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December 7, 2018

Ms. Kerry A. Lafleur
Finance Director / Treasurer-Collector
Town of Concord
22 Monument Square
Concord, MA 01742

Dear Ms. Lafleur:

For the purpose of satisfying the requirements of the Government Accounting Standards Board (GASB) Statement No. 75, Stone Consulting, Inc. has prepared a set of illustrative tables and other Required Supplementary Information (RSI) based on the June 30, 2017 actuarial valuation of the Town of Concord Other Post-employment Benefits (OPEB) plan performed by Stone Consulting, Inc. The valuation and this report were prepared using generally accepted actuarial principles and practices and meet the parameters set by the Governmental Accounting Standards Board (GASB).

For GASB 75 the results are as of June 30, 2017, a measurement date of June 30, 2017, and a reporting date of June 30, 2018. To the best of our knowledge, this report is complete and accurate, and the assumptions used represent our best estimate of anticipated experience of the system.

We are pleased to present these exhibits. If the Town of Concord has any questions on the content of this report, we would be glad to respond. Please note that this report is meant to be used in its entirety. Use of excerpts of this report may result in a misleading or inaccurate understanding of the results.

Stone Consulting, Inc. is completely independent of the Town of Concord, including any of its officers and key personnel. Neither we or anyone else closely associated with us has any relationship with the Town of Concord that would impair our independence, other than this or related assignments.

The undersigned are consultants for Stone Consulting, Inc. and 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.

Respectfully submitted,
STONE CONSULTING, INC.

Lawrence B. Stone
Member, American Academy of Actuaries

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

ACTUARIAL METHODS AND ASSUMPTIONS

The methods, assumptions, and plan provisions used to prepare these exhibits are consistent with those used in the retirement funding valuation as of June 30, 2017 unless otherwise stated in this report.

Projection of the Net OPEB Liability

TOTAL OPEB LIABILITY (TOL)

The Total OPEB Liability (TOL) at the beginning of the measurement period (07/01/2016) is equal to the Actuarial Accrued Liability (AAL) rolled back from 06/30/2017. Any differences between the projected amount and the actual value that are not the result of changes in assumptions or plan provisions are recognized as "Differences between expected and actual experience." GASB Statement No. 74, Paragraph 42 requires that the AAL be calculated under the Entry Age Normal Cost Method. The components of the AAL (calculated as of 06/30/2017 at a discount rate of 7.25%) are as follows:

| | |
|--|-------------------|
| Actives | \$ 23,468,465 |
| Retirees, Disabled, Beneficiaries, and Vested terminated | <u>20,750,447</u> |
| Total | \$ 44,218,912 |

The TOL is projected to the end of the measurement period (06/30/2017) by adding the changes resulting from experience, assumption changes, and changes to plan provisions. Interest is given to the TOL, Service Cost, and paid benefits, and added to the total, less the projected benefit payments for the year. Changes due to expected and actual gains on plan assets will be recognized over a five-year period [GASB Statement No. 75, Paragraph 43b], and liabilities arising from changes in plan structure or assumptions will be spread over the average of the expected remaining service lives of all employees that are provided with OPEB through the OPEB plan (active employees and inactive employees) [GASB Statement No. 75, Paragraph 43a]. Changes in Plan provisions are recognized immediately.

PLAN FIDUCIARY NET POSITION (FNP)

GASB Statement No. 75 requires that the Fair Value of Assets be used for the Fiduciary Net Position (FNP). We have used the Market Value of Assets including payables and receivables, as required by GASB Statement No. 74. Net investment income is the portion of the change in assets during the measurement period that is not attributed to employee/employer contributions, benefits payments, administrative expense, or other changes.

The projected Net OPEB Liability (NOL) for the end of the year is the portion of the TOL not covered by the FNP.

