

June 30, 2016

Actuarial Valuation Report

Town of Concord
Other Post-Employment Benefits

Lawrence B. Stone



stoneconsulting,inc

5 West Mill Street, Suite 4
Medfield, Massachusetts 02052
T: 508.359.9600 • F: 508.359.0190
Lstone@stoneconsult.com

TABLE OF CONTENTS

	PAGE
SECTION I - MANAGEMENT SUMMARY	
Introduction.....	1
Summary of Actuarial Results.....	2
Change from Prior Valuation	3
Valuation Methodology and Assumptions	5
Data	11
Funding.....	11
Calculations of Net OPEB Obligations	14
Implementation	20
Recommendations and Comments	20
SECTION II - ACTUARIAL VALUATION DETAILS	
Population Data	23
Summary of Results.....	26
Schedules of Funding Progress Other Post-Employment Benefits.....	26
Funding Schedule.....	29
Sensitivity Analysis	30
Actuarial Methods and Assumptions	32
Principal Plan Provisions Recognized in Valuation.....	39
Glossary	39
Supplementary Tables	41

SECTION I - MANAGEMENT SUMMARY

Introduction

This report presents the results of the actuarial valuation of the Town of Concord Other Post-employment Benefits as of June 30, 2016. The valuation was performed for the purpose of measuring the actuarial accrued liabilities associated with these benefits and calculating a funding schedule. These results are used in satisfying the requirements under the Governmental Accounting Standards Board (GASB) Statement No. 45.

The valuation was based on participant data as of June 30, 2016 supplied by Concord, the Concord Regional School District, the Concord Retirement System, and the Massachusetts State Teachers Retirement System. The provisions reflected in the valuation are based on Chapter 32B of the General Laws of the Commonwealth of Massachusetts and related statutes and the benefits provided by the Town.

This actuarial valuation involves estimates about the probabilities of events as well as the projection of amounts far into the future. Our figures should be considered a "best estimate" of the future events and not a prediction. As such, actual results are likely to depart from these results. All amounts determined in this valuation will be subject to continual review as actual results are compared to past estimates and new estimates are made about future events.

We, Lawrence Stone and Kevin Gabriel, are consultants for Stone Consulting, Inc. and 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 are pleased to present the results of this valuation. We are available to respond to any questions on the content of this report. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in inaccurate or misleading understanding of the results.


Respectfully submitted,

STONE CONSULTING, INC.

January 9, 2017



Lawrence B. Stone
Member, American Academy of Actuaries



Kevin K. Gabriel, FSA, MAAA
Member, American Academy of Actuaries

Summary of Actuarial Results

The actuarial values in this report were calculated consistent with the Governmental Accounting Standards Board (GASB) Statement No. 45, Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions, issued June 2004. Values at one discount rate are presented. The 7.25% discount rate represents the expected rate of return for a funded plan with a longer-term investment horizon. This rate is based on a review of the Town’s investment policy. For an unfunded plan, the GASB Statement No. 45 calls for the use of a discount rate approximating the rate of return of Concord’s general assets. The OPEB liability is extremely sensitive to this assumption. Use of an unfunded rate instead of the funded rate would cause the Annual Required Contribution (ARC), Accrued Actuarial Liability (AAL), and the Normal Cost to increase dramatically.

The summary results are as follows:

Actuarial Results (7.25%)	6/30/2016
AAL Current Actives	\$19,744,423
AAL Current Retirees, Beneficiaries, Vesteds and Survivors	\$19,440,132
Total AAL	\$39,184,555
Assets	\$8,394,780
Total Unfunded AAL (UAAL)	\$30,789,775
Normal Cost	\$1,473,036
ARC (Using a 23-year amortization, increasing at 3% per year)	\$3,488,293

Unlike in the last valuation, we have not adjusted the results to the beginning of the fiscal year.

- Actuarial Accrued Liability (“AAL”) is the “price” attributable to benefits earned in past years. The total AAL as of June 30, 2016 (at the 7.25% discount rate) is \$39,184,555. This is made up of approximately \$19.7 million for current active Concord employees and approximately \$19.4 million for Concord retirees, spouses and survivors.
- The assets are invested in an irrevocable trust. They are invested in one balanced funds (Vantagepoint Milestone 2030 as of June 30, 2016) which invest mainly in equities and fixed income funds. We estimate that this results in an asset allocation that is roughly 70% equities and 30% fixed income. Per the Town of Concord, the trust satisfies the requirements of an OPEB trust under GASB Statement 45.
- The Normal Cost is the “price” attributable to benefits earned in the current year. The Normal Cost as of June 30, 2016 (at the 7.25% discount rate) is approximately \$1.5 million
- Based on a 23-year funding schedule at a 7.25% discount rate, the Fiscal 2016 contribution would be \$3,488,293. This figure is referred to as the Annual Required Contribution (ARC). These compare to the pay-as-you-go contribution of the existing costs for current retirees of \$1,624,248. For an illustration of how payment of the ARC impacts the funding of the plan over time, please refer to the “Illustrative Funding Schedule” discussion beginning on page 11.

Change from Prior Valuation

Concord's last valuation of its OPEB liability was done as of June 30, 2014 using a discount rate of 7.50%. The following table provides a comparison of some of the key figures using the adjusted figures:

Category	6/30/2016 Figure (7.25% Discount Rate)	6/30/2014 Projected To 6/30/2016 (7.50% Discount Rates)	% Change
Total AAL	\$39.2 million	\$38.1 million	+2.9%
Assets	\$8.4 million	\$9.8 million	-14.2%
Total UAAL	\$30.8 million	\$28.3 million	+8.8%
Service Cost (Normal Cost)	\$1.5 million	\$1.4 million	+6.3%
Amortization Cost (2016: 3.00% increasing; 2014: 3.25% increasing)	\$2.0 million	\$1.8 million	+13.4%
Annual Required Contribution (ARC)	\$3.5 million	\$3.2 million	+10.3%
Pay-As-You-Go	\$1.6 million	\$1.8 million	-11.3%

The following addresses the reasons behind these changes:

- The change in the discount rate from 7.5% to 7.25% increased the Normal Cost by 5% and increased the AAL by 3%.
- There was an actuarial asset loss of \$1.2M which increased the UAAL. The difference shown above includes the effect of interest adjustments. An actuarial asset loss is a comparison of the actual investment return versus the expected investment return.
- Changes in claims, trends and plan enrollments increased the Normal Cost by 12% and increased the AAL by 15%.
- The change in the population increased the Normal Cost by 7% and increased the AAL by 2%. For this analysis, we used the 2014 population and ran it through the current valuation. Thus, factors other than just the people involved, such as the plans in which they are enrolled, are also reflected.
- These figures do not reflect the change from showing figures from beginning of the year to the end of the year. Thus, they show roughly an extra year of service cost relative to what we are reporting.

Note: changes are shown from the prior set of results to the new set of results based on discrete changes in assumptions. Often changes interact with each other. Due to this interaction, one cannot simply add up the individual changes to get the total change.

The following table summarizes the changes in assumptions between the two valuations:

	Current Val (6/30/2016) (7.25%)	Prior Val (6/30/2014) (7.50%)
Employee Participation	70%	70%
Participating Spouse %	80%	80%
Plans Pre-65	100% MC/0% IND	100% MC/0% IND
Plans Post-65(Medicare Only)	65% IND/35% MC/<1%COM	65% IND/35% MC/<1%COM
Family % Pre-65/Post-65	55%/35%	60%/20%
Claims age 65 COMMC Blended (Pre-65/Post-65)	\$21,569/\$17,856	\$20,920/\$13,914
Claims age 65 COMIND Blended (Pre-65/Post-65)	NA/NA	NA/NA
Claims age 65 MEDMC/MEDIND (Pre-65/Post-65)	\$2,442/\$3,483	\$2,288/\$3,196
Cumulative Trend Years 1-10		
Commercial MC	87%	87%
Commercial IND	NA	NA
Medicare MC	80%	69%
Medicare IND	87%	93%
# Actives	666	639
# Retirees and Vested Terms	501	464
# Retirees and Spouses with Med	367	352

Table abbreviations:

- COM: Commercial (Non-Medicare)
- IND: Indemnity
- COMMC: Commercial Managed Care
- COMIN: Commercial Indemnity
- MEDMC: Medicare Managed Care
- MEDIN: Medicare Indemnity
- MC: Managed Care

Valuation Methodology and Assumptions

VALUATION METHOD

The valuation of the other post-employment benefits is based upon the Projected Unit Credit (PUC) actuarial cost method. Under this method, future health care benefit costs (including Medicare reimbursements) are projected using assumed rates of annual health care cost increases (health care cost trend rates). The cost of future expected life insurance death benefits and benefits for Medicare Penalties is added to the projected medical cost.

A normal cost (or service cost) is determined for each year of the member's creditable service and is equal to the value of the future expected benefits divided by the total expected number of years of service. This is similar to a normal cost in a retirement actuarial valuation. The Actuarial Accrued Liability is the accumulated value of prior normal costs, similar to the actuarial accrued liability in a retirement actuarial valuation, and represents the liability associated with prior service.

GASB Statement No. 45

The actuarial cost method used in this valuation is consistent with the Governmental Accounting Standards Board (GASB) Statement No. 45, Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions, issued June 2004. It is one of the allowable cost methods specified in that accounting standard.

Difference Between FAS 106 and GASB Statement No. 45

The GASB Statement No. 45 differs in one important regard from the actuarial cost method described in the private sector accounting standard. In the Financial Accounting Standards Board Statement 106 (FAS 106) methodology, benefits are considered to be fully earned in the first 10 years of service, since members become vested in the retirement benefits in 10 years. Compared to the FAS 106 method, the GASB Statement No. 45 attribution method produces a lower accrued liability for future retirees. The cost of the benefit is spread over the expected working lifetime of the employee. This makes the cost of the benefit associated with the years of service the employee is providing. This is more appropriate for the public sector due to the relative permanence of public entities compared to private entities. There are other significant differences between the GASB Statement No. 45 and FAS 106, most noticeably in the choice of discount rate. The GASB Statement No. 45 discount rate assumption is discussed below.

ACTUARIAL ASSUMPTIONS

Details of the assumptions used in this valuation are shown in Section II. Here we present a brief discussion of the assumptions selected.

Demographic and Financial Assumptions

These include a discount rate of 7.25% as well as mortality, disability, withdrawal and retirement rates. The 7.25% discount rate applies to the scenario of a fully funded program. A fully funded program is one in which the employer contributes 100% of the ARC each year. In contrast, an unfunded program is where only the pay-as-you-go value is contributed each year. We would consider that 4.00% per year would be a reasonable discount rate for an unfunded plan. GASB Statement No. 45 indicates that the discount rate for an unfunded post-employment benefit plan should be based on the degree to which the plan is funded. For such a plan, GASB statement No. 45 allows one to develop a long-term investment rate consistent with the investment strategy of the fund. That is what we have done for Concord. For a partially funded plan, where the entity has been setting aside some assets but less than the full ARC, a rate between the fully funded plan and a completely unfunded plan should be used.

