County Connection

INTER OFFICE MEMO

To: Board of Directors | Date: May 17, 2018

From: Erick Cheung, Chief Finance Officer

SUBJECT: OPEB Actuarial Valuation

SUMMMARY OF ISSUES:

The Government Accounting Standards Board (GASB) issued reporting standards that require County Connection to prepare an actuarial valuation of our Other Post-Employment Benefits (OPEB) under GASB Statement No. 45 (GASB 45) through Fiscal Year (FY) End 2017. The valuation assesses our OPEB liabilities that are recorded in the financial statements along with additional disclosure information as required by GASB 45. An OPEB actuarial valuation is required by GASB to be updated every two years with the last one completed in FY 2016. The OPEB Actuarial Valuation report attached is for FY 2018 and FY 2019. This report will be used as the basis for determining the plan contribution levels and to update to GASB 75 which will supersede GASB 45. GASB 45 required only the disclosure of the actuarial liability in the financial statement footnotes and only recorded a liability in the financial statements for payments less than the Annual Required Contribution (ARC). By contrast, GASB 75 will require County Connection to put the actuarial value of the assets/liabilities of OPEB on the face of the financial statements. Bickmore will prepare a separate GASB 75 report each year providing the detailed schedules needed for financial statement reporting.

County Connection's Unfunded Actuarial Accrued Liability (UAAL) as of June 30 2018 is $4.3 million (see PP.6 Bickmore Report), a decrease of $2.5 million since the last valuation. The primary reason for the decrease is favorable experience due to fewer new retirees electing coverage for themselves and/or their spouse and lower 2018 medical premiums than projected in the 2015 valuation which accounts for $1.4 million. Due to the favorable experience impacts assumptions for future retirees and spouses which account for an additional $0.9 million.

The ARC for FY 2018 is $588,345 (see PP.1 of Bickmore Report). However, County Connection gets credit under implicit subsidy of $100,568 for current employees, therefore the benefits paid to retirees and the trust should amount to $487,777. This amount is $142,223 less than the original FY 2018 Budget of $630,000. The ARC for FY 2019 is $606,839 (see PP.13 Bickmore Report) and the amount net of credit paid to retirees and trust should be $486,319. The FY 2019 Proposed Budget presented in the prior month includes $667,265 based on preliminary information. The current version has been reduced by $180,946 to agree with the actuarial report.

Kevin Watts, Manager of Postemployment Benefit Actuarial Services of Bickmore went over the report with the A&F Committee. Bickmore is a risk management company for public entities and provides a wide variety of services. Bickmore also provides management services for the two insurance pools in which County Connection is a member – CalTIP (liability and property) and LAWCX (excess workers compensation).

RECOMMENDATION:

Staff and A&F Committee recommends that the Board accept the OPEB Actuarial Valuation.

FINANCIAL IMPLICATION:

Based on Bickmore's actuarial valuation, the ARC net of implicit subsidy credits for FY 2018 and FY 2019 amounts to $487,777 and $486,319, respectively and is incorporated in the May version of the FY 2019 Proposed Budget.

ATTACHMENT:

a. Bickmore Other Post-Employment Benefit Programs of the Central Contra Costa Transit Authority Actuarial Valuation as of July 1, 2017.

March 23, 2018

Mr. Erick Cheung
Director of Finance
Central Contra Costa Transit Authority
2477 Arnold Industrial Way
Concord, CA 94520

Re: July 1, 2017 Actuarial Valuation; Determination of OPEB Funding Contributions

Dear Mr. Cheung:

We are pleased to enclose our report providing the results of the July 1, 2017 actuarial funding valuation of other post-employment benefit (OPEB) liabilities for the Central Contra Costa Transit Authority (the Authority). The report's text describes our analysis and assumptions in detail. *This report is being released in draft form to provide the Authority with an opportunity to review and comment. Once any questions have been discussed and resolved, we will issue our final report.*

The primary purposes of the report are to develop the value of future OPEB expected to be provided by the Authority and to develop annual amounts to be contributed by the Authority for the fiscal years ending June 30, 2018 and June 30, 2019 toward prefunding the OPEB plan liability. This report does not provide the information needed for financial reporting requirements under GASB 75. That information will be developed and presented in separate report(s).

Items of note in this valuation are:

- Actuarially Determined Contributions (ADC) are developed on the same basis as the Annual Required Contribution previously developed under GASB 45 and satisfies the requirements of an ADC as described under GASB 75. It is our understanding that the Authority's current OPEB Funding Policy anticipates contributing 100% or more of the ADC each year.
- OPEB trust assets are assumed to remain in the PARS Moderately Conservative Index PLUS portfolio. The assumed return on trust assets and basis for selection of the discount rates used to value the OPEB liability are discussed in the report.

We have based our valuation on employee data and plan information provided by the Authority, including the most recent bargaining agreements and PEMHCA resolutions on file with CalPERS. Please review Table 3A to ensure that we have summarized the plan's benefit provisions correctly.

We appreciate the opportunity to work on this analysis and acknowledge the efforts of Authority employees who provided valuable information and assistance to enable us to perform this valuation. Please let us know if we can be of further assistance.

Sincerely,

Catherine L. MacLeod, FSA, FCA, EA, MAAA
Director, Postemployment Benefit Actuarial Services

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A. Executive Summary

This report presents the results of the July 1, 2017 actuarial valuation of the Central Contra Costa Transit Authority (the Authority) other post-employment benefit (OPEB) programs. The primary purpose of this valuation is to assess the OPEB liabilities of the Authority and develop contribution levels for the funding of these benefits. Some of the results of this valuation may be applied to develop the information to be reported in the Authority's financial statements, but will be provided in separate reports.

This report reflects the valuation of two distinct types of OPEB liability:

- An "explicit subsidy" exists when the employer contributes directly toward retiree healthcare premiums. In this program, benefits include a monthly subsidy toward medical premiums for eligible retirees. Future excise taxes expected to be paid for "high cost" retiree coverage are also explicit costs and are included with explicit liabilities.
- An "implicit subsidy" exists when the premiums charged for retiree coverage are lower than the expected retiree claims for that coverage. The Authority's OPEB program includes implicit subsidy liabilities for retiree medical coverage prior to coverage under Medicare.

Trust assets are currently invested in the PARS Moderately Conservative Index Plus portfolio and, based on information provided by PARS, are assumed to yield 5.1% per year over the long term, net of trust and investment fees. The Actuarially Determined Contributions (ADC) in this report are developed in the same manner as the Annual Required Contribution (ARC) was developed under GASB 45 in prior fiscal years and the Authority indicated that it expects to contribute 100% of the ADC each year. With the Authority's approval, this valuation was prepared using a 5.1% discount rate, the same rate assumed in the prior valuation. Please recognize that use of this rate is an assumption and is not a guarantee of future investment performance.

The Authority confirmed to Bickmore that the results of this July 1, 2017 valuation will be applied in developing the Actuarially Determined Contributions for its fiscal years ending June 30, 2018 and June 30, 2019. The ADC is calculated as the sum of the current year's Normal Cost plus amortization of the current Unfunded Actuarial Accrued Liability over a remaining fixed period, adjusted with interest to fiscal year end.

The Actuarial Accrued Liability and Plan Assets as of July 1, 2017 are shown below:

Subsidy	Explicit	Implicit	Total
Discount Rate	5.1%	5.1%	5.1%
Actuarial Accrued Liability	$ 5,762,200	$ 1,611,638	$ 7,373,838
Actuarial Value of Assets	2,871,780	213,047	3,084,827
Unfunded Actuarial Accrued Liability	2,890,420	1,398,591	4,289,011
Funded Ratio	49.8%	13.2%	41.8%

The liabilities shown in the report reflect assumptions regarding continued future employment, rates of retirement and survival, and elections by future retirees to elect coverage for themselves and their dependents. Please note that this valuation has been prepared on a closed group basis; no provision is generally made for new employees until the valuation date following their employment.

Executive Summary
(Concluded)

The Actuarially Determined Contribution for the fiscal year ending June 30, 2018 is shown below. Detailed results are shown in tables beginning on page 13 and historical information is provided in Appendix 3.

Subsidy	Explicit	Implicit	Total
Actuarial Determined Contribution (ADC) for FYE 2018	$ 398,263	$ 190,082	$ 588,345
Expected employer paid benefits for retirees	228,396	-	228,396
Current year's implicit subsidy credit	-	100,568	100,568
Expected contribution to OPEB trust	169,867	89,514	259,381

Current valuation results are compared to prior valuation results on page 6, followed by a discussion of changes. An actuarial valuation is a projection and to the extent that actual experience is not what we assumed, future results will be different. Future differences may arise for many reasons, including:

- A significant change in the number of covered or eligible plan members;
- A significant increase or decrease in the future medical premium rates;
- A change in the subsidy provided by the Authority toward retiree medical premiums;
- Longer life expectancies of retirees;
- Significant changes in expected retiree healthcare claims by age, relative to healthcare claims for active employees and their dependents; and/or
- Higher or lower returns on plan assets or contribution levels other than were assumed.

Details of our valuation process are provided on the following pages. Information required for financial reporting under GASB 75 will be provided in a separate report once the data needed to develop those results becomes available.

The next actuarial valuation is scheduled to be prepared as of July 1, 2019. If there are any significant changes in the employee data, benefits provided or the funding policy, please contact us to discuss whether an earlier valuation is appropriate.

Important Notices

This report is intended to be used only to present the actuarial information relating to the Authority's other postemployment benefits and to provide the annual contribution information with respect to the Authority's current OPEB funding policy. The results of this report may not be appropriate for other purposes, including financial reporting purposes under GASB 75, where other assumptions, methodology and/or actuarial standards of practice may be required or more suitable. Some issues in this report may involve analysis of applicable law or regulations. The Authority should consult counsel on these matters; Bickmore does not practice law and does not intend anything in this report to constitute legal advice.

