

MacLeod Watts

June 5, 2019

Eric Erickson
Finance & Human Resources Director
City of Mill Valley
26 Corte Madera Avenue
Mill Valley, CA 94941

Re: June 30, 2018 Actuarial Valuation: Determination of OPEB Funding Contributions

Dear Mr. Erickson:

We are pleased to enclose our report providing the results of the June 30, 2018 actuarial funding valuation of other post-employment benefit (OPEB) liabilities for the City of Mill Valley (the City). 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 City and to develop annual amounts to be contributed by the City for the fiscal years ending June 30, 2019, 2020 and June 30, 2021 toward prefunding the OPEB plan liability. This report may be submitted to the California Employers' Retiree Benefit Trust (CERBT) to satisfy filing requirements for the trust.

Items of note in this report are:

- Actuarially Determined Contributions (ADC) are developed on the same basis as the Annual Required Contribution was previously developed under GASB 45 and satisfies the requirements of an ADC as described under GASB 75. The City's current OPEB Funding Policy anticipates contributing 100% or more of the ADC each year.
- OPEB trust assets are assumed to remain in CERBT Asset Allocation Strategy 2. The future long term rate of return on trust assets assumed in this valuation is 6.0%.
- Information presented in this report is not considered suitable for satisfying the City's financial reporting requirements under GASB 75. That information will be developed and presented in a separate report.

We appreciate the opportunity to work on this analysis and acknowledge the efforts of City 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
Principal & Consulting Actuary



City of Mill Valley

Actuarial Valuation of Other
Post- Employment Benefit Programs
As of June 30, 2018

Development of OPEB Contribution Levels

Submitted June 2019

MacLeod Watts

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A. Executive Summary

This report presents the results of the June 30, 2018 actuarial valuation of the City of Mill Valley (the City) other post-employment benefit (OPEB) program. The primary purpose of this valuation is to assess the OPEB liabilities of the City and develop contribution levels for the funding of these benefits. OPEB information relevant to reporting in the City's financial statements 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 and dental premiums for eligible retirees. Future excise taxes expected to be paid for "high cost" retiree coverage are also explicit costs and are included as part of this liability.
- An "implicit subsidy" exists when the premiums charged for retiree coverage are lower than expected retiree claims for that coverage. The City's OPEB program includes implicit subsidy liabilities for retiree medical coverage under some plans. This is discussed later in the report.

Trust assets are currently invested in the CERBT with Asset Allocation Strategy 2 and the City expects these funds to yield 6.0% per year over the long term. 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 City indicated to us that it expects to contribute 100% of the ADC each year. Based on the facts above and with the City's approval, this valuation was prepared using a 6.0% 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.

Exhibits presented in this report apply the results of this June 30, 2018 valuation to develop the Actuarially Determined Contributions for the City's fiscal years ending June 30, 2019, 2020 and 2021. The ADC is calculated as the sum of the current year's Normal Cost plus amortization of the Unfunded Actuarial Accrued Liability over a remaining fixed period and adjusted with interest to fiscal year end.

The Actuarial Accrued Liability and Plan Assets as of June 30, 2018 for the City and SASM combined are shown below:

Subsidy	Explicit	Implicit	Total
Discount Rate	6.0%	6.0%	6.0%
Actuarial Accrued Liability	\$ 29,946,515	\$ 5,123,669	\$ 35,070,184
Actuarial Value of Assets	10,676,020	853,186	11,529,206
Unfunded Actuarial Accrued Liability	19,270,495	4,270,483	23,540,978
Funded Ratio	35.7%	16.7%	32.9%

This compares to a funded ratio of 25.7% two years ago. Page 7 provides details of these results.

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 program is closed to employees hired after dates between January 1 and May 15, 2017, depending on the applicable employee group.



Executive Summary

(Concluded)

The Actuarially Determined Contributions (ADCs) for the fiscal years ending June 30, 2019, 2020 and 2021 are shown below. Detailed development of the ADCs is shown in tables beginning on page 12.

Fiscal Year End	6/30/2019	6/30/2020	6/30/2021
Actuarially Determined Contribution (ADC)	\$ 2,389,781	\$ 2,458,292	\$ 2,528,553
Expected employer paid benefits for retirees	1,117,430	1,180,990	1,259,747
Current year's implicit subsidy credit	308,035	334,951	363,326
Expected contribution to OPEB trust	964,316	942,351	905,480
Total Expected OPEB Contributions	\$ 2,389,781	\$ 2,458,292	\$ 2,528,553

Current valuation results are compared to prior valuation results on page 6, followed by a discussion of changes. Some relevant historical information is also provided in the Appendix. An actuarial valuation is a complex, long term 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 but not limited to the following:

- 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 City toward retiree medical and dental 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 and process are provided on the following pages. Key terms used in the report are described briefly in Section C on page 5 and in the Glossary. We want to point out that certain actuarial terms used for plan funding have parallel terms with different names when used for GASB 75 reporting. This can be confusing when comparing results from an actuarial report providing funding information against one prepared for accounting purposes.

The next actuarial valuation is scheduled to be prepared as of June 30, 2020. 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 City's other postemployment benefits and to provide the annual contribution information with respect to the City'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 City should consult counsel on these matters; MacLeod Watts 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 City.

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		<i>Covered by higher active premiums</i>
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 some retirees. Where applicable, the implicit subsidy is not affected by how much or little of the premium is paid by the City.

OPEB Obligations of the City

The City provides continuation of medical and dental coverage to a *closed group* of current and potential future retirees. These benefits create one or more of the following types OPEB liabilities:

- **Explicit subsidy liabilities:** The City contributes directly toward retiree medical and/or dental premiums, as described in Table 3. Corresponding liabilities are included in this valuation.
- **Implicit subsidy liabilities:** In addition to whatever portion of retiree premiums are paid directly by the City, we also analyzed whether there is likely to be an excess of projected retiree claims over the projected premiums for retiree coverage. To quantify this projected difference with respect to medical (and prescription drug) coverage, we followed the methodology outlined in Table 4 and described further in Addendum 1: MacLeod Watts Age Rating Methodology.

In particular, our analysis developed an implicit subsidy liability relating to Kaiser HMO coverage for retirees prior to eligibility for Medicare. However, our projections indicated that, collectively, the premiums charged for retirees covered by Health Net plans are highly likely to be sufficient to cover the claims of these retirees, resulting in no implicit subsidy liability. Premiums for the Kaiser Senior Advantage plan are developed separately from the experience of active and pre-Medicare retirees and are expected to be sufficient to cover the claims of these retirees as well. We assumed no implicit subsidy exists for retiree dental premiums.



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 City’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 the City alone, a combination of the City and plan participants, or be passed entirely to the retirees. The practicalities of how the tax will be recovered by insurers will likely affect the eventual result.

In this report, we assume that 100% of any excise tax liability for high cost retiree coverage will be borne by the City. No legal obligation as to the City’s current or future liability to absorb this potential tax is to be construed from this assumption. Please see the footnote under the chart on page 6 for an estimate of the projected retiree tax liability.



C. Valuation Process

The valuation has been based on employee census data and benefits initially submitted to us by the City in December 2018 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 3. 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 City 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 City to receive benefits.
- To the extent assumed to retire from the City, 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 and which plan they will select for coverage.

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 person 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*.

These components relate to one another as follows:

Actuarial Funding Terminology	Costs Allocated To	GASB 75 Term	Applicable To
Actuarial Accrued Liability (AAL)	All Prior Service Years	Total OPEB Liability (TOL)	Actives & Retirees
<i>plus</i> Normal Cost (NC)	Current Year	Service Cost	Actives only
<i>plus</i> Present Value of Future Normal Costs	Future Years	<i>Not considered</i>	Actives only
<i>equals</i> Present Value of Proj Benefits (PVPB)	Past, Present, Future	<i>Not considered</i>	Actives & 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 audited market value of assets invested in in the City's CERBT account. The June 30, 2018 market value of assets in this report was \$11,529,206 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 June 30, 2018 valuation of OPEB liabilities to the results of the July 1, 2016 valuation.

