



TOWN AND BOARD OF EDUCATION - BRANFORD

GASB 45 VALUATION REPORT

AS OF JULY 1, 2016



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Actuarial Certification

This report presents the results of the July 1, 2016 Actuarial Valuation for the Town of Branford's post-retirement benefit other than pension (OPEB) for Town and Board of Education Employees (the Plan) for the purpose of estimating the funded status of the Plan and determining the Annual Required Contribution (ARC) for the fiscal years ending June 30, 2018 and June 30, 2019. This report is intended to satisfy the requirements of Connecticut General Statute 7-450a. This report may not be appropriate for any other purpose.

The valuation has been performed in accordance with generally accepted actuarial principles and practices. It is intended to comply with all applicable Actuarial Standards of Practice.


I certify that the actuarial assumptions and methods that were selected by me and represent my best estimate of anticipated actuarial experience under the Plan.

In preparing this valuation, I have relied on employee data provided by the Plan Sponsor, and on asset and contribution information provided by the Town. I have audited neither the employee data nor the financial information, although I have reviewed them for reasonableness.

The results in this valuation report are based on the Plan as summarized in the Plan Provisions section of this report and the actuarial assumptions and methods detailed in the Description of Actuarial Methods and Assumptions section of this report.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of this report, an analysis of the potential range of such future measurements has not been performed.

I am a member of the American Academy of Actuaries and meet its Qualification Standards to render the actuarial opinion contained herein.



Timothy A. Ryor, FSPA, FCA, MAAA
Enrolled Actuary 17-05126

April 21, 2017



Executive Summary

The July 1, 2016 accrued liability of \$27,035,934 is slightly higher than anticipated. The loss is primarily due to the change in discount rate from 7.00% to 6.75% and the change in Cost Method to Entry Age Normal. The Cost Method change was made to assist with the implementation of GASB 74/75. In addition, we made some other assumption changes including Mortality, Retirement and Medical Trend. The change in the Cost Method and Discount Rate increased the liability by approximately 8%, all other assumption changes resulted in an increase in liability of approximately 3%. The impact of the Board of Education moving the majority of active employees to a High Deductible Health Plan with H S A resulted in a reduction in liability of approximately 3%.

Schedule of Funding Status and Funding Progress						
Actuarial Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liabilities (AAL)	Unfunded AAL (UAAL)	Funded Ratio	Covered Payroll	UAAL as a Percentage of Covered Payroll
7/1/2010	\$4,134,000	\$17,271,300	\$13,137,300	24%	\$39,028,800	34%
7/1/2012	5,856,346	20,977,792	15,121,446	28%	39,169,500	39%
7/1/2014	9,510,785	22,798,733	13,287,948	42%	48,861,400	27%
7/1/2016	11,934,160	27,035,934	15,101,774	44%	47,770,477	32%

History of Actuarially Determined Employer Contribution (ADEC)	
Year Ended June 30	Actuarially Determined Employer Contribution (ADEC)
2014	\$1,790,540
2015	1,835,900
2016	1,847,914
2017	1,907,215
2018	2,016,067
2019	2,048,581



Unfunded Actuarial Accrued Liability and Annual Required Contribution

GASB 45/74/75 Unfunded Actuarial Accrued Liability (UAAL)						
Actuarial Accrued Liability (AAL) 7/1/2016	Police	Fire	Town	BOE Certified	BOE Non-Certified	Grand Total
Actives	\$6,102,700	\$4,833,650	\$1,045,908	\$2,344,393	\$160,101	\$14,486,752
Retirees	<u>5,952,740</u>	<u>1,229,106</u>	<u>36,465</u>	<u>5,233,005</u>	<u>97,866</u>	<u>12,549,182</u>
Total	12,055,440	6,062,756	1,082,373	7,577,398	257,967	27,035,934
Assets 7/1/2016	<u>6,094,409</u>	<u>3,064,916</u>	<u>547,174</u>	<u>2,154,319</u>	<u>73,342</u>	<u>11,934,160</u>
Unfunded Actuarial Accrued Liability (UAAL) 7/1/2016	5,961,031	2,997,840	535,199	5,423,079	184,625	15,101,774
Funded Ratio	50.6%	50.6%	50.6%	28.4%	28.4%	44.1%

GASB 45/74/75 Actuarially Determined Employer Contribution (ADEC)						
Actuarially Determined Employer Contribution (ADEC) 2017 / 2018 Fiscal Year	Police	Fire	Town	BOE Certified	BOE Non-Certified	Grand Total
Normal Cost	\$339,658	\$270,161	\$90,801	\$118,631	\$19,446	\$838,697
30 Year Amortization of UAAL	438,755	220,653	39,393	399,160	13,589	1,111,550
Interest	<u>26,271</u>	<u>16,565</u>	<u>4,394</u>	<u>17,475</u>	<u>1,115</u>	<u>65,820</u>
Total ADEC 2017 / 2018	804,684	507,379	134,588	535,266	34,150	2,016,067
Actuarially Determined Employer Contribution (ADEC) 2018 / 2019 Fiscal Year	Police	Fire	Town	BOE Certified	BOE Non-Certified	Grand Total
Normal Cost	\$352,395	\$280,292	\$94,206	\$123,080	\$20,175	\$870,148
29 Year Amortization of UAAL	438,755	220,653	39,393	399,160	13,589	1,111,550
Interest	<u>26,701</u>	<u>16,907</u>	<u>4,509</u>	<u>17,626</u>	<u>1,140</u>	<u>66,883</u>
Total ADEC 2018 / 2019	817,851	517,852	138,108	539,866	34,904	2,048,581



Participant Counts and Average Age as of July 1, 2016

Participant Counts			
Group	Active Participants	Retirees*	Total
Police	49	29	78
Fire	36	4	40
Town	129	1	130
BOE Certified	322	45	367
BOE Non-Certified	39	4	43
Total	575	83	658

*Does not include spouses of existing retirees.

