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October 19, 2018

Ms. Lisa Driscoll
County Finance Director
County Administrator's Office
651 Pine Street, 10th Floor
Martinez, CA 94553

***Contra Costa County Other Post Employment Benefits Plan –
Actuarial Valuation as of January 1, 2018 and GASB 74 / 75 Disclosures as of June 30, 2018***

Dear Ms. Driscoll:

I am pleased to enclose above titled report for the Contra Costa County ("County"). In this report, we have prepared certain disclosures required by GASB Statements No. 74 / 75 for the Contra Costa County's OPEB Plan for the fiscal year ending June 30, 2018.

If you have any questions or would like to review the report, please call me at (415) 394-3740.

Sincerely,

A handwritten signature in black ink that reads "John R. Botsford". The signature is stylized and cursive.

John R. Botsford, FSA, MAAA

enc.

Contra Costa County Other Post Employment Benefits Plan

Actuarial Valuation as of January 1, 2018 and GASB 74 / 75 Disclosures as of
June 30, 2018

Prepared by:

John R. Botsford
FSA, MAAA

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**Contra Costa County Other Post Employment Benefits Plan
Actuarial Valuation as of January 1, 2018 and GASB 74 / 75 Disclosures as of June 30, 2018**

At the request of the Contra Costa County, we have prepared an actuarial valuation for the County's Other Post Employment Benefits Plan as of January 1, 2018, and GASB 74 / 75 disclosures for the fiscal year ending June 30, 2018, 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 Contra Costa County'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 the County have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the County and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the County. 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 the County.

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 County'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 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. The County has the final decision regarding the appropriateness of the assumptions and actuarial cost methods.

Actuarial computations presented in this report under GASB Statements No. 74 and 75 are for purposes of assisting the County 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 the County'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.

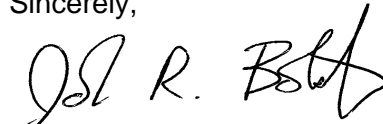
Milliman's work is prepared solely for the internal business use of the Contra Costa County. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does 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) Contra Costa County may provide a copy of Milliman's work, in its entirety, to County'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 the Contra Costa County.
- b) Contra Costa County may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs. The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel. The signing actuary is independent of the plan sponsor. 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 is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sincerely,



John R. Botsford, FSA, MAAA
Principal and Consulting Actuary

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Introduction

Milliman, Inc. (Milliman) has been retained by Contra Costa County (the "County") to provide an actuarial valuation of Other Post Employment Benefit Liabilities as of January 1, 2018, and disclosures required by GASB Statements No. 74 and 75 for the Contra Costa County OPEB Plan for the fiscal year ending June 30, 2018.

GASB 74 applies to financial reporting for public OPEB plans. Even if the plan does not issue standalone financial statements, but rather is considered a trust fund of a government, it is subject to GASB 74.

GASB 75 governs the specifics of accounting for public OPEB plan obligations for employers. GASB 75 requires a liability for OPEB obligations, known as the Net OPEB Liability, to be recognized on the balance sheets of employers. Changes in the Net OPEB Liability will be immediately recognized as OPEB Expense on the income statement or reported as deferred inflows/outflows of resources depending on the nature of the change.

The results contained in this report represent our best estimates based on the assumptions used in the valuation. However, variation from these or any other estimates of future benefits is not only possible but probable. To the extent that actual experience differs from the anticipated experience, actual plan costs will vary as well.

Background

Currently, employees who retire directly from the County may receive certain retiree health benefits if they meet certain eligibility requirements. The County may contribute an amount toward the cost of retiree health benefits for some retirees consistent with the bargaining agreement between the County and various bargaining units. Appendix A provides a detailed summary of benefits.

Key Results

The following table summarizes key results. Exhibits 1 – 7 contain the information needed for the preparation of accounting disclosures under GASB 74 and 75.

	June 30, 2018	June 30, 2017
Net OPEB Liability		
Total OPEB Liability	\$ 932,187,000	\$ 928,782,000
Fiduciary Net Position	<u>269,670,000</u>	<u>235,216,000</u>
Net OPEB Liability	\$ 662,517,000	\$ 693,566,000
Fiduciary Net Position as % of Total OPEB Liability	28.9%	25.3%
Annual OPEB Expense	\$ 65,105,000	\$ 68,444,000
Deferred (Inflows)/Outflows of Resources	(23,824,000)	(1,165,000)

Plan Changes since the Last Fiscal Year Ending June 30, 2017

There were no plan changes since the last fiscal year ending June 30, 2017.

Assumption Changes since the Last Fiscal Year Ending June 30, 2017

The discount rate, health cost trends, and demographic rates were changed since the last fiscal year ending June 30, 2017. The following table shows a summary of the impacts to the Total OPEB Liability (TOL) of these changes.

Assumption Changes since FYE June 30, 2017	Changes in TOL
Health cost trends updated	\$ (14,619,000)
Demographic rates updated to align with demographic assumptions used in the December 31, 2017 CCCERA Pension Actuarial Valuation Report	23,980,000
Discount rate changed from 6.25% to 6.15%	<u>9,244,000</u>
Total	\$ 18,605,000

Change in TOL since the Last Fiscal Year Ending June 30, 2017 Due to Plan Experience

The following table shows a summary of the change in TOL due to plan experience that was different than assumed.

Other Changes since FYE June 30, 2017	Changes in TOL
Difference between actual and expected experience - health costs	\$ (26,933,000)
Difference between actual and expected experience - demographic factors	<u>(18,273,000)</u>
Total	\$ (45,206,000)

Exhibit 3 contains a reconciliation of the TOL from June 30, 2017, to June 30, 2018.

Rationale for Significant Assumptions

With any valuation of future benefits, assumptions of anticipated future events are required. If actual events differ from the assumptions made, the actual cost of the plan will vary as well. A complete list and description of the actuarial assumptions is presented in Appendix B.

Investment Rate of Return. We have assumed an investment rate of return of 6.15%, net of investment expenses. This is based on the investment policy set by the County for its OPEB trust where the County invests its assets in the Public Agency Retirement Services (PARS) Trust to fund its OPEB liabilities.

Discount Rate. Under GASB 74 & 75, the discount rate should be the single rate that reflects the long-term rate of return on OPEB plan investments that are expected to be used to finance the payment of benefits. To the extent that OPEB plan assets are insufficient to finance all OPEB benefits, the discount rate should be based on 20-year tax-exempt AA or higher Municipal Bonds as of the Measurement Date. The County's OPEB Irrevocable Trust assets are invested in the Public Agency Retirement Services' Highmark Diversified Portfolio. Based on the Trust's asset allocation, we have assumed an expected average annual rate of return of 6.15%. See Appendix B for additional detail.

The County's current funding policy is to fund the pay-as-you-go costs for retirees, plus \$20 million into the OPEB Trust each year until year 2022. Beginning in 2022 the County will continue to fund the pay-as-you-go costs for retirees, plus \$73 million until the OPEB fund's Fiduciary Net Position as a %

of Total OPEB Liability is 60%. Thereafter, the County will contribute an amount each year to maintain the 60% funded status.

