



**B**ARTEL  
ASSOCIATES, LLC

**Contra Costa Water District  
Retirement Plan**

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**June 30, 2016 Actuarial Valuation  
For Calendar Year 2017 Funding**

**Final Results**

December 28, 2016



**ACTUARIAL VALUATION**

**RETIREMENT PLAN OF THE CONTRA COSTA WATER DISTRICT**

We are pleased to present the results of our June 30, 2016 actuarial valuation of the Retirement Plan of the Contra Costa Water District (Plan).

The purpose of this valuation is to:

- Determine the Plan's June 30, 2016 Funded Status, and
- Calculate the 2017 calendar year Actuarially Determined Contribution.

The information in this report may not be appropriate for purposes other than Plan funding but may be useful to the District for the Plan's financial management. Future valuations may differ significantly if the District's experience differs from the 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 the Plan's benefit provisions summarized in Section 7, participant data, and on the Plan's financial information, all furnished by the District. We reviewed the financial and participant data for reasonableness, including comparing to prior year data, but did not perform an audit.

The required accounting information for GASBSs 67 and 68 is provided separately.

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 Academy Qualification Standards, we certify the actuarial results and opinions herein.

Respectfully submitted,



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Mary Elizabeth Redding  
FSA, EA, MAAA, FCA  
Vice President  
Bartel Associates, LLC  
December 28, 2016



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Bianca Lin  
FSA, EA, MAAA, FCA  
Assistant Vice President  
Bartel Associates, LLC  
December 28, 2016



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Tak Frazita  
ASA, EA, MAAA  
Associate Actuary  
Bartel Associates, LLC  
December 28, 2016

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# SECTION 1

## EXECUTIVE SUMMARY

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Following are the valuation results. See discussion following the table.

	(amounts in \$000s)		
	June 30, 2015	June 30, 2016	% change
<b>■ Participant Counts</b>			
• Actives	286	291	1.7%
• Vested Terminated & Reciprocal	87	90	3.4%
• Retirees & Beneficiaries	315	336	6.7%
• Total	688	717	4.2%
<b>■ Projected Payroll for Contribution Year</b>			
	\$ 28,147	\$ 29,312	4.1%
<b>■ Assets</b>			
• Market Value of Assets	\$ 155,601	\$ 159,022	2.2%
• Approximate Annual Rate of Return	2.9%	2.1%	
• Actuarial Value of Assets	\$ 154,251	\$ 164,392	6.6%
• Approximate Annual Rate of Return	9.7%	6.4%	
<b>■ Plan Funded Status</b>			
• Actuarial Accrued Liability	\$ 176,013	\$ 191,580	8.8%
• Actuarial Value of Plan Assets	154,251	164,392	6.6%
• Unfunded Actuarial Accrued Liability	21,762	27,188	24.9%
• Funded Ratio, Actuarial Value Basis	87.6%	85.8%	(2.1%)
• Funded Ratio, Market Value Basis	88.4%	83.0%	(6.1%)
	<b>2016</b>	<b>2017</b>	<b>% change</b>
<b>■ Actuarially Determined Contribution Rate (ADC)<sup>1</sup></b>			
• Total Normal Cost	16.61%	17.32%	4.3%
• Employee Normal Cost	8.56%	8.38%	(2.1%)
• Net District Normal Cost	8.05%	8.94%	11.1%
• Amortization of Unfunded Liability	11.43%	13.54%	18.5%
• Total District ADC	19.48%	22.48%	15.4%
• Total District ADC after 2016 COLA	20.15%	22.48%	11.6%

<sup>1</sup> Excludes amounts paid by District and credited to Member accounts.

# SECTION 1

## EXECUTIVE SUMMARY

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The following table lists various measures of retirement plan risk, or contribution volatility

(amounts in \$000s)

	June 30, 2015	June 30, 2016
<b>■ Risk Measures – Market Value of Assets</b>		
• Actuarial Accrued Liability	\$ 176,013	\$ 191,580
• Market Value of Assets	155,601	159,022
• Unfunded AAL (on MVA)	20,412	32,558
• Funded Ratio (MVA/AAL)	88.4%	83.0%
• UAAL (on MVA)/Payroll	73.7%	112.9%
<b>■ Payroll for year following valuation date</b>	\$ 27,700	\$ 28,847
<b>■ Risk Measures – Actuarial Value of Assets</b>		
• Actuarial Accrued Liability	\$ 176,013	\$ 191,580
• Actuarial Value of Assets	154,251	164,392
• Unfunded AAL (on AVA)	21,762	27,188
• Funded Ratio (AVA/AAL)	87.6%	85.8%
• UAAL (on AVA)/Payroll	78.6%	94.2%
<b>■ Volatility Ratios</b>		
• Asset Volatility Index (MVA/Payroll)	5.6	5.5
• Liability (100% Funded) Volatility Index (AAL/Payroll)	6.4	6.6
• Maturity Ratio (Retiree Count/Total Count)	45.8%	46.9%
• Maturity Ratio (Retiree AAL/Total AAL)	53.7%	57.2%

# SECTION 1

## EXECUTIVE SUMMARY

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### **Purpose of Actuarial Valuation**

The actual costs of a defined benefit plan are determined entirely by the amount of the benefit promise, the actual salaries and service of the plan participants, and how long they and their beneficiaries live to receive payments. An actuarial valuation is a mathematical model which attempts to quantify this actual cost by setting assumptions that will duplicate reality as closely as possible. In addition, the actuarial funding methodology provides a reasonable plan, or method, towards funding the expected plan costs in a logical manner taking into account the often conflicting needs of stakeholders.