B. Sources of OPEB Liabilities

General Types of OPEB

Post-employment benefits other than pensions (OPEB) comprise a part of compensation that employers offer for services received. The most common OPEB are medical, prescription drug, dental, vision, and/or life insurance coverage. Other OPEB may include outside group legal, long-term care, or disability benefits outside of a pension plan. OPEB does not generally include COBRA, vacation, sick leave (unless converted to defined benefit OPEB), or other direct retiree payments.

A direct employer payment toward the cost of OPEB benefits is referred to as an "explicit subsidy". Upcoming excise tax exposure under the Affordable Care Act for retirees covered by high cost plans is another potential source of explicit subsidy liability for the Authority.

In addition, if claims experience of employees and retirees are pooled when determining premiums, the retirees pay a premium based on a pool of members that, on average, are younger and healthier. For certain types of coverage, such as medical insurance, this results in an "implicit subsidy" of retiree premiums by active employee premiums since the retiree premiums are lower than they would have been if retirees were insured separately. Actuarial Standards of Practice generally require an implicit subsidy of retiree premium rates be valued as an OPEB liability.

Expected retiree claims		
Premium charged for retiree coverage		*Covered by higher active premiums*
Retiree portion of premium	Agency portion of premium Explicit subsidy	Implicit subsidy

This chart shows the sources of funds needed to cover expected medical claims for pre-Medicare retirees. The implicit subsidy is not affected by how much or little of the premium is paid by the Authority.

OPEB Obligations of the Authority

The Authority provides continuation of medical coverage to its retiring employees, which creates one or more of the following types of OPEB liabilities:

- **Explicit subsidy liabilities**: The Authority contributes directly toward retiree medical plan premiums (see Table 3A). Liabilities for these benefits have been included in this valuation.
- **Implicit subsidy liabilities**: Employees are covered by the CalPERS medical program, where the same monthly premiums are charged for active employees and for pre- Medicare retirees. In addition to whatever portion of retiree premiums are paid directly by the Authority, we valued the difference between projected retiree claims and the premiums projected to be charged for retiree coverage. To develop this difference with respect to medical (and prescription drug) coverage, we followed the methodology outlined in Table 4 and described further in Addendum 1: Bickmore Age Rating Methodology.

  Different monthly premiums are charged for Medicare-eligible members and CalPERS has confirmed that only the claims experience of these Medicare eligible members is considered in setting these premium rates. We have assumed that this premium structure is adequate to cover the expected claims of these retirees and believe that there is no implicit subsidy of premiums for these members by active employees.

Sources of OPEB Liability
(Concluded)

- **Excise tax liability for retirees in "high cost" plans:** The Patient Protection and Affordable Care Act (ACA) includes a 40% excise tax on high-cost employer-sponsored health coverage. The tax was to be effective in 2018, however, implementation has been delayed by subsequent legislation until 2022. The tax applies to the aggregate cost of an employee's applicable coverage that exceeds a dollar limit. While there are discussions in Congress of eliminating or again delaying this tax, this report assumes that it will take effect as current law provides.

  For those current and future retirees assumed to retain coverage in the Authority's medical program, we determined the excess, if any, of projected annual plan premiums for the retiree and his or her covered dependents over the projected applicable excise tax threshold beginning in 2022. The excise tax burden will ultimately fall on either the Authority, a combination of Authority and retired participants, or be entirely borne by the affected retirees. *This report assumes that 100% of any excise tax liability for high cost retiree coverage will be borne by the Authority.* See the footnote under the exhibit in Section D for an estimate of the projected future excise tax liability for retirees.

C. Valuation Process

The valuation has been based on employee census data and benefits initially submitted to us by the Authority in October 2017 and clarified in various related communications. A summary of the employee data is provided in Table 2 and a summary of the benefits provided under the Plan is provided in Table 3A. While individual employee records have been reviewed to verify that they are reasonable in various respects, the data has not been audited and we have otherwise relied on the Authority as to its accuracy. The valuation described below has been performed in accordance with the actuarial methods and assumptions described in Table 4.

In projecting benefit values and liabilities, we first determine an expected premium or benefit stream over the employee's future retirement. Benefits may include both direct employer payments (explicit subsidies) and/or an implicit subsidy, arising when retiree premiums are expected to be subsidized by active employee premiums. The projected benefit streams reflect assumed trends in the cost of those benefits and assumptions as to the expected date(s) when benefits will end. We then apply assumptions regarding:

- The probability that each individual employee will or will not continue in service with the Authority to receive benefits.
- To the extent assumed to retire from the Authority, the probability of various possible retirement dates for each retiree, based on current age, service and employee type; and
- The likelihood that future retirees will or will not elect retiree coverage (and benefits) for themselves and/or their dependents.

We then calculate a present value of these benefits by discounting the value of each future expected benefit payment, multiplied by the assumed expectation that it will be paid, back to the valuation date using the discount rate. These benefit projections and liabilities have a very long time horizon. Final payments for currently active employees may not be made for 70 years or more.

The resulting *present value of projected benefits* for each employee is allocated as a level percent of payroll each year over the employee's career using the entry age normal cost method and the amounts for each individual are then summed to get the results for the entire plan. This creates a cost expected to increase each year as payroll increases. Amounts attributed to prior fiscal years form the *actuarial accrued liability* (AAL). The amount of future OPEB cost allocated for active employees in the current year is referred to as the *normal cost*. The remaining active cost to be assigned to future years is called the *present value of future normal costs*.

In summary:

Actuarial Accrued Liability	Past Years' Cost Allocations	Actives and Retirees
plus Normal Cost	Current Year's Cost Allocation	Actives only
plus Present Value of Future Normal Costs	Future Years' Cost Allocations	Actives only
equals Present Value of Projected Benefits	Total Benefit Costs	Actives and Retirees

Where contributions have been made to an irrevocable OPEB trust, the accumulated value of trust assets is applied to offset the AAL. In this valuation, we set the Actuarial Value of Assets equal to the market value of assets invested in in the Authority's OPEB trust account with PARS on the valuation date. The June 30, 2017 market value of assets in this report was $3,084,827. The portion of the AAL not covered by assets is referred to as the *unfunded actuarial accrued liability* (UAAL).

D. Basic Valuation Results

The following chart compares the results of the July 1, 2017 valuation of OPEB liabilities to the results of the July 1, 2015 valuation.

Funding Policy	Prefunding Basis					
Valuation date	7/1/2015			7/1/2017		
Subsidy	Explicit	Implicit	Total	Explicit	Implicit	Total
Discount rate	5.10%	5.10%	5.10%	5.10%	5.10%	5.10%
Number of Covered Employees						
Actives	227	212	227	224	205	224
Retirees	48	12	48	48	5	48
Total Participants	275	224	275	272	210	272
Actuarial Present Value of Projected Benefits						
Actives	$ 5,966,253	$ 2,738,279	$ 8,704,532	$ 5,050,648	$ 2,334,490	$ 7,385,138
Retirees	2,248,616	243,103	2,491,719	2,350,717	114,924	2,465,641
Total APVPB	8,214,869	2,981,382	11,196,251	7,401,365	2,449,414	9,850,779
Actuarial Accrued Liability (AAL)						
Actives	4,433,611	1,860,317	6,293,928	3,411,483	1,496,714	4,908,197
Retirees	2,248,616	243,103	2,491,719	2,350,717	114,924	2,465,641
Total AAL	6,682,227	2,103,420	8,785,647	5,762,200	1,611,638	7,373,838
Actuarial Value of Assets	2,032,180	-	2,032,180	2,871,780	213,047	3,084,827
Unfunded AAL (UAAL)	4,650,047	2,103,420	6,753,467	2,890,420	1,398,591	4,289,011
Normal Cost	225,961	113,845	339,806	217,865	102,920	320,785
Percent funded	30.4%	0.0%	23.1%	49.8%	13.2%	41.8%
Reported covered payroll	13,209,132	13,209,132	13,209,132	12,688,438	12,688,438	12,688,438
UAAL as percent of payroll	35.2%	15.9%	51.1%	22.8%	11.0%	33.8%

Note: The Explicit Subsidy AAL as of July 1, 2017 includes about $76,000 in projected excise tax liability for retirees expected to be covered by "high cost" plans under the Affordable Care Act.

Basic Valuation Results
(Concluded)

Changes Since the Prior Valuation

Even if all of the assumptions from the prior valuation were met exactly as projected, liabilities generally increase over time as active employees get closer to the date their benefits are expected to begin. Given the uncertainties involved and the long term nature of these projections, the prior assumptions are not likely ever to be exactly realized.

In comparing results shown in the exhibit on the preceding page, we can see that the Unfunded Actuarial Accrued Liability (UAAL) decreased by roughly $2.5 million between July 1, 2015 and July 1, 2017, from $6.8 to $4.3 million. Some of this difference was expected based on the assumptions made in the prior valuation. Some of the difference was not anticipated, such as premium changes or employee decisions affecting coverage that were different than previously assumed (referred to as "plan experience"). The balance of the difference is due to changes in actuarial methodology or assumptions**.**

The chart below summarizes the primary sources of the difference between the actual and the expected UAAL. Additional details about these changes are found at the end of table 4 on page 27.

