

**Town of Middleborough Other
Postemployment Benefits Plan**

GASB 45 Actuarial Valuation

as of

July 1, 2012

For the fiscal years ending

June 30, 2013

June 30, 2014

Delivered October 2013

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October 31, 2013

Personal and Confidential

Ms. Judy M. MacDonald
Treasurer & Collector
Town of Middleborough
20 Centre Street, 3rd Floor
Middleborough, MA 02346

Dear Ms. MacDonald:

We have performed an actuarial valuation of the Town of Middleborough Other Postemployment Benefits Plan for the fiscal year ending June 30, 2013. The figures presented in this report reflect the adoption, by the Town of Middleborough, 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, taking into account 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, A.S.A., E.A., M.A.A.A.
President & CEO

Enclosure

SECTION I

PRINCIPAL RESULTS OF THE VALUATION

Town of Middleborough
Assuming Pay-as-you-go funding - 4.00% discount rate
Comparison of Plan Liabilities to Prior Valuation

	<u>July 1, 2012</u>	<u>July 1, 2010</u>
I. Present Value of Future Benefits		
A. Actives	67,098,122	N/A
B. Retirees/Disabled	46,969,144	N/A
C. Total	114,067,266	N/A
II. Present Value of Future Normal Cost	34,614,586	N/A
III. Actuarial Accrued Liability (Projected Unit Credit)		
A. Actives	32,483,536	36,008,706
B. Retirees/Disabled	46,969,144	73,847,033
C. Total	79,452,680	109,855,739
IV. Plan Assets	4,248,664	0
V. Unfunded Actuarial Accrued Liability ("UAAL")	75,204,016	109,855,739
VI. Funded Ratio	5.35%	0.00%
VII. Annual Covered Payroll	N/A	34,689,892
VIII. UAAL as % of Covered Payroll	N/A	316.7%
IX. Net OPEB Obligation	23,839,865	14,781,859
X. Number of Covered Participants		
A. Actives	526	585
B. Retirees/Disabled	394	391
C. Total	920	976
For the Fiscal Year Ending:	<u>June 30, 2013</u>	<u>June 30, 2011</u>
XI. Normal Cost	2,873,028	2,869,002
XII. Amortization of UAAL - 30 year flat dollar	5,913,467	5,913,467
XIII. Annual Required Contribution ("ARC") [XI. + XII.]	8,786,495	8,782,469
XIV. Interest on Net OPEB Obligation	953,595	589,338
XV. Adjustment to Annual Required Contribution	(1,325,634)	(780,007)
XVI. Amortization of Actuarial (Gains) / Losses	(1,283,946)	0
XVII. Annual OPEB Cost [XIII. + XIV. + XV. + XVI.]	7,130,510	8,591,800
XVIII. Expected Employer Contribution	3,825,616	4,736,074
XIX. Percentage of Annual OPEB Cost Contributed	53.7%	55.1%
XX. Net OPEB Obligation at Beginning of Year (IX.)	23,839,865	14,781,859
XXI. Increase in Net OPEB Obligations (XVII. - XVIII.)	3,304,894	3,855,726
XXII. Net OPEB Obligation at End of Year (XX. + XXI.)	27,144,759	18,637,585
XXIII. Discount Rate	4.00%	4.00%

SECTION I

PRINCIPAL RESULTS OF THE VALUATION

(continued)

**Town of Middleborough
Assuming Pay-as-you-go funding - 4.00% discount rate
Plan Liabilities as of July 1, 2012**

	<u>Medical</u>	<u>Dental</u>	<u>Life</u>	<u>Total</u>
I. Present Value of Future Benefits				
A. Actives	66,993,249	0	104,873	67,098,122
B. Retirees/Disabled	46,798,424	0	170,720	46,969,144
C. Total	113,791,673	0	275,593	114,067,266
II. Present Value of Future Normal Cost	34,571,746	0	42,840	34,614,586
III. Actuarial Accrued Liability (Projected Unit Credit)				
A. Actives	32,421,503	0	62,033	32,483,536
B. Retirees/Disabled	46,798,424	0	170,720	46,969,144
C. Total	79,219,927	0	232,753	79,452,680
IV. Plan Assets	4,235,341	0	13,323	4,248,664
V. Unfunded Actuarial Accrued Liability ("UAAL")	74,984,586	0	219,430	75,204,016
VI. Annual Covered Payroll	N/A	N/A	N/A	N/A
VII. UAAL as % of Covered Payroll	N/A	N/A	N/A	N/A
VIII. Net OPEB Obligation	23,770,027	0	69,838	23,839,865
IX. Number of Covered Participants				
A. Actives	526	526	526	
B. Retirees/Disabled	394	0	307	
C. Total	920	526	833	

For Fiscal Year Ending June 30, 2013

X. Normal Cost	2,868,389	0	4,639	2,873,028
XI. Amortization of UAAL - 30 year flat dollar	5,896,144	0	17,323	5,913,467
XII. Annual Required Contribution ('ARC') [X. + XI.]	8,764,533	0	21,962	8,786,495
XIII. Interest on Net OPEB Obligation	950,802	0	2,793	953,595
XIV. Adjustment to Annual Required Contribution	(1,321,753)	0	(3,881)	(1,325,634)
XV. Amortization of Actuarial (Gains) / Losses	(1,280,184)	0	(3,762)	(1,283,946)
XVI. Annual OPEB Cost [XII. + XIII. + XIV. + XV.]	7,113,398	0	17,112	7,130,510
XVII. Expected Employer Contribution	2,918,415	0	7,201	2,925,616
XVIII. Contribution to Trust Fund over 30 Years	897,363	0	2,637	900,000
XIX. Total Employer Contribution	3,815,778	0	9,838	3,825,616
XX. Percentage of Annual OPEB Cost Contributed	53.6%	0.0%	57.5%	53.7%
XXI. Net OPEB Obligation at Beginning of Year (VIII.)	23,770,027	0	69,838	23,839,865
XXII. Increase in Net OPEB Obligations (XVI. - XVII.)	3,297,620	0	7,274	3,304,894
XXIII. Net OPEB Obligation at End of Year (XXI. + XXII.)	27,067,647	0	77,112	27,144,759

SECTION I

PRINCIPAL RESULTS OF THE VALUATION

(continued)

Town of Middleborough

Plan Liabilities as of July 1, 2012

Assuming maintain pay-as-you-go funding method

	General Govt Employees and Retirees	Schools Employees and Retirees	Public Safety Employees and Retirees	DPW Employees and Retirees	Water Employees and Retirees	Waste Water Employees and Retirees	Gas & Electric Employees and Retirees	Trash Employees and Retirees	Total
I. Present Value of Future Benefits									
A. Actives	5,303,829	39,949,962	12,057,625	1,038,155	1,258,982	641,453	5,535,802	1,312,314	67,098,122
B. Retirees/Disabled	12,881,406	24,422,611	2,921,765	921,403	1,246,930	248,789	3,901,026	425,214	46,969,144
C. Total	18,185,235	64,372,573	14,979,390	1,959,558	2,505,912	890,242	9,436,828	1,737,528	114,067,266
II. Present Value of Future Normal Cost	2,213,459	19,818,100	7,003,195	676,528	650,914	349,571	2,655,580	1,247,239	34,614,586
III. Actuarial Accrued Liability (Projected Unit Credit)									
A. Actives	3,090,370	20,131,862	5,054,430	361,627	608,068	291,882	2,880,222	65,075	32,483,536
B. Retirees/Disabled	12,881,406	24,422,611	2,921,765	921,403	1,246,930	248,789	3,901,026	425,214	46,969,144
C. Total	15,971,776	44,554,473	7,976,195	1,283,030	1,854,998	540,671	6,781,248	490,289	79,452,680
IV. Plan Assets	0	0	0	0	0	0	4,248,664	0	4,248,664
V. Unfunded Actuarial Accrued Liability ("UAAL")	15,971,776	44,554,473	7,976,195	1,283,030	1,854,998	540,671	2,532,584	490,289	75,204,016
VI. Annual Covered Payroll	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VII. UAAL as % of Covered Payroll	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VIII. Net OPEB Obligation	5,079,051	14,169,565	2,536,628	408,036	589,941	171,948	728,772	155,924	23,839,865
IX. Number of Covered Participants									
A. Actives	62	323	64	10	10	5	45	7	526
B. Retirees/Disabled	127	208	12	6	8	3	29	1	394
C. Total	189	531	76	16	18	8	74	8	920
For Fiscal Year Ending June 30, 2013									
X. Normal Cost	261,897	1,795,700	437,275	41,664	50,636	28,746	202,585	54,525	2,873,028
XI. Amortization of UAAL - 30 year flat dollar	747,863	3,625,517	649,038	104,403	150,946	43,996	551,809	39,895	5,913,467
XII. Annual Required Contribution (ARC) [X. + XI.]	1,009,760	5,421,217	1,086,313	146,067	201,582	72,742	754,394	94,420	8,786,495
XIII. Interest on Net OPEB Obligation	203,162	566,782	101,465	16,322	23,598	6,878	29,150	6,237	953,594
XIV. Adjustment to Annual Required Contribution	(282,425)	(787,910)	(141,052)	(22,690)	(32,805)	(9,561)	(40,524)	(8,671)	(1,325,638)
XV. Amortization of Actuarial (Gains) / Losses	(258,102)	(719,995)	(128,894)	(20,734)	(29,977)	(8,737)	(109,584)	(7,923)	(1,283,946)
XVI. Annual OPEB Cost [XII. + XIII. + XIV. + XV.]	672,395	4,480,094	917,832	118,965	162,398	61,322	633,436	84,063	7,130,505
XVII. Expected Employer Contribution	775,572	1,612,251	149,010	49,730	74,681	17,792	237,262	9,318	2,925,616
XVIII. Contribution to Trust Fund over 30 Years	43,957	122,619	21,951	3,531	5,105	1,488	700,000	1,349	900,000
XIX. Total Employer Contribution	819,529	1,734,870	170,961	53,261	79,786	19,280	937,262	10,667	3,825,616
XX. Percentage of Annual OPEB Cost Contributed	115.3%	36.0%	16.2%	41.8%	46.0%	29.0%	37.5%	11.1%	41.0%
XXI. Net OPEB Obligation at Beginning of Year (VIII.)	5,079,051	14,169,565	2,536,628	408,036	589,941	171,948	728,772	155,924	23,839,865
XXII. Increase in Net OPEB Obligations (XVI. - XVII.)	(103,177)	2,867,843	768,822	69,235	87,717	43,530	396,174	74,745	4,204,889
XXIII. Net OPEB Obligation at End of Year (XXI. + XXII.)	4,975,874	17,037,408	3,305,450	477,271	677,658	215,478	1,124,946	230,669	28,044,754

