



**CITY OF SAN RAFAEL
RETIREE HEALTHCARE PLAN**

**June 30, 2017 Actuarial Valuation
Plan Funding for 2018/19 and 2019/20**

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June 24, 2018

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BENEFIT SUMMARY

	Elected Officials, Unrepresented Mid Management & Management	All other Bargaining Units¹
■ Eligibility ²	■ Retire directly from City: <ul style="list-style-type: none"> • Age 50 (age 55 if hired \geq 7/1/11 for Miscellaneous) with 10 years service (including reciprocity) or • 30 years service (Miscellaneous), 20 years service (Safety); or • Age 70 • Disability retirement 	
■ Benefit	■ Hired < 1/1/09 Full premium/cap ■ Hired \geq 1/1/09 PEMHCA Min	■ Hired < 1/1/10 Up to cap ■ Hired \geq 1/1/10 PEMHCA Min ³
■ Surviving Spouse Benefit	■ Benefit continues to surviving spouse	

¹ Annual active conversion of 50 hours of sick leave to HRA (excluded from valuation)

² Age 52 and 5 or age 70 for Miscellaneous PEPRA members, age 50 and 5 or age 70 for Safety PEPRA members

³ City match 2% Firefighters salary to HRA (excluded from valuation)



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BENEFIT SUMMARY

■ Medicare Part B	■ Hired < 4/1/07 Full reimbursement ■ Hired \geq 4/1/07 None	■ None			
■ Other OPEB	■ No Dental, Vision, or Life Benefits				
■ Contributions	<u>Fiscal Year</u>	<u>Cash Pay-Go</u>	<u>Implied Subsidy</u>	<u>Trust</u>	<u>Total</u>
	2016/17	\$ 2,233,000	\$782,000	\$ 460,000	\$3,475,000
	2015/16	2,194,000	702,000	-	2,896,000
	2014/15	2,100,000	-	150,000	2,250,000
	2013/14	2,100,000	-	500,000	2,600,000
	2012/13	2,073,000	-	500,000	2,573,000
	2011/12	2,124,000	-	-	2,124,000
	2010/11	1,808,000	-	(1,000,000)	808,000
	2009/10	1,755,000	-	(1,000,000)	755,000
	2008/09	1,686,000	-	(1,000,000)	686,000



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BENEFIT SUMMARY

Bargaining Unit	Monthly Cap	Min Date⁴
SEIU Child Care Unit	\$543	1/1/10
Unrepresented Mid-Management Employees	Retired < 12/1/01: \$442 Retired ≥ 12/1/01: Full prem Hired ≥ 4/1/07: \$600	1/1/09
San Rafael Fire Chief Officer's Association	\$557	1/1/10
San Rafael Firefighters' Association, I.A.F.F., Local 1775	\$557	1/1/10
San Rafael Police Association	\$386	1/1/10
San Rafael Police Mid-Management Association	\$566	1/1/10
SEIU 1021	\$752	1/1/10
Public Employees Bargaining Unit (PEU) Local 1	\$659	1/1/10
Unrepresented Management Employees and Council City Clerk and Elected Part-Time City Attorney	Hired < 4/1/07: Full prem. Hired ≥ 4/1/07: \$600	1/1/09
Western Council of Engineers (WCE)	\$752	1/1/10

⁴ Employees hired on or after date receive only PEMHCA minimum (\$128 in 2017, \$133 in 2018).



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BENEFIT SUMMARY

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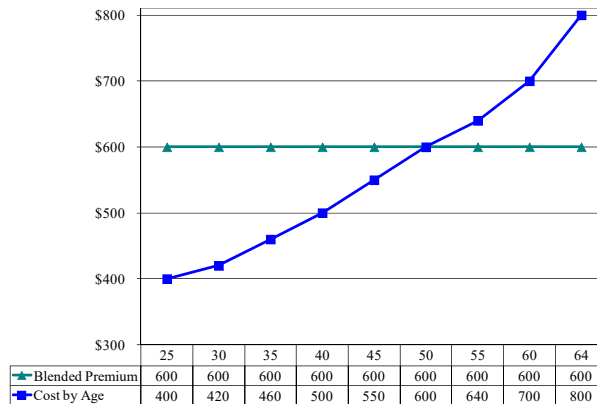


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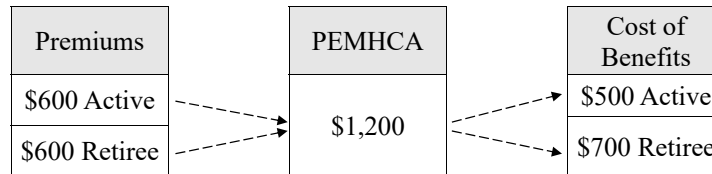


IMPLIED SUBSIDY

- For PEMHCA, employer cost for allowing retirees to participate at active rates.
 - General trend:



- Sample active age 40, retire age 60:



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IMPLIED SUBSIDY

- GASB defers to actuarial standards of practice
- Previous Actuarial Standards of Practice No. 6⁵ (ASOP 6) allowed community rated plans to value liability using premiums, resulting in no implied subsidy
- In May 2014, Actuarial Standards Board released revised ASOP 6:
 - Requires implied subsidy valued for community rated plans such as PEMHCA
 - Timing: effective with all valuations on or after March 31, 2015 with earlier implementation encouraged
 - Valuations on and after 6/30/15 include the implied subsidy

⁵ Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Plan Costs or Contributions.



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DATA SUMMARY

Actives

	6/30/07	6/30/09 ⁶	6/30/11 ⁷	6/30/13 ⁸	6/30/15	6/30/17
■ Count						
• Cap	408	377	326	294	261	213
• PEMHCA Min	<u>n/a</u>	<u>4</u>	<u>35</u>	<u>76</u>	<u>115</u>	<u>149</u>
• Total	408	381	361	370	376	366
■ Average						
• Age	44.7	44.3	44.6	44.0	44.4	44.2
• City Service	11.6	10.7	10.9	11.1	11.2	11.3
• Pay	\$72,800	\$77,900	\$77,000	\$77,900	\$ 80,700	\$ 88,800
■ Total Pay (000's)	29,719	29,689	27,784	28,808	30,346	32,506

⁶ Data as of April 2010.

⁷ Data as of December 2011.

⁸ Data as of October 2013.



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DATA SUMMARY

Retirees

	6/30/07	6/30/09 ⁹	6/30/11 ¹⁰	6/30/13 ¹¹	6/30/15	6/30/17
■ Count	247	291	308	328	323	337
■ Average Ave	66.6	65.9	66.7	67.4	68.7	70.0
■ Avg. Service Retirement Age						
• Miscellaneous	n/a	59.3	59.5	59.1	59.3	59.3
• Safety	n/a	54.1	54.8	55.2	54.9	54.8
■ Avg. Monthly Benefit ¹²	\$ 480	\$ 537	\$ 573	\$ 554	\$ 629	\$ 640

⁹ Data as of April 2010.

¹⁰ Data as of December 2011.

¹¹ Data as of October 2013.

¹² Excludes Medicare Part B reimbursement.



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ACTUARIAL ASSUMPTIONS HIGHLIGHTS

Bartel Associates Expected Returns

- Stochastic simulations of geometric average returns over 20 years
- 5,000 trials
- 2.75% inflation assumption
- Projections based on 5 independent Investment Advisors 2016 or 2017 (latest currently available) 10-year Capital Market Assumptions and where available, investment advisors anticipated long-term trends:



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ACTUARIAL ASSUMPTIONS HIGHLIGHTS

CERBT

- City invested in Strategy 1
- Investment Options (allocations rounded to nearest % and may not add)

	Strategy 3	Strategy 2	Strategy 1
Global Equity	24%	40%	57%
Fixed Income	39%	39%	27%
TIPS	26%	10%	5%
Commodities	3%	3%	3%
REITs	<u>8%</u>	<u>8%</u>	<u>8%</u>
Total	100%	100%	100%

- Bartel Associates expected returns¹³:

	Strategy 3	Strategy 2	Strategy 1
50% Confidence Level	5.50%	6.25%	6.75%
55% Confidence Level	5.50%	6.00%	6.50%
60% Confidence Level	5.25%	5.75%	6.00%

¹³ Confidence levels represent likelihood return is achieved -e.g. 55% Confidence Level for Strategy 1 fund means 6.50% return expected to be achieved 55% of the time.



