Retiree Healthcare Plan

June 30, 2017 Actuarial Funding Valuation
for Calendar Year 2018 Contributions

December 20, 2017
Final Results

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Introduction and Actuarial Certification

Purposes of the valuation

This report presents the results of the June 30, 2017 actuarial funding valuation for the Contra Costa Water District Retiree Healthcare Plan (the Plan). Its primary purposes are:

- to determine the Actuarially Determined Contributions for calendar year 2018
- to evaluate the funded status of the plan.

This report has been prepared solely for the Contra Costa Water District Retiree Healthcare Plan and the Contra Costa Water District to summarize the Plan's actuarial funding considerations. Computations for other purposes, such as plan accounting or termination, may differ significantly from the results shown in this report. The Plan's FYE2017 GASB 74/75 disclosure information can be found in a separate report.

This report may not be used for any other purpose, and Van Iwaarden Associates is not responsible for the consequences of any unauthorized use. Its content may not be modified, incorporated into or used in other material, or otherwise provided, in whole or in part, to any other person or entity, without the District's permission.

Technical Language

The language of this report includes a number of technical terms which have special meanings. The glossary at the end of the report is provided to enhance understanding of these terms; many of them are defined there. The District's joint and beneficiary benefits in this report are available to a retiree spouse or State of California registered domestic partner (RDP). For ease of reading, a retiree spouse/RDP will often be referred to in this report as a retiree spouse.

Prior year results

Results shown as of June 30, 2016 for the 2017 contribution year were calculated by the prior actuary.

Changes from the prior year

In March 2017, the District began providing healthcare benefits through CalPERS. This required a change in benefits to select future retirees. At the same time, additional claims not covered by CalPERS health insurance but paid through a TPA were restricted to current retirees.

Additional changes to the plan provisions and actuarial assumptions reflected in this valuation are described at the end of each of those sections in this report.

Summary of valuation results

The plan's funded status increased from 43% to 58% since the prior funding valuation. This increase was primarily due to (1) the new CalPERS medical plans, resulting in lower than expected premiums and assumed claims costs and (2) higher than expected contributions and investment returns. The increase was partially offset by (1) plan demographic experience, (2) the change in the discount rate and (3) other changes in actuarial assumptions. See page 10 for a detailed liability and asset reconciliation.

Introduction and Certification (continued)

Actuarial certification

To the best of our knowledge, this report is complete and accurate and all costs and liabilities under the plan were determined in accordance with generally accepted actuarial principles and practices. Upon receipt of the valuation report, the District should notify us if you disagree with any information contained in the report or if you are aware of any information that would affect the results that has not been communicated to us. The report will be deemed final and acceptable to the District unless you promptly notify us otherwise.

All results in this report have been prepared based on our understanding of the District's OPEB funding policy. Additional contributions to the Trust may be required if actual plan economic and demographic experience do not match actuarial assumptions, and if contributions to the Trust are less than expected.

The undersigned credentialed actuaries are consulting actuaries for Van Iwaarden Associates, are Members of the American Academy of Actuaries and meet the Qualification Standards of the Academy to render the actuarial opinion contained herein. We are available to answer questions on the material contained in the report or to provide explanations or further detail, as may be appropriate. We are not aware of any material direct or indirect financial interest or relationship that could create a conflict of interest or impair the objectivity of our work.

Candace A. Gislason, FSA, MAAA
Consulting Actuary

Laura K. Pistotnik, ASA, MAAA
(Health claims and assumptions)

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Consulting Actuary

December 20, 2017
L/D/C/R: 4/ee/cg/jvi
v.10/16/2017

Summary of Results

		June 30, 2017		June 30, 2016
A. Plan participant data (see page 13)				
1. Number of participants				
a. Active employees		284		287
b. Retirees and beneficiaries electing coverage		255		243
c. Total		539		530
d. Projected payroll for contribution year	$	30,578,658	$	29,282,000
B. Benefit liabilities (see page 8)				
1. Present value of projected benefits	$	94,115,765	$	105,401,000
2. Actuarial accrued liability		69,329,487		81,052,000
C. Value of plan assets (see page 5)				
1. Market value of assets		39,633,756		33,304,000
2. Investment return (market value)		12.1%		1.0%
3. Actuarial value of assets		39,865,730		35,159,000
D. Funded status - market value basis				
1. Unfunded actuarial accrued liability (B.2. - C.1.)	$	29,695,731	$	47,748,000
2. Funded status (C.1./B.2.)		57.2%		41.1%
E. Funded status - actuarial value basis				
1. Unfunded actuarial accrued liability (B.2. - C.3.)	$	29,463,757	$	45,893,000
2. Funded status (C.3./B.2.)		57.5%		43.4%

	Calendar Year	
	2018	2017
F. Contribution rates as a percent of payroll (see page 9)		
1. Normal cost		
a. Employer	4.71%	5.40%
b. Employee[1]	4.20%	4.50%
c. Total	8.91%	9.90%
2. Amortization of unfunded actuarial accrued liability	6.73%	11.06%
3. Contribution rates		
a. Employer (1.a. + 2.)	11.44%	16.46%
b. Employee[1] (1.b.)	4.20%	4.50%
c. Total	15.64%	20.96%

[1] On March 1, 2017, the employee contribution rate was lowered to 4.30% due to significant plan changes.

Funding History

(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
7/1/2007	-	48,374	48,374	0.0%	22,991	210.4%	N/A
7/1/2009	6,844	59,586	52,742	11.5%	26,049	202.5%	N/A
7/1/2011	12,560	71,409	58,849	17.6%	27,893	211.0%	N/A
7/1/2013	19,846	81,131	61,285	24.5%	27,375	223.9%	15.70%
6/30/2014	24,508	77,246	52,738	31.7%	27,173	194.1%	18.20%
6/30/2015	30,473	76,682	46,209	39.7%	27,700	166.8%	16.00%
6/30/2016	35,159	81,052	45,893	43.4%	28,817	159.3%	16.46%
6/30/2017	39,866	69,329	29,463	57.5%	30,090	97.9%	11.44%

Reconciliation of Market Value of Assets

	Trust Year Ending	
	June 30, 2017	**June 30, 2016**
A. Market value of assets at beginning of year	33,303,867	30,148,000
B. Contributions		
1. Employer	4,510,000	4,987,000
2. Employee	1,276,032	1,249,000
3. Total	5,786,032	6,236,000
C. Net investment earnings	4,037,235	324,000
D. Benefit payments[1]	(3,458,896)	(3,404,000)
E. Administrative expenses	(34,482)	-
F. Market value of assets at end of year (A. + B.3 + C.3. + D. + E.)	39,633,756	33,304,000
G. Asset return since prior valuation	12.1%	1.0%

[1] Refunds of employee contributions are made from non-Trust District funds.