The information in this report on the valuation is to assist the Plan trustees in making informed decisions regarding Plan, benefits and investments.

### **Discussion of Results**

Changes since the prior valuation and their effects on the contribution rate are detailed in Section 5 of the report.

During fiscal year 2016, Plan investments earned approximately 2% on a market value basis and 6% on the smoothed actuarial asset value used to determine the contribution rate. This actuarial loss was exceeded by contribution gain - extra contributions paid by the District - resulting in the 2017 contribution rate being lower than the 2016 rate.

There was one assumption change since the June 30, 2015 valuation. The discount rate was changed from 7.25% to 7%.

### **Accounting**

Beginning June 14, 2014, the Retirement Plan is accounted for under GASBS 67 and the District's pension disclosures are governed by GASBS 68 beginning with the 2015 fiscal year. Plan and Employer accounting information is not included in this report.

### **Other**

Any ad hoc contributions the District made after June 30, 2016 are not reflected in this valuation.

## SECTION 2

### LIABILITY INFORMATION & FUNDED STATUS

A comparison of the Present Value of Benefits, Actuarial Accrued Liability, Employer Normal Cost, and the Funded Ratio for the current and prior valuations follow. (Note that numbers throughout the report may not add due to rounding.)

	(amounts in \$000s)	
	June 30, 2015	June 30, 2016
<b>■ Present Value of Projected Benefits</b>		
• Active Employees	\$ 111,166	\$ 115,089
• Vested Terminated & Reciprocal	9,049	10,424
• Service Retirees	88,277	102,640
• Disabled Participants	495	509
• Beneficiaries	5,788	6,472
• Total	214,776	235,134
<b>■ Actuarial Accrued Liability</b>		
• Active Employees	\$ 72,403	\$ 71,535
• Vested Terminated & Reciprocal	9,049	10,424
• Service Retirees	88,277	102,640
• Disabled Participants	495	509
• Beneficiaries	5,788	6,472
• Total	176,013	191,580
	<b>2016</b>	<b>2017</b>
<b>■ Normal Cost (payable middle of contribution year)</b>		
• Total Normal Cost	\$ 4,676	\$ 5,078
• Employee Normal Cost	2,410	2,455
• Total Employer Normal Cost	2,266	2,623
	<b>June 30, 2015</b>	<b>June 30, 2016</b>
<b>■ Plan Funded Status</b>		
• Total Actuarial Accrued Liability	\$ 176,013	\$ 191,580
• Actuarial Value of Assets	154,251	164,392
• Unfunded Actuarial Accrued Liability	22,762	27,188
• Funded Ratio	87.6%	85.8%



## SECTION 3

### ASSET INFORMATION

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Assets for the Plan are held in trust. Trust monies may be used to pay benefits to Plan participants and their beneficiaries. The trust is managed under the direction of the District. Asset information is provided by the Contra Costa Water District, and has not yet been audited.

#### Asset Reconciliation – Market Value of Assets

Following reconciles the June 30, 2015 through June 30, 2016 market value of assets.

	(amounts in \$000s)	
	2014/15	2015/16
■ Beginning of Year Balance:	\$ 151,465	\$ 155,601
■ Additions		
• Member Contributions <sup>2</sup>	2,370	2,290
• District Contributions	5,867	7,554
• Investment Income, net of investment expense	4,361	3,202
• Total Additions	12,598	13,046
■ Deductions		
• Benefit Payments	(8,462)	(9,625)
• Administrative Expenses	-	-
• Total Deductions	(8,462)	(9,625)
■ Net Assets at End of Year	155,601	159,022
■ Approximate Return on Assets	2.9%	2.1%

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<sup>2</sup> Includes amounts paid by District and credited to member accounts (\$532,000 in FY 2015, \$478,000 in FY 2016).

## SECTION 3

### ASSET INFORMATION

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#### Asset Allocation – Market Value of Assets

The June 30, 2016 trust asset allocation is provided by the Contra Costa Water District. Details are shown below.

(amounts in \$000s)

	Market Value	Percentage
■ Cash & Cash Equivalents	\$ 1,442	0.9%
■ Investments		
• Corporate Bonds Mutual Funds	16,862	10.6%
• Equity Mutual Funds	24,140	15.2%
• Money Market Funds – Equities	81,259	51.1%
• Money Market Funds – Fixed Income	35,014	22.0%
• Total Investments	157,275	98.9%
■ Total Cash & Investments	158,717	99.8%
■ Receivables		
• Accrued Income	0	0.0%
• Contribution Due from District	233	0.1%
• Contribution Due from Participants	72	0.0%
• Total Receivables	305	0.1%
■ Total Assets	159,022	100.0%

#### Target Allocation by Asset Class

The Board Directors of Contra Costa Water District last revised the asset allocation in September 2015, as shown below.

	Low	Normal	High
■ Broad Domestic Equity	29%	45%	61%
■ International Equity	11%	15%	19%
■ Domestic Fixed Income	25%	30%	35%
■ Real Estate	3%	5%	8%
■ Emerging Markets Debt	3%	5%	7%

## SECTION 3

### ASSET INFORMATION

#### Development of Actuarial Value of Assets

The Actuarial Value of Assets is based upon a five year smoothing of market assets. This method reduces volatility in contribution rates, and also reduces volatility in the size of the actuarial gains and losses due to asset returns.