Source of Change	Increase (decrease) in UAAL
Update in assumed future healthcare trend	$ 0.1
Update to scale used to project future mortality improvement	(0.2)
Changes in assumed future retiree participation rates	(0.4)
Changes in assumed spouse coverage for future retirees	(0.5)
Expected change in the UAAL due to the passage of time	(0.1)
Favorable plan experience, relative to prior assumptions*	(1.4)
Change in UAAL from July 2015 to July 2017	**$ (2.5)**

** The favorable plan experience relates primarily to (a) fewer new retirees electing coverage for themselves and/or their spouse than previously projected; and (b) lower 2018 medical premiums than projected in the 2015 valuation.*

E. Funding Policy

Actuarially Determined Contributions and Authority Funding Policy

The Actuarially Determined Contribution (ADC) consists of two basic components, which have been adjusted with interest to the Authority's fiscal year end:

- The amounts attributed to service performed in the current fiscal year (the normal cost) and
- Amortization of the unfunded actuarial accrued liability (UAAL).

The ADC developed in this report includes amortization of the unfunded AAL over a closed 30-year period initially effective for fiscal year ending July 1, 2009. The remaining period applicable in determining the ADC for the fiscal year ending June 30, 2018 is 22 years. Amortization payments are determined on a level percent of pay basis.[1]

The Authority's Funding Policy is to contribute 100% or more of the ADC each year. The amounts calculated for the fiscal years ending June 30, 2018 and June 30, 2019 are shown in Tables 1A and 1B.

Funding of the UAAL

Once an entity decides to prefund, a decision must be made about how to pay for benefits related to service to date that have not yet been funded (the UAAL). This is most often, though not always, handled through structured amortization payments. The period and method chosen for amortizing this unfunded liability can significantly affect the Actuarially Determined Contribution.

Much like paying off a mortgage, choosing a longer amortization period to pay off the UAAL means initial payments will be smaller, but the payments will be required for a longer period. In general, the longer the amortization period, the less time investments will work toward helping reduce required contribution levels.

There are several ways the amortization payment can be determined. The most common methods are calculating the amortization payment as a level dollar amount or as a level percentage of payroll.

Funding of the Implicit Subsidy

The implicit subsidy liability created when expected retiree medical claims exceed the retiree premiums was described earlier in Section B. In practical terms, when the Authority pays the premiums for active employees each year, their premiums include an amount expected to be transferred to cover the portion of the retirees' claims not covered by their premiums. This transfer represents the current year's implicit subsidy and is illustrated in the example below.

Hypothetical Illustration Of Implicit Subsidy Recognition	For Active Employees	For Retired Employees	Total
Annual Agency Contribution Toward Premiums	$ 1,623,000	$ 228,000	$ 1,851,000
Current Year's Implicit Subsidy Adjustment	$ (101,000)	$ 101,000	$ -
Adjusted contributions reported in Financial Stmts	$ 1,522,000	$ 329,000	$ 1,851,000

Please see the Expected Employer Contributions Section in Tables 1A and 1B for the estimated implicit subsidy amounts which should be applied to offset against the ADC for the years shown

[1] Where the UAAL is amortized on a level percent of pay basis, if all assumptions are met, the UAAL may increase, rather than decrease, in the earlier years of the amortization period.

F. Choice of Actuarial Funding Method and Assumptions

The ultimate real cost of an employee benefit plan is the value of all benefits and other expenses of the plan over its lifetime. These expenditures are dependent only on the terms of the plan and the administrative arrangements adopted, and as such are not affected by the actuarial funding method. The actuarial funding method attempts to spread recognition of these expected costs on a level basis over the life of the plan, and as such sets the "incidence of cost". Methods that produce higher initial annual (prefunding) costs will produce lower annual costs later. Conversely, methods that produce lower initial costs will produce higher annual costs later relative to the other methods.

Factors Impacting the Selection of a Cost Allocation Method

While the goal is to match recognition of retiree medical expense with the periods during which the benefit is earned, cost allocation methods differ because they focus on different financial measures in attempting to level the incidence of cost. Appropriate selection of a cost allocation method for funding purposes contributes to creating intergenerational equity between generations of taxpayers.

We believe it is most appropriate for the plan sponsor to adopt a theory of funding and consistently apply the best cost allocation method representing that theory. This valuation was prepared using the entry age normal cost method with normal cost determined on a level percent of pay basis. The entry age normal cost method was one of the most commonly used of the cost allocation methods permitted by GASB 45. It is the only cost allocation method permitted for financial reporting purposes under GASB 75.

Factors Affecting the Selection of Assumptions

Special considerations apply to the selection of actuarial funding methods and assumptions for the Authority. The demographic actuarial assumptions used in this report were chosen, for the most part, to be the same as the actuarial assumptions used for the most recent actuarial valuations of the retirement plans covering Authority employees. Other assumptions, such as healthcare trend, age related healthcare claims, retiree participation rates and spouse/dependent coverage, were selected based on demonstrated plan experience and/or our best estimate of expected future experience. We will continue to gather information and monitor these assumptions for future valuations, as more experience develops.

In selecting an appropriate discount rate for funding purposes it is most common to use the expected long-term yield on investments expected to be deployed to pay the benefits. Other strategies could include using a long term debt rate to calculate contribution levels even if the Authority hopes their long term investment strategy will yield higher returns. In this way, required contributions may be reduced if those higher returns are actually realized, but only *as* they are actually realized. If returns are less than expected, then the difference between the debt rate and what is actually earned acts as a safety margin so that larger contributions than planned are less likely to occur. The Authority has chosen to fund based on the expected long term return of trust assets. If returns prove to be lower than this expected market return, future contribution levels will likely increase.

G. Certification

This report presents the results of our actuarial valuation of the other post-employment benefits provided by the Central Contra Costa Transit Authority. The purpose of this valuation was to determine the plan's funded status as of the valuation date and to develop actuarially determined contribution levels to be used by the Authority toward funding plan benefits.

We certify that, to the best of our knowledge, the report is complete and accurate, based upon the data and plan provisions provided to us by the Authority. We believe the assumptions and method used are reasonable and appropriate for purposes of this report. The results may not be appropriate for other purposes.

Each of the undersigned individuals is a Fellow in the Society of Actuaries and Member of the American Academy of Actuaries who satisfies the Academy Qualification Standards for rendering this opinion.

Signed: March 23, 2018

Catherine L. MacLeod, FSA, FCA, EA, MAAA

J. Kevin Watts, FSA, FCA, MAAA

Table 1

Actuarially Determined Contributions for fiscal years 2018 and 2019: The basic results of our July 1, 2017 valuation of OPEB liabilities for the Authority were summarized in Section D. Those results are applied to develop the actuarially determined contribution (ADC) for the fiscal years ending June 30, 2018 and June 30, 2019.

As noted earlier in this report, the development of the ADC reflects the assumption that the Authority will contribute at least 100% of this amount each year, with contributions comprising:

- Direct payments to insurers toward retiree premiums,
- Each current year's implicit subsidy, and
- Contributions to the OPEB trust.

GASB 75 Calculations: The information needed for reporting in the Authority's financial statements will be provided in a separate report each fiscal year.

Employees reflected in future years' costs: The counts of active employees and retirees shown in this report reflect the status of plan members reported to us for the valuation. While we do not adjust these counts for future years shown in this report, the liabilities and costs developed for those years do anticipate the likelihood that some active employees may leave employment forfeiting benefits, some may retire and elect benefits and coverage for some of the retired employees may cease. We will reflect employment status changes in the next valuation. In addition, because this valuation has been prepared on a closed group basis, no potential future employees are included. We will incorporate any new employees in the next valuation, in the same way we included new employees hired after July 2015 in this July 2017 valuation.

Note that the number of active and retired employees expected to create an implicit subsidy OPEB liability are lower than the number of those which create an explicit subsidy liability. CalPERS medical premiums for retirees over age 65 and covered by Supplemental Medicare plans are not subsidized by active employee medical premiums, so do not create an implicit subsidy liability.

Table 1A
Actuarially Determined Contribution for Fiscal Year End 2018

This table develops the valuation results applicable to the Authority's fiscal year ending June 30, 2018, based on the July 1, 2017 valuation results and on the funding policy described earlier in this report.

Funding Policy	**Prefunding Basis**		
Valuation date	**7/1/2017**		
Subsidy	Explicit	Implicit	Total
For fiscal year ending	6/30/2018	6/30/2018	6/30/2018
Expected long-term return on assets	5.10%	5.10%	5.10%
Discount rate	5.10%	5.10%	5.10%
Number of Covered Employees			
Actives	224	205	224
Retirees	48	5	48
Total Participants	272	210	272
Actuarial Present Value of Projected Benefits			
Actives	$ 5,050,648	$ 2,334,490	$ 7,385,138
Retirees	2,350,717	114,924	2,465,641
Total APVPB	7,401,365	2,449,414	9,850,779
Actuarial Accrued Liability (AAL)			
Actives	3,411,483	1,496,714	4,908,197
Retirees	2,350,717	114,924	2,465,641
Total AAL	5,762,200	1,611,638	7,373,838
Actuarial Value of Assets	2,871,780	213,047	3,084,827
Unfunded AAL (UAAL)	2,890,420	1,398,591	4,289,011
UAAL Amortization method	Level % of Pay	Level % of Pay	Level % of Pay
Remaining amortization period (years)	22	22	22
Amortization Factor	17.9448	17.9448	17.9448
Actuarially Determined Contribution (ADC)			
Normal Cost	217,865	102,920	320,785
Amortization of UAAL	161,072	77,938	239,010
Interest to fiscal year end	19,326	9,224	28,550
Total ADC	398,263	190,082	588,345
Projected covered payroll	$ 12,688,438	$ 12,688,438	$ 12,688,438
Normal Cost as a percent of payroll	1.7%	0.8%	2.5%
ADC as a percent of payroll	3.1%	1.5%	4.6%
Expected Employer OPEB Contributions			
Estimated payments on behalf of retirees	228,396	-	228,396
Estimated current year's implicit subsidy	-	100,568	100,568
Estimated contribution to OPEB trust	169,867	89,514	259,381
Total Expected Employer Contribution	398,263	190,082	588,345

Table 1B
Actuarially Determined Contribution for Fiscal Year End 2019

This table develops the valuation results applicable to the Authority's fiscal year ending June 30, 2019, based on the July 1, 2017 valuation results and on the funding policy described earlier in this report.

