



**SHREWSBURY
POST RETIREMENT BENEFITS PLAN**

Actuarial Valuation Report
June 30, 2016

TABLE OF CONTENTS

<u>Section</u>	<u>Item</u>	<u>Page</u>
SECTION I	OVERVIEW	1
SECTION II	REQUIRED INFORMATION	3
SECTION III	MEMBERSHIP DATA AND DEPARTMENT RESULTS.....	4
SECTION IV	REQUIRED SUPPLEMENTARY INFORMATION	6
SECTION V	NET OPEB OBLIGATION.....	7
SECTION VI	SCHEDULE OF EMPLOYER CONTRIBUTIONS.....	9
SCHEDULE A	ACTUARIAL ASSUMPTIONS AND METHODS.....	16
SCHEDULE B	SUMMARY OF PROGRAM PROVISIONS	21
SCHEDULE C	CONSIDERATION OF HEALTH CARE REFORM.....	22
SCHEDULE D	GLOSSARY OF TERMS	23

SECTION I - OVERVIEW

The Town of Shrewsbury has engaged Sherman Actuarial Services to prepare an actuarial valuation of their post-retirement benefits program as of June 30, 2016. This valuation was performed using employee census data, enrollment data, claims, premiums, participant contributions and plan provision information provided by personnel of the Town of Shrewsbury. SAS did not audit these data, although they were reviewed for reasonableness. The results of the valuation are dependent on the accuracy of the data.

The purposes of the valuation are to analyze the current funded position of the Town's post-retirement benefits program, determine the level of contributions necessary to assure sound funding and provide reporting and disclosure information for financial statements, governmental agencies and other interested parties. This valuation report contains information required by the Government Accounting Standards Board's Statements Nos. 43 and 45, respectively entitled "Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans" and "Accounting and Financial Reporting by Employers for Post-employment Benefits Other Than Pensions." Liabilities have been determined based on a 4% discount rate. According to GASB principles, if the benefits are not pre-funded, the rate earned by the General Asset Account must be used. To estimate that impact the effect of fully prefunding the obligation, we have used an alternative discount rate of 7.5%. Since they are on a prefunding approach, the Light and Cable disclosures and forecasts are based on a 7.5% discount rate

Section II provides a summary of the principal valuation results. Section V provides a projection of funding amounts.

This report is based on the participant data as of June 30, 2016, the plan provisions and the health plans offered as of July 1, 2016.

While the actuary believes that the assumptions are reasonable for financial reporting purposes, it should be understood that there is a range of assumptions that could be deemed reasonable that would yield different results. Moreover, while the actuary considers the assumption set to be reasonable based on prior plan experience, it should be understood that future plan experience may differ considerably from what has been assumed.

The report was prepared under the supervision of Daniel Sherman, an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries, who takes responsibility for the overall appropriateness of the analysis, assumptions and results. Daniel Sherman is deemed to meet the General Qualification Standard and the basic education and experience requirement in the pension area. Based on over twenty years of performing FAS 106 valuations of similar complexity, Mr. Sherman is qualified by experience in retiree medical valuation. Daniel Sherman has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

The costs and actuarial exhibits presented in this report have been prepared in accordance with Generally Accepted Accounting Practices and the requirements of GASB 45. I am available to answer questions about this report.

Respectfully Submitted,

SHERMAN ACTUARIAL SERVICES, LLC



December 6, 2016

Daniel Sherman, ASA, MAAA

Date

CEO

SECTION II – REQUIRED INFORMATION

	Town Pay-as-you-go 4.0%	Town Full prefunding 7.5%	Light & Cable Full prefunding 7.5%
a) Actuarial valuation date	June 30, 2016	June 30, 2016	June 30, 2016
b) Actuarial Value of Assets	\$ 808,727	\$ 808,727	\$ 2,019,536
c) Actuarial Accrued Liability			
Active participants	\$ 48,702,088	\$ 23,492,934	\$ 1,936,666
Retired participants	27,882,557	19,998,298	1,581,850
Total AAL	\$ 76,584,645	\$ 43,491,232	\$ 3,518,516
d) Unfunded Actuarial Liability "UAL" [c - b]	\$ 75,775,918	\$ 42,682,505	\$ 1,498,980
e) Funded ratio [b / c]	1.1%	1.9%	57.4%
f) Annual covered payroll	\$ 65,004,420	\$ 65,004,420	\$ 4,777,924
g) UAL as percentage of covered payroll	116.6%	65.7%	31.4%
h) Normal Cost for fiscal year 2016	\$ 3,896,465	\$ 1,607,315	\$ 71,977
i) Amortization of UAL for fiscal year 2016 *	\$ 2,525,864	\$ 2,207,441	\$ 209,783
j) Interest to the middle of the fiscal year	\$ 0	\$ 0	\$ 0
k) Annual Required Contribution "ARC" for fiscal year 2016 [h + i + j]	\$ 6,422,329	\$ 3,814,756	\$ 281,760
l) Expected claims cost	\$ 4,805,780	\$ 4,805,780	\$ 456,863

* 30-year amortization, increasing 4% per year for the Town
8-year amortization, increasing 4% per year for Light and Cable

SECTION III - MEMBERSHIP DATA AND MEDICAL PREMIUM

Monthly Premiums effective June 30, 2016

Health benefits are available to employees and retirees through a number of plans.

