



TOWN OF GRANBY OTHER POST-EMPLOYMENT BENEFITS PROGRAM

**Actuarial Valuation as of July 1, 2019
To Determine Funding for Fiscal Year 2020-21**

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Certification

We have performed an actuarial valuation of the Plan as of July 1, 2019 to determine funding for fiscal year 2020-21. This report presents the results of our valuation.

The ultimate cost of an Other Post-Employment Benefits (OPEB) plan is the total amount needed to provide benefits for plan members and beneficiaries and to pay the expenses of administering the plan. OPEB costs are met by contributions and by investment return on plan assets. The principal purpose of this report is to set forth an actuarial recommendation of the contribution, or range of contributions, which will properly fund the plan, in accordance with applicable actuarial standards of practice. In addition, this report provides:

- A valuation of plan assets and liabilities to review the year-to-year progress of funding.
- Review of plan experience since the previous valuation to ascertain whether the assumptions and methods employed for valuation purposes are reflective of actual events and remain appropriate for prospective application.
- Assessment of the relative funded position of the plan, i.e., through a comparison of plan assets and projected plan liabilities.
- Comments on any other matters which may be of assistance in the funding and operation of the plan.

This report may not be used for purposes other than those listed above without Milliman's prior written consent. If this report is distributed to other parties, it must be copied in its entirety, including this certification section.

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In preparing this report, we relied on employee census data and financial information as of the valuation date, furnished by the Town. We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have found them to be reasonably consistent and comparable with data used for other purposes. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete and our calculations may need to be revised. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Certification

The calculations reported herein have been made on a basis consistent with our understanding of the plan provisions. Additional determinations may be needed for purposes other than determining funding amounts, such as judging benefit security at plan termination or meeting employer accounting requirements. On the basis of the foregoing, we hereby certify that, to the best of our knowledge, this report is complete and accurate and all costs and liabilities were determined in conformance with generally accepted actuarial principles and practices.

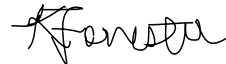
We further certify that, in our opinion, each actuarial assumption, method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations. Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as, but not limited to, the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of the actuarial assignment, we did not perform an analysis of the potential range of such future measurement.

The consultants who worked on this assignment are actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The undersigned 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.



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Section I - Executive Summary

Changes Since the Prior Valuation

Demographic Changes and Plan Experience

From July 1, 2017 to July 1, 2019, the overall membership increased from 333 to 342. The number of active members decreased from 281 to 278, and the total number of members and spouses/dependents receiving benefits increased from 52 to 64.

The average age of active members increased from 47.8 to 48.4, and the average age of members receiving benefits increased from 67.5 to 69.7.

Plan Changes

Retired Administrators may continue to participate in the Granby employee medical, dental and vision insurance plans for a period of two years following retirement sharing the premium cost with the Board in the same ratio as active Administrators (prior: Board paid the full cost of insurance for two years).

This change caused the Unfunded Accrued Liability to decrease by about \$11,500 and the Actuarially Determined Contribution to decrease by about \$2,000.

Changes in Actuarial Methods and Assumptions

We updated the assumptions for Certified employees to reflect the assumptions used in the June 30, 2018 Actuarial Valuation Report for the Connecticut State Teachers' Retirement System.

For Town Non-Union and BOE Non-Certified employees, we updated the mortality assumption to the PubG-2010 Mortality Table projected with MP-Ultimate scale. For Town Union and Police, we updated the mortality assumption to the PubS-2010 Mortality Table projected with MP-Ultimate scale.

These changes in combination caused the Unfunded Accrued Liability to increase by about \$268,000 and the Actuarially Determined Contribution to increase by about \$24,000.

Other Significant Changes

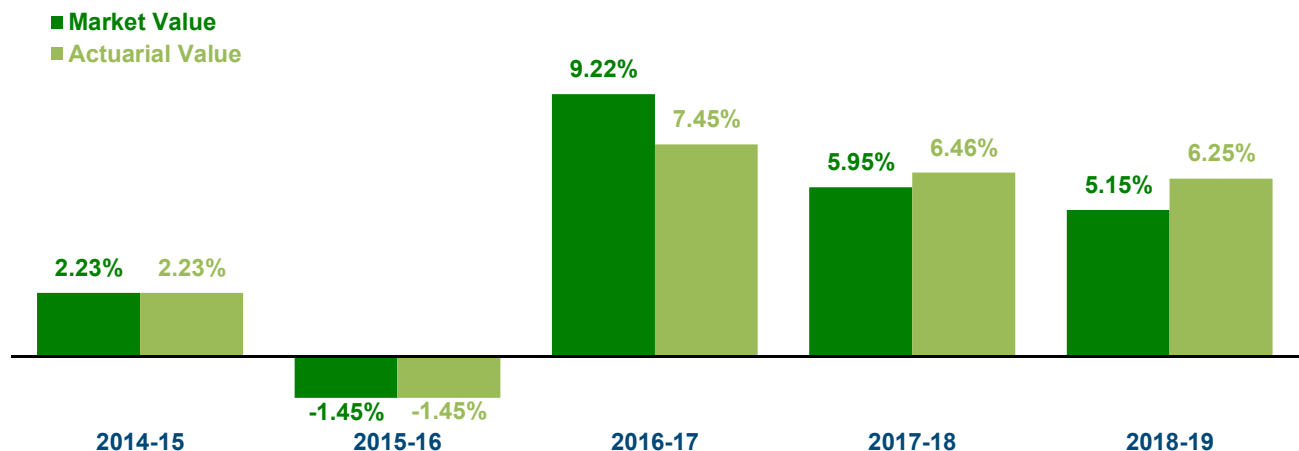
None.

Section I - Executive Summary Assets

There are two different measures of the plan's assets that are used throughout this report. The Market Value is a snapshot of the plan's investments as of the valuation date. The Actuarial Value is a smoothed asset value designed to temper the volatile fluctuations in the market by recognizing investment gains or losses non-asymptotically over five years.

	Market	Actuarial
Value as of July 1, 2017	\$1,735,204	\$1,708,877
Town Contributions	518,279	518,279
Investment Income	103,175	110,450
Benefit Payments	(518,279)	(518,279)
Value as of July 1, 2018	1,838,379	1,819,327
Town Contributions	572,118	572,118
Investment Income	94,763	113,683
Benefit Payments	(572,118)	(572,118)
Value as of July 1, 2019	1,933,142	1,933,010

For fiscal year 2017-18, the plan's assets earned 5.95% on a Market Value basis and 6.46% on an Actuarial Value basis. The actuarial assumption for this period was 6.00%; the result is an asset loss of about \$1,000 on a Market Value basis and a gain of about \$8,000 on an Actuarial Value basis. For fiscal year 2018-19, the plan's assets earned 5.15% on a Market Value basis and 6.25% on an Actuarial Value basis. The actuarial assumption for this period was 6.00%; the result is an asset loss of about \$16,000 on a Market Value basis and a gain of about \$5,000 on an Actuarial Value basis. Historical rates of return are shown in the graph below.

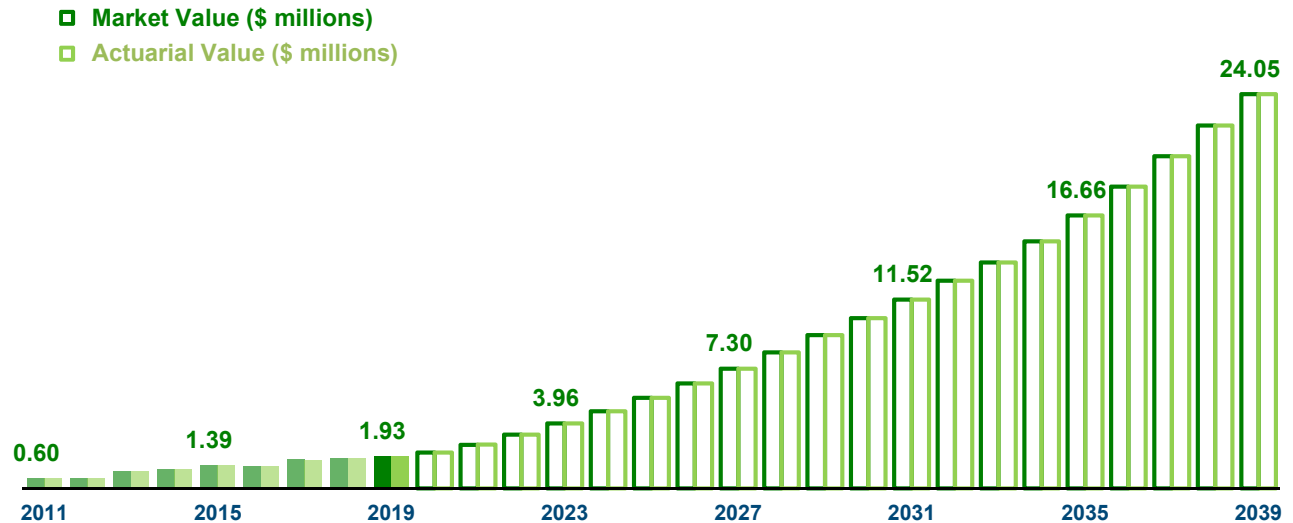


Please note that the Actuarial Value currently is less than the Market Value by \$0. This figure represents investment gains that will be gradually recognized in future years. This process will exert downward pressure on the Town's contribution, unless there are offsetting market losses.