		(amounts in \$000s)
		<b>2015/16</b>
■	Market Value of Assets June 30, 2015	\$ 155,601
	• Contributions (Employee + Employer)	9,844
	• Expected Earnings	11,289
	• Benefit Payments	(9,625)
		167,109
■	Expected Market Value of Assets June 30, 2016	167,109
■	Market Value of Assets June 30, 2016	159,022
■	Difference between MVA & Expected MVA	(8,087)

Year Ending June 30	Asset Gain/(Loss)	Percentage Not Yet Recognized as of June 30, 2015	Amount Not Yet Recognized as of June 30, 2015
2012	\$(7,117)	0%	\$ -
2013	4,618	20%	924
2014	10,359	40%	4,144
2015	(6,612)	60%	(4,182)
2016	(8,087)	80%	(6,470)

(1) Total Amount Not Yet Recognized as of June 30, 2016	(5,370)
(2) Net Market Value of Assets	159,022
(3) Net Actuarial Value of Assets (2) – (1)	164,392

## SECTION 3

### ASSET INFORMATION

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#### Historical Return on Retirement Plan Assets

Year Ended	CPI Increase <sup>3</sup>	Rate of Return on Market Value	Rate of Return on Actuarial Value
June 30, 1997	2.7%	22.6%	13.3%
June 30, 1998	3.0%	15.6%	13.8%
June 30, 1999	4.1%	8.7%	14.1%
June 30, 2000	4.1%	13.0%	13.5%
June 30, 2001	6.7%	2.6%	11.1%
June 30, 2002	1.2%	(6.0%)	5.7%
June 30, 2003	1.6%	5.9%	4.3%
June 30, 2004	1.7%	13.6%	4.6%
June 30, 2005	1.1%	7.8%	5.0%
June 30, 2006	3.9%	8.9%	5.9%
June 30, 2007	3.0%	17.4%	11.1%
June 30, 2008	4.7%	(7.8%)	9.2%
June 30, 2009	(0.2%)	(18.3%)	0.2%
June 30, 2010	1.4%	11.3%	0.6%
June 30, 2011	2.9%	21.0%	3.1%
June 30, 2012	2.7%	1.4%	0.3%
June 30, 2013	2.6%	11.8%	5.1%
June 30, 2014	2.9%	15.4%	11.4%
June 30, 2015	1.9%	2.9%	9.7%
June 30, 2016	2.5%	2.1%	6.4%
20-year compound average	2.7%	7.0%	7.3%

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<sup>3</sup> Increase of Consumer Price Index (CPI) for Urban Wage Earners and Clerical Workers (CPI-W), San Francisco-Oakland-San Jose, for 12 months period ending June.

## SECTION 4

### CONTRIBUTION DEVELOPMENT

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#### Actuarially Determined Contribution

Following is the development of the 2017 Actuarially Determined Contribution. The 2016 Actuarially Determined Contribution, which was calculated in the June 30, 2015 actuarial valuation is shown for comparison.

	(amounts in \$000s)	
<b>Contribution Year</b>	<b>2016</b>	<b>2017</b>
■ Actuarially Determined Contribution		
• Total Normal Cost	\$ 4,676	\$ 5,078
• Employee Normal Cost	2,410	2,455
• District Normal Cost	2,266	2,623
• Amortization of Unfunded Liability	3,218	3,968
• Total District Actuarially Determined Contribution	5,484	6,591
■ Projected Payroll for Contribution Year	28,147	29,312
■ Actuarially Determined Contribution (ADC) (as a percent of Plan payroll)		
• Total Normal Cost	16.61%	17.32%
• Employee Normal Cost	8.56%	8.38%
• Net District Normal Cost	8.05%	8.94%
• Amortization of Unfunded Liability	11.43%	13.54%
• Total District ADC	19.48%	22.48%
• Total District ADC Increased for 2016 COLA	20.15%	22.48%

#### 2017 District Contribution Rates by Group<sup>4</sup>

	Clerical/ Maintenance	Professional/ Supervisory	Unrep- resented	Confidential	Directors	Total
• Normal Cost	8.50%	8.44%	11.53%	10.84%	21.86%	8.94%
• UAAL Amortization	12.84%	13.42%	17.73%	9.35%	12.47%	13.54%
• Total Rate	21.34%	21.86%	29.26%	20.19%	34.33%	22.48%
• Total Annual Amount (\$000s)	\$ 3,081	\$ 2,250	\$ 1,061	\$ 185	\$ 14	\$ 6,591

<sup>4</sup> Does not include the contributions made by the District and credited to the employee accounts

## SECTION 4

### CONTRIBUTION DEVELOPMENT

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The following schedule shows the amortization bases arising in previous years' valuations. Each amount is funded over 15 years as a level dollar amount.

(amounts in \$000s)

Schedule of UAAL Amortization Bases	Original Amount	Number of Remaining Payments	Outstanding Balance as of June 30, 2016	Annual Contribution for 2017
2004 Base	\$ 2,107	3	\$ 595	\$ 227
2005 Base	2,157	4	865	255
2006 Base	1,223	5	626	153
2007 Base	(4,019)	6	(2,436)	(511)
2008 Base	889	7	608	113
2009 Base	1,657	8	1,221	205
2010 Base	8,504	9	6,628	1,017
2011 Base	6,369	10	5,205	741
2012 Base	16,207	11	13,754	1,834
2013 Base	(5,815)	12	(5,088)	(641)
2014 COLA <sup>5</sup>	759	12	640	81
2014 Base	(2,546)	13	(2,307)	(276)
2015 COLA	1,826	13	1,678	201
2015 Base	(1,947)	14	(1,871)	(214)
2016 COLA	1,682	14	1,616	185
2016 Base	5,450	15	5,450	598
<b>Total</b>			27,188	3,968

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<sup>5</sup> The actuarial accrued liability increases for retiree cost of living granted in 2013 and earlier are included in the regular amortization base for each year.