Funding Policy	**Prefunding Basis**		
Valuation date	**7/1/2017**		
Subsidy	Explicit	Implicit	Total
For fiscal year ending	6/30/2019	6/30/2019	6/30/2019
Expected long-term return on assets	5.10%	5.10%	5.10%
Discount rate	5.10%	5.10%	5.10%
Number of Covered Employees			
Actives	224	205	224
Retirees	48	5	48
Total Participants	272	210	272
Actuarial Present Value of Projected Benefits			
Actives	$ 5,274,013	$ 2,410,354	$ 7,684,367
Retirees	2,276,426	63,412	2,339,838
Total APVPB	7,550,439	2,473,766	10,024,205
Actuarial Accrued Liability (AAL)			
Actives	3,780,227	1,638,020	5,418,247
Retirees	2,276,426	63,412	2,339,838
Total AAL	6,056,653	1,701,432	7,758,085
Actuarial Value of Assets	3,188,108	313,427	3,501,535
Unfunded AAL (UAAL)	2,868,545	1,388,005	4,256,550
UAAL Amortization method	Level % of Pay	Level % of Pay	Level % of Pay
Remaining amortization period (years)	21	21	21
Amortization Factor	17.2903	17.2903	17.2903
Actuarially Determined Contribution (ADC)			
Normal Cost	224,946	106,265	331,211
Amortization of UAAL	165,905	80,276	246,181
Interest to fiscal year end	19,933	9,514	29,447
Total ADC	410,784	196,055	606,839
Projected covered payroll	$ 13,100,812	$ 13,100,812	$ 13,100,812
Normal Cost as a percent of payroll	1.7%	0.8%	2.5%
ADC as a percent of payroll	3.1%	1.5%	4.6%
Expected Employer OPEB Contributions			
Estimated payments on behalf of retirees	259,550	-	259,550
Estimated current year's implicit subsidy	-	120,520	120,520
Estimated contribution to OPEB trust	151,234	75,535	226,769
Total Expected Employer Contribution	410,784	196,055	606,839

Table 2
Summary of Employee Data

The Authority reported 224 active employees in the data provided to us for the July 2017 valuation. Of these, 177 are currently enrolled in the medical program and 47 are waiving coverage at this time.

Distribution of Benefits-Eligible Active Employees								
	Years of Service							
Current Age	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 & Up	**Total**	**Percent**
Under 25	1						1	0%
25 to 29	2	4					6	3%
30 to 34	1	7	1	2			11	5%
35 to 39	1	8	1	6	1		17	8%
40 to 44	4	11	3	8	5	3	34	15%
45 to 49	1	3	3	7	5	2	21	9%
50 to 54	1	8	1	4	8	10	32	14%
55 to 59	4	7	4	6	8	16	45	20%
60 to 64		10	1	2	7	18	38	17%
65 to 69				3	2	12	17	8%
70 & Up					1	1	2	1%
Total	15	58	14	38	37	62	**224**	**100%**
Percent	7%	26%	6%	17%	17%	28%	**100%**	

Valuation	July 2015	July 2017
Annual Covered Payroll	$13,209,132	$12,688,438
Average Attained Age for Actives	51.6	51.5
Average Years of Service	12.9	13.3

There are also 49 retirees and 3 survivors currently receiving benefits under this program. Their ages are summarized in the chart shown to the right.

Retirees by Age		
Current Age	**Number**	**Percent**
Below 50	0	0%
50 to 54	0	0%
55 to 59	0	0%
60 to 64	5	10%
65 to 69	16	31%
70 to 74	19	37%
75 to 79	5	10%
80 & up	7	13%
Total	**52**	**100%**
Average Age:		
On 7/1/2017	71.8	
At retirement	63.7	

The chart below summarizes the number of active and retired employees by group:

Participants by Group				
		Retired		
Group	Active	Under 65	Over 65	Total
Administrative	47	4	19	70
ATU	165	1	27	193
Teamsters	12	-	1	13
Total	224	5	47	276

Table 2- Summary of Employee Data

(Continued)

The chart below reconciles the number of actives and retirees included in the July 1, 2015 valuation of the Authority plan with those included in the July 1, 2017 valuation:

Reconciliation of Authority Plan Members Between Valuation Dates					
Status	Covered Actives	Waiving Actives	Covered Retirees	Covered Surviving Spouses	Total
Number reported as of July 1, 2015	171	56	45	3	275
New employees	24	13	-	-	37
Separated employees	(7)	(9)	-	-	(16)
New retiree, elected coverage	(8)	(1)	9	-	-
New retiree, waiving coverage	(11)	(3)	-	-	(14)
Previously covered, now waiving	(6)	6	(3)	-	(3)
Previously waiving, now covered	15	(15)	1	-	1
Deceased	(1)	-	(3)	-	(4)
Number reported as of July 1, 2017	**177**	**47**	**49**	**3**	**276**

Overall, the total population was quite stable over the two year period between valuations. The number of active plan members, both covered and waiving, decreased by 3, from 227 to 224, representing a 1% decrease in active employees included in the valuation. The number of covered retirees and spouses increased by 4 (about 8%), from 48 to 52 covered members.

Of the 23 new retirements reported as occurring between July 1, 2015 and July 1, 2017, 9 elected to continue medical coverage through the Authority, while 14 declined to do so. We reviewed the percentages of retirees at various age and group affiliation and, as expected, there were some differences in the percentages of ATU and non-ATU retirees electing coverage. There were also differences in the percentages of new retirees electing coverage over and under 65.

Recent Retiree Election by Group				
	Pre-65		**Post-65**	
Group	Elected	Waived	Elected	Waived
Administrative	2	-	3	2
ATU	-	8	4	3
Teamsters	-	1	-	-
Total	**2**	**9**	**7**	**5**

Plan elections: The monthly benefit paid by the Authority varies by bargaining group, medical plan selected and level of coverage selected (i.e., single, two party or family coverage). The three charts on the following two summarize the plans (and associated caps) chosen by employees in the Administrative, ATU, and Teamsters groups.

Table 2- Summary of Employee Data
(Continued)

Administrative Employees						
Frozen Active & Retiree Caps						
	Single Party Coverage		Two Party Coverage		Family Coverage	
Plan	Caps	Number of Participants	Caps	Number of Participants	Caps	Number of Participants
Anthem Select Bay	$ 270.71	1	$ 541.42	-	$ 703.85	-
Anthem Traditional Bay	494.86	6	989.71	1	1,286.63	7
Blue Shield Access Bay	329.08	-	658.10	-	855.60	-
Kaiser Bay	303.56	18	607.12	7	789.26	4
Kaiser OOS	303.56	2	607.12	-	789.26	-
Kaiser Sac	303.56	-	607.12	-	789.26	-
Kaiser SoCal	303.56	-	607.12	-	789.26	-
PERS Choice Bay	289.98	1	579.96	-	753.95	-
PERS Choice NoCal	289.98	-	579.96	-	753.95	-
PERS Choice OOS	289.98	2	579.96	-	753.95	-
PERSCare Bay	494.86	-	989.71	-	1,286.63	1
PERSCare OOS	494.86	1	979.71	-	1,286.63	-
UHC Bay	303.56	6	607.12	-	789.26	-
Waived	-	13	-	-	-	-
Total		50		8		12

Amalgamated Transit Union (ATU)						
Frozen Active Caps (Retirees receive 85% of caps below in 2018)						
	Single Party Coverage		Two Party Coverage		Family Coverage	
Plan	Caps	Number of Participants	Caps	Number of Participants	Caps	Number of Participants
Anthem Select Bay	$ 233.59	1	$ 467.18	-	$ 607.34	-
Anthem Traditional Bay	374.92	4	749.83	2	974.78	5
Blue Shield Access Bay	266.47	4	532.93	2	692.81	-
Kaiser Bay	235.34	60	470.67	37	611.87	32
Kaiser OOS	235.34	-	470.67	-	611.87	-
Kaiser Sac	235.34	-	470.67	1	611.87	1
Kaiser SoCal	235.34	1	470.67	-	611.87	-
PERS Choice Bay	241.24	-	482.48	2	627.23	-
PERS Choice NoCal	241.24	1	482.48	-	627.23	-
PERS Choice OOS	241.24	1	482.48	-	627.23	-
PERSCare Bay	374.92	-	749.83	1	974.78	1
PERSCare OOS	374.92	-	749.83	-	974.78	-
UHC Bay	235.34	1	470.67	2	611.87	-
Waived	-	34	-	-	-	-
Total		107		47		39

Table 2- Summary of Employee Data

(Concluded)

Teamsters, Local 856						
Frozen Active and Retiree Caps						
	Single Party Coverage		Two Party Coverage		Family Coverage	
Plan	Caps	Number of Participants	Caps	Number of Participants	Caps	Number of Participants
Anthem Select Bay	$ 226.58	-	$ 453.16	-	$ 589.11	-
Anthem Traditional Bay	374.92	2	749.83	-	974.78	1
Blue Shield Access Bay	280.29	1	560.57	1	728.74	-
Kaiser Bay	254.15	2	508.30	3	660.79	2
Kaiser OOS	254.15	-	508.30	-	660.79	-
Kaiser Sac	254.15	-	508.30	-	660.79	-
Kaiser SoCal	254.15	-	508.30	-	660.79	-
PERS Choice Bay	241.24	-	482.48	1	627.23	-
PERS Choice NoCal	241.24	-	482.48	-	627.23	-
PERS Choice OOS	241.24	-	482.48	-	627.23	-
PERSCare Bay	374.92	-	749.83	-	974.78	-
PERSCare OOS	374.92	-	749.83	-	974.78	-
UHC Bay	254.15	-	508.30	-	660.79	-
Waived	-	-	-	-	-	-
Total		5		5		3

Table 3A
Summary of Retiree Benefit Provisions

OPEB provided: The Authority has indicated that the only OPEB provided is medical coverage.