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ACTUARIAL ASSUMPTIONS HIGHLIGHTS

Assumption	June 30, 2015 Valuation	June 30, 2017 Valuation
■ Valuation Date	■ June 30, 2015 ■ 2016/17 & 2017/18	■ June 30, 2017 ■ 2018/19 & 2019/20
■ Funding Policy	■ Pay-go with no CERBT account reimbursement ■ Total payment not < ARC	■ Pay-go with no CERBT account reimbursement ■ Total payment not < ADC
■ General Inflation	■ 2.75%	■ Same
■ Discount Rate	■ 7.25%	■ 6.75%
■ Payroll Increases	■ Aggregate increases – 3.00% ■ Merit Increases – Same as 6/30/14 MCERA assumptions	■ Aggregate increases – 3.00% ■ Merit Increases – Same as 6/30/17 MCERA assumptions
■ Cap Increases	■ None	■ Same



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ACTUARIAL ASSUMPTIONS HIGHLIGHTS

Assumption	June 30, 2015 Valuation	June 30, 2017 Valuation
■ Mortality, Withdrawal, Disability	■ 6/30/14 MCERA valuation assumptions ■ Scale MP-2014 with 15-year convergence in 2022 for post-retirement mortality	■ 6/30/17 MCERA valuation assumptions ■ Pre-retirement mortality: projected 15-year static with 90% of MP-2016 ■ Post-retirement mortality: projected fully generational with Scale MP-2017



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ACTUARIAL ASSUMPTIONS HIGHLIGHTS

Assumption	June 30, 2015 Valuation		June 30, 2017 Valuation			
	Year	Non-Medicare All Plans	Medicare	Year	Non-Medicare All Plans	Medicare
■ Healthcare end	2013	n/a		2017	Actual Premiums	
	2014	n/a		2018	Actual Premiums	
	2015	Actual 2015 premiums		2019	7.50%	6.50%
	2016	Actual 2016 premiums		2020	7.50%	6.50%
	2017	6.5%	6.7%	2021	7.25%	6.30%
	2018	6.0%	6.1%	2022	7.00%	6.10%
	2019	5.5%	5.6%	2023	6.75%	5.90%
	2020	5.0%	5.1%	2024	6.50%	5.70%
	2021+	4.5%	4.5%	2025	6.25%	5.50%
				2026	6.00%	5.30%
				2027	5.80%	5.15%
				2028	5.60%	5.00%
				2029	5.40%	4.85%
				2030	5.20%	4.70%
				2031-2035	5.05%	4.60%
			2036-2045	4.90%	4.50%	
			2046-2055	4.75%	4.45%	
			2056-2065	4.60%	4.40%	
			2066-2075	4.30%	4.20%	
			2076+	4.00%	4.00%	



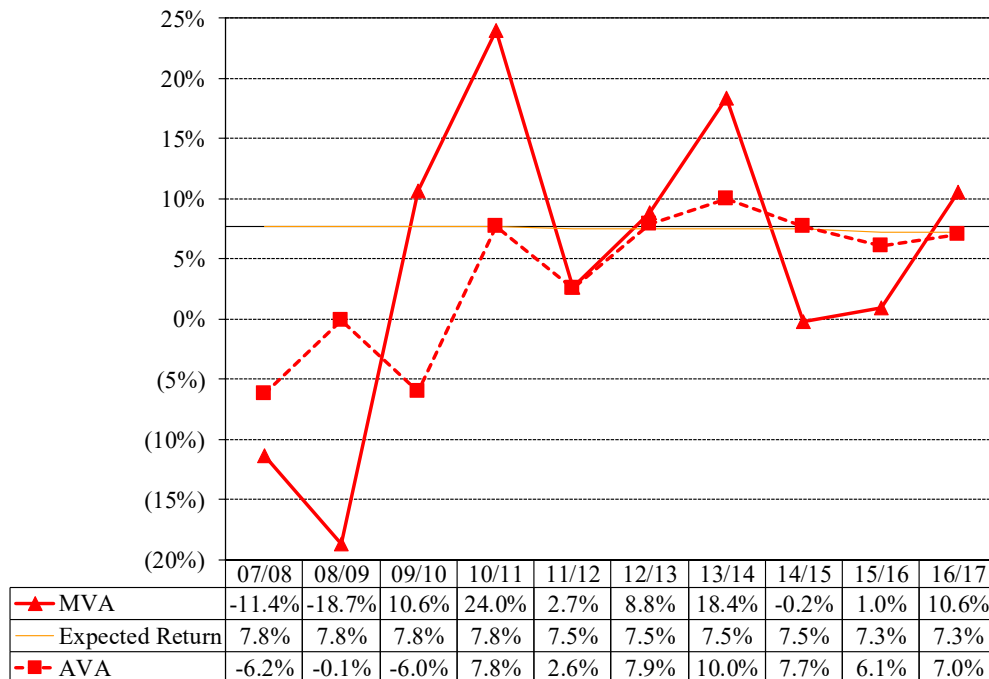
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ASSETS

Historical Returns



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ASSETS

Market Value of Plan Assets¹⁴
(000's Omitted)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
■ MVA (boy)	\$ 9,568	\$ 9,585	\$ 10,889	\$ 11,178	\$ 12,666	\$ 15,492	\$ 15,608	\$ 15,757
• Contribution	-	-	-	500	500	150	-	460
• Benefit Payments	(1,000)	(1,000)	-	-	-	-	-	-
• Administrative Expenses ¹⁵	n/a	n/a	n/a	(0)	(19)	(16)	(13)	(8)
• Investment Expenses	n/a	n/a	n/a	n/a	n/a	n/a	n/a	(6)
• Investment Return	1,017	2,303	289	988	2,346	(19)	162	1,670
■ MVA (eoy)	9,585	10,889	11,178	12,666	15,492	15,608	15,757	17,873
■ Approximate Return	10.6%	24.0%	2.7%	8.8%	18.4%	-0.2%	1.0%	10.6%

¹⁴ 401(h) account transferred to CERBT 6/26/13.

Commencing 2015/16 CalPERS issues audited financial statements which differ from above.

¹⁵ Beginning in 2016/2017, investment expenses separated out



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ASSETS

Actuarial Value of Plan Assets¹⁶
(000's Omitted)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
■ AVA (boy)	\$12,773	\$11,008	\$10,861	\$11,130	\$12,505	\$14,253	\$15,499	\$16,449
• Contribution	-	-	-	500	500	150	-	460
• Benefit Payments	(1,000)	(1,000)	-	-	-	-	-	-
• Credited Return	(765)	853	269	875	1,248	1,096	950	1,145
■ AVA (eoy)	11,008	10,861	11,130	12,505	14,253	15,499	16,449	18,054
■ Approximate Return	-6.0%	7.8%	2.6%	7.9%	10.0%	7.7%	6.1%	7.0%

¹⁶ MCERA asset smoothing through 6/30/12. Rolling 5 year smoothing starting in 2012/13.



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RESULTS

Actuarial Obligations (000's Omitted)

	6/30/15 Valuation		6/30/17 Valuation	
	6/30/15	Projected 6/30/16	6/30/17	Projected 6/30/18
■ Present Value of Benefits				
• Actives	\$ 19,720		\$ 21,211	
• Retirees	<u>34,358</u>		<u>36,891</u>	
• Total	54,078		58,102	
■ Actuarial Accrued Liability				
• Actives	13,868		14,690	
• Retirees	<u>34,358</u>		<u>36,891</u>	
• Total	48,226	\$ 49,507	51,581	\$ 52,893
■ Assets	<u>15,499</u>	<u>16,645</u>	<u>18,057</u>	<u>19,709</u>
■ Unfunded AAL	32,727	32,862	33,524	33,184
■ Service Cost¹⁷		846		880
■ Cash Pay-Go Cost		2,322		2,311
■ Implied Subsidy Pay-Go Cost		657		637

¹⁷ 2018/19 service cost include estimated CERBT and PEMHCA administrative expenses.



