



**TOWN OF WINTHROP**

**OTHER POSTEMPLOYMENT BENEFITS PROGRAM**

**ACTUARIAL VALUATION**

**July 1, 2015**

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August 4, 2017

Mr. Michael Perez  
Chief Financial Officer  
Town of Winthrop  
1 Metcalf Square  
Winthrop, MA 02152

Dear Michael:

Enclosed is our report summarizing the results of an actuarial valuation of the Town of Winthrop's Other Postemployment Benefits (OPEB) as of July 1, 2015. Our valuation was performed in accordance with the provisions contained in the GASB Statement No. 45, Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions (GASB 45).

A summary of the valuation results is shown in Section 1. The principal results of our valuation are summarized in Section 2. The Plan Provisions and Actuarial Assumptions and Methods are shown in Sections 6 and 7, respectively. Section 8 summarizes the demographic profile of active employees and retirees.

The required disclosures under GASB 45 are presented in Section 3. The disclosures as of June 30, 2017 under the new GASB 74 standard will be presented in a separate report.

Our best estimate health care cost trend assumptions are based on recent experience and anticipated future cost increases under the Town of Winthrop medical plans. Section 5 illustrates the sensitivity of actuarial accrued liability and annual required contribution to a one percentage increase and decrease in the health care cost trend assumption for each future year.

Our actuarial valuation is based on a discount rate of 4% compounded annually. To illustrate the impact on cost of fully prefunding the Town's benefit liabilities, our report also includes valuation results based on an alternative 7.5% discount rate. Section 5 illustrates the sensitivity of actuarial accrued liability and annual required contribution to a one percentage increase and decrease in the discount rate.

We also provide 30-year forecasts of the OPEB liability under a partial prefunding arrangement and a fully-funded arrangement as well as a 10-year forecast of the Annual OPEB Cost and the Net OPEB Obligation in Section 4.

Mr. Michael Perez  
August 4, 2017  
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Our calculations were based on participant census data and other information provided by the Town of Winthrop and the benefit provisions of the medical plans as described in the benefit summaries. Our valuation is also based on medical plan rates provided by the Town in the file "monthly-gic-full-cost-ratesfy17-jan2017".

Our valuation follows generally accepted actuarial methods and we perform such tests as we consider necessary to assure the accuracy of the results. The amounts presented in this report have been appropriately determined according to the actuarial assumptions and methods stated herein.

We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

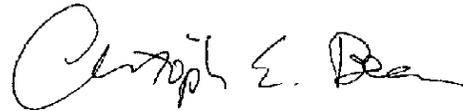
We appreciate this opportunity to be of service to the Town of Winthrop. We are available to answer any questions with respect to our valuation.

Respectfully submitted,



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Linda L. Bournival, FSA, EA, MAAA  
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## ACTUARIAL CERTIFICATION

This report presents the results of the Actuarial Valuation for the Town of Winthrop Postemployment Benefits Other Than Pensions as of July 1, 2015. The report presents the accounting and financial reporting information in accordance with Statement Number 45 of the Governmental Accounting Standards Board (GASB 45).

This valuation was performed using employee data and financial information provided to us by the Town. Although we did not audit the data used in the valuation, we believe that the information is complete and reliable.

This report was completed in accordance with generally accepted actuarial standards and procedures, and conforms to the Code of Professional Conduct of the American Academy of Actuaries. The actuarial assumptions other than those explicitly applicable to the postemployment benefit plans are consistent with those used by the Winthrop Contributory Retirement System and Massachusetts Teachers Retirement System's actuaries for the Retirement System pension valuations.

Future actuarial valuation results may differ significantly from the current results presented in this report. Examples of potential sources of volatility include plan experience differing from that anticipated by the economic or demographic assumptions, the effect of new entrants, changes in economic or demographic assumptions, the effect of law changes and the delayed effect of smoothing techniques.

This report is intended for the sole use of the Town of Winthrop and is intended to provide information to comply with the stated purpose of the report. It may not be appropriate for other purposes.

The undersigned credentialed actuaries are Members of the American Academy of Actuaries and together meet the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinion contained herein. They are available to answer any questions with regard to this report.

Respectfully submitted,



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Linda L. Bournival, FSA, EA, MAAA  
Member, American Academy of Actuaries  
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## SECTION 1 - SUMMARY

### BACKGROUND

The Town of Winthrop provides postemployment medical benefits to Town retirees and their covered dependents. The Town provides benefits as follows:

- ◆ Group 1 employees hired before April 2, 2012: retire after attaining age 55 with 10 or more years of service or any age with 20 or more years of service
- ◆ Group 1 employees hired after April 1, 2012: retire after attaining age 60 with 10 or more years of service
- ◆ Group 4 employees hired before April 2, 2012: retire after attaining age 55 or any age with 20 or more years of service
- ◆ Group 4 employees hired after April 1, 2012: retire after attaining age 55

Medical coverage continues to the spouse after the death of the retiree provided the spouse makes the required contributions.

### GASB 45

The Governmental Accounting Standards Board (GASB) is responsible for establishing accounting standards for governmental entities. Calculations developed in accordance with GASB standards are required when providing financial statements.

GASB believes that postemployment benefits are a form of deferred compensation whose cost should be recognized while the employee actually renders services rather than when the actual benefits are paid, many years later. Ideally under the GASB standard the entire postemployment liability is recognized by the time an active participant begins to receive postemployment benefits. GASB 45's focus is on postemployment benefits other than pensions, such as medical, dental and life insurance benefits. Unlike pensions where sponsors are pre-funding for benefits due in the future, the impact of GASB 45 will be to significantly increase cash pay-as-you-go expense.

The effective date for GASB 45 is a function of the Town's total annual revenues in the first fiscal year ending after June 15, 1999. We understand that this is your fiscal year that ended June 30, 1999, and that your related revenues were greater than \$10 million and less than \$100 million. As a result, the Town was required to comply with GASB 45 for the fiscal year ending June 30, 2009.

### ACTUARIAL VALUATION

As of July 1, 2015, there are 444 active employees who may be eligible for benefits in the future and 370 retired employees, covered spouses and survivors who are currently receiving benefits. Coverage is for individuals and families or individuals and spouses depending on the coverage selected.

## SECTION 1 - SUMMARY

Prior to GASB 45, the annual cost recognized was the annual premiums or benefits paid plus administrative expenses less any participant contributions paid towards the coverage. Under GASB 45, an annual cost for postemployment coverage is developed for any person who is currently receiving or who is currently actively employed and may be eligible to receive benefits in the future. In developing the GASB 45 cost for the Town of Winthrop, the payment of future benefits is determined using the current schedule of premiums under the plans provided by the GIC modified to reflect the population and the fact that actual healthcare expenses are higher as individuals age. These age-adjusted costs are increased in the future under the annual healthcare cost trend rate assumptions. The age-adjusted per capita costs utilized in this valuation are detailed in Section 7, Actuarial Assumptions and Methods.

It is important to understand that even though the Town charges participants for coverage based on the individual or family premium schedule presented in our report, in developing a liability for the Town, GASB requires that these premiums be adjusted as noted above. The plan premium represents less than 100% of the actual cost that is required to be recognized under the GASB standard.

### SUMMARY OF PRINCIPAL RESULTS

A summary of the principal results for the current and prior valuations follows:

Valuation Date	<u>July 1, 2015</u>	<u>July 1, 2013</u>
<b>Summary of Member Data</b>		
Active Members	444	415
Average Age	43.8	45.8
Average Service	10.2	11.5
Retired Members, Covered Spouses and Survivors	370	274
Average Age	71.7	72.1
<b>Discount rate</b>	4.00%	4.00%
<b>Actuarial Accrued Liability</b>	\$72,148,595	\$62,958,152
<b>Normal Cost</b>	\$2,015,894	\$1,873,039
<b>Assets</b>	\$50,116	\$0
<b>Unfunded Actuarial Accrued Liability</b>	\$72,098,479	\$62,958,152
<b>Annual Required Contribution</b>	\$6,266,854	\$5,589,589
<b>Expected Employer Premiums</b>	\$1,812,906	\$2,134,857

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## SECTION 1 - SUMMARY

### ACTUARIAL ASSUMPTIONS

The most important assumption for GASB 45 is the discount rate, which is used to discount future benefits to current age. GASB 45 requires that the discount rate accurately reflects the rate of return on assets dedicated to paying the retiree medical benefits. This means that a traditional pay-as-you-go system, which pays benefits from the Town's annual budget and not a dedicated trust, must use a discount rate close to the rate of return on cash. Full pre-funding by use of a dedicated trust with a mixture of stocks and bonds can employ a higher discount rate that accurately reflects the expected return on trust assets dedicated to pay retiree medical benefits. For the Town of Winthrop, we selected a 4% discount rate to reflect the partial pre-funding of future payments.