GASB 74 and 75 require that a projection regarding future solvency of the OPEB plan be run each year. The projections assume that plan assets earn the assumed rate of return and there are no future changes in the plan provisions or actuarial methods and assumptions. We have run a solvency projection as prescribed in GASB 74 and 75 based on the County's current funding policy, and the Fiduciary Net Position is always projected to be sufficient to cover benefit payments and administrative expenses. Therefore, we have used 6.15% as the discount rate.

Health Cost Trend. We have assumed overall health costs of the medical benefits will increase according to the health cost inflation trend derived by using the "Getzen" model developed by the Society of Actuaries. A margin to reflect the impact of excise tax in future years is reflected in the assumed trend.

Demographic Rates. The assumptions for turnover, retirement, and mortality used in this valuation are the same as the assumptions used in the December 31, 2017, pension actuarial report from the Contra Costa County Employees' Retirement Association (CCCERA).

A complete summary of the actuarial assumptions is presented in Appendix B.

Exhibit 1. Net OPEB Liabilities

The Valuation Date is January 1, 2018. This is the date as of which the actuarial valuation is performed. The Measurement Date is June 30, 2018, which is also the GASB 74 and 75 Reporting Date, for the fiscal year ending June 30, 2018. The Total OPEB Liability is projected to June 30, 2018, using standard actuarial techniques as permitted by GASB 74 and 75. The Fiduciary Net Position is the market value of assets as of the fiscal year ending June 30, 2018.

	For the Fiscal Year Ending	
	June 30, 2018	June 30, 2017
Total OPEB Liability	\$ 932,187,000	\$ 928,782,000
Fiduciary Net Position	<u>269,670,000</u>	<u>235,216,000</u>
Net OPEB Liability	\$ 662,517,000	\$ 693,566,000
Fiduciary Net Position as a % of Total OPEB Liability	28.9%	25.3%
Valuation Date	1/1/2018	01/01/2016
Measurement date	6/30/2018	06/30/2017
GASB 74/75 Reporting date	6/30/2018	06/30/2017
Discount Rate	6.15%	6.25%
Money Weighted Rate of Return	5.49%	9.18%

Exhibit 2. 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 on a measurement date of June 30, 2018, and are applicable for the fiscal year ending June 30, 2018.

Sensitivity of the Net OPEB Liability to changes in the discount rate

The following table shows what the County’s Net OPEB Liability (NOL) would be if it were calculated using a discount rate that is 1 percentage point lower or 1 percentage point higher than the current discount rate.

Sensitivity Analysis	1% Decrease in Discount Rate 5.15%	Current Discount Rate 6.15%	1% Increase in Discount Rate 7.15%
Net OPEB Liability as of June 30, 2018	\$ 764,503,000	\$ 662,517,000	\$ 576,743,000

Sensitivity of the Net OPEB Liability to changes in the Healthcare Cost Trend Rates

The following table shows what the County’s Net OPEB Liability (NOL) would be if it were calculated using a Healthcare cost trend that is 1 percentage point lower or 1 percentage point higher than the current Healthcare cost trend rates.

Sensitivity Analysis	1% Decrease in Healthcare Costs Trend Rate	Current Healthcare Costs Trend Rate	1% Increase in Healthcare Costs Trend Rate
Net OPEB Liability as of June 30, 2018	\$ 608,327,000	\$ 662,517,000	\$ 728,786,000

Exhibit 3. Changes in Net OPEB Liability

The following exhibit shows a reconciliation of the Net OPEB Liability from the measurement date June 30, 2017, to June 30, 2018, to be reported for the fiscal year ending June 30, 2018.

	Total OPEB Liability	Increase / (Decrease) Plan Fiduciary Net Position	Net OPEB Liability
Balance as of June 30, 2017	\$ 928,782,000	\$ 235,216,000	\$ 693,566,000
Service cost	\$ 27,828,000	\$ 0	\$ 27,828,000
Interest on the total OPEB liability	58,068,000	0	58,068,000
Changes of benefit terms	0	0	0
Differences between actual and expected experience with regard to economic or demographic factors	(45,206,000)	0	(45,206,000)
Changes of assumptions	18,605,000	0	18,605,000
Benefit payments ¹	(55,890,000)	(55,890,000)	0
Contributions from employer	0	76,990,000 ²	(76,990,000)
Net investment income	0	13,354,000	(13,354,000)
Administrative expense	0	0	0
Other changes	<u>0</u>	<u>0</u>	<u>0</u>
Total changes	\$ 3,405,000	\$ 34,454,000	\$ (31,049,000)
Balance as of June 30, 2018	\$ 932,187,000	\$ 269,670,000	\$ 662,517,000

1. The benefit payment shown is equal to the annual pay-as-you-go cost of \$46,677,000 reported by the County for the fiscal year ending June 30, 2018, increased by \$9,213,000 to reflect the estimated implicit subsidy.
2. The County contributed \$21.1 million to the trust fund in FY 2017-18. The amount shown above includes both the contributions made to the trust and the pay-as-you-go benefit payment cost.

Exhibit 4. Money Weighted Investment Return

GASB 74 requires the disclosure of the money-weighted rate of return on plan investments. The money-weighted rate of return considers the changing amounts actually invested during a period and weights the amount of OPEB Trust investments by the proportion of time they are available to earn a return during that period. External cash flows are determined on a monthly basis and are assumed to occur at the beginning of each month. The Net External Cash Flows shown below represent employer contribution to the Trust. There were no cash outflows from the Trust during fiscal year. The money-weighted rate of return is calculated net of investment expenses.

	Net External Cash Flows	Periods Invested	Period Weight	Net External Cash Flows with Interest
Beginning Balance – July 1, 2017	\$ 235,216,000	12	1.00	\$ 248,135,000
Monthly Net External Cash Flows:				
July	0	12	1.00	0
August	0	11	0.92	0
September	0	10	0.83	0
October	5,040,000	9	0.75	5,247,000
November	0	8	0.67	0
December	0	7	0.58	0
January	5,000,000	6	0.50	5,135,000
February	0	5	0.42	0
March	0	4	0.33	0
April	5,000,000	3	0.25	5,067,000
May	0	2	0.17	0
June	6,060,000	1	0.08	6,086,000
Ending Value – June 30, 2018	\$ 256,316,000			\$ 269,670,000

Year Ending June 30	Money Weighted Investment Return
2018	5.49%
2017	9.18%

Exhibit 5. Calculation of OPEB Expense and Deferred Inflows/Outflows

The following tables shows the development of the OPEB expense and deferred inflows/outflows of resources.

