Segal Consulting

Alameda County Employees' Retirement Association

Actuarial Valuation of the OPEB and non-OPEB Benefits Provided by the Supplemental Retiree Benefits Reserve Including Sufficiency of Funds as of December 31, 2017

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September 24, 2018

Board of Retirement
Alameda County Employees' Retirement Association
475 14th Street, Suite 1000
Oakland, CA 94612

Dear Members of the Board:

We are pleased to submit this report on our actuarial valuation of the sufficiency of funds for benefits provided by the Supplemental Retiree Benefits Reserve (SRBR) as of December 31, 2017. ACERA's accounting disclosure requirements under Statement No. 74 of the Governmental Accounting Standards Board (GASB) for retiree health benefits provided by the SRBR were included in our GASB 74 report dated June 12, 2018. ACERA's accounting disclosure requirements under GASB Statement No. 67 for non-vested supplemental COLA and retired member death benefits provided by the SRBR were included in our GASB 67 report dated June 12, 2018, together with the statutory pension benefits.

The December 31, 2017 census and financial information was prepared by ACERA. We gratefully acknowledge that assistance. The actuarial projections were based on the assumptions and methods described in Exhibit I and on the plan of benefits as summarized in Exhibit II.

The actuarial calculations were completed under the supervision of Eva Yum, FSA, MAAA, Enrolled Actuary and Thomas Bergman, ASA, MAAA, Enrolled Actuary. 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 herein.

We look forward to discussing this material with you at your convenience.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:

Andy Yeung, ASA, MAAA, FCA, EA	*Eva Yum, FSA, MAAA, EA*	*Thomas Bergman, ASA, MAAA, EA*
Vice President and Actuary	*Associate Actuary*	*Retiree Health Actuary*

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PURPOSE

I. Other Postemployment Benefits (OPEB)

This report presents the results of our actuarial valuation as of December 31, 2017 of the Alameda County Employees' Retirement Association (ACERA) postretirement medical, dental and vision benefits provided through ACERA's 401(h) account.[1] ACERA has allocated a portion of the Supplemental Retiree Benefits Reserve (SRBR) to be treated as pension contributions if the employers make contributions to the 401(h) account. The results of this report have been prepared with the goal of determining sufficiency of funds. Actuarial calculations for other purposes may differ significantly from the results reported here.

The actuarial calculations used to prepare this report have been made on a basis consistent with our understanding of the "substantive plan designs" of the OPEB Plan provided by ACERA using guidelines provided by the Board. The most important plan design assumption incorporated in our valuation is that the future monthly medical allowance (MMA) will increase at one-half of our anticipated medical trend assumptions for all years after 2019. However, the SRBR OPEB Plan will reimburse the fully indexed premium required for dental, vision, and enrollment in the Medicare Part B program.

In Section 2 of this report, we show the unlimited OPEB liabilities (i.e., the liabilities not limited by the current SRBR assets). The unlimited liabilities in this report will be used as the basis when we roll forward the liabilities for the next GASB 74 valuation report as of December 31, 2018.

[1] *It is our understanding that GASB requires such benefits to be reported under GASB Statement No. 74 and, accordingly, they have been included in our December 31, 2017 GASB 74 report dated June 12, 2018.*

II. Non-OPEB Benefits

The SRBR currently provides benefits in addition to those that qualify as OPEB. These "non-OPEB" benefits include supplemental COLAs and death benefits related to the underlying statutory defined benefit pension plan.[2]

In Section 2 of this report, we show the unlimited non-OPEB liabilities. The unlimited liabilities in this report will be used as the basis when we roll forward the liabilities for the next GASB 67 valuation report as of December 31, 2018.

Special Note Pertaining to OPEB and Non-OPEB Benefits

The calculation of benefit obligations pursuant to prescribed accounting requirements included in the above mentioned GASB reports does not, in and of itself, imply that ACERA has any legal liability to provide the benefits valued.

Actuarial valuations involve estimates of benefit amounts and assumptions about the probability of their payment far into the future, and the actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.

[2] *It is our understanding that GASB requires such benefits to be reported under GASB Statement No. 67 together with the underlying statutory defined benefit pension plan and, accordingly, they have been included in our December 31, 2017 GASB 67 report dated June 12, 2018.*

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of an OPEB and non-OPEB Plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare an actuarial valuation, Segal Consulting ("Segal") relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary in this report (as well as the plan summary included in our funding valuation report) to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the Association. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** This valuation is based on the market value of assets as of the valuation date, as provided by the Association.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, termination, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to health care trends and member enrollment in retiree health benefits for the OPEB Plan, and actuarial assumptions as to salary increases and cost-of-living adjustments for the non-OPEB Plan. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results, that does not mean that the previous assumptions were unreasonable.

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

- The valuation is prepared at the request of the Board to determine sufficiency of funds related to the OPEB and non-OPEB Plan. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- If the Association is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Board should look to their other advisors for expertise in these areas.

As Segal Consulting has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Retirement Association.

HIGHLIGHTS OF THE VALUATION

- The actuarial assumptions used in this study are consistent with those assumptions applied by the Retirement Board for the December 31, 2017 pension valuation, including the use of a 7.25% investment return assumption.
- In the last SRBR valuation, we utilized the following medical trend assumptions:
  - All non-Medicare plans and Medicare Advantage plans: starting at 6.50% for 2017 to 2018, reduced by 0.25% for each year until it reaches 4.50%.