- Current health care costs by age

Initial health care cost assumptions were derived from premium rates for the various health care plans in-force at June 30, 2016. Typically, we analyze the plans offered in terms of four different categories: whether the plan offered is Commercial (not integrated with Medicare) or supplemental to Medicare and whether the plan is Indemnity (where reimbursements are a function of billed charges) or Managed Care (where reimbursements are a function of negotiated contracts). Grouping the plans in this manner allows us to maintain a reasonable degree of granularity in our analysis. At the same time, it avoids the problem of a lack of credibility that often arises if one attempts to analyze every plan separately.

As of June 30, 2016, Concord had medical plans in three of these four categories: four Commercial Managed Care plans, one Medicare Managed Care plan, and one Medicare Indemnity plan. Please refer to the "Plan Definition Table" on page 24 for more details. These plans are open to all Concord employees and retirees, including those in the Concord Regional School District (CCRSB).

For all of these plan categories, weighted-average costs for each plan grouping were calculated based on the actual Concord active and retiree population enrollments, including the CCRSB. For plan categories with more than one plan, costs were based on an average weighted by enrollment. In order to capture the effect of aging on health care costs, an assumption is required for the increase in health care costs as a person ages. We based our aging assumption on a study sponsored by the Society of Actuaries Health Section in August 2003. The effect of this aging assumption is illustrated in the table of "Initial Claim Costs" in the Actuarial Methods and Assumptions section of this report. This method was applied only to the Commercial plans, since these plans incorporate both retirees and active employees. By age-grading the claim costs, we account for the subsidy of older employees by younger employees implicit in a flat premium rate (also referred to as the "Attributed Cost" of each employee). That is, the cost of an active 20-year old employee, for example, is much less than the cost of a retired 80-year old employee. But, the premiums charged the Town are flat – the same for both of these people. Thus, the 20-year old in our example is overcharged and the 80-year old is

undercharged by a flat rate premium. Age-grading makes this subsidy or mischarge explicit in the claim costs at each age. For the purposes of the GASB valuation, this subsidy needs to be taken into account in determining the retiree liability and normal cost.

Medicare plans were also age-graded. While there is no subsidy between actives and retirees in these plans, there is still an escalating cost by age that needs to be reflected. In particular, it should be noted that from one year to the next, the cost of a person in these plans (as well as commercial plans) increases due to two factors: (1) year-over-year medical trends and (2) the fact that the person ages one more year. Without age-grading the Medicare costs, we would understate the rate of increase in costs and so end up with smaller liabilities and associated annual costs.

There are also a handful of people for whom Concord subsidizes the cost of their Medicare plan to the extent the person was a late enrollee in Medicare and was charged a penalty. These costs were not age graded. They were based on the average amount reimbursed by the Town per enrollee with a penalty.

Again, the Concord-Carlisle Regional School District (CCRS) employees and retirees are part of the same plan. We have included the CCRSD members in the calculation of the age graded costs since they are part of the calculation of the premiums.

- Cost trends

The claim rates developed using the methodology described above must be projected over the life of each retiree. For this purpose we use trend rates calculated to reflect the general rate of increase in Health Care costs. We developed different trends for each of the categories of plans for which we also developed claim costs. These factors were applied to the premium-based claim rates.

It should be noted that premium rate increases typically include factors other than health care cost increases, such as aging of the covered population, that are reflected elsewhere in our valuation methodology. Therefore, premium rate increases are not themselves a proxy for health care trends. However, they do give some indication of the level of expected cost increases.

As is the standard in post-retirement medical valuations, initially higher rates of health care cost trend are assumed to decrease over time to an ultimate rate consistent with long-term economic assumptions. Our general set of trend assumptions has Commercial Managed Care trends that begin at 9% and scale down to 5%. For Medicare, the Managed Care trends begin 8% at and scale down to 5% while the Indemnity trends begin at 9% and grade down to 5%. The rate at which these trends grade down differs between the Managed Care and the Indemnity plans. The Commercial Managed Care plans grade down over seven years and the Medicare Managed Care Plans grade down over 5 years. On the other hand, the Medicare Indemnity plans grade down over twenty-seven years. These different sets of trend rates reflect our belief that (1) Managed Care plans, with their negotiated pay levels and tighter controls, will exhibit lower trends than unmanaged Indemnity plans; and (2) Commercial plans will be subject to modestly higher trends than Medicare plans due to cost shifting induced by cutbacks in the federal government's payment of Medicare costs. These were the trends

we used for our work except for the first year, where we used the actual premium changes for 2016.

The Medicare Penalty costs were projected using a flat 5% trend rate.

These trend rates should be thought of not as a forecast but as a reasonable progression of rates based on historic patterns. For many years, health care cost increases have been particularly volatile, and this actuarial assumption should be reviewed and, most likely, reset every year or two. Implicit in our health care cost trend assumptions is that the general rate of medical inflation will moderate due to economic pressure on insurers, employers, employees, retirees, government entities, and health care providers. As expectations of future health care cost increases change, they will be reflected in future valuations, resulting in actuarial gains/losses. These will be incorporated in the future costs and funding schedules. In this manner, there is a systematic means of adjusting to changes in the health care environment.

- Sensitivity analysis

The effect of increasing health care costs is extremely significant in an actuarial valuation of post-employment health benefits. As experience emerges the trend assumptions we have used are unlikely to be realized exactly. To illustrate the effect of different trend rates on the actuarial valuation results, we have included a sensitivity analysis of the effect on the actuarial accrued liability, normal cost and annual required contribution of a 1% increase or decrease in the health care cost trend assumption to the base (7.25%) discount scenario.

- Timing

All values discussed in this report are based on a June 30, 2016 valuation. The first fiscal year that the valuation is used for is July 1, 2015 to June 30, 2016. Unlike with the prior valuation, we have not adjusted these results back to the beginning of the fiscal year (7/1/2015 in this case). We did adjust the contributions, which were assumed to be made mid-year to the end of the year valuation date. For an entity such as Concord, which will be doing a valuation every two years, the standard allows use of data "not more than twenty-four months before the beginning of the first of two years for which the valuation provides the ARC." This means that it is acceptable for us to use the adjusted results when discussing the 2016 and 2017 Fiscal years. If there are no significant plan changes or demographic changes or cash contributions that differ from those assumed, you will be able to use the results for both fiscal years.

- Medicare

Medicare eligibility is an important assumption with regard to future costs. For those entities that have adopted Section 18 of Chapter 32B of the code (as has Concord), we will assume that active employees who were hired after March 31, 1986 will be Medicare eligible due to their mandated participation in the Medicare program. Active employees prior to that employment date are assumed to be 85% Medicare eligible. Thus, we assume that 85% of those not Medicare eligible through the Town will obtain coverage through other employment or through their spouse. Such an assumption only applies to those hired by the Town prior to 4/1/1986. All employees hired after that date are automatically Medicare eligible. Eventually, this 85% assumption will no longer be necessary.

- Medicare Changes

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 introduced significant changes to the Medicare program and its interaction with employer-sponsored post-retirement benefits. Medicare beneficiaries are able to participate in a voluntary, prescription drug coverage program. In order to encourage employers, including public-sector employers, to continue providing prescription drug coverage to retirees, the Act provides for a cash subsidy to employers whose prescription drug coverage is deemed to be actuarially equivalent to the new Medicare Part D drug coverage. This cash subsidy is not applicable to the Minuteman Nashoba Health Group from which the Town and the CCRSD purchase coverage. It has been wrapped into the plans which lowered the actuarial accrued liability by reducing premiums.

If the subsidy was received directly by the Town and the CCRSD, per GASB, the subsidy would not be included as part of the OPEB valuation, the reason being that the subsidy would be considered general governmental revenue and as such would not be earmarked towards the funding of OPEB benefits.

- Health plan coverage election

Assumptions must also be made regarding the participation in health plans when active members retire and when those already retired turn age 65. Using data supplied by Concord, Stone Consulting modeled the behavior of employees as they moved from being active to being retired or moved from being an under age 65 retiree to being an age 65+ retiree. Such modeling involved an analysis of the distribution of the plans chosen by current retirees, the possible plans available to those who will retire in the future, and our opinions about the likely future course of retiree medical care. For this analysis, all departments were combined, since the plans available to all Concord retirees are the same, regardless of department. Participants for The Concord Carlisle Regional School District (CCRSD) were also included since they are part of the plans as well.

This model is applicable to actives and to retirees not yet age 65, since both of these groups will have the option to select plans at key ages. It should be kept in mind that these percentages are applicable even to actives not currently enrolled in a medical plan. The reason for this is that these people could change their behavior and enroll in a plan at retirement. The likelihood that they (or other actives)

■ **Town of Concord**
Other Post-Employment Benefits Valuation, June 30, 2016

elect to do so is controlled by the participation assumption (see below). Some retiree groupings do not require any modeling. For example, retirees over age 65 are assumed to remain in the plans they have already selected. If they have opted out of Concord coverage, we assume they will continue to do so. Similarly, those retirees under age 65 already in Medicare plans are assumed to remain in those plans for life. These are people who are disabled or have certain medical conditions that qualify them for Medicare early. Pre age 65 retirees in Commercial plans are assumed to stay in their current plan until age 65. At that point, they may migrate to a different plan. We have modeled their possible choices at age 65 and reflected them in our assumptions. Active employees over age 65, once they retire, are assumed to make the same sorts of selections as retirees at age 65.

The following table shows the way we modeled the choices at each of the key ages.

Concord Participant Behavior at Key Ages

Status	Age	Pre-65 Retirement	65+ Retirement
Active	Under 65	Commercial Managed Care: 100% Commercial Indemnity: 0%	Medicare Managed Care: 35% Medicare Indemnity: 65% Commercial Managed Care: <1%
Active	65+	NA	Medicare Managed Care: 35% Medicare Indemnity: 65% Commercial Managed Care: <1%
Retired	Under 65	Current Plan	Medicare Managed Care: 35% Medicare Indemnity: 65% Commercial Managed Care: <1% Or Actual Plan if already in Medicare
Retired	65+	NA	Current Plan

Participation

In addition to determining the choices that retirees will make among plans, there is also the issue of whether the retiree will elect coverage at all. The rate at which retirees elect coverage is called the "Participation" Rate. Stone Consulting reviewed Town of Concord and CCRSD retiree data jointly to determine the historical frequency at which retirees elect to take medical coverage. Based on this review, we assumed that 70.0% of future eligible retirees and spouses of retirees will elect health plan coverage. For Life Insurance, we assumed that 60% of future retirees will elect coverage. These percentages reflect both actual Concord participation to date as well as the likelihood that future participation rates will tend to drift up as alternative sources of coverage become less common.