Average Age		
Group	Active Average Age	Retiree Average Age
Police	42.7	68.8
Fire	44.3	57.8
Town	51.7	57.0
BOE Certified	45.9	66.9
BOE Non-Certified	54.0	60.8

As of July 1, 2014

Participant Counts			
Group	Active Participants	Retirees*	Total
Police	50	35	85
Fire	36	4	40
Town	130	4	134
BOE Certified	341	44	385
BOE Non-Certified	45	1	46
Total	602	88	690

*Does not include spouses of existing retirees.

Average Age		
Group	Active Average Age	Retiree Average Age
Police	42.3	69.7
Fire	44.0	55.8
Town	52.5	59.0
BOE Certified	44.5	66.5
BOE Non-Certified	52.5	59.0



Projected Benefit Payments

Fiscal Year Beginning July 1st	Currently Active Employees	Currently Retired Employees	Total
2017	\$196,990	\$844,932	\$1,041,922
2018	329,422	867,893	1,197,315
2019	453,371	908,123	1,361,494
2020	602,575	938,211	1,540,786
2021	714,796	955,807	1,670,603
2022	850,685	973,763	1,824,448
2023	1,025,543	997,379	2,022,922
2024	1,150,198	972,499	2,122,697
2025	1,309,538	968,497	2,278,035
2026	1,473,420	981,744	2,455,164
2027	1,627,497	994,734	2,622,231
2028	1,791,944	1,020,994	2,812,938
2029	1,847,014	1,011,165	2,858,179
2030	1,971,761	954,244	2,926,005
2031	2,073,811	962,849	3,036,660
2032	2,135,129	945,664	3,080,793
2033	2,217,670	944,849	3,162,519
2034	2,236,460	940,065	3,176,525
2035	2,363,247	931,292	3,294,539
2036	2,391,362	918,511	3,309,873



Description of Actuarial Methods

Actuarial Cost Method: Entry Age Normal

Normal Cost

The normal cost is the sum of the individual normal costs for all active participants. For an active participant, the normal cost is the participant's normal cost accrual rate, multiplied by the participant's current compensation. The normal cost accrual rate equals the present value of future benefits for the participant, determined as of the participant's entry age, divided by the present value of the compensation expected to be paid to the participant for each year of the participant's anticipated future service, determined as of the participant's entry age.

Accrued Liability

A participant's accrued liability equals the present value, at the participant's attained age, of future benefits, less the present value at the participant's attained age of the individual normal costs payable in the future. A beneficiary's accrued liability equals the present value, at the beneficiary's attained age, of future benefits.

The entry age used for each active participant is the participant's age at the time he or she would have commenced participation if the plan had always been in existence under current terms, or the age as of which he or she first earns service credits for purposes of benefit accrual under the current terms of the plan.

Prior: Projected Unit Credit

Amortization Method

The Unfunded Accrued Liability is amortized each year over 30 years on a closed basis as of July 1, 2016, as a level dollar amount.

Asset Valuation Method

Market Value.



Description of Actuarial Assumptions – Town Employees and Non-Certified BOE

Changes in Actuarial Assumptions as of July 1, 2016

The valuation reflects changes in the actuarial assumptions listed below. (The assumptions used before and after these changes are more fully described in the next section.)

- Mortality
- Interest
- Medical Trend

The assumptions indicated were changed to represent the Enrolled Actuary’s current best estimate of anticipated experience of the plan.

Interest

6.75%. (Prior: 7.00%)

Since the OPEB Plan is funded, the selection of the discount rate is based on the expected long-term return on plan assets.

The change in assumption increased liabilities.

Rate of compensation increase (including inflation)

3.75%.

The plan does not have statistically credible data on which to form a rate of compensation increase assumption. The assumption is based on historical national wage increases and input from the plan sponsor regarding future expectations.

Inflation

2.75%. (Prior: 3.00%)

This assumption is based on long term historical inflation numbers. While near term averages have been lower, we do not believe this trend will continue indefinitely and expect that there will be a reversion to the long-term average.

The assumption was changed to better reflect expected experience.

Mortality

Pre/Post: RP-2014 Adjusted to 2006 Total Dataset Mortality Table projected to valuation date with Scale MP-2016.

Prior: Pre-65 mortality per table below:

Age	Rate of mortality
20	.01%
25	.01
30	.01
35	.02
40	.02
45	.03
50	.05
55	.08
60	.12



Mortality (cont.)

Post-retirement: RP 2000 Combined, set forward one year for males and set back one year for females, projected to valuation date with Scale AA.

Mortality Improvement

Projected to date of decrement using Scale MP-2016 (generational).

Prior:

Pre-65: None

Post-retirement: Projected to date of decrement using Scale AA (generational mortality).

We have selected this mortality assumption because it is based on the latest published pension mortality study released by the Society of Actuaries.

The mortality assumption was updated to better reflect anticipated experience. The change in assumption increased liabilities.

