summary of the assumed rates for mortality, retirement, disability, and withdrawal, which are consistent with assumptions used in the December 31, 2020 CCCERA actuarial valuation is included in the OPEB Key Methods and Assumptions table in the Actuarial Section of this report on page 119.

Sensitivity of Net OPEB Liabilities

GASB 74/75 requires disclosure of the sensitivity of the Net OPEB Liability (NOL) to changes in the discount rate and health care cost trend rates. The liabilities shown below are based as of December 31, 2021. The following tables show what CCCERA's Net OPEB Liability 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, 2021
(Dollars in Thousands)

	1% Decrease (5.50%)	Current Discount Rate (6.50%)	1% Increase (7.50%)
Net OPEB Liability (Asset)	$971	$270	$(309)

Sensitivity of Net OPEB Liability to Changes in the Healthcare Costs Trend Rate
As of December 31, 2021
(Dollars in Thousands)

	1% Decrease	Current Trend Rate	1% Increase
Net OPEB Liability (Asset)	$(424)	$270	$1,130

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, 2021, 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 at December 31, 2021 with the net appreciation/ (depreciation) that has occurred during the year:

Investment Derivatives
As of December 31, 2021
(Dollars in Thousands)

Investment Derivatives by Type	Net Appreciation/ (Depreciation) in Fair Value	Classifications	Fair Value	Notional Amount
Interest Rate Contracts-Futures	$(3,513)	Futures	$-	$65,742
Interest Rate Contracts-Options	(97)	Options	55	-
Forward Foreign Exchange Contracts	443	Forwards	165	-
Equity Contracts-Futures	23,639	Futures	-	451,606
Equity Contracts-Options	6,773	Options	(208)	-
Equity Contracts-Rights/Warrants	110	Rights/ Warrants	141	-
TOTAL	**$27,355**		**$153**	

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, 2021, 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, 2021.

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, 2021:

Credit Risk Analysis
At December 31, 2021
(Dollars in Thousands)

	S&P Credit Rating		
Derivative Type	Not Available or Not Rated	Exchange Traded	Total Fair Value
Assets:			
Options - Interest Rate Contracts	$-	$55	$55
Options - Equity Contracts	-	338	338
Rights/Warrants - Equity Contracts	141	-	141
Forwards - Foreign Exchange Contracts	165	-	165
Liabilities:			
Equity Contracts-Options	-	(546)	(546)
TOTAL	**$306**	**$(153)**	**$153**

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, 2021, 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 $141 thousand of investments in derivatives is one to five years and the investment maturity of $12 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 11.85% 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. Contra Costa County Fire Protection District members paid 3% of base pay through June 30, 2020 when subvention arrangements were discontinued. Certain Safety members at Moraga-Orinda Fire District contribute 9% of base pay pursuant to a Memorandum of Understanding through June 30, 2021. San Ramon Valley Fire District members contribute 8% of base pay. Member contributions are refundable upon termination of employment.

As of December 31, 2021, Contra Costa County 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, 2021, contributions totaled approximately $527.8 million, which included $410.8 million in plan member contributions and $117.0 million in employee 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 in 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. Contra Costa County 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 94.

As noted in Note 1, *Plan Description,* the Governor approved Assembly Bill 1380 (AB 1380) in September 2013, which makes various technical corrections and conforming changes that align CERL with the provisions of PEPRA. In particular, the bill stipulates that the Board may, but is not required to, round the member contribution rates for PEPRA members to the nearest quarter of one percent, and those rates may be adjusted for any change in the normal cost rate. AB 1380 was effective January 1, 2014. On January 22, 2014, CCCERA's Board exercised the discretion made available by AB 1380 to no longer round the member's contribution rates for PEPRA members to the nearest quarter of one percent as previously required. This should allow for exactly one-half of the Normal Cost to be paid by the plan members and by the employers covered under the PEPRA plan.

The 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 plan member and employer 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, plan member and employer 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, 2020 are based on the results of the three-year actuarial experience study for the period January 1, 2015, through December 31, 2017.

On April 13, 2022, CCCERA's Board adopted the results of an actuarial experience study for the three-year period from January 1, 2018 through December 31, 2020. The results of this experience study will be used to prepare the subsequent actuarial valuation as of December 31, 2021, which is anticipated to completed by September 2022.

The latest actuarial valuation as of December 31, 2020 discloses the actuarial value of assets at $9.7 billion with an actuarial accrued liability of $10.5 billion for a funded ratio of 91.8%. The UAAL is $0.9 billion, which is 86.8% of the $990.0 million projected covered payroll. A schedule of CCCERA's funding progress may be found in the Actuarial Section on page 98. 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 methods and significant assumptions used as of the latest actuarial valuation of plan assets and liabilities is shown below.

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 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	7.00%, net of pension plan investment expenses, including inflation
Inflation Rate	2.75%
Administrative Expenses for December 31, 2020 Valuation	1.14% of payroll allocated to both the employer and plan member based on the components of the Normal Cost rates for the employer and plan member
Real Across-the-Board Salary Increases	0.50%
Payroll Growth	Inflation of 2.75% 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.
Cost-of-Living Adjustments (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 Consumer Price Index (CPI).
Other Assumptions	Same as those used in the December 31, 2019 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, 2021 defined the ADC as the annual service cost, plus an amount to amortize the net OPEB liability over 10 years from 2018, the date of inception for the OPEB Trust, 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, 2021:

OPEB Actuarially Determined Contribution (ADC)
As of December 31, 2021
(Dollars in Thousands)

	2021
Service Cost as of January 1, 2021	$198
Amortization of net OPEB liability as of December 31, 2021	46
Interest to January 1, 2022	13
ADC as of January 1, 2022	**$257**

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 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 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.

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 Return represents the unrecognized return after smoothing of investment gains and losses based on a five-year smoothing method. This method smoothes only the semi-annual deviation of total market return (net of expenses) from the actuarial assumption, currently 7.00 percent per annum.

Reserves and designated fiduciary net position as of December 31, 2021 and 2020 are as follows:

Reserved and Designated Fiduciary Net Position
As of December 31, 2021 and 2020
(Dollars in Thousands)

	2021		2020	
	Pension Plan	**OPEB Trust**	**Pension Plan**	**OPEB Trust**
Valuation Reserves:				
Member Deposits Reserve				
Basic	$1,029,848	$-	9$73,635	$-
Cost-of-Living	522,964	-	503,100	-
Member Deposits - Contra Tracking Account	(255,770)		(253,555)	
Employer Advance Reserve				
Basic	3,139,041	-	2,759,387	-
Cost-of-Living	2,190,243	-	1,129,650	-
Employer Advance - Contra Tracking Account	(1,114,833)		(1,096,379)	
Retired Member Reserve				
Basic	3,797,564	-	3,735,883	-
Cost-of-Living	2,179,760	-	2,952,638	-
Retired Member Cost-of-Living Supplement	(820)	-	271	-
Retired Member - Contra Tracking Account	(1,048,367)		(1,037,158)	
TOTAL VALUATION RESERVES	**10,439,630**	**-**	**9,667,472**	**-**
Supplemental Reserves:				
Post Retirement Death Benefit Reserve	**16,713**	**-**	**16,225**	**-**
Post Retirement Death - Contra Tracking Account	**(5,218)**		**(5,189)**	
Other Reserves/ Designations				
Contingency Reserve (one percent)	**-**	**-**	**-**	**-**
TOTAL ALLOCATED RESERVES/ DESIGNATIONS	**10,451,125**	**-**	**9,678,508**	**-**
TOTAL DEFERRED RETURN	**1,002,641**	**-**	**391,730**	**-**
OPEB TRUST	**-**	**5,265**	**-**	**4,666**
NET POSITION - RESTRICTED FOR PENSIONS	**$11,453,766**	**$5,265**	**$10,070,238**	**$4,666**

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 Contra Costa County have paid off their liability. Contra Costa County 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, 2021.

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

Agreement Details:	**Contra Costa County**
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
Receivable at December 31, 2021:	$28,065
Future Principal Payments	$6,038
Interest Accrued for 2021	201
	$6,239

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.

On November 28, 2012, the Contra Costa County Deputy Sheriffs Association (DSA) and other employee groups filed a petition for a writ of mandate with the Contra Costa County Superior Court, seeking to prevent CCCERA from implementing AB 197. AB 197 added Subdivision 31461(b) to the CERL, mandating certain exclusions from compensation for retirement purposes. On May 12, 2014, the trial court entered a judgment in the case, and the matter was appealed. In July of 2020, the California Supreme Court issued a unanimous decision upholding the constitutionality of the legislative changes contained in AB 197 to the definition of "compensation earnable." The matter was remanded to the trial court and judgment was issued in favor of CCCERA on November 8, 2021.

On August 21, 2014, the DSA and other employee groups filed a petition for a writ of mandate with the Contra Costa County Superior Court, seeking a permanent injunction requiring CCCERA to include multiple in-service leave cash outs in pensionable pay so long as the cash outs were paid or payable during the final average salary period. The lawsuit is related to the 2012 lawsuit referenced above, in that it involves questions regarding whether certain leave payments are "earned and payable" in the final average salary period and therefore pensionable. The matter was dismissed on November 15, 2021.

A CCCERA retired member, Peter Nowicki, filed a claim challenging the Board's decision to reduce his retirement allowance after the exclusion of excess compensation determined to have been improperly increased by the member. The trial court found in favor of CCCERA, and the case was appealed. On August 10, 2021, the court of appeal found in favor of Nowicki.

