



October 19, 2017

Wesley A. Maffei
Manager
Napa County Mosquito Abatement District
15 Melvin Road
American Canyon, CA 94503

Re: July 1, 2017 Actuarial Report of Retiree Benefit Valuation for Funding Purposes

Dear Mr. Maffei:

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 Napa County Mosquito Abatement District (the District). The report's text describes our analysis and assumptions in detail.

The primary purposes of the report are to develop the value of future OPEB expected to be provided by the District and to develop annual amounts to be contributed by the District for the fiscal years ending June 30, 2018 and June 30, 2019 toward prefunding the OPEB plan liability. This report may be required to be submitted to the California Employers' Retiree Benefit Trust (CERBT) to satisfy filing requirements for the trust.

Items of note in this valuation are:

- Expected District Contributions are developed to support the District's stated goal of maintaining OPEB trust assets greater than or equal to the Actuarial Present Value of Projected Benefits.
- OPEB trust assets are assumed to remain in CERBT Asset Allocation Strategy 2. The assumed future long term rate of return on trust assets was reduced from 5.5% to 5.0%.
- Information presented in this report is not considered suitable for satisfying the District's financial reporting requirements under GASB 75. That information will be developed and presented in a separate report.

We have based our valuation on employee data and plan information provided by the District, including the most recent bargaining agreements and PEMHCA resolutions on file with CalPERS. Please review the overview of benefits described in Table 3A to be comfortable that we have summarized these provisions correctly.

We appreciate the opportunity to work on this analysis and acknowledge the efforts of District 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



Napa County Mosquito Abatement District

Actuarial Valuation of the Other
Post-Employment Benefit Programs
As of July 1, 2017

Submitted October 2017

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A. Executive Summary

This report presents the results of the July 1, 2017 actuarial valuation of the Napa County Mosquito Abatement District (the District) other post-employment benefit (OPEB) programs. The primary purpose of this valuation is to assess the OPEB liabilities of the District 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 District’s financial statements, but such information will require additional calculations and will be provided in a separate report.

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. Future excise taxes expected to be paid for “high cost” retiree coverage (a.k.a. the “Cadillac Tax”) 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 District’s OPEB program includes implicit subsidy liabilities for medical coverage for retirees prior to coverage under Medicare.

Trust assets are currently invested in the CERBT with Asset Allocation Strategy 2; the District expects a yield of 5.0% per year over the long term. The Actuarial 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 District indicated that it expects to contribute 100% of the ADC each year. Accordingly, with the District’s approval, this valuation was prepared using a 5.0% discount rate, as compared to 5.5% used in the prior valuation. Please recognize that use of this rate is an assumption and is not a guarantee of future investment performance.

Exhibits presented in this report reflect our understanding that the results of this July 1, 2017 valuation will be applied in determining the District’s annual OPEB contribution levels (Actuarially Determined Contributions) for its fiscal years ending June 30, 2018 and 2019. Contributions are 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 Present Value of Projected Benefits, Actuarial Accrued Liability and Plan Assets as of July 1, 2017 are shown below:

Subsidy	Explicit	Implicit	Total
Discount Rate	5.0%	5.0%	5.0%
Actuarial Present Value of Projected Benefits	\$ 2,698,626	\$ 522,733	\$ 3,221,359
Actuarial Accrued Liability	1,969,004	378,519	2,347,523
Actuarial Value of Assets	2,481,547	480,684	2,962,231
Unfunded Present Value of Projected Benefits	\$ 217,079	\$ 42,049	\$ 259,128
Unfunded Actuarial Accrued Liability	\$ (512,543)	\$ (102,165)	\$ (614,708)

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 additional information is provided in Appendix 1.

Subsidy	Explicit	Implicit	Total
Total Targeted OPEB Contributions for FYE 2018	\$ 227,933	\$ 44,151	\$ 272,084
Estimated employer paid benefits for retirees	58,650	-	58,650
Current year's implicit subsidy credit	-	18,314	18,314
Expected contribution to OPEB trust	188,489	36,511	225,000
Total Estimated District Contribution for FYE 2018	\$ 247,139	\$ 54,825	\$ 301,964

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 from:

- 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 District toward active and 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
- Higher or lower returns on plan assets or contribution levels other than were assumed.

Details of our valuation process are provided on the succeeding 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 District's other postemployment benefits and to provide the annual contribution information with respect to the District'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 District 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 District.

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.

This chart shows the sources of funds needed to cover expected medical insurance claims for pre-

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

Medicare retirees. From this illustration, we can see that regardless of how much or little of the premium is paid by the Agency, this does not impact the amount of the implicit subsidy.

The implicit subsidy liability was first recognized in the July 1, 2015 actuarial valuation. The same methodology was applied to develop the implicit subsidy liability in this July 1, 2017 valuation.