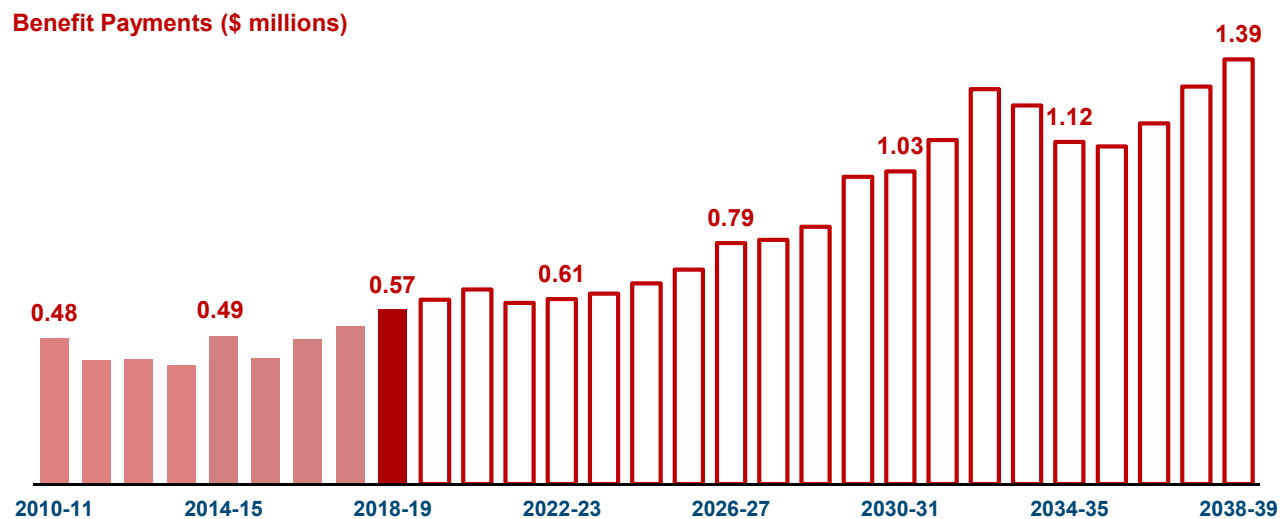
Section I - Executive Summary

Assets (continued)

The graph below shows how this year's asset values compare to where the plan's assets have been over the past several years and how they are projected to change over the next 20 years. For purposes of this projection, we have assumed that the Town always contributes the Actuarially Determined Contribution and the investments always earn the assumed interest rate each year.

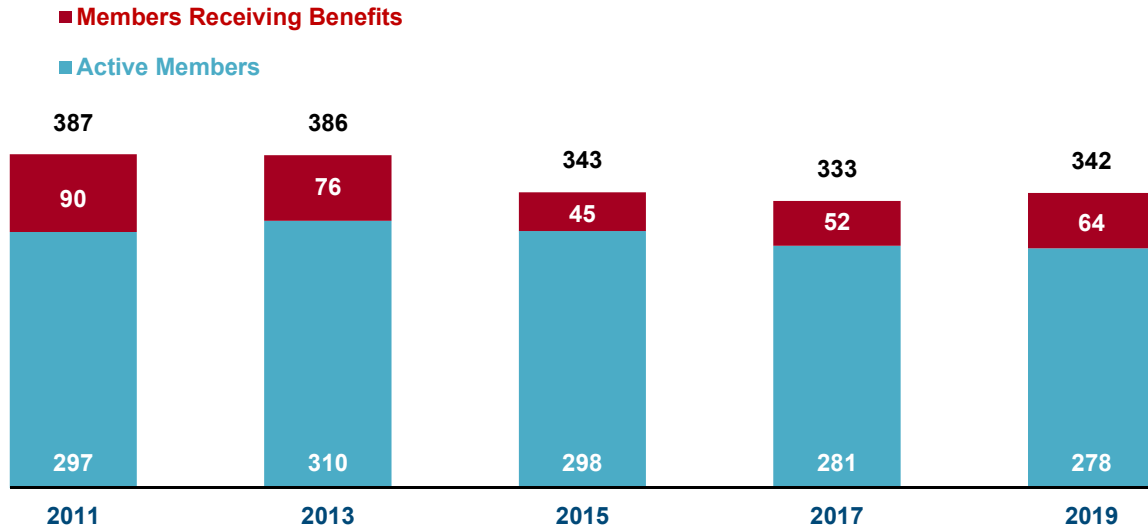


In 2018-19, the plan paid out \$572 thousand in benefits to members. Over the next 20 years, the plan is projected to pay out a total of \$19 million in benefits to members.



Section I - Executive Summary Membership

There are two basic categories of plan members included in the valuation: (1) members who are receiving benefits and (2) active employees who have met the eligibility requirements for membership.



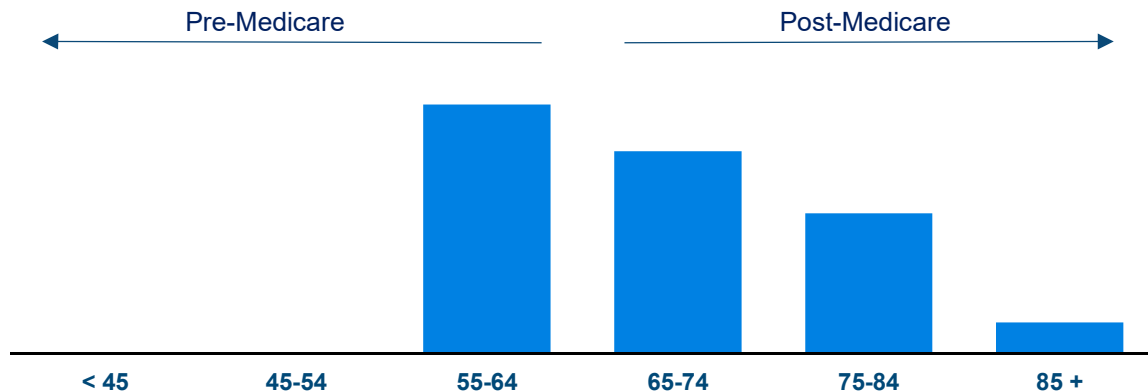
Members Receiving Benefits on July 1, 2019

Average Age

68.5

BOE Certified	48
BOE Clerical	1
BOE Custodians	2
BOE Non-Union	2
Town	9
Police	2
Total	64

As of July 1, 2019, there were 39 members receiving benefits plus an additional 25 spouses/dependents receiving benefits. They fall across a wide distribution of ages:



Section I - Executive Summary

Membership (continued)

Active Members on July 1, 2019

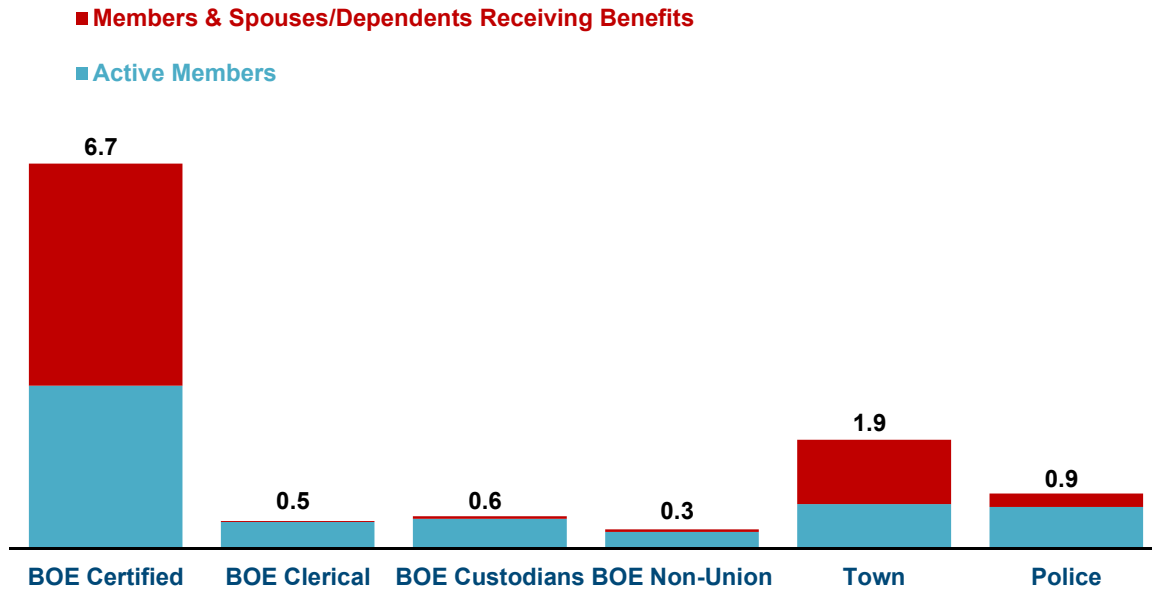
BOE Certified	169	Average Age	48.4
BOE Clerical	18	Average Service	11.4
BOE Custodians	18	Payroll	\$21,208,110
BOE Non-Union	12	Average Payroll	76,288
Town	47		
Police	14		
Total	278		

