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December 7, 2018

Ms. Kerry 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) Statements No. 74 and 75, Stone Consulting, Inc. has prepared a set of illustrative tables and other Required Supplementary Information (RSI) based on the June 30, 2018 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 74 the results are as of a valuation date of June 30, 2018 and a reporting date of June 30, 2018 (Fiscal 2018). For GASB 75 the results are as of June 30, 2018, a measurement date of June 30, 2018, and a reporting date of June 30, 2019 (Fiscal 2019). 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 or the Town of Concord OPEB Trust, 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 or the Town of Concord OPEB Trust which 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

GASB Statement No. 74 – Net OPEB Liability

The components of the Net OPEB Liability for the Town of Concord as of June 30, 2018 were as follows:

	FY 2018	FY 2017
Total OPEB Liability		
Service Cost	\$ 1,315,915	\$ 1,265,303
Interest	3,231,988	3,047,291
Changes in Benefit Terms	0	0
Differences between expected and actual experience	1,425,318	0
Changes of assumptions	2,432,103	0
Benefit payments	(1,911,377)	(1,690,388)
Net change in Total OPEB liability	\$ 6,493,947	\$ 2,622,206
Total OPEB Liability – beginning (7.25%)	44,218,912	41,596,706
Total OPEB Liability – ending (7.25%) (a)	\$ 50,712,859	\$ 44,218,912
Plan Fiduciary Net Position		
Contributions – employer*	\$ 3,522,377	\$ 3,470,388
Net Investment Income	1,056,361	1,497,471
Benefit payments	(1,911,377)	(1,690,388)
Administrative expenses	0	0
Net change in Plan Fiduciary Net Position	\$ 2,667,361	\$ 3,277,471
Plan Fiduciary Net Position – beginning	13,452,252	10,174,780
Plan Fiduciary Net Position – ending (b)	\$ 16,119,612	\$ 13,452,252
Net OPEB Liability – ending (a) – (b)	\$ 34,593,247	\$ 30,766,660
Plan fiduciary net position as a percentage of total OPEB liability	31.8%	30.4%

*Employer contribution of \$1,911,377 of Pay-As-You-Go and a \$1,611,000 cash contribution.

ACTUARIAL METHODS AND ASSUMPTIONS

Distribution of the Member Population

Town of Concord OPEB Trust – Membership as of June 30, 2018

	2018
Retired, Disabled, Survivors and Beneficiaries receiving benefits	286
Inactive plan members entitled to but not yet receiving benefit payments	24
Active plan members	668
Total	978

These numbers are based on the data supplied by the Town of Concord for the June 30, 2018 valuation. Note that these membership numbers count a retiree and a spouse as only one member, even if they have separate policies. This is different from the methodology we used in our funding/GASB 45 report.

Projection of the Net OPEB Liability

TOTAL OPEB LIABILITY (TOL)

The Total OPEB Liability at the beginning of the measurement period (07/01/2017) is equal to the Actuarial Accrued Liability (AAL) projected from 06/30/2018. 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 06/30/2018 at a discount rate of 7.25%) are as follows:

Actives	\$ 24,091,905
Retirees, Disabled, Beneficiaries, and Vested terminated	<u>26,620,954</u>
Total	\$ 50,712,859

The TOL is projected to the end of the measurement period (06/30/2018) 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. We have used the Market Value of Assets, adjusted for payables and receivables. 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 (07/01/2017)	\$ 44,218,912	\$ 13,452,252	\$ 30,766,660
<u>Changes for the Year:</u>			
Service Cost	1,315,915		1,315,915
Interest	3,231,988		3,231,988
Change in benefit terms	0		0
Differences between expected and actual experience	1,425,318		1,425,318
Change in assumptions	2,432,103		2,432,103
Contributions - employer		3,522,377	(3,522,377)
Contributions - employee		0	0
Net investment income		1,056,361	(1,056,361)
Benefit payments, including refunds of employee contributions	(1,911,377)	(1,911,377)	0
Administrative expense		0	0
Other changes		0	0
Net Changes	<u>6,493,947</u>	<u>2,667,361</u>	<u>3,826,586</u>
Balances at end of Measurement Period (06/30/2018)	\$ 50,712,859	\$ 16,119,612	\$ 34,593,247

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

**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	\$ 1,188,161	\$ 0
Changes of assumptions	2,027,427	0
Net difference between projected and actual earnings on plan investments	<u>0</u>	<u>(435,304)</u>
Total	\$ 3,215,588	\$ (435,304)

Year Ending June 30, *	Recognition
2019	\$ 498,244
2020	\$ 498,244
2021	\$ 498,244
2022	\$ 637,299
2023	\$ 641,834
Thereafter	\$ 6,418

*The years are based on measurement date of June 30, 2018. For GASB 75, the reporting date is twelve months later, so the year ending June 30, 2019 is Fiscal 2020.

