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June 11, 2019

PERSONAL & CONFIDENTIAL

Mr. John D. Ward
Town Manager
Town of Granby
15 North Granby Road
Granby, CT 06035-2125

Re: Town of Granby Pension Plan

Dear John:

At your request, we have performed an actuarial valuation of the Town of Granby Pension Plan as of July 1, 2018 for the Fiscal Year ending June 30, 2020. The results of the valuation are contained in the following report.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read "Teresa Medeiros".

Teresa Medeiros, FSA
Consulting Actuary



TOWN OF GRANBY PENSION PLAN

**Actuarial Valuation as of July 1, 2018
For Fiscal Year 2019-20**

Prepared by

Teresa M. Medeiros, FSA
Consulting Actuary

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Certification

We have performed an actuarial valuation of the Plan as of July 1, 2018 for fiscal year 2019-20. This report presents the results of our valuation.

The ultimate cost of a pension plan is the total amount needed to provide benefits for plan members and beneficiaries and to pay the expenses of administering the plan. Pension 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 government regulations. In addition, this report provides:

- A valuation of plan assets and liabilities to review the year-to-year progress of funding.
- Information needed to meet disclosure requirements.
- Review of plan experience for the previous year 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.

Milliman's work is prepared solely for the internal business use of the Town. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception(s): (a) the Town may provide a copy of Milliman's work, in its entirety, to the Town's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the Town; and (b) the Town may provide a copy of Milliman's work, in its entirety, to other governmental entities, as required by law. No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

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 ERISA and the related sections of the tax code. Additional determinations may be needed for purposes other than meeting funding requirements, 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.

I further certify that, in my opinion, each actuarial assumption, method and technique used is reasonable taking into account the experience of the Plan and reasonable expectations or would, in the aggregate, result in a total contribution equivalent to that which would be determined if each such assumption, method, or technique were reasonable. 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 pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuary is independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

I am a member of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.



Teresa M. Medeiros, FSA
Consulting Actuary

Section I - Executive Summary

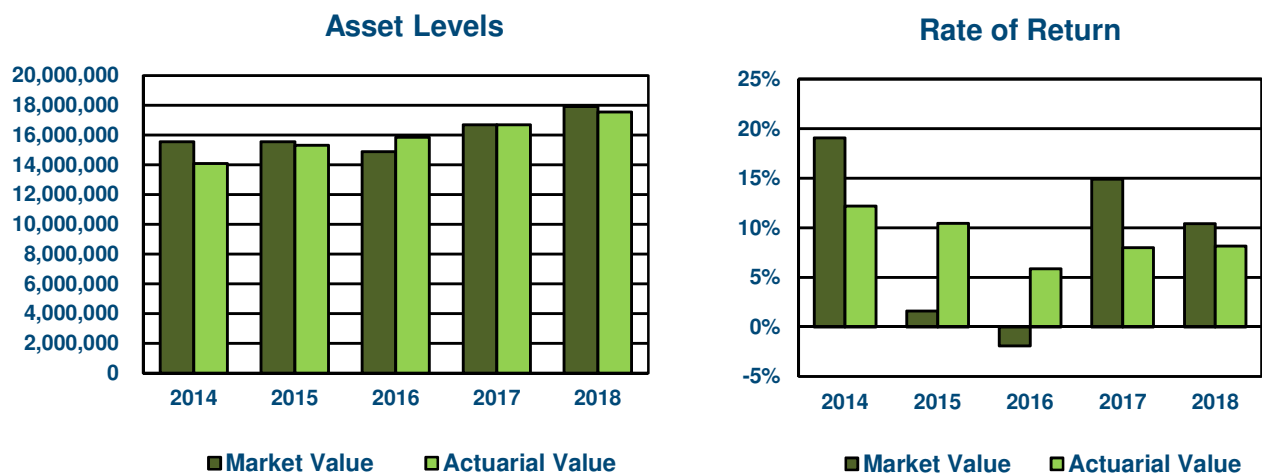
A. Highlights

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 over five years.

	Market	Actuarial
Value as of July 1, 2017	\$16,683,016	\$16,699,864
Contributions	679,075	679,075
Investment Income	1,711,725	1,341,080
Benefit Payments	(1,156,074)	(1,156,074)
Value as of July 1, 2018	17,917,742	17,563,945

For fiscal year 2017-18, the plan's assets earned 10.409% on a Market Value basis and 8.147% on an Actuarial Value basis. The actuarial assumption for this period was 7.125%; the result is an asset gain of \$540,000 on a Market Value basis and a gain of \$168,200 on an Actuarial Value basis. Historical asset values are shown in the graph below to the left; historical returns are shown in the graph below to the right.