It is also necessary to reflect the participation rate of spouses in the Medical plans. Spouses will not participate at the same rate as employees for various reasons. These can include the availability of coverage from their own employer and the cost of the spouse coverage on top of the employee's coverage. We examined the number of spouses covered both pre-65 and post-65 and determined

■ **Town of Concord**
Other Post-Employment Benefits Valuation, June 30, 2016

the implied percentage of spouses participating. Such analysis took into account that spouses may “participate” by virtue of being covered under family plans. The participation rate we developed was 80%. We should also note that our expected frequency of spouses for an employee who is retiring typically is 80%. In other words, we typically expect 8 out of 10 retiring employees to have a spouse. However not all of these spouses will opt to participate.

Data

The participant census data for the valuation study was supplied by the Town of Concord, the Concord Carlisle Regional School District, the Concord Retirement System, and the Massachusetts Teachers Retirement System. Participants include Concord active employees including teachers, retirees, disability retirees, surviving spouses. We should note that, like many Massachusetts municipal entities, Concord does allow Inactive former employees to qualify for a vested post-retirement medical and basic life benefits. They can receive these benefits once they are receiving retirement benefits from either the Concord Retirement System or the Massachusetts Teacher Retirement System. If these inactive former employees subsequently are employed by another Massachusetts public sector employer and becomes a member of their retirement program, they would not be eligible for post-employment benefits from Concord.

The participant census data was not audited by Stone Consulting, Inc. However, it was checked for reasonableness. Summaries of active participants and Concord retiree census data are included in Section II. Note that teacher vested terminee information is not available and was not included in the valuation.

Funding

There are alternative ways to plan for the payment of post-retirement health and life insurance benefits: continue to fund on a pay-as-you go method, contribute on an ad-hoc basis to a fund for this purpose, or develop a funding schedule in which the unfunded amount is amortized over some number of years. With the funding schedule, the normal cost must continue to be paid each year to keep current.

There is no legal requirement to prefund these other post-employment benefit liabilities. Nor does GASB Statement No. 45 require actual prefunding; however, its accounting requirements will serve to highlight the substantial unfunded accrued liabilities associated with these benefits.

As of this valuation, we consider all of Concord’s Town employees to be in a fully funded plan.

ILLUSTRATIVE FUNDING SCHEDULE

The GASB Statement No. 45 is designed to account for non-pension post-employment benefits using an approach similar to the accounting for retirement benefits. It develops an Annual Required Contribution (“ARC”) that is based on the Normal Cost plus an amortization of the Unfunded Actuarial Accrued Liability (“UAAL”). To the extent that actual contributions equal to the ARC are

■ **Town of Concord**
Other Post-Employment Benefits Valuation, June 30, 2016

made by the employer to the post-employment health benefit plan, no additional liability will be required to be shown on Concord's statement of assets. Employer contributions may be in the form of benefit or premium payments or contributions to a fund set aside for future benefit payments. Such a fund must meet the requirements set out in the accounting standard.

We have calculated an illustrative funding schedule for the other post-employment benefits, consistent with the GASB Statement No. 45. This funding schedule is based on the assumption that Concord funds 100% of the ARC and begins with Concord's Fiscal Year 2016. Since this schedule assumes full funding, the "funded" rate of 7.25% is used. The full schedule is shown in Section II.

Development of Fully Funded Funding Schedule and Annual Required Contribution

As of 6/30/2016, the contribution amount under a fully funded scenario using the 7.25% discount rate for Fiscal 2016 is \$3,488,293. Part of this comes from the amortization of the June 30, 2016 Unfunded Actuarial Accrued Liability of \$30,789,775. This is equal to the AAL at 6/30/2016 of \$39,184,555 less the assets at that date of \$8,394,780. Note that to prevent double-counting, the assets as of June 30, 2016 have been reduced by the amount of the Fiscal 2016 cash contributions. The UAAL is amortized over 23 years using an increasing amortization payment at the rate of assumed payroll increase due to inflation (3.00%). The funding contribution is the amortization payment plus the projected normal cost. As noted earlier, under the GASB Statement No. 45, thirty years is the maximum amortization period allowed. The thirty-year funding schedule shown produces the lowest possible initial fiscal year contribution under the GASB parameters. However, since Concord has already been funding its OPEB liability, we have used the time remaining since the inception of the liability for our amortization period. The amount of the amortization payment in the first year is \$2,015,257. This figure also uses a 3.00% increasing amortization.

Yearly contributions will increase, as both normal cost and amortization payments increase each year.

The remaining part of the ARC is the cost of the current year's benefit accrual, the normal cost, of \$1,473,036.

FUNDING VERSUS PAY-AS-YOU-GO

Currently, most Massachusetts governmental entities are paying for their post-employment medical benefits on a pay-as-you-go basis. This means that no amount in excess of the actual cost for the year is paid. All such entities must report figures for GASB Statement No. 45 based on the unfunded discount rate. Unlike the majority of its peer entities, Concord has elected, to date, to fund its OPEB liability fully.

It is very important to understand that, in order to utilize the higher discount rate that goes with the fully funded or partially funded scenarios, there must be a "Funding Policy." That is, the Town must intend to continue to make payments and, in the future, must actually make them. Thus, it will be necessary for Concord to maintain its current funding level in order to reap the benefits of the higher

■ Town of Concord
Other Post-Employment Benefits Valuation, June 30, 2016

fully funded discount rate. There is an iterative relationship between the degree of funding and the amounts that must be shown as liabilities, amortization payments, and normal cost figures. Lower funding levels lead to higher amounts for these key figures.

The Town's decision to fund fully the OPEB liability while more expensive in the short-term will enable the Town to pay for the costs with a combination of Town contributions and investment earnings. This compares to an unfunded plan which is completely paid for by Town contributions.

DETERMINATION OF THE NET OPEB OBLIGATION (NOO)

The Statement does not require Concord to put its entire Actuarial Accrued Liability on its books immediately as a liability. Rather, a cost is applied to its net assets each year. Over time this cost, which is called the OPEB Cost, will add up to the total liability. The total liability at any point in time is called the Net OPEB Obligation (NOO). For the first year of funding, the OPEB Cost and ARC are identical. Amounts contributed toward the cost of other post-employment benefits must then be deducted. These amounts include:

- 1) actual premiums paid;
- 2) the extra implied costs or "implicit subsidy" associated with covering retirees;
- 3) any additional amounts paid during the year.

The Net OPEB Cost is the OPEB Cost less these amounts. For year one, where there was no prior NOO on the financial statement, the Net OPEB Cost was the same as the Net OPEB Obligation. Starting with year two, the OPEB Cost must recognize not only the Normal Cost and Amortization Cost for the year but also add interest on the prior year's NOO as well as subtract the Annual Required Contribution (ARC) adjustment to prevent double counting the amortization of the prior year's NOO. The interest and the ARC adjustments somewhat offset each other so the net impact is not large. The total contributions are then subtracted from the OPEB Cost and the result is added to the prior year's NOO. In this manner, the difference between each year's ARC and the contributions are accumulated.

We have shown the development of the NOO for the total Town of Concord as well as for each Enterprise fund and for the non-enterprise part of the Town as well.

For Concord as a whole, the unfunded actuarial accrued liability as of June 30, 2016 is \$30,789,775. The following chart illustrates the ARC, Pay-As-You-Go Cost, Annual OPEB Cost, and Net OPEB Obligation for the years 2009 through 2017 under the funded scenario. The Annual OPEB cost is the ARC plus an adjustment for interest not included in the ARC calculation. The Net OPEB Obligation is the accumulation of the Annual OPEB Cost minus any contributions. This is the amount that is subtracted from the Net Assets on Concord's balance sheet. Since Concord is fully funding and since its investment strategy should produce an appropriate return, the rate used for interest is the 7.25% funded rate.

Calculations of Net OPEB Obligations

("Funding" Schedules at 7.25%)

ENTIRE TOWN

Fiscal Year	UAAL	Normal Cost	Amort.	ARC	Interest on NOO	ARC Adjust.	OPEB Cost	Total Contribs. ⁽²⁾⁽⁴⁾	Change in NOO	NOO ⁽³⁾
2009 ⁽¹⁾	\$43,796,093	\$2,181,279	\$1,617,835	\$3,799,114	NA	NA	\$3,799,114	\$1,545,697	\$2,253,417	\$2,253,417
2010 ⁽¹⁾	\$46,353,209	\$2,273,983	\$1,765,183	\$4,039,166	\$95,770	\$85,813	\$4,049,123	\$2,168,200	\$1,880,923	\$4,134,340
2011 ⁽¹⁾	NA	NA	NA	\$4,295,372	\$196,138	\$181,388	\$4,310,122	\$3,156,898	\$1,153,224	\$5,287,564
2012 ⁽¹⁾	\$28,100,356	\$1,658,543	\$1,520,014	\$3,178,557	\$343,692	\$284,633	\$3,237,615	\$2,074,128	\$1,163,487	\$6,451,050
2013 ⁽¹⁾	\$29,441,470	\$1,728,701	\$1,629,885	\$3,358,587	\$417,366	\$354,709	\$3,421,244	\$2,206,143	\$1,215,101	\$7,666,151
2014 ⁽¹⁾	\$27,339,441	\$1,115,052	\$1,701,575	\$2,816,627	\$574,961	\$477,132	\$2,914,456	\$3,082,457	(\$168,001)	\$7,498,150
2015 ⁽¹⁾	\$26,875,240	\$1,198,681	\$1,713,180	\$2,911,861	\$562,361	\$477,975	\$2,996,248	\$3,247,118	(\$250,870)	\$7,247,280
2016	\$30,789,775	\$1,473,036	\$2,015,257	\$3,488,293	\$525,428	\$508,740	\$3,504,980	\$3,525,493	(\$20,513)	\$7,226,768
2017	\$30,682,274	\$1,579,831	\$2,063,715	\$3,643,547	\$523,941	\$521,319	\$3,646,168	\$3,785,945	(\$139,777)	\$7,086,991

¹ Figures for 2009-2015 (boxed area) from Concord's Financial Reports.

² For all years, Total Contributions are equal to the attributed premiums paid including the implicit subsidy and additional contributions. FY 2016 and 2017 include accrued interest from mid fiscal year to the end of the fiscal year

³ NOO = Net OPEB Obligation

⁴ The following is a schedule of additional contributions made or anticipated to be made by Concord and the Enterprise Funds

Year	Town Only	Enterprise Funds	Town Only w interest	Enterprise Funds w interest
2010	\$0	\$480,679	\$0	\$480,679
2011	\$1,100,000	\$263,192	\$1,100,000	\$263,192
2012	\$500,000	\$287,932	\$500,000	\$287,932
2013	\$800,000	\$71,200	\$800,000	\$71,200
2014	\$1,700,000	\$68,237	\$1,700,000	\$68,237
2015	\$1,700,000	\$71,000	\$1,700,000	\$71,000
2016	\$1,705,000	\$75,000	\$1,765,725	\$77,671
2017	\$1,700,000	\$80,000	\$1,760,547	\$82,849

PAY-AS-YOU-GO AMOUNTS

Unit	2016 Pay Go	2016 Pay Go w/int	2017 Pay Go	2017 Pay Go w/int
Light	\$101,093	\$104,693	\$116,746	\$120,904
Beede	\$2,053	\$2,126	\$2,371	\$2,456
Water	\$15,144	\$15,684	\$17,489	\$18,112
Sewer	\$3,786	\$3,921	\$4,372	\$4,528
Town	\$1,502,172	\$1,555,673	\$1,734,765	\$1,796,550
Total	\$1,624,248	\$1,682,097	\$1,875,743	\$1,942,549

Note: All interest adjustments are from mid-fiscal year to the end of the fiscal year.