### CHANGES

Some assumptions and plan provisions used in this valuation have changed from those used in the July 1, 2013 valuation and are detailed in Sections 7 and 6, respectively. The major assumption and plan changes are summarized below:

- ◆ Actuarial Standards of Practice (ASOPs) now require that the payment of future benefits be determined using the current schedule of premiums under the plans provided by the District, modified to reflect the fact that actual healthcare expenses are higher as individuals age. In the previous valuation, the GIC plans were considered to be "community rated" and therefore did not value an "implicit subsidy" nor adjust the schedule of premiums as described above.
- ◆ the pre-retirement decrements for Teachers were updated to reflect those recently used by the Massachusetts Teachers Retirement System actuaries.
- ◆ the pre- and post-retirement mortality rates were updated to utilize recent mortality tables adjusted for generational mortality improvement.
- ◆ the excise tax under the Patient Protection and Affordable Care Act (PPACA) was updated to reflect the tax on benefits in excess of the mandated thresholds starting in 2020 (previously, 2018).

### RESULTS

We have provided results based on a discount rate of 4%. As shown in Table 4.3 of Section 4, the Annual OPEB Cost for the fiscal year ending June 30, 2016 under GASB 45 is \$5,929,962 and the estimated Annual OPEB Cost for the fiscal year ending June 30, 2017 under GASB 45 is \$6,119,528.

The accumulated Net OPEB Obligation as of June 30, 2016 is \$22,954,445 and the estimated Net OPEB Obligation as of June 30, 2017 is \$27,089,398.

## SECTION 1 - SUMMARY

The Actuarial Accrued Liability (AAL) as of July 1, 2015 is \$72,148,595. The AAL by status breakdown is shown below:

Actives:	\$37,382,986
Retirees, Beneficiaries and Surviving Spouses:	34,765,609
Total:	\$72,148,595
Actuarial Value of Assets:	\$50,116
Unfunded Actuarial Accrued Liability:	\$72,098,479

### ACTUARIAL GAIN/LOSS ANALYSIS

In performing the actuarial valuation, various assumptions are made regarding future premium rates, mortality, retirement, disability and withdrawal rates as well as investment returns. A comparison of the results of the current valuation and the prior valuation is made to determine how closely actual experience relates to expected. Below is the development of the Actuarial (Gain)/Loss for the current

Unfunded Actuarial Accrued Liability, July 1, 2013	\$62,958,152
Expected Unfunded Actuarial Accrued Liability, July 1, 2015*	67,488,216

\* projected from the July 1, 2013 valuation

Actual Unfunded Actuarial Accrued Liability, July 1, 2015	72,098,479
(Gain)/Loss during the two-year period	\$4,610,263

The actuarial loss of \$4,610,263 was mostly comprised of the following:

◆ gain as a result of market value of assets as of the valuation date greater than expected	(50,116)
◆ gain as a result of favorable demographic experience from the prior valuation	(2,604,478)
◆ gain as a result of premium rates lower than expected from the previous valuation	(14,897,066)
◆ loss as a result of use of age-adjusted medical costs and valuation of implicit subsidy	12,483,797
◆ loss as a result of update to pre-retirement decrements for Teachers	1,815,125
◆ loss as a result of update to the post-retirement mortality tables	9,351,864
◆ gain as a result of PPACA excise tax effective 2020 (previously, 2018) and update to tax calculation methodology	<u>(1,488,863)</u>
◆ Total (Gain)/Loss	4,610,263

Town of Winthrop Postemployment Benefits Other Than Pensions  
Actuarial Valuation as of July 1, 2015

## SECTION 2 - PRINCIPAL VALUATION RESULTS

Section 20 of M.G.L. Chapter 32B allows municipal entities to establish an OPEB trust for purposes of accumulating assets to prefund the OPEB liabilities. We understand that the Town of Winthrop has established an irrevocable trust for this purpose. Plan assets segregated and restricted in an OPEB trust must be dedicated to providing plan benefits to retirees and beneficiaries in accordance with the terms of the plan and must be legally protected from creditors of the employer. Further, employer contributions to the trust must be irrevocable.

The Actuarial Value of Plan Assets is equal to the market value. The asset activity during the 2-year period July 1, 2013 through June 30, 2015 follows:

**TABLE 2.1 - OPEB TRUST ASSETS**

<b>Market Value of Assets</b>		
<b>Fiscal Year</b>	<b><u>2015</u></b>	<b><u>2014</u></b>
Assets, prior July 1	\$0	\$0
Contributions Receivable	\$0	\$0
Assets, prior July 1	\$0	\$0
Employer Contributions		
Paid Premiums	\$1,622,700	\$2,082,000
OPEB Trust Deposits	50,000	0
Total Employer Contributions	\$1,672,700	\$2,082,000
Benefits Paid	(1,622,700)	(\$2,082,000)
Expenses	0	0
Investment Earnings	116	0
Assets, June 30	\$50,116	\$0
Estimate Rate of Return	0.46%	0.00%

Information regarding the asset value held in the OPEB Trust was provided by the Town of Winthrop.

## SECTION 2 - PRINCIPAL VALUATION RESULTS

The Actuarial Accrued Liability is the portion of the Actuarial Present Value of Future Benefits which is allocated to all periods prior to a valuation year and therefore is not provided for by future Normal Costs. Below is the Actuarial Accrued Liability assuming a discount rate of 4%, a blended rate for partial prefunding, and 7.5%, the rate of return on a dedicated trust if the Town were to fully pre-fund benefits:

**TABLE 2.2 - ACTUARIAL ACCRUED LIABILITY**

	<u>Partial Pre-Funding</u>	<u>Full Pre-Funding</u>
<b>Discount Rate</b>	<b>4%</b>	<b>7.5%</b>
<b>Current Active Employees</b>		
Pre-Medicare Gross Benefit	\$12,427,342	\$7,881,776
Pre-Medicare Participant Contributions	1,412,127	907,429
Net Pre-Medicare Benefit	\$11,015,215	\$6,974,347
Post - Medicare Gross Benefit	\$30,188,055	\$11,979,283
Post - Medicare Participant Contributions	3,820,284	1,621,319
Net Post - Medicare Benefit	\$26,367,771	\$10,357,964
<b>Total Current Active Employees</b>	<b>\$37,382,986</b>	<b>\$17,332,311</b>
<b>Current Retirees</b>		
Pre-Medicare Gross Benefit	\$4,108,655	\$3,532,315
Pre-Medicare Participant Contributions	488,291	420,861
Net Pre-Medicare Benefit	\$3,620,364	\$3,111,454
Post - Medicare Gross Benefit	\$35,207,573	\$22,697,318
Post - Medicare Participant Contributions	4,062,328	2,703,385
Net Post - Medicare Benefit	\$31,145,245	\$19,993,933
<b>Total Current Retirees</b>	<b>\$34,765,609</b>	<b>\$23,105,387</b>
<b>Total Actuarial Accrued Liability (AAL)</b>	<b>\$72,148,595</b>	<b>\$40,437,698</b>