Please note that the Actuarial Value currently is less than the Market Value by \$353,800. This figure represents investment gains that will be gradually recognized over the next five years. This process will exert downward pressure on the Town's contribution, unless there are offsetting market losses.

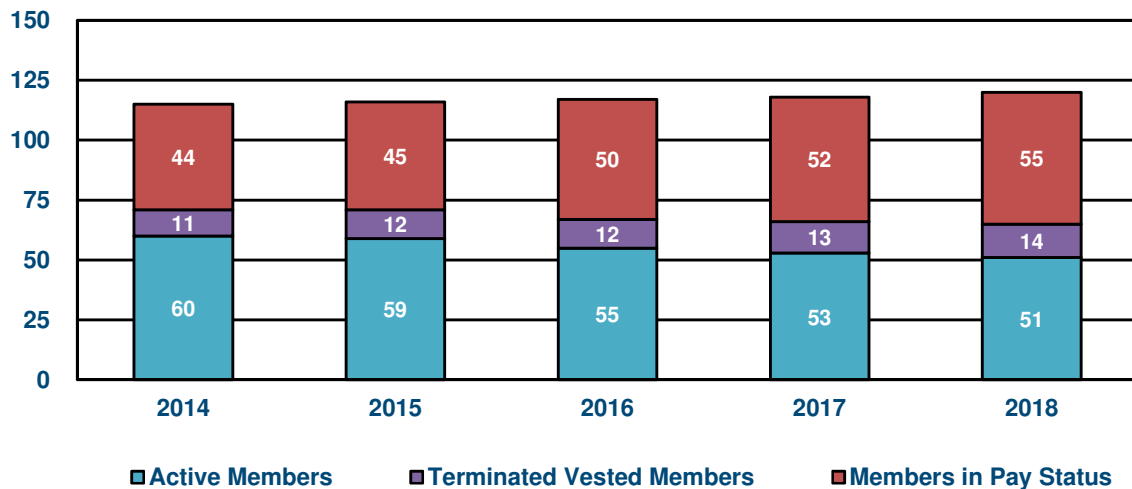
Section I - Executive Summary

A. Highlights

Membership

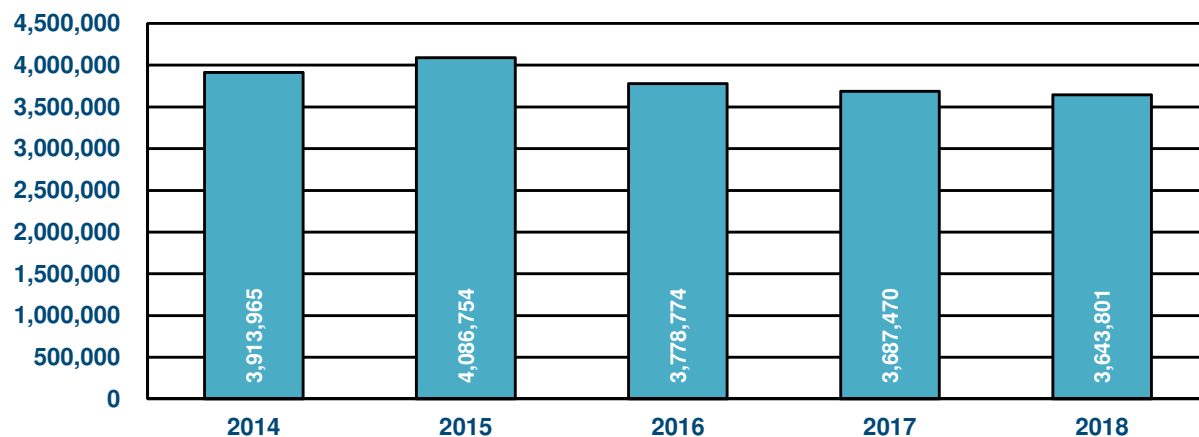
There are three basic categories of plan members included in the actuarial valuation: (1) active employees who have met the eligibility requirements for membership, (2) former employees who have a vested right to benefits but have not yet started collecting, and (3) members who are receiving monthly pension benefits.

Number of Members



From July 1, 2017 to July 1, 2018, the overall membership increased from 118 to 120. During this period, there were 5 new members offset by 4 members who retired, 1 member who terminated with benefits due, and 2 members who terminated and who are due a return of employee contributions. Further, 1 terminated vested was cashed out, 1 retiree died without a beneficiary and 1 beneficiary died.