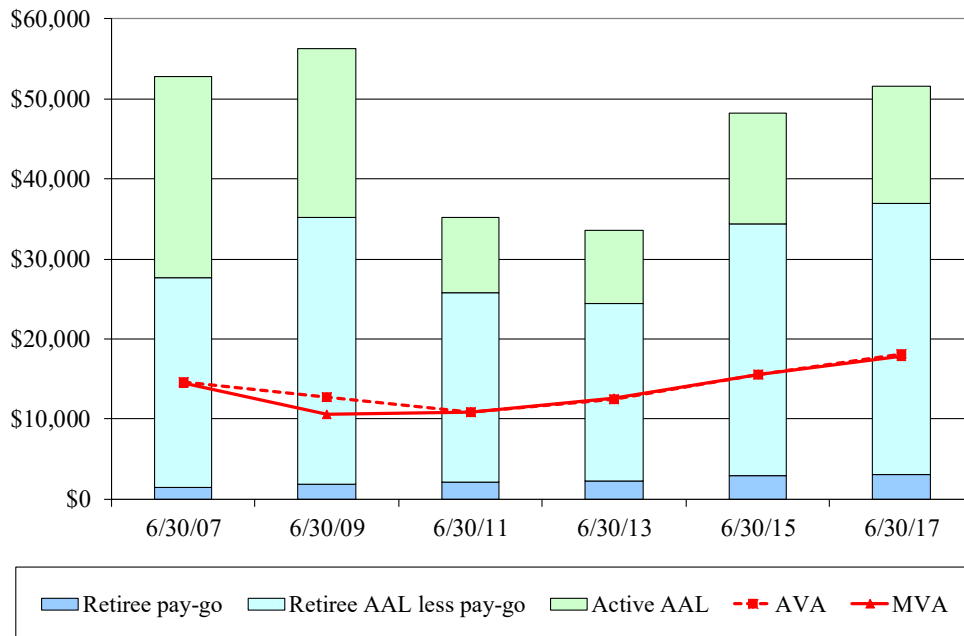
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Historical Funded Status (000's Omitted)



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Actuarial Accrued Liability Gain/Loss
(000's Omitted)

	AAL
■ Actual @ 6/30/15	\$ 48,226
■ Expected @ 6/30/17	50,821
■ Changes	
• Premiums < Expected	(3,340)
• Mortality improvement projection	(449)
• 2017 MCERA Assumptions	(487)
• Discount Rate	2,706
• New Medical Trend	2,981
• PEMHCA Minimum Trend	80
• Demographic/Other	<u>(731)</u>
• Total	760
■ Actual @ 6/30/17	51,581



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RESULTS

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RESULTS

Actuarially Determined Contribution (ADC) (000's Omitted)

	6/30/2015 Val		6/30/2017 Val	
	2016/17	2017/18	2018/19	2019/20
■ ADC - \$				
• Service Cost ¹⁸	\$ 846	\$ 848	\$ 880	\$ 863
• UAAL Amortization	<u>2,604</u>	<u>2,682</u>	<u>2,732</u>	<u>2,814</u>
• Total ADC	3,450	3,530	3,612	3,677
■ Projected Payroll	31,256	32,194	34,486	35,520
■ ADC - %				
• Service Cost	2.7%	2.6%	2.6%	2.4%
• UAAL Amortization	<u>8.3%</u>	<u>8.3%</u>	<u>7.9%</u>	<u>7.9%</u>
• Total ADC	11.0%	11.0%	10.5%	10.4%

¹⁸ 2018/19 and 2019/20 service cost include estimated CERBT and PEMHCA administrative expenses.



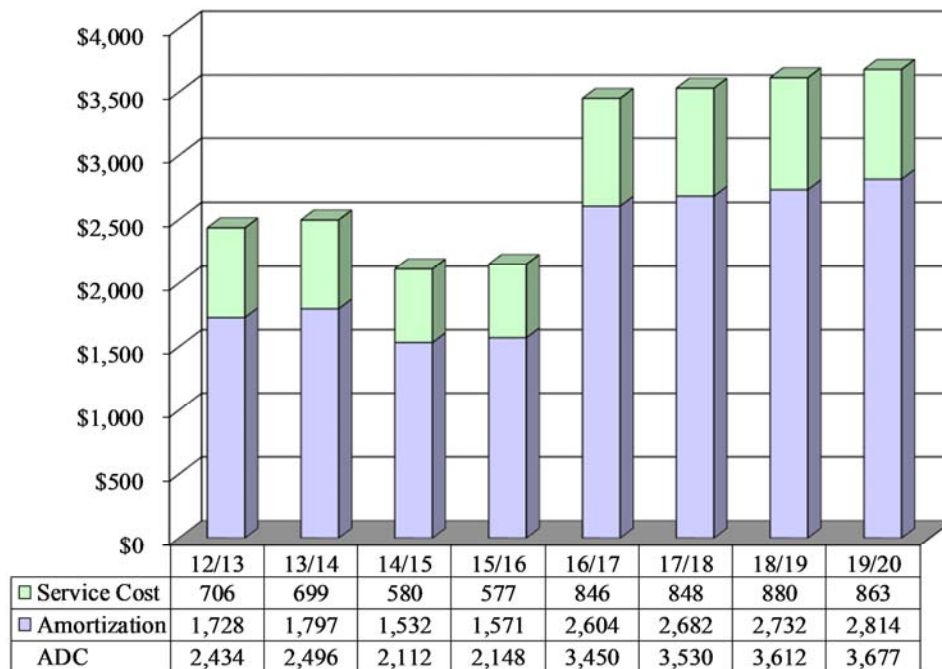
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Actuarially Determined Contribution (ADC) (000's Omitted)



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Amortization Bases
(000's Omitted)

	6/30/2015 Val		6/30/2017 Val	
	6/30/16	6/30/17	6/30/18	6/30/19
■ Outstanding Balance				
• Initial UAAL	\$ 45,064	\$ 44,762	\$ 44,331	\$ 43,674
• (Gain)/Loss				
➤ 2009 valuation	(4,302)	(4,273)	(4,232)	(4,169)
➤ 2011 valuation	(26,718)	(26,539)	(26,284)	(25,894)
➤ 2013 valuation	(2,859)	(2,840)	(2,812)	(2,771)
➤ 2015 valuation	12,608	12,523	12,401	12,218
➤ 2017 valuation	-	-	851	838
• Contribution Loss (projected)	<u>9,068</u>	<u>9,007</u>	<u>8,928</u>	<u>8,796</u>
• Total	32,862	32,640	33,184	32,692



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Amortization Payments
(000's Omitted)

	6/30/2015 Val		6/30/2017 Val	
	2016/17	2017/18	2018/19	2019/20
■ Payment				
• Initial UAAL	\$ 3,569	\$ 3,676	\$ 3,649	\$ 3,759
• (Gain)/Loss				
➤ 2009 valuation	(341)	(351)	(348)	(359)
➤ 2011 valuation	(2,116)	(2,180)	(2,164)	(2,229)
➤ 2013 valuation	(226)	(233)	(232)	(238)
➤ 2015 valuation	999	1,029	1,021	1,052
➤ 2017 valuation	-	-	70	72
• Contribution Loss (projected)	<u>719</u>	<u>740</u>	<u>735</u>	<u>757</u>
• Total	2,604	2,682	2,732	2,814
• Amortization years	19	18	17	16



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RESULTS

Actuarial Obligations – June 30, 2017
(000's Omitted)

	Cash Subsidy	Implied Subsidy	Total
■ Present Value of Benefits			
• Actives	\$ 14,070	\$ 7,141	\$ 21,211
• Retirees	<u>27,515</u>	<u>9,376</u>	<u>36,891</u>
• Total	41,585	16,517	58,102
■ Actuarial Accrued Liability (AAL)			
• Actives	9,834	4,856	14,690
• Retirees	<u>27,515</u>	<u>9,376</u>	<u>36,891</u>
• Total	37,349	14,232	51,581
■ Actuarial Value of Assets¹⁹	<u>13,075</u>	<u>4,982</u>	<u>18,057</u>
■ Unfunded AAL	24,274	9,250	33,524
■ 2018/19 Service Cost	613	267	880
■ 2018/19 Pay-As-You-Go Cost	2,386	663	3,049

¹⁹ For illustrative purposes, assets allocated on AAL.