## SECTION 2 - PRINCIPAL VALUATION RESULTS

The Normal Cost is the portion of the Actuarial Present Value of Future Benefits which is attributed to services rendered by active employees in the current year. Below is the Normal Cost assuming a discount rate of 4%, a blended rate for partial prefunding, and 7.5%, the rate of return on a dedicated trust if the Town were to fully pre-fund benefits:

**TABLE 2.3 - NORMAL COST**

	<u>Partial Pre-Funding</u>	<u>Full Pre-Funding</u>
<b>Discount Rate</b>	<b>4%</b>	<b>7.5%</b>
<b>Current Active Employees</b>		
Pre-Medicare Gross Benefit	\$631,083	\$311,962
Pre-Medicare Participant Contributions	68,215	34,214
Net Pre-Medicare Benefit	\$562,868	\$277,748
Post - Medicare Gross Benefit	\$1,657,318	\$483,061
Post - Medicare Participant Contributions	204,292	64,244
Net Post - Medicare Benefit	\$1,453,026	\$418,817
<b>Total Current Active Employees</b>	<b>\$2,015,894</b>	<b>\$696,565</b>
 <b>Current Retirees</b>		
Pre-Medicare Gross Benefit	\$0	\$0
Pre-Medicare Participant Contributions	0	0
Net Pre-Medicare Benefit	\$0	\$0
Post - Medicare Gross Benefit	\$0	\$0
Post - Medicare Participant Contributions	0	0
Net Post - Medicare Benefit	\$0	\$0
<b>Total Current Retirees</b>	<b>\$0</b>	<b>\$0</b>
<b>Total Normal Cost (NC)</b>	<b>\$2,015,894</b>	<b>\$696,565</b>

## SECTION 2 - PRINCIPAL VALUATION RESULTS

Under GASB 45, the Annual Required Contribution (ARC) of the employer equals the Normal Cost plus a provision for amortizing the Unfunded Actuarial Accrued Liability. We have assumed level dollar amortization over the maximum acceptable amortization period of 30 years. For the period beginning July 1, 2015, the ARC, calculated under the parameters of this actuarial valuation, would be:

**TABLE 2.4 - ANNUAL REQUIRED CONTRIBUTION and ANNUAL OPEB COST**

	<u>Partial Pre-Funding</u>	<u>Full Pre-Funding</u>
<b>Discount Rate</b>	<b>4%</b>	<b>7.5%</b>
1. Normal Cost	\$2,015,894	\$696,565
2. Unfunded Actuarial Accrued Liability		
a. Actuarial Accrued Liability	\$72,148,595	\$40,437,698
b. Actuarial Value of Plan Assets	\$50,116	\$50,116
c. Unfunded Actuarial Accrued Liability	\$72,098,479	\$40,387,582
3. Amortization of Unfunded Actuarial Accrued Liability		
a. Unfunded Actuarial Accrued Liability	\$72,098,479	\$40,387,582
b. Amortization Period in years	30	30
c. Factor Increasing Rate	0.0%	0.0%
d. Amortization Factor	17.98	12.70
e. Amortization Amount (3.a. / 3.d.)	\$4,009,927	\$3,180,125
4. Interest on 1. and 3.e.	\$241,033	\$290,752
5. Annual Required Contribution (1. + 3.e. + 4.)	\$6,266,854	\$4,167,442
6. Net OPEB Obligation, beginning of year	\$18,887,389	Not Applicable
7. Interest on Net OPEB Obligation at 4%	\$755,496	Not Applicable
8. Adjustment to Annual Required Contribution at 4%	(\$1,092,388)	Not Applicable
9. Annual OPEB Cost (5. + 7. + 8.)	\$5,929,962	Not Applicable

## SECTION 3 - GASB 45 ACCOUNTING DISCLOSURE

GASB 45 requires disclosure of the annual OPEB cost, the Net OPEB Obligation and the Schedule of Funding Progress. In addition, information about the Actuarial Methods and Assumptions used in the valuation and a summary of the Substantive Plan Provisions are disclosed, which are provided in Section 7 and Section 6, respectively.

<b>Annual OPEB Cost and Net OPEB Obligation*</b>			
Fiscal Year Ending	<u>6/30/2016</u>	<u>6/30/2015</u>	<u>6/30/2014</u>
Discount rate	4.00%	4.00%	4.00%
Annual Required Contribution	\$6,266,854	\$5,799,917	\$5,589,589
Interest on Net OPEB Obligation	755,496	628,646	499,364
Adjustment to annual required contribution	<u>(1,092,388)</u>	<u>(908,974)</u>	<u>(722,041)</u>
Annual OPEB cost	\$5,929,962	\$5,519,589	\$5,366,912
Expected employer premiums (including implicit subsidy)	(\$1,812,906)	(\$2,348,352)	(\$2,134,857)
OPEB Trust contributions	<u>(50,000)</u>	<u>-</u>	<u>-</u>
Total Employer contributions	(1,862,906)	(2,348,352)	(2,134,857)
Change in Net OPEB Obligation	\$4,067,056	\$3,171,237	\$3,232,055
Net OPEB Obligation - beginning of year	\$18,887,389	\$15,716,152	\$12,484,097
Net OPEB Obligation - end of year	\$22,954,445	\$18,887,389	\$15,716,152

\* Entries for fiscal years 2014 and 2015 from Town's audited financial statements.

<b>Plan History</b>				
Fiscal Year Ended	Annual OPEB Cost	Percentage of Annual OPEB Cost Contributed	Net OPEB Obligation	
6/30/2016	5,929,962	31.4%	22,954,445	
6/30/2015	5,519,589	42.5%	18,887,389	
6/30/2014	5,366,912	39.8%	15,716,152	

<b>Schedule of Funding Progress</b>						
Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a) / c)
7/1/2015	50,116	72,148,595	72,098,479	0.07%	Not available	Not available
7/1/2013	0	62,958,152	62,958,152	0.00%	19,953,536	315.5%
7/1/2010	0	50,004,256	50,004,256	0.00%	Not available	Not available

Town of Winthrop Postemployment Benefits Other Than Pensions  
Actuarial Valuation as of July 1, 2015

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## SECTION 4 - FORECASTS

### OVERVIEW

In Section 4, we have provided 30-year forecasts of the annual funding requirements, accrued liability, assets and unfunded actuarial accrued liability under a partial pre-funding scenario and a fully-funded scenario. The entries in Tables 4.1 and 4.2 are based on the assumptions stated below:

- ◆ Expected Employer Premiums are developed in the actuarial valuation and are based on the plan provisions and assumptions detailed in Section 6 and Section 7, respectively.
- ◆ Normal Cost with interest is assumed to increase annually by 4%.
- ◆ Assets are assumed to grow annually at the selected discount rate plus OPEB Trust Contributions made at the end of each fiscal year.
- ◆ Actuarial Accrued Liability (AAL) equals AAL, prior year, plus Normal Cost less Expected Employer Premiums plus interest on these items.
- ◆ Unfunded Actuarial Accrued Liability (UAAL) equals the AAL less Assets.
- ◆ The Annual Required Contribution (ARC) is the sum of the Normal Cost and the Amortization Amount, plus interest on these items.

**Table 4.1** is based on funding the expected Employer premiums plus a \$50,000 annual contribution to the OPEB Trust.

- ◆ The assumed discount rate is 4%.
- ◆ Amortization Amount is the amount necessary to amortize the Unfunded Actuarial Accrued Liability over 30 years at a discount rate of 4% on an open amortization basis. The open amortization period is 30 years and recomputed at each valuation date.

**Table 4.2** is based on fully funding the Annual Required Contribution (ARC) each year.

- ◆ The assumed discount rate is 7.5%.
- ◆ Amortization Amount is the amount necessary to amortize the Unfunded Actuarial Accrued Liability over 30 years at a discount rate of 7.5% on a closed amortization basis. The closed amortization period is 30 years at year one declining to zero after 30 years. This method fully funds the UAAL at the end of 30 years.
- ◆ OPEB Trust Contributions are the excess of the ARC over the Expected Employer Premiums.