SECTION I

PRINCIPAL RESULTS OF THE VALUATION

(continued)

**Town of Middleborough
Detail of Plan Liabilities by Group and Dependency Status
Assuming Pay-as-you-go funding - 4.00% discount rate
Plan Liabilities as of July 1, 2012**

	<u>Present Value of Future Benefits</u>	<u>Actuarial Accrued Liability (Projected Unit Credit)</u>	<u>Normal Cost</u>
Actives			
Under Age 65			
A. Participants	12,813,896	6,118,186	558,964
B. Spouses	<u>7,486,447</u>	<u>3,360,010</u>	<u>311,236</u>
C. Total	20,300,343	9,478,196	870,200
Age 65 and Over			
A. Participants	28,026,938	14,004,624	1,208,047
B. Spouses	<u>18,770,841</u>	<u>9,000,716</u>	<u>794,781</u>
C. Total	46,797,779	23,005,340	2,002,828
Actives Total			
A. Participants	40,840,834	20,122,810	1,767,011
B. Spouses	<u>26,257,288</u>	<u>12,360,726</u>	<u>1,106,017</u>
C. Total	67,098,122	32,483,536	2,873,028
Retirees/Disabled			
Under Age 65			
A. Participants	4,872,428	4,872,428	0
B. Spouses	<u>4,446,681</u>	<u>4,446,681</u>	<u>0</u>
C. Total	9,319,109	9,319,109	0
Age 65 and Over			
A. Participants	24,946,298	24,946,298	<u>0</u>
B. Spouses	<u>12,703,737</u>	<u>12,703,737</u>	<u>0</u>
C. Total	37,650,035	37,650,035	0
Retirees/Disabled Total			
A. Participants	29,818,726	29,818,726	0
B. Spouses	<u>17,150,418</u>	<u>17,150,418</u>	<u>0</u>
C. Total	46,969,144	46,969,144	0
Total Population			
A. Participants	70,659,560	49,941,536	1,767,011
B. Spouses	<u>43,407,706</u>	<u>29,511,144</u>	<u>1,106,017</u>
C. Total	114,067,266	79,452,680	2,873,028

SECTION I

PRINCIPAL RESULTS OF THE VALUATION

(continued)

**Town of Middleborough
Assuming Funding over 30 years at 7.00% discount rate
Plan Liabilities as of July 1, 2012**

	<u>Medical</u>	<u>Dental</u>	<u>Life</u>	<u>Total</u>
I. Present Value of Future Benefits				
A. Actives	35,346,417	0	50,150	35,396,567
B. Retirees/Disabled	<u>34,592,032</u>	<u>0</u>	<u>121,181</u>	<u>34,713,213</u>
C. Total	69,938,449	0	171,331	70,109,780
II. Present Value of Future Normal Cost	16,209,788	0	17,911	16,227,699
III. Actuarial Accrued Liability (Projected Unit Credit)				
A. Actives	19,136,629	0	32,239	19,168,868
B. Retirees/Disabled	<u>34,592,032</u>	<u>0</u>	<u>121,181</u>	<u>34,713,213</u>
C. Total	53,728,661	0	153,420	53,882,081
IV. Plan Assets	4,236,567	0	12,097	4,248,664
V. Unfunded Actuarial Accrued Liability ("UAAL")	49,492,094	0	141,323	49,633,417
VI. Annual Covered Payroll	N/A	N/A	N/A	N/A
VII. UAAL as % of Covered Payroll	N/A	N/A	N/A	N/A
VIII. Net OPEB Obligation	23,770,027	0	69,838	23,839,865
IX. Number of Covered Participants				
A. Actives	526	526	526	
B. Retirees/Disabled	<u>394</u>	<u>0</u>	<u>307</u>	
C. Total	920	526	833	

For Fiscal Year Ending June 30, 2013

X. Normal Cost	1,551,526	0	2,235	1,553,761
XI. Amortization of UAAL - 30 year flat dollar	7,745,968	0	22,118	7,768,086
XII. Annual Required Contribution ('ARC') [X. + XI.]	9,297,494	0	24,353	9,321,847
XIII. Interest on Net OPEB Obligation	1,663,902	0	4,889	1,668,791
XIV. Adjustment to Annual Required Contribution	(1,790,225)	0	(5,260)	(1,795,485)
XV. Amortization of Actuarial (Gains) / Losses	(3,670,151)	0	5,299	(3,664,852)
XVI. Annual OPEB Cost [XII. + XIII. + XIV. + XV.]	5,501,020	0	29,281	5,530,301
XVII. Expected Employer Contribution	2,918,415	0	7,201	2,925,616
XVIII. Contribution to Trust Fund over 30 Years	837,693	0	22,080	859,773
XIX. Total Employer Contribution	3,756,108	0	29,281	3,785,389
XX. Percentage of Annual OPEB Cost Contributed	68.3%	0.0%	100.0%	68.4%
XXI. Net OPEB Obligation at Beginning of Year (VIII.)	23,770,027	0	69,838	23,839,865
XXII. Increase in Net OPEB Obligations (XVI. - XVII.)	1,744,912	0	0	1,744,912
XXIII. Net OPEB Obligation at End of Year (XXI. + XXII.)	25,514,939	0	69,838	25,584,777

SECTION I
PRINCIPAL RESULTS OF THE VALUATION
(continued)

Town of Middleborough
Plan Liabilities as of July 1, 2012
Assuming Funding over 30 years at 7.00% discount rate