## SECTION 4

### CONTRIBUTION DEVELOPMENT

#### History of the Plan's Unfunded Actuarial Accrued Liability, Funded Ratio and District Contribution Rate

(amounts in \$000s)

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a Percentage of Covered Payroll	District Contribution Rate
6/30/97	\$34,217	\$38,281	\$4,064	89.4%	\$15,822	25.7%	N/A
6/30/98	40,184	42,511	2,327	94.5%	17,190	13.5%	N/A
6/30/99	46,725	46,197	(528)	101.1%	17,462	(3.0%)	N/A
6/30/00	53,495	50,773	(2,722)	105.4%	18,348	(14.8%)	N/A
6/30/01	59,537	56,002	(3,535)	106.3%	19,438	(18.2%)	N/A
6/30/02	62,724	62,183	(541)	100.9%	20,777	(2.6%)	N/A
6/30/03	72,447	71,628	(819)	101.1%	21,308	(3.8%)	N/A
6/30/04	75,560	77,667	2,107	97.3%	21,651	9.7%	N/A
6/30/05	78,950	83,194	4,244	94.9%	22,160	19.2%	7.02%
6/30/06	83,533	88,926	5,393	93.9%	23,034	23.4%	7.56%
6/30/07	93,937	95,166	1,229	98.7%	22,991	5.3%	6.24%
6/30/08	101,765	103,699	1,934	98.1%	24,578	7.9%	7.27%
6/30/09	102,581	105,933	3,352	96.8%	26,049	12.9%	8.52%
6/30/10	102,277	113,841	11,564	89.8%	26,769	43.2%	19.68%
6/30/11	105,068	122,542	17,475	85.7%	27,893	62.7%	21.84%
6/30/12	104,867	138,161	33,294	75.9%	27,604	120.6%	19.11%
6/30/13	126,095	152,849	26,754	82.5%	27,375	97.7%	21.23%
6/30/14	140,843	164,326	23,483	85.7%	27,179	86.4%	19.67%
6/30/15	154,251	176,013	21,762	87.6%	27,700	78.6%	19.48%
6/30/16	164,392	191,580	27,188	85.8%	28,847	94.2%	22.48%

## SECTION 5

### ACTUARIAL GAIN/LOSS ANALYSIS

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The gain/loss analysis of Plan assets, actuarial liability, and unfunded actuarial liability for the one year period between valuation dates is shown below.

(amounts in \$000s)

	Actuarial Accrued Liability (Gain)/Loss	Actuarial Value of Assets Gain/(Loss)	Unfunded Accrued Liability (Gain)/Loss	Contribution Rate Increase/ (Decrease)
■ <b>June 30, 2015 Actual Value</b>	\$ 176,013	\$ 154,251	\$ 21,762	19.48%
■ <b>2016 Retiree COLA</b>	1,682	-	1,682	0.67%
■ <b>June 30, 2016 Expected Value</b>	186,967	163,548	23,419	20.15%
• Salaries increased less than expected	(156)	-	(156)	(0.06%)
• Other demographic (gain)/loss	(459)	-	(459)	0.00%
• Discount rate changed from 7.25% to 7.00%	5,228		5,228	2.71%
• Contribution more than Expected	-	1,825	(1,825)	(0.69%)
• Investment gain/(loss)	-	(981)	981	0.37%
■ <b>Total Gain or Loss</b>	4,613	844	3,769	2.33%
■ <b>June 30, 2016 Actual Value</b>	191,580	164,392	27,188	22.48%



## SECTION 6

### CALCULATIONS UNDER PEPRA

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Following is the PEPRA Normal Cost calculation.

■ Number of participants in PEPRA study group established in 2014	57
■ Number of actual PEPRA participants as of June 30, 2016	43

For stability purposes, we recommend:

1. Until the number of actual PEPRA participants is ½ of the study group, use the normal cost rate based on the study group.
2. When the number of actual PEPRA participants is ½ of the number in the study, determine the employee normal cost rate as ½ of the rate for the study group and ½ of the rate for the actual PEPRA participants.
3. When the number of actual PEPRA participants equals or exceeds the number in the study, determine the employee normal cost rate as the rate for the actual PEPRA participants.

■ **Development of 2017 PEPRA Total Normal Cost Rate**

	<b>Total Normal Cost Rate</b>
1. PEPRA study updated to reflect June 30, 2016 actuarial valuation assumptions	12.08%
2. Actual PEPRA participants as of June 30, 2016	11.72%
3. ½ PEPRA Study + ½ Actual PEPRA Participants	11.90%

■ **Development of 2017 PEPRA Employee Normal Cost Rate**

Since the 2017 PEPRA total normal cost rate 11.90% is not more than 1% different from the current basis of 11.54% (last adjustment to employee normal cost rate), the employee normal cost rate remains unchanged at 5.75% for 2017.

	<b>Total Normal Cost Rate</b>	<b>Employee Normal Cost Rate (1/2 Total)</b>
■ 2014 PEPRA Normal Cost Rate (first established)	12.81%	6.50%
■ 2015 PEPRA Normal Cost Rate (current basis) <sup>6</sup>	11.54%	5.75%
■ 2016 PEPRA Normal Cost Rate	11.58%	5.75%
■ 2017 PEPRA Normal Cost Rate	11.90%	5.75%

The above rates should be applied to salary below the PEPRA compensation limit.