■ Town of Concord
Other Post-Employment Benefits Valuation, June 30, 2016

Alternative Presentation

	Fiscal 2017	Fiscal 2016	Fiscal 2015 ⁽¹⁾	Fiscal 2014 ⁽¹⁾	Fiscal 2013 ⁽¹⁾	Fiscal 2012 ⁽¹⁾
AAL	\$41,662,717	\$39,184,555	\$33,452,285	\$31,317,573	\$32,391,667	\$29,985,597
Assets	\$10,980,444	\$8,394,780	\$6,577,045	\$3,978,132	\$2,950,197	\$1,885,241
UAAL	\$30,682,274	\$30,789,775	\$26,875,240	\$27,339,441	\$29,441,470	\$28,100,356
Service Cost	\$1,579,831	\$1,473,036	\$1,198,681	\$1,115,052	\$1,728,701	\$1,658,543
Amortization of UAAL	\$2,063,715	\$2,015,257	\$1,713,180	\$1,701,575	\$1,629,885	\$1,520,014
ARC	\$3,643,547	\$3,488,293	\$2,911,861	\$2,816,627	\$3,358,587	\$3,178,557
Interest on NOO (+)	\$523,941	\$525,428	\$562,361	\$574,961	\$417,366	\$343,692
ARC Adjustment (-)	\$521,319	\$508,740	\$477,975	\$477,132	\$354,709	\$284,633
OPEB Cost	\$3,646,168	\$3,504,980	\$2,996,248	\$2,914,456	\$3,421,244	\$3,237,615
Premiums and Implicit Subsidy Paid	\$1,875,743	\$1,624,248	\$1,476,118	\$1,314,220	\$1,334,943	\$1,286,196
Cash contributions	\$1,780,000	\$1,780,000	\$1,771,000	\$1,768,237	\$871,200	\$787,932
Total Contributions	\$3,655,743	\$3,404,248	\$3,247,118	\$3,082,457	\$2,206,143	\$2,074,128
Total Contributions Adj from Mid-Year to End of Year	\$3,785,945	\$3,525,493	\$3,247,118	\$3,082,457	\$2,206,143	\$2,074,128
Change in NOO	(\$139,777)	(\$20,513)	(\$250,870)	(\$168,001)	\$1,215,101	\$1,163,487
NOO Beginning of Fiscal Year	\$7,226,768	\$7,247,280	\$7,498,150	\$7,666,151	\$6,451,050	\$5,287,564
NOO End of Fiscal Year	\$7,086,991	\$7,226,768	\$7,247,280	\$7,498,150	\$7,666,151	\$6,451,050

(1) Boxed area for Fiscal Years 2012 through 2015 are from Concord's Financial Statements.

■ Town of Concord
Other Post-Employment Benefits Valuation, June 30, 2016

ENTIRE TOWN, EXCLUDING ENTERPRISE FUNDS

Fiscal Year	UAAL	Normal Cost	Amort.	ARC	Interest on NOO	ARC Adjust.	OPEB Cost	Total Contribs. ⁽²⁾	Change in NOO	NOO ⁽³⁾
2009 ⁽¹⁾	\$39,682,695	\$1,980,761	\$1,465,885	\$3,446,646	NA	NA	\$3,446,646	\$1,426,896	\$2,019,750	\$2,019,750
2010 ⁽¹⁾	\$41,977,251	\$2,064,943	\$1,598,541	\$3,663,485	\$85,839	\$76,914	\$3,672,410	\$1,557,820	\$2,114,590	\$4,134,340
2011 ⁽¹⁾	NA	NA	NA	\$3,914,309	\$196,138	\$181,388	\$3,929,059	\$2,775,835	\$1,153,224	\$5,287,564
2012 ⁽¹⁾	\$26,823,320	\$1,549,505	\$1,443,919	\$2,993,424	\$343,692	\$284,633	\$3,052,482	\$1,693,808	\$1,358,674	\$6,646,238
2013 ⁽¹⁾	\$28,392,828	\$1,611,485	\$1,566,068	\$3,177,553	\$432,005	\$366,588	\$3,242,971	\$2,027,870	\$1,215,101	\$7,861,339
2014 ⁽¹⁾	\$26,094,446	\$996,825	\$1,624,088	\$2,620,913	\$589,600	\$489,281	\$2,721,233	\$2,919,088	(\$197,855)	\$7,663,484
2015 ⁽¹⁾	\$25,716,072	\$1,071,587	\$1,639,288	\$2,710,875	\$574,761	\$488,514	\$2,797,123	\$3,069,267	(\$272,144)	\$7,391,340
2016	\$29,134,528	\$1,313,803	\$1,906,917	\$3,220,721	\$535,872	\$518,169	\$3,238,424	\$3,321,398	(\$82,974)	\$7,308,365
2017	\$28,950,473	\$1,409,054	\$1,947,233	\$3,356,287	\$529,856	\$526,807	\$3,359,336	\$3,557,097	(\$197,760)	\$7,110,604

¹ Figures for 2009-2015 (boxed area) from Concord's Financial Reports.

² For all years, Total Contributions are equal to the attributed premiums paid including the implicit subsidy and additional contributions.

³ NOO = Net OPEB Obligation

Contributions for FY 2016 and 2017 include accrued interest from mid-year to the end of the fiscal year.

■ Town of Concord
Other Post-Employment Benefits Valuation, June 30, 2016

CONCORD ELECTRIC LIGHT

Fiscal Year	UAAL	Normal Cost	Amort.	ARC	Interest on NOO	ARC Adjust.	OPEB Cost	Total Contribs. ⁽²⁾	Change in NOO	NOO ⁽³⁾
2009 ⁽¹⁾	\$2,932,973	\$109,039	\$108,345	\$217,384	NA	NA	\$217,384	\$92,935	\$124,449	\$124,449
2010 ⁽¹⁾	\$3,076,409	\$113,673	\$117,153	\$230,827	\$5,289	\$4,739	\$231,377	\$355,826	(\$124,449)	(\$0)
2011 ⁽¹⁾	NA	NA	NA	\$246,278	(\$0)	(\$0)	\$246,278	\$246,278	\$0	(\$0)
2012 ⁽¹⁾	\$1,066,429	\$51,072	\$63,545	\$114,616	(\$0)	(\$0)	\$114,616	\$233,967	(\$119,351)	(\$119,351)
2013 ⁽¹⁾	\$932,615	\$54,902	\$56,756	\$111,658	(\$8,951)	(\$7,263)	\$109,970	\$109,970	\$0	(\$119,351)
2014 ⁽¹⁾	\$1,092,965	\$55,787	\$68,025	\$123,811	(\$8,951)	(\$7,428)	\$122,288	\$90,058	\$32,230	(\$87,121)
2015 ⁽¹⁾	\$1,073,777	\$59,971	\$68,449	\$128,419	(\$6,534)	(\$5,554)	\$127,439	\$100,383	\$27,055	(\$60,065)
2016	\$1,383,597	\$91,769	\$90,559	\$182,328	(\$4,355)	(\$3,931)	\$181,905	\$116,603	\$65,302	\$5,237
2017	\$1,461,135	\$98,422	\$98,277	\$196,699	\$380	\$352	\$196,727	\$151,972	\$44,755	\$49,992

¹ Figures for 2009-2015 (boxed area) from Concord's Financial Reports.

² For all years, Total Contributions are equal to the attributed premiums paid including the implicit subsidy and additional contributions.

³ NOO = Net OPEB Obligation

SWIM / BEEDE

Fiscal Year	UAAL	Normal Cost	Amort.	ARC	Interest on NOO	ARC Adjust.	OPEB Cost	Total Contribs. ⁽²⁾	Change in NOO	NOO ⁽³⁾
2009 ⁽¹⁾	\$29,063	\$33,230	\$1,074	\$34,304	NA	NA	\$34,304	\$51	\$34,253	\$34,253
2010 ⁽¹⁾	\$64,888	\$34,642	\$2,471	\$37,114	\$1,456	\$1,304	\$37,265	\$71,517	(\$34,253)	\$0
2011 ⁽¹⁾	NA	NA	NA	\$39,704	\$0	\$0	\$39,704	\$39,704	\$0	\$0
2012 ⁽¹⁾	\$83,412	\$30,217	\$4,970	\$35,187	\$0	\$0	\$35,187	\$45,398	(\$10,211)	(\$10,210)
2013 ⁽¹⁾	\$68,487	\$32,483	\$4,168	\$36,651	(\$766)	(\$621)	\$36,507	\$36,507	\$0	(\$10,210)
2014 ⁽¹⁾	\$9,892	\$29,283	\$616	\$29,899	(\$766)	(\$635)	\$29,769	\$38,787	(\$9,018)	(\$19,228)
2015 ⁽¹⁾	(\$23,853)	\$31,479	(\$1,521)	\$29,959	(\$1,442)	(\$1,226)	\$29,743	\$40,559	(\$10,817)	(\$30,045)
2016	\$78,257	\$30,296	\$5,122	\$35,418	(\$2,178)	(\$1,966)	\$35,206	\$43,551	(\$8,345)	(\$38,390)
2017	\$69,793	\$32,492	\$4,694	\$37,187	(\$2,783)	(\$2,582)	\$36,986	\$28,346	\$8,640	(\$29,750)

¹ Figures for 2009-2015 (boxed area) from Concord's Financial Reports.

² For all years, Total Contributions are equal to the attributed premiums paid including the implicit subsidy and additional contributions.