Funding Policy Valuation date	Prefunding Basis					
	7/1/2016			6/30/2018		
	Explicit	Implicit	Total	Explicit	Implicit	Total
Subsidy						
Discount rate	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Number of Covered Employees						
Actives	126	126	126	102	90	102
Retirees	76	36	76	85	32	86
Total Participants	202	162	202	187	122	188
Actuarial Present Value of Projected Benefits						
Actives	\$ 17,409,993	\$ 4,444,284	\$ 21,854,277	\$ 16,829,211	\$ 4,053,857	\$ 20,883,068
Retirees	16,062,560	2,088,342	18,150,902	19,346,030	2,663,152	22,009,182
Total APVPB	33,472,553	6,532,626	40,005,179	36,175,241	6,717,009	42,892,250
Actuarial Accrued Liability (AAL)						
Actives	10,607,229	2,686,684	13,293,913	10,600,485	2,460,517	13,061,002
Retirees	16,062,560	2,088,342	18,150,902	19,346,030	2,663,152	22,009,182
Total AAL	26,669,789	4,775,026	31,444,815	29,946,515	5,123,669	35,070,184
Actuarial Value of Assets	7,313,073	756,187	8,069,260	10,676,020	853,186	11,529,206
Unfunded AAL (UAAL)	19,356,716	4,018,839	23,375,555	19,270,495	4,270,483	23,540,978
Normal Cost	656,127	164,996	821,123	588,298	141,066	729,364
Percent funded	27.4%	15.8%	25.7%	35.7%	16.7%	32.9%
Reported covered payroll			12,281,782			13,093,070
UAAL as percent of payroll			190.3%			179.8%

Note: The June 30, 2018 Explicit Subsidy AAL includes about \$1.45 million in projected excise tax liability for "high cost" retiree coverage as described in the Affordable Care Act.



Basic Valuation Results

(Concluded)

Changes Since the Prior Valuation

Even if all of the 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, the prior assumptions are not likely ever to be exactly realized. Nonetheless, it is helpful to review why results are different than may have been anticipated.

In comparing results shown in the exhibit on the preceding page, we can see that the Unfunded Actuarial Accrued Liability (UAAL) increased by about \$165,000 between June 30, 2016 and June 30, 2018, from \$23,376,000 to \$23,541,000. Some of this difference was expected based on normal plan operation and assumptions made in the prior valuation, referred to as the “passage of time”. 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. While plan benefits did change for recent employees, this did not impact the change in UAAL over the past 2 years.¹

Overall, the actual UAAL is quite close to the expected UAAL (less than 2% difference). This chart summarizes the main sources of the difference.

Source of Change	Increase (decrease) in UAAL
Update to model for developing age-based medical premiums	\$ 255,000
Updated demographic assumptions, based on the CalPERS 2017 experience study and update in mortality projection scale	(28,000)
Two-year delay in implementation of excise tax	(76,000)
Expected change in the UAAL due to passage of time	(126,000)
Plan experience: Asset return relative to expected	41,000
Other plan experience: Liabilities other than expected	99,000
Change in UAAL from July 2016 to June 2018	\$ 165,000

Passage of time refers to expected changes in the UAAL between valuation dates. This includes additional cost accruals ‘absorbed’ into the AAL, trust contributions added, a portion of liabilities released as benefits are paid to retirees and remaining benefit values increased by the reversal of discounting, since they are two years closer to their eventual payment dates.

Plan experience includes differences between what was assumed would occur and what actually occurred during the prior two years. This often includes differences between actual and expected employee behavior, such as ending employment prior to retirement, the timing of new retirements, plan selection and/or coverage of dependents.

¹ Unless specifically requested, an OPEB valuation prepared to develop contribution levels does not typically include costs for employees not yet hired. At the time the July 2016 valuation was prepared, the plan was still “open”. Thus, projecting the 2016 AAL forward to 2018 would be unaffected by the plan closure. We anticipated that the number of active members would decrease due to employee separations prior to retirement, new retirements and some deaths. Decreases (or increases) in the liability only occur to the extent that the population changes or projected benefit costs *are other than we previously projected*, or as we now project based on new assumptions.

The normal cost has decreased by \$90,000 since 2016, however. This is a direct result of the reduced number of active employees who continue to be eligible for OPEB in retirement.



E. Funding Policy

Actuarially Determined Contributions and City Funding Policy

The Actuarially Determined Contribution (ADC) consists of two basic components, which have been adjusted with interest to the City'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, 2019 is 20 years. Amortization payments are determined on a level percent of pay basis.²

The City's Funding Policy is to contribute 100% or more of the ADC each year. The amounts calculated for the fiscal years ending June 30, 2019, 2020 and 2021 are shown in Tables 1A, 1B and 1C.

Paying Down 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 City 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	\$ 2,372,000	\$ 1,117,000	\$ 3,489,000
Current Year's Implicit Subsidy Adjustment	\$ (308,000)	\$ 308,000	\$ -
Adjusted contributions reported in Financial Stmts	\$ 2,064,000	\$ 1,425,000	\$ 3,489,000

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

² 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 City. 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 City employees. Other assumptions, such as healthcare trend, age related healthcare claims, retiree participation rates and spouse 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 the plan, it is most common to use the expected long-term yield on investments likely to be deployed to pay the benefits. Other strategies could include using a long-term debt rate to calculate contribution levels even if the City hopes their long-term investment strategy will yield higher returns. In this way, required contributions may be reduced *if* those higher returns are realized, but only *as* they are actually realized. If higher returns are not realized to the degree expected, then the difference between the debt rate and the actual earnings rate acts as a safety margin so that larger contributions than planned are less likely to occur.

CalPERS’ most recent projected annual returns for CERBT Allocation Strategy 2 anticipate 5.12% for the next 10 years and about 7.4% for the following 50 years, net of investment-related expenses. Over a 60-year period, CalPERS reports an average expected net rate of return of 7.0%. Volatility in returns will likely lessen this average. The City has chosen to fund based on a discount rate of 6.0%, consistent with its expectation of the long-term return of trust assets. Differences in the City’s benefit and contribution cash flows and timeline relative to CERBT will also impact actual returns.



G. Certification

The purpose of this report is to provide actuarial information and potential contribution levels in conformity with the City of Mill Valley's funding policy for the City's other post-employment benefits. The City is not required to contribute the contributions developed in this report and we make no representation that the City will in fact fund the OPEB trust at any particular level.

In preparing this report we relied without audit on information provided by the City. This information includes, but is not limited to, plan provisions, census data, and financial information. We summarized the benefits in this report and our calculations were based on our understanding of the benefits as described herein. A limited review of this data was performed, and we found the information to be reasonably consistent. The accuracy of this report is dependent on this information and if any of the information we relied on is incomplete or inaccurate, then the results reported herein will be different from any report relying on more accurate information.

We consider the actuarial assumptions and methods used herein to be individually reasonable taking into account reasonable expectations of plan experience and the funding methodology adopted by the City. The expected return on OPEB trust assets was provided by CERBT and was the rate expected (published) as of the valuation date. The results, and the assumptions on which they depend, provide an estimate of the plan's financial condition at one point in time. Future actuarial results may be significantly different due to a variety of reasons including, but not limited to, demographic and economic assumptions differing from future plan experience, changes in plan provisions, changes in applicable law, or changes in the value of plan benefits relative to other alternatives available to plan members.

Alternative assumptions may also be reasonable; however, demonstrating the range of potential plan funding patterns based on alternative assumptions was beyond the scope of our assignment. Results based on other assumptions or funding strategies may be materially different and present materially different funding patterns.

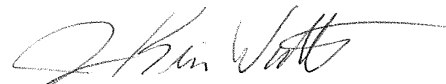
This report is prepared solely for the use and benefit of the City and may not be provided to third parties without prior written consent of MacLeod Watts. Exceptions are: The City may provide copies of this report to their professional accounting and legal advisors who are subject to a duty of confidentiality, to CERBT, and the City may provide this work to any party if required by law or court order. No part of this report should be used as the basis for any representations or warranties in any contract or agreement without the written consent of MacLeod Watts.

The undersigned actuaries are unaware of any relationship that might impair the objectivity of this work. Nothing within this report is intended to be a substitute for qualified legal or accounting counsel. Both actuaries are members of the American Academy of Actuaries and meet the qualification standards for rendering this opinion.