Access to coverage: Medical coverage is currently provided through CalPERS as permitted under the Public Employees' Medical and Hospital Care Act (PEMHCA). This coverage requires the employee to satisfy the requirements for retirement under CalPERS: either (a) attainment of age 50 (age 52, if a miscellaneous employee new to PERS on or after January 1, 2013) with 5 years of State or public agency service or (b) an approved disability retirement.

The employee must begin his or her retirement benefit within 120 days of terminating employment with the Authority to be eligible to continue medical coverage through the Authority and be entitled to the benefits described below. If an eligible employee is not already enrolled in the medical plan, he or she may enroll within 60 days of retirement, during any future open enrollment period or with a qualifying life event. *In other words, it is the timing of initiating retirement benefits and not timing of enrollment in the medical program which determines whether or not the retiree qualifies for lifetime medical coverage and any benefits defined in the PEMHCA resolution*. Once eligible, coverage may be continued at the retiree's option for his or her lifetime. A surviving spouse and other eligible dependents may also continue coverage

Benefits provided: As a condition of participation in the CalPERS medical program, the Authority is obligated to contribute toward the cost of retiree medical coverage for the retiree's lifetime or until coverage is discontinued. The Authority executed three resolutions, at differing dates, for the Administrative, Amalgamated Transit Union (ATU) and Teamster employee groups, respectively. Each of these resolutions was executed on an "unequal" contribution basis for retirees relative to the level of the Authority's contribution toward the cost of medical plan premiums.

- Under the unequal resolution, the employer's contribution toward *retiree* medical benefits is determined as follows: (1) 5% *multiplied by* (2) the number of prior years the agency group has been contracted with PEMHCA *multiplied by* (3) the contribution the employer makes toward active employee health benefits for that group.
- Note, however, that the monthly benefit may not be less than the required PEMHCA minimum employer contribution (MEC). The MEC was $128 per month in 2017 and increased to $133 per month in 2018. If the current benefits are not increased in the future, eventually the MEC will overtake the fixed subsidies and become the operative benefit. In Appendix 2, we have provided a projection of the years in which this is expected to occur.

The Administrative and Teamster groups have each participated in the CalPERS medical program under the unequal contribution resolutions for more than 20 years. Accordingly, contribution levels for these retirees are now equal to the applicable active subsidy amounts stated in the PEMHCA resolutions. The first two charts at the top of the following page describe the subsidies provided to Administrative and Teamster actives and retirees, varying by group and CalPERS medical plan.

Continued on the following page

Table 3A – Summary of Retiree Benefit Provisions
(Continued)

Administrative Group			
Active and Retiree Monthly Subsidies by Plan			
Plan	Self	Self + 1	Self + Family
Anthem HMO Traditional	$ 494.86	$ 989.71	$ 1,286.63
Anthem HMO Select	270.71	541.42	703.85
Blue Shield Access	329.08	658.10	855.60
Blue Shield Access Advantage	329.08	658.10	855.60
Kaiser	303.56	607.12	789.26
PERS Care	494.86	989.71	1,286.63
PERS Choice	289.98	579.96	753.95
PERS Select	270.71	541.42	703.85
United Healthcare	303.56	607.12	789.26
Western Health Advantage HMO	303.56	607.12	789.26
Teamsters			
Active and Retiree Monthly Subsidies by Plan			
Plan	Self	Self + 1	Self + Family
Anthem HMO Traditional	$ 374.92	$ 749.83	$ 974.78
Anthem HMO Select	226.58	453.16	589.11
Blue Shield Access	280.29	560.57	728.74
Blue Shield Access Advantage	280.29	560.57	728.74
Kaiser	254.15	508.30	660.79
PERS Care	374.92	749.83	974.78
PERS Choice	241.24	482.48	627.23
PERS Select	226.58	453.16	589.11
United Healthcare	254.15	508.30	660.79
Western Health Advantage HMO	254.15	508.30	660.79

ATU's unequal resolution was executed in 2002; therefore, ATU has completed year 16 of the 20 year unequal phase-in period as of the valuation date. Thus, in 2017 the Authority contributed 80% of the active ATU subsidies to ATU retirees, which increased to 85% in 2018. The active subsidies for ATU employees, varying by plan are shown below:

Amalgamated Transit Union (ATU)			
Active Monthly Subsidies by Plan			
Plan	Self	Self + 1	Self + Family
Anthem HMO Traditional	$ 374.92	$ 749.83	$ 974.78
Anthem HMO Select	233.59	467.18	607.34
Blue Shield Access	266.47	532.93	692.81
Blue Shield Access Advantage	266.47	532.93	692.81
Kaiser	235.34	470.67	611.87
PERS Care	374.92	749.83	974.78
PERS Choice	241.24	482.48	627.23
PERS Select	233.59	467.18	607.34
United Healthcare	235.34	470.67	611.87
Western Health Advantage HMO	235.34	470.67	611.87

Table 3A – Summary of Retiree Benefit Provisions
(Concluded)

Current premium rates: The 2018 CalPERS monthly medical plan rates in the Bay Area rate group are shown in the table below. If different rates apply where the member resides outside of this area, those rates are reflected in the valuation, but not listed here. The CalPERS administration fee is assumed to be expensed each year and has not been projected as an OPEB liability in this valuation.

Bay Area 2018 Health Plan Rates						
	Actives and Pre-Med Retirees			Medicare Eligible Retirees		
Plan	Ee Only	Ee & 1	Ee & 2+	Ee Only	Ee & 1	Ee & 2+
Anthem Select HMO	$ 856.41	$ 1,712.82	$ 2,226.67	*Not Available*		
Anthem Traditional HMO	925.47	1,850.94	2,406.22	370.34	740.68	1,295.96
Blue Shield Access+ HMO	889.02	1,778.04	2,311.45	*Not Available*		
Kaiser HMO	779.86	1,559.72	2,027.64	316.34	632.68	1,100.60
PERS Choice PPO	800.27	1,600.54	2,080.70	345.97	691.94	1,172.10
PERSCare PPO	882.45	1,764.90	2,294.37	382.30	764.60	1,294.07
UnitedHealthcare HMO	1,371.84	2,743.68	3,566.78	330.76	661.52	1,484.62

** The premiums shown for Ee & 2+ for Medicare retirees assume both adults are covered by Medicare (e.g., the retiree and spouse) and other dependents are covered by Basic plans (e.g., non-disabled children under age 26).*

Table 3B
General CalPERS Annuitant Eligibility Provisions

The content of this section has been drawn from Section C, Summary of Plan Provisions, of the State of California OPEB Valuation as of June 30, 2016, issued January 2017, to the State Controller from Gabriel Roeder & Smith. It is provided here as a brief summary of general annuitant and survivor coverage.

<u>Health Care Coverage</u>

Retired Employees

A member is eligible to enroll in a CalPERS health plan if he or she retires within 120 days of separation from employment and receives a monthly retirement allowance. If the member meets this requirement, he or she may continue his or her enrollment at retirement, enroll within 60 days of retirement, or enroll during any Open Enrollment period. If a member is currently enrolled in a CalPERS health plan and wants to continue enrollment into retirement, the employee will notify CalPERS and the member's coverage will continue into retirement.

Eligibility Exceptions*:* Certain family members are not eligible for CalPERS health benefits:

- Children age 26 or older
- Children's spouses
- Former spouses
- Disabled children over age 26 who were never enrolled or were deleted from coverage
- Grandparents
- Parents
- Children of former spouses
- Other relatives

Coordination with Medicare

CalPERS retired members who qualify for premium-free Part A, either on their own or through a spouse (current, former, or deceased), must sign up for Part B as soon as they qualify for Part A. A member must then enroll in a CalPERS sponsored Medicare plan. The CalPERS-sponsored Medicare plan will pay for costs not paid by Medicare, by coordinating benefits.

Survivors of an Annuitant

If a CalPERS annuitant satisfied the requirement to retire within 120 days of separation, the survivor may be eligible to enroll within 60 days of the annuitant's death or during any future Open Enrollment period. Note: A survivor cannot add any new dependents; only dependents that were enrolled or eligible to enroll at the time of the member's death qualify for benefits.

Surviving registered domestic partners who are receiving a monthly annuity as a surviving beneficiary of a deceased employee or annuitant on or after January 1, 2002, are eligible to continue coverage if currently enrolled, enroll within 60 days of the domestic partner's death, or enroll during any future Open Enrollment period.

Surviving enrolled family members who do not qualify to continue their current coverage are eligible for continuation coverage under COBRA.

Table 4
Actuarial Methods and Assumptions

Valuation Date	July 1, 2017
Funding Method	Entry Age Normal Cost, level percent of pay[2]
Asset Valuation Method	Market value of assets
Long Term Return on Assets	5.1%
Discount Rate	5.1%
Participants Valued	Only current active employees and retired participants and covered dependents are valued. No future entrants are considered in this valuation.
Salary Increase	3.25% per year, used only to allocate the cost of benefits between service years
Assumed Wage Inflation	3.0% per year; used to determine amortization payments if developed on a level percent of pay basis
General Inflation Rate	2.75% per year

Demographic actuarial assumptions used in this valuation are those used in the recent June 30, 2016 valuation of the retirement plans covering Authority employees, and are based on the 2014 experience study of the California Public Employees Retirement System using data from 1997 to 2011, except for a different basis used to project future mortality improvements. Rates for selected age and service are shown below and on the following pages. The representative mortality rates were those published by CalPERS in their 2014 study, adjusted to back out 20 years of Scale BB to central year 2008.