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RESULTS

Actuarially Determined Contribution (ADC) – Fiscal Year 2018/19
(000's Omitted)

	Cash Subsidy	Implied Subsidy	Total
■ ADC - \$			
• Service Cost	\$ 613	\$ 267	\$ 880
• UAAL Amortization	<u>1,967</u>	<u>765</u>	<u>2,732</u>
• Total	2,580	1,032	3,612
■ Projected Payroll	34,486	34,486	34,486
■ ADC - %			
• Service Cost	1.8%	0.8%	2.6%
• UAAL Amortization	<u>5.7%</u>	<u>2.2%</u>	<u>7.9%</u>
• Total	7.5%	3.0%	10.5%



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RESULTS

Estimated 2018/19 Implied Subsidy Transfer for Medical Coverage
For Illustrative Purposes Only
(000's Omitted)

Before Implied Subsidy	Actives	Retirees	Total
■ Total Premium ²⁰	\$ 4,707	\$ 3,247	\$ 7,954
■ Member Contribution ²¹	-	(861)	(861)
■ Employer Contribution	4,707	2,386	7,093

After Implied Subsidy	Actives	Retirees	Total
■ Total Premium	4,707	3,247	7,954
■ Member Contribution	-	(861)	(861)
■ Implied Subsidy Transfer	(663)	663	-
■ Employer Contribution	4,044	3,049	7,093

²⁰ Estimated premium based on valuation data.

²¹ Assumes no member contribution for actives for illustrative purposes.



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RESULTS

Contributions Projection
(000's Omitted)

Fiscal Year	Contribution				Payroll	Contrib as % of Payroll
	Cash Benefit Pmts	Implied Subsidy Benefit Pmts	Pre-Fund	Total Contrib		
2018/19	\$ 2,386	\$ 663	\$ 563	\$ 3,612	\$ 34,486	10.5%
2019/20	2,495	740	442	3,677	35,520	10.4%
2020/21	2,602	781	360	3,743	36,586	10.2%
2021/22	2,693	781	342	3,816	37,683	10.1%
2022/23	2,778	817	291	3,886	38,814	10.0%
2023/24	2,880	877	203	3,960	39,978	9.9%
2024/25	2,966	946	133	4,045	41,178	9.8%
2025/26	3,024	1,005	105	4,134	42,413	9.7%
2026/27	3,090	1,100	36	4,226	43,685	9.7%
2027/28	3,173	1,172	(25)	4,320	44,996	9.6%



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RESULTS

Actuarial Obligations – June 30, 2017

(000's Omitted)

	Miscellaneous	Safety	Total
■ PVPB			
• Actives	\$ 13,629	\$ 7,583	\$ 21,211
• Retirees	<u>21,673</u>	<u>15,218</u>	<u>36,891</u>
• Total	35,302	22,801	58,102
■ AAL			
• Actives	9,882	4,808	14,690
• Retirees	<u>21,673</u>	<u>15,218</u>	<u>36,891</u>
• Total	31,555	20,026	51,581
■ Assets²²	<u>11,046</u>	<u>7,010</u>	<u>18,057</u>
■ Unfunded AAL	20,509	13,016	33,524
■ Service Cost (18/19)	538	342	880
■ Pay Go Costs (18/19)	1,801	1,248	3,049

²² For illustrative purposes, assets allocated on AAL.



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RESULTS

Actuarially Determined Contribution (ADC) – Fiscal Year 2018/19

(000's Omitted)

	Miscellaneous	Safety	Total
■ ADC- \$			
• Normal Cost	\$ 538	\$ 342	\$ 880
• UAL Amortization ²³	<u>1,676</u>	<u>1,056</u>	<u>2,732</u>
• Total ADC	2,214	1,398	3,612
■ Projected Payroll	17,687	16,798	34,486
■ ADC - %			
• Normal Cost	3.0%	2.0%	2.6%
• UAL Amortization	<u>9.5%</u>	<u>6.3%</u>	<u>7.9%</u>
• Total ADC	12.5%	8.3%	10.5%

²³ For illustrative purposes, amortization amount allocated on AAL.



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RESULTS

Parking Fund/SRSD Results

Participant Counts²⁴

	Parking Fund	SRSD	Other	Total
■ Counts				
• Actives	18	15	333	366
• Retirees	<u>3</u>	<u>5</u>	<u>329</u>	<u>337</u>
• Total	21	20	662	703

²⁴ Counts assigned to groups based upon City research of personnel and financial records for each participant.



RESULTS

Parking Fund/SRSD Results

Participant Statistics

	Parking Fund	SRSD	Other	Total
■ Actives				
• Averages				
➤ Age	50.9	53.3	43.4	44.2
➤ Pay	\$65,900	\$89,700	\$90,000	\$88,800
• Service				
➤ Allocated average	10.4	15.4	11.2	11.3
➤ Average in group	10.3	14.9	11.2	11.3
• Total Pay (000's)	\$1,187	\$1,346	\$29,973	\$32,506
■ Retirees				
• Average Age	65.0	68.5	70.0	70.6



RESULTS

Parking Fund/SRSD Results
Actuarial Obligations – June 30, 2017
(000's Omitted)

	Parking Fund	SRSD
■ PVPB		
• Actives	\$ 1,039	\$ 1,739
• Retirees	<u>517</u>	<u>651</u>
• Total	1,556	2,390
■ AAL		
• Actives	\$ 660	\$ 1,332
• Retirees	<u>517</u>	<u>651</u>
• Total	1,177	1,983
■ Assets²⁵	<u>412</u>	<u>694</u>
■ Unfunded AAL	765	1,289
■ Pay Go Costs (18/19)	39	47

²⁵ For illustrative purposes, assets allocated on AAL.



RESULTS

Parking Fund/SRSD Results
Actuarially Determined Contribution (ADC) – Fiscal Year 2018/19
(000's Omitted)

	Parking Fund	SRSD
■ ADC- \$		
• Service Cost	\$ 54	\$ 62
• UAL Amortization ²⁶	<u>66</u>	<u>110</u>
• Total ADC	120	172
■ Projected Payroll	1,259	1,428
■ ADC - %		
• Service Cost	4.3%	4.4%
• UAL Amortization	<u>5.2%</u>	<u>7.7%</u>
• Total ADC	9.5%	12.0%

²⁶ For illustrative purposes, amortization amount allocated on AAL.



RESULTS

Discount Rate Sensitivity (000's Omitted)

	5.75%	6.25%	6.75%	7.25%
■ PVPB on 6/30/17	\$ 66,489	\$ 62,062	\$ 58,102	\$ 54,547
■ Funded Status @ 6/30/17				
• AAL	57,787	54,542	51,581	48,876
• Assets	<u>18,057</u>	<u>18,057</u>	<u>18,057</u>	<u>18,057</u>
• Unfunded AAL	39,730	36,485	33,524	30,819
■ 2018/19 ADC				
• Service Cost	1,091	979	880	793
• UAAL Amort.	<u>3,005</u>	<u>2,866</u>	<u>2,732</u>	<u>2,603</u>
• Total ADC	4,096	3,845	3,612	3,396
• ADC as % of Pay	11.9%	11.1%	10.5%	9.8%



June 24, 2018

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ACTUARIAL CERTIFICATION

This report presents the City of San Rafael Retiree Healthcare Plan ("Plan") June 30, 2017 actuarial valuation. The purpose of this valuation is to:

- Determine the Plan's June 30, 2017 Funded Status, and
- Calculate the 2018/19 and 2019/20 Actuarially Determined Contributions.

Information provided in this report may be useful to the City for the Plan's financial management. Future valuations may differ significantly if the Plan's experience differs from our assumptions or if there are changes in Plan design, actuarial methods or actuarial assumptions. The project scope did not include an analysis of this potential variation.

The valuation is based on Plan provisions, participant data, and asset information provided by the City as summarized in this report, which we relied on and did not audit. We reviewed the participant data for reasonableness.

To the best of our knowledge, this report is complete and accurate and has been conducted using generally accepted actuarial principles and practices. As members of the American Academy of Actuaries meeting the Academy Qualification Standards, we certify the actuarial results and opinions herein.