  For this valuation, we have recommended to the Board in our letter dated March 27, 2018 that the medical trend assumptions be revised to the following:
  - All non-Medicare plans: starting at 7.00% for 2018 to 2019[3], reduced by 0.25% for each year until it reaches 4.50%.
  - All Medicare Advantage plans: starting at 6.50% for 2018 to 2019[3], reduced by 0.25% for each year until it reaches 4.50%.
- The Board acted to increase the 2018 MMA for 2019. The maximum MMA for ACERA sponsored plans and individual (out-of-area) non-Medicare plans becomes $558.00 and the maximum MMA for individual Medicare plans becomes $427.46, for 2019.
- For years after 2019, we have assumed that the MMA will increase with 50% of medical trend.
- These and the other OPEB assumptions are provided in Exhibit I.
- The determination of the "substantive plan" underlying ACERA's OPEB was based upon prior directions provided by ACERA, its auditors, as well as the administrative staff, auditors and consultants representing the County of Alameda, along with changes to the plan adopted by the Board on July 19, 2012 to allow retirees to select medical benefits available through the Medicare Exchange. These directions are provided in Exhibit III.
- Based on action taken by the Board in February 2014, we continue to exclude the non-OPEB lump sum retiree death benefit from the pension valuation and have included this death benefit in the results presented herein.
- For this valuation, the Association has continued to provide to us the breakdown of the OPEB and non-OPEB assets as of December 31, 2017.
- The terminal year of the SRBR was determined by projecting how long the SRBR can provide for all non-OPEB and OPEB benefits under the substantive plan outlined in Exhibit III. OPEB benefits can be paid through 2039[4], while non-OPEB benefits can be paid through 2038[4]. Last year, it was projected that OPEB benefits could be paid through 2039 and non-OPEB benefits could be paid through 2034.

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[3] *After we released our preliminary high-level summary letter dated May 2, 2018, the Association approved premiums for 2019. We have used those actual 2019 premiums in this study in lieu of estimating those premiums by using the 7.00% assumption for non-Medicare plans and the 6.50% assumption for Medicare plans.*

[4] *Assets would only be sufficient to pay benefits for a part of the year indicated.*

The main reason that the terminal year of the SRBR for OPEB benefits is projected to be the same as it was in last year's study is that the combined experience of the OPEB Plan, in aggregate, did not deviate significantly from the prior valuation's assumptions.

Note that the OPEB sufficiency period also did not change from that shown in our May 2, 2018 preview letter. Our preview letter estimated medical plan premiums for 2019 and future years using our trend assumption. Subsequent to our issuing of the preview letter, ACERA reported the 2019 medical plan premium renewals and we have used the actual 2019 premiums in our updated projection shown herein. On average, the premium increases for non-Medicare plans were lower than our expected 7.00% increase from 2018 to 2019, and the premium increases for Medicare plans were slightly higher than our expected 6.50% increase from 2018 to 2019.

- The main reason the terminal year of the SRBR for non-OPEB benefits is projected to be four years later than it was in last year's study is the change in the actuarial assumptions, in particular the decrease in the inflation assumption from 3.25% to 3.00% per year. For supplemental COLA benefits, the excess of inflation over the cost of living allowance (i.e., 3% for Tiers 1 and 3, and 2% for Tiers 2, 2C, 2D, and 4) is banked for future years when inflation may be less than the cost of living allowance. A supplemental COLA benefit would be paid when a member's COLA bank exceeds 15%. By reducing the assumed inflation rate, it is expected to take longer for members in Tiers 2, 2C, 2D, and 4 to accumulate a COLA bank in excess of 15%, which results in a decrease in the present value of providing supplemental COLA benefits.
- The funded ratio of the OPEB liabilities is 85.7%. The funded ratio of the non-OPEB liabilities is 25.1%. The comparable funded ratios were 92.0% and 19.1% for the OPEB and non-OPEB liabilities, respectively, as of December 31, 2016.
- The terminal years the SRBR can be paid as well as the funding ratios have been developed to reflect only the actuarial value of assets allocated to the SRBR through December 31, 2017. As we indicated on page 6 of our December 31, 2017 actuarial valuation report for the Pension Plan, the Association had deferred investment gains of $309.1 million that were not yet recognized in determining the combined actuarial value of assets for the Pension Plan and the SRBR Plan as of that date. The deferred gains of $309.1 million represent 3.8% of the market value of assets as of December 31, 2017.
- The funding ratio for the non-OPEB benefits is lower than for OPEB benefits because the Actuarial Value of Assets was initially allocated based on the benefit outflows for the OPEB and non-OPEB benefits. The benefit outflows for non-OPEB (in particular, the supplemental COLA) are "back loaded", i.e., they are expected to be larger in later years than in earlier years. This results in a smaller asset allocation relative to liabilities for the non-OPEB benefits.
- Note that in preparing the 401(h) contribution letter for 2018/2019, we had included an additional allocation for expense related to the administration of the health benefits for retirees. However, as we previously demonstrated to the Association during our discussion

with the Board on SB 1479, the values in both the employer reserves and the SRBR would remain unchanged relative to the values prior to that allocation, through the operation of SB 1479. For that reason, we have not included the explicit payment of administrative expense out of the 401(h) in preparing the cash flow requirements of the SRBR.

- The projected payments do not include any excise tax that may be imposed by the Affordable Care Act and related statutes. Under these acts, health plans that provide a subsidy above certain thresholds beginning in 2022 may be subject to a 40% excise tax. We have not included any excise tax because the MMA subsidy is expressed in terms of a dollar amount (and not as a percent of the premium required to obtain medical coverage) and the future MMA, when adjusted by 50% of medical trend, would result in an amount that would fall below the cost thresholds for a "Cadillac" plan (i.e., a plan subject to the excise tax) for all future years.
- As stated earlier in this report, it is our understanding that GASB requires the OPEB benefits to be reported under GASB Statement No. 74 and accordingly they have been included in our GASB 74 report dated June 12, 2018. Similarly, we understand that GASB requires the non-OPEB benefits to be reported under GASB Statement No. 67 together with the underlying statutory defined benefit pension plan and accordingly they have been included in our GASB 67 report dated June 12, 2018.