Plan	Gross Premium	Cost Sharing
BCBS Options (individual)	\$885	60/40
BCBS Options (family)	\$2,374	60/40
Fallon Senior Plan (individual)	\$310	74/26
Fallon Directcare (individual)	\$596	77/23
Fallon Directcare (family)	\$1,600	77/23
Fallon Selectcare (individual)	\$639	72/28
Fallon Selectcare (family)	\$1,721	72/28
Harvard Pilgram EPO (individual)	\$799	60/40
Harvard Pilgram EPO (family)	\$2,081	60/40
Harvard Pilgram Medicare Enhanced (individual)	\$342	50/50
Harvard Pilgram PPO (individual)	\$2,336	50/50
Harvard Pilgram PPO (family)	\$5,187	50/50
BCBS Managed Blue for Seniors (individual)	\$313	60/40
Medex 2 (individual)	\$360	50/50
Tufts Medicare Plus (individual)	\$321	60/40
Tufts Navigator (individual)	\$841	60/40
Tufts Navigator (family)	\$2,203	60/40
Tufts Medicare Preferred (individual)	\$267	74/26

Cost Sharing for surviving spouses is 50/50.

SECTION III - MEMBERSHIP DATA AND DEPARTMENT RESULTS

Number of Employees	Public Buildings	Sewer	Water	Electric	CATV	School	All Others	Total
Actives	20	5.5	10.5	36	30	739	171	1,012
Retired	5	1.0	16.0	34	9	395	188	648
Total	25	6.5	26.5	70	39	1,134	359	1,660
Accrued Liability	@ 4.0%							
Active	796,061	267,663	900,612	2,308,304	1,285,945	36,852,667	9,885,085	52,296,337
Retired	145,909	21,311	625,841	1,534,856	643,355	17,873,232	9,216,264	30,060,768
Total	941,970	288,974	1,526,453	3,843,160	1,929,300	54,725,899	19,101,349	82,357,105
Assets	8,682	19,501	100,111	1,217,402	802,134	504,384	176,049	2,828,262
Unfunded Accrued Liability	933,288	269,473	1,426,342	2,625,758	1,127,166	54,221,515	18,925,300	79,528,843
Annual Required Contribution								
Normal Cost with interest	44,002	12,877	3,164	93,558	81,237	3,329,636	506,786	4,071,260
Amortization of UAL with interest	31,110	8,982	47,545	262,576	112,717	1,807,384	630,843	2,901,157
Total - FYE16	75,112	21,859	50,709	356,134	193,954	5,137,020	1,137,629	6,972,417
Expected Claims Costs	67,006	18,160	145,823	321,540	125,843	3,060,136	1,524,134	5,262,643
Accrued Liability	@ 7.5%							
Active	457,720	153,120	527,868	1,298,997	637,669	17,263,666	5,090,560	25,429,600
Retired	109,162	18,636	456,325	1,118,167	463,683	12,833,965	6,580,210	21,580,148
Total	566,882	171,756	984,193	2,417,164	1,101,352	30,097,631	11,670,770	47,009,748
Assets	8,682	19,501	100,111	1,217,402	802,134	504,384	176,049	2,828,262
Unfunded Accrued Liability	558,200	152,255	884,082	1,199,762	299,218	29,593,247	11,494,721	44,181,486
Annual Required Contribution								
Normal Cost with interest	19,187	6,271	993	39,851	32,126	1,373,204	207,660	1,679,292
Amortization of UAL with interest	28,869	7,874	45,723	167,907	41,876	1,530,494	594,480	2,284,965
Total - FYE16	48,056	14,145	46,716	207,758	74,002	2,903,698	802,140	3,964,257
Expected Claims Costs	15,999	4,922	60,565	158,411	41,812	1,334,512	687,917	2,304,138

SECTION IV – REQUIRED SUPPLEMENTARY INFORMATION**TOWN - SCHEDULE OF FUNDING PROGRESS - 4.0%**

Actuarial Valuation Date	(a) Actuarial Value of Assets	(b) Actuarial Accrued Liability (AAL)	(b) - (a) Unfunded AAL (UAL)	(a) / (b) Funded Ratio	Covered Payroll	[(b)-(a)] / (c) UAL as Percentage of Covered Payroll
July 1, 2007	0	72,976,092	72,976,092	0.00%	52,977,722	137.7%
June 30, 2010	0	89,913,036	89,913,036	0.00%	58,901,418	152.7%
June 30, 2012	187,844	68,074,406	67,886,562	0.28%	54,804,649	123.9%
June 30, 2014	418,528	68,980,941	68,562,413	0.61%	52,875,483	129.7%
June 30, 2016	808,727	76,584,645	75,775,918	1.06%	63,998,692	116.6%

LIGHT - SCHEDULE OF FUNDING PROGRESS - 7.5%

Actuarial Valuation Date	(a) Actuarial Value of Assets	(b) Actuarial Accrued Liability (AAL)	(b) - (a) Unfunded AAL (UAL)	(a) / (b) Funded Ratio	Covered Payroll	[(b)-(a)] / (c) UAL as Percentage of Covered Payroll
December 31, 2012	993,694	2,367,001	1,373,307	41.98%	2,669,154	51.5%
December 31, 2014	1,098,438	2,075,537	977,099	52.92%	2,736,400	35.7%
December 31, 2016	1,217,402	2,417,164	1,199,762	50.36%	3,155,795	38.0%