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 5th, 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, 2021, CCCERA was committed to future investments in real estate of $192.2 million and $900.4 million in alternative investments.

NOTE 13. ADMINISTRATIVE EXPENSES

The Board of Retirement annually adopts the 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 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 2021 on November 18, 2020 which was prepared based upon the twenty-one hundredths of one percent (0.21 percent) CERL limit.

The following budget-to-actual analysis of administrative expenses as of December 31, 2021 and December 31, 2020 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, 2021 and 2020
(Dollars in Thousands)

	2021	2020
Basis for Budget Limitation, Actuarial Accrued Liability (AAL)[1]	$10,075,722	$9,682,144
Maximum Allowable For Administrative Expenses (AAL x 0.21%)	21,159	20,333
Approved Administrative Budget	$12,504	$11,781
Actual Administrative Expenses	(11,237)	(10,750)
Actual Expenses (over) under Administrative Budget	$1,267	$1,031
Actual Administrative Expenses	$11,237	$10,750
Actuarial Accrued Liability (AAL)	10,075,722	9,682,144
Actual Administrative Expenses as a Percentage of AAL	0.11%	0.11%
Statutory Limit Allowable For Administrative Expenses per CERL		0.21%

[1]The AAL, as determined by CCCERA's actuary each year, is used to calculate the statutory limit for administrative expenses for the year after next. For example, the AAL as of December 31, 2019 valuation was approved by the Board in October 2020, and was used to establish the statutory limit for budgeted administrative expenses for the year ended December 31, 2021.

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 22, 2022, 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.

As a result of the California Supreme Court decision in favor of CCCERA relating to the AB197 compensation earnable lawsuit, and dismissal of a separate lawsuit to determine whether leave payouts are earned and payable in the final average salary period, contribution correction refunds have been calculated and are being remitted to affected members in 2022. The total dollar amount is not material to the financial statements for the year ended December 31, 2021 or thereafter.

Local Agency Formation Commission of Contra Costa County (LAFCO) approved an annexation of East Contra Costa Fire Protection District by Contra Costa County Fire Protection District on March 19, 2022. This annexation transaction between employers will combine district members into one cost group for valuation purposes and may involve tier changes, but does not have any impact on the financial statements for the year ended December 31, 2021 or thereafter.

CCCERA did not have any other events requiring recording or disclosure in the financial statements for the year ended December 31, 2021.

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 2021*
(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.

	2021	2020	2019	2018	2017
Total Pension Liability					
Service cost	$251,752	$238,569	$231,469	$229,098	$212,258
Interest	735,972	707,427	678,035	647,734	616,273
Changes of benefit terms	-	-	-	-	-
Differences between expected and actual experience	6,602	(10,633)	119,869	52,853	(29,192)
Changes of assumptions or other inputs[1]	223,911	(17,638)	-	(92,419)	-
Benefit payments, including refunds of employee contributions	(539,112)		1,036		
Net Change in Total Pension Liability	**679,126**	**410,590**	**543,068**	**376,012**	**363,043**
Total Pension Liability - Beginning	**10,531,688**	**10,121,098**	**9,578,030**	**9,202,018**	**8,838,975**
Total Pension Liability - Ending (a)	**$11,210,814**	**$10,531,688**	**$10,121,098**	**$9,578,030**	**$9,202,018**
Plan Fiduciary Net Position					
Contributions- employer [2]	$410,760	$336,357	$327,983	$325,117	$314,836
Contributions- plan members [2]	117,017	113,494	108,488	103,541	96,467
Net investment income (loss), including prepayment discount	1,407,343	882,394	1,168,171	(195,031)	987,416
Benefit payments, including refunds of employee contributions	(539,112)	(507,135)	(486,305)	(461,254)	(436,295)
Administrative expense	(11,237)	(10,750)	(10,200)	(9,337)	(9,146)
Other	(1,243)	(1,135)	(1,110)	(3,631)	(1,217)
Net Change in Plan Fiduciary Net Position	**1,383,528**	**813,225**	**1,107,027**	**(240,595)**	**952,061**
Plan Fiduciary Net Position - Beginning	**10,070,238**	**9,257,013**	**8,149,986**	**8,390,581**	**7,438,520**
Plan Fiduciary Net Position - Ending (b)	**$11,453,766**	**$10,070,238**	**$9,257,013**	**$8,149,986**	**$8,390,581**
Net Pension Liability (Asset) (a)-(b) = (c)	**($242,952)**	**$461,450**	**$864,085**	**$1,428,044**	**$811,437**
PLAN FIDUCIARY NET POSITION AS A PERCENTAGE OF THE TOTAL PENSION LIABILITY (b)/(a)	**102.2%**	**95.6%**	**91.5%**	**85.1%**	**91.2%**
COVERED PAYROLL (d)	**$976,332**	**$943,422**	**$892,379**	**$850,929**	**$809,960**
NET PENSION LIABILITY (Asset) AS A PERCENTAGE OF COVERED PAYROLL (c)/(d)	**-24.9%**	**48.9%**	**96.8%**	**167.8%**	**100.2%**

*Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

(1) For the December 31, 2021 measurement date, this is due to changes of assumptions. The updated actuarial assumptions were based on the results of an experience study for the period from January 1, 2018 through December 31, 2020.

(2) 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 2021*
(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.

	2016	2015	2014	2013
Total Pension Liability				
Service cost	$202,697	$192,923	$192,257	$196,463
Interest	591,972	582,343	561,216	564,441
Changes of benefit terms	-	-	-	-
Differences between expected and actual experience	(19,957)	(62,118)	(183,605)	(77,223)
Changes of assumptions or other inputs(1)	-	72,186	(76)	(232,887)
Benefit payments, including refunds of employee contributions	(419,446)	(406,236)	(394,948)	(374,639)
Net Change in Total Pension Liability	**355,266**	**379,098**	**174,844**	**76,156**
Total Pension Liability - Beginning	**8,483,709**	**8,104,611**	**7,929,767**	**7,853,611**
Total Pension Liability - Ending (a)	**$8,838,975**	**$8,483,709**	**$8,104,611**	**$7,929,767**
Plan Fiduciary Net Position				
Contributions- employer (2)	$307,909	$323,720	$293,760	$235,017
Contributions- plan members (2)	88,788	85,360	78,258	72,373
Net investment income (loss), including prepayment discount	493,874	73,611	480,502	877,761
Benefit payments, including refunds of employee contributions	(419,446)	(406,236)	(394,948)	(374,639)
Administrative expense	(8,486)	(8,115)	(6,980)	(6,776)
Other	(701)	(668)	-	-
Net Change in Plan Fiduciary Net Position	**461,938**	**67,672**	**450,592**	**803,736**
Plan Fiduciary Net Position - Beginning	**6,976,582**	**6,908,910**	**6,458,318**	**5,654,581**
Plan Fiduciary Net Position - Ending (b)	**$7,438,520**	**$6,976,582**	**$6,908,910**	**$6,458,318**
Net Pension Liability (Asset) (a)-(b) = (c)	**$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)	**84.2%**	**82.2%**	**85.3%**	**81.4%**
COVERED PAYROLL (d)	**$755,139**	**$709,819**	**$671,486**	**$638,636**
NET PENSION LIABILITY (Asset) AS A PERCENTAGE OF COVERED PAYROLL (c)/(d)	**185.5%**	**212.3%**	**178.1%**	**230.4%**

*Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.
(1) For the December 31, 2021 measurement date, this is due to changes of assumptions. The updated actuarial assumptions were based on the results of an experience study for the period from January 1, 2018 through December 31, 2020.
(2) 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 2012 through 2021
(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)
2012	$212,321	$212,321	$-	$666,394	$31.86%
2013	228,017	228,017	-	638,636	35.70%
2014	288,760	288,760	-	671,486	43.00%
2015	321,220	321,220	-	709,819	45.25%
2016	307,909	307,909	-	755,139	40.78%
2017	314,512	314,512	-	809,960	38.83%
2018	324,863	324,863	-	850,929	38.18%
2019	326,717	326,717	-	892,379	36.61%
2020	336,067	336,067	-	943,422	35.62%
2021	339,703	339,703	-	976,332	34.79%

(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.

SCHEDULE OF INVESTMENT RETURNS

Schedule of Investment Returns
For the years 2013 through 2021*
(Dollars in Thousands)

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.