Signed: June 5, 2019



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



J. Kevin Watts, FSA, FCA, MAAA



Table 1

Actuarially Determined Contributions for fiscal years 2019, 2020 and 2021: The basic results of our June 30, 2018 valuation of OPEB liabilities for the City were summarized in Section D. Those results are applied to develop the actuarially determined contribution (ADC) for the fiscal years ending June 30, 2019, 2020 and June 30, 2021.³

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

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

GASB 75 Calculations: Calculations and exhibits for presentation in the City's financial statements will be provided in separate reports each year.

Employees reflected in future years' costs: The counts of active employees and retirees shown in the 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.

Plan Closure: In general, an OPEB valuation is prepared on a closed group basis, not anticipating future employees until they are hired at which point costs begin to be allocated toward potential future benefit costs at that time. However, the City has closed this defined benefit OPEB plan to employees hired after dates ranging from January 1 to May 15, 2017 (see Table 3, Summary of Retirement Benefit Provisions for specific dates). There are expected to be no future employees who will qualify for benefits under this program.

³ Under GASB 45, development of OPEB contribution levels and required accounting disclosures were typically developed hand in hand and focused on the Annual Required Contribution or ARC (now referred to as Actuarially Determined Contributions or ADC). ARC levels were required to be updated every two years. With the implementation of GASB 75, the limitation of applying one valuation to develop the ADC (ARC) for at most two years is no longer strictly applicable. We have included 3 years of ADC development in this report to build in more flexibility for the City when budgeting OPEB contribution levels during the year a new valuation is being prepared. It is still the case, however, that a new valuation must be prepared at least every two years for GASB 75 reporting purposes.



Table 1A
Actuarially Determined Contribution for Fiscal Year Ending 2019

This table develops the ADC for the fiscal year ending June 30, 2019. Results are shown separately, and in total, relating to Explicit and Implicit Subsidy OPEB and include both the City and SASM.

Funding Policy	Prefunding Basis		
Valuation date	6/30/2018		
	Explicit	Implicit	Total
	6/30/2019	6/30/2019	6/30/2019
Subsidy			
For fiscal year ending			
Expected long-term return on assets	6.00%	6.00%	6.00%
Discount rate	6.00%	6.00%	6.00%
Number of Covered Employees			
Actives	102	90	102
Retirees	85	32	86
Total Participants	187	122	188
Actuarial Present Value of Projected Benefits			
Actives	\$ 16,829,211	\$ 4,053,857	\$ 20,883,068
Retirees	19,346,030	2,663,152	22,009,182
Total APVPB	36,175,241	6,717,009	42,892,250
Actuarial Accrued Liability (AAL)			
Actives	10,600,485	2,460,517	13,061,002
Retirees	19,346,030	2,663,152	22,009,182
Total AAL	29,946,515	5,123,669	35,070,184
Actuarial Value of Assets	10,676,020	853,186	11,529,206
Unfunded AAL (UAAL)	19,270,495	4,270,483	23,540,978
UAAL Amortization method	Level % of Pay	Level % of Pay	Level % of Pay
Remaining amortization period (years)	20	20	20
Amortization Factor	15.4352	15.4352	15.4352
Actuarially Determined Contribution (ADC)			
Normal Cost	\$ 588,298	\$ 141,066	\$ 729,364
Amortization of UAAL	1,248,475	276,671	1,525,146
Interest to fiscal year end	110,206	25,065	135,271
Total ADC	1,946,979	442,802	2,389,781
Expected Employer OPEB Contributions			
Estimated payments on behalf of retirees	\$ 1,117,430	\$ -	\$ 1,117,430
Estimated current year's implicit subsidy	-	308,035	308,035
Estimated contribution to OPEB trust	829,549	134,767	964,316
Total Expected Employer Contribution	1,946,979	442,802	2,389,781

The portion of the ADC for fiscal year end 2019 attributable to the estimated excise tax liability is \$131,214.

If actual retiree benefit (premium) payments are different than estimated above, the contribution to the trust should be adjusted so that total OPEB contributions equal or exceed the ADC each year.



Table 1B
Actuarially Determined Contribution for Fiscal Year Ending 2020

This table develops the ADC for the fiscal year ending June 30, 2020. Results are shown separately, and in total, relating to Explicit and Implicit Subsidy OPEB and include both the City and SASM.

Funding Policy	Prefunding Basis		
Valuation date	6/30/2018		
Subsidy	Explicit	Implicit	Total
For fiscal year ending	6/30/2020	6/30/2020	6/30/2020
Expected long-term return on assets	6.00%	6.00%	6.00%
Discount rate	6.00%	6.00%	6.00%
Number of Covered Employees			
Actives	102	90	102
Retirees	85	32	86
Total Participants	187	122	188
Actuarial Present Value of Projected Benefits			
Actives	\$ 17,810,518	\$ 4,287,544	\$ 22,098,062
Retirees	19,384,284	2,515,209	21,899,493
Total APVPB	37,194,802	6,802,753	43,997,555
Actuarial Accrued Liability (AAL)			
Actives	11,831,664	2,748,135	14,579,799
Retirees	19,384,284	2,515,209	21,899,493
Total AAL	31,215,948	5,263,344	36,479,292
Actuarial Value of Assets	12,171,017	1,043,187	13,214,204
Unfunded AAL (UAAL)	19,044,931	4,220,157	23,265,088
UAAL Amortization method	Level % of Pay	Level % of Pay	Level % of Pay
Remaining amortization period (years)	19	19	19
Amortization Factor	14.8557	14.8557	14.8557
Actuarially Determined Contribution (ADC)			
Normal Cost	\$ 607,418	\$ 145,650	\$ 753,068
Amortization of UAAL	1,281,998	284,077	1,566,075
Interest to fiscal year end	113,365	25,784	139,149
Total ADC	2,002,781	455,511	2,458,292
Expected Employer OPEB Contributions			
Estimated payments on behalf of retirees	\$ 1,180,990	\$ -	\$ 1,180,990
Estimated current year's implicit subsidy	-	334,951	334,951
Estimated contribution to OPEB trust	821,791	120,560	942,351
Total Expected Employer Contribution	2,002,781	455,511	2,458,292

The portion of the ADC for fiscal year end 2020 attributable to the estimated excise tax liability is \$144,592.

If actual retiree benefit (premium) payments are different than estimated above, the contribution to the trust should be adjusted so that total OPEB contributions equal or exceed the ADC each year.



Table 1C
Actuarially Determined Contribution for Fiscal Year Ending 2021

This table develops the ADC for the fiscal year ending June 30, 2021. Results are shown separately, and in total, relating to Explicit and Implicit Subsidy OPEB and include both the City and SASM.

Funding Policy	Split Funding Basis		
Valuation date	6/30/2018		
Subsidy	Explicit	Implicit	Total
For fiscal year ending	6/30/2021	6/30/2021	6/30/2021
Expected long-term return on assets	6.00%	6.00%	6.00%
Discount rate	6.00%	6.00%	6.00%
Number of Covered Employees			
Actives	102	90	102
Retirees	85	32	86
Total Participants	187	122	188
Actuarial Present Value of Projected Benefits			
Actives	\$ 18,818,194	\$ 4,525,148	\$ 23,343,342
Retirees	19,391,877	2,340,770	21,732,647
Total APVPB	38,210,071	6,865,918	45,075,989
Actuarial Accrued Liability (AAL)			
Actives	13,124,472	3,047,763	16,172,235
Retirees	19,391,877	2,340,770	21,732,647
Total AAL	32,516,349	5,388,533	37,904,882
Actuarial Value of Assets	13,747,723	1,229,955	14,977,678
Unfunded AAL (UAAL)	18,768,626	4,158,578	22,927,204
UAAL Amortization method	Level % of Pay	Level % of Pay	Level % of Pay
Remaining amortization period (years)	18	18	18
Amortization Factor	14.2592	14.2592	14.2592
Actuarially Determined Contribution (ADC)			
Normal Cost	\$ 627,159	\$ 150,384	\$ 777,543
Amortization of UAAL	1,316,244	291,640	1,607,884
Interest to fiscal year end	116,604	26,522	143,126
Total ADC	2,060,007	468,546	2,528,553
Expected Employer OPEB Contributions			
Estimated payments on behalf of retirees	\$ 1,259,747	\$ -	\$ 1,259,747
Estimated current year's implicit subsidy	-	363,326	363,326
Estimated contribution to OPEB trust	800,260	105,220	905,480
Total Expected Employer Contribution	2,060,007	468,546	2,528,553

The portion of the ADC for fiscal year end 2021 attributable to the estimated excise tax liability is \$159,761.