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 and liabilities. 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 new employees. For the Town of Concord, there is no depletion point. 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 (3.87%) after the depletion point. Finally, a single rate producing an equivalent present value of benefits is calculated. This is the 7.25% rate we have used for the Town of Concord. 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 actives and inactive employees.

For a measurement date of June 30, 2018, 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.

GASB Statement No. 74 requires that a return rate for the measurement period be developed using the market value of assets at the beginning of the Fiscal Year, along with monthly cash flows. This has been done for the 2019 Fiscal year, and is shown below:

Fiscal Year	2019
Money-Weighted Rate of Return	7.24%

For detailed calculations of this amount, see the schedule on page 14.

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%)
06/30/2018	\$ 41,197,939	\$ 34,593,247	\$ 29,147,202

Trend 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.

Measurement Date	1% Decrease	Base Trend *	1% Increase
06/30/2018	\$ 28,572,975	\$ 34,593,247	\$ 42,009,145

* Base trend rates are found in Actuarial Assumptions and Methods, page 23.

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 Plan’s asset consultant, ICMA-RA. The real rates of return below are based on long-term return estimates provided by ICMA-RA.

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%

■ Town of Concord
 GASB Statements No. 74 and 75

Schedule of Changes in Town of Concord's Net OPEB Liability and Related Ratios – GASB 74

(Amounts in Thousands)

Fiscal Year *	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
TOTAL OPEB LIABILITY										
Service cost	1,316	1,265								
Interest	3,232	3,047								
Change of benefit terms	0	0								
Differences between expected and actual experience	1,425	0								
Change of assumptions	2,432	0								
Benefit payments, including refunds of employee contributions	(1,911)	(1,690)								
Net change in total OPEB liability	6,494	2,622								
Total OPEB liability - beginning	44,219	41,597								
Total OPEB liability - ending	50,713	44,219								
PLAN FIDUCIARY NET POSITION										
Contributions - employer	3,522	3,470								
Contributions - employee	0	0								
Net Investment Income	1,056	1,497								
Benefit payments, including refunds of employee contributions	(1,911)	(1,690)								
Administrative expense	0	0								
Other	0	0								
Net change in plan fiduciary net position	2,667	3,277								
Plan fiduciary net position - beginning	13,452	10,175								
Plan fiduciary net position - end	16,120	13,452								
Town of Concord Net OPEB Liability – ending	34,593	30,767								
Plan fiduciary net position as a percentage of the total OPEB liability	31.8%	30.4%								
Money-Weighted Rate of Return	7.24%	13.07%								

Schedule of Plan Contributions - GASB 74

Measurement Date of June 30,	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Actuarially Determined Contribution	\$3,589	\$4,088								
Contributions in relation to the Actuarially Determined Contribution	<u>(3,522)</u>	<u>(3,470)</u>								
Contribution deficiency / (excess)	\$67	\$618								

Components of Town of Concord’s OPEB Expense

Components of Town of Concord’s OPEB Expense for the Fiscal Year ended June 30, 2019 [GASB 75, Paragraph 43] are shown below.

NOTE*	Description	Fiscal 2019	Fiscal 2018
A	Service Cost	\$ 1,315,915	\$ 1,265,303
A, B	Interest	3,231,988	3,047,291
C	Differences between Expected and Actual Experience	237,158	0
D	Changes of Assumptions	404,676	0
D	Changes to Benefit Provisions	0	0
A	Employee Contributions	0	0
E	Projected Earnings on Plan Investments	(1,033,687)	(802,197)
F	Differences between Projected and Actual Earnings on Plan Investments	(143,590)	(139,055)
A	Administrative Expense	0	0
A	Other Changes in Fiduciary Net Position	<u>0</u>	<u>0</u>
	Total OPEB Expense	\$ 4,012,460	\$ 3,371,343

* Notes shown on page 11. Amounts are based on the following dates:

- Valuation date: June 30, 2018
- Measurement date: June 30, 2018
- Reporting date: June 30, 2019

CHANGES IN METHODS, ASSUMPTIONS, AND PLAN PROVISIONS

This valuation reflects the long-term impact of the so-called “Cadillac Tax,” which is part of the ACA passed in 2009. This tax imposes a charge on plans whose cost exceeds certain thresholds and begins in 2022. Our valuation projects the cost of the different plans for each year and then tests to see if these projected costs exceed the thresholds. If they do, then an additional claim cost is generated. Our estimate is that this tax has added about 4% to the total AAL. The tax was originally scheduled to be put into place in 2018 but has been delayed twice by Congress. There were no other in assumptions or plan changes in the 06/30/2018 valuation used for Fiscal 2019.