Payroll



Section I - Executive Summary

A. Highlights

Plan Changes

None.

Changes in Actuarial Methods or Assumptions

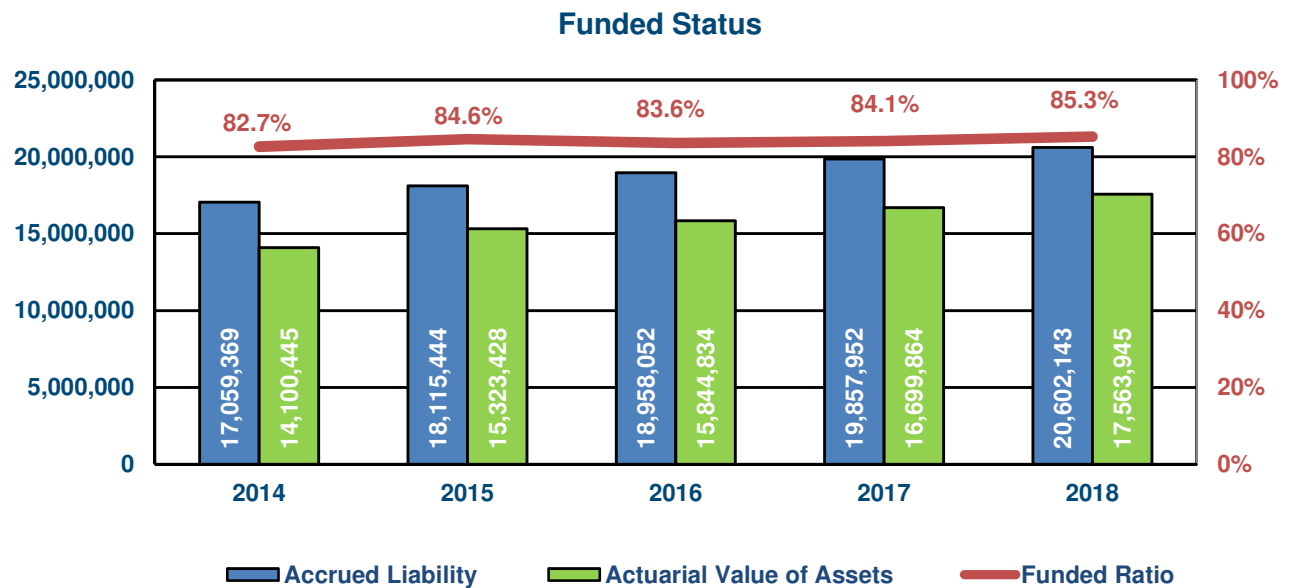
In order to better anticipate future plan experience, we lowered the interest rate assumption from 7.125% to 7.000%. Over the next few years, the interest rate assumption will continue to be reduced gradually. The impact of this change was to increase the Unfunded Accrued Liability by about \$243,000 and to increase the Actuarially Determined Contribution by approximately \$32,000.

Section I - Executive Summary

A. Highlights

Funded Status

The chart below shows the plan's Accrued Liability and Actuarial Value of Assets for the past few years.