SUMMARY OF OPEB VALUATION RESULTS

	December 31, 2017[1]	December 31, 2016
Without Limiting Liabilities to Current Assets		
Actuarial Present Value of Projected Benefits		
Medical	$1,127,803,000	$1,004,652,000
Dental and Vision	121,183,000	110,010,000
Total	$1,248,986,000	$1,114,662,000
Actuarial Accrued Liability		
Medical[2]	$905,269,000	$821,416,000
Dental and Vision[3]	96,373,000	88,940,000
Total	$1,001,642,000	$910,356,000
Actuarial Value of Assets (Exhibit B)	858,005,000	837,185,000
Unfunded Actuarial Accrued Liability	143,637,000	73,171,000
Funded Ratio	85.7%	92.0%
Year Current Assets will be Exhausted[4]	2039	2039

(1) *These results will be used as the basis for the next GASB 74 valuation report based on a measurement date of December 31, 2018.*

(2) *Of the amount shown, $505.5 million is attributable to members currently receiving this benefit as of December 31, 2017 and $470.7 million is attributable to members receiving this benefit as of December 31, 2016. For treatment of implicit subsidy, see page 22.*

(3) *Of the amount shown, $53.4 million is attributable to members currently receiving this benefit as of December 31, 2017 and $49.6 million is attributable to members receiving this benefit as of December 31, 2016.*

(4) *Full benefits will be paid through the year prior to the year shown in the table. Full benefits will be paid for part of the year indicated.*

Note: The above results have been calculated using our understanding of the "substantive plan" as described in Exhibit III. The liabilities provided in this report will have to be revised if our understanding of the "substantive plan" is inaccurate.

SUMMARY OF NON-OPEB VALUATION RESULTS

	December 31, 2017[1]	December 31, 2016
Without Limiting Liabilities to Current Assets		
Actuarial Present Value of Projected Benefits		
Supplemental COLA	$184,005,000	$235,100,000
Retiree Death Benefit	4,400,000	4,088,000
Total	$188,405,000	$239,188,000
Actuarial Accrued Liability		
Supplemental COLA[2]	$145,601,000	$185,782,000
Retiree Death Benefit	4,020,000	3,761,000
Total	$149,621,000	$189,543,000
Actuarial Value of Assets (Exhibit B)	37,517,000	36,162,000
Unfunded Actuarial Accrued Liability	112,104,000	153,381,000
Funded Ratio	25.1%	19.1%
Year Current Assets will be Exhausted[3]	2038	2034

(1) *These results will be used as the basis for the next GASB 67 valuation report based on a measurement date of December 31, 2018.*

(2) *Of the amount shown, $6.0 million is attributable to members currently receiving this benefit as of December 31, 2017 and $6.6 million is attributable to members receiving this benefit as of December 31, 2016.*

(3) *Full benefits will be paid through the year prior to the year shown in the table. Full benefits will be paid for part of the year indicated.*

PROJECTED CASH FLOW AND PRESENT VALUE OF PROJECTED BENEFITS PROVIDED BY THE SUPPLEMENTAL RETIREE BENEFITS RESERVE AS OF DECEMBER 31, 2017

Year Ending December 31	Annual Benefit Cash Flows			Present Value as of December 31, 2017 of Projected Benefits through Year End		
	Medical[1]	Dental and Vision	Non-OPEB[2]	OPEB[3]	Non-OPEB	Total
2018	$ 44,123,476	$ 4,456,536	$ 1,237,155	$ 46,909,302	$ 1,194,608	$ 48,103,910
2019	47,242,602	4,611,717	1,175,792	93,595,551	2,253,215	95,848,766
2020	50,490,054	4,922,355	1,133,341	140,112,774	3,204,624	143,317,398
2021	54,048,154	5,245,177	1,112,089	186,523,172	4,075,084	190,598,256
2022	57,712,554	5,585,883	1,107,481	232,719,253	4,883,339	237,602,592
2023	61,768,509	5,942,360	1,119,243	278,795,090	5,644,961	284,440,051
2024	65,602,405	6,310,861	1,140,478	324,422,578	6,368,571	330,791,149
2025	69,222,733	6,689,087	1,167,435	369,331,191	7,059,213	376,390,404
2026	72,831,277	7,076,286	1,198,748	413,408,069	7,720,440	421,128,509
2027	76,335,496	7,472,997	1,462,441	456,511,682	8,472,589	464,984,271
2028	79,804,717	7,881,310	1,949,740	498,560,979	9,407,575	507,968,554
2029	83,232,715	8,288,796	2,820,522	539,482,731	10,668,707	550,151,438
2030	86,818,831	8,708,365	4,093,792	579,308,188	12,375,416	591,683,604
2031	90,329,725	9,126,352	5,491,922	617,968,715	14,510,234	632,478,949
2032	93,706,025	9,543,832	6,944,120	655,390,853	17,027,078	672,417,931
2033	97,153,362	9,966,827	8,413,704	691,591,236	19,870,420	711,461,656
2034	100,112,642	10,381,097	10,042,676	726,407,503	23,034,839	749,442,342
2035	102,837,347	10,787,821	11,792,665	759,790,227	26,499,488	786,289,715
2036	105,302,143	11,191,539	13,667,397	791,702,101	30,243,487	821,945,588
2037	107,543,402	11,588,610	15,666,667	822,130,640	34,245,046	856,375,686
2038	109,784,088	11,975,144	13,737,368[4]	851,127,918	37,516,636	888,644,554
2039	27,887,818[4]	3,086,105[4]	-	858,005,793	37,516,636	895,522,429

