



Town of Andover

**Governmental Accounting Standards Board (GASB)
Statement No. 74 Accounting Valuation Report
for Reporting Date June 30, 2017**

This report has been prepared at the request of the Town of Andover to assist in administering the Plan. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Town of Andover and may only be provided to other parties in its entirety. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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December 1, 2017

*Ms. Donna Walsh
Finance and Budget Director
Town of Andover
36 Bartlet Street
Andover, MA 01810*

Dear Ms. Walsh:

We are pleased to submit this Governmental Accounting Standards Board Statement No. 74 Accounting Valuation as of June 30, 2017. It contains the disclosure of the Net OPEB Liability (NOL) as of June 30, 2017 to be disclosed in order to comply with GASB 74.

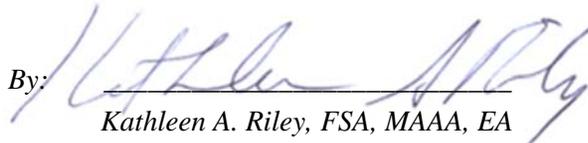
The actuarial valuation has been completed in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in our opinion, the assumptions used in this valuation and described in Section 3, Exhibit I are reasonably related to the experience of and the expectations for the Plan. The actuarial projections are based on these assumptions and the plan of benefits as summarized in Section 3, Exhibit II.

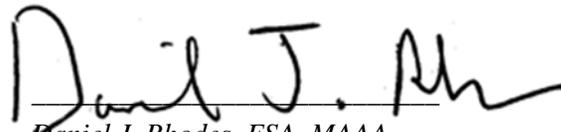
We look forward to discussing this with you at your convenience.

Sincerely,

Segal Consulting, a Member of The Segal Group, Inc.

By:


Kathleen A. Riley, FSA, MAAA, EA
Senior Vice President and Actuary


Daniel J. Rhodes, FSA, MAAA
Vice President and Consulting Actuary

SECTION 1

EXECUTIVE SUMMARY

Important Information about Actuarial Valuations	1
Purpose	3
Highlights of the Valuation	3
Actuarial Certification	4

SECTION 2

VALUATION RESULTS

EXHIBIT 1 Plan Membership	5
EXHIBIT 2 Net OPEB Liability.....	6
EXHIBIT 3 Determination of Discount Rate and Investment Rate of Return	8
EXHIBIT 4 Sensitivity	9
EXHIBIT 5 Schedule of Changes in Net OPEB Liability – Last Ten Fiscal Years	10
EXHIBIT 6 Schedule of Contributions – Last Ten Fiscal Years	12

SECTION 3

SUPPORTING INFORMATION

EXHIBIT I Actuarial Assumptions and Methods	14
EXHIBIT II Summary of Plan Provisions...	26
EXHIBIT III Definition of Terms	29
EXHIBIT IV Accounting Requirements.....	31

Section 1: Executive Summary for the Town of Andover June 30, 2017 Measurement Under GASB 74

Important Information about Actuarial Valuations

An actuarial valuation is a budgeting tool with respect to defining future uncertain obligations of a postretirement health plan. As such, it will never forecast the precise future stream of benefit payments. It is an estimated forecast – the actual cost of the plan will be determined by the benefits and expenses paid, not by the actuarial valuation.

In order to prepare a valuation, Segal Consulting (“Segal”) relies on a number of input items. These include:

- **Plan of benefits** Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. For example, a plan may provide health benefits to post-65 retirees that coordinates with Medicare. If so, changes in the Medicare law or administration may change the plan’s costs without any change in the terms of the plan itself. It is important for the Town of Andover to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
- **Participant data** An actuarial valuation for a plan is based on data provided to the actuary by the plan. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is not necessary to have perfect data for an actuarial valuation: the valuation is an estimated forecast, not a prediction. The uncertainties in other factors are such that even perfect data does not produce a “perfect” result. Notwithstanding the above, it is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
- **Assets** Part of the cost of a plan will be paid from existing assets – the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the Town. Some plans include assets, such as private equity holdings, real estate, or hedge funds that are not subject to valuation by reference to transactions in the marketplace. A snapshot as of a single date may not be an appropriate value for determining a single year’s contribution requirement, especially in volatile markets. Plan sponsors often use an “actuarial value of assets” that differs from market value to reflect gradually year-to-year changes in the market value of assets in determining the contribution requirements.
- **Actuarial assumptions** In preparing an actuarial valuation, Segal starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. To determine the future costs of benefits, Segal collects claims, premiums, and enrollment data in order to establish a baseline cost for the valuation measurement, and then develops short- and long-term health care cost trend rates to project increases in costs in future years. This forecast also requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year, as well as forecasts of the plan’s benefits for each of those events. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan’s assets or, if there are no assets, a rate of return based on a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale). All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions the actuary selects within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model necessarily uses approximations and estimates that may lead to significant changes in our results but will have no impact on the actual cost of

Section 1: Executive Summary for the Town of Andover June 30, 2017 Measurement Under GASB 74

the plan. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

Given the above, the user of Segal's actuarial valuation (or other actuarial calculations) needs to keep the following in mind:

- The actuarial valuation is prepared for use by the Town of Andover. It includes information for compliance with accounting standards and for the plan's auditor. Segal is not responsible for the use or misuse of its report, particularly by any other party.
- If the Town of Andover is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
- An actuarial valuation is a measurement at a specific date – it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
- Sections of this report include actuarial results that are rounded, but that does not imply precision.
- Critical events for a plan include, but are not limited to, decisions about changes in benefits and contributions. The basis for such decisions needs to consider many factors such as the risk of changes in plan enrollment, emerging claims experience, health care trend, and investment losses, not just the current valuation results.
- Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Town of Andover should look to their other advisors for expertise in these areas.
- While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.
- Segal's report shall be deemed to be final and accepted by the Town of Andover upon delivery and review. The Town of Andover should notify Segal immediately of any questions or concerns about the final content.