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<sup>6</sup> Last adjustment to employee normal cost rate

## SECTION 7 PLAN PROVISION SUMMARY

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**A. Plan Effective Date**

Originally established effective February 17, 1962. The most recent amendment was December 11, 2013

**B. Plan Year**

July 1 to June 30

**C. Participation**

All permanent full-time employees, all project employees, and all directors of the District

**D. Eligibility to Retire**

Meet vesting requirements and:

	<b>Classic Members</b>	<b>PEPRA Members</b>
Clerical and Maintenance	Age 50	Age 52
Directors	Age 55	Age 52
Confidential, Professional/Supervisory, and Unrepresented	Age 50	Age 52

**E. Vesting**

100% vested with first to occur of the following events:

	<b>Classic Members</b>	<b>PEPRA Members</b>
Years of Service:		
<ul style="list-style-type: none"> <li>• Clerical and Maintenance, and Directors</li> <li>• Confidential, Professional/Supervisory, and Unrepresented</li> </ul>	10 years 5 years	5 years 5 years
Normal Retirement Age	Age 62	None
Disability	Immediate	Immediate

Vesting service includes reciprocal service.

**F. Final Average Compensation**

Basic Compensation: Regular salary excluding overtime, shift premium, and all other irregular compensation

Final Average Compensation for Classic Members:

- Non-directors – Highest 12 consecutive months
- Directors – Highest 36 consecutive months during the last 5 years

Final Average Compensation for PEPRA Members:

- Highest 36 consecutive months up to PEPRA compensation limit (\$117,020 in 2016)

**G. Service Retirement Benefit**

Benefit factor × Final Average Compensation

## SECTION 7

### PLAN PROVISION SUMMARY

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Classic Members:

- Non-directors – benefit factor = “2.35% at 55”
- Directors – benefit factor = “2.35% at 62”

PEPRA Members: benefit factor = “2.00% at age 62”

Inactive Participants: Benefit formula varies by bargaining groups and separation dates

Sample benefit factors are shown below:

Years of Service	Age at Retirement = 55			Age at Retirement = 62		
	2.35% at 55	2.35% at 62	2.00% at 62	2.35% at 55	2.35% at 62	2.00% at 62
10	23.50%	11.02%	13.00%	26.58%	23.50%	20.00%
15	35.25%	16.53%	19.50%	39.87%	35.25%	30.00%
20	47.00%	22.04%	26.00%	53.16%	47.00%	40.00%
25	58.75%	27.55%	32.50%	66.45%	58.75%	50.00%
30	70.50%	33.06%	39.00%	79.74%	70.50%	60.00%
35	82.25%	N/A	45.50%	93.02%	82.25%	70.00%

#### H. Termination Benefit

Non-vested: Return of contributions plus interest in a lump sum

Vested: Return of contributions plus interest in a lump sum, or a deferred benefit

#### I. Disability Benefit

Clerical and Maintenance with 10 years of service and Social Security disability:

- 30% of current Basic Compensation
- Not less than service retirement benefit

Others:

- 100% vested immediately
- Return of contributions plus interest in a lump sum, or a deferred benefit

#### J. Death Benefit – Before Retirement

Non-vested: Return of contributions plus interest in a lump sum

Vested:

- Non-directors – 85% of member’s accrued service retirement benefit
- Directors – 50% of benefit that would have been paid under the 50% J&S option, upon retirement at the later of age 55 and death, and commencing no earlier than age 55

#### K. Death Benefit – After Retirement

Return of contributions plus interest less any monthly payments received to a designated beneficiary if joint annuitant option not in effect

## SECTION 7 PLAN PROVISION SUMMARY

---

### L. Benefit Forms

Normal Form: Single life annuity

Optional Forms:

- Joint and survivor annuity
- Joint and survivor annuity with “pop-up”
- Calculated as actuarially equivalent to the normal form

### M. Cost of Living Increases

Ad Hoc increases as granted by the Board

Recent History:

January 1 <sup>st</sup>	Increase	January 1 <sup>st</sup>	Increase
2007	1.8%	2012	1.8%
2008	3.0%	2013	1.8%
2009	2.0%	2014	1.2%
2010	0.0%	2015	2.2%
2011	0.0%	2016	1.8%

### N. Employee Contributions

- Classic Members (% of Basic Compensation):

Group	Employee Paid	District Paid	Total
Professional/Supervisory	6.43%	3.00%	9.43%
Confidential	6.28%	3.00%	9.28%
Unrepresented:			
< 7 years of service	5.00%	1.00%	6.00%
7 to 9 years of service	4.00%	2.00%	6.00%
≥ 10 years of service	3.00%	3.00%	6.00%
Clerical and Maintenance	8.00%	1.00%	9.00%
Directors	1.00%	0.00%	1.00%

- PEPRA Members:

50% of the normal cost rate of the Plan, rounded to the nearest quarter of 1%. The contribution rate is applied to pay up to each year’s PEPRA compensation limit.

## SECTION 8

### METHODS AND ASSUMPTIONS

---

#### **Actuarial Cost Method**

The actuarial cost method used for this valuation is the Entry Age (EA) method. Under this method, the Present Value of Projected Benefits (PVPB) is the present value of all future benefits for current plan participants. The Normal Cost is calculated by allocating each employee's PVPB as a level percent of pay from entry through the last expected retirement age. The Actuarial Accrued Liability (AAL) represents the portion of the PVPB attributable to past service and is calculated as the PVPB less the present value of all future Normal Costs.