Retirement

Age	Rate of Retirement
45-53	15%
54	10
55	7
56	6
57-59	5
60-62	10
63-64	15
65	20
66-74	15
75+	100

The actuarial assumption in regards to rates of retirement shown above are based on the rates used by the state of Connecticut Municipal Employee Retirement System actuaries.

Sample Age-Based Withdrawal Rates (until eligible to retire)

Age	Male Rate	Female Rate
20	18.0%	20.0%
30	12.0	15.0
40	7.5	10.0
50	5.0	5.0
60	5.0	5.0

The actuarial assumption in regards to rates of termination shown above are based on the rates used by the State of Connecticut Municipal Employee Retirement System actuaries.

Additional Assumptions

70% of males and 60% of females assumed married with wives assumed to be three years younger than their husbands.

The actuarial assumptions in regards to utilization shown above are based on standard assumptions modified for certain plan features such as eligibility for full and early retirement where applicable and input from the plan sponsor.



Medical inflation

7.75% for 2016, decreasing 0.5% per year, to an ultimate rate of 4.75% for 2022 and later.

(Prior: 9.0% for 2014, decreasing 1% per year, to an ultimate rate of 5.0% for 2018 and later.)

Health care trend rates reflect both the current and long-term outlook for increases in health care costs. The short term rates are based on recent industry surveys, plan experience and near-term expectations. The long term trend rate is based on our general inflation assumption of 2.75% plus 2% to reflect expectations for long-term medical inflation.

The change in assumption increased liabilities.

Expected per Capita claims (without Medicare Coordination)

We assume that actual claims will be distributed according to the following morbidity table:

Town:

Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$6,553	\$9,134
50	8,558	10,642
55	11,229	12,398
60	14,466	14,460
64	17,666	16,929

BOE:

Active Employees		
Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$4,768	\$6,646
50	6,227	7,744
55	8,171	9,021
60	10,526	10,522
64	12,854	12,318

Current Retirees		
Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$7,022	\$9,787
50	9,170	11,404
55	12,033	13,285
60	15,501	15,495
64	18,931	18,140

The sample per capita claim for plans not integrated with Medicare was developed as follows: Using the total count of active participants eligible for post-retirement medical benefits and retirees currently electing medical coverage in a non-medicare supplement plan, we calculate the total projected claims by multiplying the total count by the average annual premium. Using the cost increases derived from a study sponsored by the Society of Actuaries prepared by Dale H. Yamamoto from May 2013: "Health Care Costs from Birth to Death", we allocate the total projected claims by age and gender.



Expected per Capita claims (without Medicare Coordination) (cont.)

(Prior: The sample per capita claim for plans not integrated with Medicare was developed as follows: Using the total count of active participants eligible for post-retirement medical benefits and retirees currently electing medical coverage in a non-medicare supplement plan, we calculate the total projected claims by multiplying the total count by the average annual premium. Using the cost increases derived from a study sponsored by the Society of Actuaries prepared by J.P Petertil from August 1, 2003: "Aging Curves for Health Care Costs in Retirement", we allocate the total projected claims by age.)

For plans integrated with Medicare, the post Medicare eligible premium is assumed to be unaffected by age.

The per capita claims method was changed to reflect the most recent study and better reflect actual experience. The change in assumption increased liabilities.

Percentage of Actives Eligible at Retirement who continue with Medical Coverage

100%.

The actuarial assumptions in regards to utilization shown above are based on standard assumptions modified for certain plan features such as eligibility for full and early retirement where applicable and input from the plan sponsor.

Medical Premiums

	Employee	Employee Plus Spouse
Town		
Century Preferred	\$865.85	\$1,731.69
H.S.A	\$791.40	\$1,582.80
BOE Non-Certified		
Average for all group:		
Active	\$678.73	\$1,358.56
Retirees	\$999.86	\$2,000.73

Patient Protection and Affordable Care Act (PPACA)

High Cost Plan Excise Tax ("Cadillac Tax"): Effective in 2020, there will be a 40% excise tax on per capita medical benefit costs in excess of certain thresholds, which (in 2018) are \$10,200 for single coverage and \$27,500 for family coverage for Medicare eligible retirees. Thresholds (in 2018) for retirees who are between ages 55 and 65 are \$11,850 and \$30,950 for single and family coverage respectively. After 2018, the thresholds are indexed by CPI (CPI +1% in 2018 only). CPI is assumed to equal the inflation assumption.

The impact of this future excise tax has been reflected in plan liabilities.

Other Requirements of PPACA:

For purposes of this valuation, extended coverage for adult children and 100% coverage of preventive care are assumed to be reflected in per capita costs.

For purposes of this valuation, elimination of lifetime maximum benefits and removal of the limits on essential healthcare are assumed to have no impact on plan liabilities.



Description of Actuarial Assumptions – Police

Changes in Actuarial Assumptions as of July 1, 2016

The valuation reflects changes in the actuarial assumptions listed below. (The assumptions used before and after these changes are more fully described in the next section.)

- Mortality
- Retirement
- Interest
- Medical Trend

The assumptions indicated were changed to represent the Enrolled Actuary’s current best estimate of anticipated experience of the plan.

Interest

6.75%. (Prior: 7.00%)

Since the OPEB Plan is funded, the selection of the discount rate is based on the expected long-term return on plan assets.

The change in assumption increased liabilities.