Asset Allocation - Market Value of Assets

The June 30, 2017 trust asset allocation is provided by the Contra Costa Water District. Details are shown below.

	Market Value	Percentage
Cash & Cash Equivalents	$ 154,399	0.4%
Investments		
Corporate bonds mutual funds	13,165,232	33.2%
Equity mutual funds	23,209,434	58.6%
Equity securities	1,279,590	3.2%
Real estate	1,818,019	4.6%
Total investments	39,472,275	99.6%
Total Cash & Investments	39,626,674	100.0%
Receivables		
Accrued income	7,082	0.0%
Contribution due from district	-	0.0%
Contribution due from participants	-	0.0%
Total receivables	7,082	0.0%
Total Assets	39,633,756	100.0%

Target Asset Allocation

The Board of Directors of Contra Costa Water District last revised the asset allocation in January 2016, as shown below.

	Low	Normal	High
Domestic equity	36%	45%	54%
International equity	12%	15%	18%
Domestic fixed income	25%	30%	35%
International fixed income	3%	5%	7%
Real estate	3%	5%	8%

Development of Actuarial Value of Assets

	Trust Year Ending	
	June 30, 2017	**June 30, 2016**
A. Market value of assets		
1. Market value of assets at beginning of year	$ 33,303,867	$ 30,148,000
i. Contributions (employee + employer)	5,786,032	6,236,000
ii. Expected earnings	2,412,720	2,288,000
iii. Benefit payments	(3,458,896)	(3,404,000)
2. Expected market value at end of year	38,043,723	35,268,000
3. Actual market value at end of year	39,633,756	33,304,000
4. Difference between actual MVA & expected MVA	(1,590,033)	1,964,000
B. Asset (gains) and losses[1]		
1. Year ending June 30, 2017, June 30, 2016		
i. Variance from expected return: loss or (gain)	(1,590,033)	1,964,000
ii. Portion not yet recognized	80%	80%
iii. Investment return not yet recognized (i. x ii.)	(1,272,026)	1,571,000
2. Year ending June 30, 2016, June 30, 2015		
i. Variance from expected return: loss or (gain)	1,964,000	1,586,000
ii. Portion not yet recognized	60%	60%
iii. Investment return not yet recognized (i. x ii.)	1,178,400	952,000
3. Year ending June 30, 2015, June 30, 2014		
i. Variance from expected return: loss or (gain)	1,586,000	(1,544,000)
ii. Portion not yet recognized	40%	40%
iii. Investment return not yet recognized (i. x ii.)	634,400	(618,000)
4. Year ending June 30, 2014, June 30, 2013		
i. Variance from expected return: loss or (gain)	(1,544,000)	(249,000)
ii. Portion not yet recognized	20%	20%
iii. Investment return not yet recognized (i. x ii.)	(308,800)	(50,000)
5. Total return not yet recognized (1.iii. + 2.iii. + 3.iii. + 4.iii.)	231,974	1,855,000
C. Actuarial Value of Assets (A.3. + B.5.)	39,865,730	35,159,000

[1] The Actuarial Value of Assets is based upon a five year smoothing of market assets. This method is intended to reduce contribution rate volatility resulting from asset return fluctuations.

Summary of Liabilities Used to Determine Contributions

	June 30, 2017	June 30, 2016
A. Actuarial present value of projected benefits[1]		
1. Active employees		
a. Implicit subsidy	$ 13,066,674	N/A
b. Direct subsidy	39,060,499	N/A
c. Total	52,127,173	56,235,000
2. Retirees and beneficiaries		
a. Implicit subsidy	8,913,994	N/A
b. Direct subsidy	33,074,598	N/A
c. Total	41,988,592	49,166,000
3. All participants		
a. Implicit subsidy	21,980,668	N/A
b. Direct subsidy	72,135,097	N/A
c. Total	$ 94,115,765	$ 105,401,000
B. Actuarial accrued liability[2]		
1. Active employees		
a. Implicit subsidy	$ 6,960,742	N/A
b. Direct subsidy	20,380,153	N/A
c. Total	27,340,895	31,886,000
2. Retirees and beneficiaries		
a. Implicit subsidy	8,913,994	N/A
b. Direct subsidy	33,074,598	N/A
c. Total	41,988,592	49,166,000
3. All participants		
a. Implicit subsidy	15,874,736	N/A
b. Direct subsidy	53,454,751	N/A
c. Total	$ 69,329,487	$ 81,052,000
C. Normal cost[3]		
1. Implicit subsidy	$ 640,053	N/A
2. Direct subsidy	1,950,625	N/A
3. Total	2,590,678	2,900,000
D. Key economic assumptions		
1. Funding interest rate	7.00%	7.25%
2. Salary increases	See page 26	See page 26

1 The value of all future benefits to be paid to the current group of members

2 The cost allocated to all prior years

3 The cost allocated to the current year. The June 30, 2016 amounts shown are adjusted to middle of contribution year. The June 30, 2017 normal cost is unadjusted.

Actuarially Determined Contribution

	Contribution Year	
	2018	2017
A. Actuarially Determined Contribution (ADC)[1]		
1. Total normal cost[2]	$ 2,724,039	$ 2,900,000
2. Amortization of unfunded actuarial accrued liability	2,059,298	3,240,000
3. Total ADC (1. + 2.)	4,783,337	6,140,000
B. Projected payroll for contribution year	30,578,658	29,282,000
C. ADC as a percent of payroll		
1. Total normal cost	8.91%	9.90%
2. Amortization of unfunded actuarial accrued liability	6.73%	11.06%
3. Total ADC (1. + 2.)	15.64%	20.96%

Schedule of Unfunded Actuarial Accrued Liability Amortization Bases

UAAL Balance as of June 30, 2017	Number of Remaining Payments	UAAL Payment as of June 30, 2017	UAAL Payment for 2018
$ 29,463,757	21	$ 1,958,481	$ 2,059,298

Development of Employee Normal Cost

	Contribution Year	
	2018	2017
1. Total normal cost	8.91%	9.90%
2. Normal cost for lifetime surviving spouse benefits	0.52%	0.89%
3. Normal cost excluding lifetime surviving spouse benefits (1. -2.)	8.39%	9.01%
4. Preliminary employee normal cost (50% of above)	4.20%	4.51%
5. Final employee normal cost[3] (0.2% maximum change from prior year)	4.20%	4.50%

1 The Actuarially Determined Contribution (ADC) is defined as "A target or recommended contribution to a defined benefit OPEB plan for the reporting period, determined in conformity with the Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted."