## SECTION 4 - FORECASTS

**TABLE 4.1 - Calculation of the Annual Required Contribution**

FYE June 30	(1) Normal Cost	(2) Actuarial Accrued Liability	(3) Expected Employer Premiums	(4) Actuarial Value of Assets	(5) Unfunded Actuarial Accrued Liability (2) - (4)	(6) Amortization Amount	(7) Interest	(8) ARC (1) + (6) + (7)	(9) OPEB Trust Contributions
2016	2,015,894	72,148,595	1,812,906	50,116	72,098,479	4,009,927	241,033	6,266,854	50,000
2017	2,096,530	75,282,260	1,934,575	102,121	75,180,139	4,181,320	251,114	6,528,964	50,000
2018	2,180,391	78,501,054	2,038,160	156,206	78,344,848	4,357,333	261,509	6,799,233	50,000
2019	2,267,607	81,830,179	2,187,514	212,454	81,617,725	4,539,362	272,279	7,079,248	50,000
2020	2,358,311	85,230,862	2,400,399	270,952	84,959,910	4,725,245	283,342	7,366,898	50,000
2021	2,452,643	88,644,804	2,523,708	331,790	88,313,014	4,911,736	294,575	7,658,954	50,000
2022	2,550,749	92,167,658	2,665,536	395,062	91,772,596	5,104,149	306,196	7,961,094	50,000
2023	2,652,779	95,788,819	2,834,762	460,864	95,327,955	5,301,888	318,187	8,272,854	50,000
2024	2,758,890	99,488,361	2,994,125	529,299	98,959,062	5,503,841	330,509	8,593,240	50,000
2025	2,869,246	103,283,721	3,108,841	600,471	102,683,250	5,710,971	343,209	8,923,426	50,000
2026	2,984,016	107,228,677	3,268,522	674,490	106,554,187	5,926,262	356,411	9,266,689	50,000
2027	3,103,377	111,287,949	3,416,220	751,470	110,536,479	6,147,746	370,045	9,621,168	50,000
2028	3,227,512	115,483,105	3,587,325	831,529	114,651,576	6,376,617	384,165	9,988,294	50,000
2029	3,356,612	119,800,674	3,700,802	914,790	118,885,884	6,612,118	398,749	10,367,479	50,000
2030	3,490,876	124,309,485	3,860,716	1,001,382	123,308,103	6,858,070	413,958	10,762,904	50,000
2031	3,630,511	128,975,202	3,997,258	1,091,437	127,883,765	7,112,556	429,723	11,172,790	50,000
2032	3,775,731	133,833,522	4,160,860	1,185,094	132,648,428	7,377,554	446,131	11,599,416	50,000
2033	3,926,760	138,870,362	4,308,944	1,282,498	137,587,864	7,652,273	463,161	12,042,194	50,000
2034	4,083,830	144,114,729	4,404,255	1,383,798	142,730,931	7,938,317	480,886	12,503,033	50,000
2035	4,247,183	149,635,025	4,526,889	1,489,150	148,145,875	8,239,481	499,467	12,986,131	50,000
2036	4,417,070	155,420,957	4,617,182	1,598,716	153,822,241	8,555,186	518,890	13,491,146	50,000
2037	4,593,753	161,522,928	4,728,168	1,712,665	159,810,263	8,888,224	539,279	14,021,256	50,000
2038	4,777,503	167,939,544	4,898,577	1,831,172	166,108,372	9,238,508	560,640	14,576,651	50,000
2039	4,968,603	174,630,141	5,080,246	1,954,419	172,675,722	9,603,767	582,895	15,155,265	50,000
2040	5,167,347	181,601,839	5,195,305	2,082,596	179,519,243	9,984,385	606,069	15,757,801	50,000
2041	5,374,041	188,941,761	5,368,237	2,215,900	186,725,861	10,385,198	630,370	16,389,609	50,000
2042	5,589,003	196,613,885	5,565,678	2,354,536	194,259,349	10,804,191	655,728	17,048,922	50,000
2043	5,812,563	204,615,103	5,610,988	2,498,717	202,116,386	11,241,178	682,150	17,735,891	50,000
2044	6,045,066	213,122,665	5,663,970	2,648,666	210,473,999	11,706,007	710,043	18,461,116	50,000
2045	6,286,869	222,158,302	5,672,371	2,804,613	219,353,689	12,199,871	739,470	19,226,210	50,000
2046	6,538,344	231,798,272	5,704,139	2,966,798	228,831,474	12,727,001	770,614	20,035,959	-

30 years open, 4% discount rate.

Town of Winthrop Postemployment Benefits Other Than Pensions  
Actuarial Valuation as of July 1, 2015

## SECTION 4 - FORECASTS

**TABLE 4.2 - Funding the Annual Required Contribution - 7.5%**

FYE June 30	(1) Normal Cost	(2) Actuarial Accrued Liability	(3) Expected Employer Premiums	(4) Actuarial Value of Assets	(5) Unfunded Actuarial Accrued Liability (2) - (4)	(6) Amortization Amount	(7) Interest	(8) ARC (1) + (6) + (7)	(9) OPEB Trust Contributions
2016	696,565	40,437,698	1,812,906	50,116	40,387,582	3,180,125	290,752	4,167,442	50,000
2017	724,428	42,339,672	1,934,575	37,120	42,302,552	3,365,358	306,734	4,396,520	2,461,945
2018	753,405	44,288,097	2,038,160	2,430,614	41,857,483	3,364,749	308,862	4,427,016	2,388,856
2019	783,541	46,306,405	2,187,514	4,926,717	41,379,688	3,364,202	311,081	4,458,824	2,271,310
2020	814,883	48,353,629	2,400,399	7,486,982	40,866,647	3,363,510	313,379	4,491,772	2,091,373
2021	847,478	50,367,364	2,523,708	10,051,491	40,315,873	3,365,265	315,956	4,528,699	2,004,991
2022	881,377	52,439,319	2,665,536	12,717,416	39,721,903	3,363,413	318,359	4,563,149	1,897,613
2023	916,632	54,556,062	2,834,762	15,470,685	39,085,377	3,363,630	321,020	4,601,282	1,766,520
2024	953,297	56,694,002	2,994,125	18,293,125	38,400,877	3,365,546	323,913	4,642,756	1,648,631
2025	991,429	58,866,472	3,108,841	21,203,491	37,662,981	3,365,771	326,790	4,683,990	1,575,149
2026	1,031,086	61,123,929	3,268,522	24,254,428	36,869,501	3,364,006	329,632	4,724,724	1,456,202
2027	1,072,329	63,427,765	3,416,220	27,409,358	36,018,407	3,363,063	332,654	4,768,046	1,351,826
2028	1,115,222	65,795,589	3,587,325	30,691,094	35,104,495	3,365,723	336,071	4,817,016	1,229,691
2029	1,159,831	68,209,704	3,700,802	34,090,524	34,119,180	3,364,811	339,348	4,863,990	1,163,188
2030	1,206,224	70,735,177	3,860,716	37,674,230	33,060,947	3,363,270	342,712	4,912,206	1,051,490
2031	1,254,473	73,334,131	3,997,258	41,409,128	31,925,003	3,364,068	346,391	4,964,932	967,674
2032	1,304,652	76,038,304	4,160,860	45,335,299	30,703,005	3,362,870	350,064	5,017,586	856,726
2033	1,356,838	78,829,606	4,308,944	49,438,961	29,390,645	3,362,774	353,971	5,073,583	764,639
2034	1,411,112	81,732,819	4,404,255	53,752,858	27,979,961	3,362,976	358,057	5,132,145	727,890
2035	1,467,556	84,813,297	4,526,889	58,350,039	26,463,258	3,366,827	362,579	5,196,962	670,073
2036	1,526,258	88,058,339	4,617,182	63,229,676	24,828,663	3,364,317	366,793	5,257,368	640,186
2037	1,587,308	91,516,246	4,728,168	68,442,074	23,074,172	3,363,582	371,317	5,322,207	594,039
2038	1,650,800	95,184,052	4,898,577	73,995,168	21,188,884	3,363,315	376,059	5,390,174	491,597
2039	1,716,832	99,018,513	5,080,246	79,856,027	19,162,486	3,367,748	381,344	5,465,924	385,678
2040	1,785,505	103,023,185	5,195,305	86,043,842	16,979,343	3,362,246	386,081	5,533,832	338,527
2041	1,856,925	107,282,735	5,368,237	92,644,355	14,638,380	3,365,145	391,655	5,613,725	245,488
2042	1,931,202	111,759,228	5,565,678	99,640,500	12,118,728	3,366,313	397,314	5,694,829	129,151
2043	2,008,450	116,446,594	5,610,988	107,037,749	9,408,845	3,360,302	402,656	5,771,408	160,420
2044	2,088,788	121,521,576	5,663,970	115,019,392	6,502,184	3,369,007	409,335	5,867,130	203,160
2045	2,172,340	127,008,612	5,672,371	123,640,447	3,368,165	3,368,165	415,538	5,956,043	283,672
2046	2,259,234	132,988,283	5,704,139	132,988,283	-	-	169,443	2,428,677	-

30 years closed, 7.5% discount rate.