Rate of compensation increase (including inflation)

According to the following service – based schedule:

Service	Rate of Increase
0	9.25%
1	8.25
2	7.25
3	6.25
4	5.25
5	4.25
6-14	3.75
15+	3.25

The plan does not have statistically credible data on which to form this assumption. The assumption is based on input from the plan sponsor regarding future expectations and the comparable assumption used in the July 1, 2014 CT MERS Actuarial Valuation.

Inflation

2.75%. (Prior: 3.00%)

This assumption is based on long term historical inflation numbers. While near term averages have been lower, we do not believe this trend will continue indefinitely and expect that there will be a reversion to the long-term average.

The assumption was changed to better reflect expected experience.



Mortality

RP-2014 Adjusted to 2006 Total Dataset Mortality Table projected to valuation date with Scale MP-2016.

Prior: Pre-65 mortality per table below (from CT State MERS Pension Valuation):

Age	Rate of mortality
20	.01%
25	.01
30	.01
35	.02
40	.02
45	.03
50	.05
55	.08
60	.12
65	.20

Post-retirement: RP 2000 Combined, set forward one year for males and set back one year for females, projected to the valuation date with Scale AA.

Disabled Mortality

RP-2014 Adjusted to 2006 Disabled Retiree Mortality Table projected to valuation date with Scale MP-2016.

Prior: RP2000 Combined Disability Mortality (+5 for males +1 for females).

Mortality Improvement

Projected to date of decrement using Scale MP-2016 (generational).

Prior:

Pre-65 and Disabled retirees: None

Post-retirement: Projected to date of decrement using Scale AA (generational mortality).

We have selected this mortality assumption because it is based on the latest published pension mortality study released by the Society of Actuaries.

The mortality assumption was updated to better reflect anticipated experience. The change in assumption increased liabilities.

Retirement

Service	Rate of Retirement
25-27	20%
28	25
29	30
30	40
31-34	20
35-39	10
40+	100

100% assumed to retire at age 65.



Retirement (cont.)

Prior: Per table below (shown as sample rates):

Age	Rate of Retirement
45	25%
50	20
55	12
60	20
65	100

The retirement assumption was updated to better reflect actual experience from the Pension Plan. The change in assumption increased liabilities.

Sample Age-Based Withdrawal Rates (until eligible to retire)

Annual rates of withdrawal per table below (per MERS Valuation):

Age	Rate of Withdrawal
20	7.00%
30	5.00
40	2.00
50	0.00

The actuarial assumption in regards to rates of termination shown above are based on the rates used by the State of Connecticut Municipal Employee Retirement System actuaries.

Service - Connected Disability

Age	Rate of Disability
20	.11%
30	.15
40	.32
50	1.11
60	6.88

The actuarial assumption in regards to rates of disability shown above are based on the rates used by the State of Connecticut Municipal Employee Retirement System actuaries.

Additional Assumptions

70% of males and 60% of females are assumed married with wives assumed to be three years younger than their husbands.

The actuarial assumptions in regards to utilization shown above are based on standard assumptions modified for certain plan features such as eligibility for full and early retirement where applicable and input from the plan sponsor.



Medical inflation

7.75% for 2016, decreasing 0.5% per year, to an ultimate rate of 4.75% for 2022 and later.

(Prior: 9.0% for 2014, decreasing 1% per year, to an ultimate rate of 5.0% for 2018 and later.)

Health care trend rates reflect both the current and long-term outlook for increases in health care costs. The short term rates are based on recent industry surveys, plan experience and near-term expectations. The long term trend rate is based on our general inflation assumption of 2.75% plus 2.0% to reflect expectations for long-term medical inflation.

The change in assumption increased liabilities.

Expected per Capita claims (without Medicare Coordination)

We assume that actual claims will be distributed according to the following morbidity table:

Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$6,553	\$9,134
50	8,558	10,642
55	11,229	12,398
60	14,466	14,460
64	17,666	16,929

The sample per capita claim for plans not integrated with Medicare was developed as follows: Using the total count of active participants eligible for post-retirement medical benefits and retirees currently electing medical coverage in a non-medicare supplement plan, we calculate the total projected claims by multiplying the total count by the average annual premium. Using the cost increases derived from a study sponsored by the Society of Actuaries prepared by Dale H. Yamamoto from May 2013: "Health Care Costs from Birth to Death", we allocate the total projected claims by age and gender.

(Prior: The sample per capita claim for plans not integrated with Medicare was developed as follows: Using the total count of active participants eligible for post-retirement medical benefits and retirees currently electing medical coverage in a non-medicare supplement plan, we calculate the total projected claims by multiplying the total count by the average annual premium. Using the cost increases derived from a study sponsored by the Society of Actuaries prepared by J.P Petertil from August 1, 2003: "Aging Curves for Health Care Costs in Retirement", we allocate the total projected claims by age.)

For plans integrated with Medicare, the post Medicare eligible premium is assumed to be unaffected by age.

The per capita claims method was changed to reflect the most recent study and better reflect actual experience. The change in assumption increased liabilities.

Percentage of Actives Eligible at Retirement who continue with Medical Coverage

100%.

The actuarial assumptions in regards to utilization shown above are based on standard assumptions modified for certain plan features such as eligibility for full and early retirement where applicable and input from the plan sponsor.