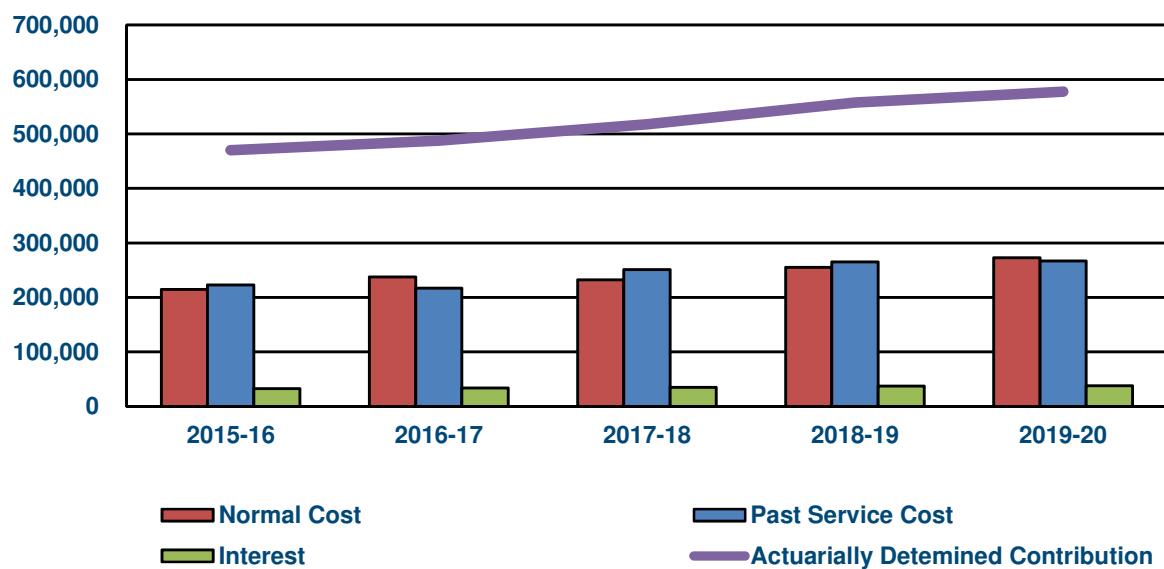
Section I - Executive Summary

A. Highlights

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 the end of the year. If the plan has a sufficiently large surplus, the Past Service Cost may be large enough to cover the Normal Cost, in which case no contribution is required.

Contribution levels for the current year and the past few fiscal years are shown below.