	General Govt Employees and Retirees	Schools Employees and Retirees	Public Safety Employees and Retirees	DPW Employees and Retirees	Water Employees and Retirees	Waste Water Employees and Retirees	Gas & Electric Employees and Retirees	Trash Employees and Retirees	Total
I. Present Value of Future Benefits									
A. Actives	2,797,952	21,074,979	6,360,812	547,662	664,156	338,389	2,920,326	692,291	35,396,567
B. Retirees/Disabled	<u>9,520,186</u>	<u>18,049,878</u>	<u>2,159,372</u>	<u>680,976</u>	<u>921,561</u>	<u>183,871</u>	<u>2,883,109</u>	<u>314,260</u>	<u>34,713,213</u>
C. Total	12,318,138	39,124,857	8,520,184	1,228,638	1,585,717	522,260	5,803,435	1,006,551	70,109,780
II. Present Value of Future Normal Cost	1,037,694	9,290,943	3,283,175	317,164	305,156	163,883	1,244,965	584,719	16,227,699
III. Actuarial Accrued Liability (Projected Unit Credit)									
A. Actives	1,823,659	11,880,018	2,982,671	213,400	358,827	172,243	1,699,649	38,401	19,168,868
B. Retirees/Disabled	<u>9,520,186</u>	<u>18,049,878</u>	<u>2,159,372</u>	<u>680,976</u>	<u>921,561</u>	<u>183,871</u>	<u>2,883,109</u>	<u>314,260</u>	<u>34,713,213</u>
C. Total	11,343,845	29,929,896	5,142,043	894,376	1,280,388	356,114	4,582,758	352,661	53,882,081
IV. Plan Assets	0	0	0	0	0	0	4,248,664	0	4,248,664
V. Unfunded Actuarial Accrued Liability ("UAAL")	11,343,845	29,929,896	5,142,043	894,376	1,280,388	356,114	334,094	352,661	49,633,417
VI. Annual Covered Payroll	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VII. UAAL as % of Covered Payroll	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VIII. Net OPEB Obligation	5,079,051	14,169,565	2,536,628	408,036	589,941	171,948	728,772	155,924	23,839,865
IX. Number of Covered Participants									
A. Actives	62	323	64	10	10	5	45	7	526
B. Retirees/Disabled	<u>127</u>	<u>208</u>	<u>12</u>	<u>6</u>	<u>8</u>	<u>3</u>	<u>29</u>	<u>1</u>	<u>394</u>
C. Total	189	531	76	16	18	8	74	8	920
For Fiscal Year Ending June 30, 2013									
X. Normal Cost	141,637	971,132	236,482	22,532	27,384	15,546	109,560	29,488	1,553,761
XI. Amortization of UAAL - 30 year flat dollar	982,412	4,762,575	852,593	137,147	198,287	57,794	724,871	52,407	7,768,086
XII. Annual Required Contribution ("ARC") [X. + XI.]	1,124,049	5,733,707	1,089,075	159,679	225,671	73,340	834,431	81,895	9,321,847
XIII. Interest on Net OPEB Obligation	355,532	991,869	177,564	28,564	41,297	12,037	51,013	10,915	1,668,791
XIV. Adjustment to Annual Required Contribution	(382,525)	(1,067,170)	(191,045)	(30,732)	(44,432)	(12,950)	(54,887)	(11,744)	(1,795,485)
XV. Amortization of Actuarial (Gains) / Losses	(736,718)	(2,055,129)	(367,911)	(59,182)	(85,565)	(24,939)	(312,793)	(22,615)	(3,664,852)
XVI. Annual OPEB Cost [XII. + XIII. + XIV. + XV.]	360,338	3,603,277	707,683	98,329	136,971	47,488	517,764	58,451	5,530,301
XVII. Expected Employer Contribution	775,572	1,612,251	149,010	49,730	74,681	17,792	237,262	9,318	2,925,616
XVIII. Contribution to Trust Fund over 30 Years	181,010	477,578	82,049	14,271	20,431	5,682	73,125	5,627	859,773
XIX. Total Employer Contribution	956,582	2,089,829	231,059	64,001	95,112	23,474	310,387	14,945	3,785,389
XX. Percentage of Annual OPEB Cost Contributed	265.5%	58.0%	32.7%	65.1%	69.4%	49.4%	59.9%	25.6%	68.4%
XXI. Net OPEB Obligation at Beginning of Year (VIII.)	5,079,051	14,169,565	2,536,628	408,036	589,941	171,948	728,772	155,924	23,839,865
XXII. Increase in Net OPEB Obligations (XVI. - XIX.)	(596,244)	1,513,448	476,624	34,328	41,859	24,014	207,377	43,506	1,744,912
XXIII. Net OPEB Obligation at End of Year (XXI. + XXII.)	4,482,807	15,683,013	3,013,252	442,364	631,800	195,962	936,149	199,430	25,584,777

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 OPEB liability. 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. **Transition to GASB 45:**

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. As part of this implementation, the Employer must recognize the Actuarial Accrued Liability for past service. Under GASB 45, this amount may be amortized over a period not to exceed thirty (30) years. The Unfunded Actuarial Accrued Liability at transition was amortized over a 30 year period and a flat dollar amortization of the Unfunded Actuarial Accrued Liability at transition. This approach yields an amortization charge of \$5,913,467. Additionally the Employer must recognize a “normal cost” which represents the annual accrual of benefits for current active employees toward their ultimate postemployment benefits. The normal cost for the 2013 fiscal year is \$2,873,028. The combined amortization charge and normal cost represent the Annual Required Contribution (“ARC”) for the plan for the 2013 fiscal year. As the Employer has chosen to continue their “pay-as-you-go” funding policy, this valuation must utilize a discount rate which represents earnings on short term investments. For this discount rate, we have used 4.00% per annum. The incremental cost of GASB 45 for the 2013 fiscal year beyond the “pay-as-you-go” costs is \$4,204,894 reduced by contributions to an OPEB Trust of \$900,000 for a net change in the OPEB liability of \$3,304,894 .

2. **Plan Experience:**

Plan experience was far better than expected. This is mainly due to a reduction in the Medex III premiums by nearly 28% vs. an expected increase of 13%. The actuarial experience gain is amortized into the annual OPEB costs over a 30-year period. The net impact of the plan experience is a decrease in the annual OPEB cost.

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 shall become eligible to retire under this plan upon attainment of age 55 as an active member and completion of 10 years of service.
<u>Credited Service</u>	Elapsed time from date of hire to termination of service date.
<u>Participant Contributions</u>	20% of premiums for BCBS HMO, 40% of premiums for BCBS PPO, 25% of premiums for Medex, Managed Blue and life insurance.
<u>Benefits Offered</u>	Comprehensive Medical Insurance offered through Blue Cross Blue Shield of Massachusetts and 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 Projected Unit Credit Actuarial Cost Method. Under this method, the normal cost and actuarial accrued liability are both based on an accrual of projected benefits over the period for which benefits are accrued. The normal cost is the actuarial present value of one year's benefit accrual on this basis. 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 a 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.

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- and Post-Retirement Mortality

It is assumed that both pre-retirement and post-retirement mortality are represented by the RP-2000 Mortality Table projected to 2012 for males and females.

Discount Rate

4.00% per annum (previously 4.00%)

Employee Termination

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

<u>Service</u>	<u>Non Public Safety Male</u>	<u>Non Public</u>	
		<u>Safety Female</u>	<u>Public Safety</u>
0	15.00%	15.00%	1.50%
5	7.60%	7.60%	1.50%
10	5.40%	5.40%	1.50%
15	3.30%	3.30%	0.00%
20	2.00%	2.00%	0.00%
25	1.00%	1.00%	0.00%
30	0.00%	0.00%	0.00%

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>Non Public Safety Male</u>	<u>Non Public Safety Female</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)

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 2008	11.0%	8.0%
FY 2009	10.0%	7.5%
FY 2010	9.0%	7.0%
FY 2011	8.0%	6.5%
FY 2012	7.0%	6.0%
FY 2013	6.0%	5.5%
FY 2014	5.0%	5.0%
FY 2015	5.0%	5.0%

Participation Rate

It was assumed that 100% of the employees eligible to receive retirement benefits would enroll in the retiree medical and dental plans upon retirement. For life insurance plans, it was assumed that 100% of eligible employees would elect coverage upon retirement.

Percent Married

It was assumed that 80% of the participants who elect retiree healthcare coverage for themselves would also elect coverage for a spouse upon retirement. It was further assumed that husbands are three years older than their wives. 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.

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.

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

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

	Number of Participants			
	Single	Two-Person	Family	Total
BCBS Network Blue	187		450	637
BCBS Blue Care Elect PPO	11		13	24
BCBS Managed Blue for Srs.	21	17		38
BCBS Medex	128	101		229
Total	347	118	463	928

	Per Contract Costs (monthly) - FY 2013		
	Single	Two-Person	Family
BCBS Network Blue	618.14	0.00	1,619.61
BCBS Blue Care Elect PPO	714.38	0.00	1,871.82
Harvard Senior (GIC)	395.20	790.40	
BCBS Medex	356.17	712.34	

Gross Expected FY 2013 Incurred Premiums	12,132,276
Adjustment to reflect children's claims	(2,139,099)
Total Expected FY 2013 Incurred Premiums (adults only)	9,993,177

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

	<u>Employer Primary</u>	<u>Medicare Primary</u>
Age 65	10,254	4,190
Average Age	9,226	4,190

SECTION III

ACTUARIAL COST METHOD, ASSET VALUATION METHOD
AND ACTUARIAL ASSUMPTIONS

(continued)

D. DEVELOPMENT OF REPRESENTATIVE MEDICAL PER CAPITA CLAIMS COSTS

ALL ACTIVE EMPLOYEES AND SPOUSES (non-GIC)

Age Bracket	Number of Females	Number of Males	Female Aging Factor	Male Aging Factor	Aged (F) Average Claims	Aged (M) Average Claims	Age Related Claims
24 & Under	5	3	1.312	0.549	6,291	2,632	39,351
25 to 29	24	19	1.312	0.591	6,291	2,834	204,830
30 to 34	31	27	1.312	0.712	6,291	3,414	287,199
35 to 39	42	41	1.312	0.850	6,291	4,076	431,338
40 to 44	73	55	1.312	1.000	6,291	4,795	722,968
45 to 49	85	88	1.456	1.193	6,982	5,720	1,096,830
50 to 54	89	89	1.599	1.441	7,667	6,910	1,297,353
55 to 59	70	51	1.740	1.753	8,343	8,406	1,012,716
60 to 64	39	49	1.968	2.102	9,437	10,079	861,914
65 to 69	10	18	2.168	2.316	10,396	11,105	303,850
70 & Over	5	9	2.396	2.557	11,489	12,261	167,794
Total	473	449					6,426,143

ALL RETIREES AND SPOUSES - NOT MEDICARE ELIGIBLE (non-GIC)

Age Bracket	Number of Females	Number of Males	Female Aging Factor	Male Aging Factor	Aged (F) Average Claims	Aged (M) Average Claims	Age Related Claims
44 & Under	4	1	1.312	1.000	6,291	4,795	29,959
45 to 49	6	3	1.456	1.193	6,982	5,720	59,052
50 to 54	11	4	1.599	1.441	7,667	6,910	111,977
55 to 59	27	25	1.740	1.753	8,343	8,406	435,411
60 to 64	65	52	1.968	2.102	9,437	10,079	1,137,513
65 to 69	7	6	2.168	2.316	10,396	11,105	139,402
70 to 74	2	0	2.396	2.557	11,489	12,261	22,978
75 to 79	2	1	2.593	2.769	12,433	13,277	38,143
80 to 84	1	0	2.724	2.910	13,062	13,953	13,062
85 to 89	2	1	2.864	3.059	13,733	14,668	42,134
Total	127	93					2,029,631