OPEB Obligations of the District

The District provides continuation of medical coverage (and limited dental coverage) to its retiring employees, which may create one or more of the following types of OPEB liabilities:

- **Explicit subsidy liabilities:** The District contributes directly toward retiree medical premiums. These benefits are described in Table 3A and liabilities have been included in this valuation.
- **Implicit subsidy liabilities:** In addition to whatever portion of retiree premiums are paid directly by the District, we valued the difference between projected retiree medical claims and the premiums expected to be charged for retiree coverage. Employees are covered by the CalPERS medical program, where the same monthly premiums are charged for active employees and for pre-Medicare retirees. CalPERS has confirmed that the claims experience of these members is considered together in setting these premium rates. We determine the implicit rate subsidy for retirees and their dependents, based on our understanding that CalPERS separately rates the claims experience of these plan members from those not covered by Medicare.

Sources of OPEB Liability (Concluded)

- *Implicit subsidy Liabilities - continued*

We believe no implicit liability exists with respect to dental benefits provided to retirees, or that it is insignificant. This is because of the limited availability of this benefit for retirees as well as the low overall limits of coverage, which tends to minimize the likelihood that retirees will incur greater claims, on average, than active employees and their dependents.

- **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 2020. 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 District’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 2020. The excise tax burden will ultimately fall on either the District or a combination of District and plan participants. If the District is able to and ultimately does pass the retiree tax burden to retirees, then no part of the excise tax reflected in this report would be retained by the District. *This report assumes that 100% of any excise tax liability for high cost retiree coverage will be borne by the District.*

C. Valuation Process

The valuation has been based on employee census data and benefits initially submitted to us by the District in May 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 District 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 District to receive benefits.
- To the extent assumed to retire from the District, 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 50 years or more.

The resulting present value 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
<i>plus</i> Normal Cost	Current Year's Cost Allocation	Actives only
<u><i>plus</i> Present Value of Future Normal Costs</u>	<u>Future Years' Cost Allocations</u>	<u>Actives only</u>
<i>equals</i> 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 District's CERBT account. The June 30, 2017 market value of assets estimated for use in this report was \$2,962,231. 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 Valuation date	Prefunding Basis					
	7/1/2015			7/1/2017		
	Explicit	Implicit	Total	Explicit	Implicit	Total
Subsidy						
Discount rate	5.50%	5.50%	5.50%	5.00%	5.00%	5.00%
Number of Covered Employees						
Actives	8	8	8	8	8	8
Retirees	5	2	5	5	2	5
Total Participants	13	10	13	13	10	13
Actuarial Present Value of Projected Benefits						
Actives	\$ 1,594,374	355,881	1,950,255	\$ 1,980,392	\$ 416,436	\$ 2,396,828
Retirees	725,796	126,381	852,177	718,234	106,297	824,531
Total APVPB	2,320,170	482,262	2,802,432	2,698,626	522,733	3,221,359
Actuarial Accrued Liability (AAL)						
Actives	950,059	221,145	1,171,204	1,250,770	272,222	1,522,992
Retirees	725,796	126,381	852,177	718,234	106,297	824,531
Total AAL	1,675,855	347,526	2,023,381	1,969,004	378,519	2,347,523
Actuarial Value of Assets	2,152,043	84,121	2,236,164	2,481,547	480,684	2,962,231
Unfunded APVPB	168,127	398,141	566,268	217,079	42,049	259,128
Unfunded AAL (UAAL)	(476,188)	263,405	(212,783)	(512,543)	(102,165)	(614,708)
Normal Cost	84,514	18,420	102,934	96,749	20,436	117,185
Percent funded	128.4%	24.2%	110.5%	126.0%	127.0%	126.2%
Reported covered payroll	693,147	693,147	693,147	716,477	716,477	716,477
UAAL as percent of payroll	-68.7%	38.0%	-30.7%	-71.5%	-14.3%	-85.8%

Note: The Explicit Subsidy AAL as of July 1, 2017 includes approximately \$6,600 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 our previous assumptions 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, our prior assumptions are not likely ever to be exactly realized. *These differences between actual and expected results tend to be more dramatic when the size of the employee group is less than 100 members.* Nonetheless, it is helpful to review why results are different than we anticipated.

In comparing results shown in the exhibit on the preceding page, we can see that the Unfunded Actuarial Accrued Liability (UAAL) decreased by \$402,000, from (213,000) to (\$615,000) between July 1, 2015 and July 1, 2017. The chart below summarizes the primary factors affecting the valuation results:

Source of Change	Increase (decrease) in UAAL
Discount rate change from 5.5% to 5.0%	\$ 138,000
Mortality projection changed from Scale AA to Bickmore 2017 Scale	8,000
Update in assumed future healthcare trend	226,000
Change in methodology for projecting "Cadillac" excise tax	(10,000)
Expected decrease from the passage of time and expected contributions	(433,000)
Favorable plan experience, relative to that previously assumed*	(331,000)
Change in UAAL from July 2015 to July 2017	\$ (402,000)

* Plan experience includes changes in employee decisions other than previously projected as well as premiums, benefit levels and trust assets other than projected. The most significant element of this experience gain relates to lower than expected premium increases between 2015 and 2017. In addition, some possibility of new retirements was anticipated, but none occurred.