2 Normal cost is projected from the valuation date to the beginning of the contribution year.

3 On March 1, 2017, the employee contribution rate was lowered to 4.30% due to significant plan changes.

Analysis of Change in Unfunded Actuarial Accrued Liability

	Actuarial Accrued Liability	Actuarial Value of Assets	Unfunded Actuarial Accrued Liability
A. June 30, 2016 actual value	$ 81,052,000	$ (35,159,000)	$ 45,893,000
B. June 30, 2017 expected value	84,466,920	(38,669,903)	45,797,017
1. Demographic (gain)/loss	1,452,632	-	1,452,632
2. Change in per capita claims costs and premiums	(19,535,189)	-	(19,535,189)
3. Change in demographic rates and other actuarial assumptions	925,681	-	925,681
4. Discount rate changed from 7.25% to 7.00%	1,704,087	-	1,704,087
5. Addition of PEMHCA minimum subsidy	315,356	-	315,356
6. Contribution more than expected	-	(877,820)	(877,820)
7. Investment (gain)/loss	-	(318,007)	(318,007)
C. Total (gain) or loss	(15,137,433)	(1,195,827)	(16,333,260)
D. June 30, 2017 actual value	69,329,487	(39,865,730)	29,463,757

OPEB Risk Measures

The following table lists various measures of retiree healthcare plan risk and contribution volatility.

	June 30, 2017	June 30, 2016
A. Payroll for year following valuation date	30,089,925	28,817,000
B. Risk measures - market value of assets		
1. Actuarial accrued liability	69,329,487	81,052,000
2. Market value of assets	39,633,756	33,304,000
3. Unfunded AAL (MVA basis)	29,695,731	47,748,000
4. Funded ratio (2./1.)	57.2%	41.1%
5. UAAL (MVA basis) as a percent of payroll	98.7%	165.7%
C. Risk measures - actuarial value of assets		
1. Actuarial accrued liability	69,329,487	81,052,000
2. Actuarial value of assets	39,865,730	35,159,000
3. Unfunded AAL (AVA basis)	29,463,757	45,893,000
4. Funded ratio (2./1.)	57.5%	43.4%
5. UAAL (AVA basis) as a percent of payroll	97.9%	159.3%
D. Volatility ratios		
1. Liability volatility ratio (B.1./A.)	2.3	2.8
2. Asset volatility ratio (B.2./A.)	1.3	1.2
E. Maturity ratios		
1. Participant maturity ratio (# retirees/total participants)	47.3%	45.8%
2. Liability maturity ratio (retiree AAL/total AAL)	60.6%	60.7%

Summary of Plan Participants

This section presents the demographic information for the active employees and retired participants included in the OPEB valuation. The actuarial valuation was based on June 30, 2017 census data provided by the District. The following exhibits summarize the personnel characteristics of the data used for the valuation.

A. Data Summary[1]

1. Benefits-eligible active employees	Single	Single+1	Family	Total
a. Anthem HMO Select	0	0	0	0
b. Anthem HMO Traditional	1	0	1	2
c. Blue Shield Access+	1	0	0	1
d. Health Net SmartCare	11	1	8	20
e. Kaiser CA	53	31	85	169
f. PERS Choice	19	6	25	50
g. PERS Select	0	0	0	0
h. PERSCare	0	0	0	0
i. UnitedHealthcare	0	0	0	0
j. Total with coverage	85	38	119	242
k. Total without coverage				42
l. Total active employees				284
m. Average age				46.2
n. Average service				10.1

2. Benefits-eligible retirees	Single	Single+1	Family	Total
a. Anthem HMO Select	0	1	0	1
b. Anthem HMO Traditional	0	0	0	0
c. Blue Shield Access+	0	0	0	0
d. Health Net SmartCare	3	6	2	11
e. Kaiser CA	41	64	14	119
f. PERS Choice	38	72	13	123
g. PERS Select	0	0	0	0
h. PERSCare	1	0	0	1
i. UnitedHealthcare	0	0	0	0
j. Total with coverage	83	143	29	255
k. Total without coverage				6
l. Total retirees				261
m. Average age with coverage				67.3
n. Average service retirement age				58.3
o. Average disabled retirement age				46.0

1 Participant count summaries only include medical plans available as of June 30, 2017.

Summary of Plan Participants (continued)

B. Data Reconciliation

		Former Employees in District Medical Plans			
	Actives	Retirees	Disabled	Beneficiaries	Total
1. June 30, 2016	287	234	3	6	530
a. New Hires	31	0	0	0	31
b. Disabled	0	0	0	0	0
c. Terminated	(8)	(7)	0	0	(15)
d. Deceased	0	(7)	0	0	(7)
e. New Beneficiaries	0	(1)	0	1	0
f. Retired	(26)	26	0	0	0
2. June 30, 2017[1]	284	245	3	7	539

[1] The data reconciliation only includes former employees electing District medical coverage. The 6/30/2017 census includes 6 retirees without District medical coverage.

Summary of Plan Provisions

A. Plans Available

Medical (Not Medicare Eligible)
Anthem HMO Select
Anthem HMO Traditional
Blue Shield Access+
Health Net SmartCare
Kaiser CA
PERS Choice
PERS Select
PERSCare
UnitedHealthcare

Medical (Medicare Eligible)
Anthem Traditional[1]
Kaiser CA
PERS Choice
PERS Select
PERSCare
UnitedHealthcare

B. Covered Groups All District employees.

C. Implicit Subsidy

Eligibility: The implicit subsidy is provided to all retirees and retiree spouses who elect non-Medicare medical coverage, provided the retiree has satisfied the eligibility criteria for the direct subsidy.