The table below illustrates the age and years of service of the active membership:

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25	1							1
25-29	8	1						9
30-34	11	10	2					23
35-39	12	12	12	2				38
40-44	10	3	11	5	1			30
45-49	10	7	8	9	5			39
50-54	10	9	15	9	7	1	1	52
55-59	10	12	9	9	7	2		49
60-64	3	3	3	7	5	1	6	28
65+	2		2	1	3		1	9
Total	77	57	62	42	28	4	8	278

Section I - Executive Summary Accrued Liability

The Accrued Liability as of July 1, 2019 is \$10,847,388, which consists of the following pieces:

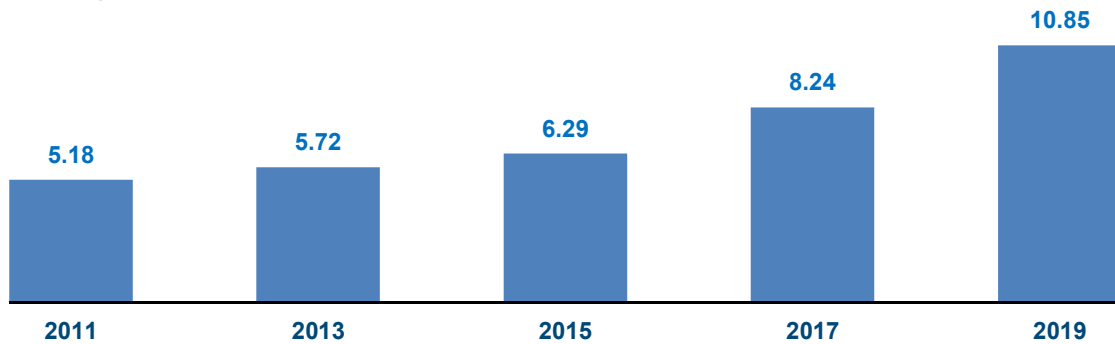


Section I - Executive Summary

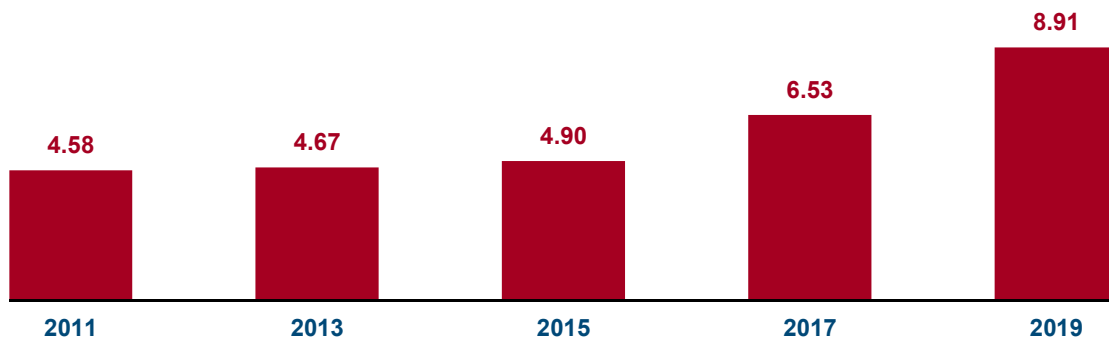
Funded Status

The Accrued Liability grows over time as active members earn additional benefits, and goes down over time as members receive benefits; it may also change when there are changes to the plan provisions or changes in the actuarial assumptions. The Unfunded Accrued Liability is the dollar difference between the Accrued Liability and the Actuarial Value of Assets; the Funded Ratio is the ratio of the two.

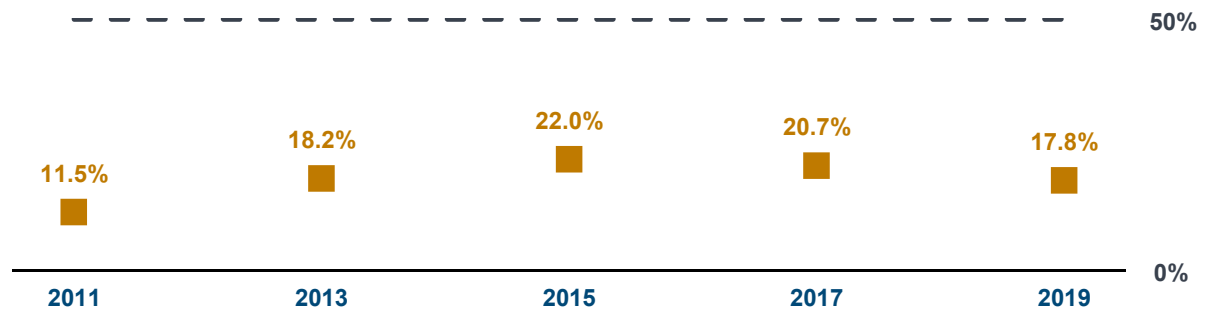
Accrued Liability (\$ millions)



Unfunded Accrued Liability (\$ millions)



Funded Ratio

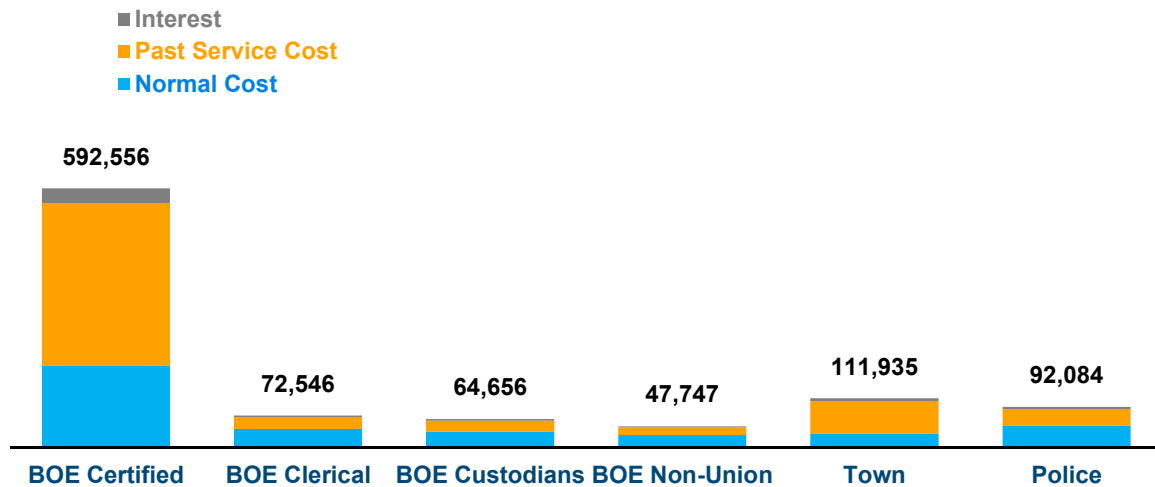


Section I - Executive Summary

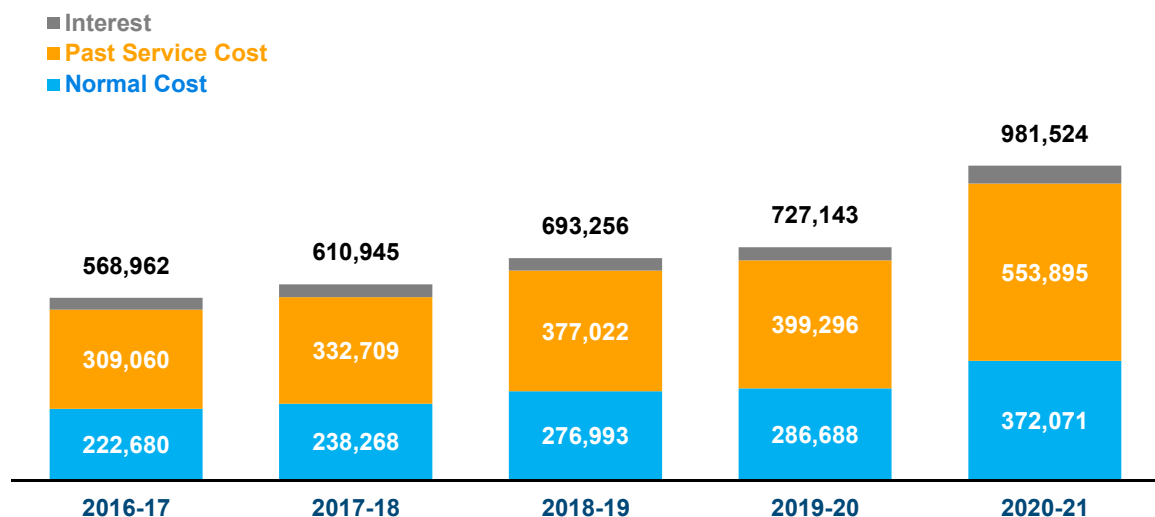
Actuarially Determined Contribution

The Actuarially Determined Contribution consists of three pieces: a Normal Cost payment to fund the benefits earned each year, a Past Service Cost to gradually reduce any unfunded or surplus liability, and Interest to reflect the timing of the contribution relative to the valuation date.