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%

*Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

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 2021 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 3 years remaining as of December 31, 2019 and 4 years remaining as of December 31, 2018. 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, 2019 Valuation Date (1)**	**December 31, 2018 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	1.10% 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%
Consumer Price Index (CPI) and Cost-of-Living Adjustments (COLA)	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.	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, 2019 funding actuarial valuation	Same as those that will be used in the December 31, 2018 funding actuarial valuation

(1) Actuarially determined contribution rates for the first six months of calendar year 2021 (or the second half of fiscal year 2020-2021) are caluclated based on the December 31, 2018 valuation. Actuarially determined contribution rates for the last six months of calendar year 2021 (or the first half of fiscal year 2021-2022) are calculated based on the December 31, 2019 valuation.
(2) For December 31 2019 and December 31, 2018 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, 2021 provided by the Plan's actuary. Additional information as of the actuarial valuation as of December 31, 2020 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 Administrative Expenses
For The Years Ended December 31, 2021 (with Comparative Totals)
(Dollars in Thousands)

	2021		2020	
	Pension Plan	**OPEB Trust**	**Pension Plan**	**OPEB Trust**
Personnel Services:				
Salaries and Wages	$5,183	$-	$4,888	$-
Employee Benefits and Retirement	3,585	83	3,541	66
TOTAL PERSONNEL SERVICES	8,768	83	8,429	66
Operational Expenses:				
Professional Services:				
Audit Services	35	-	69	-
Actuary - Benefit Statements	72	-	82	-
Disability Hearing/Medical Reviews	134	-	132	-
Other Professional Services	6	-	20	-
Total Professional Services	247	-	303	-
Office Expenses:				
Office Lease	477	-	464	-
Telephone & Internet Services	77	-	88	-
Equipment Lease & Maintenance	21	-	24	-
Furniture & Equipment	-	-	5	-
Office Supplies & Maintenance	65	-	43	-
Printing & Postage	147	-	161	-
Training & Education	43	-	47	-
Travel & Transportation	9	-	14	-
Insurance	301	-	293	-
Total Office Expenses	1,140	-	1,139	-
Information Technology (IT) Systems:				
Support Service & Software Contracts	497	-	345	-
Hardware & Equipment Maintenance	16	-	28	-
Project Consulting	347	-	269	-
Total IT Systems	860	-	642	-
ASSETS DEPRECIATION/AMORTIZATION	222	-	237	-
TOTAL ADMINISTRATIVE EXPENSES	**$11,237**	**$83**	**$10,750**	**$66**

SCHEDULE OF INVESTMENT EXPENSES

Schedule of Investment Expenses
For the Year Ended December 31, 2021 (with Comparative Totals)
(Dollars in Thousands)

	2021		2020	
	Pension Plan	**OPEB Trust**	**Pension Plan**	**OPEB Trust**
Schedule of Investment Expenses				
Equities Managers				
Domestic Equity	$4,919	$-	$3,521	$-
Global & International Equity	3,429	-	2,667	-
Real Estate - REIT	534	-	408	-
Risk Diversifying	45	-	-	-
Public Market Commingled Funds	9,049	19	7,416	16
Total Equities Managers	**17,976**	**19**	**14,012**	**16**
Fixed Income Managers				
Liquidity Program	1,727	-	1,850	-
Held in Equity Portfolios	39	-	37	-
High Yield	720	-	744	-
Risk Diversifying	921	-	670	-
Public Market Commingled Funds	834	10	940	8
Total Fixed Income Managers	**4,241**	**10**	**4,241**	**8**
Real Asset Managers				
Global & International Equity	387	-	361	-
Public Market Commingled Funds	-	-	149	-
Total Real Asset Managers	**387**	**-**	**944**	**-**
Real Asset Managers				
Value Added, Opportunistic & Distressed Funds	8,677	-	8,642	-
Alternative Investment Managers				
Private Equity & Private Credit Funds	14,105	-	15,927	-
TOTAL INVESTMENT MANAGEMENT FEES	**45,386**	**29**	**44,320**	**16**
Investment Consulting Fees:				
Consulting Services	970	-	1,060	-
Legal Services	58	-	127	-
Actuarial Services	231	14	403	16
TOTAL INVESTMENT MANAGEMENT FEES	**1,259**	**14**	**1,295**	**-**
MASTER CUSTODIAN & FISCAL AGENT SERVICES	**556**	**-**	**527**	**-**
OTHER INVESTMENT RELATED EXPENSES	**2,148**	-	**2,124**	-
TOTAL INVESTMENT EXPENSES	**49,349**	**43**	**45,230**	**24**

SCHEDULE OF PAYMENTS TO CONSULTANTS

Schedule of Payments to Consultants
For the Years Ended December 31, 2021 (with Comparative Totals)
(Dollars in Thousands)

	2021		2020	
Type of Service	**Pension Plan**	**OPEB Trust**	**Pension Plan**	**OPEB Trust**
Actuarial Services & Consulting	$231	$14	$265	$-
Benefit Statement Services	72	-	82	-
Information Technology Consulting	347	-	269	-
Audit & Pension System Services	35	-	69	-
Other Professional Services	5	-	20	-
Legal Services:				
Outside Legal - General, Fiduciary & Tax	251	-	159	-
Investments	58	-	70	-
Disabilities	38	-	63	-
Other Legal Services	34	-	29	-
TOTAL LEGAL SERVICES	381	-	321	-
Investment Consultant Services	940	29	930	24
Investment Custodian & Fiscal Agent Fees	556	-	527	-
Proxy Guideline Voting Agent Service	30	-	30	-
TOTAL PAYMENTS TO CONSULTANTS	**$2,597**	**$43**	**$2,513**	**$24**

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INVESTMENT SECTION

CHIEF INVESTMENT OFFICER'S REPORT

April 22, 2022

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

Re: Chief Investment Officer Review of 2021 Investment Activity

Members of the Board:

The beginning of 2021 carried over many of the themes of late 2020. Equities, particularly in technology and high growth segments continued to reach all time highs while financial markets were fairly calm and the COVID-19 receded from the winter peak of 2020-21. Towards mid-year, we started to see inflation pick up and this accelerated into the latter portion of the year and on into 2022. This new inflationary environment began to impact the real economy and financial assets started to experience increased volatility.

Despite these challenges, the equity markets finished 2021 with another strong year. The Russell 3000 Index of domestic stocks returned 25.7% for the year while the MSCI ACWI returned 18.5%. Emerging market securities sharply lagged the U.S. market with a return of -2.5%. The prospect of rising interest rates negatively impacted the debt markets, with the Barclays Bloomberg Aggregate returning -1.5% and the 1-3 Year Government/Credit Index returning -0.5%. Real estate benefitted from the re-opening of the economy and the NCREIF Property Index returned 17.7%. 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 13.9% (net of investment management fees) for the year ending December 31, 2021. This return was lower than the policy index return of 15.3%. Relative to the peer universe, CCCERA's conservative positioning resulted in a lower return than the median public fund return of 14.9% and ranked in the 61st percentile of public funds. Over the past 10 years ending December 31, 2021, CCCERA has returned 9.3% and ranked in the 61st 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, 2021, the fund achieved a Sharpe Ratio of 1.4 relative to the median public fund at 1.2, ranking in the 29th 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 2021 when the fund lagged when markets were reaching record highs, but offered protection during uncertain periods mid-year.

Asset Allocation

As of December 31, 2021, CCCERA's market value of assets was $11.6 billion, an increase of approximately $1.4 billion from the December 31, 2020 market value of $10.2 billion. This was the result of investment gains of $1.4 billion and net cash flow of -$54 million. All asset classes as of December 31, 2021 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 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, 2021, the total fund returned 13.9% net of fees; less than the policy index return of 15.3% and lower than the median public fund return of 14.9%.

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 (most recently updated in 2021), in which the Board is to periodically set, review, and revise its asset allocation targets. As of 2021, the long-term asset allocation targets determined by the Board are as follows:

	Long-Term	Current Target
Liquidity	17%	18%
Growth	76%	75%
Diversifying	7%	7%

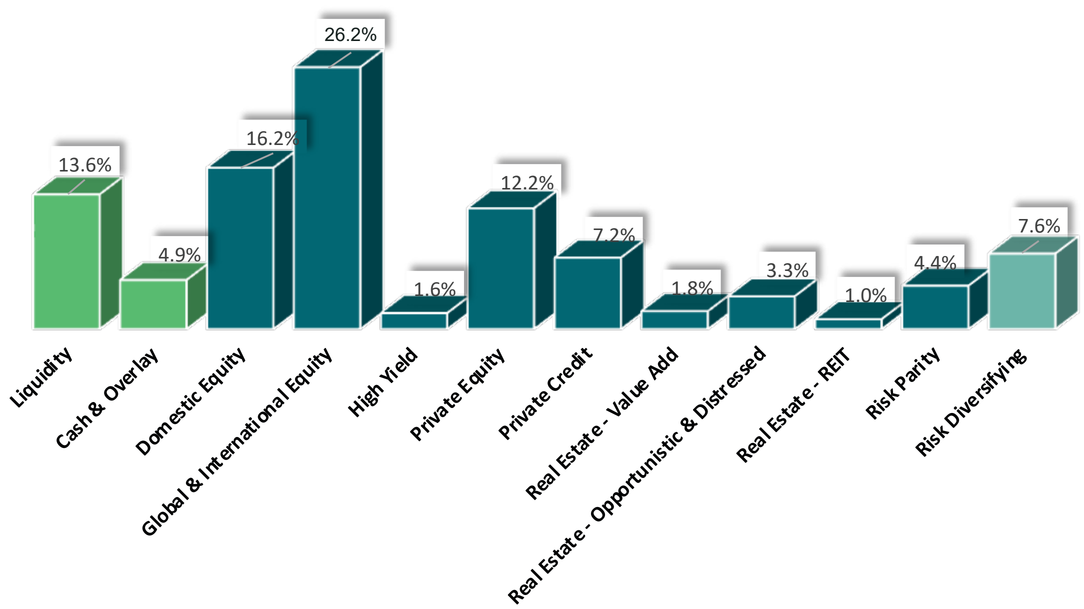
The Board conducted a review of the strategic asset allocation in late 2020. The Functionally Focused Portfolio (FFP) methodology was maintained, but the target allocation to the Liquidity sub-portfolio was reduced to three years from the prior four years to fund benefit payments. Other allocations were 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

