

**Town of Hanover Other  
Postemployment Benefits Plan**

**GASB 45 Actuarial Valuation**

*as of*

January 1, 2017

For the fiscal year ending

June 30, 2017

Delivered May 2017

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May 31, 2017

*Personal and Confidential*

Ms. Chelsea Stevens  
Acting Finance Director  
Town of Hanover  
550 Hanover Street  
Hanover, MA 02339

Dear Ms. Stevens:

We have performed an actuarial valuation of the Town of Hanover Other Postemployment Benefits Plan for the fiscal year ending June 30, 2017. The figures presented in this report reflect the adoption, by the Town of Hanover, of Statement No. 45 of the Governmental Accounting Standards Board ("GASB 45") effective July 1, 2008.

The financial results of the actuarial valuation are summarized in the report. The Executive Summaries highlight the results of the valuation. Additional information summarizing census data, actuarial assumptions, claim rates and the methodology for developing them, as well as a glossary of selected terms used in this study, is also included in the report.

All costs, liabilities and other factors under the plan were determined in accordance with generally accepted actuarial principles and procedures. In our opinion, the actuarial assumptions used are reasonable, reflecting the experience of the plan and reasonable expectations and, in combination, represent our best estimate of the anticipated experience under the plan.

We refer you to Section I of this report for a detailed summary and commentary on the results of the valuation and a comparison with the prior valuation. Section II is a summary of the plan provisions, and Section III describes the actuarial cost method and assumptions. Details for cost calculations, supporting data, and disclosures are provided in Exhibits A through C.

We will be pleased to answer any questions that you may have regarding this actuarial valuation report.

Very truly yours,



Parker E. Elmore, ASA, EA, FCA, MAAA  
President, CEO & Actuary

**May 31, 2017****ACTUARIAL CERTIFICATION**

This is to certify that Odyssey Advisors has conducted an actuarial valuation of certain benefit obligations of the Town of Hanover other postemployment benefit programs as of January 1, 2017 for the fiscal year ending June 30, 2017 in accordance with generally accepted actuarial principles and practices. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of GASB Statements Number 43 and 45 for the determination of the liability for postemployment benefits other than pensions.

The actuarial data is based on the plan of benefits verified by the Town and on participant claims or premium data provided by the Town and/or vendors employed by the Town.

The actuarial computations made are for purposes of fulfilling plan accounting requirements. Determinations for purposes other than meeting financial accounting requirements may yield results significantly different than those reported here. As such, additional determinations may be needed for other purposes including determining the benefit security at termination and/or adequacy of the funding of an ongoing plan.

To the best of our knowledge, this report is complete and accurate and in our opinion represents the information necessary to comply with GASB Statements Number 43 and 45 with respect to the benefit obligations addressed. The signing actuaries are members of the Society of Actuaries, the American Academy of Actuaries and other professional actuarial organizations and meet their "General Qualification Standards for Statements of Actuarial Opinion" to render the actuarial opinion contained herein. Further, in our opinion, the assumptions as approved by the Town are reasonably related to the experience and expectations of the postemployment benefits programs.



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Parker E. Elmore, ASA, EA, FCA, MAAA  
President, CEO & Actuary

## SECTION I

### PRINCIPAL RESULTS OF THE VALUATION

#### Town of Hanover

#### Assuming Pay-as-you-go Funding - 4.50% discount rate

#### Comparison of Plan Liabilities to Prior Valuation

	<u>January 1, 2017</u>	<u>January 1, 2015</u>
I. Present Value of Future Benefits		
A. Actives	32,515,697	N/A
B. Retirees/Disabled	<u>15,133,760</u>	<u>N/A</u>
C. Total	47,649,457	N/A
II. Present Value of Future Normal Cost	12,342,325	N/A
III. Actuarial Accrued Liability (Individual Entry Age Normal)		
A. Actives	20,173,372	21,421,001
B. Retirees/Disabled	<u>15,133,760</u>	<u>16,397,944</u>
C. Total	35,307,132	37,818,945
IV. Plan Assets	1,318,317	0
V. Unfunded Actuarial Accrued Liability ("UAAL") [III. - IV.]	33,988,815	37,818,945
VI. Funded Ratio [IV. / III.]	3.73%	0.00%
VII. Annual Covered Payroll	37,690,774	35,989,000
VIII. UAAL as % of Covered Payroll	90.20%	105.1%
IX. Net OPEB Obligation (Asset) @ Beginning of Fiscal Year	22,694,403	18,476,790
X. Number of Eligible Participants		
A. Actives	606	561
B. Retirees/Disabled	<u>337</u>	<u>284</u>
C. Total	943	845
<b>For Fiscal Year Ending June 30, 2017</b>	<b><u>June 30, 2017</u></b>	<b><u>June 30, 2015</u></b>
XI. Normal Cost	1,211,539	1,965,780
XII. Amortization of UAAL - 30 year increase 3.25% per yr	1,289,822	1,700,000
XIII. Annual Required Contribution ('ARC') [ XI. + XII.]	2,501,361	3,665,780
XIV. Interest on Net OPEB Obligation (Asset)	1,021,248	822,217
XV. Adjustment to Annual Required Contribution	(1,333,247)	876,472
XVI. Amortization of Actuarial (Gains) / Losses	(41,759)	(2,018,543)
XVII. Annual OPEB Expense [XIII. + XIV. + XV. + XVI.]	2,147,603	3,345,926
XVIII. Employer Share of Costs	1,084,038	1,887,273
XIX. Employer Payments (Withdrawals) to/from OPEB Trust	180,000	0
XX. Total Employer Contribution [XVIII. + XIX.]	1,264,038	1,887,273
XXI. Percentage of Annual OPEB Expense Contributed	58.9%	56.4%
XXII. Net OPEB Obligation (Asset) at Beginning of Year [IX.]	22,694,403	18,476,790
XXIII. Increase (Decrease) in Net OPEB Obligations (Asset) [XVII. - XX.]	883,565	1,458,653
XXIV. Net OPEB Obligation (Asset) at End of Year [XXII. + XXIII.]	23,577,968	19,935,443
XXV. Discount Rate	4.50%	4.00%

## SECTION I

### PRINCIPAL RESULTS OF THE VALUATION

(continued)

#### **Town of Hanover**

#### **Comparison of Plan Funding vs. Pay-as-you-go Funding**

	<u>Pay-as-you-go Funding -</u> <u>4.50% discount rate</u>	<u>Plan Funding -7.00%</u> <u>discount rate</u>
I. Present Value of Future Benefits		
A. Actives	32,515,697	18,151,488
B. Retirees/Disabled	15,133,760	11,949,874
C. Total	47,649,457	30,101,362
II. Present Value of Future Normal Cost	12,342,325	5,272,009
III. Actuarial Accrued Liability (Individual Entry Age Normal)		
A. Actives	20,173,372	12,879,479
B. Retirees/Disabled	15,133,760	11,949,874
C. Total	35,307,132	24,829,353
IV. Plan Assets	1,318,317	1,318,317
V. Unfunded Actuarial Accrued Liability ("UAAL") [III. - IV.]	33,988,815	23,511,036
VI. Funded Ratio [IV. / III.]	3.73%	5.31%
VII. Annual Covered Payroll	37,690,774	37,690,774
VIII. UAAL as % of Covered Payroll	90.20%	62.40%
IX. Net OPEB Obligation (Asset) @ Beginning of Fiscal Year	22,694,403	22,694,403
X. Number of Eligible Participants		
A. Actives	606	606
B. Retirees/Disabled	337	337
C. Total	943	943
<b>For Fiscal Year Ending June 30, 2017</b>		
XI. Normal Cost	1,211,539	634,499
XII. Amortization of UAAL - 30 year increase 3.25% per yr	1,289,822	2,236,242
XIII. Annual Required Contribution ("ARC") [ XI. + XII.]	2,501,361	2,870,741
XIV. Interest on Net OPEB Obligation (Asset)	1,021,248	1,588,609
XV. Adjustment to Annual Required Contribution	(1,333,247)	(1,709,215)
XVI. Amortization of Actuarial (Gains) / Losses	(41,759)	(842,663)
XVII. Annual OPEB Expense [XIII. + XIV. + XV. + XVI.]	2,147,603	1,907,472
XVIII. Employer Share of Costs	1,084,038	1,084,038
XIX. Employer Payments (Withdrawals) to/from OPEB Trust	180,000	1,029,700
XX. Total Employer Contribution [XVIII. + XIX.]	1,264,038	2,113,738
XXI. Percentage of Annual OPEB Expense Contributed	58.9%	110.8%
XXII. Net OPEB Obligation (Asset) at Beginning of Year [IX.]	22,694,403	22,694,403
XXIII. Increase (Decrease) in Net OPEB Obligations (Asset) [XVII. - XX.]	883,565	(206,266)
XXIV. Net OPEB Obligation (Asset) at End of Year [XXII. + XXIII.]	23,577,968	22,488,137
XXV. Discount Rate	4.50%	7.00%

## SECTION I

### PRINCIPAL RESULTS OF THE VALUATION

(continued)

#### Town of Hanover

**Assuming Pay-as-you-go Funding - 4.50% discount rate**

**Plan Liabilities as of January 1, 2017**

	<u>Medical</u>	<u>Dental</u>	<u>Life</u>	<u>Excise Tax</u>	<u>Total</u>
I. Present Value of Future Benefits					
A. Actives	31,612,915	0	63,245	839,537	32,515,697
B. Retirees/Disabled	<u>14,942,447</u>	<u>0</u>	<u>134,225</u>	<u>57,088</u>	<u>15,133,760</u>
C. Total	46,555,362	0	197,470	896,625	47,649,457
II. Present Value of Future Normal Cost	11,880,064	0	18,155	444,106	12,342,325
III. Actuarial Accrued Liability (Individual Entry Age Normal)					
A. Actives	19,732,851	0	45,090	395,431	20,173,372
B. Retirees/Disabled	<u>14,942,447</u>	<u>0</u>	<u>134,225</u>	<u>57,088</u>	<u>15,133,760</u>
C. Total	34,675,298	0	179,315	452,519	35,307,132
IV. Plan Assets	1,294,771	0	6,718	16,828	1,318,317
V. Unfunded Actuarial Accrued Liability ("UAAL") [III. - IV.]	33,380,527	0	172,597	435,691	33,988,815
VI. Annual Covered Payroll	37,690,774	37,690,774	37,690,774	37,690,774	37,690,774
VII. UAAL as % of Covered Payroll	88.6%	0.0%	0.5%	1.2%	90.2%
VIII. Net OPEB Obligation (Asset) @ Beginning of Fiscal Year	22,288,279	0	115,258	290,866	22,694,403
IX. Number of Eligible Participants					
A. Actives	606	606	606	606	
B. Retirees/Disabled	<u>337</u>	<u>0</u>	<u>225</u>	<u>337</u>	
C. Total	943	606	831	943	

#### For Fiscal Year Ending June 30, 2017

X. Normal Cost	1,175,126	0	2,211	34,202	1,211,539
XI. Amortization of UAAL - 30 year increase 3.25% per yr	1,266,740	0	6,551	16,531	1,289,822
XII. Annual Required Contribution ('ARC') [ X. + XI.]	2,441,866	0	8,762	50,733	2,501,361
XIII. Interest on Net OPEB Obligation (Asset)	1,002,974	0	5,186	13,088	1,021,248
XIV. Adjustment to Annual Required Contribution	(1,309,388)	0	(6,772)	(17,087)	(1,333,247)
XV. Amortization of Actuarial (Gains) / Losses	(41,013)	0	(212)	(534)	(41,759)
XVI. Annual OPEB Expense [XII. + XIII. + XIV. + XV.]	2,094,439	0	6,964	46,200	2,147,603
XVII. Employer Share of Costs	1,074,786	0	9,252	0	1,084,038
XVIII. Employer Payments (Withdrawals) to/from OPEB Trust	176,779	0	914	2,307	180,000
XIX. Total Employer Contribution [XVII. + XVIII.]	1,251,565	0	10,166	2,307	1,264,038
XX. Percentage of Annual OPEB Expense Contributed	59.8%	0.0%	146.0%	5.0%	58.9%
XXI. Net OPEB Obligation (Asset) at Beginning of Year [VIII.]	22,288,279	0	115,258	290,866	22,694,403
XXII. Increase (Decrease) in Net OPEB Obligations (Asset) [XVI. - XIX.]	842,874	0	(3,202)	43,893	883,565
XXIII. Net OPEB Obligation (Asset) at End of Year [XXI. + XXII.]	23,131,153	0	112,056	334,759	23,577,968



## SECTION I

### PRINCIPAL RESULTS OF THE VALUATION

(continued)

**Town of Hanover**  
**Assuming Pay-as-you-go Funding - 4.50% discount rate**  
**Plan Liabilities as of January 1, 2017**