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	\$ 1,696,156	\$ 31,384,020	\$ 25,865	\$ 36,560
Beede	\$ 45,108	\$ 537,627	\$ 688	\$ 972
Light	\$ 142,398	\$ 2,345,407	\$ 2,171	\$ 3,069
Sewer	\$ 5,543	\$ 65,865	\$ 85	\$ 119
Water	\$ 22,172	\$ 260,328	\$ 338	\$ 478
TOTAL	\$ 1,911,377	\$ 34,593,247	\$ 29,147	\$ 41,198

Employer	Actuarially determined contribution FY2019	Contributions made FY 2019	Contribution deficiency (excess)	
Town of Concord	\$ 3,114,356	\$ 3,125,757	\$ (11,401)	
Beede	\$ 82,825	\$ 83,128	\$ (303)	
Light	\$ 261,460	\$ 262,417	\$ (957)	
Sewer	\$ 10,178	\$ 10,215	\$ (37)	
Water	\$ 40,711	\$ 40,860	\$ (149)	
TOTAL	\$ 3,509,530	\$ 3,522,377	\$ (12,847)	

Employer	Proportion	Proportionate Share of Pension Expense	Proportionate Share of Deferred Outflows of Resources	Proportionate Share of Deferred Inflows of Resources
Town of Concord	88.74%	\$ 3,560,657	\$ 2,853,513	\$ (386,289)
Beede	2.36%	\$ 94,694	\$ 75,888	\$ (10,273)
Light	7.45%	\$ 298,928	\$ 239,561	\$ (32,430)
Sewer	0.29%	\$ 11,636	\$ 9,325	\$ (1,262)
Water	1.16%	\$ 46,545	\$ 37,301	\$ (5,050)
TOTAL	100.00%	\$ 4,012,460	\$ 3,215,588	\$ (435,304)

* Premiums plus implicit subsidy is the projected amount for the 12 month ending June 30, 2019 based on employee data as of June 30, 2018 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 3.
- 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	\$ 44,218,912	100%	7.25%	\$ 3,205,871
Service cost	1,315,915	100%	7.25%	95,404
Benefit payments	\$ (1,911,377)	50%	7.25%	(69,287)
Interest				\$ 3,231,988

- 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 12.
- 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 12.
- 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	\$ 13,452,252	100%	7.25%	\$ 975,288
Employer contributions	3,522,377	50%	7.25%	127,686
Employee contributions	0	50%	7.25%	0
Benefit payments	(1,911,377)	50%	7.25%	(69,287)
Administrative expense	\$ 0	50%	7.25%	0
Total projected earnings				\$ 1,033,687

- 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 12.

Increase / (Decrease) in OPEB Expense Arising from the Recognition of Gains and Losses – GASB 75

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
2019	\$ 1,425,318	6.01		\$ 237,158	\$ 237,158	\$ 237,158	\$ 237,158	\$ 237,158	\$ 237,158	\$ 2,372	\$ -	\$ -
Net increase (decrease) in OPEB expense			\$ -	\$ 237,158	\$ 237,158	\$ 237,158	\$ 237,158	\$ 237,158	\$ 237,158	\$ 2,372	\$ -	\$ -

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
2019	\$ 2,432,103	6.01		\$ 404,676	\$ 404,676	\$ 404,676	\$ 404,676	\$ 404,676	\$ 404,676	\$ 4,047	\$ -	\$ -
Net increase (decrease) in OPEB expense			\$ -	\$ 404,676	\$ 404,676	\$ 404,676	\$ 404,676	\$ 404,676	\$ 404,676	\$ 4,047	\$ -	\$ -

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
2019	\$ (22,674)	5		\$ (4,535)	\$ (4,535)	\$ (4,535)	\$ (4,535)	\$ (4,535)	\$ -	\$ -	\$ -	\$ -
Net increase (decrease) in OPEB expense			\$ (139,055)	\$ (143,590)	\$ (143,590)	\$ (143,590)	\$ (143,590)	\$ (4,535)	\$ -	\$ -	\$ -	\$ -