Amount: The difference between the actual and apparent cost of OPEB coverage. The actual cost for early retirees is usually higher than the average per-person premium for the active/retiree group. Plans in which retirees pay the average active/retiree rate (the apparent cost) give rise to an implicit rate subsidy: the employer pays the difference between the actual and apparent cost.

Duration: For as long as the retiree and dependents receive non-Medicare medical coverage.

[1] This plan is new as of 1/1/2018 and not included in the valuation.

Summary of Plan Provisions (continued)

D. Direct Subsidy

Eligibility

Retired employees must meet all of these conditions:

1) The retiree must be eligible for service retirement under the District's pension plan. Eligibility varies by pension plan and employee group as follows:

Classic Members

- Clerical/Maintenance
  - Age 50 and 10 years of service
- Board of Directors
  - Age 55 and 10 years of service
- Professional/Supervisory, Confidential and Unrepresented
  - Age 50 and 5 years of service

PEPRA Members

- Age 52 with 5 years of service

2) Retirement must commence within 120 days of separation from District employment.

3) Employees hired after September 1, 2011 but before January 1, 2016 are eligible for fully-paid medical premiums after 5 years of District service, assuming they have met all retirement eligibility requirements (including consideration for reciprocity).

4) Employees hired on or after January 1, 2016 must have at least 10 years of District service in order to be eligible for fully-paid medical premiums.

Amount

First level of benefits (CalPERS minimum required contribution):

Employees who do not meet the vesting requirements for fully-paid medical premiums are eligible for partially-paid medical premiums as follows:

The District unequal contribution is $1/month in 2017. The contribution will increase to 5% of the minimum contribution in 2018 and continue to increase by 5 percentage points annually until it equals 100% of the minimum contribution as required by CalPERS.

Pursuant to Government Code 22892 of the Public Employees' Medical and Hospital Care Act (PEMHCA), the District-provided contribution is the minimum amount allowed ($128 per month for 2017 and $133 per month for 2018). The minimum employer contribution increases annually by the CPI medical care component. The amount of the District-provided contribution is the same regardless of the retiree's dependent coverage and health plan choice.

Summary of Plan Provisions (continued)

D. Direct Subsidy (continued)

Amount (continued)

Second level of benefits (fully-paid medical premiums):

The District pays the full amount of medical premiums for the "core plans".

The non-Medicare core plans are Health Net SmartCare, Kaiser and PERS Choice. For retirees who select a non-core plan, the District will pay the cost of the non-core plan, up to the highest of the three core plans for the coverage selected (employee, employee plus spouse, family) capped at the Kaiser family premium.

The Medicare core plans are Kaiser and PERS Choice. For retirees who select a non-core plan, the District will pay the cost of the non-core plan, up to the highest of the two core plans for the coverage selected (employee, employee plus spouse, family).

Duration

The District-provided contribution is continued for the life of the retiree. Upon death of retiree, benefits available to the spouse are as follows:

- Spouses of Clerical/Maintenance retirees who retired before July 1, 2000, Professional/Supervisory retirees who retired before November 9, 2015 and Confidential and Unrepresented retirees who retired before October 3, 2016 receive second level benefits until age 65, provided the surviving spouse is in receipt of a contingent pension benefit. Upon reaching age 65, spouses are eligible to receive the first level benefits for life.

- Spouses of Clerical/Maintenance retirees who retire after July 1, 2000, Professional/Supervisory retirees who retire after November 9, 2015 and Confidential and Unrepresented retirees who retire after October 3, 2016 receive second level benefits for life, provided the surviving spouse is in receipt of a contingent pension benefit. Surviving spouses who do not have a contingent pension benefit are eligible for second level benefits until age 65.

E. Employee Contribution

Active employees pay 50% of the normal cost of the OPEB benefit based on the most recent fiscal year actuarial valuation. Surviving spouse lifetime benefits are excluded in the calculation of employee normal cost in exchange for a COLA reduction. The amount of the contribution cannot increase or decrease by more than 0.2% of base salary in any year. See the Contribution Development section of the report for more details.

Upon termination of employment from the District, other than retirement, employees will receive a refund of all contributions plus 5% interest. Upon death of an active employee, the refund will be paid to a surviving spouse or dependents.

Summary of Plan Provisions (continued)

F. Retiree Premiums

The monthly premiums for health coverage in effect for January 1, 2018 through December 31, 2018, before reflecting any portion of the premium paid by the District are as follows:

Medical (Not Medicare Eligible)	Retiree	Retiree plus Spouse
Anthem HMO Select	$ 856.41	$ 1,712.82
Anthem HMO Traditional	925.47	1,850.94
Blue Shield Access+	889.02	1,778.04
Health Net SmartCare	863.48	1,726.96
Kaiser CA	779.86	1,559.72
PERS Choice	800.27	1,600.54
PERS Select	717.50	1,435.00
PERSCare	882.45	1,764.90
UnitedHealthcare	1,371.84	2,743.68
Medical (Medicare Eligible)		
Anthem Traditional[1]	370.34	740.68
Kaiser CA	316.34	632.68
PERS Choice	345.97	691.94
PERS Select	345.97	691.94
PERSCare	382.30	764.60
UnitedHealthcare	330.76	661.52

G. Retiree Contributions

Retirees are required to pay the applicable retiree premiums, less any portion of the premium paid by the District.

H. Coverage Following Active Employee's Death

Surviving spouses of active employees who were eligible for retirement receive the benefit they would have been eligible for if the employee retired with a contingent pension benefit.

I. Additional Other Postemployment Benefits (OPEB)

The District provides a retiree life insurance benefit of $5,000 to all retirees for life.

J. Valuation Changes

Since the most recent GASB 45 valuation, the following changes have been made:

- Retiree premiums were updated to current levels.
- PEMHCA unequal contribution benefits were added.
- Core plan restrictions were added to the fully-paid District medical premiums due to new plan offerings.

[1] This plan is new as of 1/1/2018 and not included in the valuation.

Summary of Actuarial Methods

A. Actuarial Cost Method

Liabilities are based on the Entry Age Normal level percent of pay cost method. In this method, the actuarial Present Value of Benefits (PVB) for each individual is allocated as a level percent of pay from entry age (hire age, for most employees) to last decrement age with a future benefit. The portion of the PVB allocated to the valuation year is called the Normal Cost (NC). The portion of the PVB allocated to past years is called the Actuarial Accrued Liability (AAL).