(1) *Includes Medicare Part B and Implicit Subsidy Reimbursement made to the County. For treatment of implicit subsidy, see page 22.*

(2) *Includes Supplemental COLA and $1,000 Lump Sum Death Benefit.*

(3) *Includes Medical, Dental, and Vision.*

(4) *Full benefits will be paid through the year prior to the year shown in the table. Full benefits will be paid for part of the year indicated.*

ACTUARIAL CERTIFICATION

September 24, 2018

This is to certify that Segal Consulting has conducted an actuarial valuation of certain benefit obligations of the Alameda County Employees' Retirement Association provided by the Supplemental Retiree Benefits Reserve for the year ending December 31, 2017, in accordance with generally accepted actuarial principles and practices. The actuarial valuation is based on the plan of benefits verified by the ACERA and on participant, claims and expense data provided by the ACERA.

The actuarial computations made are for purposes of determining sufficiency of funds. Determinations for other purposes may be significantly different from the results reported here. Accordingly, additional determinations may be needed for other purposes such as judging benefit security at plan termination.

To the best of our knowledge, this report is complete and accurate and in our opinion presents the information necessary to determine the sufficiency of funds with respect to the benefit obligations addressed. 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 herein.

Eva Yum, FSA, MAAA, EA
Associate Actuary

Thomas Bergman, ASA, MAAA, EA
Retiree Health Actuary

EXHIBIT A

Table of Plan Coverage – Members Receiving SRBR Benefits as of December 31, 2017

	Current Retirees
Category 1 – Medical	
Number	6,225
Average in force monthly medical reimbursements for 2018 (excluding Medicare Part B)	$392
Average maximum (based on service at retirement) monthly medical reimbursements for 2018 (excluding Medicare Part B)	$469
Monthly Medicare Part B premium reimbursements for 2018	$134
Category 1 - Supplemental COLA	
Number	315
Average monthly supplemental COLA for 2018[1]	$313
Category 2 – Dental and Vision	
Number	7,270
Average monthly medical reimbursements for 2018	$48
Category 2 – Retiree Death Benefit	
Number[2]	Not Available
Average lump sum benefits for 2018	$1,000

[1] *Estimate of supplemental COLA payable as of December 31, 2017. The average benefit does not take into account any adjustments to the members' COLA banks as of April 2018.*

[2] *Beneficiaries who received the $1,000 lump sum retiree death benefit were not separately identified in the data provided for the pension valuation.*

EXHIBIT B

Determination of Actuarial Value of Assets

	December 31, 2017		December 31, 2016	
Reserves Supporting SRBR Benefits				
401(h) Account (Allocated to OPEB)		$ 7,582,000		$ 7,827,000
Supplemental Retiree Benefits Reserve				
OPEB	$850,423,000[1]		$829,358,000[2]	
Non-OPEB	37,517,000		36,162,000	
SRBR Total		$887,940,000		$865,520,000
Total		**$895,522,000**		**$873,347,000**
Present Value of Projected OPEB Payable Through Terminal Year of the SRBR				
Medical		$779,989,000		$758,539,000
Dental and Vision		78,016,000		78,646,000
Total		$858,005,000		$837,185,000
Present Value of Projected Non-OPEB Payable Through Terminal Year of the SRBR				
Supplemental COLA		$ 34,214,000		$ 33,426,000
Retiree Death Benefit		3,303,000		2,736,000
Total		$ 37,517,000		$ 36,162,000
Total Present Value of Projected SRBR Benefits Payable Through Terminal Year of the SRBR		$895,522,000		$873,347,000

(1) *Adjusted to reflect estimated transfer of $5,830,283 (provided by ACERA) from SRBR to employer advance reserve for reimbursement of implicit retiree health benefit subsidy for calendar year 2017.*

(2) *Adjusted to reflect estimated transfer of $8,865,275 (provided by ACERA) from SRBR to employer advance reserve for reimbursement of implicit retiree health benefit subsidy for calendar year 2016.*

EXHIBIT I

Actuarial Assumptions and Actuarial Cost Method

Data:	Detailed census data and summary plan descriptions for postretirement benefits were provided by ACERA.
Rationale for Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the December 1, 2013 through November 30, 2016 Actuarial Experience Study report dated September 6, 2017, and in our letters dated March 27, 2018 regarding the health trend assumptions and April 25, 2018 regarding the recommended parameters to reflect the demographic driven changes, for the December 31, 2017 SRBR retiree health actuarial valuation. Unless otherwise noted, all actuarial assumptions and methods shown below apply to all tiers. These assumptions were adopted by the Board.

Post-Retirement Mortality Rates - Healthy

General Members and All Beneficiaries:	Headcount-Weighted RP-2014 (RPH-2014) Healthy Annuitant Mortality Tables, with no setback for males and females, projected generationally with the two-dimensional MP-2016 projection scale.
Safety Members:	Headcount-Weighted RP-2014 (RPH-2014) Healthy Annuitant Mortality Tables, with no setback for males and females, projected generationally with the two-dimensional MP-2016 projection scale.

Post-Retirement Mortality Rates - Disabled

General Members:	Headcount-Weighted RP-2014 (RPH-2014) Healthy Annuitant Mortality Tables, set forward seven years for males and set forward four years for females, projected generationally with the two-dimensional MP-2016 projection scale.
Safety Members:	Headcount-Weighted RP-2014 (RPH-2014) Healthy Annuitant Mortality Tables, set forward two years for males and with no set forward for females, projected generationally with the two-dimensional MP-2016 projection scale.