³ NOO = Net OPEB Obligation

■ Town of Concord
Other Post-Employment Benefits Valuation, June 30, 2016

CONCORD WATER DEPARTMENT

Fiscal Year	UAAL	Normal Cost	Amort.	ARC	Interest on NOO	ARC Adjust.	OPEB Cost	Total Contribs. ⁽²⁾	Change in NOO	NOO ⁽³⁾
2009 ⁽¹⁾	\$921,090	\$46,599	\$34,025	\$80,624	NA	NA	\$80,624	\$20,652	\$59,972	\$59,972
2010 ⁽¹⁾	\$987,729	\$48,579	\$37,614	\$86,193	\$2,549	\$2,284	\$86,458	\$146,430	(\$59,972)	\$0
2011 ⁽¹⁾	NA	NA	NA	\$76,065	\$0	\$0	\$76,065	\$76,065	\$0	\$0
2012 ⁽¹⁾	\$101,757	\$22,200	\$6,063	\$28,263	\$0	\$0	\$28,263	\$80,765	(\$52,501)	(\$52,501)
2013 ⁽¹⁾	\$38,032	\$23,865	\$2,315	\$26,179	(\$3,938)	(\$3,195)	\$25,437	\$25,437	\$0	(\$52,501)
2014 ⁽¹⁾	\$113,713	\$26,526	\$7,077	\$33,603	(\$3,938)	(\$3,268)	\$32,933	\$27,021	\$5,913	(\$46,589)
2015 ⁽¹⁾	\$88,099	\$28,516	\$5,616	\$34,131	(\$3,494)	(\$2,970)	\$33,607	\$28,927	\$4,680	(\$41,908)
2016	\$156,019	\$29,734	\$10,212	\$39,946	(\$3,038)	(\$2,743)	\$39,651	\$34,325	\$5,326	(\$36,582)
2017	\$162,986	\$31,890	\$10,963	\$42,852	(\$2,652)	(\$2,461)	\$42,661	\$38,824	\$3,837	(\$32,746)

¹ Figures for 2009-2015 (boxed area) from Concord's Financial Reports.

² For all years, Total Contributions are equal to the attributed premiums paid including the implicit subsidy and additional contributions.

³ NOO = Net OPEB Obligation

CONCORD SEWER DEPARTMENT

Fiscal Year	UAAL	Normal Cost	Amort.	ARC	Interest on NOO	ARC Adjust.	OPEB Cost	Total Contribs. ⁽²⁾	Change in NOO	NOO ⁽³⁾
2009 ⁽¹⁾	\$230,272	\$11,650	\$8,506	\$20,156	NA	NA	\$20,156	\$5,163	\$14,993	\$14,993
2010 ⁽¹⁾	\$246,932	\$12,145	\$9,403	\$21,548	\$637	\$571	\$21,614	\$36,607	(\$14,993)	\$0
2011 ⁽¹⁾	NA	NA	NA	\$19,016	\$0	\$0	\$19,016	\$19,016	\$0	\$0
2012 ⁽¹⁾	\$25,439	\$5,550	\$1,516	\$7,066	\$0	\$0	\$7,066	\$20,191	(\$13,125)	(\$13,125)
2013 ⁽¹⁾	\$9,508	\$5,966	\$579	\$6,545	(\$984)	(\$799)	\$6,359	\$6,359	\$0	(\$13,125)
2014 ⁽¹⁾	\$28,425	\$6,632	\$1,769	\$8,401	(\$984)	(\$817)	\$8,233	\$7,504	\$729	(\$12,396)
2015 ⁽¹⁾	\$21,146	\$7,129	\$1,348	\$8,477	(\$930)	(\$790)	\$8,337	\$7,982	\$356	(\$12,040)
2016	\$37,373	\$7,434	\$2,446	\$9,880	(\$873)	(\$788)	\$9,795	\$9,617	\$178	(\$11,862)
2017	\$37,886	\$7,972	\$2,548	\$10,521	(\$860)	(\$798)	\$10,459	\$9,706	\$753	(\$11,110)

¹ Figures for 2009-2015 (boxed area) from Concord's Financial Reports.

² For all years, Total Contributions are equal to the attributed premiums paid including the implicit subsidy and additional contributions.

³ NOO = Net OPEB Obligation

Implementation

According to the GASB Statement No. 45, its provisions are effective for Concord fiscal years beginning after December 15, 2007. The timing is due to Concord being a “Tier 2” government under GASB 45. In the first fiscal year of adoption, Fiscal 2009, Concord recorded a liability of \$2,253,417 on its balance sheet. Concord’s contributions (including benefit payments) for other post-employment benefits were less than the Annual Required Contribution (“ARC”) determined in accordance with the GASB standard and described above. By the end of Fiscal 2015, Concord had recorded a figure of \$7,247,280 for its NOO.

This report provides similar information for FY 2016 and beyond. For future years, a similar liability will need to be recorded. This liability would also reflect interest on any prior funding deficiencies. The total actuarial liability is determined by a valuation to be performed at least every two years. The total actuarial liability is reduced by any assets set aside to pre-fund the post-retirement benefits, with the resulting unfunded actuarial liability being amortized according to a funding schedule similar to that illustrated in this report.

To be considered a funded system, the plan assets must be “segregated and restricted in a trust, or equivalent arrangement, in which (a) employer contributions to the plan are irrevocable, (b) assets are dedicated to providing benefits to retirees and their beneficiaries, and (c) assets are legally protected from creditors of the employers or plan administrator, for the payment of benefits in accordance with the terms of the plan.” (GASB 45, p. 47, “Plan Assets”). Therefore, for Concord to receive “credit” under the GASB accounting standard for assets set aside to pre-fund post-retirement benefits, they must be segregated in a trust or other account that is not subject to use for any other purpose by Concord. It is our understanding that Concord has indeed set up such a trust for its OPEB assets.

Recommendations and Comments

Post-employment medical benefits are a significant long-term liability that is only now starting to be addressed by Massachusetts governmental employers. In managing this liability, any governmental entity needs to consider the parameters that can significantly influence the level of the liability.

FUNDING POLICY

As previously discussed, the funding policy is critical to the valuation not only because it impacts the funds backing the liability but also because it impacts the discount rate that is used to calculate all of the relevant figures. Concord needs to bear in mind that it is the formulation of a funding policy that is essential, not simply the contribution of funds. Of course, if a funding policy is developed, it needs to be implemented, not just formulated. It also must be implemented on a continuing basis. Therefore, we recommend that the Town review its funding policy each year. Concord has established a funding policy to date and we have followed it in preparing this report.

PLAN DESIGN

One of the major factors influencing costs is the design of the plans that Concord offers to retirees. To the extent that any part of these plans changes materially, costs may either increase or decrease.

In order to keep costs under control, the Town should review the design of all its medical plans annually. Changes in plan characteristics such as deductibles, coinsurance levels, out-of-pocket maximums, and covered services can help mitigate the impacts of ever-increasing medical costs or amplify these costs. In addition, the Town should review the networks it is using to be sure that it is getting the most competitive reimbursement levels available.

CONTRIBUTION LEVELS

The extent to which the Town subsidizes the cost of retiree benefits is one of the most significant factors in the ultimate costs. Currently, retired Concord Town employees and their spouses pay between 37% and 50% of the premium cost for their retiree medical insurance depending upon the plan. This is at the higher end of the requirements we have seen for Massachusetts municipal entities. The lower end of employee contribution rates is in the 10%-15% range. The average contribution rate is around 25%. 50% is the highest amount that can be asked of retirees. Contribution levels (like benefit levels) have a double impact on costs. First off, there is a direct relationship between contributions and costs in that higher contribution levels mean that more of the cost of the plan is borne by the Town. Secondly, higher contribution levels lead to higher participation rates because the plan becomes less costly to the retiree. In the case of cities and towns where a substantial portion of the medical costs are paid by the employer, participation rates tend to be very high. Concord's participation level of 70.0% is in line with its contribution requirements.

In general, a very-well subsidized plan will have many participants enrolled at a high cost. Also, to the extent that other employers are cutting back or eliminating their programs, there is increased likelihood that a favorably subsidized plan will be elected by retirees, since no coverage or only very expensive coverage may be available from other sources such as their spouse's employer. There has been a very definite move toward reducing the subsidies paid by Massachusetts public entities which aligns with Concord's policies.

EILIGIBILITY

The extent to which retirees are eligible for benefits is another variable that directly impacts costs. Concord should review its eligibility criteria each year to be sure that they are in accord with Town goals for controlling costs and for providing well-deserved benefits for those who have worked for the Town. Retirement system policies can also affect the eligibility for benefits. In the case of Concord, the Town does pay for a portion of medical and basic life benefits for some former employees, as discussed in an earlier section even if they do not retire from Concord upon separation from service. This will produce a higher liability and ARC for Concord than if only those actually retiring upon separation from service from the Town were covered.

In addition to reviewing the above items regularly, we recommend that the Town continue working toward an organized method of keeping its data. This is an issue faced by virtually all public entities with respect to GASB Statement No. 45. Some of the typical issues are:

- Be sure that it has a record of those eligible for coverage who do not take coverage. This should cover not only actives who are not enrolled but retired employees who opted out.
- To the extent possible, make sure that all databases can be tied together by a single identifier, such as social security number or employee number. Some entities keep certain data by, for example, social security number, but organize other data on some other basis. This greatly increases the time and effort to tie all the relevant pieces of data together. This need is particularly acute when the records for those in the school system are not kept by Concord directly.
- Since Concord has separate funding policies and thus, needs separate valuations for the Town and its Enterprise Funds versus the Concord Carlisle Regional School District, be sure that all data includes identifiers that allow the actuary performing the work to allocate participants to the proper category.
- Need to include records for spouses of retirees who have coverage.

GASB 74 and 75

A new set of GASB Standards will take effect soon. For Fiscal 2017, GASB 74 will apply to the trust. For Fiscal 2018, GASB 75 will apply to the employers. These statements are similar to GASB 67 and 68 for pensions. GASB 74 and 75 require a different method to determine the discount rate to use for measurement. It will be based on a cash flow analysis. A blended discount rate will be used. The rate reflects a long-term asset return for as long as there would be cash in the trust and a basket of municipal bonds for the remaining years.

The liability will be calculated using the pay-related entry age normal actuarial funding method. The entire unfunded actuarial accrued liability will be shown on the Town's statement of net assets.

This is just a short synopsis of a portion of the GASB Statements 74 and 75. The entire statements are available on the GASB website.

SECTION II - ACTUARIAL VALUATION DETAILS

Population Data

A. DISTRIBUTION BY AGE: RETIREES, BENEFICIARIES, AND SURVIVORS
 (Includes retirees with life only or no coverage)

Age	Total
0-19	0
20-24	0
25-29	0
30-34	0
35-39	2
40-44	2
45-49	2
50-54	11
55-59	20
60-64	43
65-69	105
70-74	108
75-79	69
80-84	56
85-89	53
90-94	23
95-99	7
100+	0
TOTAL	501

Includes retirees who are eligible for medical or with life coverage in addition to beneficiaries and survivors with medical coverage. Includes eligible terminated vested employees.

B. ACTIVE PARTICIPANTS

OF PARTICIPANTS*

Current Plan	Mandatory Medicare Eligible	Pre-Mandatory Medicare Eligible	Total
No Medical/ Unknown	280	7	287
Indemnity	0	0	0
Managed Care	359	20	379
TOTAL	639	27	666

* "Pre-Mandatory Medicare eligible" means hired March 31, 1986 or before. "Mandatory Medicare eligible" means hired after March 31, 1986. Employees hired March 31, 1986 or before do not contribute to Medicare.