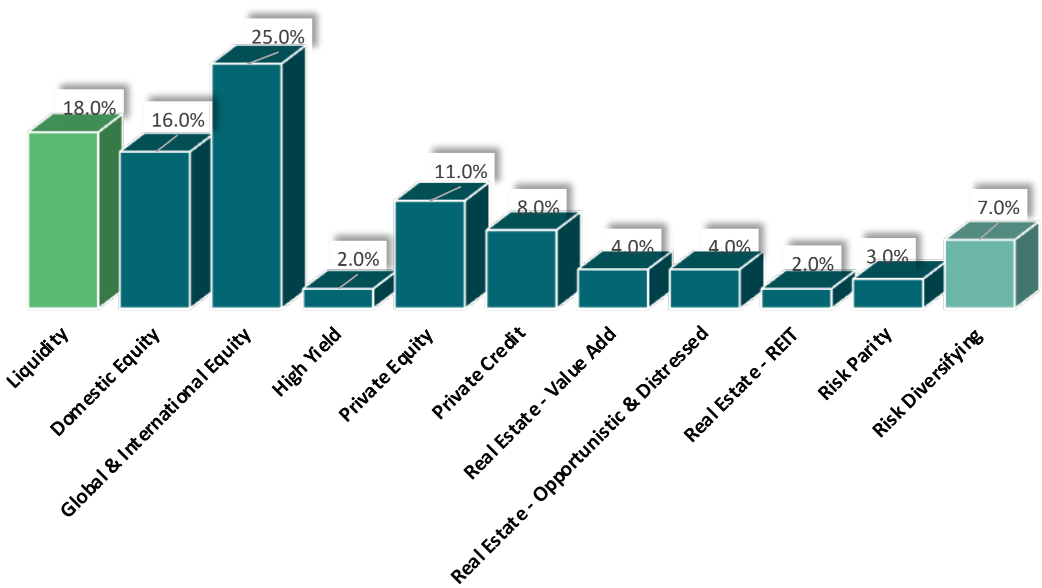
Asset Class	Actual % Allocation
Liquidity	13.6%
Growth:	
Domestic Equity	16.2%
Global & International Equity	26.2%
High Yield	1.6%
Private Equity	12.2%
Private Credit	7.2%
Real Estate - Value Add	1.8%
Real Estate - Opportunistic & Distressed	3.3%
Real Estate - REIT	1.0%
Risk Parity	4.4%
Total Growth	73.9%
Risk Diversifying	7.6%
Cash & Overlay	4.9%
Total	**100.0%**

PERCENTAGE OF TOTAL FUND



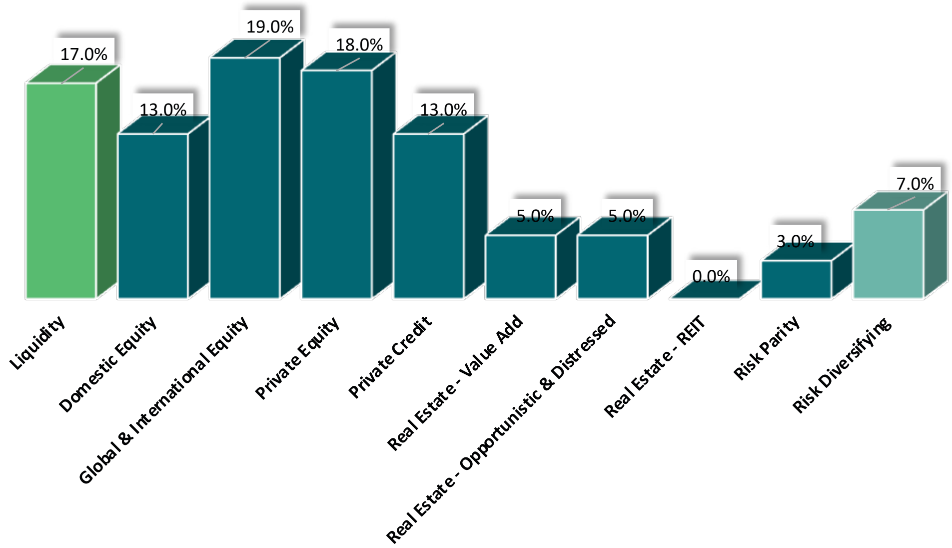
CURRENT	
Asset Class	**Actual % Allocation**
Liquidity	18.0%
Growth:	
Domestic Equity	16.0%
Global & International Equity	25.0%
High Yield	2.0%
Private Equity	11.0%
Private Credit	8.0%
Real Estate - Value Add	4.0%
Real Estate - Opportunistic & Distressed	4.0%
Real Estate - REIT	2.0%
Risk Parity	3.0%
Total Growth	75.0%
Risk Diversifying	7.0%
Total	**100.0%**

CURRENT TARGET



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%
Real Estate - REIT	0.0%
Risk Parity	3.0%
Total Growth	76.0%
Risk Diversifying	7.0%
Total	**100.0%**

LONG-TERM ALLOCATION



INVESTMENT RESULTS BASED ON FAIR VALUE*

Investment Results Based on Fair Value*
As of December 31, 2021

		Annualized (net of fees)		
	Current Year	**3 Year**	**5 Year**	**10 Year**
Liquidity	-0.3%	2.6%	2.2%	-
Benchmark:				
Bloomberg US Govt/Credit 1-3 Yr. TR	-0.5%	2.3%	1.9%	-
Total Domestic Equity	20.3%	22.7%	16.1%	15.4%
Benchmark:				
Russell 3000	25.7%	25.6%	16.0%	16.3%
Total Global Equity	13.2%	21.7%	15.1%	12.1%
Benchmark:				
MSCI ACWI	18.5%	20.4%	14.4%	11.9%
Total International Equity	7.8%	15.2%	10.3%	8.4%
Benchmarks:				
MSCI ACWI ex-USA Gross	8.3%	13.7%	10.1%	7.8%
MSCI EAFE Gross	11.8%	14.1%	10.1%	8.5%
Total High Yield	4.9%	8.0%	5.2%	5.8%
Benchmark:				
ICE BofA ML High Yield Master II	5.4%	8.6%	6.1%	6.7%
Private Equity	60.4%	23.7%	18.8%	14.9%
Private Credit	10.0%	7.2%	8.0%	10.4%
Total Real Estate	19.2%	6.6%	7.6%	9.8%
Benchmarks:				
Real Estate Benchmark	19.3%	8.9%	6.1%	9.4%
NCREIF - ODCE Index	22.2%	9.2%	8.7%	10.4%
NCREIF Property Index	17.7%	8.4%	7.8%	9.3%
Risk Parity	9.3%	-	-	-
Diversifying	1.7%	2.2%	1.4%	1.0%
Benchmark:				
Custom Diversifying Benchmark	1.6%	4.1%	3.7%	3.3%
Total Cash	0.4%	1.6%	1.5%	2.8%
Benchmark:				
91 Day T-Bills	-	0.8%	1.1%	0.6%
Total Fund	13.9%	12.6%	9.6%	9.3%
Benchmark:				
Policy Index	15.3%	13.5%	10.5%	10.1%
Total Fund excl. Overlay & Cash	14.3%	12.7%	9.7%	9.4%
Benchmark:				
Policy Index	15.3%	13.5%	10.5%	10.1%

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

INVESTMENT MANAGERS (As of December 31, 2021)

LIQUIDITY

- Dimensional Fund Advisors
- Insight Investment
- Sit Investments

GROWTH

Domestic Equity
- BlackRock Institutional Trust
- Ceredex Value Advisors
- Emerald Advisors
- Jackson Square Partners
- 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
- Allianz Global Investors

Private Equity
- Adams Street Partners
- AE Industrial Partners
- Ares Energy Investors Funds
- DBL Investors (Bay Area Equity)
- Genstar Capital
- GTCR
- Hellman & Friedman Capital Partners
- Oaktree Capital
- Ocean Avenue Capital Partners
- Paladin Capital Management
- Pathway Capital Management
- Siguler Guff
- Siris Capital Group
- 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
- AAngelo Gordon
- DLJ Real Estate Capital Partners LP
- Invesco Real Estate
- LaSalle Investment Management
- Long Wharf Real Estate Partners
- Oaktree Capital
- Paulson & Co.
- Siguler Guff

Real Estate Investment Trust (REIT)
- Adelante Capital Management

Risk Parity
- AQR GRP EL Fund
- PanAgora Asset Management

RISK DIVERSIFYING

- Acadian Asset Management
- AFL-CIO Housing Investment Trust
- Parametric Defensive Equity
- Sit Investments
- Wellington Management

CASH OVERLAY

- Parametric Portfolio Associates
- The Northern Trust Company

SECURITIES LENDING PROGRAM

- The Northern Trust Company

INVESTMENT SUMMARY

Investment Summary
For The Year Ended December 31, 2021
(Dollars in Thousands)

Type of Investment	Pension Plan Fair Value	Pension Plan Percent of Total Fair Value	OPEB Trust Fair Value	OPEB Trust Percent of Total Fair Value
Short-Term				
Cash Equivalents	$828,746	7.1%	$34	0.6%
TOTAL SHORT-TERM INVESTMENTS	**828,746**	**7.1%**	**34**	**0.6%**
Long-Term				
Investments By Fair Value Level				
Equities				
Domestic Equity	1,191,963	10.2%	-	0.0%
Global & International Equity	418,036	3.6%	-	0.0%
Real Estate - REIT	110,039	0.9%	-	0.0%
Risk Diversifying	20,103	0.2%	-	0.0%
Public Market Commingled Funds	3,908,845	33.6%	3,466	65.9%
Total Equity Securities	5,648,986	48.5%	3,466	65.9%
Fixed Income				
Liquidity Program	1,511,252	13.0%	-	0.0%
Held In Equity Portfolios	4,750	0.1%	-	0.0%
High Yield	174,863	1.5%	-	0.0%
Risk Diversifying	267,808	2.3%	-	0.0%
Public Market Commingled Funds	260,691	2.2%	1,765	33.5%
Total Fixed Income Securities	2,219,364	19.1%	1,765	33.5%
Real Assets				
Global & International Equity	47,183	0.4%	-	0.0%
Public Market Commingled Funds	132	0.0%	-	0.0%
Total Real Assets	**47,315**	**0.4%**	**-**	**0.0%**
Real Estate				
Value Added, Opportunistic & Distressed Funds	601,656	5.2%	-	**0.0%**
Alternatives				
Private Equity & Private Credit Funds	2,290,866	19.7%	-	0.0%
TOTAL LONG-TERM INVESTMENTS AT FAIR VALUE	**10,808,187**	**92.9%**	**5,231**	**99.4%**
TOTAL SHORT AND LONG-TERM INVESTMENTS	**$11,636,933**	**100.0%**	**$5,265**	**100.0%**