B. Amortization Method

The District has chosen to amortize the plan's Unfunded Actuarial Accrued Liability (UAAL) as a level percent of payroll over a fixed closed period ending in 2038. As of the June 30, 2017 valuation date, 21 years remain.

C. Funding Policy

The District has assets designated for OPEB. These assets are in a qualified irrevocable trust. District contributions equal to the expected annual direct subsidy are assumed to be made to the trust. Additional District contributions are made on an ad-hoc basis as funds are available. Employee contributions are also made to the trust each pay period. Monthly benefit payments equal to the direct subsidy are made from the trust. Implicit subsidy benefits and employee refunds are paid from the District's general assets.

D. 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.

E. Data Methods

The District provided census and financial information for the valuation and we have relied on this data in preparing the results in this report. The data was reviewed for reasonableness and consistency, but we have not performed a complete audit.

To the extent that census data was collected as of a date later than June 30, 2017, we have assumed that it is reasonably representative of the plan census on the valuation date and used it with only minor adjustments.

F. Covered Payroll

Covered payroll information as of June 30, 2017 was provided by the District.

Summary of Healthcare Assumptions and Methods

A. Per Capita Claims Costs

Background	When premiums for retirees are determined using a blend of active employee and retiree experience, it creates an implicit subsidy to the retirees. Revised Actuarial Standard of Practice No. 6 (ASOP 6) effectively requires most public agencies to calculate an implicit subsidy liability whenever their retirees participate in the group medical plans but only pay the same premiums as active employees. CalPERS provides publicly-available health claims information for use by actuaries performing OPEB valuations. The data includes a summary of member counts and retiree medical "risk scores" at 5-year age bands.
Non-Medicare Eligible	We developed the estimated retiree healthcare claims costs for non-Medicare eligible retirees by aggregating the gender-specific, non-Medicare eligible CalPERS risk score data and extrapolating the age band scores to individual ages. Plan-specific claims costs were calculated by multiplying each plan's premium by the gender-specific risk scores at each individual age.
Medicare Eligible	We have assumed that CalPERS health premiums for Medicare eligible retirees are based on Medicare eligible retiree experience and equal the expected true cost of retiree coverage. As a result, we have assumed there is no implicit subsidy for these benefits.
Dependent Claims Costs	We have assumed that the claims for child dependents are equal to the expected true cost of child coverage. As a result, there is no implicit subsidy for these benefits.

Summary of Healthcare Assumptions and Methods

B. Healthcare Cost Trend

Trend is a forecast of per capita claims cost increases due to factors such as price inflation, per capita income growth (GDP), and new technology. We developed our trend assumption using the "Getzen" model published by the Society of Actuaries (v2018_c). This model produces a long-term estimate of medical cost trends based on an analysis of historical US healthcare expenditures and industry experts. It assumes that healthcare costs will continue to grow at their historical trends until the economy (GDP) can no longer support the excess growth. At that time, rates revert to an ultimate trend rate which is projected to be supportable by GDP growth rates.

The trend assumption is comprised of three elements: (1) initial short-term rates (up to 5 years), (2) a multi-decade transition period of medium-term rates until projected healthcare costs reach GDP capacity, and (3) a transition to the ultimate trend rate supported by the GDP assumptions. The short-term medical trend rates are based on published survey data, recent premium increase rates, and long-term expectations. Medium-term and ultimate trend rates are based on the default Getzen model assumptions; except that we have adjusted the inflation and technology expectations to be consistent with our underlying capital market assumptions.

The medical trend rates for non-Medicare Supplement plans have been adjusted to reflect future potential taxes resulting from the Affordable Care Act's Excise Tax on high-cost health insurance plans. We have assumed Medicare Supplement plans are exempt from this tax. This tax is scheduled to begin in 2020 and will equal 40% of the applicable cost of coverage in excess of the legislated thresholds. Thresholds in 2018 are: $10,200/$27,500 for active employees or Medicare-eligible retirees over age 65 electing single/family coverage, and $11,850/$30,950 for non-Medicare eligible retirees younger than 65 on single/family coverage.

These thresholds are scheduled to increase at CPI-U +1% from 2018 to 2019 and CPI-U thereafter. The cost thresholds include total medical premiums costs, along with employer contributions towards Health Reimbursement Arrangements (HRAs) and Health Savings Accounts (HSAs).

Based on the District's healthcare plan costs and trend rates, we estimate that the District's plans will first be impacted in year 2021. At that time, the trend rate is projected to increase by an average of 0.36% annually over 81 years.

Actual plan sponsor healthcare costs will differ from the trend assumption since we cannot precisely predict the factors affecting trend and annual plan costs in the future. This assumption is merely one estimate among a wide range of possibilities.

Summary of Actuarial Assumptions

A. General Information

Valuation date	June 30, 2017
Census date	June 30, 2017
Benefits valued	Medical coverage and life insurance

B. Economic Assumptions

	June 30, 2017	June 30, 2016
Discount Rate (See page 30 for rationale)	7.00%	7.25%
Expected long-term rate of return on assets	7.00%	7.25%
Inflation Rate (CPI-U)	2.75%	3.00%
Wage Inflation Rate (CPI-W)	3.00%	3.00%
Payroll Growth[1]	3.25%	3.25%
CPI Medical Care	4.00%	4.00%

Healthcare Trend Rates: Annual increases in per capita claims costs and plan premiums are as follows:

Fiscal Year Beginning	Medical Coverage: Not Medicare Eligible	Medical Coverage: Medicare Eligible
2017	6.80%	6.80%
2018	6.90%	5.60%
2019	6.30%	5.40%
2020	5.80%	5.30%
2021-2054	5.20%	5.20%
2055-2073	Transition to ultimate rate	Transition to ultimate rate
2074+	4.40%	4.40%

- In addition, the medical trend rates above were increased to reflect an estimated increase in liability due to the Affordable Care Act's Excise Tax on high-cost health insurance plans. The additional trend rate adjustments vary by year, but average 0.36% beginning calendar year 2021 for non-Medicare Supplement plans.

Increases in Direct Subsidy: Pursuant to Government Code 22892 of PEMHCA, the minimum required contribution increases annually by the CPI medical care component.
All other subsidies are assumed to increase with healthcare trend rates.

[1] Payroll growth assumption is use to project normal cost and employee payroll from valuation date to the contribution year.