#### **Funding Policy**

The Unfunded Actuarial Accrued Liability arising in each year, whether from actuarial gains and losses, assumption changes or plan changes, is amortized as a level dollar payment over a fixed (closed) 15-year period beginning on the January 1<sup>st</sup> following the valuation date.

Any Ad-hoc COLA is funded as a level dollar payment over a fixed (closed) 15-year period from the January 1<sup>st</sup> on which it is effective as an increase to the employer contribution rate.

Contribution rates determined in the valuation are for the calendar year following the valuation date, and are assumed to be applied to payroll for each payroll period during the year.

#### **Asset Valuation Method**

The Actuarial Value of Assets is a 5-year smoothed market value. Gains and losses are recognized over a five year period.

#### **Data Quality**

The District provided participant data as of 6/30/16. We reviewed the data, but did not perform an audit.

#### **Basis for Assumptions**

The assumptions are based on a study of 2009-2014 Plan experience, except for the mortality assumption. Because of the small group population, Society of Actuaries tables based on nationwide pensioner experience have been used.

## SECTION 8 METHODS AND ASSUMPTIONS

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### Actuarial Assumptions

Assumptions used in the valuation are as follows:

June 30, 2015 Valuation	June 30, 2016 Valuation																																
<p>■ <b>Discount Rate</b></p> <ul style="list-style-type: none"> <li>• 7.25%</li> </ul>	<p>■ <b>Discount Rate</b></p> <ul style="list-style-type: none"> <li>• 7.00%</li> <li>• Change approved by Board of Directors December 21, 2016.</li> </ul>																																
<p>■ <b>Inflation</b></p> <ul style="list-style-type: none"> <li>• 3.00%</li> </ul>	<p>■ <b>Inflation</b></p> <ul style="list-style-type: none"> <li>• Same</li> </ul>																																
<p>■ <b>Salary Increases</b></p> <ul style="list-style-type: none"> <li>• 3.00% CPI plus</li> <li>• Pay increase based on years of District service, employment group, and Entry Age with the District. Sample rates:</li> </ul> <table style="margin-left: 40px;"> <thead> <tr> <th></th> <th colspan="4" style="text-align: center;"><u>Other (Entry Age)</u></th> </tr> <tr> <th style="text-align: left;"><u>Service</u></th> <th style="text-align: left;"><u>Clerical</u></th> <th style="text-align: left;"><u>Directors</u></th> <th style="text-align: left;"><u>&lt; 40</u></th> <th style="text-align: left;"><u>≥ 40</u></th> </tr> </thead> <tbody> <tr> <td>2</td> <td>3.75%</td> <td>0.00%</td> <td>5.25%</td> <td>2.75%</td> </tr> <tr> <td>7</td> <td>1.00%</td> <td>0.00%</td> <td>2.25%</td> <td>0.75%</td> </tr> <tr> <td>12</td> <td>1.00%</td> <td>0.00%</td> <td>1.75%</td> <td>0.75%</td> </tr> <tr> <td>17</td> <td>0.75%</td> <td>0.00%</td> <td>0.75%</td> <td>0.75%</td> </tr> </tbody> </table>		<u>Other (Entry Age)</u>				<u>Service</u>	<u>Clerical</u>	<u>Directors</u>	<u>&lt; 40</u>	<u>≥ 40</u>	2	3.75%	0.00%	5.25%	2.75%	7	1.00%	0.00%	2.25%	0.75%	12	1.00%	0.00%	1.75%	0.75%	17	0.75%	0.00%	0.75%	0.75%	<p>■ <b>Salary Increases</b></p> <ul style="list-style-type: none"> <li>• Same</li> </ul>		
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## SECTION 8 METHODS AND ASSUMPTIONS

June 30, 2015 Valuation	June 30, 2016 Valuation																																																																						
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## SECTION 8