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, 2018 (c)	BALANCES AT JUNE 30, 2019	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2018	\$ -	\$ -	\$ -	\$ -	\$ -
2019	\$ 1,425,318	\$ -	\$ 237,158	\$ 1,188,161	\$ -
TOTAL				\$ 1,188,161	\$ -

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, 2018 (c)	BALANCES AT JUNE 30, 2019	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2018	\$ -	\$ -	\$ -	\$ -	\$ -
2019	\$ 2,432,103	\$ -	\$ 404,676	\$ 2,027,427	\$ -
TOTAL				\$ 2,027,427	\$ -

**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, 2018 (c)	BALANCES AT JUNE 30, 2019	
				Deferred Outflows of Resources (a) - (c)	Deferred Inflows of Resources (b) - (c)
2018	\$ -	\$ (695,275)	\$ (278,110)	\$ -	\$ (417,165)
2019	\$ -	\$ (22,674)	\$ (4,535)	\$ -	\$ (18,139)
TOTAL				\$ -	\$ (435,304)
			NET TOTAL		\$ (435,304)

GASB Statement No. 74, Paragraph 34 b. (3) - Money-Weighted Rate of Return

NET INVESTMENT AMOUNTS					
	Beginning of month	Middle of Month	End of Month	Periods Invested**	Investment with Interest
Starting Value* (7/1/2017)	\$ 13,152,251.61			12	\$ 14,104,868.85
<u>Cash Flows:</u>					
July				11	0.00
August				10	0.00
September		275,000.00		9	290,652.98
October	1,636,000.00			8	1,724,090.29
November				7	0.00
December				6	0.00
January				5	0.00
February				4	0.00
March				3	0.00
April				2	0.00
May				1	0.00
June				0	<u>0.00</u>
Ending Value* (6/30/2018)	\$16,119,612.12			Sum:	\$ 16,119,612.12

* Value shown does not include any payables or receiveables, except those related to investments.
 ** Middle of period cash flows are given an additional half period of interest, and beginning of period cash flows are given an additional full period.

Return Rate:	7.24%
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Funding Schedule

21 Years from 07/01/2018 at 7.25%

Fiscal Year	Normal Cost ¹	Amortization ²	Actuarially Determined Contribution	Year-End UAAL	Projected Annual Benefit Cost ³	Cash Contribution
2019	\$1,333,336	\$2,395,705	\$3,729,041	\$34,531,864	\$2,182,442	\$1,546,599
2020	\$1,386,669	\$2,467,576	\$3,854,245	\$34,388,949	\$2,419,477	\$1,434,768
2021	\$1,442,136	\$2,541,603	\$3,983,740	\$34,156,278	\$2,701,737	\$1,282,003
2022	\$1,499,822	\$2,617,851	\$4,117,673	\$33,824,962	\$3,211,641	\$906,032
2023	\$1,559,815	\$2,696,387	\$4,256,202	\$33,385,397	\$3,520,945	\$735,257
2024	\$1,622,207	\$2,777,279	\$4,399,486	\$32,827,207	\$3,748,444	\$651,042
2025	\$1,687,095	\$2,860,597	\$4,547,692	\$32,139,189	\$4,107,841	\$439,851
2026	\$1,754,579	\$2,946,415	\$4,700,994	\$31,309,250	\$4,316,202	\$384,792
2027	\$1,824,762	\$3,034,807	\$4,859,570	\$30,324,340	\$4,378,380	\$481,190
2028	\$1,897,753	\$3,125,852	\$5,023,604	\$29,170,379	\$4,556,030	\$467,574
2029	\$1,973,663	\$3,219,627	\$5,193,290	\$27,832,182	\$4,788,142	\$405,148
2030	\$2,052,610	\$3,316,216	\$5,368,825	\$26,293,373	\$5,033,990	\$334,835
2031	\$2,134,714	\$3,415,702	\$5,550,416	\$24,536,302	\$5,111,259	\$439,157
2032	\$2,220,102	\$3,518,173	\$5,738,276	\$22,541,943	\$5,248,465	\$489,811
2033	\$2,308,907	\$3,623,719	\$5,932,625	\$20,289,796	\$5,213,523	\$719,102
2034	\$2,401,263	\$3,732,430	\$6,133,693	\$17,757,774	\$5,183,525	\$950,168
2035	\$2,497,313	\$3,844,403	\$6,341,716	\$14,922,091	\$5,248,810	\$1,092,906
2036	\$2,597,206	\$3,959,735	\$6,556,941	\$11,757,126	\$5,380,779	\$1,176,162
2037	\$2,701,094	\$4,078,527	\$6,779,621	\$8,235,298	\$5,502,570	\$1,277,051
2038	\$2,809,138	\$4,200,883	\$7,010,021	\$4,326,910	\$5,735,213	\$1,274,808
2039	\$2,921,503	\$4,326,910	\$7,248,413	\$0	\$5,891,074	\$1,357,339

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

² Assumes 3.00% annual increase in amortization payment.