Respectfully submitted,

Doug Pryor, ASA, EA, MAAA
Vice President
Bartel Associates, LLC
June 24, 2018

Tak Frazita, ASA, EA, MAAA
Associate Actuary
Bartel Associates, LLC
June 24, 2018



June 24, 2018

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PREMIUMS

2017 PEMHCA Monthly Medical Premiums
Bay Area

Plan	Non-Medicare			Medicare		
	Single	2-Party	Family	Single	2-Party	Family
Anthem HMO Select	\$783.46	\$1,566.92	\$2,037.00	n/a	n/a	n/a
Anthem HMO Traditional	990.05	1,980.10	2,574.13	n/a	n/a	n/a
Blue Shield Access+	1,024.85	2,049.70	2,664.61	n/a	n/a	n/a
Health Net SmartCare	733.29	1,466.58	1,906.55	n/a	n/a	n/a
Kaiser	733.39	1,466.78	1,906.81	\$300.48	\$600.96	\$901.44
UnitedHealthcare	1,062.26	2,124.52	2,761.88	324.21	648.42	972.63
PERS Choice	830.30	1,660.60	2,158.78	353.63	707.26	1,060.89
PERS Select	736.27	1,472.54	1,914.30	353.63	707.26	1,060.89
PERSCare	932.39	1,864.78	2,424.21	389.76	779.52	1,169.28
PORAC	699.00	1,467.00	1,876.00	464.00	924.00	1,477.00



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PREMIUMS

2018 PEMHCA Monthly Medical Premiums
Bay Area

Plan	Non-Medicare			Medicare		
	Single	2-Party	Family	Single	2-Party	Family
Anthem HMO Select	\$856.41	\$1,712.82	\$2,226.67	n/a	n/a	n/a
Anthem HMO Traditional	925.47	1,850.94	2,406.22	\$370.34	\$740.68	\$1,111.02
Blue Shield Access+	889.02	1,778.04	2,311.45	n/a	n/a	n/a
Health Net SmartCare	863.48	1,726.96	2,245.05	n/a	n/a	n/a
Kaiser	779.86	1,559.72	2,027.64	316.34	632.68	949.02
UnitedHealthcare	1,371.84	2,743.68	3,566.78	330.76	661.52	992.28
Western Health Advantage	792.56	1,585.12	2,060.66	n/a	n/a	n/a
PERS Choice	800.27	1,600.54	2,080.70	345.97	691.94	1,037.91
PERS Select	717.50	1,435.00	1,865.50	345.97	691.94	1,037.91
PERSCare	882.45	1,764.90	2,294.37	382.30	764.60	1,146.90
PORAC	734.00	1,540.00	1,970.00	487.00	970.00	1,551.00



June 24, 2018

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PARTICIPANT STATISTICS

Participant Statistics
June 30, 2017

	Miscellaneous	Police	Fire	Total
■ Actives				
• Count	231	66	69	366
• Average Age	46.6	41.2	38.8	44.2
• Average Service	11.6	12.1	9.7	11.3
• Average Pay	\$ 72,200	\$ 113,100	\$ 121,300	\$ 88,800
• Payroll (\$000s)	16,672	7,463	8,371	32,506
■ Retirees				
➤ Count < 65	54	18	36	108
➤ Count ≥ 65	<u>125</u>	<u>44</u>	<u>60</u>	<u>229</u>
➤ Total	179	62	96	337
• Average Age	70.6	68.7	69.7	70.0
• Avg. Svc Ret. Age	59.3	54.5	54.9	57.5



June 24, 2018

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PARTICIPANT STATISTICS

Participant Statistics
June 30, 2015

	Miscellaneous	Police	Fire	Total
■ Actives				
• Count	248	64	64	376
• Average Age	46.8	40.5	38.9	44.4
• Average Service	11.3	12.2	9.5	11.2
• Average Pay	\$ 66,200	\$ 105,800	\$ 111,800	\$ 80,700
• Payroll (\$000s)	16,425	6,769	7,152	30,346
■ Retirees				
➤ Count < 65	55	23	44	122
➤ Count ≥ 65	<u>109</u>	<u>39</u>	<u>53</u>	<u>201</u>
➤ Total	164	62	97	323
• Average Age	69.9	67.1	67.8	68.7
• Average Ret. Age ²⁷	59.3	55.1	54.9	57.4

²⁷ Excludes 35 surviving spouses



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PARTICIPANT STATISTICS

Medical Plan Participation²⁸

Medical Plan	Actives	Retirees		
		< 65	≥ 65	Total
Anthem Traditional	2%	0%	0%	0%
Blue Shield Access+	9%	13%	1%	5%
Health Net SmartCare	5%	4%	0%	1%
Kaiser	74%	55%	47%	50%
United Healthcare	0%	1%	15%	11%
PERS Choice	4%	2%	11%	8%
PERS Select	1%	1%	0%	1%
PERS Care	1%	9%	23%	19%
PORAC	5%	16%	2%	6%
Total	100%	100%	100%	100%

²⁸ Excludes waived participants.



June 24, 2018

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PARTICIPANT STATISTICS

Active Medical Coverage

Medical Plan	Single	2-Party	Family	Waived	Total
Anthem Traditional	2	2	2	-	6
Blue Shield Access+	15	4	8	-	27
Health Net SmartCare	4	3	7	-	14
Kaiser	90	45	74	2	211
PERS Choice	4	4	2	-	10
PERS Select	1	-	1	-	2
PERSCare	-	-	2	-	2
PORAC	6	5	4	-	15
Waived	-	-	-	79	79
Total	122	63	100	81	366



June 24, 2018

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PARTICIPANT STATISTICS

Retiree Medical Coverage – Under Age 65

Medical Plan	Single	2-Party	Family	Total
Blue Shield Access+	7	3	4	14
Health Net SmartCare	1	2	-	3
Kaiser	29	23	8	60
United Healthcare	-	1	-	1
PERS Choice	2	-	-	2
PERS Select	1	-	-	1
PERSCare	5	4	1	10
PORAC	7	9	1	17
Total	52	42	14	108



June 24, 2018

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PARTICIPANT STATISTICS

Retiree Medical Coverage – Over Age 65

Medical Plan	Single	2-Party	Family	Total
Blue Shield Access+	1	1	1	3
Health Net SmartCare	-	-	-	-
Kaiser	61	44	3	108
United Healthcare	21	14	-	35
PERS Choice	12	12	1	25
PERS Select	1	-	-	1
PERSCare	33	19	1	53
PORAC	1	2	1	4
Total	130	92	7	229



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PARTICIPANT STATISTICS

Actives by Age and City Service
Miscellaneous

Age	City Service							Total
	< 1	1-4	5-9	10-14	15-19	20-24	≥ 25	
< 25	4	8	1	-	-	-	-	13
25-29	3	11	4	2	-	-	-	20
30-34	4	5	3	3	-	-	-	15
35-39	2	8	5	1	2	-	-	18
40-44	2	6	6	9	8	-	-	31
45-49	1	7	3	8	4	4	4	31
50-54	2	4	5	4	9	4	11	39
55-59	1	6	3	5	7	1	5	28
60-64	-	-	5	11	6	1	4	27
≥ 65	-	-	1	1	2	3	2	9
Total	19	55	36	44	38	13	26	231



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PARTICIPANT STATISTICS

Actives by Age and City Service
Safety

Age	City Service							Total
	< 1	1-4	5-9	10-14	15-19	20-24	≥ 25	
< 25	2	2	1	-	-	-	-	5
25-29	2	12	-	-	-	-	-	14
30-34	3	14	9	7	-	-	-	33
35-39	-	3	7	4	2	-	-	16
40-44	-	1	2	8	11	1	-	23
45-49	-	1	1	8	8	5	1	24
50-54	-	-	-	4	3	1	3	11
55-59	-	-	1	-	2	1	3	7
60-64	-	-	1	1	-	-	-	2
≥ 65	-	-	-	-	-	-	-	-
Total	7	33	22	32	26	8	7	135