	Town Employees	School Employees	Police Employees	Fire Employees	DPW Employees	Water Enterprise Employees	Retirees	Total
I. Present Value of Future Benefits								
A. Actives	4,762,162	19,299,954	3,179,051	3,185,491	993,634	1,095,405	0	32,515,697
B. Retirees/Disabled	0	0	0	0	0	0	15,133,760	15,133,760
C. Total	4,762,162	19,299,954	3,179,051	3,185,491	993,634	1,095,405	15,133,760	47,649,457
II. Present Value of Future Normal Cost	1,754,341	7,330,528	1,146,229	1,305,394	390,332	415,501	0	12,342,325
III. Actuarial Accrued Liability (Individual Entry Age Normal)								
A. Actives	3,007,821	11,969,426	2,032,822	1,880,097	603,302	679,904	0	20,173,372
B. Retirees/Disabled	0	0	0	0	0	0	15,133,760	15,133,760
C. Total	3,007,821	11,969,426	2,032,822	1,880,097	603,302	679,904	15,133,760	35,307,132
IV. Plan Assets	112,776	444,146	75,620	69,423	22,761	25,495	568,096	1,318,317
V. Unfunded Actuarial Accrued Liability ("UAAL") [III. - IV.]	2,895,045	11,525,280	1,957,202	1,810,674	580,541	654,409	14,565,664	33,988,815
VI. Annual Covered Payroll	5,171,538	24,139,596	3,272,345	2,517,867	1,151,520	1,437,909	N/A	37,690,774
VII. UAAL as % of Covered Payroll	56.0%	47.7%	59.8%	71.9%	50.4%	45.5%	N/A	90.2%
VIII. Net OPEB Obligation (Asset) @ Beginning of Fiscal Year	1,867,558	7,462,438	1,267,394	1,172,147	376,154	1,113,397	9,435,315	22,694,403
IX. Number of Eligible Participants								
A. Actives	109	383	37	36	20	21	0	606
B. Retirees/Disabled	0	0	0	0	0	0	337	337
C. Total	109	383	37	36	20	21	337	943
<b>For Fiscal Year Ending June 30, 2017</b>								
X. Normal Cost	209,031	708,671	98,279	101,894	47,382	46,282	0	1,211,539
XI. Amortization of UAAL - 30 year increase 3.25% per yr	86,715	445,844	75,721	70,030	22,473	25,326	563,713	1,289,822
XII. Annual Required Contribution ("ARC") [X. + XI.]	295,746	1,154,515	174,000	171,924	69,855	71,608	563,713	2,501,361
XIII. Interest on Net OPEB Obligation (Asset)	84,040	335,810	57,033	52,747	16,927	50,102	424,589	1,021,248
XIV. Adjustment to Annual Required Contribution	(109,715)	(438,403)	(74,456)	(68,861)	(22,098)	(65,409)	(554,305)	(1,333,247)
XV. Amortization of Actuarial (Gains) / Losses	(3,557)	(14,157)	(2,404)	(2,224)	(714)	(804)	(17,899)	(41,759)
XVI. Annual OPEB Expense [XII. + XIII. + XIV. + XV.]	266,514	1,037,765	154,173	153,586	63,970	55,497	416,098	2,147,603
XVII. Employer Share of Costs	36,460	43,779	6,833	4,580	5,411	4,751	982,224	1,084,038
XVIII. Employer Payments (Withdrawals) to/from OPEB Trust	15,333	61,022	10,364	9,585	3,076	3,466	77,154	180,000
XIX. Total Employer Contribution [XVII. + XVIII.]	51,793	104,801	17,197	14,165	8,487	8,217	1,059,378	1,264,038
XX. Percentage of Annual OPEB Expense Contributed	13.7%	4.2%	4.4%	3.0%	8.5%	8.6%	236.1%	50.5%
XXI. Net OPEB Obligation (Asset) at Beginning of Year [VIII.]	1,867,558	7,462,438	1,267,394	1,172,147	376,154	1,113,397	9,435,315	22,694,403
XXII. Increase (Decrease) in Net OPEB Obligations (Asset) [XVI. - XIX.]	214,721	932,964	136,976	139,421	55,483	47,280	(643,280)	883,565
XXIII. Net OPEB Obligation (Asset) at End of Year [XXI. + XXII.]	2,082,279	8,395,402	1,404,370	1,311,568	431,637	1,160,677	8,792,035	23,577,968

## SECTION I

### PRINCIPAL RESULTS OF THE VALUATION

(continued)

#### **Town of Hanover**

#### **Detail of Plan Liabilities by Group and Dependency Status**

**Assuming Pay-as-you-go Funding - 4.50% discount rate**

**Plan Liabilities as of January 1, 2017**

	<u><b>Present Value of Future Benefits</b></u>	<u><b>Actuarial Accrued Liability (Individual Entry Age Normal)</b></u>	<u><b>Normal Cost</b></u>
<b>Actives</b>			
Under Age 65			
A. Participants	6,592,886	4,117,697	219,815
B. Spouses	<u>3,229,892</u>	<u>2,044,593</u>	<u>108,051</u>
C. Total	9,822,778	6,162,290	327,866
Age 65 and Over			
A. Participants	15,429,350	9,536,769	599,931
B. Spouses	<u>7,263,569</u>	<u>4,474,313</u>	<u>283,742</u>
C. Total	22,692,919	14,011,082	883,673
Actives Total			
A. Participants	22,022,236	13,654,466	819,746
B. Spouses	<u>10,493,461</u>	<u>6,518,906</u>	<u>391,793</u>
C. Total	32,515,697	20,173,372	1,211,539
<b>Retirees/Disabled</b>			
Under Age 65			
A. Participants	1,036,227	1,036,227	0
B. Spouses	<u>236,198</u>	<u>236,198</u>	<u>0</u>
C. Total	1,272,425	1,272,425	0
Age 65 and Over			
A. Participants	12,946,943	12,946,943	<u>0</u>
B. Spouses	<u>914,392</u>	<u>914,392</u>	<u>0</u>
C. Total	13,861,335	13,861,335	0
Retirees/Disabled Total			
A. Participants	13,983,170	13,983,170	0
B. Spouses	<u>1,150,590</u>	<u>1,150,590</u>	<u>0</u>
C. Total	15,133,760	15,133,760	0
<b>Total Population</b>			
A. Participants	36,005,406	27,637,636	819,746
B. Spouses	<u>11,644,051</u>	<u>7,669,496</u>	<u>391,793</u>
C. Total	47,649,457	35,307,132	1,211,539

**SECTION I**  
**PRINCIPAL RESULTS OF THE VALUATION**  
(continued)

**Town of Hanover**  
**Assuming Funding over 30 years at 7.00% discount rate**  
**Plan Liabilities as of January 1, 2017**

	<u>Medical</u>	<u>Dental</u>	<u>Life</u>	<u>Excise Tax</u>	<u>Total</u>
I. Present Value of Future Benefits					
A. Actives	17,692,605	0	34,843	424,040	18,151,488
B. Retirees/Disabled	<u>11,805,296</u>	<u>0</u>	<u>107,539</u>	<u>37,039</u>	<u>11,949,874</u>
C. Total	29,497,901	0	142,382	461,079	30,101,362
II. Present Value of Future Normal Cost	5,085,475	0	7,602	178,932	5,272,009
III. Actuarial Accrued Liability (Individual Entry Age Normal)					
A. Actives	12,607,130	0	27,241	245,108	12,879,479
B. Retirees/Disabled	<u>11,805,296</u>	<u>0</u>	<u>107,539</u>	<u>37,039</u>	<u>11,949,874</u>
C. Total	24,412,426	0	134,780	282,147	24,829,353
IV. Plan Assets	1,296,180	0	7,156	14,981	1,318,317
V. Unfunded Actuarial Accrued Liability ("UAAL") [III. - IV.]	23,116,246	0	127,624	267,166	23,511,036
VI. Annual Covered Payroll	37,690,774	37,690,774	37,690,774	37,690,774	37,690,774
VII. UAAL as % of Covered Payroll	61.3%	0.0%	0.3%	0.7%	62.4%
VIII. Net OPEB Obligation (Asset) @ Beginning of Fiscal Year	22,288,279	0	115,258	290,866	22,694,403
IX. Number of Eligible Participants					
A. Actives	606	606	606	606	
B. Retirees/Disabled	<u>337</u>	<u>0</u>	<u>225</u>	<u>337</u>	
C. Total	943	606	831	943	

**For Fiscal Year Ending June 30, 2017**

X. Normal Cost	616,190	0	1,099	17,210	634,499
XI. Amortization of UAAL - 30 year increase 3.25% per yr	2,198,692	0	12,139	25,411	2,236,242
XII. Annual Required Contribution ('ARC') [ X. + XI.]	2,814,882	0	13,238	42,621	2,870,741
XIII. Interest on Net OPEB Obligation (Asset)	1,560,180	0	8,068	20,361	1,588,609
XIV. Adjustment to Annual Required Contribution	(1,678,628)	0	(8,681)	(21,906)	(1,709,215)
XV. Amortization of Actuarial (Gains) / Losses	(828,513)	0	(4,574)	(9,576)	(842,663)
XVI. Annual OPEB Expense [XII. + XIII. + XIV. + XV.]	1,867,921	0	8,051	31,500	1,907,472
XVII. Employer Share of Costs	1,074,786	0	9,252	0	1,084,038
XVIII. Employer Payments (Withdrawals) to/from OPEB Trust	1,012,410	0	5,589	11,701	1,029,700
XIX. Total Employer Contribution [XVII. + XVIII.]	2,087,196	0	14,841	11,701	2,113,738
XX. Percentage of Annual OPEB Expense Contributed	111.7%	0.0%	184.3%	37.1%	110.8%
XXI. Net OPEB Obligation (Asset) at Beginning of Year [VIII.]	22,288,279	0	115,258	290,866	22,694,403
XXII. Increase (Decrease) in Net OPEB Obligations (Asset) [XVI. - XIX.]	(219,275)	0	(6,790)	19,799	(206,266)
XXIII. Net OPEB Obligation (Asset) at End of Year [XXI. + XXII.]	22,069,004	0	108,468	310,665	22,488,137

## SECTION I

### PRINCIPAL RESULTS OF THE VALUATION

(continued)

**Town of Hanover**  
**Assuming Funding over 30 years at 7.00% discount rate**  
**Plan Liabilities as of January 1, 2017**

	Town Employees	School Employees	Police Employees	Fire Employees	DPW Employees	Water Enterprise Employees	Retirees	Total
I. Present Value of Future Benefits								
A. Actives	2,658,419	10,773,962	1,774,666	1,778,261	554,684	611,496	0	18,151,488
B. Retirees/Disabled	0	0	0	0	0	0	11,949,874	11,949,874
C. Total	2,658,419	10,773,962	1,774,666	1,778,261	554,684	611,496	11,949,874	30,101,362
II. Present Value of Future Normal Cost	749,365	3,131,226	489,610	557,597	166,730	177,481	0	5,272,009
III. Actuarial Accrued Liability (Individual Entry Age Normal)								
A. Actives	1,920,312	7,641,755	1,297,834	1,200,328	385,172	434,078	0	12,879,479
B. Retirees/Disabled	0	0	0	0	0	0	11,949,874	11,949,874
C. Total	1,920,312	7,641,755	1,297,834	1,200,328	385,172	434,078	11,949,874	24,829,353
IV. Plan Assets	112,776	444,146	75,620	69,423	22,761	25,495	568,096	1,318,317
V. Unfunded Actuarial Accrued Liability ("UAAL") [III. - IV.]	1,807,536	7,197,609	1,222,214	1,130,905	362,411	408,583	11,381,778	23,511,036
VI. Annual Covered Payroll	5,171,538	24,139,596	3,272,345	2,517,867	1,151,520	1,437,909	N/A	37,690,774
VII. UAAL as % of Covered Payroll	35.0%	29.8%	37.3%	44.9%	31.5%	28.4%	N/A	62.4%
VIII. Net OPEB Obligation (Asset) @ Beginning of Fiscal Year	1,867,558	7,462,438	1,267,394	1,172,147	376,154	1,113,397	9,435,315	22,694,403
IX. Number of Eligible Participants								
A. Actives	109	383	37	36	20	21	0	606
B. Retirees/Disabled	0	0	0	0	0	0	337	337
C. Total	109	383	37	36	20	21	337	943
<b>For Fiscal Year Ending June 30, 2017</b>								
X. Normal Cost	109,473	371,140	51,470	53,363	24,815	24,238	0	634,499
XI. Amortization of UAAL - 30 year increase 3.25% per yr	150,343	772,987	131,282	121,415	38,963	43,909	977,343	2,236,242
XII. Annual Required Contribution ("ARC") [ X. + XI.]	259,816	1,144,127	182,752	174,778	63,778	68,147	977,343	2,870,741
XIII. Interest on Net OPEB Obligation (Asset)	130,730	522,371	88,718	82,051	26,331	77,936	660,472	1,588,609
XIV. Adjustment to Annual Required Contribution	(140,654)	(562,030)	(95,452)	(88,279)	(28,330)	(83,854)	(710,616)	(1,709,215)
XV. Amortization of Actuarial (Gains) / Losses	(71,777)	(285,677)	(48,511)	(44,879)	(14,408)	(16,224)	(361,187)	(842,663)
XVI. Annual OPEB Expense [XII. + XIII. + XIV. + XV.]	178,115	818,791	127,507	123,671	47,371	46,005	566,012	1,907,472
XVII. Employer Share of Costs	36,460	43,779	6,833	4,580	5,411	4,751	982,224	1,084,038
XVIII. Employer Payments (Withdrawals) to/from OPEB Trust	79,637	316,912	53,823	49,779	15,973	18,002	495,574	1,029,700
XIX. Total Employer Contribution [XVII. + XVIII.]	116,097	360,691	60,656	54,359	21,384	22,753	1,477,798	2,113,738
XX. Percentage of Annual OPEB Expense Contributed	65.2%	44.1%	47.6%	44.0%	45.1%	49.5%	261.1%	110.8%
XXI. Net OPEB Obligation (Asset) at Beginning of Year [VIII.]	1,867,558	7,462,438	1,267,394	1,172,147	376,154	1,113,397	9,435,315	22,694,403
XXII. Increase (Decrease) in Net OPEB Obligations (Asset) [XVI. - XIX.]	62,018	458,100	66,851	69,312	25,987	23,252	(911,786)	(206,266)
XXIII. Net OPEB Obligation (Asset) at End of Year [XXI. + XXII.]	1,929,576	7,920,538	1,334,245	1,241,459	402,141	1,136,649	8,523,529	22,488,137

## Overview of GASB 43 and 45

GASB 43 requires retiree medical plans to disclose information about asset and liability levels and show historical contribution information. GASB 43 only applies in situations where a separate trust is established to prefund these benefits. GASB 45 requires employers to perform periodic actuarial valuations to determine annual accounting costs, and to keep a running tally of the extent to which these amounts are over or under funded.