### METHODS AND ASSUMPTIONS

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<p>■ <b>Healthy Mortality</b></p> <ul style="list-style-type: none"> <li>• Society of Actuaries RP-2014 employee mortality table and healthy annuitant mortality table used. Fully-generational mortality improvement Scale AA applied to both tables. Sample rates of base tables are as follows:</li> </ul> <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;"><u>Age</u></th> <th colspan="2" style="text-align: center;"><u>Pre-Retirement</u></th> <th colspan="2" style="text-align: center;"><u>Post-Retirement</u></th> </tr> <tr> <th></th> <th style="text-align: center;"><u>Male</u></th> <th style="text-align: center;"><u>Female</u></th> <th style="text-align: center;"><u>Male</u></th> <th style="text-align: center;"><u>Female</u></th> </tr> </thead> <tbody> <tr><td>50</td><td style="text-align: center;">0.2%</td><td style="text-align: center;">0.1%</td><td style="text-align: center;">0.4%</td><td style="text-align: center;">0.2%</td></tr> <tr><td>60</td><td style="text-align: center;">0.5%</td><td style="text-align: center;">0.2%</td><td style="text-align: center;">0.8%</td><td style="text-align: center;">0.5%</td></tr> <tr><td>70</td><td style="text-align: center;">1.4%</td><td style="text-align: center;">0.6%</td><td style="text-align: center;">1.7%</td><td style="text-align: center;">1.3%</td></tr> <tr><td>80</td><td style="text-align: center;">3.9%</td><td style="text-align: center;">1.8%</td><td style="text-align: center;">4.5%</td><td style="text-align: center;">3.5%</td></tr> <tr><td>90</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td><td style="text-align: center;">13.6%</td><td style="text-align: center;">10.7%</td></tr> <tr><td>100</td><td style="text-align: center;">N/A</td><td style="text-align: center;">N/A</td><td style="text-align: center;">31.4%</td><td style="text-align: center;">27.1%</td></tr> </tbody> </table>	<u>Age</u>	<u>Pre-Retirement</u>		<u>Post-Retirement</u>			<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	50	0.2%	0.1%	0.4%	0.2%	60	0.5%	0.2%	0.8%	0.5%	70	1.4%	0.6%	1.7%	1.3%	80	3.9%	1.8%	4.5%	3.5%	90	N/A	N/A	13.6%	10.7%	100	N/A	N/A	31.4%	27.1%	<p>■ <b>Healthy Mortality</b></p> <ul style="list-style-type: none"> <li>• Same</li> </ul>
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<p>■ <b>Marriage</b></p> <ul style="list-style-type: none"> <li>• 80% of employees are assumed to be married. Wives are assumed to be three years younger than husbands.</li> </ul>	<p>■ <b>Marriage</b></p> <ul style="list-style-type: none"> <li>• Same</li> </ul>																																								
<p>■ <b>Optional benefit forms</b></p> <ul style="list-style-type: none"> <li>• Single: 100% are assumed to elect single life annuity.</li> <li>• Married: 25% of married employees are assumed to elect single life annuity. The remainder are assumed to elect joint and survivor. 65% of employees with joint and survivor benefits are assumed to elect 100% joint and survivor and the remainder are assumed to elect 50% joint and survivor.</li> </ul>	<p>■ <b>Optional benefit forms</b></p> <ul style="list-style-type: none"> <li>• Same</li> </ul>																																								



**SECTION 8**  
**METHODS AND ASSUMPTIONS**

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June 30, 2015 Valuation	June 30, 2016 Valuation
<p>■ <b>Reciprocity and Terminations</b></p> <ul style="list-style-type: none"> <li>• 50% of vested terminated members are assumed to be employed by reciprocal agencies and receive 3.25% annual pay increases until retirement.</li> <li>• Vested terminated members are assumed to retire at age 60.</li> <li>• Terminated employees not meeting the service requirements for early retirement are assumed to receive an immediate refund of contributions with interest.</li> </ul>	<p>■ <b>Reciprocity and Terminations</b></p> <ul style="list-style-type: none"> <li>• Same</li> </ul>
<p>■ <b>Limits on Benefits and Compensation</b></p> <ul style="list-style-type: none"> <li>• IRS Limits: Assumed to increase 3.0% per year (CPI)</li> <li>• PEPPRA Compensation limits assumed to increase 3% per year (CPI) from \$117,020 in 2015.</li> </ul>	<p>■ <b>Limits on Benefits and Compensation</b></p> <ul style="list-style-type: none"> <li>• IRS Limits: Assumed to increase 3.0% per year (CPI)</li> <li>• PEPPRA Compensation limits assumed to increase 3% per year (CPI) from \$117,020 in 2016.</li> </ul>
<p>■ <b>Other</b></p> <ul style="list-style-type: none"> <li>• Decrements are assumed to occur in the middle of the year.</li> </ul>	<p>■ <b>Other</b></p> <ul style="list-style-type: none"> <li>• Same</li> </ul>

## SECTION 9 PARTICIPANT DATA

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### Data Summary

Following summarizes participant demographic information for the June 30, 2015 and June 30, 2016 actuarial valuations.

	June 30, 2015	June 30, 2016
<b>■ Participant Counts</b>		
• Actives	286	291
• Vested Terminated & Reciprocals	87	90
• Service Retirees	269	286
• Disabled Participants	4	4
• Beneficiaries	42	46
• Total	668	717
<b>■ Actives</b>		
• Average Age	47.6	47.0
• Average Service	11.8	10.9
• Salary		
> Total (\$000s)	\$ 27,700	\$ 28,847
> Average	96,855	99,131
<b>■ Vested Terminated &amp; Reciprocals</b>		
• Average Age	49.4	49.6
<b>■ Retirees, Disabled &amp; Beneficiaries</b>		
• Average Age	67.5	67.9
• Average Service Retirement Age	58.2	58.2
• Average Disabled Retirement Age	45.9	45.9
• Average Monthly Benefit	\$ 2,362	\$ 2,507

## SECTION 9 PARTICIPANT DATA

### Active Participant Statistics

**June 30, 2016**

Bargaining Unit	Clerical/ Maintenance	Professional/ Supervisory	Unrepresented	Confidential	Directors	Total
<b>BU #</b>	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>90</b>	
<b>■ Actives</b> <ul style="list-style-type: none"> <li>• Count</li> <li>• Average Age</li> <li>• Average Service</li> <li>• Average Pay</li> <li>• Total Payroll (\$000s)</li> </ul>						
	171	86	20	9	5	291
	46.7	46.0	49.3	50.9	58.7	47.0
	10.6	11.0	13.8	8.0	12.5	10.9
	\$ 83,104	\$117,772	\$ 178,361	\$ 100,152	\$ 7,880	\$ 99,131
	14,211	10,128	3,567	901	39	28,847