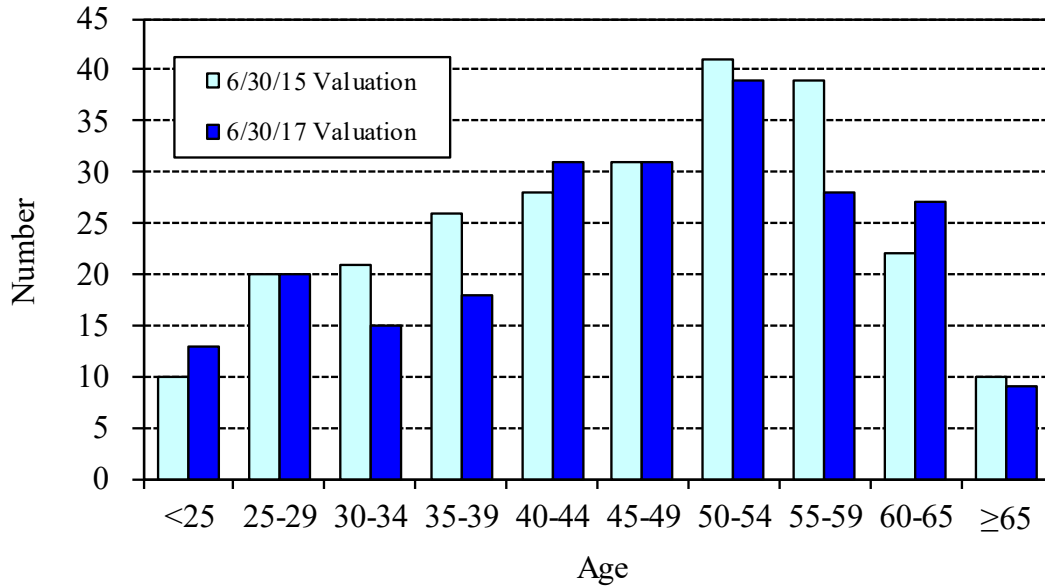
June 24, 2018

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PARTICIPANT STATISTICS

Active Age Distribution
Miscellaneous



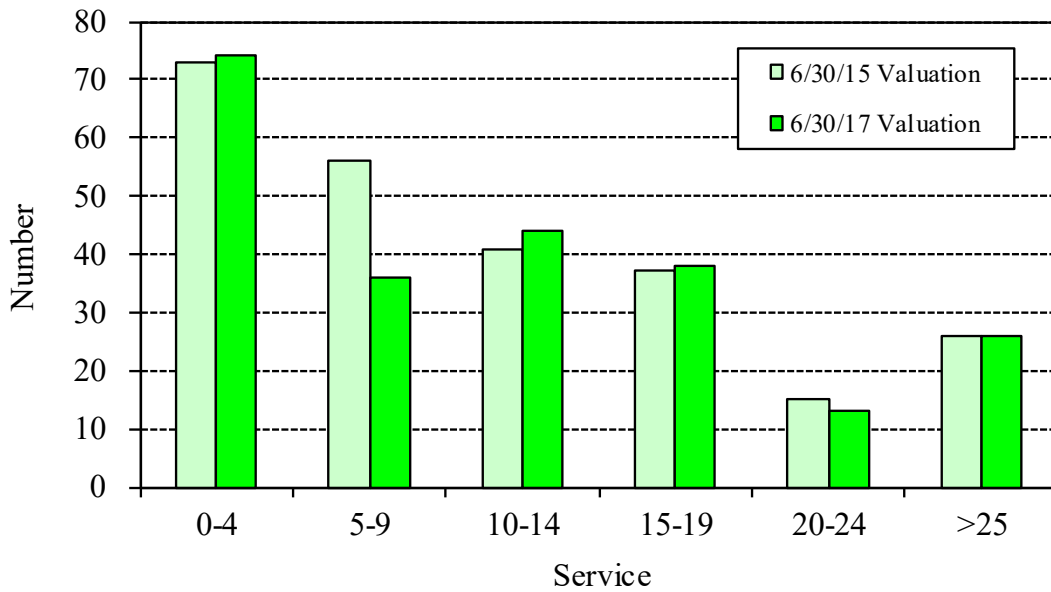
June 24, 2018

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PARTICIPANT STATISTICS

Active Service Distribution
Miscellaneous



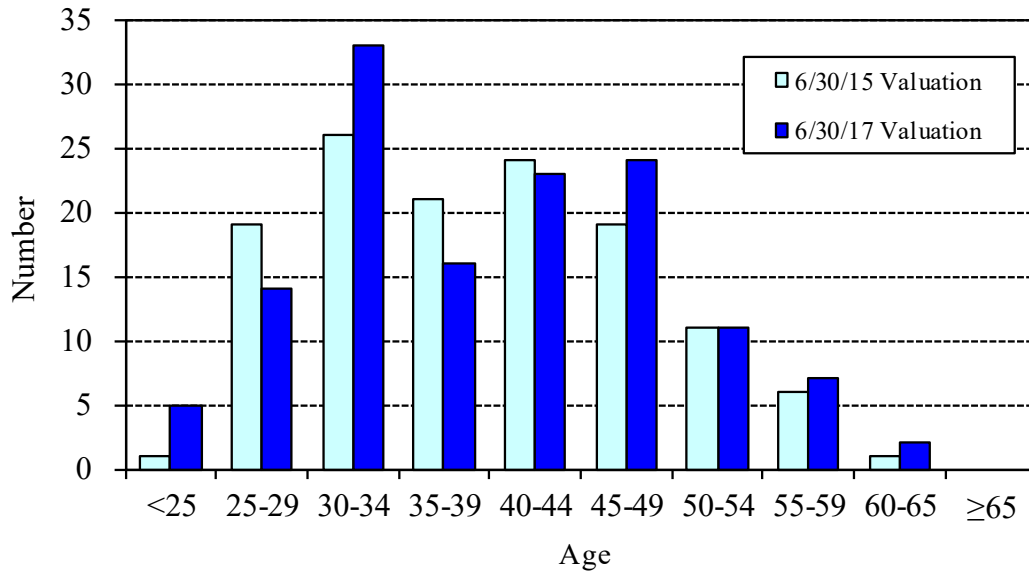
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PARTICIPANT STATISTICS

Active Age Distribution
Safety



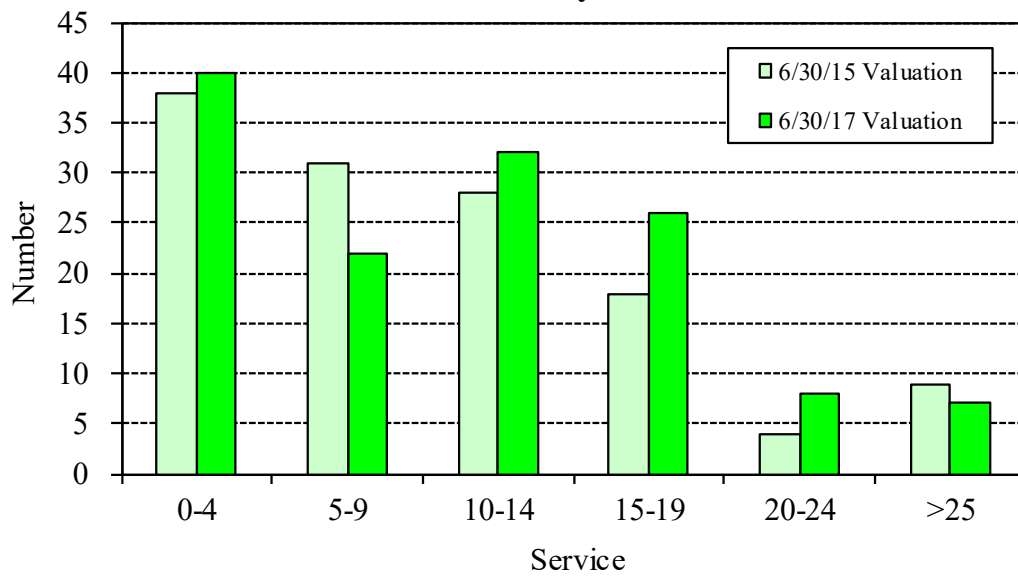
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PARTICIPANT STATISTICS

Active Service Distribution
Safety



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PARTICIPANT STATISTICS

Retiree Healthcare Coverage by Age Group
Miscellaneous

Age	Single	2-Party	Family	Total
Under 50	-	-	1	1
50-54	3	-	-	3
55-59	9	2	2	13
60-64	19	15	3	37
65-69	20	12	3	35
70-74	23	15	-	38
75-79	16	6	-	22
80-84	8	8	-	16
Over 85	13	1	-	14
Total	111	59	9	179
Average Age	71.4	70.2	61.2	70.5



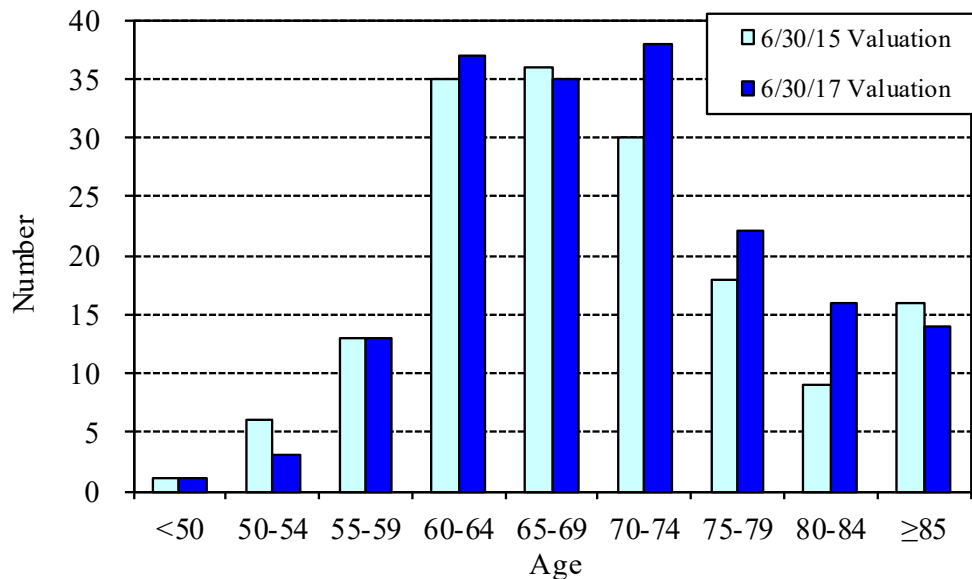
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PARTICIPANT STATISTICS