OPEB Expense	For the Fiscal Year Ending	
	June 30, 2018	June 30, 2017
Service cost	\$ 27,828,000	\$ 26,191,000
Interest on the total OPEB liability	58,068,000	56,298,000
Effect of plan changes	0	0
Administrative expense	0	0
Member contributions	0	0
Expected investment return, net of investment expenses	(15,350,000)	(12,880,000)
Recognition of Deferred (Inflows)/Outflows of Resources		
Economic/demographic (gains) or losses	(7,945,000)	0
Assumption changes or inputs	3,270,000	0
Investment (gains) or losses	<u>(766,000)</u>	<u>(1,165,000)</u>
Total Recognition	(5,441,000)	(1,165,000)
OPEB expense	\$ 65,105,000	\$ 68,444,000

Deferred (Inflows) / Outflows of Resources	Deferred Inflows of Resources	Deferred Outflows of Resources
Differences between expected and actual experience	\$ (37,261,000)	\$ 0
Changes of assumptions	0	15,335,000
Net difference between projected and actual earnings	(3,495,000)	1,597,000
Contributions made subsequent to measurement date	<u>0</u>	<u>0</u>
Total	\$ (40,756,000)	\$ 16,932,000

Amounts currently reported as deferred inflows of resources and outflows of resources related to OPEB will be recognized in OPEB expense as follows:

Fiscal Year Ending June 30	Recognized Deferred (Inflows) and Outflows of Resources
2019	\$ (5,441,000)
2020	(5,441,000)
2021	(5,441,000)
2022	(4,275,000)
2023	(3,226,000)
Thereafter	0

Exhibit 6. Schedule of Deferred Inflows and Outflows of Resources

Investment (gains)/losses are recognized in OPEB expense over a period of five years. Economic/demographic (gains)/losses and assumption changes or inputs are recognized over the average remaining service life for all active and inactive members. Since there is no expected future service for inactives, their remaining service is equal to zero for purposes of computing the average remaining service life.

Date Established	Original Amount	Original Recognition Period	Balance of Deferred (Inflows)/Outflows 06/30/2018	Remaining Recognition Period	Amount Recognized in Expense 06/30/2018
Investment (gains) or losses					
06/30/2018	\$ 1,996,000	5.00	\$ 1,597,000	5.00	\$ 399,000
06/30/2017	(5,825,000)	5.00	<u>(3,495,000)</u>	4.00	<u>(1,165,000)</u>
Total			\$ (1,898,000)		\$ (766,000)
Economic/demographic (gains) or losses					
06/30/2018	\$ (45,206,000)	5.69	\$ (37,261,000)	5.69	\$ (7,945,000)
06/30/2017	0	5.52	<u>0</u>	4.52	<u>0</u>
Total			\$ (37,261,000)		\$ (7,945,000)
Assumption changes					
06/30/2018	\$ 18,605,000	5.69	\$ 15,335,000	5.69	\$ 3,270,000
06/30/2017	0	5.52	<u>0</u>	4.52	<u>0</u>
Total			\$ 15,335,000		\$ 3,270,000

Exhibit 7. Total OPEB Liabilities by Entity

The following table shows a breakdown of the County’s GASB 75 Total OPEB Liability by each entity shown below.

Entity	As of June 30, 2018 Total OPEB Liability
Safety Non-Fire	\$ 240,594,000
CCC Fire	109,952,000
Hospital	179,044,000
CCHP	9,530,000
Airport	1,802,000
CCC Retirement System (Retired before January 1, 2015)	1,717,000
All Other CCC Departments	389,548,000
Total	\$ 932,187,000

Appendix A. Summary of Plan Benefits

The following description of retiree health benefits is intended to be only a brief summary and is not complete information.

Eligibility

Currently, employees may receive retiree health benefits if they retire from the County, are receiving a pension from CCCERA, and meet certain eligibility requirements as follows:

General employees - age 50 with 10 years of pension service or age 70 with a vested pension, or after 30 years of pension service with no age requirement.

Safety employees - age 50 with 10 years of pension service or age 70 with a vested pension, or after 20 years of pension service with no age requirement.

Employees hired after December 31, 2006 and represented by the following bargaining groups (AFSCME, California Nurses Association, Deputy District Attorneys’ Association, Public Defenders Association, IFPTE, Western Council of Engineers, SEIU, PEU, Probation Peace Officers Association, and Unrepresented) also must have 15 years of County service.

Employees hired on or after October 1, 2005, and represented by the Physicians’ and Dentists’ Organization also must have 15 years of County service.

Health Benefits

Currently, eligible retirees and their dependents are covered either under the Contra Costa Health Plans, Health Net plans, Kaiser plans, or health plans sponsored by CalPERS (PEMHCA). Coverage may be provided for a retiree and surviving spouse as long as retiree and surviving spouse monthly premium contributions are paid. The County may pay a subsidy toward eligible retirees’ monthly medical and dental premiums. This subsidy may vary by bargaining unit and date of hire as described in this appendix. Employees hired on or after dates described in the table below and represented by the following bargaining groups must pay the entire cost of premiums to maintain coverage.

Bargaining Unit Name	Hire Date on or after which eligible retirees must pay entire cost of premiums
IFPTE, Unrepresented	January 1, 2009
AFSCME, Western Council of Engineers, SEIU, and PEU	January 1, 2010
Deputy District Attorneys Association	December 14, 2010
Probation Peace Officers Association of CCC	January 1, 2011
CCC Public Defenders Association	March 1, 2011

All surviving spouses must pay the entire cost of premiums to maintain coverage, with the exception of the following bargaining groups for whom the surviving spouse receives the same County subsidy as the retiree (covered by CalPERS health plans): Sheriff (A8), Fire Chief (BD), Sworn Exec. Mgmt. (BS), Fire Management (HA), Deputy Sheriffs (V#, VH, VN), Fire Suppression and Prevention (4N), Fire District Safety Management (BF), and D.A. Investigators (XJ).

Bargaining Units V#, VH, VN, F8, FW and Elected (Safety) Officials / Sworn Management Employees in (A8, B8, BS)

Currently, for eligible retirees from the bargaining units listed in the table below, the County will contribute toward the cost of monthly premiums (medical and dental) an amount equal to the actual dollar monthly premium amount paid by the County as of November 30, 2013, at each coverage level, plus 50% of the actual premium increase for 2014 and all future years.

Retirees who elected dental coverage without health coverage will pay one cent (\$0.01) per month for 2013, plus 50% of the actual premium increase for 2014 and all future years.

Bargaining Unit Code	Bargaining Unit Name	General / Safety
F8	Unrep Classified & Exempt-Othr	General
FW	Unrep CI & Ex-Sworn Peace Offc	Safety
V#	Sheriff's Sworn Mgmt Unit	Safety
VH	Deputy Sheriff's Unit-Sworn	Safety
VN	Deputy Sheriff's Unit-NonSworn	General
BS	Sworn Management Employees	Safety
A8	Elected Officials (DSA)	Safety
B8	Elected Officials (DSA)	Safety

For employees hired between January 2, 2007, and September 30, 2011, and represented by the Deputy Sheriffs' Association, the County subsidy is subject to a vesting schedule as shown in the table below.

Credited Years of Service	Percentage of Employer Contribution
10	50
11	55
12	60
13	65
14	70
15	75
16	80
17	85
18	90
19	95
20 or more	100

Bargaining Unit HA – Fire Management

Currently, for eligible Fire Management retirees represented by United Chief Officers Association (UCOA) with bargaining unit code HA, the County will subsidize an amount equal to 80% of the CalPERS Kaiser Bay Area premium at each coverage level (employee only, employee + one, employee + two or more) for any region in which the retiree resides, but the County's subsidy will not exceed the total premium of a lower cost plan.