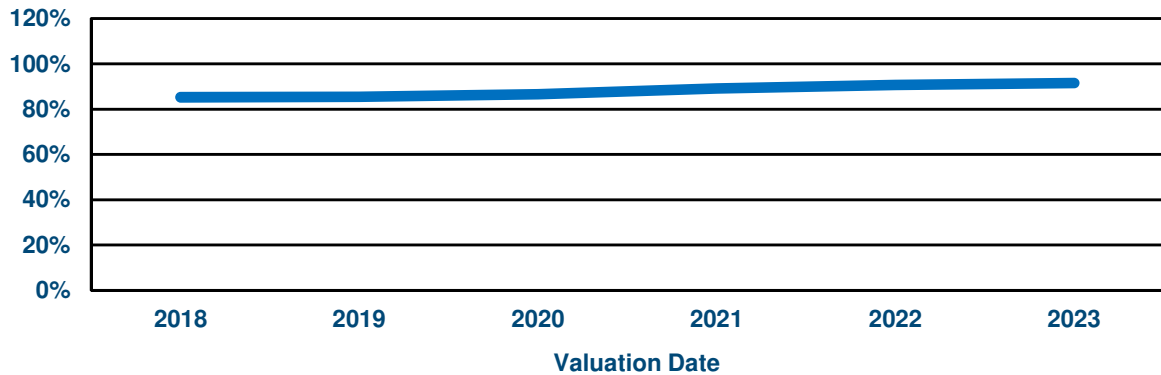


Section I - Executive Summary

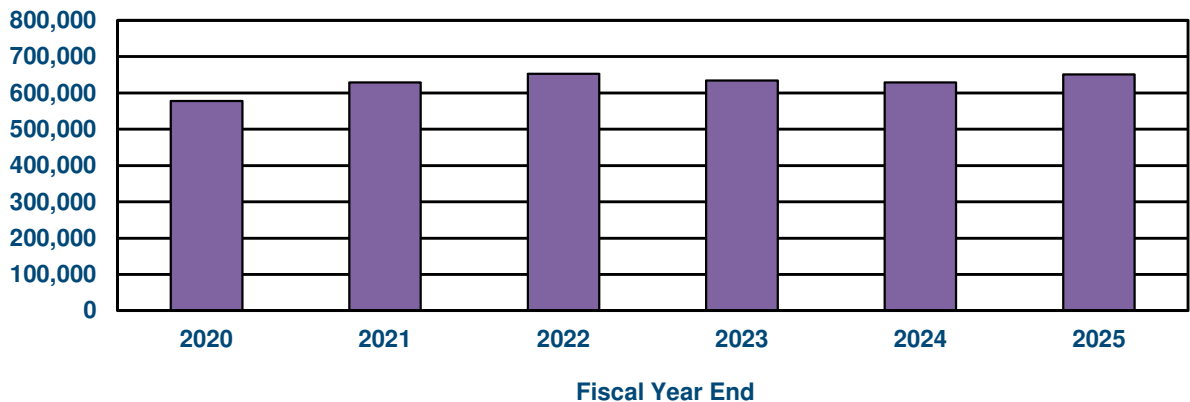
A. Highlights

Long Range Forecast

Funded Ratio



Actuarially Determined Contribution



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

B. Summary of Principal Results

Membership	July 1, 2017	July 1, 2018
Active Members	53	51
Terminated Vested Members	13	14
Members in Pay Status	52	55
Payroll	\$3,687,470	\$3,643,801
Assets and Liabilities	July 1, 2017	July 1, 2018
Market Value of Assets	\$16,683,016	\$17,917,742
Actuarial Value of Assets	16,699,864	17,563,945
Accrued Liability for Active Members	\$8,783,502	\$8,136,273
Accrued Liability for Terminated Vested Members	440,348	363,021
Accrued Liability for Members in Pay Status	10,634,102	12,102,849
Total Accrued Liability	19,857,952	20,602,143
Unfunded Accrued Liability	3,158,088	3,038,198
Funded Ratio	84.1%	85.3%
Actuarially Determined Contribution for Fiscal Year	2018-19	2019-20
Normal Cost	\$255,178	\$272,815
Past Service Cost	264,968	266,977
Interest	37,060	37,785
Actuarially Determined Contribution	557,206	577,577
Allocation of Actuarially Determined Contribution*		
General Government and Police	\$303,677	\$320,613
Board of Education	253,529	256,964

* Allocated in proportion to payroll.

Section II - Plan Assets

A. Summary of Fund Transactions

	Plan Investments	Accrued Contributions	Market Value
Market Value as of July 1, 2017	\$16,682,544	\$472	\$16,683,016
Employer Contributions	517,850	(472)	517,378
Employee Contributions	156,404	5,293	161,697
Benefit Payments	(1,156,074)	0	(1,156,074)
Interest	2,549	0	2,549
Dividends	329,245	0	329,245
Net Appreciation/Depreciation	1,426,726	0	1,426,726
Accrued Income	642	0	642
Investment Expenses	(47,437)	0	(47,437)
Administrative Expenses	0	0	0
Market Value as of July 1, 2018	17,912,449	5,293	17,917,742
Approximate Rate of Return			10.409%

Note: The rate shown here is not the dollar or time weighted investment yield rate which measures investment performance. It is an approximate net return assuming all activity occurred on average midway through the fiscal year.

Section II - Plan Assets

B. Development of Actuarial Value of Assets

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 over a five year period. The Actuarial Value of Assets as of July 1, 2018 is determined below.

1. Expected Market Value of Assets:			
a. Market Value of Assets as of July 1, 2017			\$16,683,016
b. Employer and Employee Contributions			679,075
c. Benefit Payments			(1,156,074)
d. Expected Investment Return Based on 7.125% Interest			<u>1,171,682</u>
e. Expected Market Value of Assets as of July 1, 2018			17,377,699
2. Actual Market Value of Assets as of July 1, 2018			17,917,742
3. Market Value Gain/(Loss): (2) - (1e)			540,043
4. Delayed Recognition of Market Gains/(Losses):			
		Percent Not	Amount Not
Plan Year End	Gain/(Loss)	Recognized	Recognized
06/30/2018	\$540,043	80%	\$432,034
06/30/2017	1,125,071	60%	675,043
06/30/2016	(1,429,563)	40%	(571,825)
06/30/2015	(907,273)	20%	<u>(181,455)</u>
			353,797
5. Actuarial Value of Assets as of July 1, 2018: (2) - (4)			17,563,945
6. Approximate Rate of Return on Actuarial Value of Assets			8.147%
7. Actuarial Value Gain/(Loss)			168,232

Section III - Development of Contribution

A. Past Service Cost

For determining the Past Service Cost, the Unfunded Accrued Liability is amortized as a level percent over a period of 22 years starting on July 1, 2010.

	July 1, 2017	July 1, 2018
1. Accrued Liability		
Active Members	\$8,783,502	\$8,136,273
Terminated Vested Members*	440,348	363,021
Retired Members	9,916,758	11,261,507
Disabled Members	0	0
Beneficiaries of Deceased Members	<u>717,344</u>	<u>841,342</u>
Total	19,857,952	20,602,143
2. Actuarial Value of Assets (see Section II B)	16,699,864	17,563,945
3. Unfunded Accrued Liability: (1) - (2)	3,158,088	3,038,198
4. Funded Ratio: (2) / (1)	84.1%	85.3%
5. Amortization Period	15	14
6. Amortization Growth Rate	3.50%	3.50%
7. Past Service Cost: (3) amortized over (5)	264,968	266,977

* Includes liability for former members who are due refunds.