E. Funding Policy

Determination of an Actuarially Determined Contribution

Typically, an Actuarially Determined Contribution (ADC) consists of two basic components, which are adjusted with interest to the District'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) over some finite and reasonable period.

Decisions Affecting the Amortization Payment

The period and method for amortizing the UAAL can significantly affect the ADC. These are factors typically considered in determining an amortization payment:

- *The amortization period:* The District can select the number of years over which the unfunded AAL will be amortized. The entire UAAL can be amortized together in one "base" or different portions of the UAAL can be amortized over different periods. It has been the District's practice to amortize the entire UAAL together.
- *Open or closed amortization period:* The number of years in the amortization period may be set to decrease annually by one year ("closed" basis) or may be continued at the original number of years (non-declining, or "open" basis). The period may be as short or as long as the agency chooses for retiring the unfunded OPEB liability. An overly long amortization period could result in trust assets becoming exhausted in some future year(s), i.e., unable to cover the current year expected retiree benefit payments.
- *Increasing or level payments:* Once the period has been set and determined to be closed or open, the payment amounts may be determined (a) as a level percentage of payroll, designed to increase over time as payroll increases, or (b) as a level dollar amount much like a conventional mortgage, so that this component of the ADC does not increase over time.

Funding Policy Illustrated in This Report

Rather than focus on the more common approach to determining an ADC (normal cost plus amortization of the UAAL), the District has taken a more conservative and aggressive stance toward the funding of its OPEB liability. Generally speaking, the District's intent has been to accumulate OPEB trust assets equal to or slightly greater than the Actuarial Present Value of Projected Benefits (APVPB). In addition, for the upcoming two years, the District also intends to contribute the current year's retiree benefit payments without reimbursement from the trust.

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 District 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. We have estimated each current year's implicit subsidy and recommend netting this amount against the funding requirement for the implicit subsidy (see the "Expected District OPEB Contributions" section in Tables 1A and 1B).

**Funding Policy
(Concluded)**

The following hypothetical example illustrates this treatment based on rough estimate for FYE 2018:

Hypothetical Illustration Of Implicit Subsidy Recognition	For Active Employees	For Retired Employees	Total
Annual Agency Contribution Toward Premiums	\$ 165,000	\$ 59,000	\$ 224,000
Current Year's Implicit Subsidy Adjustment	(18,000)	18,000	-
Adjusted contributions reported in Financial Stmts	\$ 147,000	\$ 77,000	\$ 224,000

While total District contributions paid toward active and retired employee healthcare premiums in this example are the same, by shifting the recognition of the current year's implicit subsidy from actives to retirees, this amount may be recognized as a contribution toward OPEB.

There is a larger question about whether or not the District will want to prefund the implicit subsidy liability. Some possible options include:

- Prefunding 100% of the ADC relating to both the explicit subsidy and implicit subsidy liabilities. *Exhibits in this report reflect our assumption that the District will follow this approach.*
- Prefunding 100% of the ADC relating to both the explicit subsidy and implicit subsidy liabilities, but intentionally allocate the entire trust contribution to more quickly pay-off the explicit subsidy liability, rather than allocating any toward the implicit subsidy liability.
- Prefunding 100% of the ARC developed for the explicit subsidy liability, but not prefund the implicit subsidy liability.

We are available to review these options further with the District.

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 Funding Method

While the goal is to match recognition of retiree medical expense with the periods during which the benefit is earned, the funding methods differ because they focus on different financial measures in attempting to level the incidence of cost. Appropriate selection of a funding method 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 funding 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 often produces initial contributions between those of the other more common methods and is one of the most commonly used actuarial cost methods. It is the only actuarial funding (cost) method permitted under GASB 75.

Factors Affecting the Selection of Assumptions

Special considerations apply to the selection of actuarial funding methods and assumptions for the District. The 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 District employees. Other assumptions, such as healthcare trend, age related healthcare claims, retiree participation rates and spouse/dependent child 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 appropriate discount rate(s), GASB states that the rate(s) should be based on the expected long-term yield of investments used to finance the benefits. For purposes of this report, we have assumed that the District will continue to fund an amount each year to maintain trust assets greater than or equal to the Actuarial Present Value of Projected Benefits. Based on the expected contribution level, and the assumed returns on OPEB trust described earlier, we used a 5.0% discount rate in this valuation.

G. Certification

This report presents the results of our actuarial valuation of the other post-employment benefits provided by the Napa County Mosquito Abatement District. 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 District 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 District. 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: October 19, 2017



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



J. Kevin Watts, FSA, FCA, MAAA

Table 1

Projected Contributions for fiscal years 2018 and 2019: The basic results of our July 1, 2017 valuation of OPEB liabilities for the District were summarized in Section E. Those results are applied to develop the targeted OPEB contribution levels consistent with the current District's funding policy (see Section F.) for the fiscal years ending June 30, 2018 and June 30, 2019.