Mortality Improvement: Bickmore Scale 2017 applied generationally.

Mortality Before Retirement
(before improvement applied)

CalPERS Public Agency Miscellaneous Non-Industrial		
Age	Male	Female
20	0.00033	0.00021
30	0.00052	0.00027
40	0.00080	0.00053
50	0.00165	0.00106
60	0.00354	0.00223
70	0.00709	0.00467
80	0.01339	0.01036

[2] The level percent of pay aspect of the funding method refers to how the normal cost is determined. Use of level percent of pay cost allocations in the funding method is separate from and has no effect on a decision regarding use of a level percent of pay or level dollar basis for determining amortization payments.

Table 4 - Actuarial Methods and Assumptions
(Continued)

Mortality After Retirement
(before improvement applied)

CalPERS Public Agency Healthy Miscellaneous, Police & Fire		
Age	Male	Female
40	0.00117	0.00097
50	0.00532	0.00495
60	0.00817	0.00533
70	0.01766	0.01264
80	0.05275	0.03695
90	0.16186	0.12335
100	0.34551	0.31876
110	1.00000	1.00000

CalPERS Public Agency Disabled Miscellaneous		
Age	Male	Female
20	0.00641	0.00395
30	0.00736	0.00455
40	0.01008	0.00642
50	0.01784	0.01230
60	0.02634	0.01510
70	0.03890	0.02815
80	0.08230	0.06015
90	0.18469	0.16082

Service Retirement Rates

The following CalPERS miscellaneous retirement formulas apply:

Classic Members: 2% @ 60
PEPRA Members: 2% @ 62

Sample rates of assumed future retirements for each of these retirement benefit formulas are shown in the tables below. Rates shown reflect the probability that an employee at that age and service will retire in the next 12 months.

Miscellaneous Employees: 2% at 60 formula From CalPERS Experience Study Report Issued January 2014						
Current	Years of Service					
Age	5	10	15	20	25	30
50	0.0100	0.0130	0.0150	0.0180	0.0190	0.0210
55	0.0220	0.0290	0.0350	0.0400	0.0450	0.0490
60	0.0560	0.0770	0.0920	0.1050	0.1170	0.1300
65	0.1500	0.2090	0.2550	0.2870	0.3210	0.3580
70	0.1170	0.1620	0.1970	0.2220	0.2480	0.2770
75 & over	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Miscellaneous "PEPRA" Employees: 2% at 62 formula From CalPERS Experience Study Report Issued January 2014						
Current	Years of Service					
Age	5	10	15	20	25	30
52	0.0103	0.0132	0.0160	0.0188	0.0216	0.0244
55	0.0440	0.0560	0.0680	0.0800	0.0920	0.1040
60	0.0616	0.0784	0.0952	0.1120	0.1288	0.1456
65	0.1287	0.1638	0.1989	0.2340	0.2691	0.3042
70	0.1254	0.1596	0.1938	0.2280	0.2622	0.2964
75 & over	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Table 4 - Actuarial Methods and Assumptions
(Continued)

Disability Retirement Rates

CalPERS Public Agency Miscellaneous Disability From Jan 2014 Experience Study Report		
Age	Male	Female
20	0.00017	0.00010
25	0.00017	0.00010
30	0.00019	0.00024
35	0.00049	0.00081
40	0.00122	0.00155
45	0.00191	0.00218
50	0.00213	0.00229
55	0.00221	0.00179
60	0.00222	0.00135

Healthcare Trend

Medical plan premiums and claims costs by age are assumed to increase once each year. The increases over the prior year's levels are assumed to be effective on the dates shown below:

Effective January 1	Premium Increase	Effective January 1	Premium Increase
2018	Actual	2022	6.00%
2019	7.50%	2023	5.50%
2020	7.00%	2024	5.00%
2021	6.50%	& later	5.00%

The required PEMHCA minimum employer contribution (MEC) is assumed to increase by 4.5% annually.

Employer Cost Sharing

We have assumed no increase in the fixed dollar amounts contributed by the Authority for active employees.

Spouse Coverage

Active employees: 85% are assumed to be married at retirement and 60% of married employees are assumed to elect coverage for their spouse in retirement. Surviving spouses are assumed to retain coverage until their death. Husbands are assumed to be 3 years older than their wives.

Retired participants: Existing elections for spouse coverage are assumed to be continued until the spouse's death. Actual spouse ages are used, where known; if not, husbands are assumed to be 3 years older than their wives. Spouse gender is assumed to be the opposite of the employee.

Table 4 - Actuarial Methods and Assumptions
(Continued)

Dependent Coverage

Active employees: 30% are assumed to cover dependents other than a spouse under age 26 at retirement; eligibility for coverage for the youngest dependent is assumed to end at the retiree's age 63.

Retired participants covering dependent children are assumed to end such coverage when the youngest currently covered dependent reaches age 26.

Retiree Participation Rates

Active employees: The following chart shows the percent of current active employees are assumed to elect medical coverage in retirement:

Percent of Current Active Employees Assumed to Elect Medical Coverage in Retirement				
Group	Age at Retirement	Coverage and Retiring in 2017	Annual Decrease in Percent Electing Coverage	Minimum Percent Electing
Admin	Under 62	70%	1.5%	50%
Admin	62 or older	90%	1.5%	70%
ATU	Under 62	55%	1.5%	45%
ATU	62 or older	60%	1.5%	60%
Teamster	Under 62	60%	1.5%	45%
Teamster	62 or older	80%	1.5%	60%

Decreased election percentages for future ATU retirees are assumed to begin in 2020, since the retiree benefit level gradually increases until then.

The applicable percentages above are multiplied by .75 to arrive at the percentages for future retirees not currently enrolled in medical coverage through the Authority.

Retired participants: Existing medical plan elections are assumed to be continued until the retiree's death.

Medicare Eligibility

Absent contrary data, all individuals are assumed to be eligible for Medicare Parts A and B at age 65.

Excise tax on high-cost plans

The expected value of excise taxes for high cost plan coverage for retirees, now expected to be effective in the year 2022, was included in this valuation. Annual threshold amounts for 2018 under the Affordable Care Act (ACA) are shown at the top of the following page. A 40% excise tax rate was applied to the portion of premiums projected to exceed the threshold.

Table 4 - Actuarial Methods and Assumptions

(Continued)

Excise tax on high cost coverage - continued

2018 Thresholds	Ages 55-64	All Other Ages
Single	11,850	10,200
Other than Single	30,950	27,500

Note: Thresholds for disability retirements are assumed to be set at a level high enough to prevent taxation on disabled retiree benefits.

The actual limits may be higher, depending on cost increases prior to the effective date. The thresholds are scheduled to increase by CPI plus 1% in 2019 and by CPI annually thereafter.

Development of Age-related Medical Premiums

Actual premium rates for retirees and their spouses were adjusted to an age-related basis by applying medical claim cost factors developed from the data presented in the report, "Health Care Costs – From Birth to Death", sponsored by the Society of Actuaries. A description of the use of claims cost curves can be found in Bickmore's Age Rating Methodology provided in Addendum 1 to this report.

Representative claims costs derived from the dataset provided by CalPERS for retirees not currently covered or not expected to be eligible for Medicare appear below:

Expected Monthly Claims by Medical Plan for Selected Ages					
	Male				
Medical Plan	50	53	56	59	62
Blue Shield Access+: Bay Area	$ 854	$ 1,007	$ 1,170	$ 1,341	$ 1,524
HMO: Bay Area	950	1,120	1,301	1,491	1,695
Kaiser: Bay Area	765	902	1,047	1,200	1,364
Kaiser: Other Southern California	662	781	907	1,040	1,182
Kaiser: Out of State	728	858	996	1,142	1,298
Kaiser: Sacramento	699	824	957	1,097	1,247
PERS Choice: Bay Area	718	846	983	1,127	1,281
PERS Choice: Other Northern California	770	908	1,054	1,208	1,374
PERS Choice: Out of State	419	494	574	658	748
PERSCare: Bay Area	639	753	875	1,003	1,140
PERSCare: Out of State	409	482	560	642	730
	Female				
Medical Plan	50	53	56	59	62
Blue Shield Access+: Bay Area	1,059	1,163	1,251	1,352	1,490
HMO: Bay Area	1,177	1,293	1,391	1,503	1,657
Kaiser: Bay Area	947	1,041	1,120	1,210	1,334
Kaiser: Other Southern California	821	901	970	1,048	1,155
Kaiser: Out of State	902	990	1,066	1,151	1,269
Kaiser: Sacramento	866	951	1,023	1,106	1,219
PERS Choice: Bay Area	889	977	1,051	1,136	1,252
PERS Choice: Other Northern California	954	1,048	1,127	1,218	1,343
PERS Choice: Out of State	519	570	613	663	731
PERSCare: Bay Area	792	870	936	1,011	1,115
PERSCare: Out of State	507	557	599	647	713

Table 4 - Actuarial Methods and Assumptions
(Continued)

Age-related medical premiums - continued

All current and future Medicare-eligible retirees are assumed to be covered by plans that are rated based solely on the experience of Medicare retirees. Therefore, no implicit subsidy is calculated for Medicare-eligible retirees.