Summary of Actuarial Assumptions (continued)

C. Medical Elections

Current Retirees

- Participation: 100% of current retirees are assumed to continue coverage for life.
- Coverage Level: Current retirees are assumed to elect dependent coverage based on their current elections.
- Plan Election[1]: Current retirees are assumed to continue coverage in their current plan, if available. Current retirees under age 65 electing the Anthem HMO Select plan or the Health Net SmartCare plan are assumed to elect a blended Medicare supplment plan when Medicare eligible. The Medicare supplement plan elections are equal to active Medicare eligible plan elections described on the following page.

Future Retirees

- Participation:

  First Level of Benefits

  40% of future retirees who are only eligible for the first level of benefits are assumed to elect coverage at retirement and continue coverage for life.

  Second Level of Benefits

  100% of future retirees who are eligible for the second level of benefits are assumed to elect coverage at retirement and continue coverage for life.

- Coverage Level:

  First Level of Benefits

  35% of future retirees electing coverage for the first level of benefits are assumed to cover a spouse at retirement. Coverage for non-spouse dependents is not applicable because the implicit subsidy is assumed to be zero.

  Second Level of Benefits

  80% of future retirees electing coverage for the second level of benefits are assumed to cover a spouse at retirement. 25% of future retirees electing coverage are assumed to cover a non-spouse dependent at retirement and continue coverage until retiree turns age 65.

1 Plan election rates only include medical plans available as of the June 30, 2017 valuation date. Any new plans added after the valuation date are excluded from this valuation, but will be included in the next valuation.

Summary of Actuarial Assumptions (continued)

C. Medical Elections (continued)

Future Retirees (continued)

- Plan Election[1] The following table provides the assumed percent electing each plan:

Medical Plan	Not Medicare Eligible	Medicare Eligible (65+)
Anthem HMO Select	0%	n/a
Anthem HMO Traditional	0%	n/a
Blue Shield Access+	0%	n/a
Health Net SmartCare	10%	n/a
Kaiser CA	45%	50%
PERS Choice	45%	50%
PERS Select	0%	0%
PERSCare	0%	0%
UnitedHealthcare	0%	0%

D. Life Insurance Elections 100% of current and future retirees are assumed to continue coverage for life.

1 Plan election rates only include medical plans available as of the June 30, 2017 valuation date. Any new plans added after the valuation date are excluded from this valuation, but will be included in the next valuation.

Summary of Actuarial Assumptions (continued)

E. Demographic Assumptions

Withdrawal — Sample rates are shown in the table below:

Years of Service	Clerical	Other
0	3.0%	10.0%
5	3.0%	5.0%
10	1.5%	5.0%
15	4.0%	0.0%
20	4.0%	0.0%
25	4.0%	0.0%
30+	0.0%	0.0%

Retirement — Sample rates below are for members in the Classic pension plan:

Age	Rate
50	5.0%
55	8.0%
60	20.0%
65	25.6%
70	41.6%
75+	100.0%

Sample rates below are for members in the PEPRA pension plan:

	Years of Service					
Age	5	10	15	20	25	30
50	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
55	4.4%	5.6%	6.8%	8.0%	9.2%	10.4%
60	6.2%	7.8%	9.5%	11.2%	12.9%	14.6%
65	12.9%	16.4%	19.9%	23.4%	26.9%	30.4%
70	12.5%	16.0%	19.4%	22.8%	26.2%	29.6%
75+	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Summary of Actuarial Assumptions (continued)

E. Demographic Assumptions (continued)

Mortality[1] Sample rates are shown in the table below:

	Healthy Pre-Retirement Mortality Rates		Healthy Post-Retirement Mortality Rates	
Age	Male	Female	Male	Female
20	0.0510%	0.0202%	0.0510%	0.0202%
25	0.0545%	0.0186%	0.0545%	0.0186%
30	0.0470%	0.0209%	0.0470%	0.0209%
35	0.0557%	0.0301%	0.0557%	0.0301%
40	0.0750%	0.0471%	0.0750%	0.0471%
45	0.1207%	0.0758%	0.1207%	0.0758%
50	0.1979%	0.1151%	0.4771%	0.2891%
55	0.2967%	0.1735%	0.6102%	0.3755%
60	0.4954%	0.2795%	0.8211%	0.5942%
65	0.9486%	0.4482%	1.2621%	0.9760%
70	1.6761%	0.7662%	2.0288%	1.5628%
75	2.8623%	1.2887%	3.3113%	2.5057%

Disabled Mortality[1] Sample rates are shown in the table below:

Age	Male	Female
20	0.8927%	0.2785%
25	0.9553%	0.2563%
30	0.8233%	0.2876%
35	0.9749%	0.4139%
40	1.3126%	0.6492%
45	2.1145%	1.0447%
50	2.3941%	1.2438%
55	2.4866%	1.5013%
60	2.8111%	1.9459%
65	3.6312%	2.5299%
70	4.8812%	3.4253%
75	6.7010%	4.9120%

1 Rates shown are the base RP-2014 table adjusted to 2006. Generational projection using scale MP-2016 was applied to these base rates after 2006.

Summary of Actuarial Assumptions (continued)

E. Demographic Assumptions (continued)

Disability — Sample rates are shown in the table below:

Age	Male	Female
40	0.06%	0.08%
45	0.10%	0.11%
50	0.11%	0.11%
55	0.11%	0.09%
60	0.11%	0.07%
65	0.11%	0.06%
70	0.09%	0.06%
>70	0.07%	0.06%

Salary Increases — Wage inflation rate of 3.00% plus a merit scale. Sample rates are shown in the table below:

Years of			Other (Entry Age)	
Service	Clerical	Directors	<40	>=40
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%

Spouse Age Difference

- Future retirees — Husbands are assumed to be 3 years older than their wives.
- Retirees — Actual spouse date of birth, if provided. Otherwise, husbands are assumed to be 3 years older than their wives.

Medicare Eligibility — 100% of current and future retirees under age 65 are assumed to become Medicare eligible at the later of age 65 or retirement. Actual Medicare status was used for retired members.

Pension Benefit Form — For surviving spouse coverage requiring a contingent pension benefit, we have assumed 75% of such spouses are assumed to have a contingent pension benefit.