As Segal Consulting has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

Section 1: Executive Summary for the Town of Andover June 30, 2017 Measurement Under GASB 74

Purpose

This report presents certain disclosure information for the Town of Andover (the “Employer”) Other Postemployment Benefits (OPEB) plan as of June 30, 2017, required by Governmental Accounting Standards Board (GASB) Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other than Pension Plan*. The actuarial computations made are for purposes of fulfilling plan accounting requirements. Determinations for purposes other than meeting financial accounting requirements may be significantly different from the results reported here.

Highlights of the Valuation

- The total OPEB liability as of June 30, 2017 reflects the elimination of the Managed Blue for Seniors Plan, the known increases in the premiums for fiscal 2017 for both the Medicare and non-Medicare plans, and the change in the retiree cost sharing for the non-Medicare plans beginning July 1, 2017. These changes were reflected through adjustments in the trend rates.
- The **Net OPEB liability** (NOL) as of June 30, 2017 is \$128,749,165.
 - The Net OPEB Liability (NOL) is equal to the difference between the Total OPEB Liability (TOL) and the Plan’s Fiduciary Net Position. The Plan’s Fiduciary Net Position is equal to the market value of assets. The TOL as of June 30, 2017 is \$136,417,441 and the Plan Fiduciary Net Position as of June 30, 2017 is \$7,668,276, resulting in an NOL of \$128,749,165.
 - The NOL measured as of June 30, 2017 was determined based upon the results of the actuarial valuation as of June 30, 2015.
 - The discount rate used to determine the TOL and NOL was 5.44%.
- As of June 30, 2017, the ratio of the Plan’s Fiduciary Net Position to the Total OPEB Liability (the funded ratio) is 5.62%.
- The total OPEB liability as of June 30, 2016 shown in Section 2, Exhibit 5 was based a discount rate of 5.22%.
- With the exception of the discount rate and funding method, there were no changes in assumptions from those shown in the June 30, 2015 actuarial valuation report dated March 15, 2016.

Actuarial Certification

This is to certify that Segal Consulting, a Member of The Segal Group, Inc. has determined certain benefit obligations of the Town of Andover’s other postemployment benefit programs as of June 30, 2017, in accordance with generally accepted actuarial principles and practices. The actuarial calculations presented in this report have been made on a basis consistent with our understanding of GASB Statement No. 74 for the determination of the liability for postemployment benefits other than pensions.

The actuarial valuation is based on the plan of benefits verified by the Town of Andover and reliance on participant, premium, expense and financial data provided by the Town of Andover or from vendors employed by the Town of Andover. Segal Consulting does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. Segal, however, does review the data for reasonableness and consistency.

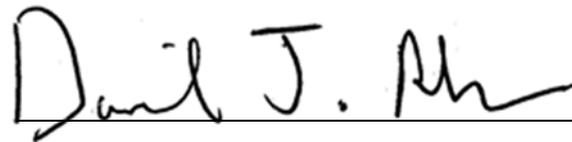
The actuarial computations made are for purposes of fulfilling plan accounting requirements. Determinations for purposes other than meeting financial accounting requirements may be significantly different from the results reported here. Accordingly, additional determinations may be needed for other purposes, such as judging benefit security at termination of the plan, or determining short-term cash flow requirements.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: retiree group benefits program experience or rates of return on assets differing from that anticipated by the assumptions; changes in 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); and changes in retiree group benefits program provisions or applicable law. Retiree group benefits models necessarily rely on the use of approximations and estimates, and are sensitive to changes in these approximations and estimates. Small variations in these approximations and estimates may lead to significant changes in actuarial measurements. The scope of the assignment did not include performing an analysis of the potential change of such future measurements except where noted.

The actuarial calculations were directed under our supervision. We are members of the American Academy of Actuaries and collectively meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of our knowledge, the information supplied in the actuarial valuation is complete and accurate. Further, in our opinion, the assumptions as approved by the Town are reasonably related to the experience of and the expectations for the Plan.



Kathleen A. Riley, FSA, MAAA, EA
Senior Vice President and Actuary



Daniel J. Rhodes, FSA, MAAA
Vice President and Consulting Actuary

Section 2: Valuation Results for the Town of Andover June 30, 2017 Measurement Under GASB 74

EXHIBIT 1

Plan Membership

Plan membership: At June 30, 2015, The Town of Andover plan membership consisted of the following:

Retired members or beneficiaries currently receiving benefits	1,000
Active members	<u>952</u>
Total	1,952

Note: We have assumed other general information about the Plan will be provided by the Town's auditors.