The Actuarially Determined Contribution for fiscal year 2020-21 is \$981,524, which is shown graphically below.



The chart below shows the Actuarially Determined Contribution for the past five fiscal years. Note that the Normal Cost is relatively consistent from year to year, whereas the Past Service Cost tends to be more volatile since it reflects the impact of asset performance.

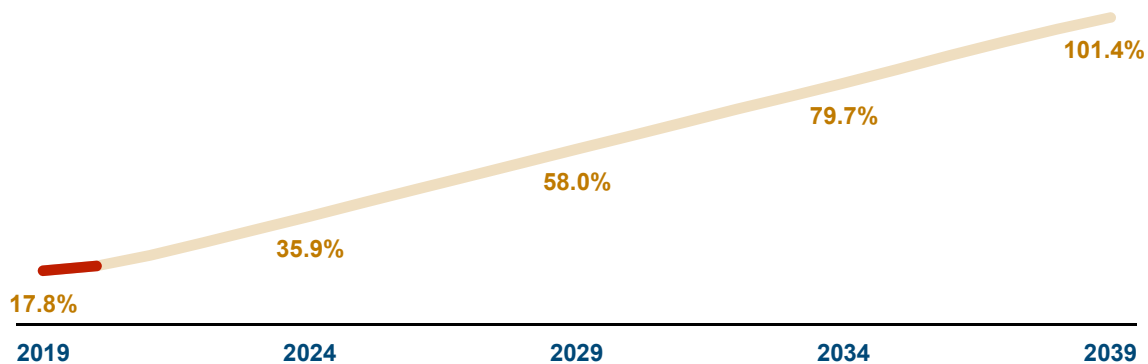


Section I - Executive Summary

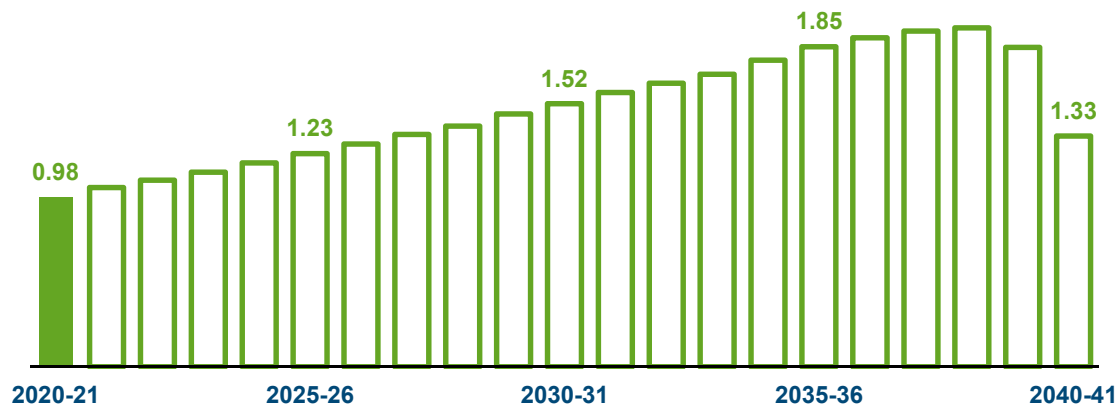
Long-Range Forecast

If the Town pays the Actuarially Determined Contribution each year, the investments earn exactly the assumed interest rate each year, and there are no changes in the plan provisions or in the actuarial methods and assumptions, then we project the following changes in the plan's funded status and the long-range contribution levels:

Funded Ratio



Actuarially Determined Contribution (\$ millions)

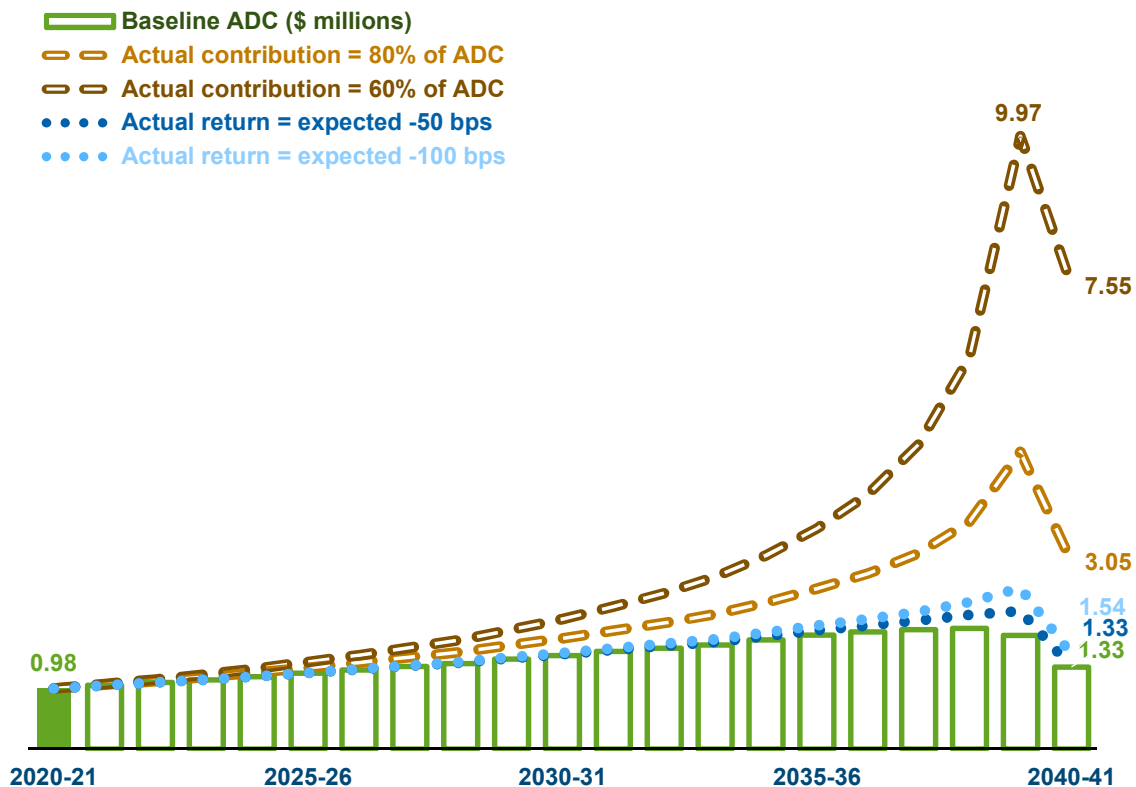


To the extent that there are future investment or liability gains or losses, changes in the actuarial assumptions or methods, or plan changes, the actual valuation results will differ from these forecasts. Please see Section III C for more details of the long range forecast.

Section I - Executive Summary

Long-Range Forecast (continued)

Benefits are paid for through a combination of contributions from the Town and from employees, and from investment income. If the Town pays less than the Actuarially Determined Contribution each year, or if the investments persistently earn less than the assumed interest rate, then the plan's funded status would suffer, and to compensate, the Town's contribution levels would be pushed higher. The risks of underfunding and underearning are illustrated in the hypothetical scenarios below:



The scenarios illustrated above are based on deterministic projections that assume emerging plan experience always exactly matches the actuarial assumptions; in particular that actual asset returns will be constant in every year of the projection period. Variation in asset returns, contribution amounts, and many other factors may have a significant impact on the long-term financial health of the plan, the liquidity constraints on plan assets, and the Town's future contribution levels. Stochastic projections could be prepared that would enable the Town to understand the potential range of future results based on the expected variability in asset returns and other factors. Such analysis was beyond the scope of this engagement.