GASB 43 and 45 apply to those benefits provided after retirement except for pension benefits such as medical insurance, dental and life insurance. The philosophy behind the accounting standard is that these post-employment benefits are part of the compensation earned by employees in return for their services, and the cost of these benefits should be recognized while employees are providing those services, rather than after they have retired. This philosophy has already been applied for years to defined benefit pensions; GASB 43 and 45 extend this practice to all other post-employment benefits.

## Overview of GASB 43 and 45

(continued)

The process of determining the liability for OPEB benefits is based on many assumptions about future events. The key actuarial assumptions are:

**Turnover and retirement rates:** How likely is it that an employee will qualify for post-employment benefits and when will they start?

**Medical inflation and claims cost assumptions:** When an employee starts receiving post-employment benefits many years from now, how much will be paid each year for the benefits and how rapidly will the costs grow?

**Mortality assumption:** How long is a retiree likely to receive benefits?

**Discount rate assumption:** What is the present value of those future benefit payments in terms of today's dollars?

Since the liability is being recognized over the employee's whole career with the Town, the present value is divided into three pieces: the part that is attributed to past years (the "Accrued Liability" or "Past Service Liability"), the part that is being earned this year (the "Normal Cost"), and the part that will be earned in future years (the "Future Service Liability").

Once the Accrued Liability and the Normal Cost have been calculated, the next step is to determine an annual contribution. This consists of two pieces:

- ✓ Normal Cost – because the benefits earned each year should be paid for each year
- ✓ Past Service Cost – a catch-up payment to fund the Accrued Liability over the next 10-30 years

The final step is to keep track going forward of how much of the contribution is actually paid. There is no requirement to actually fund these benefits, but the cumulative deficiency must be disclosed on the Town's financial statements as the Net OPEB Obligation. If you decide to fully fund the OPEB obligation this will appear in the financial statement as a Net OPEB Asset. In addition, the Discount Rate used to calculate the liabilities must reflect the expected investment income of whatever funds are set aside to prefund the benefits; if there is no prefunding then the Discount Rate will be much lower and the liabilities significantly higher than if the benefits are prefunded.

## Commentary on Plan Experience and Contribution Amounts

### 1. **GASB 45 – How we got here:**

The Plan adopted and implemented GASB 45 (“Accounting and Financial Reporting by Employers for Postemployment Benefits other than Pensions”) effective for the fiscal year ending June 30, 2009. GASB 45 is designed to recognize the Other Postemployment Benefits (“OPEB”) earned by employees throughout their working career vs. when they are actually paid in retirement – accrual accounting vs. “pay-as-you-go” accounting. When GASB 45 was adopted, there was an Unfunded Actuarial Accrued Liability (“UAAL”) or “past service liability” which reflected all benefits earned until the date of such adoption. To smooth the impact of transitioning to GASB 45 on your financial statement, the UAAL was amortized over a 30 year period using a flat dollar amortization. Additionally, each eligible active employee earns benefits each year representing benefits to be paid in retirement or a “Normal Cost”. These amounts are reflected in your financial statement each year so that OPEB benefits for an eligible employee shall be fully charged to the financial statement when that eligible employee terminates employment.

### 2. **Summary of Results:**

During the fiscal year ending June 30, 2017, the Plan saw an experience gain of \$7,275,750 or 17.63%. Plan experience was more favorable than expected. This was mainly due to premiums for Medicare integrated plans decreasing rather than the expected 9% increase, which was due to the termination of Medicare Enhanced plans and the switch from Medex III to Medex II. This was somewhat offset by premiums for Non-Medicare integrated plans increasing more than the expected 19% increase and an increase in the number of retired participants. The actuarial experience gain is amortized into the annual OPEB costs over a 30-year period. The net impact of plan experience is a decrease in the annual OPEB cost.

Commentary on Plan Experience and Contribution Amounts  
(continued)

3. **Balance Sheet Items**

	January 1, 2017	January 1, 2015
Actuarial Accrued Liability	\$35,307,132	\$37,818,945
Plan Assets	\$1,318,317	\$0
Unfunded Actuarial Accrued Liability	\$33,988,815	\$37,818,945
Funded %	3.73%	0.00%
Net OPEB Obligation	\$22,694,403	\$18,476,790

4. **Income Statement Items**

	June 30, 2017	June 30, 2015
Normal Cost	\$1,211,539	\$1,965,780
Amortization of UAAL	\$1,289,822	\$1,700,000
Interest on Net OPEB Obligation	\$1,021,248	\$822,217
Adjustment to Annual Required Contribution	\$(1,333,247)	\$876,472
Amortization of Actuarial (Gains)/Losses	\$(41,759)	\$(2,018,543)
Annual OPEB Expense	\$2,147,603	\$3,345,926
Employer Share of Costs	\$1,084,038	\$1,887,273
Employer Contributions/(Withdrawals) to/from OPEB Trust	\$180,000	\$0
Total Employer Contribution	\$1,264,038	\$1,887,273
Discount Rate	4.50%	4.00%



Commentary on Plan Experience and Contribution Amounts  
(continued)

**5. Implicit Subsidy:**

The implicit subsidy arises because pre-Medicare retirees are charged the same premium as active employees, even though their actual medical costs are higher on average. Consequently, a portion of the premiums being paid for active employees are actually being used to “subsidize” the premiums of retirees. Actuarial Standards of Practice and GASB standards require the liability associated with this implicit subsidy to be valued. The chart below shows a breakdown of how implicit cost impacts reported cash flows and liabilities.

<b>Valuation Date</b>	<b><u>January 1, 2017</u></b>	<b><u>January 1, 2015</u></b>
<b>Liability</b>		
I. Actuarial Accrued Liability	35,307,132	N/A
II. Actuarial Accrued Liability (Excluding Implicit Subsidy)	<u>30,907,555</u>	<u>N/A</u>
III. Liability from Implicit Subsidy [I. - II.]	4,399,577	N/A
<b>For Fiscal Year Ending</b>	<b><u>June 30, 2017</u></b>	<b><u>June 30, 2015</u></b>
<b>Payments</b>		
IV. Employer Payments (Including Implicit Subsidy)	1,084,038	N/A
V. Actual Employer Payments	<u>956,367</u>	<u>N/A</u>
VI. Implicit Subsidy [IV. - V.]	127,671	N/A

**6. GASB 75 – Where we’re going:**

The Governmental Accounting Standards Board (“GASB”) issued GASB 75 “*Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*” on June 2, 2015 which will become effective for your 2018 fiscal year. This standard largely mirrors the GASB 68 standard for pension plans. The new standards require increased disclosures and will tie interest rates used in the valuation to the plan’s underlying investment and funding policy. This may increase the pressure on many entities to begin funding their OPEB liabilities. For more information, please review our white papers at [www.GASB75.com](http://www.GASB75.com) or on our website.

## SECTION II

### SUMMARY OF PLAN PROVISIONS

<u>Effective Date</u>	July 1, 2008; GASB 45 is adopted.
<u>Plan Year</u>	July 1 through June 30.
<u>Eligibility</u>	An employee hired before April 2, 2012 shall become eligible to retire under this plan upon attainment of age 55 as an active member and completion of 10 years of service or an employee shall be able to retire with 20 years of service regardless of age. Those hired on or after April 2, 2012 shall be eligible to retire upon attainment of age 60 with 10 years of creditable service.
<u>Creditable Service</u>	Elapsed time from date of hire to termination of service date.
<u>Participant Contributions</u>	Retirees pay 50% of premiums. Surviving Spouses pay 100%.
<u>Benefits Offered</u>	Comprehensive Medical Insurance offered through Blue Cross Blue Shield of Massachusetts as well as group term Life Insurance.
<u>Normal Retirement Date</u>	The normal retirement date is the first day of the month following a participant's 65th birthday.
<u>Early Retirement</u>	Early retirement is available for any participant who has attained benefit eligibility.

### SECTION III

#### ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

##### A. ACTUARIAL COST METHOD

The actuarial cost method used to calculate the costs and liabilities of the plan is the Individual Entry Age Normal Actuarial Cost Method. Under this method, the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, is sufficient to accumulate the value of the member's benefit at the time of retirement. The annual normal cost for each active member is a level percent of payroll. The actuarial accrued liability is the actuarial present value of the projected benefit times the ratio of past service to expected total service at retirement/termination.

Actuarial gains and losses are calculated each year and amortized over a 30 year period.

All employees who are plan participants on the valuation date are included in the actuarial valuation.

##### B. ASSET VALUATION METHOD

The actuarial value of assets is equal to the Market Value of the Plan's assets as of the valuation date.

### SECTION III

#### ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

#### C. ACTUARIAL ASSUMPTIONS

We used the following assumptions in this year's actuarial valuation:

##### Pre-Retirement Mortality

It is assumed that pre-retirement mortality is represented by the RP-2000 Employees Mortality Table projected generationally with scale BB and a base year 2009 for males and females.

##### Post-Retirement Mortality

It is assumed that post-retirement mortality is represented by the RP-2000 Healthy Annuitant Mortality Table projected generationally with scale BB and a base year 2009 for males and females.

##### Disabled Mortality

It is assumed that disabled mortality is represented by the RP-2000 Healthy Annuitant Table projected generationally with Scale BB and a base year 2012 for males and females.