Health Premium Subsidy on or after December 1, 2016: For the plan year that begins on January 1, 2017 and each calendar year thereafter, the maximum monthly premium subsidy the District will pay for each health plan is equal to the actual dollar monthly premium subsidy that is paid by the District for that plan as of November 30, 2016. In addition, if there is an increase in the monthly premium charged by a health plan for 2017, the District and the employee will each pay fifty percent (50%) of that increase. For each plan year thereafter, and for each plan, the District and the employee will each pay fifty (50%) of the monthly premium increase above the 2016 plan premiums.

Dental Subsidy for Retirees with Medical Coverage: For eligible retirees from bargaining unit HA enrolled in both a medical and dental plan, for the plan year that begins on January 1, 2016, the District will pay a monthly premium subsidy for each dental plan that is equal to the actual dollar monthly premium subsidy that is paid by the District as of November 30, 2015. In addition, if there is an increase in the monthly premium charged by a dental plan for 2016, the District and the employee will each pay fifty percent (50%) of that increase. For each plan year thereafter, the District and the employee will each pay fifty percent (50%) of the monthly premium increase above the 2015 plan premium.

Dental Subsidy for Retirees without Medical Coverage: For eligible retirees from bargaining unit HA enrolled in a dental plan only without health coverage, beginning on January 1, 2016, the District will pay a monthly dental premium subsidy for each dental plan that is equal to the actual dollar monthly premium subsidy that is paid by the District for 2015. If there is an increase in the premium charged by a dental plan for 2016, the District and the employee will each pay fifty percent (50%) of the increase. For each plan year thereafter, the District and the employee will each pay fifty percent (50%) of the premium increase that is above the 2015 plan premium.

Bargaining Unit XJ – D.A. Investigators

Health Premium Subsidy: For the plan year that begins on January 1, 2015, the County will pay the following monthly medical premium subsidy:

Coverage	Monthly Premium Subsidy
Employee/Retiree/Survivor Only	\$ 608.87
Employee/Retiree/Survivor & One Dependent	1,217.74
Employee/Retiree/Survivor & Two or more Dependents	1,583.07

In addition, if there is an increase in the monthly premium charged by a health plan for 2015 that exceeds the above stated amounts, the County and the retiree will each pay fifty percent (50%) of that increase. For 2016, the County premium subsidy varies by plan depending on the actual premium increase that occurred for each plan. For each calendar year thereafter, the County and the retiree will each pay fifty percent (50%) of any premium increase for each health plan.

Dental Premium Subsidy: For the plan year that begins on January 1, 2015, the County will pay the following monthly dental premium subsidy:

Coverage	With Health		Without Health	
	Delta Dental	DeltaCare (PMI)	Delta Dental	DeltaCare (PMI)
Single	\$ 32.69	\$ 22.30	\$ 42.44	\$ 28.91
Family	73.64	48.19	95.62	61.49

In addition, if there is an increase in the monthly premium charged by a health plan for 2015 that exceeds the above stated amounts, the County and the retiree will each pay fifty percent (50%) of that increase. For each calendar year thereafter, the County and the retiree will each pay fifty percent (50%) of any premium increase for each dental plan.

Bargaining Unit 4N - Fire Suppression and Prevention

Health Premium Subsidy: For 2016 and each calendar year thereafter, the prior year’s District subsidy for each medical plan and rate tier will increase by 50% of the actual premium increase in the medical plan and rate tier in which the member is enrolled.

Dental Premium Subsidy: For eligible retirees from bargaining unit 4N enrolled in both a medical and dental plan, the District will pay a subsidy equal to 50% of the cost of monthly dental premiums in 2016 and later. For retirees enrolled only in a dental plan, retirees are required to pay \$0.01 per month for dental coverage. For 2016 and later, the required monthly contribution from retirees would increase each year by 50% of the dental premium increase.

Bargaining Units 1P (plus formerly 1R and 1X) – Physicians & Dentists

Beginning on January 1, 2015, and for each calendar year thereafter, the County will pay a monthly dollar premium subsidy for each health and dental plan (County Premium Subsidy) as defined for each plan in the table below.

Health Plan	Frozen Subsidy Amount
<u>Contra Costa Health Plan A</u>	
Retiree on Basic Plan	\$ 600.51
Retiree & 1 or more dependents on Basic Plan	1,430.76
Retiree on Medicare COB Plan	279.22
Retiree & Spouse on Medicare COB Plan	558.44
Family, 1 on Medicare COB Plan, and 1 or more on Basic Plan	1,234.35
<u>Contra Costa Health Plan B</u>	
Retiree on Basic Plan	\$ 611.34
Retiree & 1 or more dependents on Basic Plan	1,452.65
Retiree on Medicare COB Plan	287.59
Retiree & Spouse on Medicare COB Plan	575.18
Family, 1 on Medicare COB Plan, and 1 or more on Basic Plan	1,271.37
<u>Kaiser Permanente</u>	
Retiree on Basic Plan	\$ 614.78
Retiree & 1 or more dependents on Basic Plan	1,432.42
Retiree on Medicare Senior Advantage Plan	295.00
Retiree & 1 dependent on Medicare Senior Advantage Plan	796.70
Retiree on Medicare Sr. Adv. Plan, and 1 or more dependents on Basic Plan	1,158.55
<u>Health Net HMO</u>	
Retiree on Basic Plan	\$ 853.92
Retiree & 1 or more dependents on Basic Plan	2,094.74
Retiree on Medicare Seniority Plus Plan	514.27
Retiree & 1 dependent on Medicare Seniority Plus Plan	1,028.55
Retiree on Medicare Sr. Plus Plan, and 1 or more dependents on Basic Plan	1,370.24
<u>Health Net Medicare COB</u>	
Retiree only	\$ 563.32
Retiree & spouse	1,126.65
<u>Health Net CA & Nat'l PPO – Basic Plan A</u>	
Retiree on PPO	\$ 753.81
Retiree & 1 or more dependents on PPO Basic Plan	1,790.70
Retiree on PPO Medicare Plan with Medicare Part A & B	618.43
Retiree & 1 or more dependents on PPO Medicare Plan with Medicare Part A & B	1,236.73

The amount of the County subsidy that is paid for employees and eligible family members for these plans will thereafter be a set dollar amount and will not be a percentage of the premium charged by the health or dental plan. Retirees must pay for 100% of any premium increases after 2015.

Bargaining Unit L3 – Registered Nurses Unit

Currently, for eligible retirees from the bargaining unit L3, the County subsidizes a percentage of monthly premiums that varies depending on the medical and dental plan elected. Retirees retired on or before 06/30/2012 and age 65 on or before 10/31/2012 also receive reimbursement of their Medicare Part B premiums as long as the total County subsidy does not exceed 100% of the medical plan premium.