If actual retiree benefit (premium) payments are different than estimated above, the contribution to the trust should be adjusted so that total OPEB contributions equal or exceed the ADC each year.



Table 2
Summary of Employee Data

Active Plan Members: As mentioned earlier, this OPEB program is now closed to employees hired after specific dates in 2017 (detailed in Table 3). The City reported 102 active employees potentially eligible for future benefits in the data provided to us for the June 2018 valuation. Of these, 92 are currently enrolled in the medical program and 10 are waiving coverage at this time.

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		1					1	1%
25 to 29		2	1				3	3%
30 to 34		8	14				22	22%
35 to 39		4	6	6	3		19	19%
40 to 44		2	1	4	1	1	9	9%
45 to 49		2	3	8	2	2	17	17%
50 to 54		1	2	2	3	6	14	14%
55 to 59			2	2		1	5	5%
60 to 64			2	1	4		7	7%
65 to 69		2		1	1		4	4%
70 & Up				1			1	1%
Total	0	22	31	25	14	10	102	100%
Percent	0%	22%	30%	25%	14%	10%	100%	

<u>Valuation</u>	<u>July 2016</u>	<u>June 2018</u>
Annual Covered Payroll	\$12,281,782	\$13,093,070
Average Attained Age for Actives	43.7	44.5
Average Years of Service	9.4	10.8

There are also 84 retirees and 2 survivors currently receiving benefits under this program. Their ages are summarized in the chart below.

Retirees by Age					
Current Age	Misc	Police	Fire	Total	Percent
Below 50	0	0	0	0	0%
50 to 54	4	2	1	7	8%
55 to 59	8	5	5	18	21%
60 to 64	14	2	3	19	22%
65 to 69	15	0	3	18	21%
70 to 74	10	2	0	12	14%
75 to 79	3	1	1	5	6%
80 & up	5	1	1	7	8%
Total	59	13	14	86	100%
Average Age:					
On 6/30/2018	66.5	63.1	64.1	65.6	
At retirement	57.7	52.2	54.7	56.4	



Table 2- Summary of Employee Data
(Concluded)

The chart below reconciles the number of actives and retirees included in the July 1, 2016 valuation of the City plan with those included in the June 30, 2018 valuation:

Reconciliation of City & SASM Plan Members Between Valuation Dates						
Status	Covered Actives	Waiving Actives	Covered Retirees	Covered Disabled Retirees	Covered Surviving Spouses	Total
Number reported as of July 1, 2016	116	10	59	14	3	202
New employees	3	-	-	-	-	3
Separated employees	(11)	(1)	-	-	-	(12)
Eligible new retiree, elected benefits	(10)	-	10	-	-	0
Eligible new retiree, waived benefits	-	-	-	-	-	0
New retiree, ineligible for OPEB	(4)	(1)	-	-	-	(5)
Previously waiving, now covered	-	-	1	-	-	1
Previously covered, now waiving	(2)	2				
Deceased or dropped coverage	-	-	-	-	(1)	(1)
Number reported as of June 30, 2018	92	10	70	14	2	188

The reconciliation above excludes 29 employees hired after the date(s) this program closed for the applicable employee group. See Table 3 for these dates.

Overall, the number of active, OPEB-eligible plan members decreased by 24, from 126 to 102, representing a 19% decrease in active employees included in the valuation. The number of covered retirees increased by 10, from 76 to 86.

Of the 15 new retirements reported as occurring between July 1, 2016 and June 30, 2018, 10 of those qualified for OPEB and all 10 elected to continue medical coverage through the City. The remaining 5 new retirees did not qualify for OPEB.

Separate age and service statistics are provided below for miscellaneous and safety employees comparing information from the June 2018 and July 2016 valuations. These counts and averages include both City and SASM plan members.

2018 Status	Active City Employees			Retired City Employees		
	Misc	Safety	Total	Misc	Safety	Total
Employee Type						
Count	63	39	102	59	27	86
Average current age	47.7	39.3	44.5	66.5	63.6	65.6
Average service years	10.7	11.1	10.9	20.4	25.3	21.9
Average retirement age	Not applicable			57.7	53.5	56.4
2016 Status	Active City Employees			Retired City Employees		
	Misc	Safety	Total	Misc	Safety	Total
Employee Type						
Count	81	45	126	50	26	76
Average current age	46.9	37.9	43.7	65.9	62.7	65.0
Average service years	9.2	9.6	9.4	21.0	25.3	22.2
Average retirement age	Not applicable			58.1	53.4	57.5



Table 2- Summary of Employee Data
(Concluded)

There are two benefit tiers defining OPEB eligibility and the amount of subsidy provided by the City. The following chart shows the total number of active and retired employees in each unit by benefit tier. Counts include both City and SASM plan members.

Unit	Actives		Retirees	
	Tier I	Tier II	Tier I	Tier II
AFSCME	21	8	19	-
Battalion Chief	2	-	-	-
Management	23	8	30	-
Management - Dept Head	5	-	15	-
MVFFA	10	6	12	-
MVPOA	16	3	10	-
Total	77	25	86	0

The City's OPEB liability is dependent, to some extent, on the health plan and coverage level selected by retirees. The following chart summarizes current health plan enrollment for all actives and retirees (including both City Plan and SASM Plan members). Experience shows an inclination to move from the Health Net plans to Kaiser coverage in retirement, almost universally so for married retirees. We considered this experience in setting our assumptions regarding retiree coverage elections.

Employees by Medical Plan Coverage				
	Active	Pre-65 Retirees	Post-65 Retirees	Total
Health Net HMO				
Employee Only	5	3	3	11
Employee & Spouse	3	1	2	6
Employee & Children	2	-	-	2
Employee & Family	-	-	-	0
<i>Total</i>	10	4	5	19
Health Net PPO				
Employee Only	6	1	2	9
Employee & Spouse	-	-	-	0
Employee & Children	-	-	-	0
Employee & Family	-	-	-	0
<i>Total</i>	6	1	2	9
Kaiser				
Employee Only	24	4	14	42
Employee & Spouse	17	27	16	60
Employee & Children	9	-	-	9
Employee & Family	26	1	-	27
<i>Total</i>	76	32	30	138
Outside Coverage	10	7	5	22



Table 3
Summary of Retiree Benefit Provisions

OPEB provided: The City reported that the only OPEB provided are medical and dental coverage.

Access to coverage: This coverage is available for employees who retire with PERS and satisfy certain additional service requirements, which are described on the following page. Retirees and/or their dependents who do not meet the minimum eligibility criteria on the following page are not allowed to participate in the City’s healthcare plans, other than as temporarily available under COBRA.

Dependent Coverage: Tier I retirees may not cover dependent children on City health plans. Spouses covered at time of a Tier 1 retiree’s death may continue coverage in the City’s plans for life. Tier II retirees may not enroll spouses or dependent children in the City’s health plans.

Current premium rates: The monthly healthcare premium rates in effect for the period October 1, 2018 – September 30, 2019 are shown below:

Monthly Medical Premiums	Actives and Pre-65 Retirees		
Plan	Ee Only	Ee & 1	Ee & 2+
Health Net PPO	\$ 1,439.39	\$ 3,094.67	\$ 4,246.80
Health Net HMO	1,135.14	2,440.56	3,348.75
Kaiser HMO	721.01	1,442.02	2,040.46
	Post 65 Retirees		
Plan	Ee Only	Ee & 1	Ee & 2+
Health Net PPO	1,682.39	3,364.78	
Health Net HMO	1,407.78	2,845.56	
Kaiser Senior Advantage	305.33	615.33	

Delta Dental Rates	
Employee Only	\$ 57.20
Employee + Spouse	102.10
Family	114.50

This overview of benefits is continued on the following page.