Summary of Actuarial Assumptions (continued)

F. Per Capita Claims Costs

Medical[1] Per capita claims costs were developed using publicly-available risk score and premium data provided by CalPERS. The results contained herein are highly dependent on the accuracy and credibility of the data provided to us. Sample monthly costs by plan and age are shown below:

	Anthem HMO Select		Health Net SmartCare		Kaiser CA		PERS Choice	
Age	Male	Female	Male	Female	Male	Female	Male	Female
40	$ 515	$ 782	$ 520	$ 788	$ 469	$ 712	$ 482	$ 730
45	679	894	685	901	619	814	635	835
50	902	1,055	909	1,064	821	961	843	986
55	1,174	1,222	1,184	1,232	1,069	1,112	1,097	1,142
60	1,546	1,419	1,558	1,431	1,407	1,292	1,444	1,326
64	1,905	1,631	1,920	1,645	1,734	1,485	1,780	1,524
65+	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Aging Factors Age-based costs are based on CalPERS 5-year age band risk scores applied to individual ages as described in the Per Capita Claims Cost section of the Summary of Healthcare Assumptions and Methods. We assumed that the risk scores represent the multiplier necessary to age-adjust premiums so that the resulting amount (risk score multiplied by premium) is equal to the expected claims cost at a particular age. Sample not-Medicare eligible age-based risk scores are shown below and include our adjustments to the baseline CalPERS risk score data:

	Risk Score	
Age	Male	Female
40	0.622	0.944
45	0.820	1.079
50	1.089	1.273
55	1.418	1.475
60	1.866	1.713
64	2.299	1.969
65+	N/A	N/A

G. Claims Not Covered by CalPERS Health Insurance

For retirees who retired prior to March 1, 2017, there are additional claims and administrative fees paid directly by the District. The annual claims costs and administrative fees per retiree are assumed to be $150 and $82, respectively. Claims are assumed to increase by healthcare trend, and adminstrative fees are assumed to increase by inflation.

[1] The per capita claims costs are only listed for medical plans available as of the June 30, 2017 valuation date and plans which have current or future non-Medicare eligible retirees electing coverage. Any new plans after the valuation date are excluded from this valuation but will be included in the next valuation.

Summary of Actuarial Assumptions (continued)

H. Other Assumptions

Retiree Premiums: The assumed annual retiree premiums for the period July 1, 2016 through June 30, 2017 are based on the premiums effective January 1, 2018, and were adjusted to June 30, 2017 with 6 months of healthcare trend.

I. Assumption Changes Since the most recent GASB 45 valuation, the following changes have been made:

- The discount rate was changed from 7.25% to 7.00% based on updated expectations of long-term returns on trust assets.
- The inflation assumption was changed from 3.00% to 2.75% based on an updated historical analysis of inflation rates and forward-looking market expectations.
- Healthcare trend rates were reset to reflect updated cost increase expectations, including an adjustment to reflect the impact of the Affordable Care Act's Excise Tax on high-cost health insurance plans.
- Medical per capita claims costs were updated to reflect recent experience and new plan offerings.
- The annual claims costs and administrative fees not covered by health insurance changed from $1000 and $84 per retiree to $150 and $82 per retiree, respectively. This change was made to reflect recent District experience.
- The mortality projection scale was updated from Scale AA to MP-2016 to reflect recently-published mortality rates.
- An assumption regarding the percent of future retirees eligible for PEMHCA minimum contribution electing coverage at retirement was added and is assumed to be 40%. This assumption was not applicable for the prior valuation.
- An assumption regarding the percent of future retirees eligible for PEMHCA minimum contribution electing spouse coverage at retirement was added and is assumed to be 35%. This assumption was not applicable for the prior valuation.

Summary of Actuarial Assumptions (continued)

I. Assumption Changes (continued)

- The percent of future retirees electing each medical plan changed from assuming future retirees continue in their current plan elections to assuming the following assumed percent electing each plan. This change was made to reflect recent plan experience and new plan offerings.

Medical Plan	Not Medicare Eligible	Medicare Eligible
Anthem HMO Select	0%	n/a
Anthem HMO Traditional	0%	n/a
Blue Shield Access+	0%	n/a
Health Net SmartCare	10%	n/a
Kaiser CA	45%	50%
PERS Choice	45%	50%
PERS Select	0%	0%
PERSCare	0%	0%
UnitedHealthcare	0%	0%

Selection of Economic Assumptions

The Actuarial Standards Board (ASB) provides coordinated guidance for measuring pension and retiree group benefit obligations through a series of Actuarial Standards of Practice (ASOPs). ASOP No. 27, Selection of Economic Assumptions for Measuring Pension Obligations, requires that the actuary disclose the rationale used in selecting each non-prescribed economic assumption and any changes to non-prescribed economic assumptions.[1]

The table below summarizes the rationale for selecting the non-prescribed economic assumptions. The rationale for assumption changes, along with a description of the assumptions themselves, is included in the Actuarial Assumption and Methods section of the report.

Economic Assumptions (non-prescribed)	
Assumption	**Rationale for Selecting Assumption**
Discount rate and expected return on assets	The expected employer asset return is based on expected long-term asset class returns and the District's target asset allocation.
General inflation (CPI-U)	Based on analysis of historical CPI-U inflation rates and the estimated forward-looking inflation rate implied by 30-Year Treasury rates vs. 30-Year TIPS rates.
Wage inflation (CPI-W)	Based on historical CPI-W rates for San Francisco, Oakland and San Jose area.
CPI medical care	Based on a 25-year historical analysis of CPI medical component increases.
Payroll growth	Based on a 20-year history of the District's total payroll growth.
Annual salary increases	Based on a study of 2009-2014 plan experience.

[1] ASOP No.6, Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions, specifies that actuaries should comply with ASOP 27 when selecting economic assumptions not covered by ASOP 6.

Selection of Non-Economic Assumptions

The Actuarial Standards Board (ASB) provides coordinated guidance for measuring pension and retiree group benefit obligations through a series of Actuarial Standards of Practice (ASOPs). ASOP No. 35, Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations, requires that the actuary disclose the rationale used in selecting each non-prescribed non-economic assumption and any changes to non-prescribed non-economic assumptions.[1]

The table below summarizes the rationale for selecting the non-prescribed non-economic assumptions. The rationale for assumption changes, along with a description of the assumptions themselves, is included in the Actuarial Assumption and Methods section of the report.