Retirees receive the following County subsidy based on the medical plan elected:

Medical Plan	County Subsidy % (Medical)	County Subsidy % (Dental)
<u>Contra Costa Health Plan A and B</u>		
Without Dental	98%	0%
With Delta Dental	98%	98%
With PMI Delta Dental	98%	98%
<u>Kaiser, Health Net HMO</u>		
Without Dental	80%	0%
With Delta Dental	80%	78%
With PMI Delta Dental	80%	78%
<u>Health Net PPO</u>		
Without Dental	54%*	0%
With Delta Dental	54%*	78%
With PMI Delta Dental	54%*	78%
Dental Only	0%	All but \$0.01 / month
* Approximately 54% for 2018. Future increases are split evenly between the County and the retiree.		

All other Bargaining Units - County Subsidy Frozen at the 2011 Level

Currently, eligible retirees from the following bargaining units listed may receive County subsidies towards medical and dental premiums. The subsidies are frozen at the 2011 levels shown in the tables on pages 19-20. There are no future increases to these subsidy amounts except as defined on page 19 for certain retirees who retired before January 1, 2016.

Bargaining Unit Code	Bargaining Unit Name	General / Safety	Bargaining Unit Code	Bargaining Unit Name	General / Safety
25	Social Services Unit	General	KL	Engineering Technician Unit	General
51	Professional Engineers Unit	General	KM	Sheriff's Non-Sworn Mgmt Unit	General
999	DEFAULT BARGAINING UNIT	General	KU	Probation Supervisors Unit	General
2I	Service Line Supervisors Unit	General	KZ	Social Svcs Staff Special Unit	General
2R	Superior Court Reporters-Ex	General	MA	District Attorneys' Unit	General
2S	Safety Classifications	General	N2	Property Appraisers Unit	General
3A	Superior Court Clerical Unit	General	PK	Probation Supervisors Unit	Safety
3B	Superior Court Barg Unit-Loc1	General	PP	Probation Unit of CCC	Safety
3G	Deputy Clerks Unit	General	Q3	Safety Health Services Unit	General
3R	General Clerical Unit	General	QA	Agriculture & Animal Ctrl Unit	General
8P	Special Co Class Codes-Payroll	General	QB	LVN/Aide Unit	General
A8	Elected Officials (Non-DSA)	General	QC	Fam/Chld Svs Site Supv Unit	General
AJ	Elected Superior Court Judges	General	QE	Building Trades Unit	General
AM	Elected Municipal Court Judges	General	QF	Deputy Public Defender Unit/At	General
AS	Elected Board of Supvs Members	General	QG	Deputy Public Defender Unit-In	General
B1	Safety Unrep District Attorney	General	QH	Family and Childrens Services	General
B2	Safety Unrep Probation Classes	General	QM	Engineering Unit	General
B3	Safety Unrep Misc Classes	General	QS	General Services & Mtce Unit	General
B8	Mgmt (Non-Safety)	General	QT	Health Services Unit	General
BC	Superior Court Exempt Mgmt Gen	General	QV	Investigative Unit	General
BD	Mgmt Classified & Ex Dept Head	General	QW	Legal & Court Clerk Unit	General
BJ	Sup Ct Judicial Ofcrs Ex-Mgmt	General	QX	Library Unit	General
C8	Management Project-Other	General	QY	Probation Unit	General
CH	CS Head Start Mgmt-Project	General	TA	LVN/Aide Unit	General
D8	Unrepresented Proj Class-Other	General	TB	General Services & Mtce Unit	General
F2	Unrep Property Appraisers	General	TC	Health Services Unit	General
FC	Unrep Superior Ct Clerical Ex	General	VK	Probation Supervisors Unit	Safety
FD	Unrep Superior Ct Other Exempt	General	VP	Probation Unit of CCC	Safety
FM	Unrep Muni Ct Reporter-Exempt	General	Z1	Supervisory Project	General
FR	Unrep Superior Ct Reprts-Exemp	General	Z2	Non-Supervisory Project	General
JD	CCC Defenders/Attorneys	General	ZA	Supervisory Management	General
JF	CCC Defenders/Investigators	General	ZB	Non-Supervisory Management	General
K2	Property Appraisers Unit	General	ZL	Supervisory Nurse	General
K5	Court Professional Svcs Unit	General	ZM	Local 21 - Unit C	General
K6	Supervisory Clerical Unit	General	ZN	Non-Supervisory Nurse	General
KK	Income Maintenance Program Unit	General			

Health Insurance Premium Rates (non-PEMHCA)

The following table shows monthly retiree health insurance premiums for the 2018 calendar year for coverage under various health plans sponsored by Contra Costa County, and the County’s subsidies. The County’s maximum frozen subsidies and subsidies in effect for 2018 are shown.

Effective January 1, 2021 for certain retirees who retired before January 1, 2016, the amount of the County monthly medical plan premium maximum subsidy will increase by \$25 for the Medicare retiree only tier, the retiree plus one dependent on Medicare tier, and the retiree plus two or more dependents on Medicare tier.

Medical Plan	County's Maximum Subsidy (Frozen)	2018 Premium Rate	County's Subsidy for 2018	Retiree's Share for 2018
Contra Costa Health Plan A				
Retiree on Basic Plan	\$ 509.92	\$ 744.86	\$ 509.92	\$ 234.94
Retiree & 1 dependent on Basic Plan	1,214.90	1,489.72	1,214.90	274.82
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,364.90	2,234.58	1,364.90	869.67
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,214.90	2,234.58	1,214.90	1,019.68
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree on Medicare Coordination of Benefits (COB) Plan	420.27	369.69	369.68	0.01
Retiree & 1 or more dependents on Medicare COB Plan	1,035.60	739.39	739.38	0.01
Contra Costa Health Plan B				
Retiree on Basic Plan	528.50	825.69	528.50	297.19
Retiree & 1 dependent on Basic Plan	1,255.79	1,651.38	1,255.79	395.59
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,405.79	2,477.07	1,405.79	1,071.28
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,255.79	2,477.07	1,255.79	1,221.28
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree on Medicare COB Plan	444.63	380.78	380.77	0.01
Retiree & 1 or more dependents on Medicare COB Plan	1,088.06	761.56	761.55	0.01

Health Insurance Premium Rates (Non-PEMHCA continued)

Medical Plan	County's Maximum Subsidy (Frozen)	2018 Premium Rate	County's Subsidy for 2018	Retiree's Share for 2018
<u>Kaiser Permanente – Plan A</u>				
Retiree on Basic Plan	\$ 478.91	\$ 783.86	\$ 478.91	\$ 304.95
Retiree & 1 dependent on Basic Plan	1,115.84	1,567.71	1,115.84	451.87
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,265.84	2,351.57	1,265.84	1,085.73
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,115.84	2,351.57	1,115.84	1,235.73
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree on Medicare COB Plan	263.94	351.15	263.94	\$87.21
Retiree & 1 dependent on Medicare COB Plan	712.79	948.34	712.79	235.55
Retiree & 2 dependents on Medicare COB Plan	1,161.65	948.34	948.33	0.01
<u>Kaiser Permanente – Plan B</u>				
Retiree on Basic Plan	478.91	623.05	478.91	144.14
Retiree & 1 dependent on Basic Plan	1,115.84	1,246.10	1,115.84	130.26
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,265.84	1,869.15	1,265.84	603.30
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,115.84	1,869.15	1,115.84	753.31
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree on Medicare COB Plan	263.94	266.25	263.94	\$2.31
Retiree & 1 dependent on Medicare COB Plan	712.79	718.89	712.79	6.10
Retiree & 2 dependents on Medicare COB Plan	1,161.65	718.89	718.88	0.01
<u>Kaiser Permanente – High Deductible</u>				
Retiree on Basic Plan	478.91	499.94	478.91	21.03
Retiree & 1 dependent on Basic Plan	999.87	999.88	999.87	0.01
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,265.84	1,499.82	1,265.84	233.98
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,115.84	1,499.82	1,115.84	383.98
<u>Teamsters 856 Trust Fund KP Health Plan</u>				
Retiree on Basic Plan	478.91	655.00	478.91	176.09
Retiree & 1 dependent on Basic Plan	1,115.84	1,245.00	1,115.84	129.16
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,265.84	1,736.00	1,265.84	470.16
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,115.84	1,736.00	1,115.84	620.16