ALL RETIREES AND SPOUSES - MEDICARE ELIGIBLE (non-GIC)

Age Bracket	Number of Females	Number of Males	Female Aging Factor	Male Aging Factor	Aged (F) Average Claims	Aged (M) Average Claims	Age Related Claims
65 to 69	78	67	2.168	2.316	4,190	4,190	607,550
70 to 74	62	47	2.396	2.557	4,190	4,190	456,710
75 to 79	25	30	2.593	2.769	4,190	4,190	230,450
80 to 84	16	15	2.724	2.910	4,190	4,190	129,890
85 to 89	16	3	2.864	3.059	4,190	4,190	79,610
90 & Over	4	4	3.010	3.215	4,190	4,190	33,520
Total	201	166					1,537,730

Grand Totals 801 708 9,993,504

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 2013		
	<u>Single</u>	<u>Two-Person</u>	<u>Family</u>
Dental Plan	N/A		N/A
	FY 2013 Expected Per Person Rate		N/A

EXHIBIT A

Financial Statement Disclosure
(As of July 1, 2012)

The GASB Standards for accounting and financial reporting for postemployment benefits other than pensions requires 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: Blue Cross HMO Blue New England v3, Blue Care Elect Preferred (PPO) v3, Blue Cross - Medex 3 and Blue Cross Managed Blue for Seniors
- b. Administrator: Town of Middleborough
- c. Eligibility: An employee shall become eligible to retire under this plan upon meeting attainment of age 55 as an active member and completion of 10 years of service.
- d. Cost Sharing: 20% of premiums for BCBS HMO, 40% of premiums for BCBS PPO, 25% of premiums for Medex and Managed Blue.

2. A DESCRIPTION OF THE 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 Middleborough
- c. Eligibility: Same as above
- d. Cost sharing: 25% of premiums.

EXHIBIT A

Financial Statement Disclosure
(As of July 1, 2012)
(continued)

4. RETIREE MEDICAL, DENTAL AND LIFE INSURANCE CONTRIBUTIONS:

Group	Individual	Family
Medical	20% of premiums for BCBS HMO, 40% of premiums for BCBS PPO, 25% of premiums for Medex and Managed Blue.	20% of premiums for BCBS HMO, 40% of premiums for BCBS PPO, 25% of premiums for Medex and Managed Blue.
Dental	N/A	N/A
Life	25% of premiums	N/A

5. FUNDING POLICY

The contribution requirements of plan members and the Town are established and may be amended through Town ordinances. The Town expects to contribute \$900,000 beyond the pay-as-you-go. For the 2013 fiscal year, total Town premiums plus implicit costs for the retiree medical program are \$2,925,616. The Town is also projected to make a contribution to an OPEB Trust of \$900,000 for the 2013 fiscal year for a total contribution of \$3,825,616 .

EXHIBIT A

Financial Statement Disclosure
(As of July 1, 2012)
(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	\$8,786,495
Interest on net OPEB obligation	\$953,595
Adjustment to annual required contribution	(\$1,325,634)
Amortization of Actuarial (Gains) / Losses	(\$1,283,946)
Annual OPEB cost (expense)	\$7,130,510
Contributions made to pay benefits	\$2,925,616
Contributions made to OPEB Trust	\$900,000
Increase in net OPEB obligation	\$3,304,894
Net OPEB Obligation – beginning of year	\$23,839,865
Net OPEB Obligation – end of year	\$27,144,759

EXHIBIT A

Financial Statement Disclosure

(As of July 1, 2012)

(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 2013 fiscal year and the three preceding years were as follows:

Fiscal Year Ended	Annual OPEB Cost	Expected Employer Payments	Increase in OPEB Obligation
06/30/2010	\$9,871,167	\$2,699,066	\$7,172,101
06/30/2011	\$9,336,411	\$4,736,074	\$4,600,337
06/30/2012	\$8,869,677	\$4,412,008	\$4,457,669
06/30/2013	\$7,130,510	\$3,825,616	\$3,304,894
06/30/2014 (est.)	\$7,356,282	\$4,014,592	\$3,341,690
06/30/2015 (est.)	\$7,517,925	\$4,180,341	\$3,337,584

Schedule of Funding Progress:

Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	UAAL as a % of Covered Payroll
07/01/2009	\$0	\$111,808,514	\$28,889,391	0.0%	\$25,725,874	434.62%
07/01/2010	\$0	\$113,009,178	\$24,201,981	0.0%	\$34,689,892	325.77%
07/01/2011	\$0	\$94,436,619	\$94,436,619	0.0%	\$35,557,139	265.59%
07/01/2012	\$4,248,664	\$79,452,680	\$75,204,016	5.4%	N/A	N/A
07/01/2013 (est.)	\$5,318,611	\$82,991,965	\$77,673,354	6.4%	N/A	N/A
07/01/2014 (est.)	\$6,431,355	\$86,157,736	\$79,726,381	7.5%	N/A	N/A

EXHIBIT A

Financial Statement Disclosure
(As of July 1, 2012)
(continued)

Fiscal Year Ending June 30, 2013									
	<u>General Govt</u> <u>Employees and</u> <u>Retirees</u>	<u>Schools Employees</u> <u>and Retirees</u>	<u>Public Safety</u> <u>Employees and</u> <u>Retirees</u>	<u>DPW Employees</u> <u>and Retirees</u>	<u>Water Employees</u> <u>and Retirees</u>	<u>Waste Water</u> <u>Employees and</u> <u>Retirees</u>	<u>Gas & Electric</u> <u>Employees and</u> <u>Retirees</u>	<u>Trash Employees</u> <u>and Retirees</u>	<u>Total</u>
OPEB obligation at beginning of year	5,079,051	14,169,565	2,536,628	408,036	589,941	171,948	728,772	155,924	23,839,865
Annual Required Contribution	1,009,760	5,421,217	1,086,313	146,067	201,582	72,742	754,394	94,420	8,786,495
Interest on Net OPEB Obligation	203,163	566,782	101,465	16,322	23,598	6,878	29,150	6,237	953,595
Adjustment to the ARC	(282,421)	(787,910)	(141,052)	(22,690)	(32,805)	(9,561)	(40,524)	(8,671)	(1,325,634)
Amortization of Actuarial (Gains)/Losses	(258,102)	(719,995)	(128,894)	(20,734)	(29,977)	(8,737)	(109,584)	(7,923)	(1,283,946)
Annual OPEB Cost	672,395	4,480,094	917,832	118,965	162,398	61,322	633,436	84,063	7,130,505
Total Expected Employer Payments	819,529	1,734,870	170,961	53,261	79,786	19,280	937,262	10,667	3,825,616
Increase in OPEB Obligation	(147,134)	2,745,224	746,871	65,704	82,612	42,042	(303,826)	73,396	3,304,889
OPEB obligation at end of year	4,931,917	16,914,789	3,283,499	473,740	672,553	213,990	424,946	229,320	27,144,754
APBO at beginning of year	15,971,776	44,554,473	7,976,195	1,283,030	1,854,998	540,671	6,781,248	490,289	79,452,680

Fiscal Year Ending June 30, 2014									
	<u>General Govt</u> <u>Employees and</u> <u>Retirees</u>	<u>Schools Employees</u> <u>and Retirees</u>	<u>Public Safety</u> <u>Employees and</u> <u>Retirees</u>	<u>DPW Employees</u> <u>and Retirees</u>	<u>Water Employees</u> <u>and Retirees</u>	<u>Waste Water</u> <u>Employees and</u> <u>Retirees</u>	<u>Gas & Electric</u> <u>Employees and</u> <u>Retirees</u>	<u>Trash Employees</u> <u>and Retirees</u>	<u>Total</u>
OPEB obligation at beginning of year	4,931,917	16,914,789	3,283,499	473,740	672,553	213,990	424,946	229,320	27,144,754
Annual Required Contribution	1,020,514	5,478,953	1,097,882	147,623	203,729	73,517	762,428	95,426	8,880,072
Interest on Net OPEB Obligation	231,327	645,354	115,531	18,585	26,869	7,831	33,191	7,102	1,085,790
Adjustment to the ARC	(321,573)	(897,139)	(160,606)	(25,836)	(37,353)	(10,886)	(46,142)	(9,873)	(1,509,408)
Amortization of Actuarial (Gains)/Losses	(236,584)	(605,218)	(105,913)	(17,640)	(25,705)	(7,198)	(95,984)	(5,930)	(1,100,172)
Annual OPEB Cost	693,684	4,621,950	946,894	122,732	167,540	63,264	653,493	86,725	7,356,282
Total Expected Employer Payments	860,013	1,820,568	179,406	55,892	83,727	20,232	983,560	11,194	4,014,592
Increase in OPEB Obligation	(166,329)	2,801,382	767,488	66,840	83,813	43,032	(330,067)	75,531	3,341,690
OPEB obligation at end of year	4,765,588	19,716,171	4,050,987	540,580	756,366	257,022	94,879	304,851	30,486,444
APBO at beginning of year	16,683,252	46,539,189	8,331,501	1,340,184	1,937,630	564,756	7,083,324	512,129	82,991,965

EXHIBIT A

Financial Statement Disclosure

(As of July 1, 2012)

(continued)

7. FUNDED STATUS AND FUNDING PROGRESS

As of July 1, 2012, the most recent valuation date, the plan was 5.35% funded. The actuarial liability for benefits was \$79,452,680, and the actuarial value of assets was \$4,248,664, resulting in an unfunded actuarial accrued liability (UAAL) of \$75,204,016. The covered payroll (annual payroll of active employees covered by the plan) was \$ N/A and the ratio of the UAAL to the covered payroll was N/A.