³ The projected benefit cost, or Pay-As-You-Go amount, is for the current group of actives and retirees. It does not include any future hires. It is not directly comparable to the funding contribution but is 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.

Actuarial Methods and Assumptions

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.

Asset Valuation Method

Market value of assets with payables and receivables.

ACTUARIAL ASSUMPTIONS

Valuation Date

June 30, 2018

Interest Rate / Discount Rate

7.25% per year net of investment expenses.

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.

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)

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%

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	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 50% ordinary and 50% 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%

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)

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)

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: 60% Commercial Indemnity: 40%	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⁾	Commercial Indemnity Individual	Commercial Indemnity Blended ⁽¹⁾	Medicare Managed Care	Medicare Indemnity
55	\$9,442.25	\$16,167.30	NA	NA	\$2,427.06	\$4,404.50
60	\$11,606.98	\$19,900.74	NA	NA	\$2,427.06	\$4,404.50
65	\$14,520.09	\$27,976.25	NA	NA	\$2,427.06	\$4,404.50
70	\$17,535.55	\$33,786.34	NA	NA	\$2,849.52	\$4,868.56
75	\$20,995.82	\$40,454.42	NA	NA	\$3,450.97	\$5,257.38
80	\$24,988.72	\$48,147.72	NA	NA	\$4,124.00	\$5,537.90
85	\$24,988.72	\$48,147.72	NA	NA	\$4,868.63	\$5,678.02

⁽¹⁾ Blended rates below 65 are 42.5% Family and 57.5% Individual. Blended rates 65 and higher are 55.0% Family and 45.0% Individual. Individual rates are used for all participants 81 and higher.

Actuarial Methods and Assumptions (Continued)

Trend Rates by Plan

Year	Commercial Managed Care	Commercial Indemnity	Medicare Managed Care	Medicare Indemnity
2018	9.50%	8.50%	7.50%	8.50%
2019	9.00%	8.00%	7.00%	8.00%
2020	8.50%	7.50%	6.50%	7.50%
2021	8.00%	7.00%	6.00%	7.00%
2022	7.50%	6.50%	5.50%	6.50%
2023	7.00%	6.00%	5.00%	6.00%
2024	6.50%	5.50%	5.00%	6.00%
2025	6.00%	5.00%	5.00%	6.00%
2026	6.00%	5.00%	5.00%	6.00%
2027	6.00%	5.00%	5.00%	6.00%
2028	6.00%	5.00%	5.00%	6.00%
2029	6.00%	5.00%	5.00%	6.00%
2030	5.75%	5.00%	5.00%	5.75%
2031	5.75%	5.00%	5.00%	5.75%
2032	5.75%	5.00%	5.00%	5.75%
2033	5.75%	5.00%	5.00%	5.75%
2034	5.75%	5.00%	5.00%	5.75%
2035	5.50%	5.00%	5.00%	5.50%
2036	5.50%	5.00%	5.00%	5.50%
2037	5.50%	5.00%	5.00%	5.50%
2038	5.50%	5.00%	5.00%	5.50%
2039	5.50%	5.00%	5.00%	5.50%
2040	5.25%	5.00%	5.00%	5.25%
2041	5.25%	5.00%	5.00%	5.25%
2042	5.25%	5.00%	5.00%	5.25%
2043	5.25%	5.00%	5.00%	5.25%
2044	5.25%	5.00%	5.00%	5.25%
2045	5.00%	5.00%	5.00%	5.00%

Expenses

Administrative expenses 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: 67.5% 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: 70% 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 57.5% 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 includes an estimate of the impact from the Patient Protection and Affordable Care Act (PPACA) as it is written as of the valuation date. This includes the so-called "Cadillac Tax" high-cost health plans. The Cadillac Tax on benefits plans whose richness exceeds set levels will begin in 2022 and the valuation reflects such implementation. 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.

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 Town of Concord. Retirees pay 50% of the \$4.80 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 Statements No. 74 and 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.