CABLE - SCHEDULE OF FUNDING PROGRESS - 7.5%

Actuarial Valuation Date	(a) Actuarial Value of Assets	(b) Actuarial Accrued Liability (AAL)	(b) - (a) Unfunded AAL (UAL)	(a) / (b) Funded Ratio	Covered Payroll	[(b)-(a)] / (c) UAL as Percentage of Covered Payroll
December 31, 2012	367,986	956,086	588,100	38.49%	2,140,743	27.5%
December 31, 2014	570,613	976,714	406,101	58.42%	2,041,524	19.9%
December 31, 2016	802,134	1,101,352	299,218	72.83%	2,135,054	14.0%

Prior to 2012, the discount rate was 3.5%, 8% for 2012 and 2014, 7.5% for 2016

SECTION V – NET OPEB OBLIGATION

GASB Statement No. 45 requires the development of Annual OPEB Cost and Net OPEB Obligation (NOO). This development is shown in the following table.

Town

Year Ending June 30	Annual Required Contribution	Interest on NOO	Amortization of NOO	Annual OPEB Cost (1)+(2)-(3)	Contribution	Change in NOO (4)-(5)	NOO Balance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011	7,273,809	366,522	302,591	7,209,878	1,747,999	5,461,879	15,933,937
2012	6,282,041	557,688	460,413	6,379,316	2,157,560	4,221,756	20,155,693
2013	6,553,481	806,228	671,856	6,687,853	1,786,301	4,901,552	25,057,246
2014	6,125,495	1,002,290	835,242	6,292,543	2,171,480	4,121,063	29,178,309
2015	6,389,773	1,167,132	972,610	6,584,295	2,285,135	4,299,161	33,477,469
2016	6,400,470	1,339,099	1,115,916	6,623,653	2,041,024	4,582,629	38,060,098
2017	6,675,907	1,522,404	1,268,670	6,929,641	2,162,336	4,767,304	42,827,403

Sewer

Year Ending June 30	Annual Required Contribution	Interest on NOO	Amortization of NOO	Annual OPEB Cost (1)+(2)-(3)	Contribution	Change in NOO (4)-(5)	NOO Balance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011	28,509	1,337	1,104	28,276	8,652	19,624	57,829
2012	23,554	2,024	1,671	23,907	4,284	19,623	77,452
2013	24,552	3,098	2,582	25,068	2,517	22,551	100,002
2014	23,348	4,000	3,333	24,015	6,298	17,717	117,719
2015	24,340	4,709	3,924	25,125	8,682	16,444	134,163
2016	21,859	5,367	4,472	22,754	14,544	8,210	142,373
2017	22,798	5,695	4,746	23,747	18,188	5,558	147,931

Light

Year Ending December 31	Annual Required Contribution	Interest on NOO	Amortization of NOO	Annual OPEB Cost (1)+(2)-(3)	Contribution	Change in NOO (4)-(5)	NOO Balance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011	194,643	8,053	6,648	193,238	852,074	(658,836)	(428,755)
2012	175,737	(15,006)	(12,389)	173,120	350,053	(176,933)	(605,688)
2013	182,947	(48,455)	(61,594)	196,086	339,811	(143,725)	(749,413)
2014	145,937	(59,953)	(88,294)	174,278	124,448	49,830	(699,583)
2015	151,929	(55,967)	(89,970)	185,932	142,181	43,751	(655,833)
2016	207,758	(52,467)	(93,207)	248,498	236,685	11,813	(644,020)
2017	216,267	(48,302)	(101,385)	269,350	239,530	29,820	(614,200)

SECTION V – NET OPEB OBLIGATION

Cable

Year Ending December 31	Annual Required Contribution	Interest on NOO	Amortization of NOO	Annual OPEB Cost (1)+(2)-(3)	Contribution	Change in NOO (4)-(5)	NOO Balance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011	194,008	19,189	15,842	190,661	259,445	(68,784)	479,475
2012	101,744	16,782	13,854	104,672	151,214	(46,542)	432,933
2013	106,023	34,635	44,026	96,632	216,614	(119,982)	312,951
2014	85,894	25,036	36,871	74,059	128,602	(54,543)	258,408
2015	89,520	20,673	33,233	76,960	138,371	(61,411)	196,997
2016	74,002	15,760	27,997	61,765	182,517	(120,752)	76,246
2017	77,123	5,718	12,003	70,838	183,350	(112,512)	(36,266)

Total

Year Ending	Annual Required Contribution	Interest on NOO	Amortization of NOO	Annual OPEB Cost (1)+(2)-(3)	Contribution	Change in NOO (4)-(5)	NOO Balance
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
2011	7,690,969	395,101	326,185	7,622,053	2,868,170	4,753,883	16,042,486
2012	6,583,076	561,488	463,549	6,681,015	2,663,111	4,017,904	20,060,390
2013	6,867,002	795,506	656,870	7,005,638	2,345,243	4,660,395	24,720,785
2014	6,380,674	971,373	787,152	6,564,895	2,430,828	4,134,067	28,854,853
2015	6,655,563	1,136,547	919,797	6,872,313	2,574,368	4,297,944	33,152,797
2016	6,704,089	1,307,759	1,055,178	6,956,670	2,474,770	4,481,900	37,634,697
2017	6,992,094	1,485,515	1,184,034	7,293,575	2,603,404	4,690,171	42,324,868

SECTION VI – SCHEDULE OF EMPLOYER CONTRIBUTIONS

The Government Accounting Standards Board's Statement No. 45 "Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions" outlines various requirements of a funding schedule that will amortize the unfunded actuarial liability and cover normal costs. Amortization of the unfunded actuarial liability is to be based on a schedule that extends no longer than 30 years. The contribution towards the amortization of the unfunded actuarial liability may be made in level payments or in payments increasing at the same rate as salary increases.