Changes in the Net OPEB Liability [GASB 75, Paragraph 55]

| | Total OPEB Liability at 7.25% (a) | Plan Fiduciary Net Position (b) | Net OPEB Liability (a) - (b) |
|---|---|---------------------------------------|------------------------------------|
| Balances at beginning of Measurement Period (07/01/2016) | \$ 41,596,706 | \$ 10,174,780 | \$ 31,421,926 |
| <u>Changes for the Year:</u> | | | |
| Service Cost | 1,265,303 | | 1,265,303 |
| Interest | 3,047,291 | | 3,047,291 |
| Change in benefit terms | 0 | | 0 |
| Differences between expected and actual experience | 0 | | 0 |
| Change in assumptions | 0 | | 0 |
| Contributions – employer | | 3,470,388 | (3,470,388) |
| Contributions – employee | | 0 | 0 |
| Net investment income | | 1,497,471 | (1,497,471) |
| Benefit payments, including refunds of employee contributions | (1,690,388) | (1,690,388) | 0 |
| Administrative expense | | 0 | 0 |
| Other changes | | 0 | 0 |
| Net Changes | <u>2,622,206</u> | <u>3,277,471</u> | <u>(655,265)</u> |
| Balances at end of Measurement Period (06/30/2017) | \$ 44,218,912 | \$ 13,452,252 | \$ 30,766,660 |

NOTE: Amounts shown in this report may not total due to rounding

Update procedures were used to roll the Total OPEB Liability from the valuation date (06/30/2017) to the beginning of the measurement period (07/01/2016). [GASB Statement No. 75, Paragraph 28]

**OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB
 [GASB 75, Paragraph 56 h.]**

| | Deferred Outflows Of Resources | Deferred Inflows Of Resources |
|---|-----------------------------------|----------------------------------|
| Differences between expected and actual experience | \$ 0 | \$ 0 |
| Changes of assumptions | 0 | 0 |
| Net difference between projected and actual earnings on plan investments | <u>0</u> | <u>(556,220)</u> |
| Total | \$ 0 | \$ (556,220) |

| Year Ending June 30, * | Recognition |
|------------------------|--------------|
| 2018 | \$ (139,055) |
| 2019 | (139,055) |
| 2020 | (139,055) |
| 2021 | (139,055) |
| 2022 | 0 |
| Thereafter | 0 |

*The years are based on measurement date of June 30, 2017. For GASB 75, the reporting date is twelve months later, so the year ending June 30, 2018 is Fiscal 2019.

Development of Exhibits

DISCOUNT RATE

Projections are calculated using a discount rate assumption of 7.25%. To calculate this rate, Stone Consulting has conducted a cash flow study of the Trust assets. Using a rate consistent with the Town of Concord’s investment strategy (7.25%), we determine the length of time for which the assets would support OPEB benefit payments for current and the normal cost for new employees. The present value of OPEB benefits is then calculated using a rate consistent with the Town of Concord’s investment strategy (7.25%) before the depletion point and a rate based on 20-year Municipal General Obligation bonds (3.58%) after the depletion point. Finally, a single rate producing an equivalent present value of benefits is calculated. One of the objectives of the provisions introduced by GASB 74 is to examine how benefit payments and plan contributions and investment earnings interact on a cash flow basis. GASB 74 and 75 require that these amounts be calculated with Fair Value of Assets and using the Entry Age Normal cost method.

Projected contributions for each year are the sum of cash payments and the pay-as-you-go funding of the retirees. Consistent with the requirements of GASB Statement No. 74 and 75, we have first assigned the contribution to the cost of projected new entrants prior to allocating the remainder to cover existing active and inactive employees.

For a measurement date of June 30, 2017, the Town of Concord’s Fiduciary Net Position was projected to be available to make all future benefit payments of current active and inactive employees per the methodology contained in GASB 75. Thus, the long-term expected rate of return on investments was applied for all benefit periods when calculating the Net OPEB Liability.

The long-term rate of return which was used to develop the discount rate of 7.25% includes the effect of inflation (not subtracted out as in the real rates of return). It is based on a combination of expected rates of return on the mix of current and expected investments over a long-term period. These expectations are based on current market conditions, historical experience and future expectations. It assumes a rebalancing of assets on an ongoing basis as well as a constant monitoring of asset allocation and manager performance.