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 \$97,228,701 or by 22.4% and the corresponding Normal Cost would increase to \$3,966,839 or by 38.1%. 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 \$65,806,280 or by 17.2% and the corresponding Normal Cost would decrease to \$2,148,251 or by 25.2%.

EXHIBIT A

Financial Statement Disclosure
(As of July 1, 2012)
(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: Projected Unit Credit
Investment Rate of Return: 4.00% per annum (previously 4.00%)
Healthcare Trend Rates

<u>Year</u>	<u>Medical</u>	<u>Dental</u>
FY 2008	11.0%	8.0%
FY 2009	10.0%	7.5%
FY 2010	9.0%	7.0%
FY 2011	8.0%	6.5%
FY 2012	7.0%	6.0%
FY 2013	6.0%	5.5%
FY 2014	5.0%	5.0%
FY 2015	5.0%	5.0%

General Inflation Assumption: 2.50% per annum
Annual Compensation Increases: 3.00% per annum
Actuarial Value of Assets: Market Value
Amortization of UAAL: Level dollar amortization over 30 years at the last valuation
Remaining Amortization Period: 26 years at July 1, 2012

EXHIBIT A

Financial Statement Disclosure
(As of July 1, 2012)
(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 at transition was amortized over a 30 year period and a flat dollar amortization of the Unfunded Actuarial Accrued Liability at transition. 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.

Changes in Unfunded Actuarial Liability Since Prior Valuation
--

Expected Unfunded Actuarial Liability

1. Actuarial Accrued Liability at prior valuation date	109,855,739
2. Actuarial Value of Assets at prior valuation date	<u>0</u>
3. Unfunded Actuarial Accrued Liability at prior valuation date [1. - 2.]	109,855,739
4. Normal Cost for prior periods	5,738,004
5. Employer Contributions for prior periods	(9,148,082)
6. Interest to current valuation date	<u>9,113,487</u>
7. Expected Actuarial Accrued Liability [3. + 4. + 5. + 6.]	115,559,148

Actual Unfunded Actuarial Liability

8. Actuarial Accrued Liability at current valuation date	79,452,680
9. Actuarial Value of Assets at current valuation date	<u>4,248,664</u>
10. Unfunded Actuarial Accrued Liability at current valuation date [8. - 9.]	75,204,016

Net Actuarial (Gain) / Loss from Plan Experience [10. - 7.] **(40,355,132)**

11. Unfunded Actuarial Accrued Liability at current valuation date [10.]	75,204,016
12. Remaining Initial Unfunded to be amortized	<u>98,294,121</u>
13. Actuarial (Gain) / Loss to be amortized: [11. - 12.]	(23,090,105)

EXHIBIT A

Financial Statement Disclosure
(As of July 1, 2012)
(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	106,346,087	30	98,294,121	26	5,913,467
July 1, 2012	Cumulative (Gain) / Loss	(23,090,105)	30	(23,090,100)	30	(1,283,946)
July 1, 2012	Adjustment to ARC	(23,839,865)	30	(23,839,865)	30	(1,325,636)
Total				51,364,156		3,303,885

11. Recognition of OPEB trust assets

The State of Massachusetts has recently passed legislation allowing municipal entities to establish a trust for Other Than 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 Middleborough has established an irrevocable trust for the purposes of prefunding liabilities under GASB 45.

EXHIBIT A

Financial Statement Disclosure

(As of July 1, 2012)

(continued)

12. Impact of Section 9A1/2 of M.G.L. Chapter 32B

For employees who retire on or after January 1, 2011 whenever a retired employee or beneficiary receives a healthcare premium contribution from a governmental unit in a case where a portion of the retiree's creditable service is attributable to service in 1 or more other governmental units, the first governmental unit shall be reimbursed in full, in accordance with this paragraph, by the other governmental units for the portion of the premium contributions that corresponds to the percentage of the retiree's creditable service that is attributable to each governmental unit. The other governmental units shall be charged based on their own contribution rate or the contribution rate of the first employer, whichever is lower.

For purposes of the valuation we have not attempted to value the impact of prior governmental service at other entities in the State of Massachusetts for current employees of the Town of Middleborough nor have we attempted to value the impact of prior Town of Middleborough employees currently working at other governmental entities in the State of Massachusetts.

EXHIBIT B

Reconciliation of Plan Participation
(As of July 1, 2012)

ACTIVE EMPLOYEES

	<u>July 1, 2012</u>	<u>July 1, 2010</u>
A. Average Age at Hire	36.59	36.79
B. Average Service	10.27	11.07
C. Average Current Age	46.86	47.86

EXHIBIT C

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

Total Medical, Dental & Life Insurance - pay-as-you-go funding - 4.00% discount rate

Fiscal Year	Total APBO	Normal Cost	Expected Amortization	Interest on Net OPEB Obligation	Adjustment to ARC	Amortization of Actuarial (Gain) / Loss	Expected Annual OPEB Cost	OPEB Obligation as of June 30	Employer Share of Premiums / Claims	Excess Employer Payments (beyond claims)	Plan Assets at Beginning of year	Unfunded Accrued Actuarial Liability ("UAAL")
								23,839,865				
2013	79,452,680	2,873,028	5,913,467	953,595	(1,325,634)	(1,283,946)	7,130,510	27,144,759	2,925,616	900,000	4,248,664	75,204,016
2014	82,991,965	2,966,605	5,913,467	1,085,790	(1,509,408)	(1,100,172)	7,356,282	30,486,449	3,114,592	900,000	5,318,611	77,673,354
2015	86,157,736	2,994,580	5,913,467	1,219,458	(1,695,226)	(914,354)	7,517,925	33,824,033	3,280,341	900,000	6,431,355	79,726,381
2016	89,307,086	3,019,034	5,913,467	1,352,962	(1,880,815)	(728,765)	7,675,883	37,110,867	3,489,049	900,000	7,588,609	81,718,477
2017	92,390,555	3,044,866	5,913,467	1,484,435	(2,063,582)	(545,998)	7,833,188	40,471,224	3,572,831	900,000	8,792,153	83,598,402
2018	95,537,094	3,086,498	5,913,467	1,618,849	(2,250,437)	(359,143)	8,009,234	43,888,255	3,692,203	900,000	10,043,839	85,493,255
2019	98,728,718	3,114,638	5,913,467	1,755,530	(2,440,444)	(169,136)	8,174,055	47,316,635	3,845,675	900,000	11,345,593	87,383,125
2020	101,917,755	3,148,469	5,913,467	1,892,665	(2,631,082)	21,502	8,345,021	50,759,593	4,002,063	900,000	12,699,417	89,218,338
2021	105,106,727	3,176,884	5,913,467	2,030,384	(2,822,531)	212,951	8,511,155	54,192,784	4,177,964	900,000	14,107,394	90,999,333
2022	108,270,053	3,176,970	5,913,467	2,167,711	(3,013,437)	403,857	8,648,568	57,487,257	4,454,095	900,000	15,571,690	92,698,363
2023	111,275,325	3,166,336	5,913,467	2,299,490	(3,196,629)	587,049	8,769,713	60,650,953	4,706,017	900,000	17,094,558	94,180,767
2024	114,125,070	3,202,466	5,913,467	2,426,038	(3,372,549)	762,969	8,932,391	63,769,283	4,914,061	900,000	18,678,340	95,446,730
2025	116,910,014	3,210,194	5,913,467	2,550,772	(3,545,946)	936,366	9,064,853	66,771,773	5,162,363	900,000	20,325,474	96,584,540
2026	119,556,212	3,236,605	5,913,467	2,670,871	(3,712,903)	1,103,323	9,211,363	69,668,116	5,415,020	900,000	22,038,493	97,517,719
2027	122,072,932	3,269,217	5,913,467	2,786,725	(3,873,956)	1,264,376	9,359,829	72,456,723	5,671,222	900,000	23,820,033	98,252,899
2028	124,457,763	3,317,013	5,913,467	2,898,269	(4,029,019)	1,419,439	9,519,169	75,157,558	5,918,334	900,000	25,672,834	98,784,929
2029	126,730,948	3,395,048	5,913,467	3,006,302	(4,179,201)	1,569,621	9,705,237	77,813,790	6,149,005	900,000	27,599,747	99,131,201
2030	128,936,150	3,474,281	5,913,467	3,112,552	(4,326,903)	1,717,323	9,890,720	80,415,792	6,388,718	900,000	29,603,737	99,332,413
2031	131,062,738	3,590,085	5,913,467	3,216,631	(4,471,589)	1,862,009	10,110,603	83,073,773	6,552,622	900,000	31,687,886	99,374,852
2032	133,224,236	3,702,992	5,913,467	3,322,951	(4,619,389)	2,009,809	10,329,830	85,780,710	6,722,893	900,000	33,855,401	99,368,835
2033	135,412,507	3,828,577	5,913,467	3,431,228	(4,769,910)	2,160,330	10,563,692	88,541,432	6,902,970	900,000	36,109,617	99,302,890
2034	137,631,879	3,958,619	5,913,467	3,541,657	(4,923,423)	2,313,843	10,804,163	91,435,594	7,010,001	900,000	38,454,002	99,177,877
2035	139,963,765	4,098,791	5,913,467	3,657,424	(5,084,355)	2,474,775	11,060,102	94,504,441	7,091,255	900,000	40,892,162	99,071,603
2036	142,450,272	4,240,101	5,913,467	3,780,177	(5,255,001)	2,645,421	11,324,165	97,693,842	7,234,764	900,000	43,427,848	99,022,424
2037	145,033,856	4,374,602	5,913,467	3,907,754	(5,432,350)	2,822,770	11,586,243	100,987,464	7,392,621	900,000	46,064,962	98,968,894
2038	147,696,509	4,527,406	5,913,467	4,039,498	(5,615,495)	3,005,915	11,870,791	104,423,131	7,535,124	900,000	48,807,560	98,888,949
2039	150,476,343	4,756,473	0	4,176,925	(5,806,539)	3,196,959	6,323,818	102,205,058	7,641,891	900,000	51,659,862	98,816,481
2040	153,494,562	4,942,403	0	4,088,202	(5,683,201)	3,073,621	6,421,025	99,885,847	7,840,236	900,000	54,626,256	98,868,306
2041	156,620,613	5,168,788	0	3,995,434	(5,554,239)	2,944,659	6,554,642	97,614,168	7,926,321	900,000	57,711,306	98,909,307
2042	160,017,623	5,376,383	0	3,904,567	(5,427,920)	2,818,340	6,671,370	95,264,450	8,121,088	900,000	60,919,758	99,097,865
2043	163,563,835	5,623,433	0	3,810,578	(5,297,262)	5,297,262	9,434,011	95,564,262	8,234,199	900,000	64,256,548	99,307,287
2044	167,391,191	5,858,648	0	3,822,570	(5,313,933)	5,313,933	9,681,218	95,906,196	8,439,284	900,000	67,726,810	99,664,381