Health Insurance Premium Rates (Non-PEMHCA continued)

Medical Plan	County's Maximum Subsidy (Frozen)	2018 Premium Rate	County's Subsidy for 2018	Retiree's Share for 2018
<u>Health Net HMO – Plan A</u>				
Retiree on Basic Plan	627.79	1,512.68	627.79	884.89
Retiree & 1 dependent on Basic Plan	1,540.02	3,025.36	1,540.02	1,485.34
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,690.02	4,538.04	1,690.02	2,848.02
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,540.02	4,538.04	1,540.02	2,998.02
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree on Medicare Seniority Plus Plan	409.69	567.59	409.69	157.90
Retiree & 1 dependent on Medicare Seniority Plus Plan	819.38	1,135.18	819.38	315.80
Retiree & 2 dependents on Medicare Seniority Plus Plan	1,229.07	1,702.77	1,229.07	473.70
<u>Health Net HMO – Plan B</u>				
Retiree on Basic Plan	627.79	1,051.89	627.79	424.10
Retiree & 1 dependent on Basic Plan	1,540.02	2,103.78	1,540.02	563.76
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,690.02	3,155.67	1,690.02	1,465.65
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,540.02	3,155.67	1,540.02	1,615.65
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree on Medicare Seniority Plus Plan	409.69	476.49	409.69	66.80
Retiree & 1 dependent on Medicare Seniority Plus Plan	819.38	952.98	819.38	133.60
Retiree & 2 dependents on Medicare Seniority Plus Plan	1,229.07	1,429.47	1,229.07	200.40
<u>Health Net Medicare COB Plan A</u>				
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree only	467.13	772.06	467.13	304.93
Retiree & 1 dependent on Medicare COB	934.29	1,544.12	934.29	609.83
Retiree & 2 dependents on Medicare COB	934.29	2,316.18	934.29	1,381.89
<u>Health Net Medicare COB Plan B</u>				
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree only	467.13	717.81	467.13	250.68
Retiree & 1 dependent on Medicare COB	934.29	1,435.62	934.29	501.33

Health Insurance Premium Rates (Non-PEMHCA continued).

Medical Plan	County's Subsidy (Frozen in 2011)	2018 Premium Rate	County's Subsidy for 2018	Retiree's Share for 2018
<u>Health Net CA & Nat'l PPO – Basic Plan A</u>				
Retiree on Basic Plan	604.60	2,039.71	604.60	1,435.11
Retiree & 1 dependent on Basic Plan	1,436.25	4,079.42	1,436.25	2,643.17
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,586.28	6,119.13	1,586.25	4,532.88
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,436.25	6,119.13	1,436.25	4,682.88
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree on PPO Medicare Plan B	563.17	1,113.11	563.17	549.94
Retiree & 1 dependent on PPO Medicare Plan	1,126.24	2,226.22	1,126.24	1,099.98
Retiree & 2 dependents on PPO Medicare Plan	1,126.24	3,339.33	1,126.24	2,213.09
<u>Health Net CA & Nat'l PPO – Basic Plan B</u>				
Retiree on Basic Plan	604.60	1,836.24	604.60	1,231.64
Retiree & 1 dependent on Basic Plan	1,436.25	3,672.48	1,436.25	2,236.23
Retiree & 2 or more dependents on Basic Plan (pre 2016 ret)	1,586.28	5,508.72	1,586.28	3,922.47
Retiree & 2 or more dependents on Basic Plan (post 2015 ret)	1,436.25	5,508.72	1,436.25	4,072.47
<i>Pre 2016 and Post 2015 Retirees</i>				
Retiree on PPO Medicare Plan	563.17	924.45	563.17	361.28
Retiree & 1 dependent on PPO Medicare Plan	1,126.24	1,848.90	1,126.24	722.66
Retiree & 2 dependents on PPO Medicare Plan	1,126.24	2,773.35	1,126.24	1,647.11

PEMHCA Health Plan Premium Rates

Eligible retirees from the bargaining units 4N, A8, B8, BD, BF, BS, F8, FW, HA, V#, VH, VN, and XJ can choose to enroll in health plans sponsored by CalPERS based on their residence region (Bay Area, Sacramento, Los Angeles, Northern California, Southern California and Out of State of California). The following table shows the monthly Bay Area retiree health insurance premiums for the 2018 calendar year:

	Monthly Premium Rates – Effective January 1, 2018					
	Single		2-Party		Family	
	Under 65	Over 65	Under 65	Over 65	Under 65	Over 65
Anthem HMO Select	\$ 856.41		\$ 1,712.82		\$ 2,226.67	
Anthem HMO Traditional	925.47	\$370.34	1,850.94	\$740.68	2,406.22	\$1,111.02
Blue Shield Access+	889.02		1,778.04		2,311.45	
Health Net SmartCare	863.48		1,726.96		2,245.05	
Kaiser	779.86	316.34	1,559.72	632.68	2,027.64	949.02
PERS Choice	800.27	345.97	1,600.54	691.94	2,080.70	1,037.91
PERS Select	717.50	345.97	1,435.00	691.94	1,865.50	1,037.91
PERSCare	882.45	382.30	1,764.90	764.60	2,294.37	1,146.90
United Healthcare	1,371.84	330.76	2,743.68	661.52	3,566.78	992.28
Western Health Advantage	792.56		1,585.12		2,060.66	
PORAC	734.00	487.00	1,540.00	970.00	1,970.00	1,551.00
Contra Costa Health Plan*	949.26	815.26	1,898.52	1,630.52	2,468.08	2,066.08

* Offered by the Contra Costa County Health Plan to Contra Costa County employees only. Not available through PEMHCA

Dental Plan Premiums

The following table shows monthly retiree dental insurance premiums for the 2018 calendar year. County subsidies vary based on retiree’s medical plan enrollment election and bargaining unit upon retirement.

Plan	Monthly Premiums
Delta Dental - \$1,800 Annual Maximum	
Retiree	\$ 45.16
Family	102.00
Delta Dental - \$1,600 Annual Maximum	
Retiree	\$ 43.30
Family	97.54
Delta Care (PMI)	
Retiree	\$ 29.06
Family	62.81

Appendix B. Actuarial Cost Method and Assumptions

Actuarial Cost Method

The actuarial cost method used for determining the benefit obligations is the individual Entry Age Normal Cost Method. Under the principles of this method, the actuarial present value of the projected benefits of each individual included in the valuation is allocated as a level percentage of expected salary for each year of employment between entry age (defined as age at hire) and assumed exit.