Section 2: Valuation Results for the Town of Andover June 30, 2017 Measurement Under GASB 74

**EXHIBIT 2
Net OPEB Liability**

The components of the Net OPEB Liability of the Town of Andover are as follows:

	June 30, 2017
Total OPEB liability	\$136,417,441
Plan fiduciary net position	<u>7,668,276</u>
Net OPEB Liability	\$128,749,165
Plan Fiduciary Net Position as a percentage of the Total OPEB Liability*	5.62%

* *These funded percentages are not necessarily appropriate for assessing the sufficiency of Plan assets to cover the estimated cost of settling the Plan's benefit obligation or the need for or the amount of future contributions.*

Actuarial assumptions. The total OPEB liability was measured by an actuarial valuation as of June 30, 2015 used the following actuarial assumptions, applied to all periods included in the measurement, unless otherwise specified:

Actuarial Assumptions:

Inflation	3.75%
Salary increases	Service-related increases for Group 1 (excluding Teachers) and Group 2 employees: 6.00% decreasing over 9 years to an ultimate of 4.25%. Service-related increases for Group 4 members: 7.00% decreasing over 8 years to an ultimate level of 4.25%. Service-related increases for Teachers: 7.50% decreasing over 20 years to an ultimate level of 4.00%.
Discount rate	5.44% as of June 30, 2017 and 5.22% as of June 30, 2016
Investment rate of return	6.0%

Section 2: Valuation Results for the Town of Andover June 30, 2017 Measurement Under GASB 74

Health care trend rates

<i>Non Medicare*</i>	0.00% for 1 year then 5.00% for 1 year, then 7.00% decreasing by 0.50% for 4 years to an ultimate level of 5.00%
<i>Medicare*</i>	3.62% for 1 year then 2.06% for 1 year then 8.00% decreasing by 0.50% for 6 years to an ultimate level of 5.00%
<i>Part B</i>	5.00%
<i>Contributions</i>	Non-Medicare and Medicare retiree contributions for medical and prescription drug coverage are expected to increase with the respective medical trends shown above, adjusted to reflect the change in retiree cost sharing provisions.

** Trends reflect known increases.*

Mortality Rates

<i>Pre-Retirement (Non-Teachers)</i>	RP-2000 Employee Mortality Table projected generationally with Scale BB2D from 2009.
<i>Healthy (Non-Teachers)</i>	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2009
<i>Disabled (Non-Teachers)</i>	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2015
<i>Pre-Retirement (Teachers)</i>	RP-2014 Employee Mortality Table projected generationally with Scale BB2D from 2014
<i>Healthy (Teachers)</i>	RP-2014 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2014
<i>Disabled (Teachers)</i>	RP-2014 Healthy Annuitant Mortality Table set forward 4 years projected generationally with Scale BB2D from 2014

Detailed information regarding all actuarial assumptions can be found in Section 3, Exhibit II.

Section 2: Valuation Results for the Town of Andover June 30, 2017 Measurement Under GASB 74

EXHIBIT 3

Determination of Discount Rate and Investment Rate of Return

DEVELOPMENT OF LONG-TERM RATE

The long-term expected rate of return on OPEB plan investments was determined using a building block method in which best estimate ranges of expected future rates of return (expected returns, net of investment expense and inflation) are developed for each major asset class. These returns are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the actual asset allocation percentage and by adding expected inflation and subtracting expected investment expenses and a risk margin. The actual allocation and projected arithmetic real rates of return for each major asset class, after deducting inflation, but before investment expenses, used in the derivation of the long-term expected investment rate of return assumption are summarized below:

Asset Class	Asset Allocation	Long-Term Expected Real Rate of Return
Domestic equity	49.30%	6.44%
International developed markets equity	11.05%	7.40%
International emerging markets equity	1.65%	9.42%
Core fixed income	33.15%	2.02%
High-yield fixed income	<u>4.85%</u>	4.43%
Total	100.00%	

Notes: Some asset classes in the target allocation have been combined.

Nature of Assets: The assets are in an irrevocable OPEB Trust and the majority are invested in the ICMA-RC.

Section 2: Valuation Results for the Town of Andover June 30, 2017 Measurement Under GASB 74

EXHIBIT 4
Sensitivity

Sensitivity of the net OPEB liability to changes in the discount rate. The following presents the NOL of the Town of Andover as well as what the Town of Andover's NOL would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate.

	<u>1% Decrease in Discount Rate</u>	<u>Current Discount Rate</u>	<u>1% Increase in Discount Rate</u>
Town of Andover's net OPEB liability as of June 30, 2017	\$150,555,129	\$128,749,165	\$111,181,198

Sensitivity of the net OPEB liability to changes in the healthcare cost trend rates. The following presents the net OPEB liability of the Town of Andover, as well as what the Town of Andover's net OPEB liability would be if it were calculated using a healthcare cost trend rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate:

	<u>1% Decrease</u>	<u>Current Trend Rate</u>	<u>1% Increase</u>
Town of Andover's net OPEB liability as of June 30, 2017	\$109,793,537	\$128,749,165	\$152,792,462

Section 2: Valuation Results for the Town of Andover June 30, 2017 Measurement Under GASB 74