Medical Premiums

	Employee	Employee Plus Spouse
Century Preferred	\$865.85	\$1,731.69
H.S.A	\$791.40	\$1,582.80
Post 65 - Average for all groups:	\$649.37	\$1,298.74
Dental	\$32.18	\$64.37

Patient Protection and Affordable Care Act (PPACA)

High Cost Plan Excise Tax ("Cadillac Tax"): Effective in 2020, there will be a 40% excise tax on per capita medical benefit costs in excess of certain thresholds, which (in 2018) are \$10,200 for single coverage and \$27,500 for family coverage for Medicare eligible retirees. Thresholds (in 2018) for retirees who are between ages 55 and 65 are \$11,850 and \$30,950 for single and family coverage respectively. After 2018, the thresholds are indexed by CPI (CPI +1% in 2018 only). CPI is assumed to equal the inflation assumption.

The impact of this future excise tax has been reflected in plan liabilities.

Other Requirements of PPACA:

For purposes of this valuation, extended coverage for adult children and 100% coverage of preventive care are assumed to be reflected in per capita costs.

For purposes of this valuation, elimination of lifetime maximum benefits and removal of the limits on essential healthcare are assumed to have no impact on plan liabilities.

The change in the inflation assumption and the assumptions linked to inflation (such as trend rates and the Cadillac Tax indexed thresholds) decreased liabilities.



Description of Actuarial Assumptions – Fire

Changes in Actuarial Assumptions as of July 1, 2016

The valuation reflects changes in the actuarial assumptions listed below. (The assumptions used before and after these changes are more fully described in the next section.)

- Mortality
- Interest
- Medical Trend

The assumptions indicated were changed to represent the Enrolled Actuary’s current best estimate of anticipated experience of the plan.

Interest

6.75%. (Prior: 7.00%)

Since the OPEB Plan is funded, the selection of the discount rate is based on the expected long-term return on plan assets.

The change in assumption increased liabilities.

Rate of compensation increase (including inflation)

3.75%.

The plan does not have statistically credible data on which to form a rate of compensation increase assumption. The assumption is based on historical national wage increases and input from the plan sponsor regarding future expectations.

Inflation

2.75%. (Prior: 3.00%)

This assumption is based on long term historical inflation numbers. While near term averages have been lower, we do not believe this trend will continue indefinitely and expect that there will be a reversion to the long-term average. The assumption was changed to better reflect expected experience.

Mortality

RP-2014 Adjusted to 2006 Total Dataset Mortality Table projected to valuation date with Scale MP-2016.

Prior: Pre-65 mortality per table below (from CT State MERS Pension Valuation):

Age	Rate of mortality
20	.01%
25	.01
30	.01
35	.02
40	.02
45	.03
50	.05
55	.08
60	.12
65	.20



Mortality (cont.)

Prior: Post-retirement: RP 2000 Combined, set forward one year for males and set back one year for females, projected to the valuation date with Scale AA.

Disabled Mortality

RP-2014 Adjusted to 2006 Disabled Retiree Mortality Table projected to valuation date with Scale MP-2016.

Prior: RP2000 Combined Disability Mortality (+5 for males +1 for females).

Mortality Improvement

Projected to date of decrement using Scale MP-2016 (generational).

Prior:

Pre-65 and Disabled retirees: None

Post-retirement: Projected to date of decrement using Scale AA (generational mortality).

We have selected this mortality assumption because it is based on the latest published pension mortality study released by the Society of Actuaries.

The mortality assumption was updated to better reflect anticipated experience. The change in assumption increased liabilities.

Retirement

Per table below (per CT MERS Valuation):

Age	Rate of Retirement
45	25%
50	20
55	12
60	20
65	100

The actuarial assumption in regards to rates of retirement shown above are based on the rates used by the state of Connecticut Municipal Employee Retirement System actuaries.

Sample Age-Based Withdrawal Rates (until eligible to retire)

Annual rates of withdrawal per table below (per CT MERS Valuation):

Age	Rate of Withdrawal
20	7.00%
30	5.00
40	2.00
50	0.00

The actuarial assumption in regards to rates of termination shown above are based on the rates used by the State of Connecticut Municipal Employee Retirement System actuaries.



Service - Connected Disability

Annual rates of disability per table below (per CT MERS Valuation):

Age	Rate of Disability
20	.11%
30	.15
40	.32
50	1.11
60	6.88

The actuarial assumption in regards to rates of disability shown above are based on the rates used by the State of Connecticut Municipal Employee Retirement System actuaries.

Additional Assumptions

70% of males and 60% of females are assumed married with wives assumed to be three years younger than their husbands.

The actuarial assumptions in regards to utilization shown above are based on standard assumptions modified for certain plan features such as eligibility for full and early retirement where applicable and input from the plan sponsor.

Medical inflation

7.75% for 2016, decreasing 0.5% per year, to an ultimate rate of 4.75% for 2022 and later.

(Prior: 9.0% for 2014, decreasing 1% per year, to an ultimate rate of 5.0% for 2018 and later.)

Health care trend rates reflect both the current and long-term outlook for increases in health care costs. The short term rates are based on recent industry surveys, plan experience and near-term expectations. The long term trend rate is based on our general inflation assumption of 2.75% plus 2.0% to reflect expectations for long-term medical inflation.

The change in assumption increased liabilities.

Expected per Capita claims (without Medicare Coordination)

Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$6,553	\$9,134
50	8,558	10,642
55	11,229	12,398
60	14,466	14,460
64	17,666	16,929

The sample per capita claim for plans not integrated with Medicare was developed as follows: Using the total count of active participants eligible for post-retirement medical benefits and retirees currently electing medical coverage in a non-medicare supplement plan, we calculate the total projected claims by multiplying the total count by the average annual premium. Using the cost increases derived from a study sponsored by the Society of Actuaries prepared by Dale H. Yamamoto from May 2013: "Health Care Costs from Birth to Death", we allocate the total projected claims by age and gender.