Section I - Executive Summary Summary of Principal Results

Membership as of	July 1, 2017	July 1, 2019
Active Members	281	278
Members Receiving Benefits	<u>32</u>	<u>39</u>
Total Count	313	317
Payroll	\$20,207,961	\$21,208,110
Assets and Liabilities as of	July 1, 2017	July 1, 2019
Market Value of Assets	\$1,735,204	\$1,933,142
Actuarial Value of Assets	1,708,877	1,933,010
Accrued Liability for Active Members	3,926,621	5,552,156
Accrued Liability for Members Receiving Benefits	<u>4,312,342</u>	<u>5,295,232</u>
Total Accrued Liability	8,238,963	10,847,388
Unfunded Accrued Liability	6,530,086	8,914,378
Funded Ratio	20.7%	17.8%
Actuarially Determined Contribution for Fiscal Year	2018-19	2020-21
Normal Cost	\$276,993	\$372,071
Past Service Cost	377,022	553,895
Interest	<u>39,241</u>	<u>55,558</u>
Actuarially Determined Contribution	693,256	981,524
Allocated to BOE Certified	\$424,084	\$592,556
Allocated to BOE Clerical	41,766	72,546
Allocated to BOE Custodians	48,284	64,656
Allocated to BOE Non-Union	26,269	47,747
Allocated to Town	100,271	111,935
Allocated to Police	<u>52,582</u>	<u>92,084</u>
Total	693,256	981,524

Section II - Plan Assets

A. Summary of Fund Transactions

Market Value as of July 1, 2017	\$1,735,204
Town Contributions	518,279
Member Contributions	0
Net Investment Income	103,175
Benefit Payments	(518,279)
Administrative Expenses	0
 Market Value as of June 30, 2018	 1,838,379
Expected Return on Market Value of Assets, 2017-18	104,042
Market Value (Gain)/Loss, 2017-18	867
Approximate Rate of Return, 2017-18*	5.95%
 Market Value as of July 1, 2018	 \$1,838,379
Town Contributions	572,118
Member Contributions	0
Net Investment Income	94,763
Benefit Payments	(572,118)
Administrative Expenses	0
 Market Value as of June 30, 2019	 1,933,142
Expected Return on Market Value of Assets, 2018-19	110,403
Market Value (Gain)/Loss, 2018-19	15,640
Approximate Rate of Return, 2018-19*	5.15%

* The rates shown here are not the dollar or time weighted investment yield rate which measures investment performance. They are an approximate net return assuming all activity occurred on average midway through the fiscal year.

In order to minimize the impact of market fluctuations on the contribution level, we use an Actuarial Value of Assets that recognizes gains and losses in equal installments ('non-asymptotically') over a five year period. The Actuarial Value of Assets as of July 1, 2018 is determined below.

July 1, 2019 Actuarial Valuation Page 15
 Town of Granby Other Post-Employment Benefits Program

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Section II - Plan Assets

B. Development of Actuarial Value of Assets

The Actuarial Value of Assets as of July 1, 2019 is determined below.

1.	Expected Market Value of Assets:			
	a. Market Value of Assets as of July 1, 2018			\$1,838,379
	b. Town Contributions			572,118
	c. Benefit Payments			(572,118)
	d. Expected Earnings Based on 6.00% Interest			<u>110,403</u>
	e. Expected Market Value of Assets as of July 1, 2019			1,948,782
2.	Actual Market Value of Assets as of July 1, 2019			1,933,142
3.	Market Value (Gain)/Loss: (1e) - (2)			15,640
4.	Delayed Recognition of Market (Gains)/Losses			
			Percent Not	Amount Not
	Plan Year End	(Gain)/Loss	Recognized	Recognized
	06/30/2019	\$15,640	80%	\$12,512
	06/30/2018	867	60%	520
	06/30/2017	(32,910)	40%	(13,164)
	06/30/2016	0	20%	<u>0</u>
				(132)
5.	Actuarial Value of Assets as of July 1, 2019: (2) + (4)			1,933,010
6.	Return on Actuarial Value of Assets:			113,683
7.	Approximate Rate of Return on Actuarial Value of Assets			6.25%
8.	Actuarial Value (Gain)/Loss			(4,547)

Section III - Development of Contribution

A. Summary of Liabilities

We have calculated the Accrued Liability separately for 6 groups, who are eligible for different OPEB benefits. We have broken the accrued liability into several pieces: benefits that are expected to be paid prior to age 65 (i.e. prior to Medicare) and after age 65 (i.e. after Medicare) to current active members and their covered dependents after retirement, and the same figures for members who have already retired and are currently receiving benefits. In all cases, the Accrued Liability only reflects benefits that are paid for by the Town, taking into account any implicit rate subsidies.

	BOE Certified	BOE Clerical	BOE Custodians	BOE Non- Union	Town	Police	Total
Current active members							
Members Under Age 65	\$1,618,701	\$147,683	\$194,973	\$98,911	\$73,867	\$181,620	\$2,315,755
Members Over Age 65	368,512	148,783	151,117	89,447	459,748	461,780	1,679,387
Spouses/Dependents Under Age 65	495,767	17,170	123,724	29,484	57,271	74,460	797,876
Spouses/Dependents Over Age 65	<u>330,775</u>	<u>145,434</u>	<u>39,280</u>	<u>68,585</u>	<u>175,064</u>	<u>0</u>	<u>759,138</u>
Total	2,813,755	459,070	509,094	286,427	765,950	717,860	5,552,156
Current members receiving benefits							
Members Under Age 65	173,291	14,225	20,074	21,920	47,337	0	276,847
Members Over Age 65	2,701,652	0	0	0	732,901	231,406	3,665,959
Spouses/Dependents Under Age 65	65,203	0	28,230	19,214	116,594	0	229,241
Spouses/Dependents Over Age 65	<u>907,349</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>215,836</u>	<u>0</u>	<u>1,123,185</u>
Total	3,847,495	14,225	48,304	41,134	1,112,668	231,406	5,295,232
Total Accrued Liability	6,661,250	473,295	557,398	327,561	1,878,618	949,266	10,847,388
Accrued Liability Sensitivity							
	1% Decrease		Baseline		1% Increase		
Discount Rate	12,011,730		10,847,388		9,849,429		
Trend Rate	9,709,430		10,847,388		12,196,222		

Section III - Development of Contribution

B. Actuarially Determined Contribution

The Actuarially Determined Contribution (ADC) for the OPEB program consists of three pieces: a **Normal Cost** (the cost of benefits earned each year should be accrued in that year) plus a **Past Service Cost** (a catch-up accrual to amortize the Unfunded Accrued Liability) plus **Interest** to reflect the timing lag between the valuation date and the fiscal year.

The amortization method produces annual payments that will increase by 3.50% annually. On this basis, the ADC is determined as follows:

	BOE Certified	BOE Clerical	BOE Custodians	BOE Non- Union	Town	Police	Total
Accrued Liability	\$6,661,250	\$473,295	\$557,398	\$327,561	\$1,878,618	\$949,266	\$10,847,388
Actuarial Value of Assets (see Section II B)	658,150	41,948	145,663	44,834	685,599	356,816	1,933,010
Unfunded Accrued Liability	6,003,100	431,347	411,735	282,727	1,193,019	592,450	8,914,378
Funded Ratio	9.9%	8.9%	26.1%	13.7%	36.5%	37.6%	17.8%
Amortization Period	20	20	20	20	20	20	20
Amortization Growth Rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Past Service Cost	373,003	26,802	25,583	17,567	74,128	36,812	553,895
Normal Cost	186,012	41,638	35,413	27,477	31,471	50,060	372,071
Interest	33,541	4,106	3,660	2,703	6,336	5,212	55,558
ADC for FY 2020-21	592,556	72,546	64,656	47,747	111,935	92,084	981,524
Expected Benefit Payouts	399,397	38,922	55,820	30,194	99,723	15,245	639,301
Net Budget Impact	193,159	33,624	8,836	17,553	12,212	76,839	342,223

* The Actuarial Value of Assets is allocated to the groups in proportion to the Accrued Liability

Section III - Development of Contribution

C. Long Range Forecast

This forecast is based on the results of the July 1, 2019 actuarial valuation and assumes that the Town will pay the Actuarially Determined Contribution each year, the assets will return the assumed interest rate on a market value basis each year, and there are no future changes in the actuarial methods or assumptions or in the plan provisions. For purposes of this forecast the amortization period declines to 1 year to illustrate the progress of the plan towards becoming fully funded; in actual practice the amortization period will not be less than 10 years in order to shield the Town from contribution volatility. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