Retiree Age Distribution
Miscellaneous



June 24, 2018

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PARTICIPANT STATISTICS

Retiree Healthcare Coverage by Age Group
Safety

Age	Single	2-Party	Family	Total
Under 50	3	-	-	3
50-54	2	3	-	5
55-59	3	7	4	14
60-64	13	15	4	32
65-69	16	14	4	34
70-74	14	19	-	33
75-79	6	5	-	11
80-84	6	7	-	13
Over 85	8	5	-	13
Total	71	75	12	158
Average Age	70.2	69.5	62.4	69.3



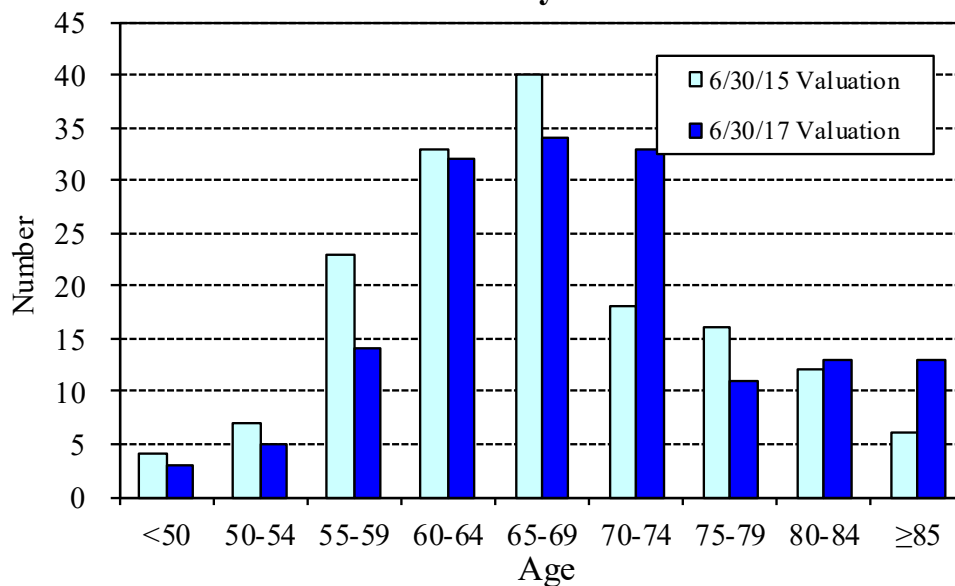
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PARTICIPANT STATISTICS

Retiree Age Distribution
Safety



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ACTUARIAL ASSUMPTIONS

Assumption	June 30, 2015 Valuation	June 30, 2017 Valuation																																										
■ Service Retirement	■ 6/30/14 MCERA valuation assumptions <table border="0"> <tr> <td></td> <td align="center"><u>Misc</u></td> <td align="center"><u>Safety</u></td> </tr> <tr> <td>Tier 1²⁹</td> <td align="center">2.7%@55</td> <td align="center">3%@55</td> </tr> <tr> <td>ERA</td> <td align="center">60.5</td> <td align="center">55.6</td> </tr> <tr> <td>Tier 2³⁰</td> <td align="center">2%@55</td> <td align="center">3%@55</td> </tr> <tr> <td>ERA</td> <td align="center">60.1</td> <td align="center">55.5</td> </tr> <tr> <td>Tier 3³¹</td> <td align="center">2%@62</td> <td align="center">2.7%@57</td> </tr> <tr> <td>ERA</td> <td align="center">59.9</td> <td align="center">55.0</td> </tr> </table>		<u>Misc</u>	<u>Safety</u>	Tier 1 ²⁹	2.7%@55	3%@55	ERA	60.5	55.6	Tier 2 ³⁰	2%@55	3%@55	ERA	60.1	55.5	Tier 3 ³¹	2%@62	2.7%@57	ERA	59.9	55.0	■ 6/30/17 MCERA valuation assumptions <table border="0"> <tr> <td></td> <td align="center"><u>Misc</u></td> <td align="center"><u>Safety</u></td> </tr> <tr> <td>Tier 1³²</td> <td align="center">2.7%@55</td> <td align="center">3%@55</td> </tr> <tr> <td>ERA</td> <td align="center">61.9</td> <td align="center">54.6</td> </tr> <tr> <td>Tier 2³³</td> <td align="center">2%@55</td> <td align="center">3%@55</td> </tr> <tr> <td>ERA</td> <td align="center">62.9</td> <td align="center">54.6</td> </tr> <tr> <td>Tier 3³⁴</td> <td align="center">2%@62</td> <td align="center">2.7%@57</td> </tr> <tr> <td>ERA</td> <td align="center">61.3</td> <td align="center">54.2</td> </tr> </table>		<u>Misc</u>	<u>Safety</u>	Tier 1 ³²	2.7%@55	3%@55	ERA	61.9	54.6	Tier 2 ³³	2%@55	3%@55	ERA	62.9	54.6	Tier 3 ³⁴	2%@62	2.7%@57	ERA	61.3	54.2
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■ Part Time Employment	■ 25% PARS employees become full time eligible	■ Same																																										

²⁹ Final Average Pay based on 1 year (FAP 1); 3% COLA
³⁰ Hired ≥ 7/1/11 based on FAP 3 and 2% COLA
³¹ PEPRA hired ≥ 1/1/13
³² Final Average Pay based on 1 year (FAP 1); 3% COLA
³³ Hired ≥ 7/1/11 based on FAP 3 and 2% COLA
³⁴ PEPRA hired ≥ 1/1/13



ACTUARIAL ASSUMPTIONS

Assumption	June 30, 2015 Valuation	June 30, 2017 Valuation																								
■ PEMHCA Minimum Increases	■ 4.0% after 2016	■ Increases to \$136 for 2019, 4.25% after 2019																								
■ Medicare Part B Trend	<table border="0"> <tr> <td><u>Year</u></td> <td align="center"><u>Medicare</u></td> </tr> <tr> <td>2019</td> <td align="center">6.5%</td> </tr> <tr> <td>2020</td> <td align="center">6.5%</td> </tr> <tr> <td>2021</td> <td align="center">6.3%</td> </tr> <tr> <td>2022</td> <td align="center">6.1%</td> </tr> <tr> <td align="center" colspan="2">Converging to Medical Trends after 2022</td> </tr> </table>	<u>Year</u>	<u>Medicare</u>	2019	6.5%	2020	6.5%	2021	6.3%	2022	6.1%	Converging to Medical Trends after 2022		<table border="0"> <tr> <td><u>Year</u></td> <td align="center"><u>Medicare</u></td> </tr> <tr> <td>2019</td> <td align="center">0.0%</td> </tr> <tr> <td>2020</td> <td align="center">3.7%</td> </tr> <tr> <td>2021</td> <td align="center">4.4%</td> </tr> <tr> <td>2022</td> <td align="center">5.1%</td> </tr> <tr> <td align="center" colspan="2">Converging to Medical Trends after 2022</td> </tr> </table>	<u>Year</u>	<u>Medicare</u>	2019	0.0%	2020	3.7%	2021	4.4%	2022	5.1%	Converging to Medical Trends after 2022	
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■ Participation at Retirement	■ Actives: <ul style="list-style-type: none"> • Capped benefit: <ul style="list-style-type: none"> ➢ Currently covered: 100% ➢ Currently waived: 80% • PEMHCA minimum: 60% ■ Retirees: same as current election	■ Same																								