C. PLAN DEFINITION TABLE⁽¹⁾

Name of Plan	Type of Plan	Ind Rate	Retirees Enrolled	Fam Rate	Retirees Enrolled	EE Cont %
Fallon Direct	Commercial Managed Care	\$503.00	3	\$1,345.00	1	40%/45%
Fallon Select	Commercial Managed Care	\$533.00	2	\$1,424.00	2	40%/45%
Harvard EPO	Commercial Managed Care	\$703.00	19	\$1,847.00	13	37%/45%
Tufts EPO	Commercial Managed Care	\$690.00	17	\$1,874.00	10	39%/48%
Tufts Medicare Preferred	Medicare Managed Care	\$267.00	137	NA	NA	50%
Tufts Medicare Group Supplement Plan	Medicare Indemnity	\$376.00	271	NA	NA	50%
Life (\$5,000)	Life	\$4.80	257	NA	NA	50%

(1) Rates at 6/1/2016 (used for 6/30/2016). Only plans with retiree enrollment shown. Includes CCRSD.

C. DISTRIBUTION BY AGE AND SERVICE: ACTIVE PARTICIPANTS ⁽¹⁾

Age Group	0-4	5-9	10-15	15-19	20-24	25-29	30-34	35-39	40+	Total
0-19	0	0	0	0	0	0	0	0	0	0
20-24	11	0	0	0	0	0	0	0	0	11
25-29	51	1	0	0	0	0	0	0	0	52
30-34	35	25	1	0	0	0	0	0	0	61
35-39	24	15	19	3	0	0	0	0	0	61
40-44	11	10	14	11	1	0	0	0	0	47
45-49	28	13	9	19	13	4	2	0	0	88
50-54	26	25	14	16	10	15	8	0	0	114
55-59	10	19	26	16	9	10	9	2	0	101
60-64	13	13	12	18	6	12	8	5	0	87
65-69	4	4	11	1	8	6	0	1	1	36
70-74	0	1	0	2	1	0	0	0	2	6
75-79	0	0	0	1	0	0	0	0	0	1
80-84	0	0	0	1	0	0	0	0	0	1
85-89	0	0	0	0	0	0	0	0	0	0
90-94	0	0	0	0	0	0	0	0	0	0
95-99	0	0	0	0	0	0	0	0	0	0
100+	0	0	0	0	0	0	0	0	0	0
TOTAL	213	126	106	88	48	47	27	8	3	666

(1) There are certain people who have service split between the Town of Concord and the Concord-Carlisle Regional School District. Rather than include fractions of these people in both valuations, we have allocated entire people to the entities based on the total percentage of work in each entity.

Summary of Results

Grand Total Actives	
- Already in Medicare	0
- Pre-Mandatory Medicare Coverage	27
- Post-Mandatory Medicare Coverage	<u>639</u>
Total	666
Retired, Disabled, Survivors and Beneficiaries	481
Terminated Vesteds	20

	At 7.25% discount
Active Employees	\$19,744,423
Current Retirees	<u>\$19,440,132</u>
TOTAL	\$39,184,555
Funding to date as of June 30, 2016	\$8,394,780
UAAL as of June 30, 2016	\$30,789,775
Normal (Service) Cost as of June 30, 2016	\$1,473,036
23-yr amortization of UAAL	<u>\$2,015,257</u>
TOTAL	\$3,488,293

Expected Claims (no timing adjustment)	
• Fiscal 2016	\$1,624,248

Schedules of Funding Progress Other Post-Employment Benefits
(Amounts in Thousands)

Amounts shown for this valuation as of June 30, 2016 are not adjusted.

TOWN ONLY, NO ENTERPRISE FUNDS

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) [Projected Unit Credit] (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b-a)/c
1/1/2009	\$0	\$39,683	\$39,683	0.00%	\$30,547	129.9%
1/1/2012	\$1,074	\$27,897	\$26,823	3.85%	\$41,453	64.7%
6/30/2014	\$4,935	\$30,651	\$25,716	16.10%	\$39,729	64.7%
6/30/2016	\$6,668	\$35,802	\$29,135	18.62%	\$42,811	68.1%

■ Town of Concord
Other Post-Employment Benefits Valuation, June 30, 2016

CONCORD ELECTRIC LIGHT

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) [Projected Unit Credit] (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b-a)/c
1/1/2009	\$0	\$2,933	\$2,933	0.00%	NA	NA
1/1/2012	\$428	\$1,495	\$1,066	28.7%	\$2,427	43.9%
6/30/2014	\$808	\$1,882	\$1,074	43.0%	\$2,431	44.2%
6/30/2016	\$826	\$2,210	\$1,384	37.4%	\$2,793	49.5%

SWIM/BEEDE

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) [Projected Unit Credit] (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b-a)/c
1/1/2009	\$0	\$29	\$29	0.00%	NA	NA
1/1/2012	\$121	\$204	\$83	59.2%	\$694	12%
6/30/2014	\$305	\$281	(\$24)	108.4%	\$787	-3.0%
6/30/2016	\$346	\$424	\$78	81.5%	\$808	9.7%

CONCORD WATER DEPARTMENT

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) [Projected Unit Credit] (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b-a)/c
1/1/2009	\$0	\$921	\$921	0.00%	NA	NA
1/1/2012	\$209	\$311	\$102	67.3%	\$907	11.2%
6/30/2014	\$422	\$510	\$87	82.7%	\$964	9.1%
6/30/2016	\$443	\$599	\$156	74.0%	\$992	15.7%

CONCORD SEWER DEPARTMENT

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) [Projected Unit Credit] (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll (b-a)/c
1/1/2009	\$0	\$230	\$230	0.00%	NA	NA
1/1/2012	\$52	\$78	\$26	67.3%	\$227	11.2%
6/30/2014	\$106	\$128	\$22	83.4%	\$241	9.1%
6/30/2016	\$112	\$150	\$37	75.0%	\$248	15.1%

Funding Schedule

23 Years at 7.25%

Fiscal Year	Normal Cost ¹	Amortization ²	Contribution	Year-End AAL	Projected Annual Benefit Cost ³
2016	\$1,473,036	\$2,015,257	\$3,488,293	\$30,860,671	\$1,624,248
2017	\$1,579,831	\$2,075,715	\$3,655,546	\$30,871,865	\$1,875,743
2018	\$1,694,369	\$2,137,986	\$3,832,355	\$30,817,086	\$2,024,444
2019	\$1,817,211	\$2,202,126	\$4,019,336	\$30,689,545	\$2,249,529
2020	\$1,948,958	\$2,268,189	\$4,217,148	\$30,481,903	\$2,454,891
2021	\$2,090,258	\$2,336,235	\$4,426,493	\$30,186,229	\$2,607,732
2022	\$2,241,802	\$2,406,322	\$4,648,124	\$29,793,950	\$2,799,110
2023	\$2,404,332	\$2,478,512	\$4,882,844	\$29,295,808	\$2,958,597
2024	\$2,578,646	\$2,552,867	\$5,131,513	\$28,681,804	\$3,032,145
2025	\$2,765,598	\$2,629,453	\$5,395,051	\$27,941,146	\$3,209,448
2026	\$2,966,104	\$2,708,337	\$5,674,441	\$27,062,188	\$3,318,073
2027	\$3,181,147	\$2,789,587	\$5,970,733	\$26,032,365	\$3,309,746
2028	\$3,411,780	\$2,873,274	\$6,285,054	\$24,838,124	\$3,351,446
2029	\$3,659,134	\$2,959,473	\$6,618,606	\$23,464,854	\$3,433,026
2030	\$3,924,421	\$3,048,257	\$6,972,678	\$21,896,800	\$3,515,347
2031	\$4,208,941	\$3,139,705	\$7,348,646	\$20,116,985	\$3,537,906
2032	\$4,514,090	\$3,233,896	\$7,747,985	\$18,107,113	\$3,593,031
2033	\$4,841,361	\$3,330,913	\$8,172,274	\$15,847,475	\$3,578,922
2034	\$5,192,360	\$3,430,840	\$8,623,200	\$13,316,841	\$3,605,253
2035	\$5,568,806	\$3,533,765	\$9,102,571	\$10,492,349	\$3,637,070
2036	\$5,972,544	\$3,639,778	\$9,612,322	\$7,349,382	\$3,707,033
2037	\$6,405,554	\$3,748,971	\$10,154,525	\$3,861,441	\$3,748,260
2038	\$6,869,956	\$3,861,441	\$10,731,397	\$0	\$3,823,216

¹Assumes 7.25% annual increase in normal cost and a static group of actives

²Assumes 3.00% annual increase in amortization payment

³The Pay-As-You-Go amount is for the current group of actives and retirees and is shown for the calendar year. It does not include any future hires. It is not directly comparable to the funding contribution but it included for illustrative purposes only. It does illustrate in the short-term, the estimated amount of claims costs for retirees. However, the retiree amount is expected to grow as new employees retire or become disabled.

This funding schedule assumes that Concord makes exactly the payments necessary to fund the program from here on out. It does not anticipate that Concord will make any extra payments. It is for illustration purposes only.

Sensitivity Analysis

The results of any actuarial valuation are sensitive to the assumptions used. That is, a change in an actuarial assumption will produce a change in the actuarial accrued liability and/or normal cost each year of the valuation. To illustrate this sensitivity, we performed valuations in which we changed two different inputs: the trend rate and the discount rate.

TREND RATE SENSITIVITY

For postretirement medical plans in particular, the calculated actuarial values are highly sensitive to the assumed rate of health care cost trend. This is due to the compounding effect of the annual trend rates assumed for medical costs, as opposed to pension valuations where benefit levels typically remain fixed.

The following table illustrates the effect on our valuation results of a 1% increase or decrease in the assumed rates of health care cost trend in each year. The base scenario uses the funded discount rate of 7.25%.

Health Care Cost Trend Rates

	As Reported (7.25%)	+1% Each Year	-1% Each Year
Liability for:			
▪ Current Actives(Future Retirees)	\$19,744,423	\$23,401,631	\$16,852,520
▪ Current Retirees, Beneficiaries, and Survivors	\$19,440,132	\$21,453,329	\$17,723,879
Total AAL	\$39,184,555	\$44,854,960	\$34,576,399
Normal Cost	\$1,473,036	\$1,804,133	\$1,219,921
Annual Required Contribution for Fiscal Year 2016:	\$3,488,293	\$4,190,530	\$2,933,564

The cumulative effect of a 1% increase in health care cost trend increases the AAL by approximately 14%, the normal cost by 22%, and the ARC by 20%. A 1% decrease in trend would decrease the AAL by 12%, the normal cost by 17% and the ARC by 16%.