Valuation Date	Values as of the Valuation Date				Fiscal Year	Cash Flows Projected to the Following Fiscal Year			
	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio		Town Contributions	Member Contributions	Benefit Payments	Net Cash Flows
7/1/2019	\$10,847,388	\$1,933,010	\$8,914,378	17.8%	2020-21	\$981,524	\$0	(\$639,110)	\$342,414
7/1/2020	11,219,000	2,178,000	9,041,000	19.4%	2021-22	1,037,000	0	(594,000)	443,000
7/1/2021	11,601,000	2,664,000	8,937,000	23.0%	2022-23	1,080,000	0	(607,000)	473,000
7/1/2022	12,074,000	3,276,000	8,798,000	27.1%	2023-24	1,126,000	0	(625,000)	501,000
7/1/2023	12,583,000	3,956,000	8,627,000	31.4%	2024-25	1,178,000	0	(659,000)	519,000
7/1/2024	13,133,000	4,709,000	8,424,000	35.9%	2025-26	1,233,000	0	(704,000)	529,000
7/1/2025	13,712,000	5,527,000	8,185,000	40.3%	2026-27	1,288,000	0	(791,000)	497,000
7/1/2026	14,293,000	6,403,000	7,890,000	44.8%	2027-28	1,343,000	0	(801,000)	542,000
7/1/2027	14,870,000	7,299,000	7,571,000	49.1%	2028-29	1,392,000	0	(844,000)	548,000
7/1/2028	15,494,000	8,295,000	7,199,000	53.5%	2029-30	1,463,000	0	(1,009,000)	454,000
7/1/2029	16,120,000	9,356,000	6,764,000	58.0%	2030-31	1,521,000	0	(1,026,000)	495,000
7/1/2030	16,649,000	10,385,000	6,264,000	62.4%	2031-32	1,586,000	0	(1,130,000)	456,000
7/1/2031	17,247,000	11,518,000	5,729,000	66.8%	2032-33	1,639,000	0	(1,296,000)	343,000
7/1/2032	17,803,000	12,679,000	5,124,000	71.2%	2033-34	1,691,000	0	(1,243,000)	448,000
7/1/2033	18,281,000	13,794,000	4,487,000	75.5%	2034-35	1,774,000	0	(1,123,000)	651,000
7/1/2034	18,919,000	15,083,000	3,836,000	79.7%	2035-36	1,851,000	0	(1,108,000)	743,000
7/1/2035	19,772,000	16,658,000	3,114,000	84.3%	2036-37	1,903,000	0	(1,184,000)	719,000
7/1/2036	20,723,000	18,423,000	2,300,000	88.9%	2037-38	1,942,000	0	(1,305,000)	637,000
7/1/2037	21,706,000	20,268,000	1,438,000	93.4%	2038-39	1,961,000	0	(1,395,000)	566,000
7/1/2038	22,696,000	22,141,000	555,000	97.6%	2039-40	1,848,000	0	(1,487,000)	361,000

Section III - Development of Contribution

D. History of Funded Status

Valuation Date	Actuarial Value of Assets	Accrued Liability	Unfunded Accrued Liability	Funded Ratio
July 1, 2011	\$596,831	\$5,180,000	\$4,583,169	11.5%
July 1, 2012	602,622	5,224,622	4,622,000	11.5%
July 1, 2013	1,040,223	5,715,086	4,674,863	18.2%
July 1, 2014	1,182,317	5,825,811	4,643,494	20.3%
July 1, 2015	1,385,541	6,288,232	4,902,691	22.0%
July 1, 2016	1,365,480	6,477,821	5,112,341	21.1%
July 1, 2017	1,708,877	8,238,963	6,530,086	20.7%
July 1, 2018	1,819,327	8,493,312	6,673,985	21.4%
July 1, 2019	1,933,010	10,847,388	8,914,378	17.8%

Section III - Development of Contribution

E. History of Town Contributions

Fiscal Year	Actuarially Determined Contribution	Actual Town Contribution	Contribution Deficiency (Excess)
2012-13	\$500,000	\$780,000	(\$280,000)
2013-14	524,000	389,000	135,000
2014-15	526,242	661,242	(135,000)
2015-16	551,457	412,830	138,627
2016-17	568,962	707,589	(138,627)
2017-18	610,945	518,279	92,666
2018-19	693,256	572,118	121,138
2019-20	727,143	901,761	(174,618)
2020-21	981,524	TBD	TBD

Section IV - Membership Data

A. Statistics of Active Membership

		As of July 1, 2017	As of July 1, 2019
Number of Active Members	BOE Certified	178	169
	BOE Clerical	15	18
	BOE Custodians	18	18
	BOE Non-Union	12	12
	Town	45	47
	Police	<u>13</u>	<u>14</u>
	Total	281	278
Average Age	BOE Certified	45.0	45.4
	BOE Clerical	52.3	52.9
	BOE Custodians	53.1	54.5
	BOE Non-Union	49.8	51.6
	Town	55.6	54.6
	Police	44.9	47.0
	Total	47.8	48.4
Average Service	BOE Certified	11.1	11.3
	BOE Clerical	8.0	9.9
	BOE Custodians	11.6	13.3
	BOE Non-Union	10.6	10.1
	Town	12.4	11.6
	Police	10.6	11.8
	Total	11.1	11.4

Section IV - Membership Data

B. Distribution of Active Members as of July 1, 2019

BOE Certified

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25	1							1
25-29	8							8
30-34	6	9	2					17
35-39	8	10	11	2				31
40-44	7	3	7	5	1			23
45-49	5	6	7	6	4			28
50-54	6	4	8	7	5		1	31
55-59	2	3	3	4	4	1		17
60-64	1		2	4	1	1	1	10
65+	1				1		1	3
Total	45	35	40	28	16	2	3	169

BOE Clerical

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25								0
25-29								0
30-34	1							1
35-39	1		1					2
40-44								0
45-49	1							1
50-54	1	2	2					5
55-59	2	2	2	1				7
60-64					1			1
65+					1			1
Total	6	4	5	1	2	0	0	18

BOE Custodians

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25								0
25-29								0
30-34								0
35-39	1	1						2
40-44								0
45-49	1				1			2
50-54	1		2					3
55-59	1	2	2	2	1			8
60-64					2		1	3
65+								0
Total	4	3	4	2	4	0	1	18

Section IV - Membership Data

B. Distribution of Active Members as of July 1, 2019

BOE Non-Union

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25								0
25-29								0
30-34								0
35-39	1	1						2
40-44								0
45-49	1	1		2				4
50-54								0
55-59	1		1		1			3
60-64	1	1		1				3
65+								0
Total	4	3	1	3	1	0	0	12

Town

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25								0
25-29		1						1
30-34	2							2
35-39	1							1
40-44	3		3					6
45-49								0
50-54	2	2	3	1	1			9
55-59	3	5	1	2	1	1		13
60-64	1	2	1	2	1		3	10
65+	1		2	1	1			5
Total	13	10	10	6	4	1	3	47

Police

Age	Years of Service							Total
	0-4	5-9	10-14	15-19	20-24	25-29	30+	
< 25								0
25-29								0
30-34	2	1						3
35-39								0
40-44			1					1
45-49	2		1	1				4
50-54		1		1	1	1		4
55-59	1							1
60-64							1	1
65+								0
Total	5	2	2	2	1	1	1	14

Section IV - Membership Data

C. Information on Members Receiving Benefits

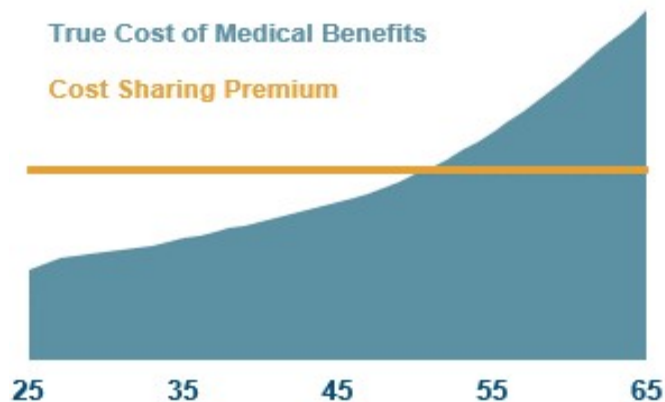
	As of July 1, 2017	As of July 1, 2019
Members Receiving Benefits		
BOE Certified	20	30
BOE Clerical	1	1
BOE Custodians	3	1
BOE Non-Union	1	1
Town	5	4
Police	<u>2</u>	<u>2</u>
Total Count	32	39
Average Age	67.5	69.7
Spouses/Dependents Receiving Benefits		
BOE Certified	12	18
BOE Clerical	0	0
BOE Custodians	2	1
BOE Non-Union	1	1
Town	4	5
Police	<u>1</u>	<u>0</u>
Total Count	20	25
Average Age	63.3	66.7

Section V - Healthcare Information

A. Introduction

In many cases, the cost sharing premium is lower than the true cost of providing the medical benefits, for two reasons:

- The cost sharing premium is usually a fixed amount such as a COBRA premium that does not take into account the age of the retiree and his/her dependents. Since medical costs generally increase with age, the cost sharing premium is often lower than the true cost of the medical benefits:



- The cost sharing premium is usually a blended rate that takes into account the cost of medical benefits for active employees as well as retirees. Medical costs are generally higher for retirees than for active employees of the same age. This means that, again, the cost sharing premium is often lower than the true cost of the medical benefits.

Because of these two factors, a retiree who is paying 100% of the cost sharing premium is most likely not paying 100% of the true cost of the medical benefits. This situation is known as an "implicit rate subsidy." GASB 74 and 75 require the plan sponsor to measure the liability for this subsidy; that is, the difference between the true cost of the medical benefits and the cost sharing premiums paid by the retiree. To do this, our valuation consists of several steps:

First, we calculate the liability for the true cost of medical benefits expected to be received by retirees and their dependents. This liability is based on factors developed by Milliman's health actuaries that reflect how the cost of medical benefits varies by age and gender, as well as the other assumptions discussed in Appendix B. We term this amount the "gross liability."

Next, we calculate the liability for the future premiums expected to be paid by the retiree for their own and their dependents' coverage. This liability is based on the current premium rates without adjustment for age or gender. It also is based on the terms of the Other Post-Employment Benefits Program – different retirees pay different percentages based on their union, date of retirement, age at retirement, and other factors. We term this amount the "offset liability."