In the amortization schedules shown on the following pages, the amortization of the unfunded accrued liability is increasing at 4.0% for 30 years. The normal cost is expected to increase at the same rate as the assumed ultimate health care trend rate. The contributions were computed assuming that the contribution is paid at the end of the fiscal year. Projected benefit payments/employer contributions reflect only the benefit for those individuals now employed or retired, not any future entrants. .

Paragraph 12 of GASB 45 stipulates that valuations must be performed at least biennially. The following projections are intended only to illustrate long-term implications of Full Prefunding versus Partial Prefunding.

SECTION VI – SCHEDULE OF EMPLOYER CONTRIBUTIONS

TOWN - 4%

Fiscal Year	Amortization			
<u>Ending In</u>	<u>Normal Cost</u>	<u>of UAL</u>	<u>ARC</u>	<u>Pay-as-You-Go</u>
2016	3,896,465	2,525,864	6,422,329	1,865,624
2017	4,052,324	2,751,999	6,804,323	1,958,868
2018	4,214,417	2,937,434	7,151,851	2,056,773
2019	4,382,994	3,132,623	7,515,617	2,265,372
2020	4,558,314	3,334,348	7,892,662	2,318,038
2021	4,740,647	3,548,514	8,289,161	2,503,006
2022	4,930,273	3,771,281	8,701,554	2,726,113
2023	5,127,484	4,001,928	9,129,412	2,934,710
2024	5,332,583	4,241,541	9,574,124	3,115,103
2025	5,545,886	4,491,737	10,037,623	3,276,893
2026	5,767,721	4,753,872	10,521,593	3,478,677
2027	5,998,430	5,027,340	11,025,770	3,679,870
2028	6,238,367	5,312,929	11,551,296	3,831,368
2029	6,487,902	5,613,171	12,101,073	4,003,502
2030	6,747,418	5,928,278	12,675,696	4,183,467
2031	7,017,315	6,258,925	13,276,240	4,371,631
2032	7,298,008	6,605,817	13,903,825	4,568,353
2033	7,589,928	6,969,688	14,559,616	4,774,047
2034	7,893,525	7,351,304	15,244,829	4,989,128
2035	8,209,266	7,751,461	15,960,727	5,214,009
2036	8,537,637	8,170,991	16,708,628	5,449,120
2037	8,879,142	8,610,760	17,489,902	5,694,946
2038	9,234,308	9,071,672	18,305,980	5,951,924
2039	9,603,680	9,554,668	19,158,348	6,220,612
2040	9,987,827	10,060,727	20,048,554	6,501,484
2041	10,387,340	10,590,873	20,978,213	6,795,140
2042	10,802,834	11,146,169	21,949,003	7,102,105
2043	11,234,947	11,727,725	22,962,672	7,422,976
2044	11,684,345	12,336,695	24,021,040	7,758,440
2045	12,151,719	12,974,283	25,126,002	8,109,082
2046	12,637,788	13,641,741	26,279,529	8,475,555
2047	13,143,300	14,340,378	27,483,678	8,858,592

* The contributions were computed assuming that the contribution is paid at the end of the fiscal year.

SECTION VI – SCHEDULE OF EMPLOYER CONTRIBUTIONS

TOWN – 7.5%

Fiscal Year	Amortization			Additional	
<u>Ending In</u>	<u>Normal Cost</u>	<u>of UAL</u>	<u>ARC</u>	<u>Pay-as-You-Go</u>	<u>Contribution</u>
2016	1,600,051	2,135,409	1,783,731	1,783,731	-
2017	1,672,053	2,220,825	1,874,495	1,874,495	-
2018	1,747,295	2,309,658	1,969,877	1,969,877	-
2019	1,825,923	2,402,044	2,176,005	2,176,005	-
2020	1,908,090	2,498,126	2,217,698	2,217,698	-
2021	1,993,954	3,765,000	5,758,954	2,410,600	3,348,354
2022	2,083,682	3,896,775	5,980,457	2,636,301	3,344,156
2023	2,177,448	4,033,162	6,210,610	2,837,322	3,373,288
2024	2,275,433	4,174,323	6,449,756	3,033,057	3,416,699
2025	2,377,827	4,320,424	6,698,251	3,200,607	3,497,644
2026	2,484,829	4,471,639	6,956,468	3,399,530	3,556,938
2027	2,596,646	4,628,146	7,224,792	3,609,194	3,615,598
2028	2,713,495	4,790,131	7,503,626	3,759,466	3,744,160
2029	2,835,602	4,957,786	7,793,388	3,930,453	3,862,935
2030	2,963,204	5,131,309	8,094,513	4,109,859	3,984,654
2031	3,096,548	5,310,905	8,407,453	4,297,307	4,110,146
2032	3,235,893	5,496,787	8,732,680	4,493,397	4,239,283
2033	3,381,508	5,689,175	9,070,683	4,698,132	4,372,551
2034	3,533,676	5,888,296	9,421,972	4,911,514	4,510,458
2035	3,692,691	6,094,386	9,787,077	5,133,617	4,653,460
2036	3,858,862	6,307,690	10,166,552	5,374,746	4,791,806
2037	4,032,511	6,528,459	10,560,970	5,620,534	4,940,436
2038	4,213,974	6,756,955	10,970,929	5,877,297	5,093,632
2039	4,403,603	6,993,448	11,397,051	6,154,795	5,242,256
2040	4,601,765	5,012,470	9,614,235	6,437,356	3,176,879
2041	4,808,844	-	4,808,844	6,732,915	-
2042	5,025,242	-	5,025,242	7,041,995	-
2043	5,251,378	-	5,251,378	7,365,245	-
2044	5,487,690	-	5,487,690	7,703,225	-
2045	5,734,636	-	5,734,636	8,056,545	-
2046	5,992,695	-	5,992,695	8,425,868	-
2047	6,262,366	-	6,262,366	8,811,860	-