Long-Term Expected Real Rate of Return

The long-term expected real rate of return reflects the expected rate of return on plan assets minus the expected rate of inflation. Note that the discount rate includes the effect of inflation. The long-term real rate of return removes the effect of inflation on the return amounts. It is a long-term assumption and is meant to reflect a best estimate of future experience, based on the expected asset allocation. The allocation percentages are based on information provided by the Town of Concord and the asset manager ICMA-RC. The real rates of return below are based on long-term return estimates provided by the investment manager.

| Asset Class | Target Allocation | Long-Term Expected Real Rate of Return |
|--|-------------------|--|
| Low Duration Bond/U.S. Short Duration Government/Credit | 6.54% | 2.80% |
| Core Bond Index/US Aggregate Bonds | 14.29% | 2.60% |
| Inflation Focused Fund/TIPS | 0.91% | 2.80% |
| High Yield/US High Yield Bonds | 4.05% | 4.90% |
| Diversifying Strategies/60% US Large Cap Equity & 40% US Aggregate Bonds | 13.00% | 4.88% |
| Equity Income/US Large Cap Equity | 14.04% | 6.40% |
| Growth & Income/US Large Cap Equity | 12.29% | 6.40% |
| Growth/US Large Cap Equity | 10.49% | 6.40% |
| Select Value/US Mid Cap Equity | 0.70% | 7.90% |
| Mid/Small Index/US Small Cap Equity | 5.29% | 7.50% |
| Aggressive Opportunities/US Mid Cap Equity | 0.70% | 7.90% |
| Discovery/US Small Cap Equity | 0.70% | 7.50% |
| International/International Equity | 14.24% | 7.20% |
| EM ETFs/EM Equity | 2.76% | 9.70% |
| Total | 100.00% | 5.62% |

Discount Sensitivity

The following presents Town of Concord’s Net OPEB Liability calculated at the valuation discount rate of 7.25%, as well as at discount rates one percent higher (8.25%) and one percent lower (6.25%).

| Measurement Date | 1% Decrease (6.25%) | Current Discount Rate (7.25%) | 1% Increase (8.25%) |
|------------------|------------------------|----------------------------------|------------------------|
| 06/30/2017 | \$ 36,694,698 | \$ 30,766,660 | \$ 25,899,319 |

Trend Sensitivity

For postretirement medical plans, 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.

| Measurement Date | 1% Decrease | Base Trend * | 1% Increase |
|------------------|---------------|---------------|---------------|
| 06/30/2017 | \$ 25,309,002 | \$ 30,766,660 | \$ 37,535,841 |

* Base trend rates are found in Actuarial Assumptions and Methods, page 19.

Components of Town of Concord’s OPEB Expense

Components of Town of Concord’s OPEB Expense for the Fiscal Year Ended June 30, 2018 [GASB 75, Paragraph 43] are shown below.

| NOTE* | Description | Fiscal 2018 | Fiscal 2017 |
|-------|---|---------------------|--------------|
| A | Service Cost | \$ 1,265,303 | \$ NA |
| A, B | Interest | 3,047,291 | NA |
| C | Differences between Expected and Actual Experience | 0 | NA |
| D | Changes of Assumptions | 0 | NA |
| D | Changes to Benefit Provisions | 0 | NA |
| A | Employee Contributions | 0 | NA |
| E | Projected Earnings on Plan Investments | (802,197) | NA |
| F | Differences between Projected and Actual Earnings on Plan Investments | (139,055) | NA |
| A | Administrative Expense | 0 | NA |
| A | Other Changes in Fiduciary Net Position | <u>0</u> | <u>-</u> |
| | Total OPEB Expense | \$ 3,371,343 | \$ NA |

* Notes shown on following page. Amounts are based on the following dates:

- Valuation date: June 30, 2017
- Measurement date: June 30, 2017
- Reporting date: June 30, 2018

CHANGES IN METHODS, ASSUMPTIONS, AND PLAN PROVISIONS

There were no changes in assumptions or plan changes in the 06/30/2017 valuation used for Fiscal 2018.

Results by Employer

| Employer | Premiums + Implicit Subsidy* | Proportionate Share of NOL | Proportionate share of NPL Discount Sensitivity (in 1,000's) | |
|-----------------|------------------------------|----------------------------|--|---------------------|
| | | | 1% Increase (8.25%) | 1% Decrease (6.25%) |
| Town of Concord | \$ 1,537,070 | \$ 27,976,124 | \$ 23,549 | \$ 33,367 |
| Beede | \$ 24,849 | \$ 452,270 | \$ 381 | \$ 539 |
| Light | \$ 113,425 | \$ 2,064,443 | \$ 1,738 | \$ 2,462 |
| Sewer | \$ 3,043 | \$ 55,380 | \$ 47 | \$ 66 |
| Water | \$ 12,002 | \$ 218,443 | \$ 184 | \$ 261 |
| TOTAL | \$ 1,690,389 | \$ 30,766,660 | \$ 25,899 | \$ 36,695 |