EXHIBIT D

Projected Cash Flows (Open Group) - Funded Approach

Total Medical, Dental & Life Insurance - Funding over 30 years at 7.00% discount rate

Fiscal Year	Total APBO	Normal Cost	Expected Amortization	Interest on Net OPEB Obligation	Adjustment to ARC	Amortization of Actuarial (Gain) / Loss	Expected Annual OPEB Cost	OPEB Obligation as of June 30	Employer Share of Premiums / Claims	Excess Employer Payments (beyond claims)	Plan Assets at Beginning of year	Unfunded Accrued Actuarial Liability ("UAAL")
								23,839,865				
2013	53,882,081	1,553,761	7,768,086	1,668,791	(1,795,485)	(3,664,852)	5,530,301	25,584,777	2,925,616	859,773	4,248,664	49,633,417
2014	56,194,001	1,581,552	7,768,086	1,790,935	(1,926,902)	(3,533,435)	5,680,236	27,290,648	3,114,592	859,773	5,405,843	50,788,158
2015	58,487,229	1,607,667	7,768,086	1,910,346	(2,055,379)	(3,404,958)	5,825,762	28,976,296	3,280,341	859,773	6,644,025	51,843,204
2016	60,791,752	1,634,107	7,768,086	2,028,341	(2,182,332)	(3,278,005)	5,970,197	30,597,671	3,489,049	859,773	7,968,880	52,822,872
2017	63,062,388	1,654,997	7,768,086	2,141,837	(2,304,445)	(3,155,892)	6,104,583	32,269,650	3,572,831	859,773	9,386,475	53,675,913
2018	65,424,673	1,688,615	7,768,086	2,258,876	(2,430,369)	(3,029,968)	6,255,240	33,972,914	3,692,203	859,773	10,903,301	54,521,372
2019	67,860,618	1,716,792	7,768,086	2,378,104	(2,558,650)	(2,901,687)	6,402,645	35,670,111	3,845,675	859,773	12,526,305	55,334,313
2020	70,333,083	1,741,273	7,768,086	2,496,908	(2,686,473)	(2,773,864)	6,545,930	37,354,205	4,002,063	859,773	14,262,919	56,070,164
2021	72,837,353	1,761,478	7,768,086	2,614,795	(2,813,310)	(2,647,027)	6,684,022	39,000,490	4,177,964	859,773	16,121,096	56,716,257
2022	75,350,464	1,764,312	7,768,086	2,730,035	(2,937,299)	(2,523,038)	6,802,096	40,488,718	4,454,095	859,773	18,109,346	57,241,118
2023	77,748,999	1,758,286	7,768,086	2,834,211	(3,049,384)	(2,410,953)	6,900,246	41,823,174	4,706,017	859,773	20,236,773	57,512,226
2024	80,037,357	1,771,981	7,768,086	2,927,623	(3,149,887)	(2,310,450)	7,007,353	43,056,693	4,914,061	859,773	22,513,120	57,524,237
2025	82,277,945	1,772,906	7,768,086	3,013,969	(3,242,789)	(2,217,548)	7,094,624	44,129,181	5,162,363	859,773	24,948,811	57,329,134
2026	84,410,725	1,782,511	7,768,086	3,089,043	(3,323,563)	(2,136,774)	7,179,303	45,033,691	5,415,020	859,773	27,555,001	56,855,724
2027	86,432,708	1,791,414	7,768,086	3,152,359	(3,391,685)	(2,068,652)	7,251,522	45,754,218	5,671,222	859,773	30,343,624	56,089,084
2028	88,331,601	1,812,534	7,768,086	3,202,796	(3,445,951)	(2,014,386)	7,323,079	46,299,190	5,918,334	859,773	33,327,451	55,004,150
2029	90,121,799	1,848,678	7,768,086	3,240,944	(3,486,996)	(1,973,341)	7,397,371	46,687,783	6,149,005	859,773	36,520,146	53,601,653
2030	91,829,035	1,886,411	7,768,086	3,268,145	(3,516,262)	(1,944,075)	7,462,305	46,901,597	6,388,718	859,773	39,936,329	51,892,706
2031	93,439,719	1,943,263	7,768,086	3,283,112	(3,532,366)	(1,927,971)	7,534,124	47,023,326	6,552,622	859,773	43,591,645	49,848,074
2032	95,048,505	1,998,891	7,768,086	3,291,633	(3,541,534)	(1,918,803)	7,598,273	47,038,933	6,722,893	859,773	47,502,833	47,545,672
2033	96,647,217	2,062,215	7,768,086	3,292,726	(3,542,709)	(1,917,628)	7,662,690	46,938,880	6,902,970	859,773	51,687,804	44,959,413
2034	98,233,099	2,126,882	7,768,086	3,285,722	(3,535,174)	(1,925,163)	7,720,353	46,789,459	7,010,001	859,773	56,165,723	42,067,376
2035	99,884,516	2,200,391	7,768,086	3,275,262	(3,523,920)	(1,936,417)	7,783,402	46,621,833	7,091,255	859,773	60,957,097	38,927,419
2036	101,643,297	2,272,290	7,768,086	3,263,529	(3,511,295)	(1,949,042)	7,843,568	46,370,864	7,234,764	859,773	66,083,867	35,559,430
2037	103,448,498	2,341,963	7,768,086	3,245,961	(3,492,394)	(1,967,943)	7,895,673	46,014,143	7,392,621	859,773	71,569,511	31,878,987
2038	105,285,718	2,423,282	7,768,086	3,220,990	(3,465,528)	(1,994,809)	7,952,021	45,571,267	7,535,124	859,773	77,439,150	27,846,568
2039	107,186,047	2,538,062	0	3,189,989	(3,432,173)	(2,028,164)	267,714	37,337,317	7,641,891	859,773	83,719,664	23,466,383
2040	109,227,973	2,633,647	0	2,613,613	(2,812,038)	(2,648,299)	(213,077)	28,424,231	7,840,236	859,773	90,439,813	18,788,160
2041	111,302,892	2,751,191	0	1,989,697	(2,140,754)	(3,319,583)	(719,449)	18,918,688	7,926,321	859,773	97,630,373	13,672,519
2042	113,556,719	2,859,439	0	1,324,309	(1,424,850)	(4,035,487)	(1,276,589)	8,661,238	8,121,088	859,773	105,324,272	8,232,447
2043	115,875,726	2,988,495	0	606,287	(652,316)	652,316	3,594,782	3,162,048	8,234,199	859,773	113,556,744	2,318,982
2044	118,374,124	3,110,053	0	221,344	(238,148)	238,148	3,331,397	(1,945,839)	8,439,284	0	122,365,489	(3,991,365)

EXHIBIT E

GLOSSARY

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."

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."

EXHIBIT E

GLOSSARY

(continued)

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.

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.

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.

EXHIBIT E

GLOSSARY

(continued)

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.