##### Discount Rate

4.50% per annum (previously 4.00%)

### SECTION III

## ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

### C. ACTUARIAL ASSUMPTIONS (continued)

#### Employee Termination

It was assumed that employees would terminate employment in accordance with the sample rates shown in the following table:

<b>Non-Public Safety Employees</b>						
<u>Age</u>	<u>0-4 Years of Service (Males)</u>	<u>0-4 Years of Service (Females)</u>	<u>5-9 Years of Service (Males)</u>	<u>5-9 Years of Service (Females)</u>	<u>10+ Years of Service (Males)</u>	<u>10+ Years of Service (Females)</u>
20	27.00%	27.00%	12.00%	12.00%	6.00%	6.00%
30	23.00%	23.00%	10.00%	10.00%	5.50%	5.50%
40	16.00%	16.00%	8.00%	8.00%	3.50%	3.50%
50	18.00%	18.00%	6.00%	6.00%	3.00%	3.00%
60	18.00%	18.00%	5.00%	5.00%	3.50%	3.50%

<b>Public Safety Employees</b>		
<u>Service</u>	<u>Male</u>	<u>Female</u>
0	9.00%	9.00%
5	6.00%	6.00%
10	3.50%	3.50%
15	2.00%	2.00%
20	1.50%	1.50%
25	1.50%	1.50%
30	1.50%	1.50%

### SECTION III

## ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

### C. ACTUARIAL ASSUMPTIONS (continued)

#### Retirement Rates

It was assumed that the following percentage of eligible employees would retire each year:

<u>Age</u>	<u>Male Non Public Safety</u>	<u>Female Non Public Safety</u>	<u>Public Safety</u>
45	0.00%	0.00%	1.00%
46	0.00%	0.00%	1.00%
47	0.00%	0.00%	1.00%
48	0.00%	0.00%	1.00%
49	0.00%	0.00%	1.00%
50	1.00%	1.50%	2.00%
51	1.00%	1.50%	2.00%
52	1.00%	2.50%	2.00%
53	1.00%	2.50%	5.00%
54	2.00%	2.50%	7.50%
55	2.00%	5.50%	15.00%
56	2.50%	6.50%	10.00%
57	2.50%	6.50%	10.00%
58	5.00%	6.50%	10.00%
59	6.50%	6.50%	15.00%
60	12.00%	5.00%	20.00%
61	20.00%	13.00%	20.00%
62	30.00%	15.00%	25.00%
63	25.00%	12.50%	25.00%
64	22.00%	18.00%	30.00%
65	40.00%	15.00%	100.00%
66	25.00%	20.00%	100.00%
67	25.00%	20.00%	100.00%
68	30.00%	25.00%	100.00%
69	30.00%	20.00%	100.00%
70	100.00%	100.00%	100.00%
71	100.00%	100.00%	100.00%
72	100.00%	100.00%	100.00%

### SECTION III

#### ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

#### C. ACTUARIAL ASSUMPTIONS (continued)

##### Disability rates

It was assumed that the following percentage of eligible employees would become permanently disabled each year:

<u>Age</u>	<u>Standard</u>	<u>Teachers</u>	<u>Public Safety</u>
20	0.01%	0.05%	0.20%
25	0.01%	0.06%	0.20%
30	0.01%	0.07%	0.21%
35	0.03%	0.10%	0.40%
40	0.07%	0.21%	0.71%
45	0.10%	0.30%	1.00%
50	0.13%	0.42%	1.10%
55	0.14%	0.50%	0.80%
60	0.12%	0.50%	0.80%

### SECTION III

#### ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

#### C. ACTUARIAL ASSUMPTIONS (continued)

##### Healthcare Trend

It was assumed that healthcare costs would increase in accordance with the trend rates in the following table:

<u>Year</u>	<u>Medical</u>	<u>Dental</u>
FY 2013	6.0%	5.5%
FY 2014	5.0%	5.0%
FY 2015	5.0%	5.0%
FY 2016	5.0%	5.0%
FY 2017	5.0%	5.0%
FY 2018	5.0%	5.0%
FY 2019	5.0%	5.0%
FY 2020+	5.0%	5.0%

##### Participation Rate

It was assumed that 70% of employees eligible to receive retirement benefits would enroll in the retiree medical plans upon retirement. For life insurance plans, it was assumed that 70% of eligible employees would elect coverage upon retirement.

##### Percent Married

It was assumed that 70% of male participants and 70% of female participants who elect retiree healthcare coverage for themselves would also elect coverage for a spouse upon retirement. It was further assumed that a male spouse is three years older than a female spouse and same sex spouses are assumed to be the same age. For current retirees, the actual census information was used.



### SECTION III

#### ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS (continued)

#### C. ACTUARIAL ASSUMPTIONS (continued)

##### Compensation Increases

3.00% per year.

##### Open Group Forecast

It was assumed for projecting plan liabilities in future years that the active population would remain unchanged and that those who terminate employment or retire will be replaced with new employees with the demographics below:

##### **Open Group Forecast Population Demographics**

<u>Age</u>	<u>Male</u>	<u>Female</u>
20	8.0%	5.0%
30	7.0%	14.0%
40	20.0%	19.0%
50	10.0%	10.0%
60	<u>3.0%</u>	<u>4.0%</u>
Total	48.0%	52.0%

##### Additional Comments

The values in this report reflect a closed group and do not reflect any new entrants after the valuation date.

For purposes of this valuation, retiree contributions were assumed to increase with the same trend rate as health care claims.

Medicare Part B Penalties are not reflected

Medicare Part B Reimbursement is not reflected

### SECTION III

#### ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

#### D. DEVELOPMENT OF REPRESENTATIVE MEDICAL PER CAPITA CLAIMS COSTS

As part of the Other Post-Employment Benefits Program, there are situations where the cost is borne partly or entirely on the retirees. In most cases, the premium that is used to split the cost is lower than the true cost of providing the medical benefits, for two reasons:

- ✓ The cost sharing program is usually a fixed amount such as a COBRA premium that does not take into account the age of the retiree and his/her dependents. Since medical costs generally increase with age, the cost sharing premium is often lower than the true cost of the medical benefits:
- ✓ The cost sharing premium is usually a blended rate that takes into account the cost of medical benefits for active employees as well as retirees. Medical costs are generally higher for retirees than for active employees of the same age. This means that, again, the cost sharing premium is often lower than the true cost of the medical benefits.

Because of these two factors, a retiree who is paying 100% of the cost sharing premium is most likely not paying 100% of the true cost of the medical benefits. This situation is known as an “implicit subsidy”. GASB 43 and 45 require the plan sponsor to measure the liability for this subsidy; that is, the difference between the true cost of the medical benefits and the cost sharing premiums paid by the retiree. To do this, our valuation consists of several steps:

First, we calculate the liability for the true cost of medical benefits expected to be received by retirees and their dependents. This liability is based factors developed by actuaries that reflect how the cost of medical benefits varies by age and gender, as well as the other assumptions discussed on the prior page.

Next, we calculate the liability for the future premiums expected to be paid by the retiree for their own and their dependents’ coverage. This liability is based on the current premium rates without adjustment for age or gender. It also is based on the terms of the retiree medical program – different retirees pay different percentages based on their union, date of retirement, age at retirement, and other factors.

### SECTION III

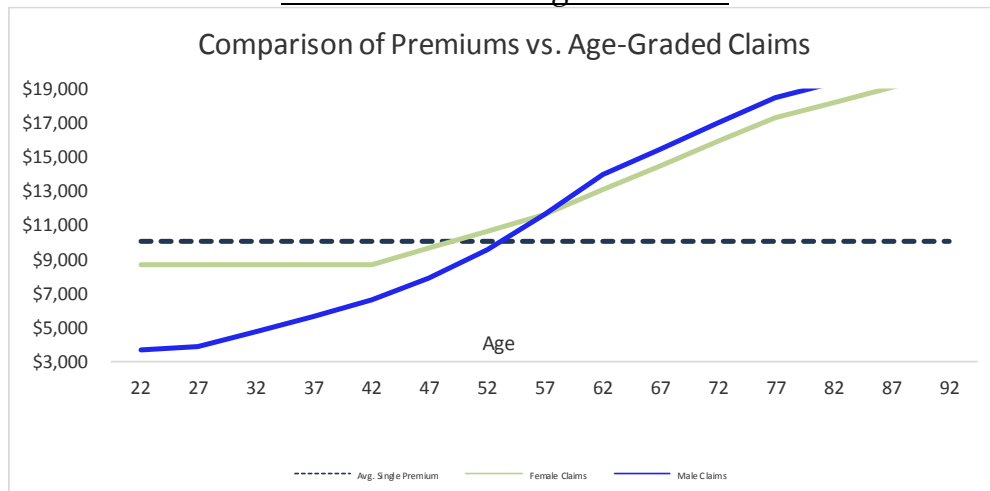
#### ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

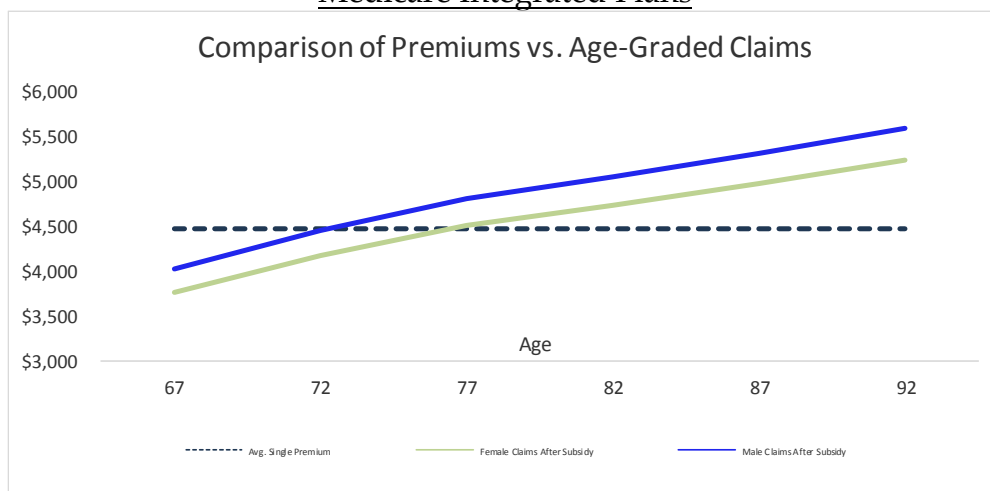
#### D. DEVELOPMENT OF REPRESENTATIVE MEDICAL PER CAPITA CLAIMS COSTS

For illustrative purposes, the charts below show the impact of the implicit cost described previously. You can see that individuals are expected to utilize more medical services with age while the underlying premiums are flat. As such, you will see that the age adjusted claims intersect the premium rates at approximately age 50 for females and age 55 for males on the Non-Medicare Integrated Plans and age 75 for females & age 75 for males on the Medicare Integrated Plans.

##### Non-Medicare Integrated Plans



##### Medicare Integrated Plans



### SECTION III

## ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

### D. DEVELOPMENT OF REPRESENTATIVE MEDICAL PER CAPITA CLAIMS COSTS

#### **I. CLAIMS COSTS DEVELOPMENT - Based on Active & Retiree Incurred Claims & Premiums**

	Number of Participants			
	<u>Single</u>	<u>Two-Person</u>	<u>Family</u>	<u>Total</u>
Blue Care Elect Ratesaver	14		9	23
Blue Care Elect Benchmark	2			2
Network Blue Ratesaver	79		88	167
Network Blue Benchmark	10		4	14
Harvard Pilgrim Ratesaver	43		51	94
Harvard Pilgrim Benchmark	3		1	4
Medex II	254	13		267
<b>Total</b>	405	13	153	571

	Per Contract Costs (monthly) - FY 2018		
	<u>Single</u>	<u>Two-Person</u>	<u>Family</u>
Blue Care Elect Ratesaver	1,156.00	0.00	2,739.00
Blue Care Elect Benchmark	1,038.00	0.00	2,461.00
Network Blue Ratesaver	794.00	0.00	2,117.00
Network Blue Benchmark	733.00	0.00	1,951.00
Harvard Pilgrim Ratesaver	857.00	0.00	2,281.00
Harvard Pilgrim Benchmark	807.00	0.00	2,150.00
Medex II	374.00	748.00	

Gross Expected FY 2018 Incurred Premiums	6,834,480
Adjustment to reflect children's claims	(981,456)
<b>Total Expected FY 2018 Incurred Premiums (adults only)</b>	<b>5,853,024</b>

#### **II. PRE-65 AND POST-65 PER CAPITA RETIREE ANNUAL CLAIM COSTS**

	<u>Employer Primary</u>	<u>Medicare Primary</u>
Age 65	14,264	3,726
Average Age	13,607	4,488

## SECTION III

### ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

#### D. DEVELOPMENT OF REPRESENTATIVE MEDICAL PER CAPITA CLAIMS COSTS

##### **III. BREAKDOWN OF CLAIM COSTS**

5,853,024 Active and Retired Claims (No Children)

##### **ALL ACTIVE EMPLOYEES AND SPOUSES**

Age Bracket	Female Aging Factor	Male Aging Factor	Aged (F) Average Claims	Aged (M) Average Claims	Age Related Claims
24 & Under	1.312	0.549	8,751	3,662	0
25 to 29	1.312	0.591	8,751	3,942	188,187
30 to 34	1.312	0.712	8,751	4,749	209,757
35 to 39	1.312	0.850	8,751	5,670	312,084
40 to 44	1.312	1.000	8,751	6,670	440,112
45 to 49	1.456	1.193	9,712	7,957	559,206
50 to 54	1.599	1.441	10,665	9,611	554,955
55 to 59	1.740	1.753	11,606	11,693	570,782
60 to 64	1.968	2.102	13,127	14,020	677,782
65 to 69	2.168	2.316	14,461	15,448	331,960
70 & Over	2.396	2.557	15,981	17,055	<u>49,017</u>
Total					3,893,842

##### **ALL RETIREES AND SPOUSES - NOT MEDICARE ELIGIBLE**

Age Bracket	Female Aging Factor	Male Aging Factor	Aged (F) Average Claims	Aged (M) Average Claims	Age Related Claims
44 & Under	1.312	1.000	8,751	6,670	0
45 to 49	1.456	1.193	9,712	7,957	0
50 to 54	1.599	1.441	10,665	9,611	10,665
55 to 59	1.740	1.753	11,606	11,693	81,590
60 to 64	1.968	2.102	13,127	14,020	420,332
65 to 69	2.168	2.316	14,461	15,448	28,922
70 to 74	2.396	2.557	15,981	17,055	98,034
75 to 79	2.593	2.769	17,295	18,469	0
80 to 84	2.724	2.910	18,169	19,410	0
85 to 89	2.864	3.059	19,103	20,404	0
90 & Over	3.010	3.215	20,077	21,444	<u>0</u>
Total					639,543