The RPH-2014 mortality tables and adjustments as shown above reflect the mortality experience as of the measurement date. The generational projection is a provision for future mortality improvement.

Pre-Retirement Mortality Rates

General and Safety Members: Headcount-Weighted RP-2014 (RPH-2014) Employee Mortality Tables times 80%, projected generationally with the two-dimensional MP-2016 projection scale.

Termination Rates Before Retirement[1]:

	Rate (%) Mortality			
	General[2]		Safety[2]	
Age	Male	Female	Male	Female
25	0.05	0.02	0.05	0.02
30	0.05	0.02	0.05	0.02
35	0.05	0.03	0.05	0.03
40	0.06	0.04	0.06	0.04
45	0.10	0.07	0.10	0.07
50	0.17	0.11	0.17	0.11
55	0.27	0.17	0.27	0.17
60	0.48	0.24	0.45	0.24
65	0.78	0.36	0.78	0.36

(1) Note that generational projections beyond the base year (2014) are not reflected in the above mortality rates. All pre-retirement deaths are assumed to be non-service connected.

(2) Based on the Headcount-Weighted RP-2014 (RPH-2014) Employee Mortality Tables times 80%, projected generationally with the two-dimensional MP-2016 projection scale.

Termination Rates Before Retirement (continued):

	Rate (%)	
	Disability	
Age	General(1)	Safety(2)
20	0.00	0.00
25	0.01	0.03
30	0.03	0.26
35	0.05	0.58
40	0.08	0.73
45	0.19	0.78
50	0.31	1.52
55	0.38	2.00
60	0.43	2.60

(1) 60% of General disabilities are assumed to be service connected disabilities. The other 40% are assumed to be non-service connected disabilities.

(2) 100% of Safety disabilities are assumed to be service connected disabilities.

Termination Rates Before Retirement (continued):

	Rate (%)	
	Termination (< 5 Years of Service)[1]	
Years of Service	General	Safety
0	11.00	4.00
1	9.00	3.50
2	8.00	3.50
3	6.00	2.50
4	6.00	2.00

	Termination (5+ Years of Service)[2]	
Age	General	Safety
20	6.00	2.00
25	6.00	2.00
30	5.40	2.00
35	4.40	1.70
40	3.40	1.20
45	3.00	1.00
50	3.00	1.00
55	3.00	1.00
60	3.00	0.40

(1) 60% of terminated members will choose a refund of contributions and 40% will choose a deferred vested benefit.

(2) 35% of terminated members will choose a refund of contributions and 65% will choose a deferred vested benefit. No termination is assumed after a member is eligible for retirement (as long as a retirement rate is present).

Retirement Rates:

	Rate (%)							
Age	General Tier 1	General Tier 2	General Tier 3	General Tier 4	Safety Tier 1[(1)]	Safety Tier 2, 2D[(1)]	Safety Tier 2C[(1)]	Safety Tier 4
49	0.00	0.00	0.00	0.00	0.00	10.00	0.00	0.00
50	4.00	2.00	6.00	0.00	35.00	15.00	4.00	4.00
51	4.00	2.00	3.00	0.00	30.00	15.00	2.00	2.00
52	4.00	2.00	5.00	4.00	25.00	15.00	2.00	2.00
53	4.00	2.00	6.00	1.50	35.00	15.00	3.00	3.00
54	4.00	2.00	6.00	1.50	45.00	15.00	6.00	6.00
55	6.00	2.00	12.00	2.00	45.00	15.00	10.00	10.00
56	8.00	3.00	13.00	2.50	45.00	15.00	12.00	12.00
57	10.00	4.00	13.00	3.50	45.00	15.00	20.00	20.00
58	12.00	4.00	14.00	3.50	45.00	20.00	10.00	10.00
59	14.00	5.00	16.00	4.50	45.00	20.00	15.00	15.00
60	20.00	7.00	21.00	6.00	45.00	30.00	60.00	60.00
61	20.00	9.00	20.00	8.00	45.00	30.00	60.00	60.00
62	35.00	15.00	30.00	18.00	45.00	30.00	60.00	60.00
63	30.00	16.00	25.00	15.00	45.00	30.00	60.00	60.00
64	30.00	18.00	25.00	17.00	45.00	50.00	60.00	60.00
65	35.00	25.00	30.00	22.00	100.00	100.00	100.00	100.00
66	35.00	25.00	25.00	25.00	100.00	100.00	100.00	100.00
67	30.00	25.00	25.00	25.00	100.00	100.00	100.00	100.00
68	30.00	30.00	25.00	30.00	100.00	100.00	100.00	100.00
69	35.00	35.00	50.00	35.00	100.00	100.00	100.00	100.00
70	65.00	50.00	65.00	50.00	100.00	100.00	100.00	100.00
71	65.00	50.00	65.00	50.00	100.00	100.00	100.00	100.00
72	65.00	50.00	65.00	50.00	100.00	100.00	100.00	100.00
73	65.00	50.00	65.00	50.00	100.00	100.00	100.00	100.00
74	65.00	50.00	65.00	50.00	100.00	100.00	100.00	100.00
75	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

(1) Retirement rate is 100% after a member accrues a benefit of 100% of final average earnings.