* The contributions were computed assuming that the contribution is paid at the end of the fiscal year.

SECTION VI – SCHEDULE OF EMPLOYER CONTRIBUTIONS

LIGHT – 7.5%

Fiscal Year		Amortization		
<u>Ending In</u>	<u>Normal Cost</u>	<u>of UAL</u>	<u>ARC</u>	<u>Pay-as-You-Go</u>
2016	39,851	167,907	207,758	227,185
2017	41,644	174,623	216,267	230,030
2018	43,518	181,608	225,126	228,614
2019	45,476	188,872	234,348	248,657
2020	47,522	196,427	243,949	249,502
2021	49,660	204,284	253,944	229,265
2022	51,895	212,455	264,350	211,093
2023	54,230	220,953	275,183	222,414
2024	56,670	-	56,670	224,019
2025	59,220	-	59,220	214,235
2026	61,885	-	61,885	229,595
2027	64,670	-	64,670	226,749
2028	67,580	-	67,580	236,953
2029	70,621	-	70,621	247,616
2030	73,799	-	73,799	258,758
2031	77,120	-	77,120	270,402
2032	80,590	-	80,590	282,571
2033	84,217	-	84,217	295,286
2034	88,007	-	88,007	308,574
2035	91,967	-	91,967	322,460
2036	96,106	-	96,106	336,971
2037	100,431	-	100,431	352,134
2038	104,950	-	104,950	367,980
2039	109,673	-	109,673	384,539
2040	114,608	-	114,608	401,844
2041	119,765	-	119,765	419,927
2042	125,154	-	125,154	438,823
2043	130,786	-	130,786	458,570
2044	136,671	-	136,671	479,206
2045	142,821	-	142,821	500,770
2046	149,248	-	149,248	523,305
2047	155,964	-	155,964	546,854

* The contributions were computed assuming that the contribution is paid at the middle of the fiscal year.

SECTION VI – SCHEDULE OF EMPLOYER CONTRIBUTIONS

CABLE – 7.5%

Fiscal Year		Amortization		
<u>Ending In</u>	<u>Normal Cost</u>	<u>of UAL</u>	<u>ARC</u>	<u>Pay-as-You-Go</u>
2016	32,126	41,876	74,002	96,219
2017	33,572	43,551	77,123	97,892
2018	35,083	45,293	80,376	74,770
2019	36,662	47,105	83,767	87,202
2020	38,312	48,989	87,301	101,744
2021	40,036	50,949	90,985	91,528
2022	41,838	52,987	94,825	105,754
2023	43,721	55,106	98,827	121,647
2024	45,688	-	45,688	121,522
2025	47,744	-	47,744	129,510
2026	49,892	-	49,892	146,540
2027	52,137	-	52,137	139,731
2028	54,483	-	54,483	146,019
2029	56,935	-	56,935	152,590
2030	59,497	-	59,497	159,456
2031	62,174	-	62,174	166,632
2032	64,972	-	64,972	174,130
2033	67,896	-	67,896	181,966
2034	70,951	-	70,951	190,154
2035	74,144	-	74,144	198,711
2036	77,480	-	77,480	207,653
2037	80,967	-	80,967	216,998
2038	84,611	-	84,611	226,763
2039	88,418	-	88,418	236,967
2040	92,397	-	92,397	247,630
2041	96,555	-	96,555	258,774
2042	100,900	-	100,900	270,419
2043	105,441	-	105,441	282,587
2044	110,186	-	110,186	295,304
2045	115,144	-	115,144	308,593
2046	120,325	-	120,325	322,479
2047	125,740	-	125,740	336,991

* The contributions were computed assuming that the contribution is paid at the middle of the fiscal year.

SECTION VI – SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year	SEWER – 7.5%			
		Amortization		
<u>Ending In</u>	<u>Normal Cost</u>	<u>of UAL</u>	<u>ARC</u>	<u>Pay-as-You-Go</u>
2016	6,271	10,583	16,854	14,544
2017	6,553	11,006	17,559	22,745
2018	6,848	11,446	18,294	18,035
2019	7,156	11,904	19,060	21,955
2020	7,478	12,380	19,858	26,315
2021	7,815	12,875	20,690	22,856
2022	8,167	13,390	21,557	18,887
2023	8,535	13,926	22,461	23,308
2024	8,919	14,483	23,402	21,547
2025	9,320	15,062	24,382	16,524
2026	9,739	15,664	25,403	18,639
2027	10,177	16,291	26,468	14,524
2028	10,635	16,943	27,578	15,455
2029	11,114	17,621	28,735	16,343
2030	11,614	18,326	29,940	17,170
2031	12,137	19,059	31,196	17,944
2032	12,683	19,821	32,504	18,634
2033	13,254	20,614	33,868	19,223
2034	13,850	21,439	35,289	19,718
2035	14,473	22,297	36,770	20,124
2036	15,124		15,124	20,414
2037	15,805		15,805	20,628
2038	16,516		16,516	20,705
2039	17,259		17,259	20,692
2040	18,036		18,036	20,533
2041	18,848		18,848	20,274
2042	19,696		19,696	19,910
2043	20,582		20,582	19,376
2044	21,508		21,508	18,736
2045	22,476		22,476	18,015
2046	23,487		23,487	17,189
2047	24,544		24,544	16,276