SCHEDULE OF INVESTMENT MANAGEMENT FEES

Investment Management Fees
For the year ended December 31, 2021
(Dollars in Thousands)

	Pension Plan		OPEB Trust	
Investment Activity	Assets Managed	Fees	Assets Managed	Fees
Equities Managers				
Domestic Equity	$1,191,963	$4,919	$-	$-
Global & International Equity	418,036	3,429	-	-
Real Estate - REIT	110,039	534	-	-
Risk Diversifying	20,103	45	-	-
Public Market Commingled Funds	3,908,845	9,049	3,466	19
TOTAL EQUITIES MANAGERS	**5,648,986**	**17,976**	**3,466**	**19**
Fixed Income Managers				
Liquidity Program	1,511,252	1,727	-	-
Held in Equity Portfolios	4,750	39	-	-
High Yield	174,863	720	-	-
Risk Diversifying	267,808	921	-	-
Public Market Commingled Funds	260,691	834	1,765	10
TOTAL FIXED INCOME MANAGERS	**2,219,364**	**4,241**	**1,765**	**10**
Real Asset Managers				
Global & International Equity	47,183	387	-	-
Public Market Commingled Funds	132	-	-	-
TOTAL REAL ASSET MANAGERS	**47,315**	**387**	**-**	**-**
Real Estate Managers				
Value Added, Opportunistic & Distressed Funds	601,656	8,677	-	-
Alternative Investment Managers				
Private Equity & Private Credit Funds	2,290,866	14,105	-	-
TOTAL FEES FROM INVESTMENT ACTIVITY	**10,808,187**	**45,386**	**5,231**	**29**
Custodian Cash and Cash Equivalents	828,746	1	34	-
Securities Lending Activity				
Securities Lending Fees	-	183	-	-
TOTAL FEES FROM SECURITIES LENDING ACTIVITY	**N/A**	**183**	**N/A**	**-**
TOTAL INVESTMENT MANAGEMENT FEES	**$11,636,933**	**$45,570**	**$5,265**	**$29**

SCHEDULE OF BROKERAGE COMMISSIONS

Schedule of Brokerage Commissions
For the Year Ended December 31, 2021
(Dollars and Shares in Thousands)

Brokerage Firm	Commissions	Shares/Par Value Traded	Commission Per Share
CAPITAL INSTITUTIONAL SERV NEW YORK	$79	3,760	$0.021
NATIONAL FINANCIAL SERVICES LLC	71	3,300	0.022
GOLDMAN, SACHS AND CO.	67	104,419	0.001
J.P. MORGAN SECURITIES LLC	50	222,478	0.000
JEFFERIES LLC.	40	23,506	0.002
RBC CAPITAL MARKETS, LLC	36	40,313	0.001
MORGAN STANLEY AND CO., LLC	33	82,008	0.000
PIPER JAFFRAY & CO.	32	9,625	0.003
DERIVATIVES	31	139	0.223
COWEN AND COMPANY LLC	30	1,060	0.028
SANFORD C. BERNSTEIN AND CO., LLC	24	1,609	0.015
BARCLAYS CAPITAL INC	23	145,533	0.000
LOOP CAPITAL MARKETS LLC	20	40,600	0.000
CITIGROUP GLOBAL MARKETS INC	13	176,582	0.000
UBS AG STAMFORD BRANCH	12	1,097	0.011
CREDIT SUISSE SECURITIES (USA) LLC	12	25,371	0.000
HSBC SECURITIES (USA) INC.	12	42,679	0.000
SOUTHWEST SECURITIES	11	28,420	0.000
ISI GROUP INC.	11	611	0.018
RAYMOND JAMES AND ASSOCIATES	9	26,140	0.000
TOP 20 Firms by Commission Dollars	**616**	**979,250**	**0.001**
All Other Brokerage Firms	**96**	**7,518,609**	**0.000**
TOTAL BROKERAGE COMMISSIONS	**$712**	**8,497,859**	**0.000**

SCHEDULES OF TOP TEN EQUITIES AND FIXED INCOME SECURITIES*

Schedule of Top 10 Equity Securities
As of December 31, 2021
(Dollars and Shares in Thousands)

CUSIP	Shares	Security Name	Fair Value
C527995MI2	8,540,787	CF RUSSELL 1000 INDEX NON-LENDABLE FUND	$645,716
C282999S44	14,925,090	CF ARTISAN GLOBAL OPPORTUNITIES TRUST FD	631,779
C785998915	16,740,996	CF WILLIAM BLAIR INTERNATIONAL GROWTH COLLECTIVE FUND	563,217
C96999CX25	33,898,844	CF INTERNATIONAL STOCK FUND LLC	496,421
C2D9999SE4	3,207,540	CF TT EMERGING MARKETS OPPORTUNITIES FUND II LIMITED CLASS B SHARES	429,361
S2588173	115,442	MICROSOFT CORP COM	38,825
S2000019	8,505	AMAZON COM INC COM	28,359
SB121557	52,144	MASTERCARD INC CL A	18,736
S2661568	198,599	ORACLE CORP COM	17,320
SB2PZN04	79,435	VISA INC COM CL A STK	17,214
		TOTAL LARGEST EQUITY HOLDINGS	**$2,886,948**

Schedule of Top 10 Fixed Income Securities
As of December 31, 2021
(Dollars in Thousands)

CUSIP	Security Name	Cost	Fair Value
C9934FC991	STEPSTONE CC OPPORTUNITIES FUND, LLC - SERIES B	$223,348	$291,330
C060993201	CF AFL CIO HOUSING INVESTMENT TRUST	249,877	260,691
C9934FB993	STEPSTONE CC OPPORTUNITIES FUND, LLC - SERIES A	179,357	189,571
C9934FD999	STEPSTONE CC OPPORTUNITIES FUND, LLC - SERIES C	149,743	178,691
C999599GH0	FUT MAR 22 10 YR T-NOTES; FUT MAR 22 CBT 5Y T-NOTE; FUT MAR 22 US 2YR T-NOTE	63,826	65,742
SB96LV84	UNITED STATES TREAS INFL INDEXED NTS .125% 01-15-2023	42,829	44,533
SBJN4R44	UNITED STATES TREAS NTS 0.5% 04-15-2024	29,191	29,237
SBD0N7Z3	UNITED STATES TREAS NTS DTD 03/31/2017 1.875% DUE 03-31-2022 REG	24,613	24,446
C05578QAB9	PVTPL BPCE SUB NTS BOOK ENTRY 5.15 DUE 07-21-2024 BEO	23,089	22,206
SBJ7M2Q1	UNITED STATES TREAS NTS DTD 01/15/2019 2.5% DUE 01-15-2022 REG	22,424	21,757
	TOTAL LARGEST FIXED INCOME HOLDINGS		**$1,128,204**

*A complete list of portfolio holdings is available.

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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 15, 2022

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, 2020 Actuarial Valuation for Funding Purposes**

Dear Members of the Board:

Segal prepared the December 31, 2020 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, 2020 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 2 years remaining as of December 31, 2020. 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

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Board of Retirement
Contra Costa County Employees' Retirement Association
June 15, 2022
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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, 2020 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, 2021 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, 2020 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, 2017 Experience Study (for both the economic and non-economic assumptions). It is our opinion that the assumptions used in the December 31, 2020 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. The December 31, 2020 Experience Study (for both the economic

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Segal

Board of Retirement
Contra Costa County Employees' Retirement Association
June 15, 2022
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and non-economic assumptions) for use in the upcoming December 31, 2021 valuation has been approved the Board.

In the December 31, 2020 valuation, the ratio of the valuation value of assets to actuarial accrued liabilities (funded percentage) increased from 90.6% to 91.8% while the funded percentage on a market value of assets basis increased from 91.7% to 95.6%. The average employer contribution rate has decreased from 35.66% of payroll to 35.26%[1] of payroll, while the average member contribution rate has decreased from 11.97% of payroll to 11.85% of payroll.

Under the asset smoothing method, the total unrecognized net investment gains are $392 million as of December 31, 2020. 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 $392 million represent about 3.9% of the market value of assets as of December 31, 2020. Unless offset by future investment losses or other unfavorable experience, the recognition of the $392 million 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 91.8% to 95.6%.
- If the net deferred gains were recognized immediately in the valuation value of assets, the average employer rate would decrease from 35.26% to about 32.22% 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	Andy Yeung, ASA, MAAA, FCA, EA
Senior Vice President & Actuary	Vice President & Actuary

AW//bbf

[1] Central Contra Costa Sanitary District made a prepayment of about $70 million toward the District's UAAL on June 25, 2021. Consistent with CCCERA's funding policy, this prepayment has been used to reduce the District's UAAL contribution rate effective July 1, 2021. The first actuarial valuation to reflect the prepayment in the UAAL amortization bases will be as of December 31, 2021, as that will be the first valuation in which the prepayment will be reflected in CCCERA's financial statements. Accordingly, the funded percentages and average employer contribution rate in the December 31, 2020 valuation do not reflect the District's prepayments.