EXHIBIT 5

Schedule of Changes in Net OPEB Liability – Last Ten Fiscal Years

	Year End June 30,									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total OPEB liability										
Service cost	\$5,605,421									
Interest	9,299,269									
Differences between expected and actual experience	0									
Changes of assumptions	-6,594,974									
Plan amendments	-42,080,306									
Benefit payments, including refunds of member contributions	<u>-4,647,800</u>									
										(Historical information prior to implementation of GASB 74/75 is not required)
Net change in Total OPEB Liability	-\$38,418,390									
Total OPEB Liability - beginning	<u>174,835,831</u>									
Total OPEB Liability - ending (a)	\$136,417,441									
Plan Fiduciary Net Position										
Contributions - employer	\$6,150,379									
Contributions - employee	0									
Net investment income	730,781									
Benefit payments, including refunds of member contributions	-4,647,800									
										(Historical information prior to implementation of GASB 74/75 is not required)
Administrative expenses	<u>0</u>									
Net change in Fiduciary Net Position	\$2,233,360									
Plan Fiduciary Net Position - beginning	<u>5,434,916</u>									
Plan Fiduciary Net Position - ending (b)	\$7,668,276									
Net OPEB liability – ending: (a)-(b)	\$128,749,165									
Plan's fiduciary net position as a percentage of the total OPEB liability	5.62%									(Historical information prior to implementation of GASB 74/75 is not required)
Covered-employee payroll	N/A									
Net OPEB liability as a percentage of covered-employee payroll	N/A									

Note: Please enter covered payroll for fiscal 2017.

Section 2: Valuation Results for the Town of Andover June 30, 2017 Measurement Under GASB 74

Notes to Schedule:

Changes in Assumptions: The discount rate was increased from 5.22% to 5.44% as of June 30, 2017.

Changes in Plan Provisions: The total OPEB liability as of June 30, 2017 reflects the elimination of the Managed Blue for Seniors Plan and the change in the retiree cost sharing for the non-Medicare plans beginning July 1, 2017.

These plan changes were reflected through adjustments in the trend rates which also include known premium increases for fiscal 2017.

Section 2: Valuation Results for the Town of Andover June 30, 2017 Measurement Under GASB 74

EXHIBIT 6

Schedule of Contributions – Last Ten Fiscal Years

	Year End June 30,									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Actuarially determined contribution	\$9,437,501									
Contributions in relation to the actuarially determined contribution	<u>6,150,379</u>									
Contribution deficiency (excess)	\$3,283,122									
Covered-employee payroll	N/A									
Contributions as a percentage of covered-employee payroll	N/A									

(Historical information prior to implementation of GASB 74/75 is not required)

Note: Please enter covered payroll for fiscal 2017.

Notes to Schedule:

Methods and assumptions used to establish “actuarially determined contribution” rates:

- Valuation date:* Actuarially determined contribution for fiscal year ending June 30, 2017 was determined with the June 30, 2015 actuarial valuation, reflecting the elimination of the Managed Blue for Seniors Plan, the known increases in the premiums for fiscal 2017 for both the Medicare and non-Medicare plans, and the change in the cost sharing for the non-Medicare plans beginning July 1, 2017.
- Actuarial cost method:* Entry Age Normal – Level percentage of payroll
- Amortization method:* Level percent of payroll
- Remaining amortization period:* 30 years open as of July 1, 2016
- Asset valuation method:* Market value
- Discount rate:* 5.44%
- Inflation:* 3.75%
- Health Care Cost Trend:*
 - Non Medicare** 0.00% for 1 year then 5.00% for 1 year, then 7.00% decreasing by 0.50% for 4 years to an ultimate level of 5.00%
 - Medicare** 3.62% for 1 year then 2.06% for 1 year then 8.00% decreasing by 0.50% for 6 years to an ultimate level of 5.00%
 - Part B* 5.00%
 - Contributions* Non-Medicare and Medicare retiree contributions for medical and prescription drug coverage are expected to increase with the respective medical trends shown above, adjusted to reflect the change in retiree cost sharing provisions.

** Trends reflect known increases.*

Section 2: Valuation Results for the Town of Andover June 30, 2017 Measurement Under GASB 74

Mortality Rates

<i>Pre-Retirement (Non-Teachers)</i>	RP-2000 Employee Mortality Table projected generationally with Scale BB2D from 2009
<i>Healthy (Non-Teachers)</i>	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2009
<i>Disabled (Non-Teachers)</i>	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2015
<i>Pre-Retirement (Teachers)</i>	RP-2014 Employee Mortality Table projected generationally with Scale BB2D from 2014
<i>Healthy (Teachers)</i>	RP-2014 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2014
<i>Disabled (Teachers)</i>	RP-2014 Healthy Annuitant Mortality Table set forward 4 years projected generationally with Scale BB2D from 2014