The portion of this actuarial present value allocated to a valuation year is called the normal cost. The portion of this actuarial present value not provided for at a valuation date by the sum of (a) the actuarial value of the assets, and (b) the actuarial present value of future normal costs is called the Unfunded Actuarial Accrued Liability (UAAL).

The Actuarial Value of Assets is equal to the market value of assets as of the measurement date. The actuarial assumptions are summarized below.

Economic Assumptions

<i>Discount Rate (Liabilities)</i>	6.15%
<i>General Inflation</i>	2.75%

We have used a discount rate of 6.15% in this valuation to reflect the County's current policy of partially funding its OPEB liabilities. This rate is derived based on the fund's investment policy, level of partial funding, and includes a 2.75% long-term inflation assumption. County OPEB Irrevocable Trust assets are invested in the Public Agency Retirement Services' Highmark Portfolio. Based on the portfolio's target allocation (shown below), the average return of Trust assets over the next 50 years is expected to be 6.12%.

Asset Class	Expected 1-Year Nominal Return	Targeted Asset Allocation
Domestic Equity Large Cap	7.10%	17.0%
Domestic Equity Mid Cap	7.70%	6.0%
Domestic Equity Small Cap	8.42%	8.0%
U.S. Fixed Income	4.98%	38.0%
International	8.43%	9.0%
Global Equity (Developed)	7.83%	7.0%
Real Estate	7.79%	4.0%
Cash	3.08%	1.0%
Alternatives	6.69%	10.0%
Expected Arithmetic Mean Annual Return (50 years)		6.55%
Expected Geometric Median Annual Return (50 years)		6.12%

Assumed Salary Increases (Applied to Individual Entry Age Normal Cost Method)

The assumed annual rates of compensation increases used for the EAN actuarial cost method are the same as the assumption used in the December 31, 2016 CCCERA Actuarial Valuation.

Years of Service	General	Safety
Less than 1	13.59%	14.11%
1	10.75%	10.75%
2	8.69%	9.20%
3	7.14%	7.91%
4	6.10%	6.36%
5	5.59%	5.07%
6	5.07%	4.55%
7	4.81%	4.50%
8	4.55%	4.45%
9	4.50%	4.40%
10	4.45%	4.35%
11	4.40%	4.30%
12	4.30%	4.24%
13	4.19%	4.14%
14	4.09%	4.09%
15+	4.04%	4.04%

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, 2016 CCCERA Actuarial Valuation.

Post Retirement Mortality

Healthy: For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table, projected generationally with the two-dimensional MP-2015 projection scale.

For Safety Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set back three years, projected generationally with the two-dimensional MP-2015 projection scale.

Disabled: For General Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set forward eight years, projected generationally with the two-dimensional MP-2015 projection scale.

For Safety Members: Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table set forward three years, projected generationally with the two-dimensional MP-2015 projection scale.

Beneficiaries: Beneficiaries are assumed to have the same mortality as a General Member of the opposite sex who had taken a service (non-disability) retirement.

Pre Retirement Mortality

Headcount-Weighted RP-2014 Healthy Annuitant Mortality Table times 75%, projected generationally with the two-dimensional MP-2015 projection scale.

Disability

Age	General Tier 3 / PEPRA	Safety (All Tiers)
20	0.01%	0.02%
25	0.02%	0.22%
30	0.03%	0.42%
35	0.05%	0.56%
40	0.08%	0.66%
45	0.13%	1.00%
50	0.16%	2.88%

Retirement – For this valuation, we have applied the Tier 3 rates for all General employees and Tier A rates for all Safety employees since nearly all current employees are in these two pension tiers, with the exception of those who were hired after January 1, 2013 as the PEPRA tiers.

Age	General Tier 3	General PEPRA	Safety Tier A	Safety PEPRA
45	0%	0%	4%	0%
46	0%	0%	3%	0%
47	0%	0%	10%	0%
48	0%	0%	10%	0%
49	0%	0%	25%	0%
50	4%	0%	30%	5%
51	3%	0%	30%	4%
52	3%	2%	25%	4%
53	5%	3%	25%	5%
54	6%	3%	25%	6%
55	10%	5%	28%	10%
56	10%	5%	25%	10%
57	10%	6%	25%	18%
58	12%	8%	35%	18%
59	13%	9%	35%	18%
60	15%	10%	35%	18%
61	20%	14%	35%	20%
62	25%	20%	35%	20%
63	25%	20%	35%	20%
64	30%	20%	50%	30%
65	35%	25%	100%	30%
66 – 69	35%	30%	100%	100%
70 – 74	40%	50%	100%	100%
75	100%	100%	100%	100%

Withdrawal – Sample probabilities of terminating employment with the County are shown below for selected years of County service.

Years of Service	General	Safety
Less than 1	13.50%	13.00%
1	9.25%	8.00%
2	9.00%	7.00%
3	6.00%	5.50%
4	4.50%	3.75%
5	4.25%	3.25%
10	2.75%	2.00%
15	2.10%	1.50%
20 or more	1.50%	1.00%

Coverage Election Assumptions

Retiree Coverage – We have assumed 90% of new retirees hired before the exclusion date stated in Appendix A will elect medical and dental coverage at retirement. For employees hired after the exclusion date stated in Appendix A, we assumed 50% will elect to enroll in the health plans without any County subsidy.

Spouse Coverage – We have assumed 50% of new General retirees and 60% of new Safety retirees electing coverage will elect spouse medical and dental coverage at retirement.

Spouse Age – Female spouses are assumed to be three years younger than male spouses.

Dependent Coverage – We have assumed 30% of retirees with no spouse coverage will elect coverage for a dependent child until age 65 and 50% of retirees with spouse coverage will elect coverage for a dependent child until age 65.

Health Plan Election – We have assumed that new retirees will remain enrolled in the same plan they were enrolled in as actives. For actives who waived coverage, we have assumed that they will elect Kaiser plan coverage. For retirees enrolled in either the CalPERS Anthem or Blue Shield plans, we assumed they will transfer to the United Health Care Medicare Supplement plan upon reaching age 65, as the CalPERS health plan no longer offers Anthem or Blue Shield coverage for Medicare eligible retirees.

Valuation of Retiree Premium Subsidy Due to Active Health Costs

Currently, the County and California PERS (PEMHCA) health plans charge the same premiums for retirees who are not yet eligible for Medicare as for active employees. Therefore, the retiree premium rates are being subsidized by the inclusion of active lives in setting rates. (Premiums calculated only based on retiree health claims experience would have resulted in higher retiree premiums.) GASB 74/75 requires that the value of this subsidy be recognized as a liability in valuations of OPEB costs.

To account for the fact that per member health costs vary depending on age (higher health costs at older ages), we calculated equivalent per member per month (PMPM) costs that vary by age based on the age distribution of covered members, and based on relative cost factors by age. The relative cost factors were developed from the Milliman Health Cost GuidelinesTM. Based on the carrier premium rates and relative age cost factors assumptions, we developed age adjusted monthly PMPM health costs for 2018 to be used in valuing the implicit rate subsidy.