Non-Economic Assumptions (non-prescribed)	
Assumption	Rationale for Selecting Assumption
Healthcare trend rates	Developed using the Society of Actuaries "Getzen" model, with short-term rates set annually based on review of recent healthcare trend surveys and relevant client-specific experience. Additional details can be found in the Healthcare Assumptions and Methods section.
Plan participation, plan election and spouse coverage	Based on review of the District's historical experience and current participant elections.
Withdrawal and retirement	Based on a study of 2009-2014 plan experience.
Mortality and disabled mortality	Based on most recently published tables.
Disability incidence	Not applicable for retirees who do not receive a disability retirement benefit or OPEB plans that do not provide disability benefits. Otherwise, based on a study of 2009-2014 plan experience.
Spouse ages	Based on a standard age difference assumption from general industry experience, unless substantial plan-specific data is available.
Medicare eligibility	Based on review of current retiree data. Otherwise, we assume all post-65 retirees are Medicare eligible since there are generally very few retirees not eligible for Medicare.
Per capita claims costs	Developed using publicly-available risk score and premium data provided by CalPERS. Additional details can be found in the Per Capita Claims Cost section of the Summary of Healthcare Assumptions and Methods.

1 ASOP No.6, Measuring Retiree Group Benefits Obligations and Determining Retiree Group Benefits Program Periodic Costs or Actuarially Determined Contributions, specifies that actuaries should comply with ASOP 35 when selecting economic assumptions not covered by ASOP 6.

Important Notices

Purpose and Scope of the Valuation

This valuation has been prepared exclusively for the District and solely to provide contribution information. It is important to recognize that calculations performed for other purposes (such as benefit design, investment policy, or providing GASB 74/75 accounting information) may yield significantly different results.

A valuation report is only a snapshot of a plan's estimated financial condition at a single point in time. A plan's total cost will depend on many factors and variables that are uncertain and unknowable at the current valuation date.

Actuarial valuations are extremely complex and it's possible that data, computer coding, and mathematical errors could occur during the valuation process. Errors in a valuation discovered after its preparation may be corrected by revising the current valuation or in a subsequent year's valuation.

Assumptions and Methods

Since modeling all possible future outcomes is not possible or practical, the valuation is based on a single set of data, assumptions, methods, and plan provisions which satisfy current requirements. We may also use estimates or simplifications to model future events in an efficient and cost-effective manner, so long as we believe that these simplifying techniques do not affect the reasonableness of the valuation results.

The District is responsible for the assumptions, methods, and funding policies used to prepare the valuation. The assumptions used in this report are among a wide range of possibilities (each of which may be considered reasonable), but have been chosen as a single "best estimate". If the District is interested in analyzing the effect of different assumption sets on the valuation results, then we suggest a sensitivity analysis to be performed at a later date.

To the extent that actual plan experience differs from the valuation assumptions, actuarial gains and losses will occur and be amortized over future periods. A summary of the actuarial assumptions and methods used in this valuation are summarized in the Actuarial Basis section of the report.

Accuracy of Substantive Plan Information and Census Data

For purposes of this valuation, we have assumed that the District has validated our summary of the substantive plan provisions and has provided us with any relevant information regarding interpretation of the plan provisions and changes to the plan terms since the prior valuation.

The District is solely responsible for the validity, accuracy and comprehensiveness of this information. If any data or plan provisions supplied are not accurate and complete, the valuation results may differ significantly. Moreover, different interpretations of the substantive plan may produce substantially different valuation results.

Valuation Considerations

This section summarizes the applicable accounting requirements for the plan and describes important considerations and methods used to complete the valuation.

Valuing Postretirement Health Benefits

Determining the value of future healthcare benefits is challenged by the fact that assumptions must be made about many future events that are especially hard to predict. Future increases in healthcare costs are affected by many factors, including:

- OPEB inflation
- Utilization
- Technological advances
- Cost shifting between private and public healthcare plans
- Cost leveraging (i.e., erosion of fixed deductibles and out-of-pocket maximums)

OPEB obligations are also heavily influenced by demographic assumptions such as:

- Withdrawal rates (i.e., employees terminating before receiving benefits)
- Retirement rates (i.e., employees retiring at various ages and subsidy levels)
- Mortality rates (i.e., how long employees and spouses will receive benefits)
- Election rates (i.e., retirees electing to participate, electing which plan, and electing spouse coverage or not)

The Summary of Actuarial Assumptions and Methods section outlines the assumptions used in this valuation.

Estimating Healthcare Costs and Implicit Subsidy

Estimating future healthcare costs involves calculating a starting claims plus administrative cost on a per-covered-individual basis, as well as developing an assumption regarding future increases in healthcare costs.

For insured plans, the premiums represent a blended average cost of both active and retired individuals. Since older, pre-65 retirees generally incur higher claims than younger active employees, employers are required to value retiree liability based on retirees' estimated true costs rather than anticipated premium costs. Age-adjusted claims are developed and used to value the OPEB liability.

Impact of Legislative Changes

The legislative and regulatory environments have many implications for OPEB plans. Changes to current rules and implementation of new legislation are difficult to predict but could have a dramatic impact on the value of future plan benefits. These include changes to government medical programs, such as Medicare and the Affordable Care Act. Future changes to these programs will be reflected if/when they become law.

Glossary of Selected Terms

This section provides the definitions of applicable terminology in the actuarial valuation.

Actuarial Accrued Liability (AAL) - the portion of the actuarial present value which is not provided for by future normal costs, determined under the actuarial cost method.

Actuarial Cost Method - the method used, when determining the actuarial accrued liability, for allocating costs between past, current, and future years.

Actuarial Present Value of Benefits - the value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a set of actuarial assumptions.

Direct Subsidy - OPEB explicitly provided by employer.

Discount Rate - the interest rate used to adjust liabilities and obligations for the time value of money.

Implicit Subsidy or Implicit Rate Subsidy - the difference between the actual and apparent cost of OPEB coverage. The actual cost for early retirees is higher than the average per-person premium for the active/retiree group. Plans in which retirees pay the average active/retiree rate (the apparent cost) give rise to an implicit rate subsidy: the employer pays the difference between the actual and apparent cost.

Long-Term Expected Investment Return - the average expected asset return expected to be earned by the OPEB investments over time.

Normal Cost - the portion of the actuarial present value which is allocated to the valuation year by the actuarial cost method.

Valuation Date - the date as of which assets and liabilities are measured for this valuation.