##### **ALL RETIREES AND SPOUSES - MEDICARE ELIGIBLE**

Age Bracket	Female Aging Factor	Male Aging Factor	Aged (F) Average Claims	Aged (M) Average Claims	Age Related Claims
65 to 69	2.168	2.316	3,778	4,035	216,194
70 to 74	2.396	2.557	4,175	4,455	412,560
75 to 79	2.593	2.769	4,518	4,825	332,137
80 to 84	2.724	2.910	4,746	5,070	185,856
85 to 89	2.864	3.059	4,990	5,330	97,530
90 & Over	3.010	3.215	5,245	5,602	<u>75,215</u>
Total					1,319,492

Grand Totals 5,852,877

### SECTION III

#### ACTUARIAL COST METHOD, ASSET VALUATION METHOD AND ACTUARIAL ASSUMPTIONS

(continued)

#### E. DEVELOPMENT OF REPRESENTATIVE DENTAL PER CAPITA CLAIMS COSTS

##### **I. CLAIMS COSTS DEVELOPMENT - with Active & Retiree Incurred Premiums**

	Per Contract Costs (monthly) - FY 2018		
	<u>Single</u>	<u>Two-Person</u>	<u>Family</u>
<b>Dental Plan</b>	N/A		N/A

FY 2018 Expected Per Person Rate

N/A

EXHIBIT AFinancial Statement Disclosure  
(As of January 1, 2017)

The GASB Standards for accounting and financial reporting for postemployment benefits other than pensions require the following disclosures in the financial statements with regard to the retiree medical and life insurance benefits;

**1. A DESCRIPTION OF THE RETIREE MEDICAL INSURANCE PROGRAM:**

- a. Plan Type: Comprehensive Medical Insurance offered through Blue Cross Blue Shield of Massachusetts.
- b. Administrator: Town of Hanover
- c. Eligibility: An employee hired before April 2, 2012 shall become eligible to retire under this plan upon attainment of age 55 as an active member and completion of 10 years of service or an employee shall be able to retire with 20 years of service regardless of age. Those hired on or after April 2, 2012 shall be eligible to retire upon attainment of age 60 with 10 years of creditable service.
- d. Cost Sharing: Retirees pay 50% of premiums. Surviving spouses pay 100% of premiums.

**2. A DESCRIPTION OF THE RETIREE DENTAL INSURANCE PROGRAM:**

- a. Plan Type: Not Offered
- b. Administrator: N/A
- c. Eligibility: N/A
- d. Cost sharing: N/A

**3. A DESCRIPTION OF THE RETIREE LIFE INSURANCE PROGRAM:**

- a. Plan Type: Group Term Life Insurance - \$2,000
- b. Administrator: Town of Hanover
- c. Eligibility: Same as above
- d. Cost sharing: Retirees pay 50% of premiums.

EXHIBIT AFinancial Statement Disclosure

(As of January 1, 2017)

(continued)

**4. RETIREE MEDICAL AND LIFE INSURANCE CONTRIBUTIONS:**

Group	Individual	Family
Medical	50% (Surviving spouses pay 100%)	50% (Surviving spouses pay 100%)
Dental	N/A	N/A
Life	50%	N/A

**5. FUNDING POLICY**

The contribution requirements of plan members and the Town are established and may be amended through Town ordinances. For the 2017 fiscal year, total Town premiums plus implicit costs for the retiree medical program are \$1,084,038. The Town is also projected to make a contribution to an OPEB Trust of \$180,000 for the 2017 fiscal year for a total contribution of \$1,264,038 .



## EXHIBIT A

### Financial Statement Disclosure

(As of January 1, 2017)

(continued)

#### 6. ANNUAL OPEB COST AND NET OPEB OBLIGATION

The Town's annual other postemployment benefit ("OPEB") cost (expense) is calculated based on the annual required contribution of the employer ("ARC"), an amount actuarially determined in accordance with the parameters of GASB Statement No. 45. The ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover normal cost each year and amortize any unfunded actuarial liabilities (or funding excess) over a period not to exceed thirty (30) years. The following table shows the components of the Town's annual OPEB costs for the fiscal year, the amount actually contributed to the plan and changes in the Town's net OPEB obligation to the plan:

Annual Required Contribution	\$2,501,361
Interest on Net OPEB Obligation (Asset)	\$1,021,248
Adjustment to annual required contribution	(\$1,333,247)
Amortization of Actuarial (Gains) / Losses	(\$41,759)
Annual OPEB expense	\$2,147,603
Contributions made to pay benefits	\$1,084,038
Contributions made to OPEB Trust	\$180,000
Increase (Decrease) in net OPEB Obligation (Asset)	\$883,565
Net OPEB Obligation (Asset) – beginning of year	\$22,694,403
Net OPEB Obligation (Asset) – end of year	\$23,577,968

## EXHIBIT A

### Financial Statement Disclosure

(As of January 1, 2017)

(continued)

The Town's annual OPEB cost, the percentage of the annual OPEB cost contributed to the plan, and the net OPEB obligation for the 2017 fiscal year and the three preceding years were as follows:

<b>Fiscal Year Ended</b>	<b>Annual OPEB Cost</b>	<b>Expected Employer Payments</b>	<b>Percentage of OPEB Cost Contributed</b>	<b>Increase (Decrease) in Net OPEB Obligation (Asset)</b>	<b>Net OPEB Obligation (Asset)</b>
06/30/2019 (est.)	\$2,517,026	\$1,389,333	55.2%	\$1,127,693	\$25,706,807
06/30/2018 (est.)	\$2,339,396	\$1,338,250	57.2%	\$1,001,146	\$24,579,114
06/30/2017	\$2,147,603	\$1,264,038	58.9%	\$883,565	\$23,577,968
06/30/2016	\$3,802,341	\$1,043,381	27.4%	\$2,758,960	\$22,694,403
06/30/2015	\$3,345,926	\$1,887,273	56.4%	\$1,458,653	\$19,935,443
06/30/2014	\$5,118,809	\$1,669,476	32.6%	\$3,449,333	\$18,476,790

### **Schedule of Funding Progress:**

<b>Actuarial Valuation Date</b>	<b>Actuarial Value of Assets</b>	<b>Actuarial Accrued Liability</b>	<b>Unfunded Actuarial Accrued Liability</b>	<b>Funded Ratio</b>	<b>Covered Payroll</b>	<b>UAAL as a % of Covered Payroll</b>
01/01/2019 (est.)	\$1,815,927	\$38,866,263	\$37,050,336	4.7%	\$39,986,142	92.7%
01/01/2018 (est.)	\$1,561,647	\$37,053,851	\$35,492,204	4.2%	\$38,821,497	91.4%
01/01/2017	\$1,318,317	\$35,307,132	\$33,988,815	3.7%	\$37,690,774	90.2%
01/01/2016	\$0	\$40,360,094	\$40,360,094	0.0%	N/A	N/A
01/01/2015	\$0	\$37,818,945	\$37,818,945	0.0%	\$35,989,000	105.1%
01/01/2014	\$0	\$57,609,154	\$57,609,154	0.0%	N/A	N/A

## EXHIBIT A

### Financial Statement Disclosure (As of January 1, 2017) (continued)

	Fiscal Year Ending June 30, 2017							
	Town Employees	School Employees	Police Employees	Fire Employees	DPW Employees	Water Enterprise Employees	Retirees	Total
OPEB Obligation (Asset) at beginning of year	1,867,558	7,462,438	1,267,394	1,172,147	376,154	1,113,397	9,435,315	22,694,403
Annual Required Contribution	295,746	1,154,515	174,000	171,924	69,855	71,608	563,713	2,501,361
Interest on Net OPEB Obligation	84,040	335,810	57,033	52,747	16,927	50,102	424,589	1,021,248
Adjustment to the ARC	(109,715)	(438,403)	(74,456)	(68,861)	(22,098)	(65,409)	(554,305)	(1,333,247)
Amortization of Actuarial (Gains)/Losses	(3,557)	(14,157)	(2,404)	(2,224)	(714)	(804)	(17,899)	(41,759)
Annual OPEB Cost	266,514	1,037,765	154,173	153,586	63,970	55,497	416,098	2,147,603
Expected Employer Contribution	36,460	43,779	6,833	4,580	5,411	4,751	982,224	1,084,038
Contribution (Withdrawal) to/from Trust Fund over 30 Years	15,333	61,022	10,364	9,585	3,076	3,466	77,154	180,000
Total Expected Employer Payments	51,793	104,801	17,197	14,165	8,487	8,217	1,059,378	1,264,038
Increase (Decrease) in OPEB Obligation (Asset)	214,721	932,964	136,976	139,421	55,483	47,280	(643,280)	883,565
OPEB Obligation (Asset) at end of year	2,082,279	8,395,402	1,404,370	1,311,568	431,637	1,160,677	8,792,035	23,577,968
AAL as of January 1, 2017	3,007,821	11,969,426	2,032,822	1,880,097	603,302	679,904	15,133,760	35,307,132
Plan Assets as of January 1, 2017	112,776	444,146	75,620	69,423	22,761	25,495	568,096	1,318,317
Unfunded Actuarial Liability as of January 1, 2017	2,895,045	11,525,280	1,957,202	1,810,674	580,541	654,409	14,565,664	33,988,815

EXHIBIT AFinancial Statement Disclosure

(As of January 1, 2017)

(continued)

**7. FUNDED STATUS AND FUNDING PROGRESS**

As of January 1, 2017, the most recent valuation date, the plan was 3.73% funded. The actuarial liability for benefits was \$35,307,132, and the actuarial value of assets was \$1,318,317, resulting in an unfunded actuarial accrued liability (UAAL) of \$33,988,815. The covered payroll (annual payroll of active employees covered by the plan) was \$ 37,690,774 and the ratio of the UAAL to the covered payroll was 90.2%.

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality, and the healthcare cost trend. Amounts determined regarding the funded status of the plan and the annual required contribution of the employer are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future. The schedule of funding progress, presented in the required supplementary information following the financial statements, presents multiyear trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liabilities for benefits.

**8. EFFECT OF 1% CHANGE IN HEALTHCARE TREND RATES**

In the event that healthcare trend rates were 1% higher than forecast and employee contributions were to increase at the forecast rates, the Actuarial Accrued Liability would increase to \$50,001,198 or by 41.6% and the corresponding Normal Cost would increase to \$2,084,014 or by 72.0%. If such healthcare trend rates were 1% less than forecast and employee contributions were to increase at the forecast rate, the Actuarial Accrued Liability would decrease to \$24,747,231 or by 29.9% and the corresponding Normal Cost would decrease to \$649,899 or by 46.4%.

## EXHIBIT A

### Financial Statement Disclosure

(As of January 1, 2017)

(continued)

#### 9. ACTUARIAL METHODS AND ASSUMPTIONS

Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employer and plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing of benefit costs between the employer and plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce the effects of short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of the calculations.

Actuarial Cost Method:	Individual Entry Age Normal
Investment Rate of Return:	4.50% per annum (previously 4.00%)
Healthcare Trend Rates	

<u>Year</u>	<u>Medical</u>	<u>Dental</u>
FY 2013	6.0%	5.5%
FY 2014	5.0%	5.0%
FY 2015	5.0%	5.0%
FY 2016	5.0%	5.0%
FY 2017	5.0%	5.0%
FY 2018	5.0%	5.0%
FY 2019	5.0%	5.0%
FY 2020+	5.0%	5.0%

General Inflation Assumption:	2.75% per annum
Annual Compensation Increases:	3.00% per annum
Actuarial Value of Assets:	Market Value
Amortization of UAAL:	Amortized increasing at 3.25% per year over 30 years at transition
Remaining Amortization Period:	22 years at January 1, 2017

## EXHIBIT A

### Financial Statement Disclosure

(As of January 1, 2017)

(continued)

#### 10. Remaining Amortization Bases

The initial Actuarial Accrued Liability as of the date GASB 45 was adopted is amortized as a component of the Annual Required Contribution ("ARC"). The Unfunded Actuarial Accrued Liability was amortized beginning in 2008 over a 30 year period with amortization payments increasing at 3.25% per year. For years subsequent to the initial adoption of GASB 45, cumulative gains/losses are amortized on a level dollar basis over a 30 year period. Gains and losses arise from experience and contribution deficiencies and excess contributions in relation to each year's ARC under GASB 45.