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Segal

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 signifcant reasons for the increase in the funded ratio have been the market appreciation of investments and contributions by the employer and employees.

Schedule of Funding Progress
For Years 2011 through 2020
(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)
12/31/11	$5,426,719	$6,915,312	$1,488,593	78.5%	$666,394	223.4%
12/31/12	5,482,257	7,761,316	2,279,059	70.6%	652,312	349.4%
12/31/13	5,907,416	7,731,097	1,823,681	76.4%	679,429	268.4%
12/31/14	6,557,496	8,027,438	1,469,942	81.7%	697,832	210.6%
12/31/15	7,136,801	8,448,624	1,311,823	84.5%	746,353	175.8%
12/31/16	7,606,997	8,794,434	1,187,437	86.5%	784,412	151.4%
12/31/17	8,179,891	9,239,247	1,059,356	88.5%	860,625	123.1%
12/31/18	8,650,178	9,682,144	1,031,966	89.3%	896,391	115.1%
12/31/19	9,128,669	10,075,722	947,053	90.6%	937,531	101.0%
12/31/20	9,662,283	10,521,628	859,345	91.8%	990,042	86.8%

*Excludes Accounts Payable. Restated to exclude 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, 2020 valuation are based on the results of the actuarial experience study for the period January 1, 2015, through December 31, 2017. The study was prepared using updated economic and demographic assumptions, and mortality rates adopted by the Board of Retirement (Board) in May 2019. The experience study was also adopted by the Board in May 2019. 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 Assumption of Plan Assets and Liabilities	
Valuation Date	December 31, 2020
Actuarial Funding Policy	
Actuarial Cost Method	Entry Age Actuarial Cost Method
Amortization Method	Level Percent of payroll for total unfunded liability (3.25% 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 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	7.00%, net of pension plan investment expenses, including inflation
Inflation Rate	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
Real Across-the-Board Salary Increases	0.50%
Consumer Price Index	Increases of 2.75% per year
Payroll Growth	Inflation of 2.75% per year plus "across the board" real salary increases of 0.50% per year, used to amortize the Unfunded Actuarial Liability as a level percentage of payroll.
Salary Increases	The average total assumed salary increase for active members in the December 31, 2020 actuarial valuation is 5.2%.
Other Assumptions	Same as those used in the December 31, 2020 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-2018.
Safety members	Pub-2010 Safety Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females) multiplied by 105% for males and 100% for females, projected generationally with the two-dimensional mortality improvement scale MP-2018.
All Beneficiaries	Pub-2010 Contingent Survivor Amount-Weighted Above-Median Mortality Table (separate tables for males and females) multiplied by 105% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2018.
Disabled	
General Members	Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females) multiplied by 105% for males and 100% for females, projected generationally with the two-dimensional mortality improvement scale MP-2018.
Safety Members	Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females) multiplied by 105% for males and 100% for females, projected generationally with the two-dimensional mortality improvement scale MP-2018.
The Pub-2010 mortality tables and adjustments as shown in the 2020 Valuation Report 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-2018, 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) multiplied by 105% for males and 100% for females, projected 30 years with the two-dimensional mortality improvement scale MP-2018, 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-2018.
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-2018.
Disability Rates	60% of General Tier 1 and Tier 4 disabilities are assumed to be service connected disabilities. The other 40% are assumed to be non-service connected disabilities. 30% of General Tier 3 and Tier 5 disabilities are assumed to be service connected disabilities. The other 70% 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 12/31/17
Salary Scales	The average total assumed salary increase for active members of 5.2% per year reflecting approximately 2.75% for inflation, 0.50% for additional real "across-the-board" salary increases and approximately 1.95% 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	8.75	2.00	-
50	5.00	9.00	4.00	7.20	3.00	-	25.00	31.25	18.00	5.00
55	15.00	27.00	8.00	14.40	10.00	5.00	20.00	30.00	18.00	10.00
60	25.00	30.00	13.00	15.60	25.00	8.00	25.00	37.50	25.00	18.00
65	35.00	35.00	32.00	32.00	40.00	25.00	100.00	100.00	100.00	100.00
70	35.00	35.00	35.00	35.00	40.00	40.00	-	-	-	-
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	0.08	0.56
45	0.36	0.11	0.90
50	0.52	0.13	2.54
55	0.60	0.16	3.80
60	0.60	0.22	4.30
65	0.60	0.25	4.50
70	0.60	0.25	4.50

*60% of General Tier 1 and Tier 4 disabilities are assumed to be duty disabilities. The other 40% are assumed to be ordinary disabilities.
**30% of General Tier 3 and Tier 5 disabilities are assumed to be duty disabilities. The other 70% are assumed to be ordinary disabilities.
***100% of Safety disabilities are assumed to be duty disabilities.

Termination Rates (%) Before Retirement
Termination*

Years of Service	General	Safety
Less than 1	14.00	12.50
1-2	9.50	10.00
2-3	9.25	8.25
3-4	6.50	5.75
4-5	5.25	5.00
5-6	5.00	4.25
6-7	4.50	3.50
7-8	4.25	3.25
8-9	3.75	3.00
9-10	3.50	2.50
10-11	3.25	2.25
11-12	3.00	2.10
12-13	2.75	2.00
13-14	2.50	1.90
14-15	2.50	1.80
15-16	2.25	1.70
16-17	2.25	1.60
17-18	2.00	1.50
18-19	2.00	1.25
19-20	1.75	1.00
20 & Over	1.25	0.75

*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, 2020 VALUATION RESULTS

Summary of December 31, 2020 Valuation Results
Dollars in Thousands)

	December 31, 2020	
Average Employer Contribution Rates*:	**Total Rate**	**Estimated Annual Amount**
General		
Cost Group #1 - County and Small Districts (Tiers 1 and 4)	32.63%	$8,335
Cost Group #2 - County and Small Districts (Tiers 3 and 5)	25.99%	187,609
Cost Group #3 - Central Contra Costa Sanitary District	51.71%	19,399
Cost Group #4 - Contra Costa Housing Authority	41.51%	2,645
Cost Group #5 - Contra Costa County Fire Protection District	35.90%	2,533
Cost Group #6 - Small Districts (Non-Enhanced Tiers 1 and 4)	15.33%	158
Safety		
Cost Group #7 - County (Tiers A and D)	70.95%	38,766
Cost Group #8 - Contra Costa Fire Protection District	63.54%	28,341
Cost Group #9 - County (Tiers C and E)	61.32%	32,350
Cost Group #10 - Moraga-Orinda Fire Protection District	67.47%	6,006
Cost Group #11 - San Ramon Valley Fire Protection District	77.24%	18,017
Cost Group #12 - Rodeo-Hercules Fire Protection District	90.21%	2,287
Cost Group #13 - East Contra Costa Fire Protection District	66.59%	2,714
ALL EMPLOYERS COMBINED	**35.26%**	**$349,160**
Average Member Contribution Rates*:		
General		
Cost Group #1 - County and Small Districts (Tiers 1 and 4)	11.07%	$2,828
Cost Group #2 - County and Small Districts (Tiers 3 and 5)	10.61%	76,571
Cost Group #3 - Central Contra Costa Sanitary District	11.35%	4,258
Cost Group #4 - Contra Costa Housing Authority	11.44%	729
Cost Group #5 - Contra Costa County Fire Protection District	11.78%	831
Cost Group #6 - Small Districts (Non-Enhanced Tiers 1 and 4)	13.43%	138
Safety		
Cost Group #7 - County (Tiers A and D)	17.97%	9,819
Cost Group #8 - Contra Costa Fire Protection District	16.52%	7,368
Cost Group #9 - County (Tiers C and E)	16.23%	8,563
Cost Group #10 - Moraga-Orinda Fire Protection District	17.25%	1,536
Cost Group #11 - San Ramon Valley Fire Protection District	15.88%	3,704
Cost Group #12 - Rodeo-Hercules Fire Protection District	11.13%	282
Cost Group #13 - East Contra Costa Fire Protection District	17.72%	722
ALL CATEGORIES COMBINED	**11.85%**	**$117,349**

Key Actuarial Assumptions	**2020**	**2019**
Annual Interest Rate	7.00%	7.00%
Annual Inflation Rate	2.75%	2.75%
Across-the-Board Real Salary Increase	0.50%	0.50%
Average Total Assumed Salary Increase for Active Members	5.20%	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, 2020**
Active Members:	
1. Number of Members	10,099
2. Average Age	46.3
3. Average Service	10.2
4. Projected Total Payroll (Compensation)	$990,041,699
5. Average Projected Monthly Payroll	$98,034
Retired Members and Beneficiaries:	
1. Number of Members:	
Service Retirement	7,655
Disability Retirement	896
Beneficiaries	1,467
2. Average Age of retired members	70.8
3. Actual Retired Payroll	$499,301,074
4. Average Monthly Benefit	$4,219
Vested Terminated Members:	
1. Number of Terminated Vested Members*	3,591
2. Average Age	46.7
Summary of Financial Data:	
Market Value of Assets	$10,070,237,862
Return on Market Value of Assets	9.57%
Actuarial Value of Assets	$9,678,508,253
Return on Actuarial Value of Assets	6.62%
Valuation Value of Assets	$9,662,282,926
Return on Valuation Value of Assets (VVA)	6.62%
Funded Status:	
Actuarial Accrued Liability (AAL)	$10,521,628,175
Unfunded Actuarial Accrued	
Liability (UAAL) on VVA basis	$859,345,249
Funded Ratio	
GASB Statement No. 25	91.8%

* Includes 2,039 terminated members with member contributions on deposit as of December 31, 2020.