Town of Middleborough
GASB 45 Projection of Funding Annual Normal Cost and Impact on Unfunded Obligation

Total Medical, Dental & Life Insurance - Funding Annual Normal Cost - 4.00% discount rate

Fiscal Year	Total APBO	Normal Cost	Employer Share of Premiums / Claims including "implicit cost"	Funding Normal Cost beyond claims	Total Funding Costs	Present Value of Employer Share of Premiums / Claims including "implicit cost"		Present Value of Funding Normal Cost beyond claims	Present Value of Total Funding Costs	Plan Assets at Beginning of year	Unfunded Accrued Actuarial Liability ("UAAL")	Present Value of Unfunded Accrued Actuarial Liability ("UAAL")
						Share of Premiums / Claims including "implicit cost"	Share of Premiums / Claims including "implicit cost"					
2013	79,452,680	2,873,028	2,925,616	(52,588)	2,873,028	2,925,616	(52,588)	2,873,028	4,248,664	75,204,016	75,204,016	
2014	82,991,965	2,966,605	3,114,592	(147,987)	2,966,605	2,994,800	(142,295)	2,846,813	4,366,023	78,625,942	75,601,867	
2015	86,157,736	2,994,580	3,280,341	(285,761)	2,994,580	3,032,860	(264,202)	2,747,099	4,392,677	81,765,059	75,596,393	
2016	89,307,086	3,019,034	3,489,049	(470,015)	3,019,034	3,101,752	(417,842)	2,631,737	4,282,623	85,024,463	75,586,438	
2017	92,390,555	3,044,866	3,572,831	(527,965)	3,044,866	3,054,071	(451,307)	2,526,106	3,983,913	88,406,642	75,570,368	
2018	95,537,094	3,086,498	3,692,203	(605,705)	3,086,498	3,034,722	(497,845)	2,429,017	3,615,305	91,921,789	75,553,010	
2019	98,728,718	3,114,638	3,845,675	(731,037)	3,114,638	3,039,293	(577,749)	2,308,256	3,154,212	95,574,506	75,533,920	
2020	101,917,755	3,148,469	4,002,063	(853,594)	3,148,469	3,041,239	(648,661)	2,187,645	2,549,343	99,368,412	75,511,826	
2021	105,106,727	3,176,884	4,177,964	(1,001,080)	3,176,884	3,052,797	(731,479)	2,051,717	1,797,723	103,309,004	75,486,877	
2022	108,270,053	3,176,970	4,454,095	(1,277,125)	3,176,970	3,129,388	(897,291)	1,852,263	868,552	107,401,501	75,458,870	
2023	111,275,325	3,166,336	4,706,017	(1,539,681)	3,166,336	3,179,216	(1,040,153)	1,639,535	(373,831)	111,649,156	75,426,169	
2024	114,125,070	3,202,466	4,914,061	(1,711,595)	3,202,466	3,192,080	(1,111,819)	1,480,485	(1,928,465)	116,053,535	75,386,163	
2025	116,910,014	3,210,194	5,162,363	(1,952,169)	3,210,194	3,224,397	(1,219,319)	1,272,228	(3,717,199)	120,627,213	75,343,401	
2026	119,556,212	3,236,605	5,415,020	(2,178,415)	3,236,605	3,252,121	(1,308,300)	1,073,706	(5,818,056)	125,374,268	75,296,536	
2027	122,072,932	3,269,217	5,671,222	(2,402,005)	3,269,217	3,274,989	(1,387,098)	872,984	(8,229,193)	130,302,125	75,246,230	
2028	124,457,763	3,317,013	5,918,334	(2,601,321)	3,317,013	3,286,241	(1,444,421)	684,920	(10,960,366)	135,418,129	75,192,880	
2029	126,730,948	3,395,048	6,149,005	(2,753,957)	3,395,048	3,283,004	(1,470,360)	529,047	(14,000,102)	140,731,050	75,137,458	
2030	128,936,150	3,474,281	6,388,718	(2,914,437)	3,474,281	3,279,797	(1,496,194)	365,360	(17,314,063)	146,250,213	75,080,947	
2031	131,062,738	3,590,085	6,552,622	(2,962,537)	3,590,085	3,234,558	(1,462,392)	272,021	(20,921,063)	151,983,801	75,023,478	
2032	133,224,236	3,702,992	6,722,893	(3,019,901)	3,702,992	3,190,970	(1,433,373)	171,069	(24,720,443)	157,944,679	74,967,245	
2033	135,412,507	3,828,577	6,902,970	(3,074,393)	3,828,577	3,150,425	(1,403,113)	76,032	(28,729,162)	164,141,669	74,912,115	
2034	137,631,879	3,958,619	7,010,001	(3,051,382)	3,958,619	3,076,224	(1,339,049)	24,842	(32,952,721)	170,584,600	74,858,254	
2035	139,963,765	4,098,791	7,091,255	(2,992,464)	4,098,791	2,992,193	(1,262,686)	(271)	(37,322,212)	177,285,977	74,806,773	
2036	142,450,272	4,240,101	7,234,764	(2,994,663)	4,240,101	2,935,334	(1,215,014)	(59,329)	(41,807,564)	184,257,836	74,758,256	
2037	145,033,856	4,374,602	7,392,621	(3,018,019)	4,374,602	2,884,020	(1,177,394)	(133,999)	(46,474,530)	191,508,386	74,711,534	
2038	147,696,509	4,527,406	7,535,124	(3,007,718)	4,527,406	2,826,552	(1,128,246)	(181,166)	(51,351,530)	199,048,039	74,666,264	
2039	150,476,343	4,756,473	7,641,891	(2,885,418)	4,756,473	2,756,348	(1,040,739)	(129,070)	(56,413,309)	206,889,652	74,622,870	
2040	153,494,562	4,942,403	7,840,236	(2,897,833)	4,942,403	2,719,124	(1,005,017)	(178,709)	(61,555,259)	215,049,821	74,582,841	
2041	156,620,613	5,168,788	7,926,321	(2,757,533)	5,168,788	2,643,249	(919,575)	(114,284)	(66,915,302)	223,535,915	74,544,192	
2042	160,017,623	5,376,383	8,121,088	(2,744,705)	5,376,383	2,604,038	(880,094)	(140,667)	(72,349,447)	232,367,070	74,508,830	
2043	163,563,835	5,623,433	8,234,199	(2,610,766)	5,623,433	2,538,757	(804,948)	(72,009)	(77,988,130)	241,551,965	74,474,980	
2044	167,391,191	5,858,648	8,439,284	(2,580,636)	5,858,648	2,501,912	(765,056)	(78,724)	(83,718,421)	251,109,612	74,444,020	
2045	171,402,977	6,117,541	8,628,277	(2,510,736)	6,117,541	2,459,559	(715,705)	(51,177)	(89,647,794)	261,050,771	74,414,595	
2046	175,648,020	6,395,188	8,784,207	(2,389,019)	6,395,188	2,407,700	(654,816)	18,681	(95,744,442)	271,392,462	74,387,092	
2047	180,189,359	6,679,164	8,965,342	(2,286,178)	6,679,164	2,362,835	(602,527)	76,657	(101,963,239)	282,152,598	74,361,907	
2048	185,019,309	6,995,811	9,110,634	(2,114,823)	6,995,811	2,308,776	(535,929)	193,953	(108,327,947)	293,347,256	74,338,733	
2049	190,220,684	7,352,554	9,285,889	(1,933,335)	7,352,554	2,262,681	(471,093)	329,346	(114,775,888)	304,996,572	74,318,125	
2050	195,818,844	7,724,594	9,474,602	(1,750,008)	7,724,594	2,219,869	(410,021)	469,861	(121,300,259)	317,119,103	74,300,006	
2051	201,831,589	8,120,045	9,519,831	(1,399,786)	8,120,045	2,144,679	(315,351)	744,893	(127,902,277)	329,733,866	74,284,236	
2052	208,449,074	8,518,215	9,706,905	(1,188,690)	8,518,215	2,102,716	(257,495)	914,026	(134,418,154)	342,867,228	74,272,107	

Town of Middleborough
GASB 45 Projection of Employer Share of Retiree Health, Dental & Life Insurance Costs