The following tables show the age adjusted expected monthly claims cost for a male participant at age 64 for each health plan and relative age factors compared to a male age 64.

Plan	Monthly Age Adjusted Claims Cost for Age 64 Male	Dependent Child Cost Load
CCHP A	\$ 1,389	\$ 328
CCHP B	1,645	201
Kaiser A	1,383	314
Kaiser B	1,302	232
Health Net HMO A	2,146	847
Health Net HMO B	1,944	442
Health Net PPO	2,183	789
California PERS Plans (average) – PEMHCA Plans	1,465	0

Relative Claims Cost Factor Compared to Male age 64

Age	County Plans		PEMHCA Plans	
	Male	Female	Male	Female
50	0.467	0.587	0.516	0.640
55	0.614	0.684	0.633	0.697
60	0.792	0.802	0.797	0.800
64	1.000	0.921	1.000	0.917

Since retirees eligible for Medicare (age 65 and beyond) are enrolled in Medicare supplemental plans, the premiums for retirees with Medicare are determined without regard to active employee claims experience and no such subsidy exists for this group for medical cost.

Medical Cost Inflation Assumption

We assumed future increases to the health costs and premiums are based on the “Getzen” model published by the Society of Actuaries for purposes of evaluating long term medical trend. A margin to reflect the impact of the excise tax in future years is reflected in the assumed trend. The following table shows the assumed rate increases in future years for Medical premiums. The CPI used in developing the following health cost increases is 2.75%.

Calendar Year	County Plans Pre 65	Calendar Year	County Plans Post 65	Calendar Year	PEMHCA Plans Pre 65	Calendar Year	PEMHCA Plans Post 65
2018	3.50%	2018	2.25%	2018	2.25%	2018	1.25%
2019	8.50%	2019	7.75%	2019	8.50%	2019	7.75%
2020	5.00%	2020	5.00%	2020	5.00%	2020	5.00%
2021 – 2028	5.25%	2021 – 2030	5.25%	2021 – 2023	5.50%	2021 – 2030	5.25%
2029 – 2030	5.50%	2031 – 2043	5.50%	2024	5.75%	2031 – 2043	5.50%
2031 – 2042	6.25%	2044 – 2045	5.25%	2025 – 2042	6.25%	2044 – 2051	5.25%
2043 – 2048	6.00%	2046 – 2052	5.75%	2043 – 2044	6.00%	2052	5.50%
2049 – 2057	5.75%	2053 – 2060	6.00%	2045 – 2051	5.75%	2053 – 2057	5.75%
2058 – 2064	5.50%	2061 – 2064	5.75%	2052 – 2063	5.50%	2058 – 2063	5.50%
2065 – 2067	5.25%	2065 – 2067	5.50%	2064 – 2066	5.25%	2064 – 2066	5.75%
2068 – 2070	5.00%	2068 – 2069	5.25%	2067 – 2069	5.00%	2067 – 2068	5.50%
2071 – 2073	4.75%	2070 – 2072	5.00%	2070 – 2072	4.75%	2069 – 2071	5.25%
2074 +	4.50%	2073 – 2091	4.75%	2073 +	4.50%	2072 – 2073	5.00%
		2092 +	4.50%			2074 +	4.75%

Dental Cost We assumed Dental costs will increase 4.0% annually.

Appendix C. Changes in Actuarial Assumptions

The following is a list of assumptions changes from the prior actuarial valuation.

Discount Rate

The discount rate used to determining the benefit obligations was changed from 6.25% to 6.15%.

Health Cost Inflation Assumption

The medical cost trend was updated to reflect recent legislative changes on Health Insurer Fees.

Assumed Annual Rates of Salary Increases

The assumed annual rates of compensation increases used for the EAN actuarial cost method have been changed to be consistent with assumptions used in the December 31, 2017 CCCERA Actuarial Valuation. See Appendix B for details.

Demographic Rates

The assumed rates for mortality, retirement, disability and withdrawal have been changed to be consistent with assumptions used in the December 31, 2017 CCCERA Actuarial Valuation. See Appendix B for details.

Appendix D. Summary of Participant Data

The following census of participants was used in the actuarial valuation and provided by Contra Costa County as of January 1, 2018.

Active Employees

Age	General	Safety	Total
Under 25	94	35	129
25 – 29	499	185	684
30 – 34	885	181	1,066
35 – 39	1,005	186	1,191
40 – 44	985	221	1,206
45 – 49	1,043	222	1,265
50 – 54	1,157	122	1,279
55 – 59	1,037	45	1,082
60 – 64	757	23	780
65 & Over	<u>352</u>	<u>7</u>	<u>359</u>
Total	7,814	1,227	9,041
Average Age on Valuation Date:		45.9	
Average Service on Valuation Date:		9.9	

Current Retirees

Age	General	Safety	Total
Under 50	21	59	80
50 – 54	80	158	238
55 – 59	298	189	487
60 – 64	731	209	940
65 – 69	1,196	220	1,416
70 – 74	1,152	237	1,389
75 – 79	734	122	856
80 – 84	530	67	597
85 & Over	<u>649</u>	<u>83</u>	<u>732</u>
Total	5,391	1,344	6,735
Average Age on Valuation Date:		71.4	

Appendix E. Glossary of Key Terms

Actuarially Determined Contribution. A target or recommended contribution to an OPEB plan for the reporting period, determined based on the funding policy and most recent measurement available when the contribution for the reporting period was adopted. The County's current funding policy is to fund the pay-as-you-go costs for retirees, plus \$20 million into the OPEB Trust each year until year 2022. Beginning in 2022 the County will contribute \$20 million plus additional \$53 million until the OPEB fund's FNP as a % of TOL is 60%. After that, the County will contribute an amount to maintain the 60% funded status.

Deferred Inflows/Outflows of Resources. Portion of changes in net OPEB liability that is not immediately recognized in OPEB Expense. These changes include differences between expected and actual experience, changes in assumptions, and differences between expected and actual earnings on plan investments.

Discount Rate. Single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the sum of:

- 1) The actuarial present value of benefit payments projected to be made in future periods where the plan assets are projected to be sufficient to meet benefit payments, calculated using the Long-Term Expected Rate of Return.
- 2) The actuarial present value of projected benefit payments not included in (1), calculated using the Municipal Bond Rate.

Long-Term Expected Rate of Return. Long-term expected rate of return on OPEB plan investments expected to be used to finance the payment of benefits, net of investment expenses.

Money-Weighted Rate of Return. The internal rate of return on OPEB plan investments, net of investment expenses.

Municipal Bond Rate. Yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.

Total OPEB Liability. The portion of actuarial present value of projected benefit payments that is attributable to past periods of member service using the Entry Age Normal cost method based on the requirements of GASB 74 and 75 (formerly Actuarial Accrued Liability).

Fiduciary Net Position. Equal to market value of assets.

Net OPEB Liability. Total OPEB Liability minus the Plan's Fiduciary Net Position (formerly unfunded accrued liability).

Service Cost. The portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.