There is the likelihood – based on historical experience – of significant deviations from the smooth rates of health care cost increase typically projected in any actuarial valuation. Therefore, emerging experience under the plan is likely to differ from the assumptions made as of any valuation date. This will produce actuarial gains and losses each year, even if the underlying assumptions remain reasonable for the future. Amortization of gains and losses will affect the updated funding schedule calculated at any point in the future.

DISCOUNT RATE SENSITIVITY

We also examined the sensitivity of the various key numbers to changes in the discount rate. For this testing, we varied the discount rate by 0.50%, or in other words, we used rates of 6.75% and 7.75%. The following table shows the results we obtained.

	Discount Rates		
	As Reported (7.25%)	Minus 0.50% (6.75%)	Plus 0.50% (7.75%)
Liability for:			
▪ Current Actives (Future Retirees)	\$19,744,423	\$21,454,014	\$18,235,308
▪ Current Retirees, Beneficiaries, and Survivors	\$19,440,132	\$20,421,560	\$18,540,518
Total AAL	\$39,184,555	\$41,875,574	\$36,775,826
Normal Cost	\$1,473,036	\$1,626,073	\$1,340,154
Annual Required Contribution for Fiscal Year 2016:	\$3,488,293	\$3,723,829	\$3,278,502

Thus, the cumulative effect of a 0.50% decrease in the discount rate is to increase the AAL by approximately 7% the normal cost by 10%, and the ARC by 7%. A 0.50% increase in the discount rate would decrease the AAL by 6%, the normal cost by 9% and the ARC by 6%. It is prudent, and GASB Statement No. 45 requires, an updated actuarial valuation be performed periodically. For an entity of Concord's size, a new valuation will be required at least every two years.

Actuarial Methods and Assumptions

ACTUARIAL METHODS

Actuarial Cost Method

Costs are attributed between past and future service using the Projected Unit Credit actuarial cost method. For attribution purposes, benefits are assumed to accrue over all employee service until decrement.

Interest Rate / Discount Rate

7.25% per year net of investment expenses for an unfunded program.

Amortization Method

Closed 23 year amortization (remainder of initial valuation's thirty-year amortization). Uses level percentage of payroll (using a 3.00% annual rate of increase).

Asset Valuation Method

Market value of assets adjusted for receivables and payables. Assets used for the various dates are the market value as of that date.

ACTUARIAL ASSUMPTIONS

Valuation Date

June 30, 2016

Mortality

- **Actives:** The RP-2000 Mortality Tables (Sex-distinct) for Employees projected using generational mortality and scale BB.
- **Retirees:** The RP-2000 Mortality Tables (Sex-distinct) for Healthy Annuitants projected using generational mortality and scale BB.
- **Disabled:** The RP-2000 Mortality Tables (Sex-distinct) for Healthy Annuitants projected using generational mortality and scale BB. Set forward 2 years

No additional mortality projection is assumed other than as described above.

Eligibility for Vested Post-Retirement Medical Benefits upon Withdrawal

10 years of Service; assumed that individuals who withdraw prior to age 40 will elect a return of pension contributions and therefore be ineligible for retiree medical coverage

Actuarial Methods and Assumptions (Continued)

Withdrawal Prior to Retirement, Non-Teachers

Based on years of service. Same for both pre- and post-April 1, 2012 hires.

Years of Service	Groups 1,2	Group 4
0	15.00%	1.50%
1	12.00%	1.50%
2	10.00%	1.50%
3	9.00%	1.50%
4	8.00%	1.50%
5	7.60%	1.50%
6	7.50%	1.50%
7	6.70%	1.50%
8	6.30%	1.50%
9	5.90%	1.50%
10	5.40%	1.50%
11	5.00%	0.00%
12	4.60%	0.00%
13	4.10%	0.00%
14	3.70%	0.00%
15	3.30%	0.00%
16	2.00%	0.00%
17	2.00%	0.00%
18	2.00%	0.00%
19	2.00%	0.00%
20	2.00%	0.00%
21	1.00%	0.00%
22	1.00%	0.00%
23	1.00%	0.00%
24	1.00%	0.00%
25	1.00%	0.00%
26	1.00%	0.00%
27	1.00%	0.00%
28	1.00%	0.00%
29	1.00%	0.00%
30+	0.00%	0.00%

Actuarial Methods and Assumptions (Continued)

Withdrawal Prior to Retirement, Teachers

Same for both pre- and post-April 1, 2012 hires.

		Service			
		Age	0	5	10
Male Teachers	25	12.00%	4.50%	1.00%	
	35	11.00	5.00	1.50	
	45	9.50	5.00	2.00	
	55	7.50	4.50	2.50	
Female Teachers	25	10.00%	9.00%	5.00%	
	35	12.00	8.40	4.10	
	45	8.90	4.70	2.40	
	55	8.00	3.20	2.00	

Disability Prior to Retirement

The rates shown at the following sample ages illustrate the assumption regarding the incidence of disability. Disability is assumed to be 55% ordinary and 45% accidental for Group 1 and 10% ordinary and 90% accidental for Group 4 and 55% ordinary and 45% accidental for Teachers.

Rate of Disability			
Age	Groups 1 and 2	Group 4	Teachers
20	0.01%	0.10%	0.004%
25	0.02%	0.20%	0.005%
30	0.03%	0.30%	0.006%
35	0.06%	0.30%	0.006%
40	0.10%	0.30%	0.010%
45	0.15%	1.00%	0.030%
50	0.19%	1.25%	0.050%
55	0.24%	1.20%	0.080%
60	0.28%	0.85%	0.100%

Actuarial Methods and Assumptions (Continued)

Rates of Retirement, Non-Teachers

Based on gender, group, and hire date.

Age	Hired Pre-April 2, 2012			Hired Post-April 1, 2012		
	Groups 1 and 2 Male	Groups 1 and 2 Female	Group 4	Groups 1 and 2 Male	Groups 1 and 2 Female	Group 4
50	1.00%	1.50%	2.00%	-	-	-
51	1.00%	1.50%	2.00%	-	-	-
52	1.00%	2.00%	2.00%	-	-	-
53	1.00%	2.50%	5.00%	-	-	-
54	2.00%	2.50%	7.50%	-	-	-
55	2.00%	5.50%	15.00%	-	-	25.00%
56	2.50%	6.50%	10.00%	-	-	15.00%
57	2.50%	6.50%	10.00%	-	-	20.00%
58	5.00%	6.50%	10.00%	-	-	10.00%
59	6.50%	6.50%	15.00%	-	-	15.00%
60	12.00%	5.00%	20.00%	30.00%	30.00%	20.00%
61	20.00%	13.00%	20.00%	20.00%	10.00%	20.00%
62	30.00%	15.00%	25.00%	15.00%	12.00%	25.00%
63	25.00%	12.50%	25.00%	25.00%	10.00%	25.00%
64	22.00%	18.00%	30.00%	20.00%	15.00%	30.00%
65	40.00%	15.00%	100.00%	25.00%	13.00%	100.00%
66	25.00%	20.00%	NA	20.00%	18.00%	NA
67	25.00%	20.00%	NA	50.00%	40.00%	NA
68	30.00%	25.00%	NA	30.00%	25.00%	NA
69	30.00%	20.00%	NA	30.00%	25.00%	NA
70	100.00%	100.00%	NA	100.00%	100.00%	NA

Actuarial Methods and Assumptions (Continued)

Rates of Retirement, Teachers

Based on gender, years of service, and hire date.

Age	Hired Pre-April 2, 2102						Hired Post-April 1, 2012					
	<20 years service		20-29 years service		>29 years service		<20 years service		20-29 years service		>29 years service	
	M	F	M	F	M	F	M	F	M	F	M	F
50	N/A	N/A	1%	1.5%	2%	2%	N/A	N/A	N/A	N/A	N/A	N/A
51	N/A	N/A	1	1.5	2	2	N/A	N/A	N/A	N/A	N/A	N/A
52	N/A	N/A	1	1.5	2	2	N/A	N/A	N/A	N/A	N/A	N/A
53	N/A	N/A	1	1.5	2	2	N/A	N/A	N/A	N/A	N/A	N/A
54	N/A	N/A	1	1.5	2	2	N/A	N/A	N/A	N/A	N/A	N/A
55	3%	2%	3	3	6	6	3%	0%	0%	0%	0%	0%
56	8	2	5	3	20	15	8	0	0	0	0	0
57	15	8	8	7	35	30	15	0	0	0	0	0
58	15	10	10	7	50	35	15	0	0	0	0	0
59	20	15	20	11	50	35	20	0	0	0	0	0
60	15	20	20	16	50	35	25	25	35	23	45	45
61	30	20	25	20	50	35	35	30	35	30	45	45
62	20	25	30	30	40	40	30	25	30	25	45	45
63	30	24	30	30	40	30	35	25	30	25	45	45
64	40	20	30	30	40	35	40	30	35	30	45	45
65	40	30	40	30	50	35	40	30	35	30	45	45
66	40	30	30	30	50	35	40	30	40	30	45	45
67	40	30	30	30	50	30	50	35	45	35	55	45
68	40	30	30	30	50	30	50	35	45	35	55	45
69	40	30	30	30	50	30	55	35	45	35	55	45
70	100	100	100	100	100	100	100	100	100	100	100	100

Actuarial Methods and Assumptions (Continued)

Medicare Eligibility

- **Employees:** 100% if hired March 31, 1986 or after; 85% if hired pre-March 31, 1986
- **Spouses:** 100%

Age	Commercial Managed Care Individual	Commercial Managed Care Blended ⁽¹⁾	Medicare Managed Care	Medicare Indemnity
55	\$7,747.73	\$14,712.53	\$1,665.52	\$2,375.61
60	\$9,246.42	\$17,558.45	\$1,987.69	\$2,835.14
65	\$11,358.27	\$17,855.84	\$2,441.67	\$3,482.67
70	\$13,167.34	\$20,699.81	\$2,830.57	\$4,037.37
75	\$14,897.64	\$23,419.94	\$3,202.53	\$4,567.92
80	\$16,448.20	\$25,857.50	\$3,535.85	\$5,043.35
85	\$17,287.22	\$17,287.22	\$3,716.21	\$5,300.61

⁽¹⁾ Blended rates below 65 are 55% Family and 45% Individual. Blended rates 65 and higher are 35% Family and 65% Individual. Individual rates are used for all participants 81 and higher.

Trend Rates by Plan

Year	Commercial Managed Care	Commercial Indemnity	Medicare Managed Care	Medicare Indemnity
2016	9.00%	NA	10.86%	5.59%
2017	8.00%	NA	7.00%	8.00%
2018	7.50%	NA	6.50%	7.50%
2019	7.00%	NA	6.00%	7.00%
2020	6.50%	NA	5.50%	6.50%
2021	6.00%	NA	5.00%	6.00%
2022	5.50%	NA	5.00%	6.00%
2023	5.00%	NA	5.00%	6.00%
2024	5.00%	NA	5.00%	6.00%
2025	5.00%	NA	5.00%	6.00%
2026-2032	5.00%	NA	5.00%	Graded
2033	5.00%	NA	5.00%	5.50%
2034	5.00%	NA	5.00%	5.50%
2035-2041	5.00%	NA	5.00%	Graded
2042	5.00%	NA	5.00%	5.25%
2043	5.00%	NA	5.00%	5.00%

Medicare Penalties: Flat 5% each year. No trend is applicable to Life Insurance.