ACTUARIAL ASSUMPTIONS

Assumption	June 30, 2015 Valuation	June 30, 2017 Valuation
<ul style="list-style-type: none"> ■ Medical Plan at Retirement 	<ul style="list-style-type: none"> ■ Currently covered: same as current elections ■ Employees enrolled in Anthem & Blue Shield Medicare plans assumed to move to UnitedHealthcare beginning 2016 	<ul style="list-style-type: none"> ■ Currently covered: same as current elections
<ul style="list-style-type: none"> ■ Marital Status 	<ul style="list-style-type: none"> ■ Covered actives and retirees – based on current coverage election ■ Waived actives – 80% married 	<ul style="list-style-type: none"> ■ Same
<ul style="list-style-type: none"> ■ Spouse Age 	<ul style="list-style-type: none"> ■ Males 3 years older than females 	<ul style="list-style-type: none"> ■ Same



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ACTUARIAL ASSUMPTIONS

Assumption	June 30, 2015 Valuation	June 30, 2017 Valuation
<ul style="list-style-type: none"> ■ Dependents at Retirement 	<ul style="list-style-type: none"> ■ Pre-65: <ul style="list-style-type: none"> • Actives: 20% • Retirees: same as current coverage ■ Post-65: 0% 	<ul style="list-style-type: none"> ■ Same
<ul style="list-style-type: none"> ■ Medicare Eligible Rate 	<ul style="list-style-type: none"> ■ Actives and Retirees under 65: <ul style="list-style-type: none"> • Hired < 4/1/86: 80% Misc, 90% Safety • Hired > 4/1/86: 100% ■ Retirees over 65: current Medicare eligible status 	<ul style="list-style-type: none"> ■ Same
<ul style="list-style-type: none"> ■ Medicare Participation 	<ul style="list-style-type: none"> ■ All eligible elect City reimbursement of Part B 	<ul style="list-style-type: none"> ■ For Pre-Medicare, all eligible elect City reimbursement of Part B ■ For those currently Eligible for Medicare, based on current coverage



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ACTUARIAL ASSUMPTIONS

Assumption	June 30, 2015 Valuation	June 30, 2017 Valuation
■ PPACA High Cost Plan Excise Tax	■ 2.0% cash subsidy load	■ Same
■ CERBT Administrative Expenses	■ Not explicitly included ■ Discount rate net of admin expenses	■ Included in the ADC ■ 0.05% of assets
■ PEMHCA Administrative Expenses	■ Included in the liability	■ Included in the ADC ■ 0.33% of premiums



June 24, 2018

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ACTUARIAL ASSUMPTIONS

Assumption	June 30, 2015 Valuation				June 30, 2017 Valuation				
■ HMO Medical Claims Costs 2018 PEMHCA Implied Subsidy Estimate	■ Sample estimated monthly claims costs:								
	Bay Area Region – Non-Medicare Eligible								
		<u>Anthem Trad.</u>		<u>BS Access+</u>		<u>Health Net SmartCare</u>		<u>Kaiser</u>	
	<u>Age</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
	25	\$271	\$534	\$261	\$513	\$254	\$499	\$257	\$505
	35	356	654	342	628	332	610	336	617
	45	567	686	545	659	529	640	536	648
	55	947	958	910	920	884	893	895	905
	60	1,209	1,131	1,328	1,242	1,128	1,055	1,142	1,068
	65	1,528	1,376	1,468	1,321	1,425	1,283	1,443	1,299
	70	1,810	1,590	1,739	1,528	1,689	1,484	1,710	1,502
	75	2,164	1,871	2,078	1,797	2,019	1,745	2,044	1,767
	80	2,512	2,155	2,413	2,070	2,343	2,011	2,372	2,035
		Bay Area Region - Medicare Eligible							
	<u>Anthem Trad.</u>		<u>BS Access+</u>		<u>Health Net SmartCare</u>		<u>Kaiser</u>		
<u>Age</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	
65	\$365	\$338	n/a	n/a	n/a	n/a	\$304	\$282	
70	343	328	n/a	n/a	n/a	n/a	286	273	
75	429	384	n/a	n/a	n/a	n/a	357	320	
80	460	408	n/a	n/a	n/a	n/a	383	340	



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ACTUARIAL ASSUMPTIONS

Assumption	June 30, 2015 Valuation	June 30, 2017 Valuation								
■ PPO Medical Claims Costs 2018 PEMHCA Implied Subsidy Estimate	■ Sample estimated monthly claims costs: Bay Area Region – Non-Medicare Eligible	Bay Area Region – Non-Medicare Eligible								
			<u>PERS Choice</u>		<u>PERSCare</u>		<u>PORAC</u>		<u>United Healthcare</u>	
		<u>Age</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
		25	\$245	\$402	\$281	\$462	\$285	\$409	\$403	\$792
		35	363	559	417	642	369	567	528	969
		45	577	632	663	726	586	642	841	1,017
		55	853	825	980	948	868	839	1,404	1,420
		60	1,025	948	1,178	1,089	1,039	963	1,792	1,677
		65	1,273	1,145	1,463	1,315	1,293	1,162	2,265	2,039
		70	1,509	1,323	1,733	1,520	1,532	1,343	2,684	2,357
		75	1,803	1,557	2,071	1,788	1,831	1,580	3,207	2,773
		80	2,093	1,793	2,405	2,060	2,125	1,820	3,723	3,194
			Bay Area Region - Medicare Eligible							
			<u>PERS Choice</u>		<u>PERSCare</u>		<u>PORAC</u>		<u>United Healthcare</u>	
		<u>Age</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>	<u>M</u>	<u>F</u>
65	\$326	\$342	\$361	\$378	\$479	\$502	\$326	\$302		
70	311	331	344	366	456	486	306	293		
75	351	365	388	403	515	536	383	343		
80	363	376	401	416	532	552	411	365		



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ACTUARIAL METHODS

Method	June 30, 2015 Valuation	June 30, 2017 Valuation
■ Cost Method	■ Entry Age Normal	■ Same
■ Amortization Method	■ Level percentage of payroll	■ Same
■ Actuarial Value of Assets	■ Investment gains and losses spread over 5-year rolling period ■ Not less than 80% nor more than 120% of market value	■ Same
■ Amortization Period	■ 19-year fixed (closed) period for 6/30/16 UAAL	■ 17-year fixed (closed) period for 6/30/18 UAAL



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DEFINITIONS

<ul style="list-style-type: none"> ■ GASBS 75 Accrual Accounting 	<ul style="list-style-type: none"> ■ Project future employer-provided benefit cash flows for current active employees and current retirees ■ Discount projected cash flow to valuation date using discount rate (assumed return on assets used to pay benefits) and other actuarial assumptions to determine present value of projected future benefits (PVB) ■ Allocate PVB to past, current, and future periods using the actuarial cost method ■ Actuarial cost method used for this valuation is the Entry Age Normal Cost method which determines Normal Cost as a level percentage of payroll (same method used by CalPERS) ■ Normal Cost is amount allocated to current fiscal year ■ Actuarial Accrued Liability (AAL) is amount allocated to prior service with employer ■ Unfunded AAL (UAAL) is AAL less plan assets pre-funded in a segregated and restricted trust
<ul style="list-style-type: none"> ■ PayGo Cost 	<ul style="list-style-type: none"> ■ Cash subsidy is employer pay-as-you-go benefit payments for retirees ■ Implied subsidy is difference between actual cost of retiree benefits and retiree premiums subsidized by active employee premiums



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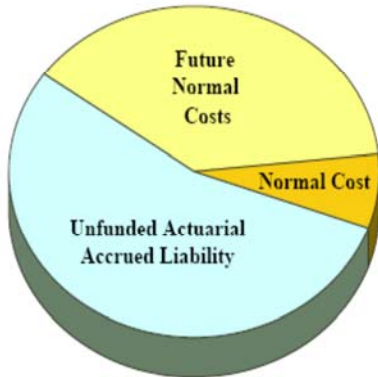
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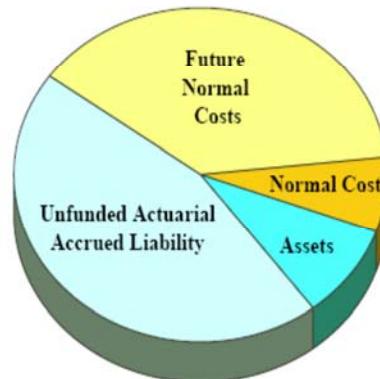
DEFINITIONS

Present Value of Benefits

**Present Value of Benefits
(Without Plan Assets)**



**Present Value of Benefits
(With Plan Assets)**



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