Total Medical, Dental & Life Insurance - pay-as-you-go funding

Fiscal Year	Number of Retirees, Spouses & Surviving Spouses	Total Accumulated Postretirement Benefit Obligation ("APBO")	Present Value of Total Accumulated Postretirement Benefit Obligation ("APBO")	Employer Share of Premiums / Claims including "implicit cost"	Present Value of Employer Share of Premiums / Claims including "implicit cost"
2013	585	79,452,680	79,452,680	2,925,616	2,925,616
2014	599	82,991,965	79,799,966	3,114,592	2,994,800
2015	615	86,157,736	79,657,670	3,280,341	3,032,860
2016	627	89,307,086	79,393,674	3,489,049	3,101,752
2017	636	92,390,555	78,975,834	3,572,831	3,054,071
2018	647	95,537,094	78,524,527	3,692,203	3,034,722
2019	654	98,728,718	78,026,740	3,845,675	3,039,293
2020	659	101,917,755	77,449,118	4,002,063	3,041,239
2021	667	105,106,727	76,800,456	4,177,964	3,052,797
2022	673	108,270,053	76,069,103	4,454,095	3,129,388
2023	680	111,275,325	75,173,622	4,706,017	3,179,216
2024	686	114,125,070	74,133,469	4,914,061	3,192,080
2025	690	116,910,014	73,021,650	5,162,363	3,224,397
2026	693	119,556,212	71,802,363	5,415,020	3,252,121
2027	693	122,072,932	70,494,077	5,671,222	3,274,989
2028	695	124,457,763	69,106,978	5,918,334	3,286,241
2029	692	126,730,948	67,662,689	6,149,005	3,283,004
2030	688	128,936,150	66,192,370	6,388,718	3,279,797
2031	682	131,062,738	64,696,253	6,552,622	3,234,558
2032	674	133,224,236	63,233,874	6,722,893	3,190,970
2033	666	135,412,507	61,800,501	6,902,970	3,150,425
2034	655	137,631,879	60,397,493	7,010,001	3,076,224
2035	644	139,963,765	59,058,465	7,091,255	2,992,193
2036	630	142,450,272	57,795,827	7,234,764	2,935,334
2037	617	145,033,856	56,580,822	7,392,621	2,884,020
2038	603	147,696,509	55,403,442	7,535,124	2,826,552
2039	587	150,476,343	54,275,197	7,641,891	2,756,348
2040	572	153,494,562	53,234,458	7,840,236	2,719,124
2041	557	156,620,613	52,229,446	7,926,321	2,643,249
2042	541	160,017,623	51,309,877	8,121,088	2,604,038
2043	526	163,563,835	50,429,784	8,234,199	2,538,757
2044	511	167,391,191	49,624,836	8,439,284	2,501,912
2045	497	171,402,977	48,859,780	8,628,277	2,459,559
2046	482	175,648,020	48,144,099	8,784,207	2,407,700
2047	469	180,189,359	47,489,282	8,965,342	2,362,835
2048	456	185,019,309	46,886,755	9,110,634	2,308,776
2049	442	190,220,684	46,350,831	9,285,889	2,262,681
2050	431	195,818,844	45,879,738	9,474,602	2,219,869
2051	420	201,831,589	45,469,716	9,519,831	2,144,679
2052	408	208,449,074	45,154,365	9,706,905	2,102,716

October 31, 2013

Personal and Confidential

Ms. Judy M. MacDonald
Treasurer & Collector
Town of Middleborough
20 Centre Street, 3rd Floor
Middleborough, MA 02346

Re: GASB 45 - Summary of Results

Dear Ms. MacDonald:

The purpose of this letter is to summarize our actuarial valuation of the Town of Middleborough Other Postemployment Benefits Plan (the "Plan") for the fiscal year ending June 30, 2013 in accordance with Statement No. 45 of the Governmental Accounting Standards Board ("GASB 45").

What caused plan liabilities to change from FY 11 to FY 13?

Plan experience was far better than expected. This is mainly due to a reduction in the Medex III premiums by nearly 28% vs. an expected increase of 13%. The actuarial experience gain is amortized into the annual OPEB costs over a 30-year period. The net impact of the plan experience is a decrease in the annual OPEB cost.

What is GASB 45 & why does it matter?

GASB 45 was issued to provide a more comprehensive and useful look at the costs and financial obligations that governments incur when they provide postemployment benefits other than pensions (“OPEB”). These benefits often include healthcare, dental insurance and life insurance. Prior to the implementation of GASB 45, most municipal entities accounted for these benefits on a “pay-as-you-go” basis (the actual cash costs of the benefits in a reporting period were charged to the financial statement with no accrual for future costs). It is hoped that GASB 45 will result in more informed policy decisions as all parties will have a better idea as to costs and will further result in a more accurate financial picture of the total costs of services provided by municipal entities by recognizing costs over the working lifetime of employees rather than after their employment has ceased.

Why now & why us? Has Corporate America faced this?

GASB 45 is similar to Statement No. 106 of the Financial Accounting Standards Board (“FASB 106”) which was issued in 1989 and was effective in 1992 for private employers. With the issuance of FASB 106, many plan sponsors either curtailed or eliminated their retiree welfare plans. As a municipal entity, you have seen the effects of these corporate decisions as the lack of retiree welfare programs among private employers yields additional spousal and dependent coverage in your plans which ultimately increases your costs. GASB took many years to finally issue GASB 45 and tried to balance the unique nature of municipalities and the desire for more useful financial statements. The final product is far more flexible than FASB 106 to reflect the concerns of municipal entities.

What is the value of benefits accrued to date? How much is accrued each year?

As of July 1, 2012, the Plan had accrued benefits (medical, dental & life insurance) of approximately \$79,452,680. The Plan has a “normal cost” or benefits accruing during the year of approximately \$2,873,028. Additionally, the Plan must amortize the accrued benefits in place at adoption of GASB 45 over a period of not more than 30 years. Given a 30 year amortization period for the obligation at adoption, the continuing annual amortization payment is \$5,913,467. In combination with the normal cost and interest to the end of the plan year and required adjustments to the ARC, the OPEB expense is \$7,130,510 which exceeds the expected pay-as-you-go cost of \$2,925,616 plus contributions to an OPEB Trust of \$900,000 by \$3,304,894. A key issue to remember is that this is a “non-cash” charge and does not require pre-funding like a pension plan.

What are the key assumptions used to estimate a \$79,452,680 liability?

While there are a number of assumptions used to estimate plan costs and liabilities, the most important are future increases in medical care costs and the likelihood of participants retiring when they are eligible. Unlike a pension plan where a participant receives a reduced benefit for early retirement, a participant in a retiree welfare plan will actually receive a higher benefit by retiring early (more years of benefits to be received plus more years before Medicare). A key issue to keep in mind is that participant behavior (as far as retirement is concerned) is affected by many factors including the economy, personal health and work satisfaction.

For future medical care costs, we have assumed that such costs will increase at 6.0% for FY 2013, increasing by 5.0% for FY 2014, grading down to FY 2014 per year by 5.0%. If costs increase at rates higher than assumed, plan liabilities will escalate while costs less than those assumed will yield lower liabilities in the future.

We have an “unfunded liability”. How do we fund it? Can we fund it?

The Plan currently has an unfunded liability of approximately \$75,204,016 and this amount is expected to grow over time in the foreseeable future. While some municipal entities across America have chosen to fund this liability, over 95% are not currently dedicating funding to it. In order for funds to be considered as “plan assets”, they must be placed in an irrevocable trust for this purpose. The State of Massachusetts has recently passed legislation allowing municipal entities to establish a trust for Other Than 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 Middleborough has established an irrevocable trust for the purposes of prefunding liabilities under GASB 45.

How do we solve the “problem”? What can be done?

While you are more limited than Corporate America due to various statutory restrictions, you do have some options available to you to manage plan liabilities and “pre-fund” the liability.

Section 18 – as the Plan is already integrated with Medicare, there is no ability to reduce costs via that route.

Pre-Funding – if you were to elect to “pre-fund” the OPEB expenses each year by contributing the entire Annual Required Contribution, you would be allowed to use a long-term interest rate based on your underlying investment policy. Assuming a balanced portfolio (50% equities & 50% fixed-income), you could discount plan liabilities at approximately 7.0% vs. the 4.0% used in our analysis. The impact of such funding would be to reduce disclosed plan liabilities to \$53,882,081 and the annual OPEB Cost to \$5,530,301. This would require additional funding of \$859,773 in the first year which will increase by 0.00% per year until the plan reaches full funding. While this does not impact the ultimate cost of the plan, it would reduce disclosed liabilities and expenses.

Change in cost sharing – You are currently charging retirees 20% to 50% of premiums for their contribution. Under Massachusetts law, the maximum allowable contribution rate is 50% so you have the ability to increase retiree premiums. Beyond that, changing the underlying plan design is currently your only other alternative.

Blue Cross Blue Shield new design – We recently worked with Blue Cross Blue Shield of Massachusetts to assist them in designing a new product to address the OPEB obligations of municipalities. Basically, under this product the current benefits are slightly reduced for actives & retirees, Medicare benefits are “leveled” to be consistent with those prior to age 65, Flexible Spending Accounts are created for active employees and a VEBA is created to “pre-fund” the retiree liability. This approach creates current cost savings for the Town, long-term accounting benefits due to a higher discount rate, more security for employees/retirees as assets are available to pay future benefits and taxpayers “equity” in that today’s taxpayers pay today’s bills.

How does GASB 45 impact our bond ratings or ability to raise cash?

In the short run, GASB 45 is unlikely to have any material impact on bond ratings. While S&P, Moody’s & Fitch have all stated that they will reflect these figures in their ratings, the comparative financials to other municipal entities will be similar as they will have all adopted GASB 45. Over time, the outliers (those with very modest or very severe GASB 45 liabilities) are likely to see some benefit or harm to their ratings or financing operations.

Healthcare Reform in the United States – how does this impact our plan?

As noted earlier, the ultimate cost of the Plan is the premiums and benefits paid from the Plan less the contributions paid by retirees and their dependents. While you can slightly change participant contributions, the true costs of the Plan are the underlying costs of benefits and premiums. As such, if healthcare reform is successful in addressing the underlying cost issue, your Plan will benefit.

If you or your auditors have questions on this, feel free to give us a call.

Sincerely,

Parker E. Elmore, A.S.A., E.A., M.A.A.A.
President & CEO