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

EXHIBIT I

Actuarial Assumptions and Methods*

Data:	Detailed census data, premium rates, and summary plan descriptions for postemployment welfare benefits were provided by the Town of Andover.
Actuarial Cost Method:	Entry Age Normal – Level percentage of payroll.
Per Capita Cost Development:	<p>Per capita costs were based on the working rates effective July 1, 2015 for the self-funded non-Medicare plans, the working rates effective January 1, 2015 and January 1, 2016 for the self-funded Medex plan, and the premium rates effective January 1, 2015 and January 1, 2016 for the insured Managed Blue for Seniors plan. Premiums were combined by taking a weighted average based on the number of participants in each plan, and were then trended to the midpoint of the valuation year at assumed trend rates. Actuarial factors were applied to the premium to estimate individual retiree and spouse costs by age and by gender.</p> <p>Note that the working rates for self-funded plans were provided by the Town. Documentation of the rate development process was not available. We have not verified the reasonableness of the working rates with regards to the actual costs of the self-funded plans.</p>
Valuation Date:	June 30, 2015
Roll-Forward Techniques:	These results are based on Actuarial Valuation and Review of Other Postretirement Welfare Benefits (OPEB) as of June 30, 2015, dated March 15, 2016, completed by Segal Consulting, adjusted forward using standard actuarial techniques to determine the Total OPEB Liability as of the June 30, 2017 measurement date and the Actuarially Determined Contribution for the fiscal year ending June 30, 2017.

* Used in the Town of Andover Actuarial Valuation and Review of Other Postemployment Benefits (OPEB) as of June 30, 2015.

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Expected Return Assets:	6.00%
	The long-term expected rate of return on OPEB investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce a long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.
Discount Rate:	5.44% as of June 30, 2017 and 5.22% as of June 30, 2016
	The discount rate is a blend of the long-term expected rate of return on OPEB Trust assets and a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rate of AA/Aa or higher as shown in the Bond Buyer 20-Bond General Obligation Index (3.58% as of June 30, 2017 and 2.85% as of June 30, 2016). The blending is based on the sufficiency of projected assets to make projected benefit payments.
Salary Increases:	Group 1 (excluding Teachers) and Group 2 employees: 6.00% decreasing over 9 years to an ultimate of 4.25%. Service related increases for Group 4 members: 7.00% decreasing over 8 years to an ultimate level of 4.25%. Service-related increases for Teachers: 7.50% decreasing over 20 years to an ultimate level of 4.00%.
Asset Valuation Method:	Market Value

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Mortality Rates:

<i>Pre-Retirement (Non-Teachers)</i>	RP-2000 Employee Mortality Table projected generationally with Scale BB2D from 2009
<i>Healthy (Non-Teachers)</i>	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2009
<i>Disabled (Non-Teachers)</i>	RP-2000 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2015
<i>Pre-Retirement (Teachers)</i>	RP-2014 Employee Mortality Table projected generationally with Scale BB2D from 2014
<i>Healthy (Teachers)</i>	RP-2014 Healthy Annuitant Mortality Table projected generationally with Scale BB2D from 2014
<i>Disabled (Teachers)</i>	RP-2014 Healthy Annuitant Mortality Table set forward 4 years projected generationally with Scale BB2D from 2014

The underlying tables with generational projection to the ages of participants as of the measurement date reasonably reflect the mortality experience of the plan as of the measurement date. The mortality tables were then adjusted to future years using generational projection to reflect future mortality improvement between the measurement date and those years.

Non-Teacher Annuitant Mortality Rates:

Age	Rate per year (%)	
	Male	Female
60	0.82	0.62
70	2.22	1.67
80	6.44	4.59
90	18.34	13.17

Note: Rates shown are before generational projection.

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Teacher Annuitant Mortality Rates:

Age	Rate per year (%)	
	Male	Female
60	0.78	0.52
70	1.68	1.29
80	4.47	3.48
90	13.59	10.17

Note: Rates shown are before generational projection.

Termination Rates before Retirement:

**Groups 1 and 2 (excluding Teachers) - Rate per year (%)
Mortality**

Age	Male	Female	Disability
20	0.03	0.02	0.01
25	0.04	0.02	0.02
30	0.04	0.03	0.03
35	0.08	0.05	0.05
40	0.11	0.07	0.10
45	0.15	0.11	0.15
50	0.21	0.17	0.19
55	0.30	0.25	0.24
60	0.49	0.39	0.28

*Notes: Mortality rates shown are before generational projection.
55% of the rates shown represent accidental disability and death.*

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Group 4 – Rate per year (%)

Mortality			
Age	Male	Female	Disability
20	0.03	0.02	0.10
25	0.04	0.02	0.20
30	0.04	0.03	0.30
35	0.08	0.05	0.30
40	0.11	0.07	0.30
45	0.15	0.11	1.00
50	0.21	0.17	1.25
55	0.30	0.25	1.20
60	0.49	0.39	0.85

*Notes: Mortality rates shown are before generational projection.
90% of the rates shown represent accidental disability and death.*

Teachers – Rate per year (%)

Mortality			
Age	Male	Female	Disability
20	0.04	0.02	0.00
25	0.05	0.02	0.01
30	0.05	0.02	0.01
35	0.05	0.03	0.01
40	0.06	0.04	0.01
45	0.10	0.07	0.03
50	0.17	0.11	0.05
55	0.28	0.17	0.07
60	0.47	0.24	0.07

*Notes: Mortality rates shown are before generational projection.
35% of the rates shown represent accidental disability.
55% of the death rates shown represent accidental death.*

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Withdrawal Rates:

Years of Service	Rate per year (%)	
	Groups 1 and 2 (excluding Teachers)	Group 4
0	15.0	1.5
1	12.0	0.0
2	10.0	
3	9.0	
4	8.0	
5	7.6	
6	7.5	
7	6.7	
8	6.3	
9	5.9	
10	5.4	
11	5.0	
12	4.6	
13	4.1	
14	3.7	
15	3.3	
16 – 20	2.0	
21 – 29	1.0	
30+	0.0	

Withdrawal Rates:

Age	Teachers - Rate per year (%)					
	0 - 4 Years of Service		5 - 9 Years of Service		10+ Years of Service	
	Male	Female	Male	Female	Male	Female
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

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Retirement Rates:

Age	Groups 1 and 2 (excluding Teachers)		Group 4
	Male	Female	
45 - 49	--	--	1.0%
50	1.0	1.5	2.0
51	1.0	1.5	2.0
52	1.0	2.0	2.0
53	1.0	2.5	5.0
54	2.0	2.5	7.5
55	2.0	5.5	15.0
56	2.5	6.5	10.0
57	2.5	6.5	10.0
58	5.0	6.5	10.0
59	6.5	6.5	15.0
60	12.0	5.0	20.0
61	20.0	13.0	20.0
62	30.0	15.0	25.0
63	25.0	12.5	25.0
64	22.0	18.0	30.0
65	40.0	15.0	100.0
66	25.0	20.0	100.0
67	25.0	20.0	100.0
68	30.0	25.0	100.0
69	30.0	20.0	100.0
70	100.0	100.0	100.0

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Teachers - Rate per year (%)						
Years of Service						
Age	Less than 20		20 – 29		30 or more	
	Male	Female	Male	Female	Male	Female
50 - 52	--	--	1.0	1.0	2.0	1.5
53	--	--	1.5	1.0	2.0	1.5
54	--	--	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

Dependents:

Demographic data was available for spouses of current retirees. For future retirees, husbands were assumed to be three years older than their wives. For future retirees who elect to continue their health coverage at retirement, 80% of males and 60% of females were assumed to have an eligible spouse who also opts for health coverage at that time.

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Per Capita Health Costs:

Fiscal year 2015 – 2016 medical and prescription drug claims costs are shown in the table below for retirees and for spouses at selected ages. These costs are net of deductibles and other benefit plan cost sharing provisions. In addition, for fiscal year 2015 – 2016 only, an additional expense of \$500 per participant was added to the costs below for non-Medicare participants to account for Town reimbursements of the deductible through an HRA

Age	Non-Medicare Plans				Medicare Plans			
	Retiree		Spouse		Retiree		Spouse	
	Male	Female	Male	Female	Male	Female	Male	Female
45	\$7,108	\$8,917	\$4,409	\$6,656	N/A	N/A	N/A	N/A
50	8,437	9,610	5,893	7,716	N/A	N/A	N/A	N/A
55	10,020	10,345	7,886	8,931	N/A	N/A	N/A	N/A
60	11,899	11,150	10,557	10,359	N/A	N/A	N/A	N/A
65	14,132	12,012	14,132	12,012	\$3,543	\$3,012	\$3,543	\$3,012
70	16,379	12,945	16,379	12,945	4,106	3,245	4,106	3,245
75	17,651	13,934	17,651	13,934	4,425	3,493	4,425	3,493
80	19,008	15,022	19,008	15,022	4,765	3,766	4,765	3,766

Weighted Average Annual Retiree Contribution Amount:

Non-Medicare Plans: \$2,216

Medicare Supplement Plans: \$983

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Health Care Cost Trend Rates:

Health care trend measures the anticipated overall rate at which health plan costs are expected to increase in future years. The rates shown below are “net” and are applied to the net per capita costs shown above. The trend shown for a particular plan year is the rate that is applied to that year’s cost to yield the next year’s projected cost.

Year Ending June 30	Non-Medicare Plans	Medicare Plans	Part B
2016	0.0%	3.62%	5.0%
2017	5.0%	2.06%	5.0%
2018	7.0%	8.00%	5.0%
2019	6.5%	7.50%	5.0%
2020	6.0%	7.00%	5.0%
2021	5.5%	6.50%	5.0%
2022	5.0%	6.00%	5.0%
2023	5.0%	5.50%	5.0%
2024 & later	5.0%	5.00%	5.0%

The trend rate assumptions were developed using Segal’s internal guidelines, which are established each year using data sources such as the 2015 and 2016 Segal Health Trend Surveys, internal client results, trends from other published surveys prepared by the S&P Dow Jones Indices, consulting firms and brokers, and CPI statistics published by the Bureau of Labor Statistics.

Trend for years 1 and 2 reflect known increases in premiums for fiscal years 2016 and 2017.