Summary of Retiree Benefit Provisions
(Concluded)

		Hired After	Hired Before	Eligibility	Medical Benefit	Dental Benefit	Term of Benefits
Tier I	AFSCME	n/a	4/1/2013	Retire directly from the City with 15 years of City service ^{1, 2}	City pays retiree and spouse premiums up to the pre-Medicare two party Kaiser premium rate (up to \$1,442.02 in 2018)	None	Lifetime of retiree & spouse
	Non-Represented		4/15/2013			City pays 100% of retiree and spouse dental premiums (up to \$102.10 in 2018)	
	Police						
	Fire						
	Battalion Chief	5/6/2013					
Tier II	AFSCME	3/31/2013	1/1/2017	Retire directly from the City with 20 years of City service ³	City pays retiree premiums up to 2/3 of the pre-Medicare employee only Kaiser premium rate (up to \$480.67 in 2018)	None	Lifetime of retiree
	Non-Represented	4/14/2013	2/21/2017			City pays up to 2/3 of the employee only dental premium (up to \$38.13 in 2018)	
	Police		5/15/2017				
	Fire		5/1/2017				
		Battalion Chief	5/6/2013			1/1/2017	

¹ Different service requirements apply to three current AFSCME employees.

² Department Heads qualify with only 7.5 years of City service.

³ Department Heads qualify with only 10 years of City service.

Retirees who do not meet the eligibility requirements for Tier I or II are not eligible for OPEB. The City does not allow employees hired after the dates shown above to continue coverage in retirement, other than as required/permitted under COBRA. This includes dependents of Tier II retirees.



Table 4
Actuarial Methods and Assumptions

Valuation Date	June 30, 2018
Funding Method	Entry Age Normal Cost, level percent of pay ⁴
Asset Valuation Method	Market value of assets
Long Term Return on Assets	6.0%, net of plan investment expenses and including inflation
Discount Rate	6.0%
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; since benefits do not depend on pay, this is 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

To value the OPEB benefits provided by the City, we make many assumptions about the likelihood of various events occurring that will affect *eligibility for* and/or *the amount of* benefits expected to be paid to each individual employee, retiree and their potentially eligible dependents. We assign specific probabilities each year for mortality (before and after retirement), termination (withdrawal) of employment and for service or disability retirement. These assumptions are generally referred to as “demographic assumptions”. The demographic actuarial assumptions used in this valuation, with the exception of projected mortality improvements, are based on the December 2017 experience study of the California Public Employees Retirement System, using data from 1997 to 2015. We believe these assumptions are reasonable and relevant to the City’s employee population.

CalPERS chose to reflect mortality improvements “statically”. Static mortality projections choose a constant number of years (e.g. 16) to improve mortality with the number of years chosen typically representing some measure of the duration of liabilities. Since a typical medical OPEB liability has a longer duration we projected mortality “generationally”. A generational projection projects mortality to each future year that the valuation encounters potential payments and then discounts those payments by the projected mortality. We believe this better reflects CalPERS’ intent to reflect improving mortality but can do so over a wider range of potential liability durations. Details of our methodology are provided in Addendum 2: MacLeod Watts Mortality Projection Methodology.

Rates for selected age and service are shown on the following pages and express the likelihood that the event (e.g., death, retirement or termination of employment) will occur in a twelve-month period.

⁴ 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 Improvement MacLeod Watts Scale 2018 applied generationally.

Mortality Before Retirement (before improvement applied):

The following charts show a selection of rates of mortality prior to retirement. The rates vary by gender and by type of employee (miscellaneous or safety) and each rate represents the likelihood that a current employee would die during each twelve-month period after the valuation date. The representative mortality rates shown below were those published by CalPERS in their 2017 study, adjusted to back out 15 years of Scale MP 2016 to central year 2015.

CalPERS Public Agency Miscellaneous Non- Industrial Deaths			CalPERS Public Agency Police & Fire Combined Industrial & Non-Industrial		
Age	Male	Female	Age	Male	Female
15	0.00019	0.00004	15	0.00023	0.00008
20	0.00027	0.00008	20	0.00032	0.00013
30	0.00044	0.00018	30	0.00053	0.00025
40	0.00070	0.00040	40	0.00081	0.00050
50	0.00135	0.00090	50	0.00150	0.00104
60	0.00288	0.00182	60	0.00306	0.00200
70	0.00693	0.00438	70	0.00714	0.00459
80	0.01909	0.01080	80	0.01934	0.01105

Mortality After Retirement (before improvement applied):

Death after retirement signals the end of benefits for the retiree, though benefits may continue for a surviving spouse. As above, rates vary by gender but also vary based on whether the employee took a service or a disability retirement and represent the likelihood that a retiree or beneficiary will die during each twelve-month period after the valuation date.

Rates in the tables below and at the top of the following page were those published by CalPERS in their 2017 study, adjusted to back out 15 years of Scale MP 2016 to central year 2015.

CalPERS Public Agency Miscellaneous, Police & Fire Post Retirement Mortality			CalPERS Public Agency Disabled Miscellaneous Post-Retirement Mortality		
Age	Male	Female	Age	Male	Female
40	0.00070	0.00040	20	0.00027	0.00008
50	0.00431	0.00390	30	0.00044	0.00018
60	0.00758	0.00524	40	0.00070	0.00040
70	0.01490	0.01044	50	0.01371	0.01221
80	0.04577	0.03459	60	0.02447	0.01545
90	0.14801	0.11315	70	0.03737	0.02462
100	0.35053	0.30412	80	0.07218	0.05338
110	1.00000	1.00000	90	0.16585	0.14826



Table 4 - Actuarial Methods and Assumptions (Continued)

Mortality After Retirement (continued)

CalPERS Public Agency Disabled Fire Post- Retirement Mortality			CalPERS Public Agency Disabled Police Post- Retirement Mortality		
Age	Male	Female	Age	Male	Female
20	0.00027	0.00009	20	0.00034	0.00010
30	0.00031	0.00014	30	0.00023	0.00012
40	0.00034	0.00022	40	0.00023	0.00017
50	0.00780	0.00681	50	0.00642	0.00563
60	0.01250	0.00809	60	0.01059	0.00696
70	0.02361	0.01647	70	0.02185	0.01537
80	0.06612	0.04975	80	0.06477	0.04883
90	0.18524	0.14349	90	0.18501	0.14169

Termination (Withdrawal) Rates

Whether voluntary or involuntary, if an individual ends his or her employment with the City for reasons other than death and does not meet the requirements necessary to qualify for benefits, those benefits will be not be paid. We make assumptions about the likelihood that an employee will leave service in every year between the valuation date and the earliest expected date of retirement. These rates vary based on the employee’s age, prior years of CalPERS membership and whether the employee is a safety or miscellaneous employee.

For example, consider a miscellaneous employee, hired at age 25 and now age 30 (i.e., has 5 prior years of service). Ignoring the potential of death or disability, he or she is assumed to have a 6.15% chance of ending employment with the City during the next 12 months.

A safety employee hired at the same age 5 years ago and now age 30 is assumed to have only a 1.46% chance of ending employment with the City during the next 12 months.