It is our understanding that the District's contributions will be comprised of:

- direct payments to insurers toward retiree premiums,
- each current year's implicit subsidy, and
- contributions to the OPEB trust.

GASB 75 Calculations: GASB Statement 75 will impact the liabilities and/or expenses developed for reporting in the District's financial statements. Those calculations are outside the scope of this report.

Employees reflected in future years' costs: The counts of active employees and retirees shown in Table 1B are the same as the counts of active and retired employees on the valuation date. While we do not adjust these counts between valuation dates, the liabilities and costs developed for those years already 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. 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 retired employees expected to create an implicit subsidy OPEB liability is 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
Projected OPEB Contributions for Fiscal Year End 2018

This table develops the estimated District OPEB contributions for the fiscal year ending June 30, 2018, based on the July 1, 2017 valuation results and on the funding policy described earlier in this report.

Key Results from the July 2017 Valuation			
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	5.00%	5.00%	5.00%
Discount rate	5.00%	5.00%	5.00%
Number of Covered Employees			
Actives	8	8	8
Retirees	5	2	5
Total Participants	13	10	13
Actuarial Present Value of Projected Benefits			
Actives	\$ 1,980,392	\$ 416,436	\$ 2,396,828
Retirees	718,234	106,297	824,531
Total APVPB	2,698,626	522,733	3,221,359
Actuarial Accrued Liability (AAL)			
Actives	1,250,770	272,222	1,522,992
Retirees	718,234	106,297	824,531
Total AAL	1,969,004	378,519	2,347,523
Actuarial Value of Assets	2,481,547	480,684	2,962,231
Targeted Contribution per Funding Policy			
Total Actuarial Present Value of Projected Benefits	\$ 2,698,626	\$ 522,733	\$ 3,221,359
Actuarial Value of Assets	2,481,547	480,684	2,962,231
Unfunded APVPB at beginning of fiscal year	217,079	42,049	259,128
Interest to fiscal year end	10,854	2,102	12,956
Total Targeted OPEB Contributions for FYE 2018	227,933	44,151	272,084
Expected District OPEB Contributions			
Estimated payments on behalf of retirees	\$ 58,650	\$ -	\$ 58,650
Estimated current year's implicit subsidy	-	18,314	18,314
Estimated contribution to OPEB trust	188,489	36,511	225,000
Total Estimated District Contribution	247,139	54,825	301,964

Table 1B
Projected OPEB Contributions for Fiscal Year End 2019

This table develops the estimated District OPEB contributions for the fiscal year ending June 30, 2018, based on the July 1, 2017 valuation results and on the funding policy described earlier in this report.

Key Results from the July 2017 Valuation			
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	5.00%	5.00%	5.00%
Discount rate	5.00%	5.00%	5.00%
Number of Covered Employees			
Actives	8	8	8
Retirees	5	2	5
Total Participants	13	10	13
Actuarial Present Value of Projected Benefits			
Actives	\$ 2,069,612	\$ 434,021	\$ 2,503,633
Retirees	705,296	96,535	801,831
Total APVPB	2,774,908	530,556	3,305,464
Actuarial Accrued Liability (AAL)			
Actives	1,405,095	304,054	1,709,149
Retirees	705,296	96,535	801,831
Total AAL	2,110,391	400,589	2,510,980
Actuarial Value of Assets	2,794,113	541,229	3,335,342
Targeted Contribution per Funding Policy			
Total Actuarial Present Value of Projected Benefits	\$ 2,774,908	\$ 530,556	\$ 3,305,464
Actuarial Value of Assets	2,794,113	541,229	3,335,342
Unfunded APVPB at beginning of fiscal year	(19,205)	(10,673)	(29,878)
Interest to fiscal year end	(960)	(534)	(1,494)
Total Targeted OPEB Contributions for FYE 2019	(20,165)	(11,207)	(31,372)
Expected District OPEB Contributions			
Estimated payments on behalf of retirees	\$ 67,430	\$ -	\$ 67,430
Estimated current year's implicit subsidy	-	15,236	15,236
Estimated contribution to OPEB trust	48,209	26,791	75,000
Total Estimated District Contribution	115,639	42,027	157,666

Table 2
Summary of Employee Data

The District reported 8 active employees; all were participating in the District’s healthcare plans on the valuation date. Age and service information for the reported individuals is provided below:

Distribution of Benefits-Eligible Active Employees								
Current Age	Years of Service						Total	Percent
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 & Up		
Under 25							0	0%
25 to 29							0	0%
30 to 34							0	0%
35 to 39			1				1	13%
40 to 44							0	0%
45 to 49				1			1	13%
50 to 54		2				1	3	38%
55 to 59				1	1		2	25%
60 to 64				1			1	13%
65 to 69							0	0%
70 & Up							0	0%
Total	0	2	1	3	1	1	8	100%
Percent	0%	25%	13%	38%	13%	13%	100%	

<u>Valuation</u>	<u>July 2015</u>	<u>July 2017</u>
Annual Covered Payroll	\$693,147	\$716,477
Average Attained Age for Actives	50.3	52.3
Average Years of Service	9.5	11.5

There are also 3 retirees and 2 surviving spouses receiving benefits under this program. Their ages are summarized in this chart.