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Retiree Contribution Increase Rate:	Non-Medicare and Medicare retiree contributions for medical and prescription drug coverage are expected to increase with the respective medical trends shown above, adjusted to reflect the change in retiree cost sharing provisions.
Participation and Coverage Election:	<p>110% of active employees with coverage are assumed to elect retiree coverage. This assumption includes an allowance for current and future inactive vested participants who may elect retiree coverage at retirement.</p> <p>100% of retirees over age 65 are assumed to remain with their current medical plan for life.</p> <p>For future retirees hired before 1986 and current retirees under age 65, 90% are assumed to be eligible for Medicare and are assumed to enroll in a Medicare Supplement plan upon reaching age 65 and 10% are assumed to be ineligible for Medicare and to remain enrolled in a non-Medicare plan.</p> <p>For future retirees hired after 1986, 100% are assumed to be eligible for Medicare and are assumed to enroll in a Medicare Supplement Plan upon reaching age 65.</p>
Plan Design:	Development of plan liabilities was based on the substantive plan of benefits in effect as described in Exhibit III.
Administrative Expenses:	Administrative expenses are assumed to be included in the working rates or fully insured premium rates.
Missing Participant Data:	A missing census item for a given participant was assumed to equal the average value of that item over all other participants of the same status for whom the item is known.
Health Care Reform Assumption:	This valuation does not include the potential impact of any future changes due to the Patient Protection and Affordable Care Act (PPACA) and the Health Care and Education Reconciliation Act (HCERA) of 2010 other than the excise tax on high cost health plans beginning in 2020 (reflected with this valuation) and those previously adopted as of the valuation date.

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Demographic and Salary Increase Assumptions:

Many of the demographic assumptions used in this valuation (including disability turnover, retirement) and the salary increase assumption are the same as used in the Andover Contributory Retirement System Actuarial Valuation and Review as of January 1, 2014, dated December 5, 2014 completed by Segal Consulting with the exception of the mortality assumption, which was revised to include a margin for mortality improvement, and the Massachusetts Teachers' Retirement System Actuarial Valuation Report as of January 1, 2015 dated September 18, 2015.

A review of the demographic assumptions is beyond the scope of this assignment; however, we have no reason to doubt the reasonableness of the assumptions.

Justification for Assumption Changes Since Prior Valuation:

There were no changes from the Actuarial Valuation as of June 30, 2015 dated March 15, 2016 other than the change in the discount rate and funding method to comply with the requirements of the new accounting standard.

EXHIBIT II
Summary of Plan Provisions

This exhibit summarizes the major benefit provisions as included in the valuation. To the best of our knowledge, the summary represents the substantive plans as of the measurement date. It is not intended to be, nor should it be interpreted as, a complete statement of all benefit provisions.

Eligibility:	Retired and receiving a pension from the Town of Andover Contributory Retirement System or the Massachusetts Teachers' Retirement System.
<i>Members hired before April 2, 2012</i>	Group 1 and Group 2 (including Teachers): <ul style="list-style-type: none">➤ Retirees with at least 10 years of creditable service are eligible at age 55;➤ Retirees with at least 20 years of creditable service are eligible at any age. Group 4 <ul style="list-style-type: none">➤ Retirees are eligible at age 55;➤ Retirees with at least 20 years of creditable service are eligible at any age.
<i>Members hired on or after April 2, 2012</i>	Group 1 (including Teachers): <ul style="list-style-type: none">➤ Retirees with at least 10 years of creditable service are eligible at age 60. Group 2 <ul style="list-style-type: none">➤ Retirees with at least 10 years of creditable service are eligible at age 55. Group 4 <ul style="list-style-type: none">➤ Retirees are eligible at age 55;➤ Retirees with at least 10 years of creditable service are eligible at age 50. Disability: Accidental (job-related) Disability has no age or service requirement. Ordinary (non-job related) Disability has no age requirement but requires 10 years of creditable service.

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Pre-Retirement Death: Surviving spouses of members who die in active service on Accidental (job-related) Death are eligible at any age. Surviving spouses of members who die in active service on Ordinary (non-job related) Death are eligible after two years of service.

Post-Retirement Death: Surviving spouse is eligible.

Benefit Types:

Medical and prescription drug benefits are provided to all eligible retirees through a variety of Blue Cross Blue Shield of Massachusetts self-funded and insured plans offered by the Town of Andover. The Town of Andover pays 50% of the retiree life insurance premium and reimburses the Medicare Part B penalty for 74 retirees and spouses. (Dental coverage is offered but is 100% retiree paid and therefore has no impact on this valuation.)

Duration of Coverage:

Lifetime.

Dependent Benefits:

Medical and Prescription Drugs.

Retiree Life:

\$5,000

Dependent Coverage:

Benefits are payable to a spouse for their lifetime, regardless of when the retirees dies.

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Retiree Contributions:

Working rates, premium rates and retiree contributions as of July 1, 2015 or January 1, 2016 are summarized below:

	Subscribers				Monthly Premium (eff. 7/1/2015)	Town cost	Retiree cost	Retiree Cost %
	Active	Retiree	Total	65 and over*				
<u>Non-Medicare Actives and Retirees</u>								
Network Blue New England								
Individual	312	71	383	22	\$618.53	\$501.63	\$116.90	18.9%
Family	624	63	687	7	\$1,667.44	\$1,282.26	\$385.18	23.1%
Blue Care Elect								
Individual	9	27	36	18	\$777.07	\$505.10	\$271.97	35.0%
Family	7	11	18	4	\$2,082.56	\$1,353.66	\$728.90	35.0%
<u>Non-Medicare Total</u>	952	172	1124	51				
	Subscribers				Monthly Premium (eff. 1/1/2016)	Town cost	Retiree cost	Retiree Cost %
	Active	Retiree	Total					
<u>Medicare Supplement Plans</u>								
Medex 2	N/A	268	268		\$323.29	\$210.14	\$113.15	35.0%
Managed Blue For Seniors	N/A	194	194		\$316.86	\$273.45	\$43.41	13.7%
<u>Medicare Total</u>		462	462					
<u>Retiree Total**</u>		634						

* 51 of 513 over-65 retirees are in a non-Medicare plan.