Changes Since the Prior Valuation:

Mortality improvement	Future rates of mortality were projected to improve on a generational basis using Bickmore Scale 2017, rather than Bickmore Scale 2014; this new scale generally results in somewhat lower improvement (i.e. shorter retiree life expectancy).
Healthcare trend	Medical plan premiums are assumed to increase at somewhat higher rates than assumed in the prior valuation, with the ultimate trend of 5.0% per year, rather than 4.5% per year assumed in the prior valuation.
Spouse Coverage	Based on a review of all current and recent new retiree elections for spouse coverage, we decreased the assumed percentage of future retirees assumed to elect coverage for their spouse from 51% to 30% while under age 65. The percentage of future retirees assumed to cover their spouse at age 65 and older was essentially unchanged (decreased from 51% to 50%).
Retiree Participation Rate	The assumed percentages of active employees assumed to elect medical coverage in retirement were adjusted based on a review of recent retiree coverage elections. These assumed participation rates continue to vary by calendar year, bargaining group and age at retirement.

Table 5
Projected Benefit Payments

The following is an estimate of other post-employment benefits to be paid on behalf of current retirees and current employees expected to retire from the Authority. Expected annual benefits have been projected on the basis of the actuarial assumptions outlined in Table 4.

These projections do not include any benefits expected to be paid on behalf of current active employees *prior to* retirement, nor do they include any benefits for potential *future employees* (i.e., those who might be hired in future years).

Projected Annual Benefit Payments							
Fiscal Year Ending June 30	Explicit Subsidy			Implicit Subsidy			Total
	Current Retirees	Future Retirees	Total	Current Retirees	Future Retirees	Total	
2018	$194,178	$ 34,218	$228,396	$ 57,373	$ 43,195	$100,568	$328,964
2019	193,956	65,594	259,550	47,122	73,398	120,520	380,070
2020	194,627	96,602	291,229	17,242	98,029	115,271	406,500
2021	195,927	129,491	325,418	-	123,934	123,934	449,352
2022	196,666	160,219	356,885	-	141,510	141,510	498,395
2023	191,481	188,711	380,192	-	156,268	156,268	536,460
2024	185,854	212,231	398,085	-	182,438	182,438	580,523
2025	179,928	231,374	411,302	-	219,212	219,212	630,514
2026	173,705	250,692	424,397	-	199,990	199,990	624,387
2027	167,186	266,856	434,042	-	162,908	162,908	596,950
2028	160,380	280,536	440,916	-	182,142	182,142	623,058
2029	153,289	291,609	444,898	-	184,922	184,922	629,820
2030	145,932	303,277	449,209	-	169,027	169,027	618,236
2031	138,327	311,412	449,739	-	158,053	158,053	607,792
2032	131,402	321,413	452,815	-	161,907	161,907	614,722

The amounts shown in the Explicit Subsidy section reflect the expected payment by the Authority toward retiree medical premiums in each of the years shown. The amounts are shown separately, and in total, for those retired on the valuation date ("current retirees") and those expected to retire after the valuation date ("future retirees").

The amounts shown in the Implicit Subsidy section reflect the expected excess of retiree medical (and prescription drug) claims over the premiums expected to be charged during the year for retirees' coverage. These amounts are also shown separately and in total for those currently retired on the valuation date and for those expected to retire in the future.

Appendix 1A
Breakout of Valuation Results by Group Fiscal Year Ending June 30, 2018

The chart below breaks out the valuation results for 3 employee groups for the fiscal year ending June 30, 2018. Amortization of the unfunded actuarial accrued liability is on the same basis as described in Section F. Trust assets are re-allocated to each group at the beginning of each fiscal year by multiplying the total assets by the ratio of the group's actuarial accrued liability to the total actuarial accrued liability.

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Appendix 1B
Breakout of Valuation Results by Group FYE June 30, 2019

The chart below breaks out the valuation results for 3 employee groups for the fiscal year ending June 30, 2019.

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Appendix 2
Summary of Caps and Expected PEMHCA MEC Increases

The chart below summarizes each of the current single party coverage caps and provides the year in which the PEMHCA Minimum Employer Contribution (MEC) is expected to exceed the cap, based on the assumed annual increase in the MEC of 4.5%.

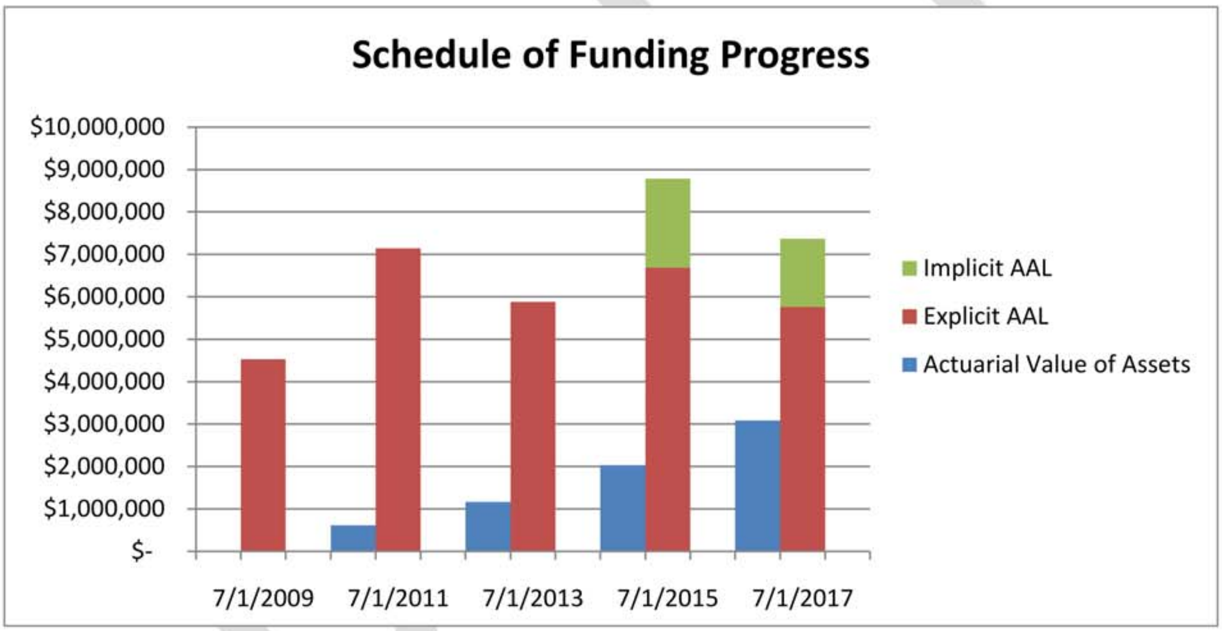
Single Party Coverage Caps & Years When MEC is Expected to Exceed the Cap						
Group	**Administrative**		**ATU**		**Teamsters**	
Plan	Single Party Subsidies	Year when MEC is projected to exceed subsidy	Single Party Subsidies	Year when MEC is projected to exceed subsidy	Single Party Subsidies	Year when MEC is projected to exceed subsidy
Anthem HMO Traditional	$ 494.86	2048	$ 374.92	2042	$ 374.92	2042
Anthem HMO Select	270.71	2035	233.59	2031	226.58	2031
Blue Shield	329.08	2039	266.47	2034	280.29	2035
Blue Shield Advantage	329.08	2039	266.47	2034	280.29	2035
Kaiser	303.56	2037	235.34	2031	254.15	2033
PERS Care	494.86	2048	374.92	2042	374.92	2042
PERS Choice	289.98	2036	241.24	2032	241.24	2032
PERS Select	270.71	2035	233.59	2031	226.58	2031
United Healthcare	305.56	2037	235.34	2031	254.15	2033
Western Health Advantage	305.56	2037	235.34	2031	254.15	2033

Appendix 3
Historical Information

The chart and graph below provide a review of the plan's funded ratio on the current and each prior valuation date.

Schedule of Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded Actuarial Accrued Liability (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
7/1/2009	$ -	$ 4,534,658	$ 4,534,658	0.0%	$ 15,219,990	29.8%
7/1/2011	$ 613,708	$ 7,145,685	$ 6,531,977	8.6%	$ 13,510,453	48.3%
7/1/2013	$ 1,165,830	$ 5,875,942	$ 4,710,112	19.8%	$ 12,017,071	39.2%
7/1/2015	$ 2,032,180	$ 8,785,647	$ 6,753,467	23.1%	$ 13,209,132	51.1%
7/1/2017	$ 3,084,827	$ 7,373,838	$ 4,289,011	41.8%	$ 12,688,438	33.8%



Significant changes during this period include:

- July 1, 2013: Bickmore's first valuation for the Authority
- July 1, 2015: Discount rate decreased from 5.5% to 5.1%; first time recognition of the implicit subsidy liability and potential excise tax liability under the Affordable Care Act; future improvement in mortality rates introduced.
- July 1, 2017: Some decreases in assumed rates of participation for future retirees and their spouses; increase in future healthcare trend; experience gain, largely from lower than expected new retiree/spouse participation and medical premium increases.

Addendum 1: Bickmore Age Rating Methodology

Both accounting standards (e.g., GASB 75) and actuarial standards (e.g., ASOP 6) require that expected retiree claims, not just premiums paid, be reflected in most situations where an actuary is calculating retiree healthcare liabilities. Unfortunately the actuary is often required to perform these calculations without any underlying claims information. In most situations, the information is not available, but even when available, the information may not be credible due to the size of the group being considered.

Actuaries have developed methodologies to approximate healthcare claims from the premiums being paid by the plan sponsor. Any methodology requires adopting certain assumptions and using general studies of healthcare costs as substitutes when there is a lack of credible claims information for the specific plan being reviewed.