Section III - Development of Contribution

B. Actuarially Determined Contribution

	Fiscal Year 2018-19	Fiscal Year 2019-20
1. Total Normal Cost	\$433,460	\$450,958
2. Expected Employee Contributions	178,282	178,143
3. Net Normal Cost: (1) + (2)	255,178	272,815
4. Past Service Cost (see Section III A)	264,968	266,977
5. Interest on (3) + (4) to start of next fiscal year	37,060	37,785
6. Actuarially Determined Contribution: (3) + (4) + (5)	557,206	577,577
7. Allocation of Actuarially Determined Contribution*		
Town	303,677	320,613
Board of Education	253,529	256,964

* Allocated in proportion to payroll.

Section III - Development of Contribution

C. Long Range Forecast

This forecast is based on the results of the July 1, 2018 actuarial valuation and assumes that the Town will pay the Actuarially Determined Contribution each year, the assets will return 7.000% on a market value basis each year, there are no future changes in the actuarial methods or assumptions or in the plan provisions, and all new employees will elect to participate in the defined benefit plan. 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 Ending	Cash Flows Projected to the Following Fiscal Year			
	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio		Town Contributions	Employee Contributions	Benefit Payments	Net Cash Flows
7/1/2018	\$20,602,143	\$17,563,945	\$3,038,198	85.3%	2020	\$577,577	\$184,453	(\$1,358,576)	(\$596,546)
7/1/2019	21,134,000	18,057,000	3,077,000	85.4%	2021	629,000	193,000	(1,420,000)	(598,000)
7/1/2020	21,704,000	18,785,000	2,919,000	86.6%	2022	653,000	197,000	(1,489,000)	(639,000)
7/1/2021	22,272,000	19,845,000	2,427,000	89.1%	2023	634,000	203,000	(1,573,000)	(736,000)
7/1/2022	22,820,000	20,687,000	2,133,000	90.7%	2024	629,000	204,000	(1,691,000)	(858,000)
7/1/2023	23,352,000	21,373,000	1,979,000	91.5%	2025	651,000	211,000	(1,748,000)	(886,000)
7/1/2024	23,814,000	21,980,000	1,834,000	92.3%	2026	667,000	217,000	(1,787,000)	(903,000)
7/1/2025	24,275,000	22,602,000	1,673,000	93.1%	2027	691,000	224,000	(1,824,000)	(909,000)
7/1/2026	24,747,000	23,249,000	1,498,000	93.9%	2028	718,000	231,000	(1,889,000)	(940,000)
7/1/2027	25,240,000	23,935,000	1,305,000	94.8%	2029	742,000	241,000	(1,923,000)	(940,000)
7/1/2028	25,725,000	24,637,000	1,088,000	95.8%	2030	766,000	248,000	(1,962,000)	(948,000)
7/1/2029	26,236,000	25,388,000	848,000	96.8%	2031	789,000	258,000	(2,001,000)	(954,000)
7/1/2030	26,770,000	26,184,000	586,000	97.8%	2032	822,000	267,000	(2,026,000)	(937,000)
7/1/2031	27,332,000	27,029,000	303,000	98.9%	2033	856,000	267,000	(2,117,000)	(994,000)
7/1/2032	27,936,000	27,952,000	(16,000)	100.1%	2034	537,000	282,000	(2,162,000)	(1,343,000)
7/1/2033	28,498,000	28,880,000	(382,000)	101.3%	2035	577,000	295,000	(2,159,000)	(1,287,000)
7/1/2034	29,093,000	29,512,000	(419,000)	101.4%	2036	614,000	297,000	(2,223,000)	(1,312,000)
7/1/2035	29,772,000	30,246,000	(474,000)	101.6%	2037	619,000	312,000	(2,257,000)	(1,326,000)
7/1/2036	30,441,000	31,006,000	(565,000)	101.9%	2038	643,000	322,000	(2,303,000)	(1,338,000)
7/1/2037	31,164,000	31,803,000	(639,000)	102.1%	2039	662,000	336,000	(2,340,000)	(1,342,000)

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.