<b>Changes in Unfunded Actuarial Liability Since Prior Valuation</b>
--

***Expected Unfunded Actuarial Liability***

1. Actuarial Accrued Liability at prior valuation date	37,818,945
2. Actuarial Value of Assets at prior valuation date	<u>0</u>
3. Unfunded Actuarial Accrued Liability at prior valuation date [1. - 2.]	37,818,945
4. Normal Cost for prior periods	3,931,560
5. Employer Contributions for prior periods	<span style="color: red;">(2,930,654)</span>
6. Interest to current valuation date	<u>3,190,041</u>
7. Expected Unfunded Actuarial Accrued Liability before assumption changes [3. + 4. + 5. + 6.]	42,009,892

***Net Actuarial (Gain) / Loss due to assumption changes***

8. Actuarial Cost Method Change	3,892,065
9. Interest Rate Change	<span style="color: red;">(2,897,461)</span>
10. Mortality Assumption Change	<span style="color: red;">(1,739,931)</span>
11. Expected Unfunded Actuarial Accrued Liability including assumption changes [7. + 8. + 9. + 10.]	41,264,565

***Actual Unfunded Actuarial Liability***

12. Actuarial Accrued Liability at current valuation date	35,307,132
13. Actuarial Value of Assets at current valuation date	<u>1,318,317</u>
14. Unfunded Actuarial Accrued Liability at current valuation date [12. - 13.]	33,988,815

***Net Actuarial (Gain) / Loss from Plan Experience [14. - 11.]*** (7,275,750)

15. Unfunded Actuarial Accrued Liability at current valuation date [14.]	33,988,815
16. Remaining Initial Unfunded to be amortized	<u>34,699,636</u>
17. Actuarial (Gain) / Loss to be amortized: [15. - 16.]	<span style="color: red;">(710,821)</span>

## EXHIBIT A

### Financial Statement Disclosure

(As of January 1, 2017)

(continued)

#### 10. Remaining Amortization Bases (Continued)

Amortization of Initial Unfunded and Plan Experience under GASB 45						
Date Established	Description	Initial Amount	Initial Amortization Period	Remaining Balance at Valuation Date	Remaining Amortization Period	Annual Amortization Payment
July 1, 2008	GASB 45 Liability	33,604,043	30	34,699,636	22	1,289,822
January 1, 2017	Cumulative (Gain) / Loss	(710,821)	30	(710,821)	30	(41,759)
January 1, 2017	Adjustment to ARC	(22,694,403)	30	(22,694,403)	30	(1,333,248)

#### 11. Recognition of OPEB trust assets

The State of Massachusetts has recently passed legislation allowing municipal entities to establish a trust for Other Postemployment Benefits ("OPEB") under M.G.L. Chapter 32B, Section 20 for purposes of accumulating assets to pre-fund the liabilities under GASB 45. To the best of our knowledge, Town of Hanover has established an irrevocable trust for the purposes of prefunding liabilities under GASB 45.

EXHIBIT AFinancial Statement Disclosure

(As of January 1, 2017)

(continued)

**12. Impact of Patient Protection and Affordable Care Act ("PPACA") Excise Tax**

Under the Patient Protection and Affordable Care Act ("PPACA"), an excise tax will be imposed for tax years beginning after December 31, 2019 (formerly December 31, 2017, but amended by Consolidated Appropriations Act) for high cost employer sponsored health coverage. The law specifies a 40% excise tax, to be paid by the provider of such coverage, of the excess value beyond a basic dollar amount plus an additional "kicker" for qualified retirees or those engaged in a high risk profession. The projected 2020 threshold amounts are \$11,850 for single coverage and \$30,950 for family coverage and a "kicker" amount of \$1,650 for single coverage and \$3,450 for family coverage.

The excise tax liability will vary significantly over time as it is highly leveraged with the basic threshold amount increased with general CPI and medical costs increasing with medical trend (generally higher). For purposes of the fiscal year ending June 30, 2017, the AAL for the excise tax is \$452,519 and the increase in annual OPEB Cost is \$46,200. Given your premiums through the 2018 fiscal year and the excise tax threshold, your average single premiums are \$5,255 below the excise tax threshold and your average family premiums are \$4,500 below the excise tax threshold. As more regulatory guidance becomes available, the calculation of the excise tax liability will evolve.



## EXHIBIT B

### Reconciliation of Plan Participation (As of January 1, 2017)

#### ACTIVE EMPLOYEES

	<u>January 1, 2017</u>	<u>January 1, 2015</u>
<b>A. Average Age at Hire</b>	35.59	N/A
<b>B. Average Service</b>	10.51	N/A
<b>C. Average Current Age</b>	46.10	N/A

#### RETIRED EMPLOYEES & DEPENDENTS

	<u>January 1, 2017</u>	<u>January 1, 2015</u>
<b>I. Retirees</b>		
<b>A. Under Age 65</b>	36	N/A
<b>B. Age 65 &amp; Over</b>	<u>274</u>	<u>N/A</u>
<b>C. Total Retirees</b>	310	N/A
<b>II. Dependents of Retirees</b>		
<b>A. Under Age 65</b>	9	N/A
<b>B. Age 65 &amp; Over</b>	<u>18</u>	<u>N/A</u>
<b>C. Total Retirees</b>	27	N/A
<b>III. Retirees &amp; Dependents</b>		
<b>A. Under Age 65</b>	45	N/A
<b>B. Age 65 &amp; Over</b>	<u>292</u>	<u>N/A</u>
<b>C. Total Retirees</b>	337	N/A

## EXHIBIT C

### Projected Cash Flows (Open Group) – Pay-as-you-go Funding Approach

Total Medical & Life Insurance - Pay-as-you-go Funding - 4.50% discount rate											
Fiscal Year		I. Total Actuarial	II. Plan Assets	III. Unfunded	IV.	V. OPEB			VIII.	IX. Excess	X. Total
Ending	Valuation Date	Accrued Liability ("AAL") as of	as of	Accrued Actuarial	Funded	Obligation			Employer	Employer	Employer
		Valuation Date	Date with	Liability ("UAA")	Ratio [II.	(Asset) as of	VI. Normal	VII. Expected	Share of	Payments	Contribution
			4.50% Return	[I. - II.]	/ I.]	Fiscal year end	Cost	Expense	Premiums /	(beyond	[VIII. + IX.]
									Claims	claims)	
June 30, 2017	January 1, 2017	35,307,132	1,318,317	33,988,815	3.73%	23,577,968	1,211,539	2,147,603	1,084,038	180,000	1,264,038
June 30, 2018	January 1, 2018	37,053,851	1,561,647	35,492,204	4.21%	24,579,114	1,321,652	2,339,396	1,158,250	180,000	1,338,250
June 30, 2019	January 1, 2019	38,866,263	1,815,927	37,050,336	4.67%	25,706,807	1,410,949	2,517,026	1,209,333	180,000	1,389,333
June 30, 2020	January 1, 2020	40,825,935	2,081,649	38,744,286	5.10%	26,946,232	1,502,789	2,704,302	1,284,877	180,000	1,464,877
June 30, 2021	January 1, 2021	42,890,819	2,359,329	40,531,490	5.50%	28,307,463	1,595,844	2,899,271	1,358,040	180,000	1,538,040
June 30, 2022	January 1, 2022	45,069,411	2,649,504	42,419,907	5.88%	29,813,525	1,687,408	3,099,731	1,413,669	180,000	1,593,669
June 30, 2023	January 1, 2023	47,383,591	2,952,737	44,430,854	6.23%	31,447,062	1,781,511	3,310,795	1,497,257	180,000	1,677,257
June 30, 2024	January 1, 2024	49,812,898	3,269,616	46,543,282	6.56%	33,189,488	1,871,508	3,525,088	1,602,662	180,000	1,782,662
June 30, 2025	January 1, 2025	52,334,869	3,600,754	48,734,115	6.88%	35,080,722	1,976,469	3,760,895	1,689,661	180,000	1,869,661
June 30, 2026	January 1, 2026	54,989,652	3,946,793	51,042,859	7.18%	37,110,583	2,082,686	4,006,359	1,796,498	180,000	1,976,498
June 30, 2027	January 1, 2027	57,763,253	4,308,404	53,454,849	7.46%	39,283,210	2,186,146	4,257,064	1,904,437	180,000	2,084,437
June 30, 2028	January 1, 2028	60,656,023	4,686,288	55,969,735	7.73%	41,612,365	2,298,877	4,525,282	2,016,127	180,000	2,196,127
June 30, 2029	January 1, 2029	63,681,018	5,081,176	58,599,842	7.98%	44,080,676	2,417,395	4,808,206	2,159,895	180,000	2,339,895
June 30, 2030	January 1, 2030	66,805,139	5,493,834	61,311,305	8.22%	46,707,044	2,543,952	5,107,369	2,301,002	180,000	2,481,002
June 30, 2031	January 1, 2031	70,053,788	5,925,062	64,128,726	8.46%	49,468,937	2,674,971	5,420,106	2,478,213	180,000	2,658,213
June 30, 2032	January 1, 2032	73,398,990	6,375,695	67,023,295	8.69%	52,396,297	2,816,935	5,751,951	2,644,591	180,000	2,824,591
June 30, 2033	January 1, 2033	76,858,454	6,846,607	70,011,847	8.91%	55,537,341	2,966,462	6,100,936	2,779,892	180,000	2,959,892
June 30, 2034	January 1, 2034	80,490,850	7,338,710	73,152,140	9.12%	58,920,536	3,120,029	6,465,778	2,902,584	180,000	3,082,584
June 30, 2035	January 1, 2035	84,302,058	7,852,957	76,449,101	9.32%	62,557,845	3,284,155	6,854,348	3,037,039	180,000	3,217,039
June 30, 2036	January 1, 2036	88,305,360	8,390,345	79,915,015	9.50%	66,492,196	3,459,559	7,267,980	3,153,628	180,000	3,333,628
June 30, 2037	January 1, 2037	92,571,646	8,951,916	83,619,730	9.67%	70,752,951	3,641,447	7,703,884	3,263,130	180,000	3,443,130
June 30, 2038	January 1, 2038	97,090,334	9,538,758	87,551,576	9.82%	75,296,493	3,831,335	8,164,979	3,441,438	180,000	3,621,438
June 30, 2039	January 1, 2039	101,852,810	10,152,008	91,700,802	9.97%	77,556,691	4,038,438	8,651,774	3,611,576	180,000	3,791,576
June 30, 2040	January 1, 2040	106,856,230	10,792,854	96,063,376	10.10%	79,955,188	4,259,073	9,174,118	3,795,621	180,000	3,975,621
June 30, 2041	January 1, 2041	112,116,584	11,462,538	100,654,046	10.22%	82,505,404	4,492,196	9,715,174	3,984,959	180,000	4,164,959
June 30, 2042	January 1, 2042	117,622,695	12,162,358	105,460,337	10.34%	85,189,444	4,739,068	10,276,805	4,212,766	180,000	4,392,766
June 30, 2043	January 1, 2043	123,465,700	12,893,670	110,572,030	10.44%	88,059,227	5,004,278	10,827,797	4,413,014	180,000	4,593,014
June 30, 2044	January 1, 2044	129,632,822	13,657,891	115,974,931	10.54%	91,115,627	5,284,370	11,427,029	4,635,629	180,000	4,815,629
June 30, 2045	January 1, 2045	136,144,232	14,456,502	121,687,730	10.62%	94,316,405	5,578,484	12,030,681	4,922,903	180,000	5,102,903
June 30, 2046	January 1, 2046	142,929,388	15,291,050	127,638,338	10.70%	97,818,487	5,890,897	12,709,991	5,078,909	180,000	5,258,909
June 30, 2047	January 1, 2047	150,208,349	16,163,153	134,045,196	10.76%	102,963,556	6,221,102	13,424,662	5,299,593	180,000	5,479,593
June 30, 2048	January 1, 2048	157,934,173	17,074,500	140,859,673	10.81%	108,437,656	6,563,138	14,198,671	5,544,571	180,000	5,724,571