Premiums paid by sponsors are often uniform for all employee and retiree ages and genders, with a drop in premiums for those participants who are Medicare-eligible. While the total premiums are expected to pay for the total claims for the insured group, on average, the premiums charged would not be sufficient to pay for the claims of older insureds, and would be expected to exceed the expected claims of younger insureds. An age-rating methodology takes the typically uniform premiums paid by plan sponsors and spreads the total premium dollars to each age and gender intended to better approximate what the insurer might be expecting in actual claims costs at each age and gender.

The process of translating premiums into expected claims by age and gender generally follows the steps below.

1. *Obtain or Develop Relative Medical Claims Costs by Age, Gender, or other categories that are deemed significant*. For example, a claims cost curve might show that, if a 50 year old male has $1 in claims, then on average a 50 year old female has claims of $1.25, a 30 year male has claims of $0.40, and an 8 year old female has claims of $0.20. The claims cost curve provides such relative costs for each age, gender, or any other significant factor the curve might have been developed to reflect. Table 4 provides the source of information used to develop such a curve and shows sample relative claims costs developed for the plan under consideration.
2. *Obtain a census of participants, their chosen medical coverage, and the premium charged for their coverage.* An attempt is made to find the group of participants that the insurer considered in setting the premiums they charge for coverage. That group includes the participant and any covered spouses and children. When information about dependents is unavailable, assumptions must be made about spouse age and the number and age of children represented in the population. These assumptions are provided in Table 4.
3. *Spread the total premium paid by the group to each covered participant or dependent based on expected claims.* The medical claims cost curve is used to spread the total premium dollars paid by the group to each participant reflecting their age, gender, or other relevant category. After this step, the actuary has a schedule of expected claims costs for each age and gender for the current premium year. It is these claims costs that are projected into the future by medical cost inflation assumptions when valuing expected future retiree claims.

The methodology described above is dependent on the data and methodologies used in whatever study might be used to develop claims cost curves for any given plan sponsor. These methodologies and assumptions can be found in the referenced paper cited as a source in the valuation report.

Addendum 2: Bickmore Mortality Projection Methodology

Actuarial standards of practice (e.g., ASOP 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations, and ASOP 6, Measuring Retiree Group Benefits Obligations) indicate that the actuary should reflect the effect of mortality improvement (i.e., longer life expectancies in the future), both before and after the measurement date. The development of credible mortality improvement rates requires the analysis of large quantities of data over long periods of time. Because it would be extremely difficult for an individual actuary or firm to acquire and process such extensive amounts of data, actuaries typically rely on large studies published periodically by organizations such as the Society of Actuaries or Social Security Administration.

As noted in a recent actuarial study on mortality improvement, key principals in developing a credible mortality improvement model would include the following:

(1) Short-term mortality improvement rates should be based on recent experience.
(2) Long-term mortality improvement rates should be based on expert opinion.
(3) Short-term mortality improvement rates should blend smoothly into the assumed long-term rates over an appropriate transition period.

The **Bickmore Scale 2017** was developed from a blending of data and methodologies found in two published sources: (1) the Society of Actuaries Mortality Improvement Scale MP-2016 Report, published in October 2016 and (2) the demographic assumptions used in the 2016 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds, published June 2016.

Bickmore Scale 2017 is a two-dimensional mortality improvement scale reflecting both age and year of mortality improvement. The underlying base scale is Scale MP-2016 which has two segments – (1) historical improvement rates for the period 1951-2012 and (2) an estimate of future mortality improvement for years 2013-2015 using the Scale MP-2016 methodology but utilizing the assumptions obtained from Scale MP-2015. The Bickmore scale then transitions from the 2015 improvement rate to the Social Security Administration (SSA) Intermediate Scale linearly over the 10 year period 2016-2025. After this transition period, the Bickmore Scale uses the constant mortality improvement rate from the SSA Intermediate Scale from 2025-2039. The SSA's Intermediate Scale has a final step down in 2040 which is reflected in the Bickmore scale for years 2040 and thereafter. Over the ages 100 to 115, the SSA improvement rate is graded to zero.

Scale MP-2016 can be found at the SOA website and the projection scales used in the 2016 Social Security Administrations Trustees Report at the Social Security Administration website.

Glossary

Actuarial Accrued Liability (AAL) – Total dollars required to fund all plan benefits attributable to service rendered as of the valuation date for current plan members and vested prior plan members; see "Actuarial Present Value".

Actuarial Funding Method – A procedure which calculates the actuarial present value of plan benefits and expenses, and allocates these expenses to time periods, typically as a normal cost and an actuarial accrued liability.

Actuarial Present Value Projected Benefits (APVPB) – The amount presently required to fund all projected plan benefits in the future, it is determined by discounting the future payments by an appropriate interest rate and the probability of nonpayment.

Actuarial Value of Assets – The actuarial value of assets is the value used by the actuary to offset the AAL for valuation purposes. The actuarial value of assets may be the market value of assets or may be based on a methodology designed to smooth out short-term fluctuations in market values.

Actuarially Determined Contribution (ADC) – A contribution level determined by an actuary that is sufficient, assuming all assumptions are realized, to (1) fully fund new employee's expected benefits by their expected retirement date(s), (2) pay off over a sufficiently short period any unfunded liabilities current as of the date funding commences, and (3) adequately fund the trust so that the trust can meet benefit payment obligations.

CalPERS – Many state governments maintain a public employee retirement system; CalPERS is the California program, covering all eligible state government employees as well as other employees of other governments within California who have elected to join the system.

Defined Benefit (DB) – A pension or OPEB plan which defines the monthly income or other benefit which the plan member receives at or after separation from employment.

Defined Contribution (DC) – A pension or OPEB plan which establishes an individual account for each member and specifies how contributions to each active member's account are determined and the terms of distribution of the account after separation from employment.

Discount Rate – The rate of return that could be earned on an investment in the financial markets; typically, the discount rate is based on the expected long-term yield of investments used to finance the benefits. The discount rate is used to adjust the dollar value of future projected benefits into a present value equivalent as of the valuation date.

Entry Age Normal Cost (EANC) – An actuarial funding method where, for each individual, the actuarial present value of benefits is levelly spread over the individual's projected earnings or service from entry age to the last age at which benefits can be paid.

Excise Tax – The Affordable Care Act created a 40% excise tax on the value of "employer sponsored coverage" that exceeds certain thresholds. The tax is first effective is 2022.

Glossary
(Continued)

Explicit Subsidy – The projected dollar value of future retiree healthcare costs expected to be paid directly by the Employer, e.g., the Employer's payment of all or a portion of the monthly retiree premium billed by the insurer for the retiree's coverage.

Funding Policy Contribution (FPC)– The contributions determined in accordance with the entity's adopted funding policy. The FPC may range from "pay-go" (i.e. only paying benefits as they come due), to prefunding all projected liabilities expected for current and former employees. An entity's FPC may be: (1) less than the Actuarially Determined Contribution (ADC) indicating that the entity has chosen not to prefund part of the liabilities reflected in the ADC; (2) more than the ADC indicating that the entity wants to prefund benefits faster than a typical ADC; or (3) based on contributions equal to 100% of an ADC, indicating that the entity desires to prefund over the period indicated by the ADC.

Government Accounting Standards Board (GASB) – A private, not-for-profit organization which develops generally accepted accounting principles (GAAP) for U.S. state and local governments; like FASB, it is part of the Financial Accounting Foundation (FAF), which funds each organization and selects the members of each board

Health Care Trend – The assumed rate(s) of increase in future dollar values of premiums or healthcare claims, attributable to increases in the cost of healthcare; contributing factors include medical inflation, frequency or extent of utilization of services and technological developments.

Implicit Subsidy – The projected difference between future retiree claims and the premiums to be charged for retiree coverage; this difference results when the claims experience of active and retired employees are pooled together and a 'blended' group premium rate is charged for both actives and retirees; a portion of the active employee premiums subsidizes the retiree premiums.

Non-Industrial Disability (NID) – Unless specifically contracted by the individual Agency, PAM employees are assumed to be subject to only non-industrial disabilities.

Normal Cost – Total dollar value of benefits expected to be earned by plan members in the current year, as assigned by the chosen funding method; also called current service cost.

Other Post-Employment Benefits (OPEB) – Post-employment benefits other than pension benefits, most commonly healthcare benefits but also including life insurance if provided separately from a pension plan.

Pay-As-You-Go (PAYGO) – Contributions to the plan are made at about the same time and in about the same amount as benefit payments and expenses coming due.

PEMHCA – The Public Employees' Medical and Hospital Care Act, established by the California legislature in 1961, provides community-rated medical benefits to participating public employers. Among its extensive regulations are the requirements that a contracting Agency contribute toward medical insurance premiums for retired annuitants and that a contracting Agency file a resolution, adopted by its governing body, with the CalPERS Board establishing any new contribution.

Glossary
(Concluded)

Plan Assets – The value of cash and investments considered as 'belonging' to the plan and permitted to be used to offset the AAL for valuation purposes. To be considered a plan asset, (a) the assets should be segregated and restricted in a trust or similar arrangement, (b) employer contributions to the trust should be irrevocable, (c) the assets should be dedicated to providing benefits to retirees and their beneficiaries, and (d) that the assets should be legally protected from creditors of the employer and/or plan administrator. See also "Actuarial Value of Assets".

Public Agency Miscellaneous (PAM) – Non-safety public employees.

Select and Ultimate – Actuarial assumptions which contemplate rates which differ by year initially (the select period) and then stabilize at a constant long-term rate (the ultimate rate).

Unfunded Actuarial Accrued Liability (UAAL) – The excess of the actuarial accrued liability over the actuarial value of plan assets.

Vesting – As defined by the plan, requirements which when met make a plan benefit nonforfeitable on separation of service before retirement eligibility.