Section IV - Accounting Information

A. Notes to Required Supplementary Information

The information presented in Section IV has been determined as part of the actuarial valuations at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date	July 1, 2018
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level percent
Amortization Period	Closed 22 years from July 1, 2010
Asset Valuation Method	5 year smoothing of market gains/losses
Actuarial Assumptions	
Investment Rate of Return	7.000%
Projected Salary Increases	3.50%
Amortization Growth Rate	3.50%
Inflation	2.75%
Cost-of-Living Adjustments	None

Section IV - Accounting Information

B. Historical Schedule of Funding Progress

		(1)	(2)	(3)	(4)	(5)	(6)
Actuarial Valuation Date	For Fiscal Year	Actuarial Value of Assets	Actuarial Accrued Liability (AAL)	Unfunded AAL (UAAL) (2) - (1)	Funded Ratio (1) / (2)	Covered Payroll	UAAL as a Percentage of Covered Payroll (3) / (5)
07/01/2009	2010-11	\$11,434,769	\$13,775,802	\$2,341,033	83.0%	\$3,735,252	62.7%
07/01/2010	2011-12	11,574,971	14,205,226	2,630,255	81.5%	3,402,929	77.3%
07/01/2011	2012-13	12,140,206	15,118,477	2,978,271	80.3%	3,637,892	81.9%
07/01/2012	2013-14	12,359,518	15,660,430	3,300,912	78.9%	3,409,422	96.8%
07/01/2013	2014-15	12,780,404	16,255,832	3,475,428	78.6%	3,311,487	105.0%
07/01/2014	2015-16	14,100,445	17,059,369	2,958,924	82.7%	3,913,965	75.6%
07/01/2015	2016-17	15,323,428	18,115,444	2,792,016	84.6%	4,086,754	68.3%
07/01/2016	2017-18	15,844,834	18,958,052	3,113,218	83.6%	3,778,774	82.4%
07/01/2017	2018-19	16,699,864	19,857,952	3,158,088	84.1%	3,687,470	85.6%
07/01/2018	2019-20	17,563,945	20,602,143	3,038,198	85.3%	3,643,801	83.4%

Section IV - Accounting Information

C. Schedule of Employer Contributions

	(1)	(2)	(3)	(4)	(5)
Fiscal Year Ending June 30	Actuarially Determined Contribution	Contribution in Relation to the Actuarially Determined Contribution	Contribution Deficiency/ (Excess) (1) - (2)	Covered Payroll	Contribution as a Percentage of Covered Payroll (2) / (4)
2011	\$286,664	\$286,664	\$0	\$3,735,252	8%
2012	359,226	359,226	0	3,402,929	11%
2013	361,909	361,909	0	3,637,892	10%
2014	448,025	448,025	0	3,409,422	13%
2015	456,702	456,702	0	3,311,487	14%
2016	470,130	470,130	0	3,913,965	12%
2017	487,591	487,591	0	4,086,754	12%
2018	517,850	517,378	472	3,778,774	14%
2019	557,206	TBD	TBD	3,687,470	TBD
2020	577,577	TBD	TBD	3,643,801	TBD

Section IV - Accounting Information

D. Accrued and Vested Benefits

The actuarially computed Value of Accrued Benefits represents the present value of (a) the benefits based on earnings and service to date expected to become payable at future dates to present employees, (b) the benefits expected to become payable to former employees who have terminated service with vested rights or who have become inactive, and (c) the benefits currently payable to retired participants and beneficiaries.

	As of July 1, 2017	As of July 1, 2018
1. Value of Vested Benefits		
Active Members	\$6,865,036	\$5,993,962
Terminated Vested Members*	440,348	363,021
Retired Members	9,916,758	11,261,507
Disabled Members	0	0
Beneficiaries of Deceased Members	<u>717,344</u>	<u>841,342</u>
Total Value of Vested Benefits	17,939,486	18,459,832
2. Value of Non-Vested Benefits	98,150	302,274
3. Total Value of Accrued Benefits: (1) + (2)	18,037,636	18,762,106
4. Market Value of Assets	16,683,016	17,917,742
5. Vested Funded Ratio: (4) / (1)	93.0%	97.1%
6. Accrued Funded Ratio: (4) / (3)	92.5%	95.5%

* Includes liability for former members who are due refunds.

Section IV - Accounting Information
E. Statement of Changes in Accrued Plan Benefits

Increase/(Decrease) during the 2017-2018 plan year attributable to:

Increase for interest due to the decrease in the discount period	\$1,244,705
Benefits Accumulated/(Forfeited)	414,171
Benefit Payments	(1,156,074)
Plan Amendments	0
Changes in Actuarial Assumptions	221,668
Net Increase/(Decrease)	724,470

Value of Accrued Plan Benefits:

July 1, 2018	\$18,762,106
July 1, 2017	18,037,636
Net Increase/(Decrease)	724,470

Section V - Membership Data

A. Reconciliation of Membership from Prior Valuation

Details of the changes in the Plan membership since the last valuation are shown below. Additional details on the Plan membership are provided in the remainder of Section V.