Retirement Age and Benefit for Deferred Vested Members:	For deferred vested members, retirement age assumptions are as follows: General Age: 61 Safety Age: 56 For future deferred vested members who terminate with less than five years of service and who are not vested, we assume that they will retire at age 70 for both General and Safety if they decide to leave their contributions on deposit. We assume that 30% of future General and 60% of future Safety deferred vested members will continue to work for a reciprocal employer. For reciprocals, we assume 3.90% and 4.30% compensation increases per annum for General and Safety, respectively.
Measurement Date:	December 31, 2017
Discount Rate:	7.25%
Future Benefit Accruals:	1.0 year of service per year of employment plus 0.003 year of additional service for General members and 0.006 year of additional service for Safety members, to anticipate conversion of unused sick leave for each year of employment.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Inclusion of Deferred Vested Members:	All deferred vested members are included in the valuation.
Consumer Price Index:	Increase of 3.00% per year, retiree COLA increases due to CPI subject to a 3% maximum change per year for General Tier 1, General Tier 3, and Safety Tier 1 and 2% maximum change per year for General Tier 2, General Tier 4, Safety Tier 2, Safety Tier 2C, Safety Tier 2D, and Safety Tier 4.
Actuarial Cost Method:	Entry Age Cost Method.

Salary Increases:

Annual Rate of Compensation Increase (%)

Inflation: 3.00%; an additional 0.50% "across the board" salary increases (other than inflation); plus the following Merit and Promotional increases based on service.

Service	General	Safety
0-1	4.80%	7.80%
1-2	4.80	7.80
2-3	3.90	7.00
3-4	2.40	4.40
4-5	1.90	3.50
5-6	1.60	2.30
6-7	1.50	1.60
7-8	1.10	1.00
8-9	0.80	1.00
9-10	0.80	0.90
10-11	0.50	0.80
11+	0.40	0.80

Terminal Pay Assumptions: Additional pay elements are expected to be received during a member's final average earnings period. The percentages, added to the final year salary, used in this valuation are:

	Service Retirement	Disability Retirement
General Tier 1	8.0%	6.5%
General Tier 2	3.0%	1.4%
General Tier 3	8.0%	6.5%
General Tier 4	N/A	N/A
Safety Tier 1	8.5%	6.4%
Safety Tier 2	3.5%	2.1%
Safety Tier 2C	3.5%	2.1%
Safety Tier 2D	3.5%	2.1%
Safety Tier 4	N/A	N/A

Per Capita Health Costs:

The combined monthly per capita dental and vision claims cost for plan year 2018 was assumed to be $47.91. The monthly Medicare Part B premium reimbursement for 2018 is $134.00. For calendar year 2018, medical costs for a retiree were assumed to be as follows:

Medical Plan[1]	Election Assumption	Monthly Premium	Maximum Monthly Medical Allowance[2]
Under Age 65[3]			
Kaiser HMO	90%	$735.64	$540.44
United Healthcare HMO	10%	$1,047.16	$540.44
Age 65 and Older			
Kaiser Senior Advantage	70%	$367.23	$540.44
OneExchange Individual Insurance Exchange	30%	$291.39[4]	$414.00

(1) There are other plans available to retirees under 65 that have a range of premiums and include OneExchange individual insurance coverage for retirees residing outside of ACERA medical plans' coverage area. We have assumed that these current retirees will draw the Maximum Monthly Subsidy ($540.44) and 0% of future retirees will enroll in these other plans.

(2) The Maximum Monthly Medical Allowance of $540.44 ($414.00 for retirees purchasing individual insurance from the Medicare exchange) is subject to the following subsidy schedule:

Completed Years of Service	Percentage Subsidized
10-14	50%
15-19	75%
20+	100%

(3) Current retirees under 65 are assumed to elect medical plans in the same proportion as future retirees upon age 65.

(4) The derivation of amount expected to be paid out in 2018 from the Health Reimbursement Account for members with 20 or more years of service is provided in the table on the following page. In the table, we have also provided the amount expected to be paid for members with 10-14 and 15-19 years of service.

Per Capita Health Costs (continued):

Derivation of OneExchange Monthly Per Capita Costs

	(Years of Service Category)	10-14	15-19	20+
1.	Maximum MMA for 2017	$207.00	$310.50	$414.00
2.	Total of Maximum MMA (From Jan. 2017 to Dec. 2017)	$424,764	$708,026	$4,423,203
3.	Total of Actual Reimbursement (From Jan. 2017 to Dec. 2017)	$317,422	$503,498	$2,657,446
4.	Ratio of Actual Reimbursement to Maximum 2017 MMA [(3) / (2)]	74.73%	71.11%	60.08%
5.	Average Monthly Per Capita Cost for 2017 [(1) x (4)]	$154.69	$220.80	$248.73
6.	Increased for Expected Medical Trend (6.50%) from 2017 to 2018 [(5) x 1.065]	$164.74	$235.16	$264.90
7.	Increased for Additional 10% Margin for 2017 Expenses Incurred in 2017 but Reimbursed after December 2017 [(6) x 1.10]	**$181.22**	**$258.67**	**$291.39**

Per Capita Health Costs (continued): Implicit Subsidy

We have estimated the average per capita premium for retirees under age 65 to be $9,202 per year. Because premiums for retirees under age 65 include active participants for purposes of underwriting, the retirees receive an implicit subsidy from the actives. Had the retirees under age 65 been underwritten as a separate group, their age-based premiums would be higher for most individuals. The excess of the age-based premium over the per capita premium charged makes up the subsidy. Below is a sample of the age-based costs for the retirees under age 65.

Average Medical

	Retiree		Spouse	
Age	**Male**	**Female**	**Male**	**Female**
50	$10,099	$11,504	$7,054	$9,237
55	11,994	12,383	9,440	10,692
60	14,244	13,348	12,637	12,400
64	16,342	14,160	15,953	13,957

Not all ACERA employers are receiving an implicit subsidy reimbursement from the Association. For SRBR sufficiency purposes, we have adjusted (by about a 12% reduction of the costs shown above) our projected implicit subsidy payments to account for this fact, based on data provided by the County of Alameda's health consultant.