Miscellaneous Employees: Sum of Vested Terminated & Refund Rates From CalPERS Experience Study Report Issued December 2017						
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	0.0654	0.0000	0.0000	0.0000
25	0.1674	0.1125	0.0634	0.0433	0.0000	0.0000
30	0.1606	0.1055	0.0615	0.0416	0.0262	0.0000
35	0.1537	0.0987	0.0567	0.0399	0.0252	0.0184
40	0.1468	0.0919	0.0519	0.0375	0.0243	0.0176
45	0.1400	0.0849	0.0480	0.0351	0.0216	0.0168

Fire Safety Employees: Sum of Vested Terminated & Refund Rates From CalPERS Experience Study Report Issued December 2017						
Attained Age	Years of Service					
	0	3	5	10	15	20
15	0.1298	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.1298	0.0237	0.0146	0.0000	0.0000	0.0000
25	0.1298	0.0237	0.0146	0.0069	0.0000	0.0000
30	0.1298	0.0237	0.0146	0.0069	0.0052	0.0000
35	0.1298	0.0237	0.0146	0.0069	0.0052	0.0041
40	0.1298	0.0237	0.0146	0.0069	0.0052	0.0041
45	0.1298	0.0237	0.0146	0.0069	0.0052	0.0041



Table 4 - Actuarial Methods and Assumptions (Continued)

Termination Rates (Concluded)

Police Safety Employees: Sum of Vested Terminated & Refund Rates From CalPERS Experience Study Report Issued December 2017						
Attained	Years of Service					
Age	0	3	5	10	15	20
15	0.1013	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.1013	0.0258	0.0249	0.0000	0.0000	0.0000
25	0.1013	0.0258	0.0249	0.0179	0.0000	0.0000
30	0.1013	0.0258	0.0249	0.0179	0.0109	0.0000
35	0.1013	0.0258	0.0249	0.0179	0.0109	0.0082
40	0.1013	0.0258	0.0249	0.0179	0.0109	0.0082
45	0.1013	0.0258	0.0249	0.0179	0.0109	0.0082

Retirement Rates

To the extent that an individual’s employment is not assumed to end through termination or death prior to retirement, we make assumptions about the likelihood each employee will retire in each future year. The assumed chance of retirement in any year is dependent up several factors, including the employee’s current age, prior years of CalPERS membership and the retirement plan in which the employee participates.

Service Retirement Rates:

The following miscellaneous retirement formulas apply:

- For “Classic” employees hired prior to 3/25/2011: 2.5% @ 55
- For “Classic” employees hired after 3/24/2011: 2.0% @ 55
- For “PEPRA” employees: 2.0% @ 62

The following safety retirement formulas apply:

- For “Classic” employees: 3.0% @ 55
- For “PEPRA” employees: 2.7% @ 55

Sample rates of assumed future retirements for each of these retirement benefit formulas are shown in the table below 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: 2.5% at 55 formula From CalPERS Experience Study Report Issued December 2017						
Current	Years of Service					
Age	5	10	15	20	25	30
50	0.0080	0.0140	0.0200	0.0260	0.0330	0.0500
55	0.0200	0.0380	0.0550	0.0730	0.1220	0.1920
60	0.0440	0.0720	0.1010	0.1300	0.1580	0.1970
65	0.1200	0.1560	0.1930	0.2290	0.2650	0.3330
70	0.1200	0.1560	0.1930	0.2290	0.2650	0.3330
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 Employees: 2% at 55 formula						
From CalPERS Experience Study Report Issued December 2017						
Current Age	Years of Service					
	5	10	15	20	25	30
50	0.0080	0.0130	0.0180	0.0210	0.0220	0.0330
55	0.0400	0.0400	0.0560	0.0930	0.1090	0.1540
60	0.0580	0.0750	0.0930	0.1260	0.1430	0.1690
65	0.1450	0.1730	0.2010	0.2330	0.2660	0.2890
70	0.1500	0.1710	0.1920	0.2390	0.3040	0.3300
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 December 2017						
Current Age	Years of Service					
	5	10	15	20	25	30
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
55	0.0100	0.0190	0.0280	0.0360	0.0610	0.0960
60	0.0310	0.0510	0.0710	0.0910	0.1110	0.1380
65	0.1080	0.1410	0.1730	0.2060	0.2390	0.3000
70	0.1200	0.1560	0.1930	0.2290	0.2650	0.3330
75 & over	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Fire Safety Employees: 3.0% at 55 formula						
From CalPERS Experience Study Report Issued December 2017						
Current Age	Years of Service					
	5	10	15	20	25	30
50	0.0010	0.0010	0.0010	0.0060	0.0160	0.0690
53	0.0320	0.0320	0.0320	0.0490	0.0850	0.1490
56	0.0640	0.0640	0.0640	0.0970	0.1610	0.2380
59	0.0880	0.0880	0.0880	0.1310	0.2130	0.2990
62	0.0870	0.0870	0.0870	0.1280	0.2100	0.2950
65 & over	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Fire Safety Employees: 2.7% at 57 formula						
From CalPERS Experience Study Report Issued December 2017						
Current Age	Years of Service					
	5	10	15	20	25	30
50	0.0065	0.0065	0.0065	0.0065	0.0101	0.0151
53	0.0442	0.0442	0.0442	0.0442	0.0680	0.1018
56	0.0740	0.0740	0.0740	0.0740	0.1140	0.1706
59	0.0729	0.0729	0.0729	0.0729	0.1123	0.1681
62	0.1136	0.1136	0.1136	0.1136	0.1749	0.2618
65 & over	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000



Table 4 - Actuarial Methods and Assumptions (Continued)

Service Retirement Rates
(Concluded)

Police Safety Employees: 3.0% at 55 formula From CalPERS Experience Study Report Issued December 2017						
Current Age	Years of Service					
	5	10	15	20	25	30
50	0.0350	0.0350	0.0350	0.0350	0.0700	0.0900
53	0.0280	0.0280	0.0280	0.0430	0.0750	0.1320
56	0.0600	0.0600	0.0600	0.1100	0.1650	0.3300
59	0.0900	0.0900	0.0950	0.1300	0.1850	0.3500
62	0.1500	0.1500	0.1500	0.1500	0.2000	0.3500
65 & over	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Police Safety Employees: 2.7% at 57 formula From CalPERS Experience Study Report Issued December 2017						
Current Age	Years of Service					
	5	10	15	20	25	30
50	0.0500	0.0500	0.0500	0.0500	0.0500	0.1000
53	0.0380	0.0380	0.0380	0.0380	0.0774	0.1169
56	0.0627	0.0627	0.0627	0.0836	0.1228	0.2168
59	0.0800	0.0800	0.0800	0.0920	0.1400	0.2275
62	0.1500	0.1500	0.1500	0.1500	0.1500	0.2125
65 & over	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Disability Retirement Rates:

The following 3 charts provide sample rates showing the likelihood of an employee's retirement on disability in the following 12 months. For example, in the first chart below, we can see that an active male miscellaneous employee, now exactly age 40, is assumed to have a 0.102% chance of retiring from the City due to approved disability before his 41st birthday. As expected, the corresponding probability of disability for police and fire employees is somewhat higher, with this difference increasing with age.

CalPERS Public Agency Miscellaneous Disability From Dec 2017 Experience Study Report		
Age	Male	Female
20	0.00017	0.00010
25	0.00017	0.00010
30	0.00019	0.00024
35	0.00039	0.00071
40	0.00102	0.00135
45	0.00151	0.00188
50	0.00158	0.00199
55	0.00158	0.00149
60	0.00153	0.00105

CalPERS Public Agency Fire Combined Disability From Dec 2017 Experience Study Report	
Age	Unisex
20	0.00015
25	0.00029
30	0.00066
35	0.00129
40	0.00235
45	0.00418
50	0.02128
55	0.03134
60	0.04442

CalPERS Public Agency Police Combined Disability From Dec 2017 Experience Study Report	
Age	Unisex
20	0.00010
25	0.00175
30	0.00496
35	0.00818
40	0.01140
45	0.01461
50	0.01925
55	0.04909
60	0.06212



Table 4 - Actuarial Methods and Assumptions

(Continued)

Healthcare Trend

The schedule of future increases in medical premium rates is one of the most challenging assumptions the actuary makes in an OPEB valuation. In selecting the trend used below, we considered information provided in national surveys⁵, observed healthcare trend increases in California, the City’s experience over the prior decade and assumptions used in the actuarial valuation of the California State employees OPEB liabilities.

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 October 1	Premium Increase	Effective October 1	Premium Increase
2018	Actual	2023	6.00%
2019	7.00%	2024	5.75%
2020	6.75%	2025	5.50%
2021	6.50%	2026	2.25%
2022	6.25%	2027 & later	5.00%

Dental premiums are assumed to increase by 3.5% annually.

Participation Rate

Active employees: All (100%) are assumed to continue coverage in retirement if expected to qualify for City-paid premiums upon retirement. Future retirees not qualifying for the City-paid subsidy are no longer eligible to continue in the City’s medical plans, except as permitted under COBRA.