| Employer | Actuarially determined contribution FY2018 | Contributions made FY 2018 | Contribution deficiency (excess) | |
|-----------------|--|----------------------------|----------------------------------|--|
| Town of Concord | \$ 2,956,486 | \$ 3,155,623 | \$ (199,137) | |
| Beede | \$ 47,795 | \$ 51,015 | \$ (3,220) | |
| Light | \$ 218,168 | \$ 232,863 | \$ (14,695) | |
| Sewer | \$ 5,852 | \$ 6,247 | \$ (395) | |
| Water | \$ 23,085 | \$ 24,640 | \$ (1,555) | |
| TOTAL | \$ 3,251,386 | \$ 3,470,388 | \$ (219,002) | |

| Employer | Proportion | Proportionate Share of Pension Expense | Proportionate Share of Deferred Outflows of Resources | Proportionate Share of Deferred Inflows of Resources |
|-----------------|------------|--|---|--|
| Town of Concord | 90.93% | \$ 3,065,562 | \$ - | \$ (505,772) |
| Beede | 1.47% | \$ 49,559 | \$ - | \$ (8,176) |
| Light | 6.71% | \$ 226,217 | \$ - | \$ (37,322) |
| Sewer | 0.18% | \$ 6,068 | \$ - | \$ (1,001) |
| Water | 0.71% | \$ 23,937 | \$ - | \$ (3,949) |
| TOTAL | 100.00% | \$ 3,371,343 | \$ - | \$ (556,220) |

* Premiums plus implicit subsidy is the projected amount for the 12 month ending June 30, 2018 based on employee data as of June 30, 2017 and actual premium amounts supplied by the Town of Concord

NOTES

- A. See the RSI schedule of changes to the Net OPEB Liability, on page 2.
- B. Events that impact the Total OPEB Liability are assumed to happen evenly throughout the period. In addition, the amount of interest is calculated using an interest rate equal to the discount rate that was used to determine the service cost. The amount is determined as follows:

| Description | Amount for Period (a) | Portion of Period (b) | Interest Rate (c) | Interest on the Total OPEB Liability (a) x (b) x (c) |
|--------------------------------|--------------------------|--------------------------|----------------------|---|
| Beginning Total OPEB Liability | \$ 41,596,706 | 100% | 7.25% | \$ 3,015,761 |
| Service cost | 1,265,303 | 100% | 7.25% | 91,734 |
| Benefit payments | \$ (1,690,388) | 50% | 7.25% | (60,204) |
| Interest | | | | \$ 3,047,291 |

- C. Differences between expected and actual experience recognized in the current period in accordance with paragraph 43a of Statement 75. For the detailed calculation of this amount, see the schedule on page 10.
- D. Assumption and plan provision changes recognized in OPEB Expense in the current period in accordance with paragraph 43a of Statement 75. For detailed calculations of these amounts, see the schedule on page 10.
- E. Changes in the amounts invested are assumed to occur evenly throughout the period. In addition, the amount of projected earnings on plan investments is calculated using the assumed rate of return on plan investments as of the beginning of the period. The amount is determined as follows:

| Description | Amount for Period (a) | Portion of Period (b) | Projected Rate of Return (c) | Projected Earnings (a) x (b) x (c) |
|---------------------------------------|--------------------------|--------------------------|---------------------------------|---------------------------------------|
| Beginning plan Fiduciary Net Position | \$ 10,174,780 | 100% | 7.25% | \$ 737,672 |
| Employer contributions | 3,470,388 | 50% | 7.25% | 125,802 |
| Employee contributions | 0 | 50% | 7.25% | 0 |
| Benefit payments | (1,690,388) | 50% | 7.25% | (60,204) |
| Administrative expense | \$ 0 | 50% | 7.25% | 0 |
| Total projected earnings | | | | \$ 802,197 |

- F. Differences between projected and actual earnings recognized in the current period in accordance with paragraph 43b of Statement 75. For detailed calculation of this amount, see the schedule on page 10.