For calculating the Actuarial Present Value of Projected Benefits and Actuarial Accrued Liability, we have not applied the adjustment.

Participation and Coverage Election:

Retired members and beneficiaries as of valuation date:

MMA	**Under Age 65**	**Upon Attaining Age 65**
MMA on Record		
Current Retirees Under 65 on Valuation Date	100%	100% and assumed to choose carrier in same proportion as future retirees
Current Retirees 65 and Over on Valuation Date	N/A	100%
No MMA on Record		
Less than 10 Years of Service	0%	0%
10+ Years of Service		
Current Retirees Under 65 on Valuation Date	0%	50%
Current Retirees 65 and Over on Valuation Date	N/A	0%

Medicare Part B Premium Subsidy	**Under Age 65**	**Upon Attaining Age 65**
MMA on Record		
Current Retirees Under 65 on Valuation Date	N/A	100%
Current Retirees 65 and Over on Valuation Date	N/A	100% if Part B reimbursement on record or purchasing individual insurance from the Medicare exchange
No MMA on Record		
Less than 10 Years of Service	N/A	0%
10+ Years of Service		
Current Retirees Under 65 on Valuation Date	N/A	50%
Current Retirees 65 and Over on Valuation Date	N/A	0%

Implicit Subsidy	Current retirees, married dependents and surviving beneficiaries under age 65 and enrolled in an ACERA non-Medicare plan are assumed to have an implicit subsidy liability.
Dental and Vision Subsidy	Current retirees not self-paying ("Voluntary" or "Under 10 YOS" dental or vision code).

Active and inactive vested members as of the valuation date:

	Under Age 65	Upon Attaining Age 65
Medical Plan Subsidy (i.e., MMA)	80% of eligible members.	90% of eligible members.

	Under Age 65	Upon Attaining Age 65
Part B Subsidy	80% of eligible members.	90% of eligible members.

Implicit Subsidy	80% of eligible members under age 65 are assumed to have an implicit subsidy liability.
Dental and Vision Subsidy	100% of eligible members.

Health Care Cost Trend Rates: Health care trend measures the anticipated overall rate at which health plan costs are expected to increase in future years. The rates shown below are "net" and are applied to the net per capita costs shown above. The trend shown for a particular plan year is the rate that is to be applied to the premium for the shown calendar year to calculate the next calendar year's projected premium. For example, the projected 2019 calendar year premium for Kaiser (under age 65) is $765.06 per month ($735.64 increased by 4.0%).

	Non-Medicare Plans	**Medicare Advantage Plan**	**Dental, Vision and Medicare Part B**	
Calendar Year	United Healthcare HMO & Kaiser HMO Early Retiree	OneExchange & Kaiser Senior Advantage	Dental and Vision	Medicare Part B
2018	7.00%[(1)]	6.50%[(1)]	4.50%[(1)]	4.50%[(2)]
2019	6.75	6.25	4.50	4.50
2020	6.50	6.00	4.50	4.50
2021	6.25	5.75	4.50	4.50
2022	6.00	5.50	4.50	4.50
2023	5.75	5.25	4.50	4.50
2024	5.50	5.00	4.50	4.50
2025	5.25	4.75	4.50	4.50
2026	5.00	4.50	4.50	4.50
2027	4.75	4.50	4.50	4.50
2028 & Later	4.50	4.50	4.50	4.50

(1) The actual trends are shown below, based on premium renewals for 2019 as reported by ACERA.

Kaiser HMO Early Retiree	United Healthcare HMO Early Retiree	Kaiser Senior Advantage	Dental and Vision
4.00%	0.00%	8.13%	1.00%

(2) Based on the 3.00% inflation assumption used in the pension valuation, we expect the Social Security COLA from 2018 to 2019 will be large enough to cover the dollar increases in the Medicare Part B premium for most retirees. We assume that the standard premium for all retirees in 2019 will be $140 ($134 in 2018 increased by 4.50%) per month.

Assumed Increase in Annual Maximum Benefits: For the "substantive plan design" shown in this report, we have assumed:

a) Maximum medical allowance for 2019 will increase to $558.00 per month, then increase with 50% of trend for medical plans, or 3.125%, graded down to the ultimate rate of 2.25% over 7 years.

b) Dental and vision premium reimbursement will increase with full trend.

c) Medicare B premium reimbursement will increase with full trend.

Dependents: Demographic data was available for spouses of current retirees. For future retirees, husbands were assumed to be three years older than their wives. Of the future retirees who elect to continue their medical coverage at retirement, 35% males and 15% females were assumed to have an eligible spouse who also opts for health coverage at that time.

Please note that these assumptions are only used to determine the cost of the implicit subsidy.

Plan Design: Development of plan liabilities was based on the plan of benefits in effect as described in Exhibit III.

Administrative Expenses: An administrative expense load was not added to projected incurred claim costs in developing per capita health costs.

Missing Participant Data: Any missing census items for a given participant was set to equal to the average value of that item over all other participants of the same membership status for whom the item is known.

EXHIBIT II

Summary of Benefits

This exhibit summarizes the major benefit provisions as included in the valuation. To the best of our knowledge, the summary represents the substantive plan provisions as of the measurement date. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

Eligibility:

Service Retirees: Retired with at least 10 years of service (including deferred vested members who terminate employment and receive a retirement benefit from ACERA)

Disabled Retirees: A minimum of 10[1] years of service is required for non-duty disability.

There is no minimum service requirement for duty disability.