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

Spouse Coverage

Tier I Active employees: The employees’ marital status at the time of retirement is assumed to be the same as it is on the valuation date. Surviving spouses are assumed to retain coverage until their death. Husbands are assumed to be 3 years older than their wives.

Tier II Actives: Not applicable; spouses of Tier II retirees are not eligible for healthcare coverage in the City’s plans.

Retired Tier I members: Existing elections for spouse coverage are assumed 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.

⁵ Including the Pension/OPEB 2018 Assumption and Disclosure Survey released by PricewaterhouseCoopers, LLP.



Table 4 - Actuarial Methods and Assumptions

(Continued)

Dependent Coverage No dependents may continue coverage in the City’s healthcare plans in retirement (other the spouses of Tier 1 retirees; see above), except as permitted under COBRA.

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

Medical plan selection Members are assumed to select medical plans in retirement as follows and to retain this coverage until their death:
 (a) *All current retirees*: Current medical plan
 (b) *Unmarried Tier 1 active employees*: Current medical plan
 (c) *Married Tier 1 active employees*: Kaiser HMO/Sr. Advantage
 (d) *All Tier 2 active employees and all actives currently waiving coverage through the City*: Kaiser HMO/Sr. Advantage

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 MacLeod Watts’s Age Rating Methodology provided in Addendum 1 to this report.

As explained earlier in Section B, we believe only those retirees covered or expected to be covered by the Kaiser HMO plan are expected to create an implicit subsidy liability for the City. Our analysis indicates that current and future retirees covered or expected to be covered by the Health Net plans and the Kaiser Senior Advantage plan will have premiums sufficient in the aggregate to cover projected retiree claims.

Representative claims costs by age for retirees covered by or expected to be covered by the Kaiser HMO plan who are not currently covered or not expected to be eligible for Medicare are shown in a chart below.

Kaiser HMO		
Retiree Age	Males	Females
45	\$ 574	\$ 793
48	667	863
51	791	958
54	928	1,044
57	1,073	1,121
60	1,225	1,219
63	1,392	1,351



Table 4 - Actuarial Methods and Assumptions

(Continued)

Development of Age-related
Medical premiums (continued)

In developing these factors, we assumed an average of 1.7 children per participant covering children on average age 12.9 years. Actual spouse ages were used if available; else husbands were assumed to be 3 years older than their wives.

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 below. 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 limits may be higher, depending on cost increases prior to the effective date. The actual thresholds are scheduled to increase by CPI plus 1% in 2019 and by CPI annually thereafter. This report assumes that 100% of any applicable excise tax for high cost retiree coverage will be borne by the City.

Changes Since the Prior Valuation:

Demographic assumptions

Assumed mortality, termination, disability and retirement rates were updated to those provided in the CalPERS 2017 experience study report. Rates of mortality were updated to the rates in the midpoint year of the 2017 experience study (2015), then projected on a generational basis by MacLeod Watts Scale 2018.

Excise tax on High-cost Coverage

We reflected the two-year delay in the effective date of the excise tax attributable to retirees for high cost healthcare plans under the Affordable Care Act. We also recognized a change in the law, reducing the effective tax rate to 40% for all plans.



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 City. 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	
2019	\$1,089,813	\$ 27,617	\$1,117,430	\$ 298,770	\$ 9,265	\$ 308,035	\$1,425,465
2020	1,121,810	59,180	1,180,990	315,875	19,076	334,951	1,515,941
2021	1,158,689	101,058	1,259,747	327,938	35,388	363,326	1,623,073
2022	1,185,063	147,764	1,332,827	337,495	49,384	386,879	1,719,706
2023	1,217,308	203,257	1,420,565	343,653	74,726	418,379	1,838,944
2024	1,238,995	267,595	1,506,590	323,386	99,773	423,159	1,929,749
2025	1,262,762	333,541	1,596,303	320,431	124,793	445,224	2,041,527
2026	1,293,232	400,536	1,693,768	326,388	139,766	466,154	2,159,922
2027	1,291,215	475,191	1,766,406	302,315	172,751	475,066	2,241,472
2028	1,272,705	553,133	1,825,838	240,522	215,193	455,715	2,281,553
2029	1,237,753	614,759	1,852,512	151,498	219,876	371,374	2,223,886
2030	1,235,337	699,540	1,934,877	107,457	249,515	356,972	2,291,849
2031	1,246,789	797,395	2,044,184	89,246	315,004	404,250	2,448,434
2032	1,254,516	884,786	2,139,302	67,425	351,611	419,036	2,558,338
2033	1,238,477	970,401	2,208,878	23,689	397,402	421,091	2,629,969

The amounts shown in the Explicit Subsidy section reflect the expected payment by the City 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: Breakout of Valuation Results Between the City and SASM

The charts on the following two pages break out the valuation results for the City and SASM for the fiscal years ending June 30, 2019, 2020 and 2021. Amortization of the unfunded actuarial accrued liability is on the same basis as described in earlier in Section F.

To allocate trust assets between groups and between explicit and implicit liabilities, the July 1, 2016 assets were projected to June 30, 2018 based on the expected rate of return and on contributions expected to be credited to the trust account prior to that June 30, 2018. The resulting projected June 30, 2018 asset value was allocated between group/liability type in proportion to the assets allocated by group/liability type on July 1, 2014 plus actual contributions reported to MacLeod Watts since that date.

The Actuarial Accrued Liability and Plan Assets as of June 30, 2018 are shown below for the City and SASM Plans:

City Plan			
Subsidy	Explicit	Implicit	Total
Discount Rate	6.0%	6.0%	6.0%
Actuarial Accrued Liability	\$ 27,158,199	\$ 4,624,658	\$ 31,782,857
Actuarial Value of Assets	10,211,184	853,186	11,064,370
Unfunded Actuarial Accrued Liability	16,947,015	3,771,472	20,718,487
Funded Ratio	37.6%	18.4%	34.8%

SASM Plan			
Subsidy	Explicit	Implicit	Total
Discount Rate	6.0%	6.0%	6.0%
Actuarial Accrued Liability	\$ 2,788,316	\$ 499,011	\$ 3,287,327
Actuarial Value of Assets	464,836	-	464,836
Unfunded Actuarial Accrued Liability	2,323,480	499,011	2,822,491
Funded Ratio	16.7%	0.0%	14.1%



Appendix 1A: Breakout of Valuation Results Between the City and SASM
(continued)

Plan	City		
	6/30/2019	6/30/2020	6/30/2021
Fiscal Year End			
For fiscal year ending	6/30/2019	6/30/2020	6/30/2021
Expected long-term return on assets	6.00%	6.00%	6.00%
Discount rate	6.00%	6.00%	6.00%
Number of Covered Employees			
Actives	89	89	89
Retirees	78	78	78
Total Participants	167	167	167
Actuarial Present Value of Projected Benefits			
Actives	\$ 19,078,631	\$ 20,186,648	\$ 21,322,901
Retirees	19,934,098	19,858,188	19,738,336
Total APVPB	39,012,729	40,044,836	41,061,237
Actuarial Accrued Liability (AAL)			
Actives	11,848,759	13,233,473	14,686,116
Retirees	19,934,098	19,858,188	19,738,336
Total AAL	31,782,857	33,091,661	34,424,452
Actuarial Value of Assets	11,064,370	12,616,887	14,247,970
Unfunded AAL (UAAL)	20,718,487	20,474,774	20,176,482
Amortization method	Level % of Pay	Level % of Pay	Level % of Pay
Initial amortization period (in years)	30	30	30
Remaining period (in years)	20	19	18
Determination of Amortization Payment			
UAAL	\$ 20,718,487	\$ 20,474,774	\$ 20,176,482
Factor	15.4352	14.8557	14.2592
Payment	1,342,286	1,378,247	1,414,976
Actuarially Determined Contribution (ADC)			
Normal Cost	670,273	692,057	714,549
Amortization of UAAL	1,342,286	1,378,247	1,414,976
Interest to fiscal year end	120,754	124,219	127,772
Total ADC at fiscal year end	2,133,313	2,194,523	2,257,297
Expected Contributions			
Estimated payments on behalf of retirees	\$ 1,004,667	\$ 1,060,375	\$ 1,131,851
Estimated current year's implicit subsidy	265,874	285,537	312,802
Estimated contribution to OPEB trust	862,772	848,611	812,644
Total Expected Employer Contribution	2,133,313	2,194,523	2,257,297