Town of Winthrop Postemployment Benefits Other Than Pensions  
Actuarial Valuation as of July 1, 2015

## SECTION 4 - FORECASTS

**TABLE 4.3 - ANNUAL OPEB COST and NET OPEB OBLIGATION**

FYE June 30	ARC	Interest on Net OPEB Obligation	ARC Adjustment	Amortization Factor	Annual OPEB Cost	Employer Contributions	Change in Net OPEB Obligation	Net OPEB Obligation Balance
								18,887,389
2016	6,266,854	755,496	(1,092,388)	17.29	5,929,962	1,862,906	4,067,056	22,954,445
2017	6,528,964	918,178	(1,327,614)	17.29	6,119,528	1,984,575	4,134,953	27,089,398
2018	6,799,233	1,083,576	(1,566,767)	17.29	6,316,042	2,088,160	4,227,882	31,317,280
2019	7,079,248	1,252,691	(1,811,294)	17.29	6,520,645	2,237,514	4,283,131	35,600,411
2020	7,366,898	1,424,016	(2,059,017)	17.29	6,731,897	2,450,399	4,281,498	39,881,909
2021	7,658,954	1,595,276	(2,306,646)	17.29	6,947,584	2,573,708	4,373,876	44,255,785
2022	7,961,094	1,770,231	(2,559,617)	17.29	7,171,708	2,715,536	4,456,172	48,711,957
2023	8,272,854	1,948,478	(2,817,349)	17.29	7,403,983	2,884,762	4,519,221	53,231,178
2024	8,593,240	2,129,247	(3,078,726)	17.29	7,643,761	3,044,125	4,599,636	57,830,814
2025	8,923,426	2,313,233	(3,344,755)	17.29	7,891,904	3,158,841	4,733,063	62,563,877

Notes:

1. ARC and Employer Contributions are from 30-Year Forecast of Annual Required Contributions (Table 4.1).
2. Interest on Net OPEB Obligation is computed on the prior year Net OPEB Obligation Balance.
3. ARC Adjustment is the prior year Net OPEB Obligation Balance amortized over 30 years.
4. OPEB Cost is the ARC plus Interest on Net OPEB Obligation less ARC Adjustment.
5. Change in Net OPEB Obligation is the difference between the OPEB Cost and Employer Contributions.
6. Net OPEB Obligation is the prior year Net OPEB Obligation Balance plus Change in Net OPEB Obligation.
7. Year one Interest on Net OPEB Obligation and ARC Adjustment computed at prior discount rate of 4.00%.
8. Subsequent years' Interest on Net OPEB Obligation and ARC Adjustment computed at current discount rate of 4.00%.

## SECTION 5 - SENSITIVITY ANALYSIS

Below we illustrate the sensitivity of the Actuarial Accrued Liability and the Annual Required Contribution to a one percentage increase and decrease in the discount rate:

**TABLE 5.1 - DISCOUNT RATE ASSUMPTION**

	Discount Rate -1%	Assumed Discount Rate	Discount Rate +1%
<b>Discount Rate</b>	<b>3%</b>	<b>4%</b>	<b>5%</b>
<b>Actuarial Accrued Liability</b>			
Current Active Employees	\$48,803,159	\$37,382,986	\$29,288,140
Current Retirees	39,918,450	34,765,609	30,590,778
Total Actuarial Accrued Liability	\$88,721,609	\$72,148,595	\$59,878,918
<b>Change %</b>	<b>22.97%</b>		<b>-17.01%</b>
<b>Annual Required Contribution</b>			
Normal Cost	\$2,879,948	\$2,015,894	\$1,446,847
Actuarial Accrued Liability	\$88,721,609	\$72,148,595	\$59,878,918
Actuarial Value of Assets	50,116	50,116	50,116
Unfunded Actuarial Accrued Liability	\$88,671,493	\$72,098,479	\$59,828,802
Amortization Payment	4,391,852	4,009,927	3,706,865
Interest	218,154	241,033	257,686
Annual Required Contribution	\$7,489,954	\$6,266,854	\$5,411,398
<b>Change %</b>	<b>19.52%</b>		<b>-13.65%</b>

## SECTION 5 - SENSITIVITY ANALYSIS

Contribution to a one percentage increase and decrease in health care cost trend assumption for each future year:

**TABLE 5.2 - HEALTH CARE COST TREND ASSUMPTION**

	Trend -1%	Assumed Trend	Trend +1%
<b>Discount Rate</b>	<b>4%</b>	<b>4%</b>	<b>4%</b>
<b>Actuarial Accrued Liability</b>			
Current Active Employees	\$29,482,439	\$37,382,986	\$48,224,427
Current Retirees	30,765,569	34,765,609	39,585,234
Total Actuarial Accrued Liability	\$60,248,008	\$72,148,595	\$87,809,661
<b>Change %</b>	<b>-16.49%</b>		<b>21.71%</b>
<b>Annual Required Contribution</b>			
Normal Cost	\$1,457,294	\$2,015,894	\$2,839,173
Actuarial Accrued Liability	\$60,248,008	\$72,148,595	\$87,809,661
Actuarial Value of Assets	50,116	50,116	50,116
Unfunded Actuarial Accrued Liability	\$60,197,892	\$72,098,479	\$87,759,545
Amortization Payment	3,348,047	4,009,927	4,880,954
Interest	192,214	241,033	308,805
Annual Required Contribution	\$4,997,555	\$6,266,854	\$8,028,932
<b>Change %</b>	<b>-20.25%</b>		<b>28.12%</b>

## SECTION 6 - SUMMARY OF PLAN PROVISIONS

**Eligibility:** Group 1 employees hired before April 2, 2012: retire after attaining age 55 with 10 or more years of service or any age with 20 or more years of service

Group 1 employees hired after April 1, 2012: retire after attaining age 60 with 10 or more years of service

Group 4 employees hired before April 2, 2012: retire after attaining age 55 or any age with 20 or more years of service

Group 4 employees hired after April 1, 2012: retire after attaining age 60 with 10 or more years of service

**Ordinary Disability Eligibility:** Any member who is unable to perform his or her duties due to a non-occupational disability and has ten or more years of creditable service.

**Accidental Disability Eligibility:** Any member who is unable to perform his or her duties due to a job-related disability.