Expected per Capita claims (without Medicare Coordination) (cont.)

(Prior: The sample per capita claim for plans not integrated with Medicare was developed as follows: Using the total count of active participants eligible for post-retirement medical benefits and retirees currently electing medical coverage in a non-medicare supplement plan, we calculate the total projected claims by multiplying the total count by the average annual premium. Using the cost increases derived from a study sponsored by the Society of Actuaries prepared by J.P Petertil from August 1, 2003: "Aging Curves for Health Care Costs in Retirement", we allocate the total projected claims by age.)

For plans integrated with Medicare, the post Medicare eligible premium is assumed to be unaffected by age.

The per capita claims method was changed to reflect the most recent study and better reflect actual experience. The change in assumption increased liabilities.

Percentage of Actives Eligible at Retirement who continue with Medical Coverage

100%.

The actuarial assumptions in regards to utilization shown above are based on standard assumptions modified for certain plan features such as eligibility for full and early retirement where applicable and input from the plan sponsor.

Medical Premiums

	Employee	Employee Plus Spouse
Century Preferred	\$865.85	\$1,731.69
H.S.A	\$791.40	\$1,582.80
Post 65 - Average for all groups:	\$649.37	\$1,298.74
Dental	\$32.18	\$64.37

Patient Protection and Affordable Care Act (PPACA)

High Cost Plan Excise Tax ("Cadillac Tax"): Effective in 2020, there will be a 40% excise tax on per capita medical benefit costs in excess of certain thresholds, which (in 2018) are \$10,200 for single coverage and \$27,500 for family coverage for Medicare eligible retirees. Thresholds (in 2018) for retirees who are between ages 55 and 65 are \$11,850 and \$30,950 for single and family coverage respectively. After 2018, the thresholds are indexed by CPI (CPI +1% in 2018 only). CPI is assumed to equal the inflation assumption.

The impact of this future excise tax has been reflected in plan liabilities.

Other Requirements of PPACA:

For purposes of this valuation, extended coverage for adult children and 100% coverage of preventive care are assumed to be reflected in per capita costs.

For purposes of this valuation, elimination of lifetime maximum benefits and removal of the limits on essential healthcare are assumed to have no impact on plan liabilities.

The change in the inflation assumption and the assumptions linked to inflation (such as trend rates and the Cadillac Tax indexed thresholds) decreased liabilities.



Description of Actuarial Assumptions – Certified BOE

Changes in Actuarial Assumptions as of July 1, 2016

The valuation reflects changes in the actuarial assumptions listed below. (The assumptions used before and after these changes are more fully described in the next section.)

- Mortality
- Retirement
- Turnover
- Interest
- Medical Trend

The assumptions indicated were changed to represent the Enrolled Actuary's current best estimate of anticipated experience of the plan.

Interest

6.75%. (Prior: 7.00%)

Since the OPEB Plan is funded, the selection of the discount rate is based on the expected long-term return on plan assets.

The change in assumption increased liabilities.

Rate of compensation increase (including inflation) (From Connecticut State TRS 2016 Pension Valuation)

According to the following service – based schedule:

Service	Rate of Increase
0-1	6.50%
2-9	6.25
10-11	5.50
12-14	5.00
15	4.75
16	4.50
17	4.25
18	4.00
19	3.75
20	3.50
21+	3.25

The actuarial assumption in regards to rates of compensation increase is based on the rates used by the Connecticut State Teachers' Retirement System actuaries.

Inflation

2.75%. (Prior: 3.00%)

This assumption is based on long term historical inflation numbers. While near term averages have been lower, we do not believe this trend will continue indefinitely and expect that there will be a reversion to the long-term average.

The assumption was changed to better reflect expected experience.



Mortality

RP-2014 Adjusted to 2006 Total Dataset Mortality Table projected to valuation date with Scale MP-2016.

Prior:

Pre-65: RP-2000 Generational Combined projected to valuation date with Scale AA.

Post-65: Teacher's Retirement Post-retirement Mortality projected to valuation date with Scale AA.

Mortality Improvement

Projected to date of decrement using Scale MP-2016 (generational).

Prior: Projected to date of decrement using Scale AA (generational mortality).

We have selected this mortality assumption because it is based on the latest published pension mortality study released by the Society of Actuaries.

The mortality assumption was updated to better reflect anticipated experience. The change in assumption increased liabilities.

Retirement

Per table below (from Connecticut State TRS 2016 Pension Valuation):

Age	Eligible for Normal (Unreduced) Retirement (Age 60 and 20 Yrs. Serv. or 35 yrs. Serv.)		Eligible for Early (Reduced) Retirement (Age 55 and 20 Yrs. Serv. or 25 yrs. Serv.)	
	Male	Female	Male	Female
50	27.5%	27.5%	1.00%	1.00
51	27.5	27.5	1.00	1.25
52	27.5	27.5	1.00	1.75
53	27.5	27.5	2.00	2.25
54	27.5	27.5	3.00	2.75
55	38.5	27.5	4.00	4.75
56	38.5	27.5	6.00	6.25
57	38.5	27.5	7.00	6.75
58	38.5	27.5	8.00	7.25
59	38.5	27.5	11.00	8.50
60	22.0	27.5		
61-62	25.3	27.5		
63-64	27.5	27.5		
65	36.3	32.5		
66-69	27.5	32.5		
70-79	100.0	32.5		
80	100.0	100.0		



Retirement (cont.)