Appendix 1B: Breakout of Valuation Results Between the City and SASM
(continued)

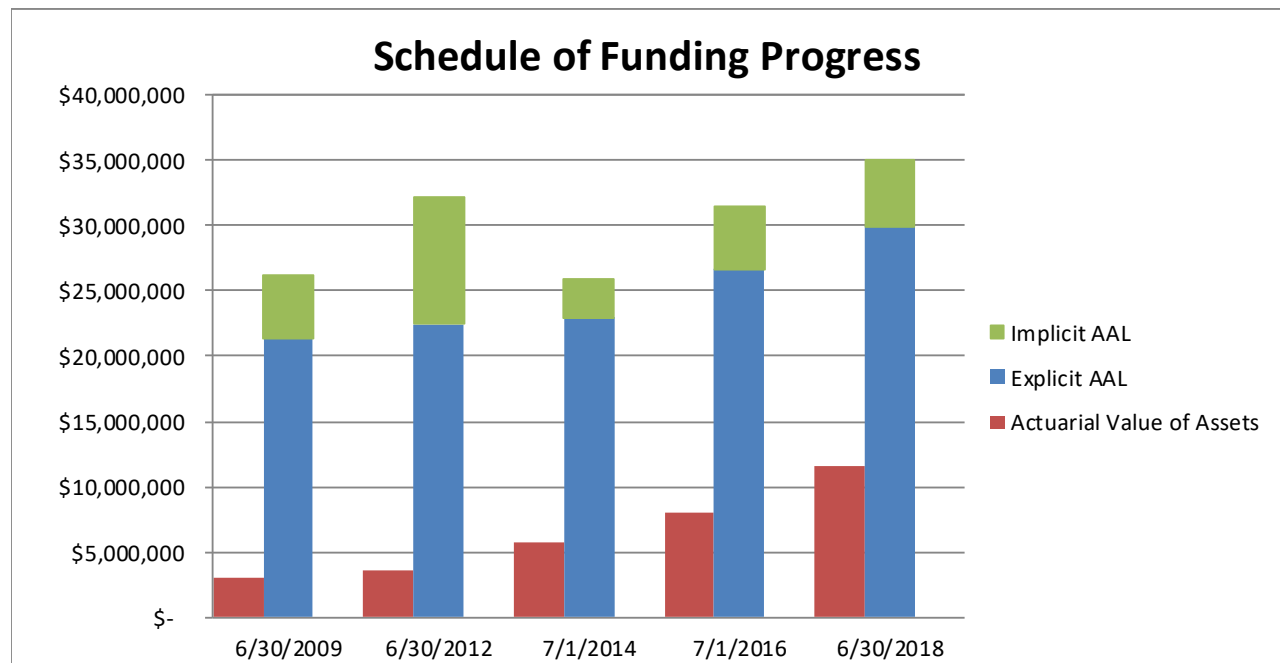
Plan	SASM		
	6/30/2019	6/30/2020	6/30/2021
Fiscal Year End			
For fiscal year ending	6/30/2019	6/30/2020	6/30/2021
Expected long-term return on assets	6.00%	6.00%	6.00%
Discount rate	6.00%	6.00%	6.00%
Number of Covered Employees			
Actives	13	13	13
Retirees	8	8	8
Total Participants	21	21	21
Actuarial Present Value of Projected Benefits			
Actives	\$ 1,804,437	\$ 1,911,416	\$ 2,020,443
Retirees	2,075,084	2,041,305	1,994,311
Total APVPB	3,879,521	3,952,721	4,014,754
Actuarial Accrued Liability (AAL)			
Actives	1,212,243	1,346,326	1,486,119
Retirees	2,075,084	2,041,305	1,994,311
Total AAL	3,287,327	3,387,631	3,480,430
Actuarial Value of Assets	464,836	597,317	729,708
Unfunded AAL (UAAL)	2,822,491	2,790,314	2,750,722
Amortization method	Level % of Pay	Level % of Pay	Level % of Pay
Initial amortization period (in years)	30	30	30
Remaining period (in years)	20	19	18
Determination of Amortization Payment			
UAAL	\$ 2,822,491	\$ 2,790,314	\$ 2,750,722
Factor	15.4352	14.8557	14.2592
Payment	182,860	187,828	192,908
Actuarially Determined Contribution (ADC)			
Normal Cost	59,091	61,011	62,994
Amortization of UAAL	182,860	187,828	192,908
Interest to fiscal year end	14,517	14,930	15,354
Total ADC at fiscal year end	256,468	263,769	271,256
Expected Contributions			
Estimated payments on behalf of retirees	\$ 112,763	\$ 120,615	\$ 127,896
Estimated current year's implicit subsidy	42,161	49,414	50,524
Estimated contribution to OPEB trust	101,544	93,740	92,836
Total Expected Employer Contribution	256,468	263,769	271,256



Appendix 2 Historical Information

In this section, we provide a review of key components of valuation results from 2010 through 2017.

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)	Discount Rate
6/30/2009	\$ 3,044,000	\$ 26,158,000	\$23,114,000	11.6%	\$ 10,334,000	223.7%	7.75% Prefunded; 4.25% Pay-Go Portion
6/30/2012	\$ 3,617,703	\$ 32,212,915	\$28,595,212	11.2%	\$ 10,510,729	272.1%	5.11% City; 4.25% SASM
7/1/2014	\$ 5,743,336	\$ 25,899,824	\$20,156,488	22.2%	\$ 11,964,617	168.5%	6.5%
7/1/2016	\$ 8,069,260	\$ 31,444,815	\$23,375,555	25.7%	\$ 12,281,782	190.3%	6.0%
6/30/2018	\$ 11,529,206	\$ 35,070,184	\$23,540,978	32.9%	\$ 13,093,070	179.8%	6.0%



Significant changes during this period include:

- **June 30, 2012:** Slight decrease in overall discount rate; more new retirees than expected.
- **July 1, 2014:** Increase in discount rate (resulting in lower liability) due to City and SASM's commitment to fund the full ARC; updated healthcare trend.
- **July 1, 2016:** Decrease in expected long-term return on trust assets; revised model for developing claims costs by age, updated healthcare trend; introduction of liability for potential excise tax liability. Liability is increasing as plan matures and active members get closer to retirement.
- **June 30, 2018:** Minor decrease in AAL due to updated demographic assumptions and 2-year delay in excise tax implementation, offset by increase due to unfavorable plan experience. Liability is increasing as plan matures and active members get closer to retirement.



Addendum 1: MacLeod Watts 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: MacLeod Watts 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 principles 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 **MacLeod Watts Scale 2018** was developed from a blending of data and methodologies found in two published sources: (1) the Society of Actuaries Mortality Improvement Scale MP-2017 Report, published in October 2017 and (2) the demographic assumptions used in the 2017 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds, published July 2017.

MacLeod Watts Scale 2018 is a two-dimensional mortality improvement scale reflecting both age and year of mortality improvement. The underlying base scale is Scale MP-2017 which has two segments: (1) historical improvement rates for the period 1951-2013 and (2) an estimate of future mortality improvement for years 2014-2016 using the Scale MP-2017 methodology but utilizing the assumptions obtained from Scale MP-2015. The MacLeod Watts scale then transitions from the 2016 improvement rate to the Social Security Administration (SSA) Intermediate Scale linearly over the 10-year period 2017-2026. After this transition period, the MacLeod Watts Scale uses the constant mortality improvement rate from the SSA Intermediate Scale from 2026-2040. The SSA's Intermediate Scale has a final step down in 2041 which is reflected in the MacLeod Watts scale for years 2041 and thereafter. Over the ages 95 to 115, the SSA improvement rate is graded to zero.

Scale MP-2017 can be found at the SOA website and the projection scales used in the 2017 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.

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.



Glossary

(Continued)

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.

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”.



Glossary

(Concluded)

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.