Increase / (Decrease) in OPEB Expense Arising from the Recognition of Gains and Losses

Increase / (Decrease) in OPEB Expense Arising from the Recognition of the Effects of Differences between Expected and Actual Experience

| Year | Differences between actual and expected experience | Recognition period (years) | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|--|----------------------------|------|------|------|------|------|------|------|------|------|------|
| 2018 | \$ - | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Net increase (decrease) in OPEB expense | | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |

Increase / (Decrease) in OPEB Expense Arising from the Recognition of the Effects of Changes of Assumptions

| Year | Change of assumptions | Recognition period (years) | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|-----------------------|----------------------------|------|------|------|------|------|------|------|------|------|------|
| 2018 | \$ - | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Net increase (decrease) in OPEB expense | | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |

Increase/(Decrease) in OPEB Expense Arising from the Recognition of Differences between Expected and Actual Earnings on OPEB Plan Investments

| Year | Differences between projected and actual earnings on OPEB plan investments | Recognition period (years) | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 |
|---|--|----------------------------|--------------|--------------|--------------|--------------|--------------|------|------|------|------|------|
| 2018 | \$ (695,275) | 5 | \$ (139,055) | \$ (139,055) | \$ (139,055) | \$ (139,055) | \$ (139,055) | \$ - | \$ - | \$ - | \$ - | \$ - |
| Net increase (decrease) in OPEB expense | | | \$ (139,055) | \$ (139,055) | \$ (139,055) | \$ (139,055) | \$ (139,055) | \$ - | \$ - | \$ - | \$ - | \$ - |

Deferred Outflows and Deferred Inflows of Resources Arising from Gains and Losses

Deferred Outflows and Deferred Inflows of Resources Arising from Differences between Expected and Actual Experience

| Year | Experience Losses (a) | Experience Gains (b) | Amounts Recognized in OPEB Expense through June 30, 2017 (c) | BALANCES AT JUNE 30, 2018 | |
|--------------|--------------------------|-------------------------|--|--|---|
| | | | | Deferred Outflows of Resources (a) - (c) | Deferred Inflows of Resources (b) - (c) |
| 2018 | \$ - | \$ - | \$ - | \$ - | \$ - |
| TOTAL | | | | \$ - | \$ - |

Deferred Outflows and Deferred Inflows of Resources Arising from Changes of Assumptions

| Year | Increases in the Total OPEB Liability (a) | Decreases in the Total OPEB Liability (b) | Amounts Recognized in OPEB Expense through June 30, 2017 (c) | BALANCES AT JUNE 30, 2018 | |
|--------------|---|---|--|--|---|
| | | | | Deferred Outflows of Resources (a) - (c) | Deferred Inflows of Resources (b) - (c) |
| 2018 | \$ - | \$ - | \$ - | \$ - | \$ - |
| TOTAL | | | | \$ - | \$ - |

**Deferred Outflows and Deferred Inflows of Resources
 Arising from Differences between Expected and Actual Earnings on OPEB Plan Investments**

| Year | Investment Earnings Less than Projected (a) | Investment Earnings More than Projected (b) | Amounts Recognized in OPEB Expense through June 30, 2017 (c) | BALANCES AT JUNE 30, 2018 | |
|--------------|---|---|--|--|---|
| | | | | Deferred Outflows of Resources (a) - (c) | Deferred Inflows of Resources (b) - (c) |
| 2018 | \$ - | \$ (695,275) | \$ (139,055) | \$ - | \$ (556,220) |
| TOTAL | | | | \$ - | \$ (556,220) |
| | | | NET TOTAL | | \$ (556,220) |

Actuarial Methods and Assumptions

All actuarial assumptions and methodologies were selected by the Town of Concord with guidance from Stone Consulting, Inc.

ACTUARIAL METHODS

Actuarial Cost Method

Costs are attributed between past and future service using the Entry Age Normal 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.

Asset Valuation Method

Market value of assets including payables and receivables.

ACTUARIAL ASSUMPTIONS

Valuation Date

June 30, 2017

Mortality

- **Actives:** The RP-2014 Mortality Tables adjusted to 2006, sex-distinct, for Employees projected using generational mortality and scale MP-2016.
- **Retirees:** The RP-2014 Mortality Tables adjusted to 2006, sex-distinct, for Healthy Annuitants projected using generational mortality and scale MP-2016.
- **Disabled:** The RP-2014 Mortality Tables adjusted to 2006, sex-distinct, for Healthy Annuitants projected using generational mortality and scale MP-2016. Set forward 2 years.