SECTION VI – SCHEDULE OF EMPLOYER CONTRIBUTIONS

Fiscal Year	WATER – 7.5%			
		Amortization		
<u>Ending In</u>	<u>Normal Cost</u>	<u>of UAL</u>	<u>ARC</u>	<u>Pay-as-You-Go</u>
2016	993	61,450	62,443	81,924
2017	1,038	63,908	64,946	86,896
2018	1,085	66,464	67,549	89,367
2019	1,134	69,123	70,257	100,341
2020	1,185	71,887	73,072	92,406
2021	1,238	74,763	76,001	89,812
2022	1,294	77,753	79,047	97,387
2023	1,352	80,864	82,216	82,046
2024	1,413	84,098	85,511	76,286
2025	1,477	87,462	88,939	79,147
2026	1,543	90,961	92,504	70,675
2027	1,612	94,599	96,211	71,902
2028	1,685	98,383	100,068	73,049
2029	1,761	102,318	104,079	73,607
2030	1,840	106,411	108,251	74,324
2031	1,923	110,667	112,590	74,956
2032	2,010	115,094	117,104	75,915
2033	2,100	119,698	121,798	77,615
2034	2,195	124,486	126,681	80,392
2035	2,294	129,465	131,759	74,375
2036	2,397			74,413
2037	2,505			74,627
2038	2,618			65,817
2039	2,736			64,127
2040	2,859			62,226
2041	2,988			60,110
2042	3,122			57,731
2043	3,262			55,215
2044	3,409			52,537
2045	3,562			49,687
2046	3,722			46,731
2047	3,889			43,755

SCHEDULE A - ACTUARIAL ASSUMPTIONS AND METHODS

TOWN OF SHREWSBURY, ALL GROUPS

- Medical Plan Selection:*** Current retirees who are under age 65 are assumed to remain in their current medical plan until age 65. At age 65, they are assumed to switch to a blend of Medicare plans similar to the current blend of Medicare-eligible retirees.
- Current retirees over age 65 remain in their current medical plan until death.
- Post-65 payments for future retirees: Similar to the pre-65 payments, a weighted average is used, but only Medicare plans are considered because of the adoption of Section 18 of MGL Chapter 32B.
- Spouse's age:*** Husbands are assumed to be 3 years older than their wives.
- Marital status:*** 65% of employees are assumed to have a covered spouse at retirement.
- Age-based Morbidity:*** Per capita costs are adjusted to reflect expected cost increases related to age. The increase in the net incurred claims was assumed to be:

<u>Age</u>	<u>Annual Increase</u>
49 and below	2.6%
50-54	3.2%
55-59	3.4%
60-64	3.7%
65-69	3.2%
70-74	2.4%
75-79	1.8%
80 and over	0.0%

- Pre-Age 65 Retirees:*** Current retirees who are under age 65 are assumed to remain in their current medical plan until age 65. Current active employees who are assumed to retire prior to age 65 are valued with a weighted-average premium. This weighted-average premium is based on the medical plan coverage of current retirees under age 65. Age weighting is not used for teachers.

Post-Age 65 Retirees:

Current retirees over age 65 remain in their current medical plan until death for purposes of measuring their contributions. It is assumed that future retirees are Medicare eligible. It is furthermore assumed that all current retirees over 65 will participate in the Medicare Supplement plan in the same proportion as current retirees over 65. Per capita costs were developed from the monthly costs. Amounts to be received in the future for the Medicare Part D Retiree Drug Subsidy are not reflected in the valuation.

Termination Benefit:

75% of current active teachers and 75% of current active non-teachers over age 50 with at least 10 years of service are expected to elect medical coverage starting at age 65.

Medical Plan Costs:

The estimated gross per capita incurred claim costs for 2016-17 at age 64 and 65 are \$14,207 and \$3,741, respectively. Medicare eligible employees' per capita claims costs at age 65 is \$2,994.

It is assumed that future retirees participate in the same manner as current retirees. Employee cost sharing is based on current rates. The cost sharing varies by medical plan. Future cost sharing is based on the weighted average of the current cost sharing of retirees and beneficiaries.