## EXHIBIT D

### Projected Cash Flows (Open Group) – Funded Approach

Total Medical & Life Insurance - Funding over 30 years at 7.00% discount rate increasing at 0.00% per year											
Fiscal Year Ending	Valuation Date	I. Total Actuarial Accrued Liability ("AAL") as of Valuation Date	II. Plan Assets as of Valuation Date with Expected 7.00% Return	III. Unfunded Accrued Liability ("UAAL") [I. - II.]	IV. Funded Ratio [II. / I.]	V. OPEB Obligation (Asset) as of Fiscal year end	VI. Normal Cost	VII. Expected Annual OPEB Expense	VIII. Employer Share of Premiums / Claims	IX. Excess Employer Payments (beyond claims)	X. Total Employer Contribution [VIII. + IX.]
June 30, 2017	January 1, 2017	24,829,353	1,318,317	23,511,036	5.31%	22,694,403	634,499	1,907,472	1,084,038	1,029,700	2,113,738
June 30, 2018	January 1, 2018	26,086,402	2,475,729	23,610,673	9.49%	22,330,391	698,992	2,030,204	1,158,250	1,029,700	2,187,950
June 30, 2019	January 1, 2019	27,421,045	3,714,160	23,706,885	13.54%	22,237,673	751,105	2,146,315	1,209,333	1,029,700	2,239,033
June 30, 2020	January 1, 2020	28,850,214	5,039,281	23,810,933	17.47%	22,193,425	804,131	2,270,329	1,284,877	1,029,700	2,314,577
June 30, 2021	January 1, 2021	30,355,330	6,457,161	23,898,169	21.27%	22,206,027	857,245	2,400,342	1,358,040	1,029,700	2,387,740
June 30, 2022	January 1, 2022	31,944,353	7,974,292	23,970,061	24.96%	22,298,737	909,503	2,536,079	1,413,669	1,029,700	2,443,369
June 30, 2023	January 1, 2023	33,641,001	9,597,622	24,043,379	28.53%	22,453,050	962,923	2,681,270	1,497,257	1,029,700	2,526,957
June 30, 2024	January 1, 2024	35,424,133	11,334,586	24,089,547	32.00%	22,651,428	1,013,539	2,830,740	1,602,662	1,029,700	2,632,362
June 30, 2025	January 1, 2025	37,273,139	13,193,137	24,080,002	35.40%	22,925,707	1,071,636	2,993,640	1,689,661	1,029,700	2,719,361
June 30, 2026	January 1, 2026	39,220,971	15,181,787	24,039,184	38.71%	23,265,387	1,130,805	3,165,878	1,796,498	1,029,700	2,826,198
June 30, 2027	January 1, 2027	41,254,147	17,309,642	23,944,505	41.96%	23,674,709	1,187,689	3,343,459	1,904,437	1,029,700	2,934,137
June 30, 2028	January 1, 2028	43,374,513	19,586,447	23,788,066	45.16%	24,163,039	1,249,666	3,534,157	2,016,127	1,029,700	3,045,827
June 30, 2029	January 1, 2029	45,590,616	22,022,628	23,567,988	48.31%	24,709,927	1,314,488	3,736,483	2,159,895	1,029,700	3,189,595
June 30, 2030	January 1, 2030	47,870,614	24,629,342	23,241,272	51.45%	25,329,837	1,383,654	3,950,612	2,301,002	1,029,700	3,330,702
June 30, 2031	January 1, 2031	50,233,900	27,418,526	22,815,374	54.58%	25,997,297	1,454,873	4,175,373	2,478,213	1,029,700	3,507,913
June 30, 2032	January 1, 2032	52,646,130	30,402,953	22,243,177	57.75%	26,736,156	1,532,203	4,413,150	2,644,591	1,029,700	3,674,291
June 30, 2033	January 1, 2033	55,127,299	33,596,290	21,531,009	60.94%	27,590,124	1,613,471	4,663,560	2,779,892	1,029,700	3,809,592
June 30, 2034	January 1, 2034	57,722,516	37,013,160	20,709,356	64.12%	28,585,466	1,696,519	4,927,626	2,902,584	1,029,700	3,932,284
June 30, 2035	January 1, 2035	60,445,114	40,669,211	19,775,903	67.28%	29,730,001	1,785,313	5,211,274	3,037,039	1,029,700	4,066,739
June 30, 2036	January 1, 2036	63,307,909	44,581,186	18,726,723	70.42%	31,062,245	1,880,244	5,515,572	3,153,628	1,029,700	4,183,328
June 30, 2037	January 1, 2037	66,360,762	48,766,999	17,593,763	73.49%	32,610,197	1,978,750	5,840,782	3,263,130	1,029,700	4,292,830
June 30, 2038	January 1, 2038	69,603,646	53,245,819	16,357,827	76.50%	34,328,457	2,081,223	6,189,398	3,441,438	1,029,700	4,471,138
June 30, 2039	January 1, 2039	73,012,276	58,038,156	14,974,120	79.49%	31,731,391	2,193,097	2,044,210	3,611,576	1,029,700	4,641,276
June 30, 2040	January 1, 2040	76,590,539	63,165,957	13,424,582	82.47%	28,887,982	2,312,294	1,981,912	3,795,621	1,029,700	4,825,321
June 30, 2041	January 1, 2041	80,343,876	68,652,704	11,691,172	85.45%	25,783,890	2,438,149	1,910,567	3,984,959	1,029,700	5,014,659
June 30, 2042	January 1, 2042	84,271,142	74,523,523	9,747,619	88.43%	22,369,852	2,571,477	1,828,428	4,212,766	1,029,700	5,242,466
June 30, 2043	January 1, 2043	88,413,941	80,805,300	7,608,641	91.39%	18,661,506	2,714,599	1,734,368	4,413,014	1,029,700	5,442,714
June 30, 2044	January 1, 2044	92,781,888	87,526,801	5,255,087	94.34%	14,629,417	2,865,648	1,633,240	4,635,629	1,029,700	5,665,329
June 30, 2045	January 1, 2045	97,382,740	94,718,807	2,663,933	97.26%	10,201,112	3,024,198	1,524,298	4,922,903	1,029,700	5,952,603
June 30, 2046	January 1, 2046	102,159,943	102,414,253	(254,310)	100.25%	6,774,253	3,192,488	1,397,740	5,078,909	(254,310)	4,824,599
June 30, 2047	January 1, 2047	107,293,526	109,320,190	(2,026,664)	101.89%	7,400,725	3,370,118	3,899,401	5,299,593	(2,026,664)	3,272,929
June 30, 2048	January 1, 2048	112,746,233	114,876,206	(2,129,973)	101.89%	8,119,121	3,553,638	4,132,994	5,544,571	(2,129,973)	3,414,598

## EXHIBIT D

### Projected Cash Flows (Open Group) – Funded Approach

Total Medical & Life Insurance - Funding over 30 years at 7.00% discount rate increasing at 2.75% per year											
Fiscal Year Ending	Valuation Date	I. Total Actuarial Accrued Liability ("AAL") as of Valuation Date	II. Plan Assets as of Valuation Date with Expected 7.00% Return	III. Unfunded Accrued Actuarial Liability ("UAAL") [I. - II.]	IV. Funded Ratio [II. / I.]	V. OPEB Obligation (Asset) as of Fiscal year end	VI. Normal Cost	VII. Expected Annual OPEB Expense	VIII. Employer Share of Premiums / Claims	IX. Excess Employer Payments (beyond claims)	X. Total Employer Contribution [VIII. + IX.]
June 30, 2017	January 1, 2017	24,829,353	1,318,317	23,511,036	5.31%	22,694,403	634,499	1,907,472	1,084,038	797,400	1,881,438
June 30, 2018	January 1, 2018	26,086,402	2,235,436	23,850,966	8.57%	22,720,437	698,992	2,030,204	1,158,250	819,329	1,977,579
June 30, 2019	January 1, 2019	27,421,045	3,239,437	24,181,608	11.81%	22,868,183	751,105	2,146,315	1,209,333	841,861	2,051,194
June 30, 2020	January 1, 2020	28,850,214	4,337,025	24,513,189	15.03%	22,988,623	804,131	2,270,329	1,284,877	865,012	2,149,889
June 30, 2021	January 1, 2021	30,355,330	5,535,392	24,819,938	18.24%	23,142,125	857,245	2,400,342	1,358,040	888,800	2,246,840
June 30, 2022	January 1, 2022	31,944,353	6,842,251	25,102,102	21.42%	23,351,293	909,503	2,536,079	1,413,669	913,242	2,326,911
June 30, 2023	January 1, 2023	33,641,001	8,265,873	25,375,128	24.57%	23,596,950	962,923	2,681,270	1,497,257	938,356	2,435,613
June 30, 2024	January 1, 2024	35,424,133	9,815,127	25,609,006	27.71%	23,860,867	1,013,539	2,830,740	1,602,662	964,161	2,566,823
June 30, 2025	January 1, 2025	37,273,139	11,499,522	25,773,617	30.85%	24,174,171	1,071,636	2,993,640	1,689,661	990,675	2,680,336
June 30, 2026	January 1, 2026	39,220,971	13,329,251	25,891,720	33.99%	24,525,632	1,130,805	3,165,878	1,796,498	1,017,919	2,814,417
June 30, 2027	January 1, 2027	41,254,147	15,315,242	25,938,905	37.12%	24,918,742	1,187,689	3,343,459	1,904,437	1,045,912	2,950,349
June 30, 2028	January 1, 2028	43,374,513	17,469,209	25,905,304	40.28%	25,362,097	1,249,666	3,534,157	2,016,127	1,074,675	3,090,802
June 30, 2029	January 1, 2029	45,590,616	19,803,706	25,786,910	43.44%	25,834,456	1,314,488	3,736,483	2,159,895	1,104,229	3,264,124
June 30, 2030	January 1, 2030	47,870,614	22,332,189	25,538,425	46.65%	26,349,471	1,383,654	3,950,612	2,301,002	1,134,595	3,435,597
June 30, 2031	January 1, 2031	50,233,900	25,069,076	25,164,824	49.90%	26,880,835	1,454,873	4,175,373	2,478,213	1,165,796	3,644,009
June 30, 2032	January 1, 2032	52,646,130	28,029,820	24,616,310	53.24%	27,451,539	1,532,203	4,413,150	2,644,591	1,197,855	3,842,446
June 30, 2033	January 1, 2033	55,127,299	31,230,978	23,896,321	56.65%	28,104,411	1,613,471	4,663,560	2,779,892	1,230,796	4,010,688
June 30, 2034	January 1, 2034	57,722,516	34,690,292	23,032,224	60.10%	28,864,810	1,696,519	4,927,626	2,902,584	1,264,643	4,167,227
June 30, 2035	January 1, 2035	60,445,114	38,426,769	22,018,345	63.57%	29,739,624	1,785,313	5,211,274	3,037,039	1,299,421	4,336,460
June 30, 2036	January 1, 2036	63,307,909	42,460,774	20,847,135	67.07%	30,766,413	1,880,244	5,515,572	3,153,628	1,335,155	4,488,783
June 30, 2037	January 1, 2037	66,360,762	46,814,123	19,546,639	70.54%	31,972,193	1,978,750	5,840,782	3,263,130	1,371,872	4,635,002
June 30, 2038	January 1, 2038	69,603,646	51,510,187	18,093,459	74.01%	33,310,555	2,081,223	6,189,398	3,441,438	1,409,598	4,851,036
June 30, 2039	January 1, 2039	73,012,276	56,574,000	16,438,276	77.49%	30,294,827	2,193,097	6,442,210	3,611,576	1,448,362	5,059,938
June 30, 2040	January 1, 2040	76,590,539	62,032,377	14,558,162	80.99%	26,992,926	2,312,294	1,981,912	3,795,621	1,488,192	5,283,813
June 30, 2041	January 1, 2041	80,343,876	67,914,041	12,429,835	84.53%	23,389,417	2,438,149	1,910,567	3,984,959	1,529,117	5,514,076
June 30, 2042	January 1, 2042	84,271,142	74,249,755	10,021,387	88.11%	19,433,911	2,571,477	1,828,428	4,212,766	1,571,168	5,783,934
June 30, 2043	January 1, 2043	88,413,941	81,072,467	7,341,474	91.70%	15,140,890	2,714,599	1,734,368	4,413,014	1,614,375	6,027,389
June 30, 2044	January 1, 2044	92,781,888	88,417,462	4,364,426	95.30%	10,479,731	2,865,648	1,633,240	4,635,629	1,658,770	6,294,399
June 30, 2045	January 1, 2045	97,382,740	96,322,529	1,060,211	98.91%	6,020,915	3,024,198	1,524,298	4,922,903	1,060,211	5,983,114
June 30, 2046	January 1, 2046	102,159,943	104,161,797	(2,001,854)	101.96%	4,341,600	3,192,488	1,397,740	5,078,909	(2,001,854)	3,077,055
June 30, 2047	January 1, 2047	107,293,526	109,382,389	(2,088,863)	101.95%	5,300,271	3,370,118	3,899,401	5,299,593	(2,088,863)	3,210,730
June 30, 2048	January 1, 2048	112,746,233	114,878,420	(2,132,187)	101.89%	5,750,881	3,553,638	4,132,994	5,544,571	(2,132,187)	3,412,384