Prior: Assumed Rates of Retirement: (from CT State TRS 2014 OPEB Valuation)

Age	Eligible for Normal (Unreduced) Retirement (Age 60 and 20 Yrs. Serv. or 35 yrs. Serv.)		Eligible for Early (Reduced) Retirement (Age 55 and 20 Yrs. Serv. or 25 yrs. Serv.)	
	Male	Female	Male	Female
50-51	27.5%	15.0%	2.0%	2.0%
52	27.5	15.0	3.0	4.0
53	27.5	15.0	3.0	4.0
54	27.5	15.0	4.5	5.0
55	38.5	30.0	4.5	6.0
56	38.5	30.0	7.0	8.5
57	38.5	30.0	10.0	9.5
58	38.5	30.0	11.0	10.0
59	38.5	30.0	12.0	10.0
60	22.0	20.0		
61-62	25.3	22.5		
63-64	27.5	22.5		
65	36.3	30.0		
66-69	27.5	30.0		
70-79	100.0	40.0		
80	100.0	100.0		

The actuarial assumption in regards to rates of retirement shown above are based on the rates used by the Connecticut State Teachers' Retirement System actuaries.

The retirement assumption was updated to reflect actual experience.

Withdrawal Rates

Rates based on gender and length of service for first Ten years and gender and age thereafter (Connecticut State TRS 2016 Pension Valuation):

Service	Male Rate	Female Rate
0-1	14.00%	12.00%
1-2	11.00	10.50
2-3	8.00	8.75
3-4	6.50	7.50
4-5	4.50	6.75
5-6	3.50	6.00
6-7	3.00	5.25
7-8	2.75	4.75
8-9	2.50	4.25
9-10	2.50	4.00
10 +	use age-related rates until eligible to retire	



Withdrawal Rates (cont.)

Sample Age-Based Withdrawal Rates (until eligible to retire)

Age	Male Rate	Female Rate
25	1.50%	4.00%
30	1.50	4.00
35	1.50	3.50
40	1.50	2.30
45	1.59	1.50
50	2.04	2.00
55	3.44	2.50
59+	4.00	2.90

Prior: Rates based on gender and length of service for first Ten years and gender and age thereafter (Connecticut State TRS 2014 Pension Valuation):

Age	Male Rate	Female Rate
0-1	14.00%	12.00%
1-2	8.50	9.00
2-3	5.50	7.00
3-4	4.50	6.00
4-5	3.50	5.50
5-6	2.50	5.00
6-7	2.40	4.50
7-8	2.30	3.50
8-9	2.20	3.00
9-10	2.10	2.50
10 +	use age-related rates until eligible to retire	

Age	Male Rate	Female Rate
25-37	1.20%	3.50%
40	1.20	2.30
45	1.26	1.40
50	1.96	1.25
55	2.76	1.60
59+	3.00	1.90

The actuarial assumption in regards to rates of withdrawal shown above are based on the rates used by the Connecticut State Teachers' Retirement System actuaries.

The withdrawal assumption was updated to reflect actual experience.

Disability

No disability assumed.



Additional Assumptions

50% of males and 50% of females are assumed married with wives assumed to be three years younger than their husbands.

The actuarial assumptions in regards to utilization shown above are based on standard assumptions modified for certain plan features such as eligibility for full and early retirement where applicable and input from the plan sponsor.

Medical inflation

7.75% for 2016, decreasing 0.5% per year, to an ultimate rate of 4.75% for 2022 and later.

(Prior: 9.0% for 2014, decreasing 1.0% per year, to an ultimate rate of 5.0% for 2018 and later.)

Health care trend rates reflect both the current and long-term outlook for increases in health care costs. The short term rates are based on recent industry surveys, plan experience and near-term expectations. The long term trend rate is based on our general inflation assumption of 2.75% plus 2.0% to reflect expectations for long-term medical inflation.

The change in assumption increased liabilities.

Expected per Capita claims

Active Employees		
Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$4,768	\$6,646
50	6,227	7,744
55	8,171	9,021
60	10,526	10,522
65	13,402	12,753
70	16,122	14,917
75	18,501	16,744

Current Retirees		
Sample Age	Expected Claim (Male)	Expected Claim (Female)
45	\$7,022	\$9,787
50	9,170	11,404
55	12,033	13,285
60	15,501	15,495
65	19,737	18,782
70	23,743	21,968
75	27,246	24,659

The sample per capita claim for plans not integrated with Medicare was developed as follows: Using the total count of active participants eligible for post-retirement medical benefits and retirees currently electing medical coverage in a non-medicare supplement plan, we calculate the total projected claims by multiplying the total count by the average annual premium. Using the cost increases derived from a study sponsored by the Society of Actuaries prepared by Dale H. Yamamoto from May 2013: "Health Care Costs from Birth to Death", we allocate the total projected claims by age and gender.



Expected per Capita claims (cont.)

(Prior: The sample per capita claim for plans not integrated with Medicare was developed as follows: Using the total count of active participants eligible for post-retirement medical benefits and retirees currently electing medical coverage in a non-medicare supplement plan, we calculate the total projected claims by multiplying the total count by the average annual premium. Using the cost increases derived from a study sponsored by the Society of Actuaries prepared by J.P Petertil from August 1, 2003: "Aging Curves for Health Care Costs in Retirement", we allocate the total projected claims by age.)