** In addition, there are 346 spouses of retirees covered under an individual or family policy.

Plan Changes

Since the Prior Valuation:

The total OPEB liability as of June 30, 2017 reflects the elimination of the Managed Blue for Seniors Plan, the known increases in the premiums for fiscal 2017 for both the Medicare and non-Medicare plans, and the change in the retiree cost sharing for the non-Medicare plans beginning July 1, 2017. These changes were reflected through adjustments in the trend rates.

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

EXHIBIT III

Definition of Terms

The following list defines certain technical terms for the convenience of the reader:

Assumptions or Actuarial Assumptions:	The estimates on which the cost of the Plan is calculated including: <ul style="list-style-type: none">(a) <u>Investment return</u> — the rate of investment yield that the Plan will earn over the long-term future;(b) <u>Mortality rates</u> — the death rates of employees and pensioners; life expectancy is based on these rates;(c) <u>Retirement rates</u> — the rate or probability of retirement at a given age;(d) <u>Turnover rates</u> — the rates at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement.
Total OPEB Liability:	Present value of all future benefit payments for current retirees and active employees taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions.
Service Cost:	The amount of contributions required to fund the benefit allocated to the current year of service.
Actuarially Determined Contribution:	A target or recommended contribution to an OPEB plan for the reporting period based on the most recent measurement available.
Valuation Date:	The date at which the actuarial valuation is performed
Covered Employee Payroll:	The payroll of the employees that are provided OPEB benefits

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

Discount Rate:	The single rate of return, that when applied to all projected benefit payments results in an actuarial present value that is the sum of the following: (1) the actuarial present value of projected benefit payments projected to be funded by plan assets using a long term rate of return, and (2) the actuarial present value of projected benefit payments that are non included in (1) using a yield or index rate for 20 year tax exempt general obligation municipal bonds with an average rating of AA/Aa or higher
Entry Age Actuarial Cost Method:	An actuarial cost method where the present value of the projected benefits for an individual is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age
Healthcare Cost Trend Rates:	The rate of change in per capita health costs over time
Net OPEB Liability:	The Total OPEB Liability less the Plan Net Fiduciary Position
Plan Net Fiduciary Position:	Market Value of Assets
Real Rate of Return:	The rate of return on an investment after removing inflation

EXHIBIT IV

Accounting Requirements

The Governmental Accounting Standards Board (GASB) issued Statement Number 74 – *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*, and Statement Number 75 – *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*. Under these statements, all state and local government entities that provide other post-employment benefits (OPEB) are required to report the cost of these benefits on their financial statements. The accounting standards supplement cash accounting, under which the expense for postemployment benefits is equal to benefit and administrative costs paid on behalf of retirees and their dependents (*i.e.*, a pay-as-you-go basis).

The statements cover postemployment benefits of health, prescription drug, dental, vision and life insurance coverage for retirees; long-term care coverage, life insurance and death benefits that are *not* offered as part of a pension plan; and long-term disability insurance for employees. The benefits valued in this report are limited to those described in Exhibit II, which are based on those provided under the terms of the substantive plan in effect at the time of the valuation and on the pattern of sharing costs between the employer and plan members. The projection of benefits is not limited by legal or contractual limits on funding the plan unless those limits clearly translate into benefit limits on the substantive plan being valued.

The new standards introduce an accrual-basis accounting requirement, thereby recognizing the employer cost of postemployment benefits over an employee’s career. The standards also introduce a consistent accounting requirement for both pension and non-pension benefits.

The total cost of providing postemployment benefits is projected, taking into account assumptions about demographics, turnover, mortality, disability, retirement, health care trends, and other actuarial assumptions. These assumptions are summarized in Exhibit I. This amount is then discounted to determine the Total OPEB Liability. The Net OPEB Liability (NOL) is the difference between the Total OPEB Liability and market value of assets in the Plan, called the Net Plan Fiduciary Position.

Once the NOL is determined, the Annual OPEB Expense is determined as the change in NOL from the prior year with deferred recognition of certain elements. In addition, Required Supplementary Information (RSI) must be reported, including historical information about the Net OPEB liability and the Contributions made to the Plan. Exhibit III contains a definition of terms as well as more information about GASB 74/75 concepts.

Section 3: Supporting Information for the Town of Andover June 30, 2017 Measurement Under GASB 74

The calculation of an accounting obligation does not, in and of itself, imply that there is any legal liability to provide the benefits valued, nor is there any implication that the Employer is required to implement a funding policy to satisfy the projected expense.

Actuarial calculations reflect a long-term perspective, and the methods and assumptions use techniques designed to reduce short-term volatility in accrued liabilities and the actuarial value of assets, if any.

Actuarial valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future, and the actuarially determined amounts are subject to continual revision as actual results are compared to past expectations and new estimates are made about the future.

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