**Medical Premium Rates:** The total monthly cost by plan are shown below:

<u>Non-Medicare Plans - July 1, 2016</u>	<u>Individual</u>	<u>Family</u>
Fallon Direct Care	\$519.74	\$1,247.40
Fallon Select Care	\$690.66	\$1,657.54
HP Independence Plan	\$816.43	\$1,992.07
HP Primary Choice	\$610.40	\$1,489.38
Health New England	\$534.87	\$1,326.04
NHP Care (Neighborhood Health Plan)	\$512.21	\$1,357.32
Tufts Health Plan Navigator	\$686.34	\$1,674.68
Tufts Health Plan Spirit	\$515.32	\$1,240.52
UniCare Basic with CIC*	\$1,002.41	\$2,346.44
UniCare Basic without CIC	\$959.09	\$2,245.96
UniCare Community Choice	\$487.63	\$1,170.35
UniCare PLUS	\$655.32	\$1,566.13

\* Retiree pays full cost of CIC

<u>Medicare Plans - July 1, 2016</u>	
Fallon Senior**	\$311.54
HP Medicare Enhanced	\$439.17
Health NE MedPlus	\$410.96
Tufts Medicare Complement	\$398.39
Tufts Medicare Preferred**	\$276.46
UniCare OME w/CIC	\$374.63
UniCare OME w/o CIC	\$363.94

\*\* rates effective January 1, 2016

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## SECTION 6 - SUMMARY OF PLAN PROVISIONS

- Participant Contributions:** Retired employees contribute between 10% and 35% of the total medical premium rates, as follows:
- Teachers who retired before July 1, 2008 contribute 10%.  
Retirees, and Teachers who retired on or after July 1, 2008, enrolled in UniCare State Indemnity plans contribute 35%.  
All others contribute 15%.
- Continuation of Coverage to Spouse After Death of** Surviving spouse may continue coverage for lifetime by paying the required medical premium rates.
- Life Insurance Benefit:** Retirees are eligible for a \$2,000 life insurance benefit.
- Life Insurance Premium:** The total monthly cost is \$3.22.
- Life Insurance Contributions:** Retired employees contribute \$1.61 per month for life insurance.
- PPACA Excise Tax:** The Patient Protection and Affordable Care Act (PPACA) applies a 40% excise tax to the cost of plan benefits in excess of statutory thresholds beginning in 2020 (previously, 2018). The 2018 thresholds are assumed to be \$10,200 for individual and \$27,500 for family coverage and increase by CPI in future years. The annual limits are increased by \$1,650 for individual and \$3,450 for family coverage for retirees not eligible for Medicare benefits.

## SECTION 7 - ACTUARIAL ASSUMPTIONS AND METHODS

**Valuation Date:** July 1, 2015

**Discount Rate:** 4% per annum, compounded annually.

Investment returns:

Plan assets (long-term rate of return): 7.50%

Employer assets (short-term rate of return): 4.00%

The development of the discount rate used in the valuation is based on the percentage of the Annual Required Contribution (ARC) funded and is shown below:

1. ARC under fully funded plan	4,167,442
2. Pay-as-you-go (PAYG)	1,812,906
3. GAP between ARC and PAYG	2,354,536
(1. - 2.)	
4. OPEB Trust contribution	50,000
5. Percent of GAP funded	2%
6. Multiplied by long-term rate	0.16%
7. Percent of GAP not funded	98%
8. Multiplied by short-term rate	3.92%
9. Discount rate (6. + 8.)	4.07%

Based on the methodology above, the Town has selected a discount rate of 4%.

**Amortization Method:** Level dollar amount over thirty (30) years on an open amortization period for partial pre-funding.  
 Level dollar amount over thirty (30) years on a closed amortization period for full pre-funding.

**Health Care Cost Trend Rates:**

Year	Trend
1	8.00%
2	7.50%
3	7.00%
4	6.50%
5	6.00%
6	5.50%
7	5.00%
Ultimate	5.00%

## SECTION 7 - ACTUARIAL ASSUMPTIONS AND METHODS

**Consumer Price Index:** 3% per year.

**Medical Plan Participation:** 70% of eligible retirees will elect to participate.

**Life Insurance Participation:** 70% of eligible retirees will elect to participate.

**Dependent Status:** Male spouses are assumed to be three years older and female spouses are assumed to be three years younger than the retired

50% of employees are assumed to retire with a covered spouse.

For current retirees, the actual census information is used.

**Medical Per Capita Costs:** Annual per capita costs for the fiscal year beginning July 1, 2015 are as follows:

<u>Age</u>	<u>Male</u>	<u>Female</u>
Under 20	\$2,765	\$3,246
20-24	\$2,179	\$3,456
25-29	\$2,267	\$5,098
30-34	\$2,848	\$6,442
35-39	\$3,572	\$6,636
40-44	\$4,451	\$6,796
45-49	\$5,618	\$7,459
50-54	\$7,404	\$8,775
55-59	\$9,621	\$10,147
60-64	\$12,348	\$12,077
65-69	\$3,242	\$3,157
70-74	\$3,885	\$3,724
75-79	\$4,588	\$4,321
80-84	\$5,273	\$4,956
85-89	\$5,874	\$5,540
90-94	\$6,395	\$5,912
95+	\$6,797	\$5,718

**Retiree Contributions:** Annual per capita participant contributions for the fiscal year beginning July 1, 2015 are as follows:

<u>Plan</u>	<u>10%</u>	<u>15%</u>	<u>35%</u>
Non-Medicare	\$ 891	\$ 1,337	\$ 3,120
Medicare	\$ 396	\$ 594	\$ 1,386

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## SECTION 7 - ACTUARIAL ASSUMPTIONS AND METHODS

- Excise Tax:** For purposes of estimating the excise tax, per capita plan costs are developed for individual and family coverage for both Medicare and non-Medicare members. These plan costs are compared to the thresholds stipulated in the Patient Protection and Affordable Care Act (PPACA). Beginning in 2020, a 40% excise tax is applied on the excess of the plan costs over the thresholds, which increase annually by CPI.
- Actuarial Cost Method:** Projected Unit Credit. The costs of each employee's postemployment benefits are allocated on a pro rata basis from the employee's date of hire to the date the employee is fully eligible for benefits.
- Employee Data:** Employee and retiree data were submitted by the Town. We made reasonable adjustments for missing or invalid data.

## SECTION 7 - ACTUARIAL ASSUMPTIONS AND METHODS

**Post-Retirement Mortality:** Post-retirement mortality rates for General and Public Safety employees are based on the RP-2000 Healthy Annuitant Mortality Table, base year 2009 and projected with generational mortality improvement using Scale BB.

**Pre-Retirement Mortality:** Pre-retirement mortality rates for General and Public Safety employees are based on the RP-2000 Employees Mortality Table, base year 2009 and projected with generational mortality improvement using Scale BB.

**Turnover Rates:** Turnover rates for General and Public Safety employees are as follows:

Groups 1 and 2		Group 4	
Service	Rate	Service	Rate
0	15.00%	0-10	1.50%
1	12.00%	11+	0.00%
2	10.00%		
3	9.00%		
4	8.00%		
5-9	7.60%		
10-14	5.40%		
15-19	3.30%		
20-24	2.00%		
25-29	1.00%		
30+	0.00%		

**Disability Rates:** Disability rates for General and Public Safety employees are as follows:

Groups 1 and 2		Group 4	
Age	Rate	Age	Rate
25	0.02%	25	0.20%
30	0.03%	30	0.30%
35	0.06%	35	0.30%
40	0.10%	40	0.30%
45	0.15%	45	1.00%
50	0.19%	50	1.25%
55	0.24%	55	1.20%
60	0.28%	60	0.85%

55% of the General employee disabilities are job-related.

90% of the Public Safety employee disabilities are job-related.

## SECTION 7 - ACTUARIAL ASSUMPTIONS AND METHODS

**Retirement Rates:**

Retirement rates for General and Public Safety employees are as

<u>Age</u>	<u>Groups 1 and 2</u>		<u>Group 4</u>
	Male	Female	All
45-49	0.00%	0.00%	1.00%
50-54	0.00%	0.00%	2.00%
55-59	2.00%	5.50%	15.00%
60-61	12.00%	5.00%	20.00%
62-64	30.00%	15.00%	25.00%
65-68	40.00%	15.00%	100.00%
69	50.00%	20.00%	
70	100.00%	100.00%	

## SECTION 7 - ACTUARIAL ASSUMPTIONS AND METHODS

**Post-Retirement Mortality:** Post-retirement mortality rates for Teachers are based on the RP-2014 Healthy Annuitant Mortality Table, base year 2014, projected with generational mortality improvement using Scale BB.