Medicare Eligibility

- **Employees:** 100% if hired March 31, 1986 or after; 85% if hired pre-March 31, 1986
- **Spouses:** 100%

Actuarial Methods and Assumptions (Continued)

Expenses

Administrative expenses are included in the per capita medical cost assumption.

Participation Rates

Current retirees and spouses are assumed to continue the same coverage they have as of the valuation date. No future election of coverage is assumed for those retirees and spouses who currently have not elected coverage.

Medical All Retirees: 70.0% of the active employees eligible for post-employment medical benefits are assumed to elect Medical Coverage immediately upon retirement.

Life All Retirees: 60% of active employees eligible for post-employment medical benefits are assumed to elect Life Insurance coverage immediately upon retirement.

For all Retirees: For the Town plans 80% of spouses are assumed to participate.

Participants with no or unknown current coverage (e.g. active employees who do not currently participate in Concord's medical plans) are assumed to elect retiree coverage at the same rates as currently covered active employees. Medicare-eligible retirees currently under age 65 are assumed to elect a Medicare plan option at age 65.

Plan Enrollment Rates

These are the rates at which retirees select medical plans, given that they enroll in a medical plan. The selection patterns follow the table on page 10.

Projections and Adjustments

Except for the Pay-as-you-go amounts, the June 30, 2016 valuation results were not adjusted for timing when determining the funding schedule. The Pay-as-you-go amounts were moved from the middle of the year to the end of the year.

Section 9 ½ of Chapter 32B

No current or future payments or receipts are assumed due to past service or future service with other Chapter 32 entities.

PPACA

This valuation does not include any potential impact from the Patient Protection and Affordable Care Act (PPACA) other than those already adopted as of the valuation date. This includes new plans or taxes including the so-called "Cadillac Tax" high-cost health plans. The Cadillac Tax on benefits plans whose richness exceeds set levels will not begin until 2018. Prior to this time, the law may be amended

or changes may be made in the benefit plan such that the law will not be applicable. In view of these uncertainties, we have elected not to try to estimate the Act's impact on costs and trends. We expect that the Cadillac Tax" will serve as a cap on benefits as opposed to adding additional cost.

Principal Plan Provisions Recognized in Valuation

ELIGIBILITY FOR BENEFITS

Current retirees, beneficiaries and spouses of Concord are eligible for medical benefits, as are current employees or spouses who retire with a benefit from the Concord. Survivors of Concord employees and retirees are also eligible for medical benefits.

MEDICAL BENEFITS

Various medical plans offered by Concord to its own employees.

LIFE INSURANCE

Concord Town retirees are eligible for a \$5,000 life insurance benefit offered by Concord. Retirees pay 50% of the cost or \$2.40 per month for their coverage.

RETIREE CONTRIBUTIONS

Based on data provided by Concord.

Glossary

- **Actuarial Accrued Liability:** The portion, as determined by a particular Actuarial Cost Method, of the present value of benefits which is not provided for by future Normal Costs.
- **Actuarial Assumptions:** Assumptions as to the occurrence of future events affecting Other Post-employment Benefits such as: mortality rates, disability rates, withdrawal rates, and retirement rates, the discount assumption, and the trend rates.
- **Actuarial Cost Method:** A procedure for determining the Actuarial Present Value of Total Projected benefits and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Normal and an Actuarial Accrued Liability.
- **Amortization Payment:** The portion of the OPEB contribution designed to pay interest and to amortize the Unfunded Actuarial Accrued Liability.
- **Annual OPEB Cost:** The accrual-basis measure of the periodic cost of an employer's participation in a defined-benefit OPEB plan.

■ **Town of Concord**
Other Post-Employment Benefits Valuation, June 30, 2016

- **Annual Required Contribution (ARC):** The employer's periodic contributions to a defined benefit OPEB plan, calculated in accordance with the parameters defined in GASB 45. This is defined as the sum of the Normal Cost and the Amortization payment.
- **Commercial Plans:** Plans designed to cover the medical expenses of those not otherwise covered by Medicare.
- **GASB:** The Governmental Accounting Standards Board is the organization that establishes financial reporting standards for state and local governments.
- **Investment return Assumptions (Discount Rate):** The rate used to adjust a series of future benefit payments to reflect the time value of money. Under GASB 45, this rate is related to the degree to which the OPEB program is funded.
- **Healthcare Cost Trend Rate:** The rate of change in per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, the intensity of the delivery of services, technological developments, and cost-shifting.
- **Medicare Plans:** Medical plans sold to those over 65 who are also covered by Medicare. These plans are supplemental to the Medicare plan, which is considered primary.
- **Net OPEB Obligation:** The cumulative difference, since the effective date of GASB 45, between the annual OPEB cost and the employer's contributions to the plan.
- **Normal Cost:** The portion of the Actuarial Present value of plan benefits that is allocated to a valuation year by the Actuarial Cost Method.
- **OPEB:** Other Post-Employment Benefits, other than pensions. This does not include plans such as severance plans or sick-time buyouts.
- **Pay-As-You-Go:** The amount of benefits paid out to plan participants during the year.
- **Per Capita Claims Cost:** The current average annual cost of providing postretirement health care benefits per individual.
- **Teachers:** Members of the Massachusetts State Teachers Retirement System are sometimes referred to as "teachers".
- **Unfunded Actuarial Accrued Liability:** The portion of the Actuarial Accrued Liability that is not covered by plan assets. For a plan that is completely unfunded, this amount is equivalent to the Actuarial Accrued Liability.
- **Valuation Date:** The point from which all future plan experience is projected and as of which all present values are calculated.

Supplementary Tables

The Supplementary Tables shown on the following pages were provided by the Town and were inserted into this valuation report at their request. Stone Consulting has not reviewed the tables and express no opinion on the accuracy or appropriateness of these tables.

FY16 ACTUAL		allocated by fund					
		enterprise funds					
		TOTAL	General	Light	Water	Sewer	Beede
1	AAL at 6-30-16	39,184,555	35,801,804	2,210,065	599,077	149,769	423,840
2	<i>less</i> Assets net of FY16 cash contributions	8,394,780	6,667,275	826,468	443,058	112,396	345,583
3	UAAL (1 - 2)	30,789,775	29,134,529	1,383,597	156,019	37,373	78,257
4	% funded (2÷1)	21.42%	18.62%	37.40%	73.96%	75.05%	81.54%
5	Service (Normal) Cost	1,473,036	1,313,803	91,769	29,734	7,434	30,296
6	Amortization of UAAL	2,015,257	1,906,917	90,559	10,212	2,446	5,122
7	ARC (5 + 6)	3,488,293	3,220,720	182,328	39,946	9,880	35,418
8	Interest on NOO (+)	525,428	535,872	(4,355)	(3,038)	(873)	(2,178)
9	<i>less</i> ARC adjustment (minus)	508,740	518,169	(3,931)	(2,743)	(788)	(1,966)
10	OPEB Cost (7 + 8 - 9)	3,504,981	3,238,423	181,904	39,651	9,795	35,206
11	Premiums and implicit subsidy paid	1,624,248	1,502,172	101,093	15,144	3,786	2,053
12	NET OPEB COST (10-11)	1,880,733	1,736,251	80,811	24,507	6,009	33,153
13	Cash contributed FY16	1,780,000	1,705,000	11,500	18,000	5,500	40,000
14	Contribution adjustment to end of year	121,245	114,226	4,009	1,181	331	1,498
	Δ Net OPEB Obligation, FY16	(20,512)	(82,975)	65,302	5,326	178	(8,345)
	(12-13-14)						
	NOO beginning (7-1-15)	7,247,280	7,391,340	(60,065)	(41,908)	(12,040)	(30,045)
	NOO ending (6-30-16)	7,226,768	7,308,365	5,237	(36,582)	(11,862)	(38,390)
	Market Value of assets @ 6-30-16	10,174,780	8,372,275	837,968	461,058	117,896	385,583
	<i>less</i> FY16 contribution	1,780,000	1,705,000	11,500	18,000	5,500	40,000
	Assets shown on line 2 above	8,394,780	6,667,275	826,468	443,058	112,396	345,583

OPEB
SUMMARY of June 30, 2016 actuarial valuation

FY17 PROJECTED		allocated by fund					
		enterprise funds					
TOTAL		General	Light	Water	Sewer	Beede	
1	AAL projected to 6-30-17	41,662,717	37,988,917	2,366,135	657,986	164,886	484,793
2	<i>less</i> Assets net of FY17 cash contributions	10,980,444	9,038,444	905,000	495,000	127,000	415,000
3	UAAL (1 - 2)	30,682,273	28,950,473	1,461,135	162,986	37,886	69,793
4	% funded (2÷1)	26.36%	23.79%	38.25%	75.23%	77.02%	85.60%
5	Service (Normal) Cost	1,579,831	1,409,054	98,422	31,890	7,972	32,492
6	Amortization of UAAL	2,063,715	1,947,233	98,277	10,963	2,548	4,694
7	ARC (5 + 6)	3,643,546	3,356,287	196,699	42,853	10,520	37,186
8	Interest on NOO (+)	523,941	529,856	380	(2,652)	(860)	(2,783)
9	<i>less</i> ARC adjustment (minus)	521,319	526,807	352	(2,461)	(798)	(2,582)
10	OPEB Cost (7 + 8 - 9)	3,646,168	3,359,336	196,727	42,662	10,458	36,985
11	Premiums and implicit subsidy paid	1,875,743	1,734,765	116,746	17,489	4,372	2,371
12	NET OPEB COST (10-11)	1,770,425	1,624,571	79,981	25,173	6,086	34,614
13	Cash contribution planned for FY17	1,780,000	1,700,000	30,000	20,000	5,000	25,000
14	Contribution adjustment to end of year	130,202	122,332	5,226	1,336	334	975
	Δ Net OPEB Obligation, FY17	(139,777)	(197,761)	44,755	3,837	752	8,640
	(12-13-14)						
	NOO beginning (7-1-16)	7,226,768	7,308,365	5,237	(36,582)	(11,862)	(38,390)
	NOO ending (6-30-17)	7,086,991	7,110,604	49,992	(32,745)	(11,110)	(29,750)
	Est. Market Value of assets @ 6-30-17	12,760,444	10,738,444	935,000	515,000	132,000	440,000
	<i>less</i> FY17 contribution	1,780,000	1,700,000	30,000	20,000	5,000	25,000
	Assets shown on line 2 above	10,980,444	9,038,444	905,000	495,000	127,000	415,000