SCHEDULE A - ACTUARIAL ASSUMPTIONS AND METHODS
NON-TEACHERS

The below tables represent values of the assumed annual rates of withdrawal, disability, death and service retirement:

Groups 1 and 2

Age	Disability	Service Retirement				Years of Service	Rates of Withdrawal
		Male	Female	Male Post 2012 Hire	Female Post 2012 Hire		
25	0.0001					0	0.2800
30	0.0002					5	0.1020
35	0.0003					10	0.0650
40	0.0007					15	0.0417
45	0.0010					20	0.0400
50	0.0013	0.0360	0.1019			25	0.0400
55	0.0016	0.0477	0.0469			30+	0.0000
60	0.0018	0.1057	0.0774	0.0477	0.0469		
62	0.0019	0.1473	0.1168	0.0632	0.0509		
65	0.0016	0.2615	0.1939	0.1057	0.0774		
69	0.0014	0.2500	0.2000	0.2136	0.1708		

Group 4

Age	Disability	Service Retirements		Years of Service	Rates of Withdrawal
		Pre 2012	Post 2012		
25	0.0005			0 - 1	0.150
30	0.0010			2 - 3	0.125
35	0.0020			4 - 5	0.100
40	0.0025			6 - 7	0.075
45	0.0040	.0443		8 - 9	0.050
50	0.0076	.0382	0.0191	10 - 19	0.060
55	0.0076	.1110	0.0370	20+	0.000
60	0.0065	.1871	0.0936		
62	0.0065	.2176	0.1741		
65	0.0000	1.0000	0.2500		

Mortality: It is assumed that both pre-retirement mortality and beneficiary mortality is represented by the RP-2014 Blue Collar Mortality with Scale MP-2015, fully generational. Mortality for retired members for Group 1 and 2 is represented by the RP-2014 Blue Collar Mortality Table set forward five years for males and 3 years for females, fully generational. Mortality for retired members for Group 4 is represented by the RP-2014 Blue Collar Mortality Table set forward three years for males, and six years for females, fully generational. Mortality for disabled members for Group 1 and 2 is represented by the RP-2000 Mortality Table set forward six years. Mortality for disabled members for Group 4 is represented by the RP-2000 Mortality Table set forward two years. Generational adjusting is based on Scale MP-2015.

SCHEDULE A - ACTUARIAL ASSUMPTIONS AND METHODS**TEACHERS**

SEPARATIONS FROM ACTIVE SERVICE: Representative values of the assumed annual rates of withdrawal and vesting, disability, death and service retirement are as follows:

Age	Disability	Years of Service	Rates of Withdrawal
25	.0002	0	.150
30	.0003	1	.120
35	.0006	2	.100
40	.0010	3	.090
45	.0015	4	.080
50	.0019	5	.076
55	.0024	10	.054
60	.0028	15	.033
62	.0030	20	.020
65	.0030	25	.010
69		30+	.000

Age	Male Service Retirement		Female Service Retirement	
	<20	20+	<20	20+
50	0.00	0.01	0.00	0.01
55	0.02	0.03	0.02	0.04
60	0.12	0.20	0.12	0.16
61	0.15	0.30	0.15	0.20
62	0.18	0.35	0.18	0.25
63	0.15	0.35	0.15	0.25
64	0.25	0.30	0.25	0.30
65	0.40	0.50	0.40	0.40
66	0.40	0.30	0.40	0.30
67	0.40	0.30	0.40	0.25
68	0.40	0.30	0.40	0.35
69	0.40	0.40	0.40	0.35
70	1.00	1.00	1.00	1.00

Teachers electing the increased benefit under Chapter 114 of the Acts of 2000 were assumed to have higher rates of retirement from ages 54 to 62 if their service was greater than 30 years. These rates are the same for males and females. The rate at age 54 is 0.035. The rate increases to 0.06 at age 55, 0.18 at age 56, and 0.30 at age 57. The rate for ages 58, 59, and 62 is 0.40. The rate for ages 60 and 61 is 0.35.

Mortality: The RP-2014 Blue Collar with Projection Scale MP-2015 fully generational. For the period after disability retirement, the RP-2000 Combined Healthy Table set forward 2 years is used.

SCHEDULE B - SUMMARY OF PROGRAM PROVISIONS

- Eligibility:**
- Retirement:** Age 55 with 10 years of service, or 20 years of service. Eligible for immediate commencement of Medical Insurance and Life Insurance benefits.
 - Termination:** Age 50 with 10 years of service. Eligible for deferred commencement of Medical Insurance and Life Insurance benefits at age 65.
 - Disability:** Under age 55 with 10 years of service. Eligible for immediate commencement of Medical Insurance and Life Insurance benefits.
- Benefit Types:**
- Medical Insurance:** Medical and prescription drug benefits are provided to all eligible retirees through a variety of plans as summarized in Section III.
 - Life Insurance:** The Town of Shrewsbury contributes \$4.24 per month for retirees receiving life insurance.
- Duration of Benefits:** Lifetime.
- Dependent Coverage:** Spouse benefits are payable for the lifetime of the spouse.
- MGL Chapter 32B, Section 18A:** All Medicare-eligible retirees and spouses are required to transfer to a Medicare supplemental plan.
- Retiree Contributions:** Retirees pay a variable portion of their post-retirement medical costs. The percentage varies by plan. Cost sharing for widows is 50%.

SCHEDULE C – CONSIDERATION OF HEALTH CARE REFORM

Summary of Effects of Selected Provisions

Early Retiree Reinsurance Program – Effective 6/1/2010: Due to the short-term nature of the payments expected to be received under this program, there is no impact on long-term GASB 45 liabilities.

Removal of Lifetime Maximum: This does not apply since the current medical plans have no lifetime maximums.

Medicare Advantage Plans - Effective 1/1/2011: The law provides for reductions to the amounts that would be provided to Medicare Advantage plans starting in 2011. Although Shrewsbury has two Medicare Advantage plans, the impact was deemed immaterial.