**Pre-Retirement Mortality:** Pre-retirement mortality rates for Teachers are based on the RP-2014 Employees Mortality Table, base year 2014, projected with generational mortality improvement using Scale BB.

**Turnover Rates:** Turnover rates for Teachers are as follows:

<u>Age</u>	<u>Service</u>					
	0		5		10+	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
20	13.0%	10.0%	5.5%	7.0%	1.5%	5.0%
30	15.0%	15.0%	5.4%	8.8%	1.5%	4.5%
40	13.3%	10.5%	5.2%	5.0%	1.7%	2.2%
50	16.2%	9.8%	7.0%	5.0%	2.3%	2.0%

**Disability Rates:** Disability rates for Teachers are as follows:

<u>Age</u>	<u>Rate</u>
20	0.004%
30	0.006%
40	0.010%
50	0.050%
60	0.070%

35% of the disabilities are job-related.

## SECTION 7 - ACTUARIAL ASSUMPTIONS AND METHODS

**Retirement Rates:**

Retirement rates for Teachers are as follows:

<u>Age</u>	<u>Years of Service</u>					
	<u>Less than 20</u>		<u>20-30</u>		<u>30+</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
50	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
51	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
52	0.0%	0.0%	1.0%	1.0%	2.0%	1.5%
53	0.0%	0.0%	1.5%	1.0%	2.0%	1.5%
54	0.0%	0.0%	2.5%	1.0%	2.0%	2.0%
55	5.0%	3.0%	3.0%	3.0%	6.0%	5.0%
56	5.0%	3.0%	6.0%	5.0%	20.0%	15.0%
57	5.0%	4.0%	10.0%	8.0%	40.0%	35.0%
58	5.0%	8.0%	15.0%	10.0%	50.0%	35.0%
59	10.0%	8.0%	20.0%	15.0%	50.0%	35.0%
60	10.0%	10.0%	25.0%	20.0%	40.0%	35.0%
61	20.0%	12.0%	30.0%	25.0%	40.0%	35.0%
62	20.0%	12.0%	35.0%	30.0%	35.0%	35.0%
63	25.0%	15.0%	40.0%	30.0%	35.0%	35.0%
64	25.0%	20.0%	40.0%	30.0%	35.0%	35.0%
65	25.0%	25.0%	40.0%	40.0%	35.0%	35.0%
66	30.0%	25.0%	30.0%	30.0%	40.0%	35.0%
67	30.0%	30.0%	30.0%	30.0%	40.0%	30.0%
68	30.0%	30.0%	30.0%	30.0%	40.0%	30.0%
69	30.0%	30.0%	30.0%	30.0%	40.0%	30.0%
70	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

## SECTION 8 - PLAN MEMBER INFORMATION

**TABLE 8.1 - ACTIVE EMPLOYEES BY AGE and YEARS OF SERVICE AS OF JULY 1, 2015**

Age	Years of Service									Total	Percent
	0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 & up		
Under 25	32	1	0	0	0	0	0	0	0	33	7%
25 to 29	55	4	2	0	0	0	0	0	0	61	15%
30 to 34	29	10	5	1	0	0	0	0	0	45	10%
35 to 39	23	11	6	3	0	0	0	0	0	43	10%
40 to 44	18	6	13	7	0	0	0	0	0	44	10%
45 to 49	11	13	7	9	10	4	0	0	0	54	12%
50 to 54	8	10	14	7	9	9	1	0	0	58	13%
55 to 59	11	5	11	10	6	7	4	1	0	55	12%
60 to 64	2	1	3	7	9	8	2	4	0	36	8%
65 to 69	1	1	3	1	0	2	2	0	1	11	2%
70 & up	0	0	0	0	1	2	1	0	0	4	1%
Total	190	62	64	45	35	32	10	5	1	444	
Percent	44%	14%	14%	10%	8%	7%	2%	1%	0%		100%
	Average Age:		43.8		Average Service:			10.2			

## SECTION 8 - PLAN MEMBER INFORMATION

**TABLE 8.2 - RETIRED PLAN PARTICIPANTS, COVERED SPOUSES and SURVIVORS AS OF JULY 1, 2015**

Non-Medicare Plans:

Age	Fallon Direct Care	Fallon Select Care	HP Independence Plan	HP Primary Choice	Health New England	NHP Care (Neighborhood Health Plan)	Tufts Health Plan Navigator	Tufts Health Plan Spirit	UniCare Basic with CIC	Total
Under 40	1	0	0	0	0	0	0	0	0	1
40 to 44	0	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	0	0	0
50 to 54	3	0	1	0	0	0	0	0	0	4
55 to 59	4	0	5	2	0	0	0	0	0	11
60 to 64	11	0	12	1	0	0	1	0	2	27
65 to 69	5	1	8	1	0	0	0	0	4	19
70 to 74	0	0	2	2	0	0	1	0	1	6
75 to 79	1	0	0	0	0	0	0	0	3	4
80 to 84	0	0	0	0	0	0	0	0	0	0
85 to 89	0	0	0	0	0	0	0	0	0	0
90+	0	0	0	0	0	0	0	0	0	0
Total	25	1	28	6	0	0	2	0	10	72
	8	1	10	2	0	0	0	0	5	26

## SECTION 8 - PLAN MEMBER INFORMATION

**TABLE 8.2 - RETIRED PLAN PARTICIPANTS, COVERED SPOUSES and SURVIVORS AS OF JULY 1, 2015**

Medicare Plans:

Age	Fallon Senior	HP Medicare Enhanced	Health NE MedPlus	Tufts Medicare Complement	Tufts Medicare Preferred	UniCare OME w/CIC	UniCare OME w/o CIC	Life Only	Total
Under 40	0	0	0	0	0	0	0	0	0
40 to 44	0	0	0	0	0	0	0	0	0
45 to 49	0	0	0	0	0	0	0	1	1
50 to 54	0	0	0	0	0	0	0	0	0
55 to 59	1	0	0	0	0	0	0	1	2
60 to 64	8	0	0	1	0	2	0	0	11
65 to 69	25	15	0	1	1	11	0	3	56
70 to 74	20	5	3	0	0	19	0	1	48
75 to 79	26	0	0	1	0	8	0	4	39
80 to 84	13	0	0	0	1	6	0	1	21
85 to 89	9	0	0	0	0	2	0	3	14
90+	6	0	0	0	0	5	0	1	12
<b>Total</b>	<b>108</b>	<b>20</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>53</b>	<b>0</b>	<b>15</b>	<b>204</b>
<b>Covered Spouses</b>	<b>32</b>	<b>18</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>16</b>	<b>0</b>		<b>68</b>

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## SECTION 9 - GASB 45 GLOSSARY OF TERMS

**Actuarial Accrued Liability** – The portion of the Actuarial Present Value of future benefits which is allocated to all periods prior to a valuation year and therefore is not provided by future Normal Costs.

**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 pension 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 Present Value of Future Benefits** – The present value of the cost to finance all benefits payable in the future, discounted to reflect the probability of payment and the time value of money.

**Actuarial Valuation** – the determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets and related Actuarial Present Values for an OPEB plan.

**Actuarial Value of Assets** – The value of plan assets used in an actuarial valuation. The Actuarial Value of Assets may reflect smoothing techniques intended to dampen year-to-year fluctuations in the market value of assets.

**Annual OPEB Cost** - The accrual basis annual cost for the OPEB plan sponsored by the employer. In the year of implementation of GASB 45, the Annual OPEB Cost equals the ARC. In subsequent years, if an employer has a Net OPEB Obligation, Annual OPEB Cost equals the ARC plus one year's interest on the Net OPEB Obligation plus an adjustment to the ARC.

**Annual Required Contribution (ARC)** – Includes the employer's Normal Cost and a provision for amortizing the Unfunded Actuarial Accrued Liability.

**Explicit Subsidy** – The difference between (a) the blended rates based on combined active and retired member experience and (b) actual cash contributions made by the employer.