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

Schedule of Active Member Valuation Data

Valuation Date	Plan Type	Number	Projected Payroll	Average Annual Salary	% Increase/ (Decrease) in Average Salary
12/31/11	General	7,183	$518,213,291	72,144	(0.92%)
	Safety	1,446	$148,180,855	102,476	(1.18%)
	Total	**8,629**	**$666,394,146**	**77,227**	**(1.02%)**
12/31/12	General	7,244	$513,920,662	72,144	(0.92%)
	Safety	1,396	$138,391,516	102,476	(1.18%)
	Total	**8,640**	**$652,312,178**	**77,227**	**(1.02%)**
12/31/13	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%)**
12/31/14	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%**
12/31/15	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%**
12/31/16	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%**
12/31/17	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%**
12/31/18	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%**
12/31/19	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%**
12/31/20	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%**

SCHEDULE OF FUNDED LIABILITIES BY TYPE

Schedule of Funded Liabilities by Type
(Dollars in Thousands)

Valuation Data	Aggregate Accrued Liabilities For: 1 Active Member Contributions*	2 Retirants and Beneficiaries	3 Active Members Employer Portion	Valuation Value of Assets (VVA)	Portion of Accrued Liabilities Covered by Valuation Value of Assets: 1	2	3
12/31/11	$637,614	$4,268,202	$2,009,496	$5,426,719	100%	100%	26%
12/31/12	653,236	4,990,760	2,117,320	5,482,257	100%	97%	0%
12/31/13	844,668	5,086,529	1,799,900	5,907,416	100%	100%	0%
12/31/14	899,220	5,328,622	1,799,596	6,557,496	100%	100%	18%
12/31/15	1,011,434	5,525,212	1,911,978	7,136,801	100%	100%	31%
12/31/16	1,116,824	5,670,811	2,006,799	7,606,998	100%	100%	41%
12/31/17	1,216,116	5,873,018	2,150,113	8,179,891	100%	100%	51%
12/31/18	1,301,626	6,186,519	2,193,999	8,650,178	100%	100%	53%
12/31/19	1,372,772	6,459,417	2,243,533	9,128,669	100%	100%	58%
12/31/20	1,476,735	6,719,971	2,324,922	9,662,283	100%	100%	63%

*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
2011	7,559	758	$37,949,896	(232)	$(6,621,254)	8,085	$320,297,817	10.84%	$39,616	3.63%
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%

*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, 2011 through 2020
(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
2011	$1,293,836	$-	$-	$264,597	$(77,127)	$7,287	$194,757	$1,488,593
2012	1,463,568	-	570,155	297,215	(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	-	0	(2,853)	11,445	(55,566)	(46,974)	1,187,437
2017	1,099,936	-	0	(76,209)	59,574	(23,946)	(40,581)	1,059,356
2018	960,617	-	(89,872)	55,253	20,984	84,983	161,220	1,031,966
2019	918,865	-	(19,523)	65,571	38,641	(56,502)	47,711	947,054
2020	820,981	-	0	34,593	60,050	(56,279)	38,364	859,345

*Other experience includes employer and employee contributions, COLA increases, mortality, disability, withdrawal, retirement, and leave cashout 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); employees were placed in Tier 3.

CNA employees in Tier 2 were placed in Tier 3 as of January 1, 2005.

One special district's Tier 2 employees were placed in Tier 3 effective February 1, 2006.

Tier 3:

All County General Members (except CNA employees) hired on or after October 1, 2002, are placed in Tier 3. All CNA employees hired on or after January 1, 2005, are placed in Tier 3. All Contra Costa Mosquito and Vector Control District employees hired on or after February 1, 2006 are placed in Tier 3. General Members with membership dates before January 1, 2013 who are not placed in Tier 1 are placed in Tier 3.

All Tier 2 members for each of the agencies listed above were placed in Tier 3 as of the above respective dates.

PEPRA Tier 4:

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

PEPRA Tier 5:

All 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-1/3x1.24%x$350x12)xYrs
55:	(1.67%xFC-1/3x1.67%x$350x12)xYrs
60:	(2.18%xFC-1/3x2.18%x$350x12)xYrs
62:	(2.35%xFC-1/3x2.35%x$350x12)xYrs
65 or later:	(2.61%xFC-1/3x2.61%x$350x12)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-1/3x1.43%x $350x12)xYrs
55:	(2.00%xFC-1/3x2.00%x $350x12)xYrs
60:	(2.26%xFC-1/3x2.26%x $350x12)xYrs
62:	(2.37%xFC-1/3x2.37%x $350x12)xYrs
65 or later:	(2.42%xFC-1/3x2.42%x $350x12)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
   (3) Definition of disability is more strict than in Tier 1 and Tier 4.

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.

- 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. 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: 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
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.

Tier 2
Based on changes in CPI.

4% maximum change per year.

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 the Tier 1 to the Tier 2 were made on an individual voluntary irrevocable basis. Credit is given under the Tier 2 Plan for future service only. 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: 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
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.

b. Based on change in CPI; 2% maximum change per year for Safety Tier C and Tier E.

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
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USA

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March 30, 2022

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

"Roll-Forward" Actuarial Valuation of Other Post Employment Benefits for Staff Employees and Retirees as of January 1, 2021 and GASB 74/75 Disclosures as of December 31, 2021

At the request of the Contra Costa County Employees' Retirement Association ("CCCERA"), we have prepared a "roll-forward" actuarial valuation of Other Post Employment Benefits as of January 1, 2021 for CCCERA's staff employees and retirees, and GASB 74 and 75 disclosures for the fiscal year ending December 31, 2021, 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

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Milliman

Contra Costa County Employees' Retirement Association
March 30, 2022
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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 actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

On the basis of the foregoing, we 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 are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,

Reid Earnhardt, ASA, MAAA
Consulting Actuary

Sincerely,

John R. Botsford, FSA, MAAA
Principal and 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 plan assets of the OPEB Trust by the Total OPEB Liability. In the table below, CCCERA's OPEB Trust indicates plan assets are approximately 5% 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, 2021
(Dollars in Thousands)

Actuarial Valuation Date	Fiduciary Net Position (a)	Total OPEB Liability (TOL) (b)	Net OPEB Liability (NOL) (b-a)	Funded Ratio (a) / (b)	Projected Covered Payroll (c)	NOL as a Percentage of Covered Payroll (b-a)/c)
12/31/18	$2,542	$4,710	$2,168	54.0%	$4,997	43.4%
12/31/19	$3,630	$5,139	$1,509	70.6%	$5,385	28.0%
12/31/20	$4,666	$5,092	$426	91.6%	$5,910	7.2%
12/31/21	$5,265	$5,535	$270	95.1%	$6,329	4.3%

OPEB KEY METHODS AND ASSUMPTIONS

Key Methods and Assumptions Used in Biennial Actuarial Valuation of Total OPEB Liability	
Valuation Date	December 31, 2021
Valuation Type	Roll-Forward
Actuarial Cost Method	Entry Age Normal Cost
Amortization Method	Level Dollar Basis
Amortization Period	10 years (7 years remaining as of December 31, 2021)
Asset Valuation Method	Fair value of assets
Investment Rate of Return	6.50%
Inflation Rate	2.75%
Assumed Salary Increases	3.78% to 15.66% varying by years of service
Other Assumptions	Consistent with those used in the December 31, 2019 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, 2019 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-2020 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-2020 projection scale.
Beneficiaries	Pub-2010 Contingent Survivor Head Count Weighted Mortality Tables for males and females, projected generationally with the two-dimensional MP-2020 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	15.66%
1	10.49%
2	8.69%
3	7.14%
4	6.10%
5	5.59%
10	4.50%
20 or more	3.78%

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 ($143 per month for 2021 and $149 for 2022), subject to an annual increase based on the medical Consumer Price Index).

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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 Contra Costa County Employees' Retirement Association's (CCCERA) 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 2012 – 2021 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 2012 – 2021 presents the employers and number of their corresponding covered employees.

CCCERA reports current year information for 2021 on a one-year lag basis in the Schedule of Benefit Expenses by Type, Schedule of Retired Members by Type of Benefit, and Schedule of Average Benefit Payment Amounts. Due to current year 2021 information not being available until calculated by outside actuary as part of the 2021 actuarial valuation, after publication of the Annual Comprehensive Financial Report (ACFR), the current year 2021 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 the CCCERA Pension Plan.