**June 30, 2015**

Bargaining Unit	Clerical/ Maintenance	Professional/ Supervisory	Unrepresented	Confidential	Directors	Total
<b>BU #</b>	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>90</b>	
<b>■ Actives</b> <ul style="list-style-type: none"> <li>• Count</li> <li>• Average Age</li> <li>• Average Service</li> <li>• Average Pay</li> <li>• Total Payroll (\$000s)</li> </ul>						
	170	81	20	10	5	286
	47.1	47.1	49.5	49.7	61.3	47.6
	11.4	12.1	14.5	10.1	16.3	11.8
	\$ 81,162	\$ 116,075	\$ 172,543	\$ 101,076	\$ 7,840	\$ 96,855
	13,798	9,402	3,451	1,011	39	27,700

## SECTION 9 PARTICIPANT DATA

### Inactive Participant Statistics

**June 30, 2016**

Bargaining Unit	Clerical/ Maintenance	Professional/ Supervisory	Unrepresented	Confidential	Directors	Unknown	Total
BU #	10	20	30	40	90		
<b>■ Vested Terminated</b>							
• Count	25	47	7	10	-	1	90
• Average Age	48.4	50.0	50.6	49.4	n/a	57.2	49.6
<b>■ Retirees</b>							
• Count	160	103	42	19	4	8	336
• Average Age	68.1	67.2	67.1	66.6	71.4	77.9	67.9
• Average Ret. Age							
➢ Service	59.0	58.2	57.0	55.0	63.4	55.8	58.2
➢ Disability	49.1	45.6	39.7	n/a	n/a	n/a	45.9
➢ All Retirees	58.9	58.1	56.6	55.0	63.4	55.8	58.1

**June 30, 2015**

Bargaining Unit	Clerical/ Maintenance	Professional/ Supervisory	Unrepresented	Confidential	Directors	Unknown	Total
BU #	10	20	30	40	90		
<b>■ Vested Terminated</b>							
• Count	25	44	7	10	-	1	87
• Average Age	49.2	49.6	49.6	48.4	n/a	56.2	49.4
<b>■ Retirees</b>							
• Count	149	97	40	17	4	8	315
• Average Age	67.8	66.6	66.7	67.2	69.7	76.9	67.5
• Average Ret. Age							
➢ Service	59.1	58.0	57.1	55.3	60.4	55.8	58.2
➢ Disability	49.1	45.6	39.7	n/a	n/a	n/a	45.9
➢ All Retirees	58.9	57.8	56.6	55.3	60.4	55.8	58.0

## SECTION 9 PARTICIPANT DATA

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### Data Reconciliation June 30, 2015 to June 30, 2016

	Actives	Vested Terminated	Receiving Payments			Total
			Disabled	Benefic.	Retirees	
■ <b>June 30, 2015</b>	286	87	4	42	269	688
• New Hires	32	-	-	-	-	32
• Disabled	-	-	-	-	-	-
• Terminated	(5)	5	-	-	-	-
• Cashed Out	-	(1)	-	-	-	(1)
• Deceased	(1)	1	-	-	(2)	(2)
• New Beneficiaries	-	-	-	4	(4)	-
• Retired	(21)	(2)	-	-	23	-
• Adjustment	—	—	—	—	—	—
■ <b>June 30, 2016</b>	291	90	4	46	286	717

## SECTION 9 PARTICIPANT DATA

### Active Age/Service/Salary

Following are active counts by age and service groups with average salary.

Age	Service							Total Number	Average Salary
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Over		
<b>Under 25</b>	3	-	-	-	-	-	-	3	\$66,768
<b>25-29</b>	12	-	-	-	-	-	-	12	\$76,352
<b>30-34</b>	22	7	-	-	-	-	-	29	\$89,837
<b>35-39</b>	10	14	4	5	-	-	-	33	\$99,157
<b>40-44</b>	11	10	14	7	-	-	-	42	\$105,264
<b>45-49</b>	13	9	10	10	3	1	-	46	\$106,030
<b>50-54</b>	12	10	10	6	5	8	4	55	\$106,024
<b>55-59</b>	6	12	8	10	3	7	4	50	\$95,452
<b>60-64</b>	1	3	4	6	-	2	-	16	\$97,607
<b>65 &amp; Over</b>	-	-	2	2	-	-	1	5	\$77,813
<b>Total Number</b>	90	65	52	46	11	18	9	291	\$99,131
<b>Average Salary</b>	\$90,477	\$101,432	\$100,483	\$109,785	\$102,674	\$106,271	\$88,179	\$99,131	

## SECTION 9 PARTICIPANT DATA

### Retiree Age/Years of Retirement/Average Monthly Benefit

Following are retiree and beneficiary counts and average monthly benefit by age and years retired.

Age	Years of Retirement							Total Number	Average Benefit
	0-4	5-9	10-14	15-19	20-24	25-29	30 & Over		
Under 45	1	1	-	-	-	-	-	2	\$ 1,661
45-49	-	-	-	-	-	-	-	-	N/A
50-54	10	2	-	-	-	-	-	12	\$ 2,108
55-59	37	4	-	-	-	-	-	41	\$ 3,117
60-64	44	26	7	1	1	-	1	80	\$ 2,913
65-69	20	19	28	12	-	1	-	80	\$ 2,295
70-74	5	14	20	16	3	-	1	59	\$ 2,388
75-79	2	-	9	12	8	2	-	33	\$ 2,295
80-84	-	-	2	6	5	1	1	15	\$ 2,080
85 & Over	-	-	-	1	1	8	4	14	\$ 1,540
<b>Total Number</b>	119	66	66	48	18	12	7	336	\$ 2,507
<b>Average Benefit</b>	\$ 3,042	\$ 2,564	\$ 2,408	\$ 2,020	\$ 1,687	\$ 1,730	\$ 601	\$ 2,507	