Retirees by Age		
Current Age	Number	Percent
Below 50		0%
50 to 54		0%
55 to 59	1	20%
60 to 64	1	20%
65 to 69		0%
70 to 74	1	20%
75 to 79	1	20%
80 & up	1	20%
Total	5	100%
Average Age:		
At retirement	59.03	
On 7/1/2017	70.60	

**Table 2- Summary of Employee Data
(Concluded)**

The District reported no new employees hired, employees separated, retired or deceased since the July 2015 valuation was prepared. The chart below shows the number of actives and retirees included in the each of the last 3 valuations.

Reconciliation of District Plan Members Between Valuation Dates				
Status	Covered Actives	Covered Retirees	Covered Surviving Spouses	Total
Number reported as of July 1, 2013	8	2	2	12
Number reported as of July 1, 2015	8	3	2	13
Number reported as of July 1, 2017	8	3	2	13

The following chart separates active and retired employees by medical plan election:

Countys By Medical Plan			
Medical Plan	Actives	Retirees	Total
Kaiser	7	3	10
PERS Choice	1	2	3
Total	8	5	13

The following chart separates active and retired employees by medical coverage level and type:

Employee Counts by Coverage Level				
Coverage Type	Actives	Pre-Medicare Retirees	Post-Medicare Retirees	Total
Employee only	3	1	2	6
Employee + Spouse	1	0	1	2
Employee + Child(ren)	0	0	0	0
Employee+ Family	4	1	0	5
Total	8	2	3	13

Table 3A
Summary of Retiree Benefit Provisions

OPEB provided: The District reported the following OPEB: retiree medical and dental 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 District to be eligible to continue medical coverage through the agency 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 a District 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

Medical benefits provided: As a PEMHCA employer, the District is obligated to contribute toward the cost of retiree medical coverage for the retiree's lifetime or until coverage is discontinued. As defined in a resolution with CalPERS, the District currently contributes 100% of the medical premium for active and retired employees and their dependents, not to exceed an amount which varies by coverage level.¹ The maximum benefit provided in 2017 is the pre-Medicare premium level for single, two-party or family coverage, as applicable, for the highest CalPERS plan in the Bay area region offered to District employees. In 2017, the available plans are Kaiser, PERS Care and PERS Choice.

Dental benefits provided: The District also pays 100% of the dental premiums for retired management employees and their eligible dependents. The monthly dental premiums as of July 2017 are: \$61.20 (single coverage rate), \$135.40 (two party rate) and \$205.50 (family coverage rate).

Current premium rates: The 2017 CalPERS monthly medical plan rates in the Bay Area rate selected by District employees 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.

Bay Area 2017 Health Plan Rates						
Plan	Actives and Pre-Med Retirees			Medicare Eligible Retirees		
	Ee Only	Ee & 1	Ee & 2+	Ee Only	Ee & 1	Ee & 2+
Kaiser HMO	733.39	1,466.78	1906.81	\$300.48	\$ 600.96	\$ 600.96
PERS Choice PPO	830.30	1,660.60	\$2,158.78	353.63	707.26	707.26
PERSCare PPO	932.39	1,864.78	2,424.21	389.76	779.52	779.52

Note that the additional CalPERS administration fee is not included in this valuation.

¹ The District may, at any time, revise the PEMHCA resolution applicable to both active and retired employees to provide different/lesser benefits, but not less than the PEMHCA minimum employer contribution (MEC). The MEC is \$128 per month in 2017 and increases generally by CPI-medical each year, per CalPERS statute 22892 (b)(2).

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.

Health Care Coverage

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	5.0%
Discount Rate	5.0%
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 where 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 June 2015 (most recent) valuation of the retirement plans covering District 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 reverse 20 years of Scale BB projection back to rates as of the central year of the data (2008).

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			CalPERS Public Agency Disabled Miscellaneous		
Age	Male	Female	Age	Male	Female
40	0.00117	0.00097	20	0.00641	0.00395
50	0.00532	0.00495	30	0.00736	0.00455
60	0.00817	0.00533	40	0.01008	0.00642
70	0.01766	0.01264	50	0.01784	0.01230
80	0.05275	0.03695	60	0.02634	0.01510
90	0.16186	0.12335	70	0.03890	0.02815
100	0.34551	0.31876	80	0.08230	0.06015
110	1.00000	1.00000	90	0.18469	0.16082

Mortality Improvement Bickmore Scale 2017 applied generationally from 2008 forward.