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

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)

Salary Scale

4.00% ultimate rate, reduced to 3.50% while receiving steps:

- **Police:** 5.2% in year one, 5.6% in year two, 7.3% in year three, 5.0% in year four, and 4.8% in year five.
- **Fire:** Three years of 4.7% steps
- **All other employees:** Seven years of 4.3% steps

Teachers – Increases are based on service as shown below.

| Service | Teachers |
|---------|----------|
| 0 | 7.50% |
| 1 | 7.10% |
| 2 | 7.00% |
| 3 | 6.90% |
| 4 | 6.80% |
| 5 | 6.70% |
| 6 | 6.60% |
| 7 | 6.50% |
| 8 | 6.30% |
| 9 | 6.10% |
| 10 | 5.90% |
| 11 | 5.70% |
| 12 | 5.20% |
| 13 | 4.70% |
| 14 | 4.35% |
| 15-16 | 4.20% |
| 17-19 | 4.10% |
| 20+ | 4.00% |

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 (Tier 1 and Tier 2) 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 | 20 | | 13.00% | 5.50% | 1.50% |
| | 30 | | 15.00 | 5.40 | 1.50 |
| | 40 | | 13.30 | 5.20 | 1.70 |
| | 50 | | 16.20 | 7.00 | 2.30 |
| Female Teachers | 20 | | 10.00% | 7.00% | 5.00% |
| | 30 | | 15.00 | 8.80 | 4.50 |
| | 40 | | 10.50 | 5.00 | 2.20 |
| | 50 | | 9.80 | 5.50 | 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% | 0.008% |
| 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% | 0.060% |
| 60 | 0.28% | 0.85% | 0.070% |

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% | 1.0% | 2% | 1.5% | N/A | N/A | N/A | N/A | N/A | N/A |
| 51 | N/A | N/A | 1 | 1 | 2 | 1.5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 52 | N/A | N/A | 1 | 1 | 2 | 1.5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 53 | N/A | N/A | 1.5 | 1 | 2 | 1.5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 54 | N/A | N/A | 2.5 | 1 | 2 | 2 | N/A | N/A | N/A | N/A | N/A | N/A |
| 55 | 5% | 3% | 3 | 3 | 6 | 5 | N/A | N/A | N/A | N/A | N/A | N/A |
| 56 | 5 | 3 | 6 | 5 | 20 | 15 | N/A | N/A | N/A | N/A | N/A | N/A |
| 57 | 5 | 4 | 10 | 8 | 40 | 35 | N/A | N/A | N/A | N/A | N/A | N/A |
| 58 | 5 | 8 | 15 | 10 | 50 | 35 | N/A | N/A | N/A | N/A | N/A | N/A |
| 59 | 10 | 8 | 20 | 15 | 50 | 35 | N/A | N/A | N/A | N/A | N/A | N/A |
| 60 | 10 | 10 | 25 | 20 | 40 | 35 | 30 | 30 | 45 | 40 | 60 | 55 |
| 61 | 20 | 12 | 30 | 25 | 40 | 35 | 20 | 12 | 30 | 25 | 40 | 35 |
| 62 | 20 | 12 | 35 | 30 | 35 | 35 | 20 | 12 | 35 | 30 | 35 | 35 |
| 63 | 25 | 15 | 40 | 30 | 35 | 35 | 25 | 15 | 40 | 30 | 35 | 35 |
| 64 | 25 | 20 | 40 | 30 | 35 | 35 | 25 | 20 | 40 | 30 | 35 | 35 |
| 65 | 25 | 25 | 40 | 40 | 35 | 35 | 25 | 25 | 40 | 40 | 35 | 35 |
| 66 | 30 | 25 | 30 | 30 | 40 | 35 | 30 | 25 | 30 | 30 | 40 | 35 |
| 67 | 30 | 30 | 30 | 30 | 40 | 30 | 30 | 30 | 30 | 30 | 40 | 30 |
| 68 | 30 | 30 | 30 | 30 | 40 | 30 | 30 | 30 | 30 | 30 | 40 | 30 |
| 69 | 30 | 30 | 30 | 30 | 40 | 30 | 30 | 30 | 30 | 30 | 40 | 30 |
| 70 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Actuarial Methods and Assumptions (Continued)