Other Postemployment Benefits (OPEB):

1. Monthly Medical Allowance

Service Retirees: For retirees, a Maximum Monthly Medical Allowance of $540.44 per month is provided, effective January 1, 2018 and through December 31, 2018. For the period January 1, 2019 through December 31, 2019, the maximum allowance will increase to $558.00 per month for retirees who are not purchasing individual insurance through the Medicare exchange. For those purchasing individual insurance through the the Medicare exchange, the Monthly Medical Allowance will be $414.00 per month for 2018 and will increase to $427.46 per month for 2019. These Allowances are subject to the following subsidy schedule:

Completed Years of Service	Percentage Subsidized
10-14	50%
15-19	75%
20+	100%

1 *The 10 years of service requirement is only used for determining eligibility for health benefits. For pension benefits, the eligibility requirement is 5 years of service.*

Disabled Retirees:	Non-duty disabled retirees receive the same Monthly Medical Allowance as service retirees. Duty disabled retirees receive the same Monthly Medical Allowance as those service retirees with 20 or more years of service.

2. Medicare Benefit Reimbursement Plan:

The SRBR reimburses the full Medicare Part B premium to qualified retired members.

To qualify for reimbursement, a retiree must:

- Have at least 10 years of ACERA service,
- Be eligible for Monthly Medical Allowance,
- Provide proof of enrollment in Medicare Part B.

3. Dental and Vision Plans:

The SRBR provides dental and vision benefits for retirees only. The maximum combined monthly dental and vision premiums will be $47.91 in 2018 and $48.39 in 2019. The eligibility for these premiums is as follows:

Service Retirees:	Retired with at least 10 years of service.
Disabled Retirees:	For non-duty disabled retirees, 10 years of service is required. For grandfathered non-duty disabled retirees (with effective retirement dates on or before January 31, 2014), there is no minimum service requirement. For duty disabled retirees, there is no minimum service requirement.

Note about Monthly Medical Allowance:

The maximum levels of subsidy are reviewed by the Board annually and are not indexed to increase automatically.

In addition, the Monthly Medical Allowance can only be used to pay for retiree medical benefits. There is no benefit payable to beneficiaries, current spouses, former spouses or dependents.

If the actual cost of coverage is less than the Monthly Medical Allowance, the difference is not paid in cash or applied towards the coverage for beneficiaries, current spouses, former spouses or dependents.

Deferred Benefit: Members who terminate employment with 10 or more years of service before reaching Pension eligibility commencement age may elect deferred MMA and/or dental/vision benefits.

Death Benefit: Surviving spouses/domestic partners of members who die before the member commences retiree health benefits may enroll in an ACERA group medical plan on the date that the member would have been eligible to commence benefits. The surviving spouse/domestic partner must pay 100% of the premium. Because premiums for surviving spouses/domestic partners under age 65 include active participants for purposes of underwriting, the surviving spouses/domestic partners receive an implicit subsidy from the actives, which creates a liability for the SRBR.

Non-OPEB Benefits:

1. Supplemental COLA

   When inflation is higher than the ACERA cost of living allowance for a year, the excess of inflation over the cost of living allowance (3% for Tier 1 and Tier 3, and 2% for Tier 2, Tier 2C, Tier 2D, and Tier 4) is banked for future years when inflation may be less than the cost of living allowance. In 1998, the Board of Retirement approved a supplemental COLA payable through the SRBR for members whose COLA banks exceeded 15%. The supplemental COLA for a year is equal to the percentage of excess of the member's COLA bank over 15% times the member's current annual retirement allowance.

   The cost of living adjustment and any supplemental COLA must be approved yearly by the ACERA Board of Retirement. For this valuation, we have assumed the Board will maintain its current level of supplemental COLA (i.e., COLA banks will not exceed 15%) during the projection period.

2. Retired Member Death Benefit

   A one-time $1,000 lump sum retiree death benefit is payable to the beneficiary of a retiree. This benefit is only paid upon the death of a retiree; it is not paid upon the death of a beneficiary.

EXHIBIT III

Assumptions About the "Substantive Plan"

The determination of the "substantive plan" underlying ACERA's OPEB was based upon prior directions provided by ACERA, its auditors, as well as the administrative staff, auditors and consultants representing the County of Alameda. Those directions are provided below.

1. *Commitment to provide benefits currently paid out of the SRBR*

We understand that health and other supplemental benefits currently paid out of the SRBR will continue to be paid as long as there are assets available in the SRBR. However, when the assets in the SRBR are fully depleted, no additional health and other supplemental benefits will be paid by the Association and the employer. To our knowledge, the employer has not made any implicit or explicit commitment to continue those benefits.

2. *Continuation of coverage in the employer's active employee medical plans for the Association's retirees*

Currently, the Association's retirees are enrolled in the same medical plans as the employer's active employees. The retiree experience is pooled and used in setting the medical plan premium rates for active employee. The Association has begun in 2007 to reimburse the employer for the adverse premium experience created by the retirees.

In this study, for purposes of determining sufficiency of funds we have included the liability associated with reimbursing the employer for the adverse premium experience but only through the period up to the exhaustion of assets in the SRBR. In other words, there may be a residual liability to the employer if the Association's retirees continue to participate, and are rated together in the employer's active employee medical plans.

3. *Fully indexed subsidies for dental, vision and Medicare Part B premium and increase at one-half of the rate of increase for monthly medical allowance (MMA)*

Following guidelines provided by the Board and ACERA, we have assumed in this study that the OPEB Plan will reimburse the fully indexed premium required for dental, vision and for a retiree to enroll in Medicare Part B. In addition, we have assumed in this study that future MMA will increase at one-half of the rate of our anticipated medical inflation assumptions.

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