Termination Rates

Miscellaneous Employees: Sum of Vested Terminated & Refund Rates From CalPERS Experience Study Report Issued January 2014						
Attained Age	Years of Service					
	0	3	5	10	15	20
15	0.1812	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.1742	0.1193	0.0946	0.0000	0.0000	0.0000
25	0.1674	0.1125	0.0868	0.0749	0.0000	0.0000
30	0.1606	0.1055	0.0790	0.0668	0.0581	0.0000
35	0.1537	0.0987	0.0711	0.0587	0.0503	0.0450
40	0.1468	0.0919	0.0632	0.0507	0.0424	0.0370
45	0.1400	0.0849	0.0554	0.0427	0.0347	0.0290

Service Retirement Rates

The following miscellaneous retirement formulas apply:

If hired prior to 1/1/2013, or later with prior PERS service: 2.7% @ 55
If hired on or after 1/1/2013, PEPR: 2.0% @ 62

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

Miscellaneous Employees: 2.7% at 55 formula From CalPERS Experience Study Report Issued January 2014						
Current Age	Years of Service					
	5	10	15	20	25	30
50	0.0040	0.0090	0.0140	0.0350	0.0550	0.0950
55	0.0760	0.1010	0.1250	0.1650	0.2050	0.2650
60	0.0690	0.0930	0.1160	0.1540	0.1920	0.2500
65	0.1340	0.1740	0.2150	0.2700	0.3260	0.4010
70	0.1410	0.1830	0.2260	0.2830	0.3410	0.4180
75 & over	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

**Table 4 - Actuarial Methods and Assumptions
(Continued)**

Service Retirement Rates – continued

Miscellaneous "PEPRA" Employees: 2% at 62 formula From CalPERS Experience Study Report Issued January 2014						
Current Age	Years of Service					
	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

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	8.00%	2022	6.00%
2019	7.50%	2023	5.50%
2020	7.00%	2024	5.00%
2021	6.50%	2025 & later	5.00%

Dental premiums are assumed to increase by 3.0% annually.

**Table 4 - Actuarial Methods and Assumptions
(Continued)**

Participation Rate *Active employees:* 100% are assumed to continue their current plan election in retirement.

Retired participants: Existing medical plan elections are assumed to continue until the retiree’s death.

Spouse Coverage *Active employees:* 85% of future retirees are assumed to be married and elect coverage for their spouse in retirement. Surviving spouses are assumed to continue 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 continue 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.

Dependent Coverage *Active employees:* 60% of future retirees are assumed to cover at least one dependent other than a spouse. This dependent coverage is assumed to end at age 64.

Retired participants: Coverage for dependent children of current retirees is assumed to end when the youngest currently covered dependent reaches age 26.

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 2020, was included in this valuation. Annual threshold amounts for 2018 under the Affordable Care Act (ACA) were assumed to increase at the General Inflation Rate. A 40% excise tax rate was applied to the portion of premiums projected to exceed the threshold.

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.

Actual 2018 limits may be higher, depending on cost increases prior to the effective date. Thresholds are scheduled to increase by CPI plus 1% in 2019 and by CPI annually thereafter.

**Table 4 - Actuarial Methods and Assumptions
(Concluded)**

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 for retirees not currently covered or not expected to be eligible for Medicare appear below:

Expected Monthly Claims by Medical Plan for Selected Ages					
Medical Plan	Male				
	50	53	56	59	62
Kaiser Bay Area	\$ 732	\$ 863	\$ 1,002	\$ 1,149	\$ 1,306
PERS Choice Bay Area	716	844	981	1,124	1,278
PERS Care Bay Area	644	759	882	1,011	1,149
	Female				
	50	53	56	59	62
Kaiser Bay Area	\$ 907	\$ 996	\$ 1,072	\$ 1,158	\$ 1,277
PERS Choice Bay Area	887	974	1,049	1,133	1,249
PERS Care Bay Area	798	876	943	1,019	1,123

Changes Since the Prior Valuation:

Discount rates	Decreased from 5.5% to 5.0%
Mortality improvement	The basis for projecting future improvement in mortality on a generational basis was changed from Scale AA to Bickmore Scale 2017.
Healthcare trend	Medical plan premium rates are assumed to increase at slightly higher rates than was 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.
Excise Tax Impact	We directly reflected the potential impact of the excise tax attributable to retirees for high cost healthcare plans for retirees, as provided by the Affordable Care Act.