The per capita claims method was changed to reflect the most recent study. The change in assumption increased liabilities.

Percentage of Actives Eligible at Retirement who continue with Medical Coverage

100%.

Percentage of non-Medicare eligible Continuing after 65

20%.

The actuarial assumptions in regards to utilization shown above are based on standard assumptions modified for certain plan features such as eligibility for full and early retirement where applicable and input from the plan sponsor.

Medical Premiums

	Employee	Employee Plus Spouse
Average for all group:		
Active Employees	\$678.73	\$1,358.56
Current Retirees	\$999.86	\$2,000.73

Patient Protection and Affordable Care Act (PPACA)

High Cost Plan Excise Tax ("Cadillac Tax"): Effective in 2020, there will be a 40% excise tax on per capita medical benefit costs in excess of certain thresholds, which (in 2018) are \$10,200 for single coverage and \$27,500 for family coverage for Medicare eligible retirees. Thresholds (in 2018) for retirees who are between ages 55 and 65 are \$11,850 and \$30,950 for single and family coverage respectively. After 2018, the thresholds are indexed by CPI (CPI +1% in 2018 only). CPI is assumed to equal the inflation assumption.

For purposes of this valuation, this future excise tax is assumed to have no impact on liabilities in that retirees pay the full premium and no age weighting is applied to the value of the tax.

Other Requirements of PPACA:

For purposes of this valuation, extended coverage for adult children and 100% coverage of preventive care are assumed to be reflected in per capita costs.

For purposes of this valuation, elimination of lifetime maximum benefits and removal of the limits on essential healthcare are assumed to have no impact on plan liabilities.



Summary of Plan Provisions

Town Employees

Eligibility for Retiree Medical Coverage

Age 55 with 5 years of service or 25 years of service with no age requirement.

Retiree/Spouse Cost of Medical Coverage

The retiree must pay 100% of the premium for medical coverage until age 65. No coverage after age 65.

Retiree/Spouse Dental Coverage

None.

Life Insurance Benefit

None.

Finance Director

Eligibility for Retiree Medical Coverage

Age 50 with 15 years of service or 25 years of service with no age requirement.

Retiree/Spouse Cost of Medical Coverage

The retiree pays 0% of the premium for their coverage and 50% of the premium for the spouse. Spouse coverage ends on the death of the retiree. If the retiree or spouse is offered comparable insurance coverage, they will not receive insurance through the Town. If there is a premium share, however, the Town will reimburse the retiree. When the retiree or spouse is eligible for Medicare, the Town shall provide a Plan F supplement to Medicare.

Retiree/Spouse Cost of Dental Coverage

Same as Medical.

Life Insurance Benefit

None.

Police (including Chief of Police)

Eligibility for Medical and Dental Coverage

25 years of service with no age requirement.

Retiree/Spouse Cost of Medical Coverage

The retiree pays 0% of the premium for their coverage and 50% of the premium for the spouse. Spouse coverage ends on the death of the retiree. If an employee retires prior to age 50, the Town will not contribute toward spouse coverage until the retiree attains age 50. If the retiree or spouse is offered comparable insurance coverage, they will not receive insurance through the Town. If there is a premium share, however, the Town will reimburse the retiree. When the retiree or spouse is eligible for Medicare, the Town shall provide a Plan F supplement to Medicare.

For Police hired after January 15, 2010, the spouse does not have access to medical benefits after retirement.



Retiree/Spouse Cost of Dental Coverage

Same as Medical.

Life Insurance Benefit

None.

Fire (including Fire Chief/Deputy Fire Marshal and Assistant Fire Chief)

Eligibility for Medical and Dental Coverage

Age 55 with either 10 years of continuous service or 15 years of aggregate service or 25 years of service with no age requirement.

Retiree/Spouse Cost of Medical Coverage

The retiree pays 0% of the premium for their coverage and 50% of the premium for the spouse. Spouse coverage ends on the death of the retiree. If the retiree or spouse is offered comparable insurance coverage, they will not receive insurance through the Town. If there is a premium share, however, the Town will reimburse the retiree. When the retiree or spouse is eligible for Medicare, the Town shall provide a Plan F supplement to Medicare.

For Fire employees hired after July 1, 2004, the spouse does not have access to medical benefits after retirement.

Retiree/Spouse Cost of Dental Coverage

Same as Medical.

Life Insurance Benefit

None.

Board of Education Employees (Other than Certified Staff and Administrators)*

Eligibility for Retiree Medical Coverage

Age 55 with 5 years of service or 25 years of service with no age requirement.

Retiree/Spouse Cost of Medical Coverage

The retiree must pay 100% of the premium for medical coverage until age 65. No coverage after age 65.

Retiree/Spouse Dental Coverage

None.

Life Insurance Benefit

None.

**BASS, Professional, Technical Staff and Nurses (those hired after October 1, 2011) do not have access to medical insurance after retirement.*



Certified Staff and Administrators

Eligibility for Medical, Dental and Life Coverage

Age 50 with 25 years of service, age 55 with 20 years of service or age 60 with 10 years of service.

Retiree/Spouse Cost of Medical Coverage

The retiree must pay 100% of the premium for medical coverage for themselves or their spouse.

Retiree/Spouse Dental Coverage

None.

Life Insurance Benefit

None.