Plan Enrollment Rates

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

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 |

Sample Claim Costs

| Age | Commercial Managed Care Individual | Commercial Managed Care Blended ⁽¹⁾ | Medicare Managed Care | Medicare Indemnity |
|-----|------------------------------------|--|-----------------------|--------------------|
| 55 | \$9,359.05 | \$16,078.69 | \$1,846.96 | \$2,522.43 |
| 60 | \$11,169.42 | \$19,188.87 | \$2,204.23 | \$3,010.36 |
| 65 | \$13,720.48 | \$23,571.55 | \$2,707.66 | \$3,697.91 |
| 70 | \$15,905.80 | \$27,325.88 | \$3,138.92 | \$4,286.89 |
| 75 | \$17,995.95 | \$30,916.73 | \$3,551.40 | \$4,850.22 |
| 80 | \$19,868.98 | \$34,134.56 | \$3,921.04 | \$5,355.04 |
| 85 | \$20,882.50 | \$20,882.50 | \$4,121.05 | \$5,628.20 |

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

Actuarial Methods and Assumptions (Continued)

Trend Rates by Plan

| Year | Commercial Managed Care | Medicare Managed Care | Medicare Indemnity |
|------|-------------------------|-----------------------|--------------------|
| 2017 | 8.50% | 7.50% | 8.50% |
| 2018 | 8.00% | 7.00% | 8.00% |
| 2019 | 7.50% | 6.50% | 7.50% |
| 2020 | 7.00% | 6.00% | 7.00% |
| 2021 | 6.50% | 5.50% | 6.50% |
| 2022 | 6.00% | 5.00% | 6.00% |
| 2023 | 5.50% | 5.00% | 6.00% |
| 2024 | 5.00% | 5.00% | 6.00% |
| 2025 | 5.00% | 5.00% | 6.00% |
| 2026 | 5.00% | 5.00% | 6.00% |
| 2027 | 5.00% | 5.00% | 6.00% |
| 2028 | 5.00% | 5.00% | 6.00% |
| 2029 | 5.00% | 5.00% | 5.75% |
| 2030 | 5.00% | 5.00% | 5.75% |
| 2031 | 5.00% | 5.00% | 5.75% |
| 2032 | 5.00% | 5.00% | 5.75% |
| 2033 | 5.00% | 5.00% | 5.75% |
| 2034 | 5.00% | 5.00% | 5.50% |
| 2035 | 5.00% | 5.00% | 5.50% |
| 2036 | 5.00% | 5.00% | 5.50% |
| 2037 | 5.00% | 5.00% | 5.50% |
| 2038 | 5.00% | 5.00% | 5.50% |
| 2039 | 5.00% | 5.00% | 5.25% |
| 2040 | 5.00% | 5.00% | 5.25% |
| 2041 | 5.00% | 5.00% | 5.25% |
| 2042 | 5.00% | 5.00% | 5.25% |
| 2043 | 5.00% | 5.00% | 5.25% |
| 2044 | 5.00% | 5.00% | 5.00% |

Expenses

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

Actuarial Methods and Assumptions (Continued)

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 Town of Concord employees eligible for post-employment medical benefits are assumed to elect Medical Coverage immediately upon retirement.

Life All Retirees: 50% of active Town of Concord employees eligible for post-employment medical benefits are assumed to elect Life Insurance coverage immediately upon retirement.

For all Retirees: For the Town of Concord plans 60% of spouses are assumed to participate.

Participants with no or unknown current coverage (e.g. active employees who do not currently participate in Town of 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.

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 2022. 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.

Principal Plan Provisions Recognized in Valuation

ELIGIBILITY FOR BENEFITS

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

MEDICAL BENEFITS

Various medical plans offered by Town of Concord to its own employees.

LIFE INSURANCE

Town of Concord retirees are eligible for a \$2,000 life insurance benefit offered by the Town of Concord. Retirees pay 50% of the \$1.76 cost.

RETIREE CONTRIBUTIONS

Based on data provided by Town of 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.
- **Actuarially Determined Contribution (ADC):** The employer's periodic contributions to a defined benefit OPEB plan, calculated in accordance with the Actuarial Standards of Practice.
- **Commercial Plans:** Plans designed to cover the medical expenses of those not otherwise covered by Medicare.

■ **Town of Concord**
GASB Statement No. 75

- **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.
- **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.
- **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 (claims) 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.
- **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.