**Funded Ratio** – The Actuarial Value of Assets expressed as a percentage of the Actuarial Accrued Liability.

**Health Cost Trend Rate** – The rate of change in per capita health claims cost over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.

**Implicit Subsidy** – In an experience-rated healthcare plan that includes both active employees and retirees with blended premium rates for all plan members, the difference between (a) the age-adjusted premiums approximating claim costs for retirees in the group and (b) the blended rates based on combined active and retired member experience.

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## SECTION 9 - GASB 45 GLOSSARY OF TERMS

**Net OPEB Obligation** – The cumulative excess since adoption of GASB 45 of Annual OPEB Cost over the employer's contributions to the plan.

**Normal Cost** – The portion of the Actuarial Present Value of Future Benefits which is allocated to a valuation year.

**OPEB** – Other Postemployment Benefits including medical, dental, vision, hearing and life insurance benefits.

**Plan Assets** – Investments segregated and restricted in a trust or similar arrangement under which:

- employer contributions to the trust are irrevocable,
- assets are dedicated to providing plan benefits, and
- assets are legally protected from creditors.

**Pay-As-You-Go** – A method of financing an 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.

**Present Value of Future Benefits** – The actuarial present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value of money and the probabilities of payment.

**Projected Unit Credit Actuarial Cost Method** – A method under which the projected benefits of each individual included in an Actuarial Valuation are allocated by a consistent formula to valuation years. Projected Unit Credit is one of the actuarial cost methods allowed and most often used for developing liabilities under GASB 45.

**Substantive Plan** – The terms of an OPEB plan as understood by the employer and plan members.

**Unfunded Actuarial Accrued Liability** – The excess of Actuarial Accrued Liability over the Actuarial Value of Assets.

## SECTION 10 - RESULTS BY SUBGROUP

Unit	<u>Town</u>	<u>School</u>	<u>Water</u>	<u>Sewer</u>	<u>Recreation</u>	<u>Rink</u>	<u>Harbor</u>	<u>Total</u>
<b>Summary of Member Data</b>								
Active Members	122	299	7	9	2	4	1	444
Average Age	48.0	41.6	50.5	49.3	51.7	56.9	29.4	43.8
Average Service	13.6	8.9	8.4	14.8	15.0	4.0	0.0	10.2
Retired Members and Survivors	119	157	0	0	0	0	0	276
Average Age	73.7	70.2	0.0	0.0	0.0	0.0	0.0	71.7
Covered Spousess	30	64	0	0	0	0	0	94
<b>Actuarial Accrued Liability - July 1, 2015</b>								
Active Employees	13,735,916	22,005,829	412,482	799,192	286,148	140,204	3,215	37,382,986
Retired Employees and Survivors	12,218,241	22,547,368	0	0	0	0	0	34,765,609
Total	25,954,157	44,553,197	412,482	799,192	286,148	140,204	3,215	72,148,595
<b>Actuarial Value of Plan Assets - July 1, 2015</b>	18,028	30,948	287	555	199	97	2	50,116
<b>Unfunded Actuarial Accrued Liability</b>	25,936,129	44,522,249	412,195	798,637	285,949	140,107	3,213	72,098,479
<b>Annual Required Contribution (ARC) for FYE 2016</b>								
Normal Cost	532,551	1,406,322	22,464	29,838	8,190	14,766	1,763	2,015,894
Amortization of UAL	1,442,499	2,476,210	22,925	44,418	15,904	7,792	179	4,009,927
Interest	79,002	155,301	1,816	2,970	964	902	78	241,033
<b>Total</b>	<b>2,054,052</b>	<b>4,037,833</b>	<b>47,205</b>	<b>77,226</b>	<b>25,058</b>	<b>23,460</b>	<b>2,020</b>	<b>6,266,854</b>
<b>Annual OPEB Cost for FYE 2016</b>								
Annual Required Contribution	2,054,052	4,037,833	47,205	77,226	25,058	23,460	2,020	6,266,854
Interest on Net OPEB Obligation	389,729	358,749	0	0	5,191	1,827	0	755,496
Adjustment to annual required contribution	(563,519)	(518,723)	0	0	(7,505)	(2,641)	0	(1,092,388)
Annual OPEB cost/(expense)	1,880,262	3,877,859	47,205	77,226	22,744	22,646	2,020	5,929,962
Expected Employer premiums	(722,382)	(1,084,579)	(1,183)	(2,689)	(621)	(1,452)	0	(1,812,906)
OPEB Trust contributions	(16,388)	(32,216)	(377)	(616)	(200)	(187)	(16)	(50,000)
Employer contributions (including subsidy)	(738,770)	(1,116,795)	(1,560)	(3,305)	(821)	(1,639)	(16)	(1,862,906)
Change in Net OPEB Obligation	1,141,492	2,761,064	45,645	73,921	21,923	21,007	2,004	4,067,056
Net OPEB Obligation - beginning of year	9,743,233	8,968,718	0	0	129,770	45,668	0	18,887,389
Net OPEB Obligation - end of year	10,884,725	11,729,782	45,645	73,921	151,693	66,675	2,004	22,954,445

Town of Winthrop Postemployment Benefits Other Than Pensions  
Actuarial Valuation as of July 1, 2015

## SECTION 10 - RESULTS BY SUBGROUP

Unit	<u>Town</u>	<u>School</u>	<u>Water</u>	<u>Sewer</u>	<u>Recreation</u>	<u>Rink</u>	<u>Harbor</u>	<u>Total</u>
<b>Actuarial Accrued Liability - July 1, 2016</b>								
Total	26,809,488	46,691,843	451,137	859,449	305,478	159,688	5,177	75,282,260
<b>Actuarial Value of Assets - July 1, 2016</b>	36,367	63,338	612	1,166	414	217	7	102,121
<b>Unfunded Actuarial Accrued Liability</b>	26,773,121	46,628,505	450,525	858,283	305,064	159,471	5,170	75,180,139
<b>Annual Required Contribution (ARC) for FYE 2017</b>								
Normal Cost	553,853	1,462,573	23,363	31,032	8,518	15,357	1,834	2,096,530
Amortization of UAL	1,489,050	2,593,354	25,057	47,735	16,967	8,869	288	4,181,320
Interest	81,716	162,237	1,937	3,151	1,019	969	85	251,114
<b>Total</b>	<b>2,124,619</b>	<b>4,218,164</b>	<b>50,357</b>	<b>81,918</b>	<b>26,504</b>	<b>25,195</b>	<b>2,207</b>	<b>6,528,964</b>
<b>Annual OPEB Cost for FYE 2017</b>								
Annual Required Contribution	2,124,619	4,218,164	50,357	81,918	26,504	25,195	2,207	6,528,964
Interest on Net OPEB Obligation	435,389	469,191	1,826	2,957	6,068	2,667	80	918,178
Adjustment to annual required contribution	(629,539)	(678,415)	(2,640)	(4,275)	(8,773)	(3,856)	(116)	(1,327,614)
Annual OPEB cost/(expense)	1,930,469	4,008,940	49,543	80,600	23,799	24,006	2,171	6,119,528
Expected Employer premiums	(751,243)	(1,172,085)	(2,604)	(4,497)	(1,427)	(2,718)	(1)	(1,934,575)
OPEB Trust contributions	(16,271)	(32,303)	(386)	(627)	(203)	(193)	(17)	(50,000)
Employer contributions (including subsidy)	(767,514)	(1,204,388)	(2,990)	(5,124)	(1,630)	(2,911)	(18)	(1,984,575)
Change in Net OPEB Obligation	1,162,955	2,804,552	46,553	75,476	22,169	21,095	2,153	4,134,953
Net OPEB Obligation - beginning of year	10,884,725	11,729,782	45,645	73,921	151,693	66,675	2,004	22,954,445
Net OPEB Obligation - end of year	12,047,680	14,534,334	92,198	149,397	173,862	87,770	4,157	27,089,398

Notes:

Actuarial Value of Assets allocated to subgroups based on Actuarial Accrued Liability.

OPEB Trust Contributions allocated to subgroups based on Annual Required Contribution (ARC).