Finally, the net liability for the Town is calculated as the difference between the gross liability and the offset liability.

Section V - Healthcare Information

B. Current Premiums

The annual medical premiums are shown below.

Medical Plan	Employee	Spouse	Effective Date
Town	\$12,727.80	\$12,728.52	7/1/2019
BOE	9,759.96	9,992.04	7/1/2019
Dental Plan			
Town	693.60	693.84	7/1/2019
BOE	761.64	761.76	7/1/2019

The premium rates (shown above) and claim amounts (displayed on the following pages) are a blend of the existing medical plans based on actual plan enrollment.

Section V - Healthcare Information

C. Expected Healthcare Costs

Milliman's Health Cost Guidelines were used to develop the expected true cost of healthcare benefits by age and gender, separately for employees and spouses. Representative healthcare cost factors are shown in the table below. These factors were then applied to the plan's healthcare rates for the year beginning July 1, 2019 to arrive at the expected annual per capita claims costs for a 65-year-old, which are also shown below.

Town and Police

Age	Employee		Spouse	
	Male	Female	Male	Female
45	0.41245	0.41245	0.44308	0.44308
50	0.51296	0.51296	0.53977	0.53977
55	0.63532	0.63532	0.65653	0.65653
60	0.78410	0.78410	0.79865	0.79865
65	1.00000	1.00000	1.00000	1.00000
70	1.10457	1.10457	1.10097	1.10097
75	1.18163	1.18163	1.17521	1.17521
80	1.21175	1.21175	1.20449	1.20449
85	1.20709	1.20709	1.19958	1.19958
90	1.19372	1.19372	1.18589	1.18589

Age 65 per capita claims cost

Pre-65	\$20,460.40	\$20,460.40	\$20,123.33	\$20,123.33
Post-65	11,386.60	11,386.60	11,282.41	11,282.41

Board of Education

Age	Employee		Spouse	
	Male	Female	Male	Female
45	0.66358	0.66358	0.45213	0.45213
50	0.66676	0.66676	0.53204	0.53204
55	0.70702	0.70702	0.63661	0.63661
60	0.81750	0.81750	0.77513	0.77513
65	1.00000	1.00000	1.00000	1.00000
70	1.18094	1.18094	1.20115	1.20115
75	1.37520	1.37520	1.41220	1.41220
80	1.56651	1.56651	1.61216	1.61216
85	1.77170	1.77170	1.82588	1.82588
90	1.95633	1.95633	2.01930	2.01930

Age 65 per capita claims cost

Pre-65	\$18,304.64	\$18,304.64	\$17,324.29	\$17,324.29
Post-65	18,906.81	18,906.81	19,642.41	19,642.41

Appendix A - Actuarial Funding Method

The actuarial funding method used in the valuation of this Plan is known as the Entry Age Normal Method. The Actuarially Determined Contribution consists of three pieces: Normal Cost plus a Past Service Cost payment to gradually eliminate the Unfunded Accrued Liability plus Interest to reflect the timing of the contribution relative to the valuation date.

The Normal Cost is determined by calculating the present value of future benefits for present active Members that will become payable as the result of death, disability, retirement or termination. This cost is then spread as a level percentage of earnings from entry age to termination as an Active Member. If Normal Costs had been paid at this level for all prior years, a fund would have accumulated. Because this fund represents the portion of benefits that would have been funded to date, it is termed the Accrued Liability. In fact, it is calculated by adding the present value of benefits for Retired Members and Terminated Vested Members to the present value of benefits for Active Members and subtracting the present value of future Normal Cost contributions.

The funding cost of the Plan is derived by making certain specific assumptions as to rates of interest, mortality, turnover, etc. which are assumed to hold for many years into the future. Since actual experience may differ somewhat from the assumptions, the costs determined by the valuation must be regarded as estimates of the true costs of the Plan.

The Unfunded Accrued Liability is the excess of the Accrued Liability over the assets which have been accumulated for the plan. This Unfunded Accrued Liability is amortized as a level percent over a closed 22 year period starting July 1, 2017. The amortization period will decrease each year until it reaches 10 years, after which time it will remain at 10 years.

The Actuarial Value of Assets is determined by recognizing market gains and losses non-asymptotically over a five year period.

The long-range forecasts included in this report have been developed by assuming that members will terminate, retire, become disabled, and die according to the actuarial assumptions with respect to these causes of decrement, and that pay increases, cost of living adjustments, and so forth will likewise occur according to the actuarial assumptions. For those unions whose new employees are eligible to participate in this plan, members who are projected to leave active employment are assumed to be replaced by new active members with the same age, service, gender, and pay characteristics as those hired in the past few years.

Appendix B - Actuarial Assumptions

Each of the assumptions used in this valuation was set based on industry standard published tables and data, the particular characteristics of the plan, relevant information from the plan sponsor or other sources about future expectations, and our professional judgment regarding future plan experience. We believe the assumptions are reasonable for the contingencies they are measuring, and are not anticipated to produce significant cumulative actuarial gains or losses over the measurement period.

Interest Rate	6.00%
Inflation	2.75%
Amortization Growth Rate	3.50%
Medical Inflation Rate	5.15% to 4.50% over 58 years
Dental Inflation Rate	3.00%

Salary Scale	Teachers and Administrators[#]																								
	<table> <tr> <th>Service</th><th>Rate</th></tr> <tr> <td>0-1</td><td>6.50%</td></tr> <tr> <td>2-9</td><td>6.25%</td></tr> <tr> <td>10-11</td><td>5.50%</td></tr> <tr> <td>12-14</td><td>5.00%</td></tr> <tr> <td>15</td><td>4.75%</td></tr> <tr> <td>16</td><td>4.50%</td></tr> <tr> <td>17</td><td>4.25%</td></tr> <tr> <td>18</td><td>4.00%</td></tr> <tr> <td>19</td><td>3.75%</td></tr> <tr> <td>20</td><td>3.50%</td></tr> <tr> <td>21+</td><td>3.25%</td></tr> </table>	Service	Rate	0-1	6.50%	2-9	6.25%	10-11	5.50%	12-14	5.00%	15	4.75%	16	4.50%	17	4.25%	18	4.00%	19	3.75%	20	3.50%	21+	3.25%
Service	Rate																								
0-1	6.50%																								
2-9	6.25%																								
10-11	5.50%																								
12-14	5.00%																								
15	4.75%																								
16	4.50%																								
17	4.25%																								
18	4.00%																								
19	3.75%																								
20	3.50%																								
21+	3.25%																								
	All Others 3.50%																								

Appendix B - Actuarial Assumptions

Turnover

Teachers and Administrators[#]: Rates based on gender and length of service for the first ten years and gender and age thereafter:

Service	Male	Female
0-1	14.00%	12.00%
1-2	11.00%	10.50%
2-3	8.00%	8.75%
3-4	6.50%	7.50%
4-5	4.50%	6.75%
5-6	3.50%	6.00%
6-7	3.00%	5.25%
7-8	2.75%	4.75%
8-9	2.50%	4.25%
10+	2.50%	4.00%

Age	Male	Female
25	1.50%	4.00%
35	1.50%	3.50%
45	1.59%	1.50%
55	3.44%	2.50%

All Others: Rates based on age and gender:

Age	Male	Female
20	6.00%	15.00%
25	4.80%	15.00%
30	3.60%	10.00%
35	2.75%	7.50%
40	2.05%	5.00%
45	1.40%	2.50%
50	0.75%	0.00%

Appendix B - Actuarial Assumptions

Retirement

Teachers and Administrators[#]

Age	Unreduced		Proratable		Reduced	
	Male	Female	Male	Female	Male	Female
50	27.50%	27.50%			1.00%	1.00%
51	27.50%	27.50%			1.00%	1.25%
52	27.50%	27.50%			1.00%	1.75%
53	27.50%	27.50%			2.00%	2.25%
54	27.50%	27.50%			3.00%	2.75%
55	38.50%	27.50%			4.00%	4.75%
56	38.50%	27.50%			6.00%	6.25%
57	38.50%	27.50%			7.00%	6.75%
58	38.50%	27.50%			8.00%	7.25%
59	38.50%	27.50%			11.00%	8.50%
60	22.00%	27.50%	6.00%	5.50%		
61	25.30%	27.50%	6.00%	6.50%		
62	25.30%	27.50%	9.00%	7.50%		
63	27.50%	27.50%	11.00%	7.50%		
64	27.50%	27.50%	10.00%	8.00%		
65	36.30%	32.50%	13.00%	12.50%		
66-67	27.50%	32.50%	20.00%	12.50%		
68	27.50%	32.50%	20.00%	12.00%		
69	27.50%	32.50%	30.00%	14.50%		
70-73	100.00%	32.50%	30.00%	14.50%		
74-79	100.00%	32.50%	30.00%	18.00%		
80	100.00%	100.00%	100.00%	100.00%		

BOE Non-Certified

Age	Rate
55-59	5%
60-61	15%
62	50%
63-64	30%
65-69	40%
70	100%

Town

Age	Rate
55-59	2%
60-61	10%
62	50%
63-64	30%
65-69	40%
70	100%

Police

Age	Rate
55	75%
56-64	20%
65	100%

Appendix B - Actuarial Assumptions

Healthy Mortality

Teachers and Administrators[#]: For healthy retirees and beneficiaries, the RPH-2014 White Collar table with employee and annuitant rates blended from ages 50 to 80 projected to the year 2020 using the BB improvement scale and further adjusted to grade in increases (5% for females and 8% for males) to rates over age 80. This assumption does not include a margin for mortality improvement beyond the valuation date. (Prior: RP-2000 projected forward 19 years using scale AA, with a two-year age setback.)