CHANGES IN FIDUCIARY NET POSITION FOR YEARS 2012 - 2021

Changes in Fiduciary Net Position
For Years 2012 - 202
(Dollars in Thousands)

	2021	2020	2019	2018	2017
Additions					
Employer Contributions	$410,760	$336,357	$327,983	$325,117	$314,836
Plan Member Contributions	117,017	113,494	108,488	103,542	96,467
Net Investment Income (Loss)	1,416,366	890,943	1,176,419	(187,339)	995,678
Security Lending Income	732	1,069	1,120	1,582	878
Total Additions	**1,944,875**	**1,341,863**	**1,614,010**	**242,902**	**1,407,859**
Deductions					
Benefits paid	532,117	500,234	477,760	452,512	430,037
Refunds of contributions	5,884	5,925	7,617	8,093	5,518
Administrative Expense	11,237	10,750	10,200	9,337	9,146
Other Expenses	12,109	11,729	11,406	13,555	11,097
Total Deductions	**561,347**	**528,638**	**506,983**	**483,497**	**455,798**
CHANGE IN FIDUCIARY NET POSITION	**$1,383,528**	**$813,225**	**$1,107,027**	**$(240,595)**	**$952,061**

	2016	2015	2014	2013	2012
Additions					
Employer Contributions	$307,909	$323,720	$293,760	$235,017	$212,321
Plan Member Contributions	88,788	85,361	78,258	72,373	73,362
Net Investment Income (Loss)	501,733	82,429	488,873	884,870	680,538
Security Lending Income	1,630	1,165	1,167	1,148	1,535
Total Additions	**900,060**	**492,675**	**862,058**	**1,193,408**	**967,756**
Deductions					
Benefits paid	412,073	400,759	387,026	369,809	347,569
Refunds of contributions	7,154	4,434	6,798	3,844	3,276
Administrative Expense	8,486	8,115	6,980	6,776	6,030
Other Expenses	10,409	11,695	10,662	9,243	8,590
Total Deductions	**438,122**	**425,003**	**411,466**	**389,672**	**365,465**
CHANGE IN FIDUCIARY NET POSITION	**$461,938**	**$67,672**	**$450,592**	**$803,736**	**$602,291**

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)

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Service Retirement Payroll:										
General	$260,374	$247,225	$234,127	$223,019	$213,394	$205,760	$198,783	$188,945	$179,079	$163,514
Safety	134,736	128,711	121,563	115,068	110,178	107,643	107,103	102,791	96,403	87,198
Total	395,110	375,936	355,690	338,087	323,572	313,403	305,886	291,736	275,482	250,712
Disability Retirement Payroll:										
General	12,550	12,514	12,286	12,315	12,432	12,531	12,215	12,371	12,049	11,974
Safety	42,529	41,869	39,726	37,111	35,664	35,168	33,631	32,346	29,725	28,341
Total	55,079	54,383	52,012	49,427	48,096	47,699	45,846	44,717	41,774	40,315
Beneficiary Payroll:										
General	27,139	25,798	24,849	23,971	22,877	22,938	20,249	19,511	18,011	17,825
Safety	22,905	21,643	19,960	18,552	17,528	16,718	15,044	13,845	12,302	11,445
Total	50,044	47,441	44,809	42,523	40,405	39,656	35,293	33,356	30,313	29,270
Total Benefit Expense:										
General	300,064	285,537	271,263	259,305	248,703	241,229	231,248	220,827	209,139	193,313
Safety	200,170	192,223	181,249	170,731	163,370	159,528	155,777	148,982	138,430	126,984
TOTAL	**$500,234**	**$477,760**	**$452,512**	**$430,037**	**$412,073**	**$400,759**	**$387,026**	**$369,809**	**$347,569**	**$320,297**

SCHEDULE OF RETIRED MEMBERS BY TYPE OF BENEFIT

Scheule of Years of Retired Members by Type of Benefit
Summary of Monthly Allowances Being Paid as of December 31, 2020

Amount of Monthly Benefit	Number of Retirees & Beneficiaries	Service	Disability	Beneficiary
General Members				
$0 to $999	1,337	1,038	2	297
$1,000 to $1,999	1,749	1,408	57	284
$2,000 to $2,999	1,426	1,095	150	181
$3,000 to $3,999	945	768	80	97
$4,000 to $4,999	645	555	41	49
$5,000 to $5,999	432	376	14	42
$6,000 to $6,999	319	289	6	24
$7,000 to $7,999	218	205	1	12
$8,000 to $8,999	177	162	1	14
$9,000 to $9,999	107	102	-	5
$10,000 & Over	283	276	-	7
TOTALS	**7,638**	**6,274**	**352**	**1,012**
Safety Members				
$0 to $999	104	59	6	39
$1,000 to $1,999	142	71	3	68
$2,000 to $2,999	152	62	29	61
$3,000 to $3,999	215	79	70	66
$4,000 to $4,999	308	92	140	76
$5,000 to $5,999	252	115	83	54
$6,000 to $6,999	171	103	38	30
$7,000 to $7,999	142	108	18	16
$8,000 to $8,999	152	113	28	11
$9,000 to $9,999	144	119	18	7
$10,000 & Over	598	460	111	27
TOTALS	**2,380**	**1,381**	**544**	**455**

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**
1/1/2020 - 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
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

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**
1/1/2012 - 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
1/1/2011 - 12/31/2011								
Average monthly benefit	$436	$1,334	$1,853	$2,663	$4,325	$6,315	$6,829	$4,091
Average Final Compensation	$7,653	$5,871	$6,543	$7,091	$8,476	$9,629	$9,410	$8,044
Number of retired members	12	77	102	86	156	114	116	663

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+**
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
2011 Average Monthly Benefit	$4,522	$4,107	$3,419	$2,824	$2,415	$1,936	$1,923	$1,721	$1,483
Number Retirees & Beneficiaries	524	633	621	550	486	440	328	124	32

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+**
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		
2011 Average Monthly Benefit	$600	$651	$1,023	$890	$1,091	$923	$661		
Number Retirees & Beneficiaries	67	80	209	158	51	9	1		

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+**
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				
2011 Average Monthly Benefit	$2,672	$2,020	$1,291	$660	$1,518				
Number Retirees & Beneficiaries	1102	626	164	1	2				

GENERAL TIER 5 (PEPRA)	
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+**
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
2011 Average Monthly Benefit	$6,763	$7,040	$5,513	$4,892	$4,409	$3,909	$3,880	$3,711	$2,940
Number Retirees & Beneficiaries	437	486	304	215	142	125	87	55	26

	Years of Retirement					
SAFETY TIER D and TIER E (PEPRA)	**0-4**	**5-9**	**10-14**	**15-19**	**20-24**	**25-29**
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 2012 - 2021

Participating Employers and Active Members for Years 2021- 2021

County of Contra Costa:	2021[1]	% of Totals	2020	2019	2018	2017	2016	2015	2014	2013	2012
General Members	7,628	76.24%	7,672	7,657	7,608	7,608	7,436	7,306	6,897	6,784	6,357
Safety Members	906	9.05%	911	910	937	947	951	936	894	951	912
TOTAL:	**8,534**	**85.29%**	**8,583**	**8,567**	**8,545**	**8,555**	**8,387**	**8,242**	**7,791**	**7,735**	**7,269**
Participating Agencies:											
Bethel Island Municipal Improvement District	5	0.05%	5	4	4	4	1	1	1	2	2
Byron, Brentwood, Knightsen Union Cemetery District	5	0.05%	4	3	4	4	4	5	5	5	5
Central Contra Costa Sanitary District	277	2.76%	272	283	278	279	282	272	262	260	255
Contra Costa County Employees' Retirement Association	61	0.61%	59	58	56	51	47	48	43	44	38
Contra Costa Housing Authority	82	0.82%	84	81	82	82	87	84	82	83	83
Contra Costa Mosquito and Vector Control District	33	0.33%	35	34	36	35	33	33	33	34	33
Local Agency Formation Commission (LAFCO)	1	0.01%	1	1	2	2	2	2	2	2	2
Rodeo Sanitary District	6	0.06%	7	6	7	7	7	8	7	7	6
In-Home Supportive Services Authority (IHSS)	14	0.14%	15	16	15	15	15	13	12	12	12
First 5 - Children & Families Commission	29	0.29%	30	28	30	29	28	26	22	21	20
Contra Costa County Fire Protection District	391	3.91%	396	380	348	326	337	304	297	286	299
East Contra Costa Fire Protection District	41	0.41%	44	42	37	36	43	35	38	49	38
Moraga-Orinda Fire Protection District	67	0.67%	71	65	61	64	63	62	62	70	62
Rodeo-Hercules Fire Protection District	21	0.21%	21	19	21	19	18	24	23	15	14
Superior Court of Contra Costa County	276	2.76%	303	318	331	323	330	331	324	344	342
San Ramon Valley Fire Protection District	163	1.63%	169	170	164	172	164	152	155	155	160
TOTAL PARTICIPATING AGENCIES:	**1,472**	**14.71%**	**1,516**	**1,508**	**1,476**	**1,448**	**1,461**	**1,400**	**1,368**	**1,389**	**1,371**
TOTAL ACTIVE MEMBERSHIP	**10,006**	**100.00%**	**10,099**	**10,075**	**10,021**	**10,003**	**9,848**	**9,642**	**9,159**	**9,124**	**8,640**

[1] 2021 total active membership is preliminary and will be finalized upon completion of 12-31-21 Actuarial Valuation report anticipated in September 2022.

CCCERA OPEB TRUST PLAN

Changes in Fiduciary Net Position and Participant Data
For Years 2021 - 2018*
(Dollars in Thousands)

	2021	2020	2019	2018
Additions				
Employer Contribution	$268	$536	$828	$2,542
Net Investment Income (Loss)	414	566	313	-
Total Additions	**682**	**1,102**	**1,141**	**2,542**
Deductions				
Benefits Paid	88	66	53	-
Total Deductions	**83**	**66**	**53**	**-**

* OPEB Plan information only available from inception date 2018.

Participant Data from 2021 Valuation	
Active employees:	59
Average age at valuation date:	49
Current retirees:	7
Average age at retirement:	63

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