## EXHIBIT D

### Projected Cash Flows (Open Group) – Funded Approach

Total Medical, Dental & Life Insurance - Funding Annual Normal Cost - 4.50% discount rate											
Fiscal Year	I. Total Actuarial Accrued Liability ("AAL")	II. Normal Cost	III. Employer Share of Premiums / Claims including "implicit cost"	IV. Funding Normal Cost beyond claims	V. Total Funding Costs [III. + IV.]	VI. Present Value at 2.75% of Employer Share of Premiums / Claims including "implicit cost"	VII. Present Value at 2.75% of Funding Normal Cost beyond claims	VIII. Present Value at 2.75% of Total Funding Costs [VI. + VII.]	IX. Plan Assets at Beginning of Year with Expected 4.50% Return	X. Unfunded Accrued Actuarial Liability ("UAAL") [I. - IX.]	XI. Present Value at 2.75% of Unfunded Accrued Actuarial Liability ("UAAL")
2017	35,307,132	1,211,539	1,084,038	127,501	1,211,539	1,084,038	127,501	1,211,539	1,318,317	33,988,815	33,988,815
2018	37,053,851	1,321,652	1,158,250	163,402	1,321,652	1,127,251	159,029	1,286,280	1,505,142	35,548,709	34,597,284
2019	38,866,263	1,410,949	1,209,333	201,616	1,410,949	1,145,466	190,968	1,336,434	1,736,275	37,129,988	35,169,091
2020	40,825,935	1,502,789	1,284,877	217,912	1,502,789	1,184,448	200,880	1,385,328	2,016,023	38,809,912	35,776,444
2021	42,890,819	1,595,844	1,358,040	237,804	1,595,844	1,218,387	213,350	1,431,737	2,324,656	40,566,163	36,394,571
2022	45,069,411	1,687,408	1,413,669	273,739	1,687,408	1,234,351	239,016	1,473,367	2,667,070	42,402,341	37,023,774
2023	47,383,591	1,781,511	1,497,257	284,254	1,781,511	1,272,346	241,555	1,513,901	3,060,827	44,322,764	37,664,816
2024	49,812,898	1,871,508	1,602,662	268,846	1,871,508	1,325,468	222,347	1,547,815	3,482,818	46,330,080	38,316,889
2025	52,334,869	1,976,469	1,689,661	286,808	1,976,469	1,360,019	230,854	1,590,873	3,908,391	48,426,478	38,978,780
2026	54,989,652	2,082,686	1,796,498	286,188	2,082,686	1,407,312	224,189	1,631,501	4,371,077	50,618,575	39,652,762
2027	57,763,253	2,186,146	1,904,437	281,709	2,186,146	1,451,939	214,774	1,666,713	4,853,963	52,909,290	40,337,932
2028	60,656,023	2,298,877	2,016,127	282,750	2,298,877	1,495,952	209,799	1,705,751	5,354,100	55,301,923	41,033,645
2029	63,681,018	2,417,395	2,159,895	257,500	2,417,395	1,559,734	185,950	1,745,684	5,877,785	57,803,233	41,741,703
2030	66,805,139	2,543,952	2,301,002	242,950	2,543,952	1,617,161	170,747	1,787,908	6,399,785	60,405,354	42,453,318
2031	70,053,788	2,674,971	2,478,213	196,758	2,674,971	1,695,091	134,582	1,829,673	6,930,725	63,123,063	43,176,003
2032	73,398,990	2,816,935	2,644,591	172,344	2,816,935	1,760,480	114,728	1,875,208	7,439,366	65,959,624	43,908,714
2033	76,858,454	2,966,462	2,779,892	186,570	2,966,462	1,801,020	120,874	1,921,894	7,946,481	68,911,973	44,646,292
2034	80,490,850	3,120,029	2,902,584	217,445	3,120,029	1,830,179	137,107	1,967,286	8,490,643	72,000,207	45,398,617
2035	84,302,058	3,284,155	3,037,039	247,116	3,284,155	1,863,706	151,645	2,015,351	9,090,167	75,211,891	46,154,448
2036	88,305,360	3,459,559	3,153,628	305,931	3,459,559	1,883,457	182,713	2,066,170	9,746,341	78,559,019	46,918,192
2037	92,571,646	3,641,447	3,263,130	378,317	3,641,447	1,896,696	219,897	2,116,593	10,490,857	82,080,789	47,709,505
2038	97,090,334	3,831,335	3,441,438	389,897	3,831,335	1,946,801	220,562	2,167,363	11,341,263	85,749,071	48,507,733
2039	101,852,810	4,038,438	3,611,576	426,862	4,038,438	1,988,367	235,010	2,223,377	12,241,517	89,611,293	49,335,834
2040	106,856,230	4,259,073	3,795,621	463,452	4,259,073	2,033,765	248,326	2,282,091	13,219,247	93,636,983	50,172,450
2041	112,116,584	4,492,196	3,984,959	507,237	4,492,196	2,078,069	264,513	2,342,582	14,277,565	97,839,019	51,020,905
2042	117,622,695	4,739,068	4,212,766	526,302	4,739,068	2,138,068	267,109	2,405,177	15,427,292	102,195,403	51,866,339
2043	123,465,700	5,004,278	4,413,014	591,264	5,004,278	2,179,755	292,048	2,471,803	16,647,822	106,817,878	52,761,405
2044	129,632,822	5,284,370	4,635,629	648,741	5,284,370	2,228,431	311,862	2,540,293	17,988,238	111,644,584	53,669,585
2045	136,144,232	5,578,484	4,922,903	655,581	5,578,484	2,303,191	306,715	2,609,906	19,446,450	116,697,782	54,597,323
2046	142,929,388	5,890,897	5,078,909	811,988	5,890,897	2,312,583	369,723	2,682,306	20,977,121	121,952,267	55,528,609
2047	150,208,349	6,221,102	5,299,593	921,509	6,221,102	2,348,484	408,361	2,756,845	22,733,079	127,475,270	56,489,928

## EXHIBIT D

### Projected Cash Flows (Open Group) – Funded Approach

#### Total Medical, Dental & Life Insurance - Pay-as-you-go Funding

Fiscal Year	Number of Retirees, Spouses & Surviving Spouses	Total Actuarial Accrued Liability ("AAL")	Present Value at 2.75% of Total Actuarial Accrued Liability ("AAL")	Employer Share of Premiums / Claims including "implicit cost"	Present Value at 2.75% of Employer Share of Premiums / Claims including "implicit cost"
2017	337	35,307,132	35,307,132	1,084,038	1,084,038
2018	352	37,053,851	36,062,142	1,158,250	1,127,251
2019	359	38,866,263	36,813,671	1,209,333	1,145,466
2020	365	40,825,935	37,634,890	1,284,877	1,184,448
2021	370	42,890,819	38,480,173	1,358,040	1,218,387
2022	374	45,069,411	39,352,536	1,413,669	1,234,351
2023	377	47,383,591	40,265,861	1,497,257	1,272,346
2024	379	49,812,898	41,197,323	1,602,662	1,325,468
2025	385	52,334,869	42,124,669	1,689,661	1,360,019
2026	389	54,989,652	43,076,905	1,796,498	1,407,312
2027	392	57,763,253	44,038,583	1,904,437	1,451,939
2028	395	60,656,023	45,006,350	2,016,127	1,495,952
2029	398	63,681,018	45,986,254	2,159,895	1,559,734
2030	402	66,805,139	46,951,133	2,301,002	1,617,161
2031	406	70,053,788	47,916,600	2,478,213	1,695,091
2032	410	73,398,990	48,861,031	2,644,591	1,760,480
2033	413	76,858,454	49,794,612	2,779,892	1,801,020
2034	416	80,490,850	50,752,261	2,902,584	1,830,179
2035	418	84,302,058	51,732,710	3,037,039	1,863,706
2036	419	88,305,360	52,739,048	3,153,628	1,883,457
2037	420	92,571,646	53,807,322	3,263,130	1,896,696
2038	420	97,090,334	54,923,418	3,441,438	1,946,801
2039	421	101,852,810	56,075,447	3,611,576	1,988,367
2040	422	106,856,230	57,255,570	3,795,621	2,033,765
2041	424	112,116,584	58,466,342	3,984,959	2,078,069
2042	426	117,622,695	59,696,018	4,212,766	2,138,068
2043	429	123,465,700	60,984,396	4,413,014	2,179,755
2044	432	129,632,822	62,316,858	4,635,629	2,228,431
2045	435	136,144,232	63,695,389	4,922,903	2,303,191
2046	438	142,929,388	65,080,135	5,078,909	2,312,583
2047	441	150,208,349	66,563,961	5,299,593	2,348,484
2048	443	157,934,173	68,114,467	5,544,571	2,391,284
2049	445	166,105,613	69,721,341	5,789,956	2,430,282
2050	447	174,767,958	71,393,949	6,094,605	2,489,689
2051	450	183,937,969	73,128,918	6,457,122	2,567,183
2052	452	193,563,968	74,896,314	6,831,598	2,643,372
2053	454	203,637,538	76,685,268	7,136,314	2,687,374
2054	456	214,362,150	78,563,419	7,490,670	2,745,320
2055	458	225,680,020	80,497,715	7,852,674	2,800,967
2056	460	237,609,356	82,484,462	8,208,063	2,849,373

## EXHIBIT E

### GLOSSARY

**AAL** – Actuarial Accrued Liability. That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of pension plan benefits and expenses which is not provided for by future Normal Costs.

**Accrual Accounting** - A system of accounting in which revenues are recorded when earned and outlays are recorded when goods are received or services performed, even though the actual receipt of revenues and payment for goods or services may occur, in whole or in part, at a different time.

**Actuarial Value of Assets** – The value of cash, investments, other assets and property belonging to an OPEB trust, pension fund or similar entity, as used by the actuary for the purpose of actuarial valuation. Some funds may be restricted for other purposes, and “smoothing” of investment gains and losses often make the actuarial value of assets different from the market value of assets.

**Annual Required Contribution** – Normal Cost plus an amortization of the funding shortfall over a period of no more than 30 years.

**Cash Basis Accounting** - A system of accounting in which revenues are recorded when actually received and outlays are recorded when payment is made.

**Discount Rate** – The interest rate used to calculate present value of a series of future cash flows. Under GASB 45, the rate should be “long term expected yield on the investments that are expected to be used to pay benefits as they come due. These would be plan investments for a funded plan, the employer’s investments for a pay as you go plan [e.g. short term county investment pool], or a weighted average of expected plan and employer investments for a plan that is partially funded”.

**FASB – Financial Accounting Standards Board.** “Since 1973, the Financial Accounting Standards Board (FASB) has been the designated organization in the private sector for establishing standards of financial accounting and reporting”.

**GASB - Government Accounting Standards Board.** “The Governmental Accounting Standards Board (GASB) was organized in 1984 by the Financial Accounting Foundation (FAF) to establish standards of financial accounting and reporting for state and local governmental entities. Its standards guide the preparation of external financial reports of those entities.”



EXHIBIT E**GLOSSARY***(continued)*

**GFOA – Government Finance Officers Association.** “GFOA is the professional association of state/provincial and local finance officers in the United States and Canada, and has served the public finance profession since 1906. Approximately 16,000 GFOA members are dedicated to the sound management of government financial resources.”

**Implicit Subsidy** – “The difference between a premium rate charged to retirees for a particular benefit and the estimated rate that would have been applicable to those retirees if that benefit was acquired for them as a separate group.”

**Irrevocable Contribution** – “Irrevocably transferred assets to a qualifying trust, or equivalent arrangement, in which plan assets are dedicated to providing benefits to retirees and their beneficiaries in accordance with the terms of the plan and are legally protected from creditors of the employer(s) or plan administrator. The preceding criteria preclude counting as [irrevocable] contributions (a) designations of net assets of a governmental or proprietary fund to be used for OPEB or (b) internal transfers of assets to a separate governmental or proprietary fund for the same purpose. Rather, such actions should be regarded as earmarking of employer assets.”

**Level Dollar Amortization** – Funding a shortfall in OPEB assets with equal dollar payments over a designated number of years (no more than 30 years). The present value of the level payments equals the present value of unfunded liabilities, the UAAL.

**Level Percent of Payroll Amortization** – Funding a shortfall in OPEB assets as a level percent of payroll over a designated number of years (no more than 30 years). The present value of the payments equals the present value of unfunded liabilities, the UAAL. Level percent of payroll typically has lower payments in the early years than level dollar amortization. When using level payroll amortization, employee count is assumed to be constant, and the payroll differences arise from overall wage trends.



EXHIBIT E**GLOSSARY***(continued)*

**Normal Cost** - The actuarially determined present value contribution needed to fund benefits which are earned for employee service rendered during the current year. Normal cost depends on many factors, including the interest rate used to discount future cashflows, and expected inflation.

**NOA** - Net OPEB Asset. The amount recognized by an employer for contributions to an OPEB plan greater than OPEB expenses.

**NOO** - Net OPEB Obligation. The cumulative difference since the effective date of GASB Statement number 45 between annual OPEB cost and the employer's contributions to the plan, including the OPEB liability (asset) at transition, if any, and excluding (a) short-term differences and (b) unpaid contributions that have been converted to OPEB-related debt.

**OPEB** - Other Post Employment Benefits

**OPEB Trust** - An entity other than a pension or retirement system which manages OPEB assets. In many respects it is similar to a pension fund for OPEB. For reasons detailed in GASB 45, contributions to an OPEB trust should be irrevocable in order to obtain the most favorable accounting treatment.

**Pay-as-you-go funding** - Paying benefits (such as pensions or OPEB) on a cash basis, with no money set aside for future liabilities which are already incurred.

**POB** - Pension Obligation Bond. Generally yielding taxable interest, POBs are issued to help fund a previously unfunded or underfunded pension liability.

**UAAL** - Unfunded Accrued Actuarial Liability. Actuarial Accrued Liability minus the Actuarial Value of Assets.