Police and Town Union: PubS-2010 Mortality Table with generational projection per MP-2014 ultimate scale, with employee rates before benefit commencement and healthy annuitant rates after benefit commencement. This assumption includes a margin for mortality improvement beyond the valuation date. (Prior: RP-2000 Combined Healthy Mortality Table with generational projection per scale AA, with separate tables for males and females.)

All Others: PubG-2010 Mortality Table with generational projection per MP-2014 ultimate scale, with employee rates before benefit commencement and healthy annuitant rates after benefit commencement. This assumption includes a margin for mortality improvement beyond the valuation date. (Prior: RP-2000 Combined Healthy Mortality Table with generational projection per scale AA, with separate tables for males and females.)

Disabled Mortality

Teachers and Administrators[#]: RPH-2014 Disabled Mortality Table projected to 2017 using the BB improvement scale. This assumption does not include a margin for mortality improvement beyond the valuation date. (Prior: RP-2000 Combined Healthy Mortality Table for males and females projected forward 19 years using Scale AA, with an eight-year age set forward for males and females.)

All Others: N/A.

Disability

Teachers and Administrators[#]: rates based on age and gender:

Age	Male	Female
20	0.0341%	0.0500%
30	0.0341%	0.0410%
40	0.0536%	0.0720%
50	0.2438%	0.2630%
60	0.9604%	0.5000%

All Others: None.

Appendix B - Actuarial Assumptions

Future Retiree Coverage 100% of **BOE** for the first 2 years and 50% thereafter, 50% of **Town** and 50% of **Police** active members are assumed to elect coverage at retirement.

Future Dependent Coverage Current active members are assumed to elect dependent coverage at retirement as follows. All female spouses are assumed to be three years younger than males.

	Male	Female
Teachers and Administrators	50%	50%
BOE Non-Certified	50%	50%
Town	70%	50%
Police	100%	100%

Future Post-65 Coverage **Teachers and Administrators:** 50% of current actives and pre-65 retirees are assumed to continue retiree health coverage at age 65. 100% of current actives and pre-65 retirees are assumed to be Medicare-eligible.

All Others: 100% of current actives and pre-65 retirees are assumed to continue retiree health coverage at age 65 (when applicable).

Valuation of Life, Dental and Post-65 Medicare Eligible Medical Benefits It is assumed that there is no implicit rate subsidy associated with life/dental benefits, or with post-65 medical benefits for Medicare eligible retired members and their spouses who are paying 100% of the premium.

Certain actuarial demographic assumptions for **Teachers** and **Administrators** are based on the assumptions used in the June 30, 2018 valuation of the Connecticut State Teachers' Retirement System.

Appendix C - Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan. It is not intended to be, nor should it be interpreted as a complete statement of all plan provisions. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

Eligibility

BOE Certified (Teachers and Administrators) A Teacher or Administrator retiring under the Connecticut State Teachers' Retirement System shall be eligible to receive health benefits for self and spouse.

Normal Retirement for Teachers and Administrators is the earliest of age 60 with 20 years of service, or completion of 35 years of service regardless of age. Early Retirement is the earliest of age 60 with 10 years of service, any age with 25 years of service, or age 55 with 20 years of service.

Education Support Personnel (ESP) employees are not eligible for post-employment benefits.

BOE Clerical (SEIU) Category A and B retirees with at least 15 years of full-time employment in the Granby Public Schools are eligible to continue health and life insurance coverage.

BOE Custodians (UPSEU) A retired member shall be eligible to continue health and life insurance coverage.

BOE Non-Union A retired member shall be eligible to continue health benefits for self and spouse, when applicable per individual contract. The School Business Manager shall be eligible to continue health and life insurance coverage upon retirement.

Town (GMEA, UPSEU and Non-Union) and Police (IBPO) Retired members are eligible to continue health coverage as long as their coverage is uninterrupted and does not cause adverse effect on the group's experience as determined by the Town.

Appendix C - Summary of Plan Provisions

Cost-Sharing

Teachers

Medical Retiree contributes 21% of the PPO cost and 16.5% of the HSA cost.

Dental Retiree contributes 21% of the cost.

The above cost-sharing applies for two years following retirement. Thereafter, the retiree shall contribute 100% of the cost.

Administrators

Medical Retiree contributes 18% of the cost (prior: Board contributes 100% of the cost).

Dental Retiree contributes 22% of the cost (prior: Board contributes 100% of the cost).

The above cost-sharing applies for two years following retirement. Thereafter, the retiree shall contribute 100% of the cost.

BOE Clerical and Custodians

Medical Retiree contributes 22.5% of the PPO cost (prior: 20.5%), and 16% (Clerical and Custodians) of the HSA cost.

Dental Retiree contributes 21.5% of the cost (prior: 21%).

The above cost-sharing applies for two years following retirement. Thereafter, the retiree shall contribute 100% of the cost.

BOE Non-Union

The above cost-sharing for Clerical and Custodians applies. The School Business Manager will contribute the same premium share as active Administrators for the two years following retirement. Thereafter the School Business Manager shall contribute 100% of the cost as long as the coverage is uninterrupted.

Town GMEA

Medical Retiree contributes 100% of the cost.

Town UPSEU

Medical Retiree contributes 100% of the cost.

Dental Retiree contributes 100% of the cost.

Appendix C - Summary of Plan Provisions

Cost-Sharing

Town Non-Union

Date of Hire prior to September 1, 2002:

Medical	Retiree contributes 15% of the cost.
Dental	Retiree contributes 15% of the cost.

Date of Hire after September 1, 2002:

Medical	Retiree contributes 100% of the cost.
Dental	Retiree contributes 100% of the cost.

Police (IBPO)

The Town shall contribute 50% of the cost of PPO insurance for the retiree only. The retiree shall contribute the remainder of the cost.

Life Insurance

In the event of an employee's death in the line of duty, the Town shall Retirees may continue coverage (if applicable), based on the terms of their respective collective bargaining agreements. In general, if coverage continuation is permitted, then the retiree contributes 100% of the cost after two years.

Appendix D - Glossary

Actuarial Cost Method - This is a procedure for determining the Actuarial Present Value of Benefits and allocating it to time periods to produce the Actuarial Accrued Liability and the Normal Cost.

Accrued Liability - This is the portion of the Actuarial Present Value of Benefits attributable to periods prior to the valuation date by the Actuarial Cost Method (i.e., that portion not provided by future Normal Costs).

Actuarial Assumptions - With any valuation of future benefits, assumptions of anticipated future events are required. If actual events differ from the assumptions made, the actual cost of the plan will vary as well. Some examples of key assumptions include the interest rate, salary scale, and rates of mortality, turnover and retirement.

Actuarial Present Value of Benefits - This is the present value, as of the valuation date, of future payments for benefits and expenses under the Plan, where each payment is: a) multiplied by the probability of the event occurring on which the payment is conditioned, such as the probability of survival, death, disability, termination of employment, etc.; and b) discounted at the assumed interest rate.

Actuarial Value of Assets - This is the value of cash, investments and other property belonging to the plan, typically adjusted to recognize investment gains or losses over a period of years to dampen the impact of market volatility on the Actuarially Determined Contribution.

Actuarially Determined Contribution ("ADC") - This is the employer's periodic contributions to a defined benefit plan, calculated in accordance with actuarial standards of practice.

Attribution Period - The period of an employee's service to which the expected benefit obligation for that employee is assigned. The beginning of the attribution period is the employee's date of hire and costs are spread across all employment.

Interest Rate - This is the long-term expected rate of return on any investments set aside to pay for the benefits. In a financial reporting context (e.g., GASB 68) this is termed the Discount Rate.

Normal Cost - This is the portion of the Actuarial Present Value of Benefits allocated to a valuation year by the Actuarial Cost Method.

Past Service Cost - This is a catch-up payment to fund the Unfunded Accrued Liability over time (generally 10 to 30 years). A closed amortization period is a specific number of years counted from one date and reducing to zero with the passage of time; an open amortization period is one that begins again or is recalculated at each valuation date. Also known as the Amortization Payment.

Return on Plan Assets - This is the actual investment return on plan assets during the fiscal year.

Unfunded Accrued Liability - This is the excess of the Accrued Liability over the Actuarial Value of Assets.