Expansion of Child Coverage to Age 26: Since few retirees cover children on retiree health plans, this provision will likely have a relatively small effect on the gross benefit cost. We have not reflected the impact of this cost.

Medicare Part D Subsidy - Shrinking Medicare Prescription Drug “Donut Hole”- Starting 1/1/2011: RDS payments are not reflected as an ongoing offsetting item in GASB 45 valuations, and so no impact is reflected.

Excise Tax on High-Cost Employer Health Plans (aka Cadillac Tax) - Effective 1/1/2020: There is considerable uncertainty about how the tax would be applied, and considerable latitude in grouping of participants for tax purposes. We have estimated the impact and included it in the liabilities.

Other: We have not identified any other specific provision of health care reform that would be expected to have a significant impact on the measured obligation. As additional guidance on the legislation is issued, we will continue to monitor any potential impacts.

SCHEDULE D - GLOSSARY OF TERMS

Actuarial accrued liability

That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of OPEB benefits and expenses which is not provided for by future Normal Costs and therefore is the value of benefits already earned.

Actuarial assumptions

Assumptions as to the occurrence of future events affecting OPEB costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided OPEB benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; characteristics of future entrants for Open Group Actuarial Cost Methods; and other relevant items.

Actuarial cost method

A procedure for determining the Actuarial Present Value of OPEB benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal Cost and an Actuarial Accrued Liability.

Actuarial experience gain or loss

A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates, as determined in accordance with a particular Actuarial Cost Method.

Amortization (of unfunded actuarial accrued liability)

That portion of the OPEB plan contribution which is designed to pay interest on and to amortize the Unfunded Actuarial Accrued Liability or the Unfunded Frozen Actuarial Accrued Liability.

Annual OPEB cost

An accrual-basis measure of the periodic cost of an employer's participation in a defined benefit OPEB plan.

Annual required contributions of the employer (ARC)

The employer's periodic expense to a defined benefit OPEB plan, calculated in accordance with the parameters. It is the value of the cash contributions for a funded plan and the value of the expense entry in the profit and loss section of the financial statements.

Closed amortization period (closed basis)

A specific number of years that is counted from one date and, therefore, declines to zero with the passage of time. For example, if the amortization period initially is thirty years on a closed basis, twenty-nine years remain after the first year, twenty-eight years after the second year, and so forth. In contrast, an open amortization period (open basis) is one that begins again or is recalculated at each actuarial valuation date. Within a maximum number of years specified by law or policy (for example, thirty years), the period may increase, decrease, or remain stable.

Covered payroll

Annual compensation paid to active employees covered by an OPEB plan. If employees also are covered by a pension plan, the covered payroll should include all elements included in compensation on which contributions to the pension plan are based. For example, if pension contributions are calculated on base pay including overtime, covered payroll includes overtime compensation.

Defined benefit OPEB plan

An OPEB plan having terms that specify the benefits to be provided at or after separation from employment. The benefits may be specified in dollars (for example, a flat dollar payment or an amount based on one or more factors such as age, years of service, and compensation), or as a type or level of coverage (for example, prescription drugs or a percentage of healthcare insurance premiums).

Funded ratio

The actuarial value of assets expressed as a percentage of the actuarial accrued liability.

Funding policy

The program for the amounts and timing of contributions to be made by plan members, employer(s), and other contributing entities (for example, state government contributions to a local government plan) to provide the benefits specified by an OPEB plan.

Healthcare cost trend rate

The rate of change in per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

Investment return assumption (discount rate)

The rate used to adjust a series of future payments to reflect the time value of money.

Level dollar amortization method

The amount to be amortized is divided into equal dollar amounts to be paid over a given number of years; part of each payment is interest and part is principal (similar to a mortgage payment on a building). Because payroll can be expected to increase as a result of inflation, level dollar payments generally represent a decreasing percentage of payroll; in dollars adjusted for inflation, the payments can be expected to decrease over time.

Level percentage of projected payroll amortization method

Amortization payments are calculated so that they are a constant percentage of the projected payroll of active plan members over a given number of years. The dollar amount of the payments generally will increase over time as payroll increases due to inflation; in dollars adjusted for inflation, the payments can be expected to remain level.

Net OPEB obligation

The cumulative difference since the effective date of this Statement 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. It will be included as a balance sheet entry on the financial statements.

Normal cost

That portion of the Actuarial Present Value of OPEB benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method. It is the value of benefits to be accrued in the valuation year by active employees.

OPEB-related debt

All long-term liabilities of an employer to an OPEB plan, the payment of which is not included in the annual required contributions of a sole or agent employer (ARC) or the actuarially determined required contributions of a cost-sharing employer. Payments generally are made in accordance with installment contracts that usually include interest. Examples include contractually deferred contributions and amounts assessed to an employer upon joining a multiple-employer plan.

Other postemployment benefits

Postemployment benefits other than pension benefits. Other postemployment benefits (OPEB) include postemployment healthcare benefits, regardless of the type of plan that provides them, and all postemployment benefits provided separately from a pension plan, excluding benefits defined as termination offers and benefits.

Pay-as-you-go

A method of financing a OPEB plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.

Required supplementary information (RSI)

Schedules, statistical data, and other information that are an essential part of financial reporting and should be presented with, but are not part of, the basic financial statements of a governmental entity.