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 District. 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	\$ 48,850	\$ 9,800	\$ 58,650	\$ 15,077	\$ 3,237	\$ 18,314	\$ 76,964
2019	48,094	19,336	67,430	9,556	5,680	15,236	82,666
2020	50,738	30,057	80,795	11,257	9,940	21,197	101,992
2021	53,224	42,382	95,606	13,141	15,989	29,130	124,736
2022	55,504	54,755	110,259	15,229	17,537	32,766	143,025
2023	50,195	70,412	120,607	17,527	25,000	42,527	163,134
2024	51,617	83,975	135,592	20,031	34,270	54,301	189,893
2025	45,016	93,395	138,411	9,627	35,309	44,936	183,347
2026	45,873	108,529	154,402	10,932	45,276	56,208	210,610
2027	46,652	118,967	165,619	12,379	56,917	69,296	234,915
2028	38,250	117,883	156,133	-	45,638	45,638	201,771
2029	38,471	130,470	168,941	-	57,245	57,245	226,186
2030	38,609	138,301	176,910	-	62,867	62,867	239,777
2031	38,640	132,416	171,056	-	54,138	54,138	225,194
2032	38,557	134,878	173,435	-	47,699	47,699	221,134

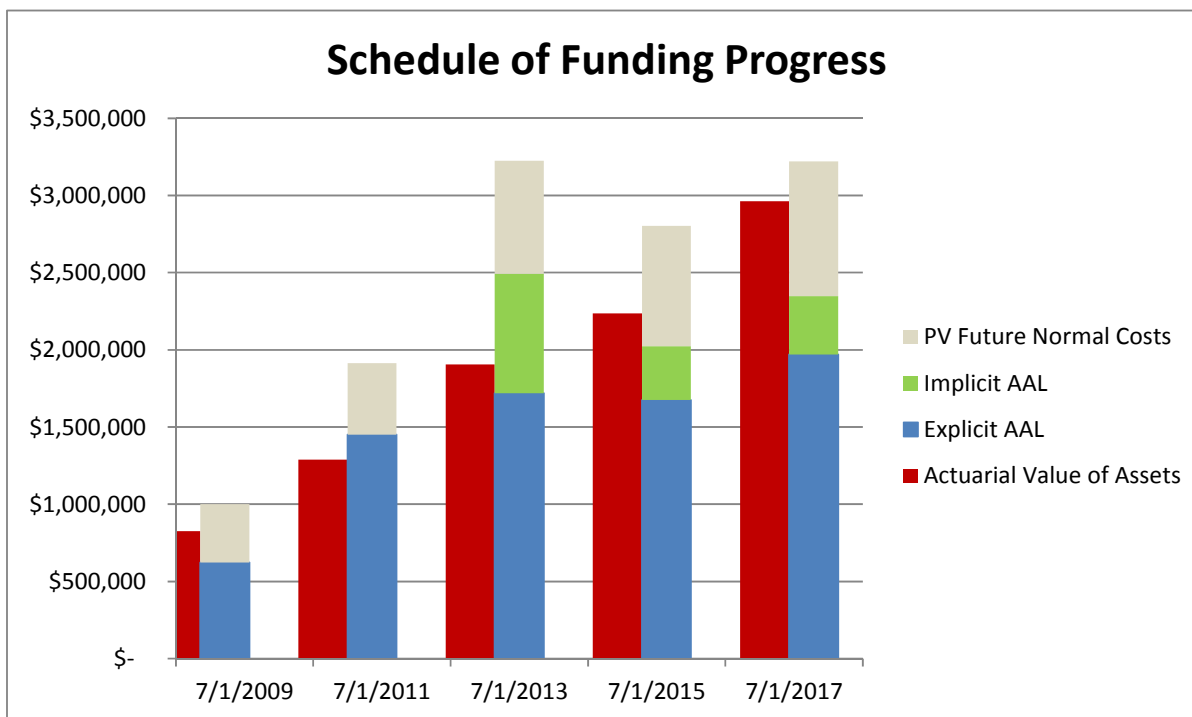
The amounts shown in the Explicit Subsidy section reflect the expected payment by the District toward retiree medical premiums in each of the years shown. The amounts are shown separately, and in total, for those retired on the valuation date (“current retirees”) and those expected to retire after the 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 1
Historical Information

In this section, we provide a review of key components of valuation results from 2009 through 2017. Each includes a review of the plan's funded ratio on the current and each prior valuation date as well as a comparison of actual or projected contribution levels for the fiscal years ending 2012 through June 30, 2019.

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	\$ 825,391	\$ 622,074	\$ (203,317)	132.7%	\$ 685,534	-29.7%
7/1/2011	\$ 1,288,250	\$ 1,449,495	\$ 161,245	88.9%	\$ 617,960	26.1%
7/1/2013	\$ 1,906,731	\$ 2,492,395	\$ 585,664	76.5%	\$ 680,305	86.1%
7/1/2015	\$ 2,236,164	\$ 2,023,381	\$ (212,783)	110.5%	\$ 693,147	-30.7%
7/1/2017	\$ 2,962,231	\$ 2,347,523	\$ (614,708)	126.2%	\$ 716,477	-85.8%



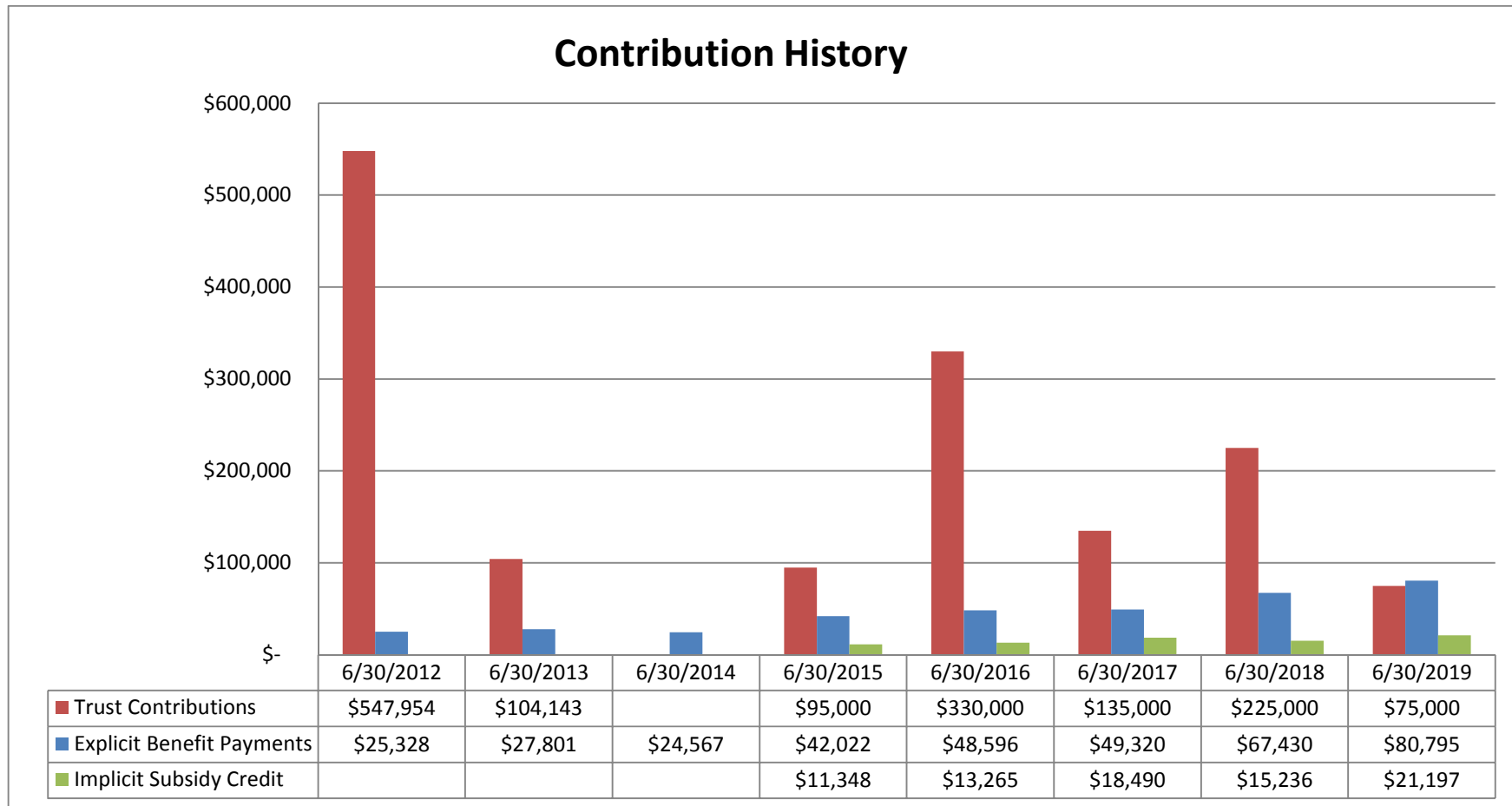
Note: The sum of PV Future normal costs, Implicit AAL and Explicit AAL equals the APV of Projected Benefits.

Significant changes during this period include:

- July 1, 2011: Discount rate decreased from 7.75% to 6.0%; reflected dependent coverage and increased % of retirees assumed to cover a spouse; updated demographic assumptions.
- July 1, 2013: First time recognition of the implicit subsidy liability
- July 1, 2015: Decrease in discount rate from 6.0% to 5.5%
- July 1, 2017: Decrease in discount rate from 5.5% to 5.0%; increase in assumed healthcare trend.

Appendix 1 - Historical Information (Continued)

This history of the District's OPEB contributions was compiled from a combination of prior audited financial statements, the July 2013 and July 2015 actuarial valuation reports and from OPEB contribution information provided directly to us by the District. If any of these contributions do not appear to be accurate, please let us know.



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 Contributions (ADC) – A basis for determining annual contributions to the trust that if consistently contributed by the employer should accumulate sufficient trust assets to finance plan benefits. The ADC is dependent on assumptions about the future which if not realized could cause the ADC to increase or decrease from current levels. The ADC generally has a component to pay for benefits earned in the current year (the “Normal Cost”) plus a component to pay for unfunded benefits that were earned in the past (the “Unfunded Accrued Liability”).

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 2020.

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.

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.

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.

Glossary
(Concluded)

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.