	Active	Due Refund	Term. Vested	Retirees	Disabled	Bene-ficiaries	Total
General Government							
Count as of July 1, 2017	15	0	3	16	0	2	36
Terminated, paid refund	-	-	-	-	-	-	0
Terminated, benefits due	-	-	-	-	-	-	0
Retired	(1)	-	-	1	-	-	0
Died, with beneficiary	-	-	-	-	-	-	0
Died, no beneficiary	-	-	-	-	-	-	0
New member	-	-	-	-	-	-	0
Correction	-	-	-	-	-	-	0
Count as of July 1, 2018	14	0	3	17	0	2	36
Board of Education							
Count as of July 1, 2017	28	6	1	26	0	2	63
Terminated, paid refund	-	-	(1)	-	-	-	(1)
Terminated, benefits due	(1)	-	1	-	-	-	0
Retired	(3)	-	-	3	-	-	0
Died, with beneficiary	-	-	-	-	-	-	0
Died, no beneficiary	-	-	-	(1)	-	(1)	(2)
New member	4	-	-	-	-	-	4
Correction	-	-	-	-	-	-	0
Count as of July 1, 2018	28	6	1	28	0	1	64
Police							
Count as of July 1, 2017	10	1	1	5	0	1	18
Terminated, paid refund	-	-	-	-	-	-	0
Terminated, benefits due	(2)	2	-	-	-	-	0
Retired	-	-	-	-	-	-	0
Died, with beneficiary	-	-	-	-	-	-	0
Died, no beneficiary	-	-	-	-	-	-	0
New member	1	-	-	-	-	-	1
Correction	-	-	-	-	-	-	0
Count as of July 1, 2018	9	3	1	5	0	1	19

Section V - Membership Data

B. Statistics of Active Membership

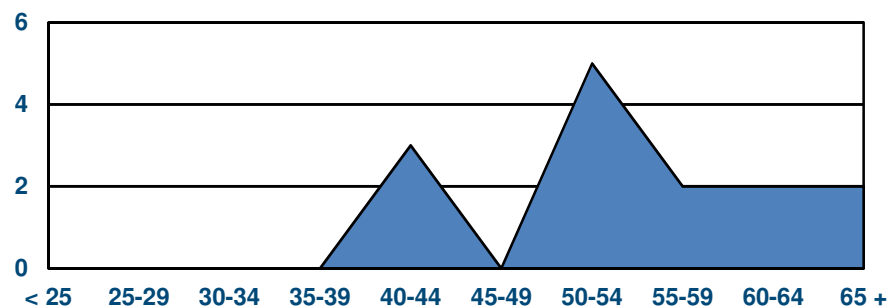
	As of July 1, 2017	As of July 1, 2018
Number of Active Members		
General Government	15	14
Board of Education	28	28
Police	<u>10</u>	<u>9</u>
Total	53	51
Total Annual Compensation		
General Government	\$1,165,725	\$1,081,619
Board of Education	1,665,697	1,671,925
Police	<u>856,048</u>	<u>890,257</u>
Total	3,687,470	3,643,801
Average Compensation		
General Government	\$77,715	\$77,259
Board of Education	59,489	59,712
Police	85,605	98,917
Total	69,575	71,447
Average Age		
General Government	53.8	54.3
Board of Education	54.3	54.0
Police	42.8	46.2
Total	52.0	52.7
Average Service		
General Government	16.4	16.4
Board of Education	13.2	11.4
Police	10.9	12.5
Total	13.7	13.0

Section V - Membership Data

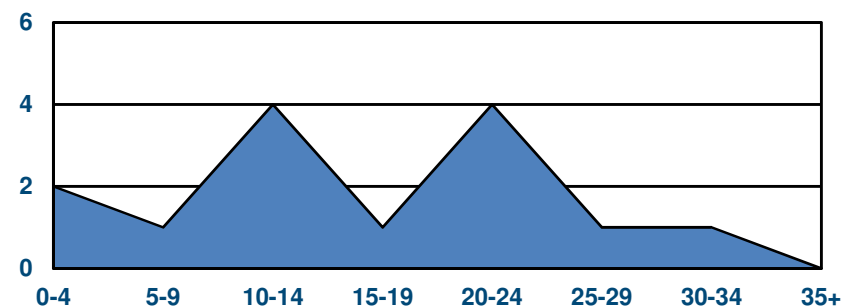
C. Distribution of Active Members as of July 1, 2018 - General Government

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

Distribution By Age



Distribution by Years of Service

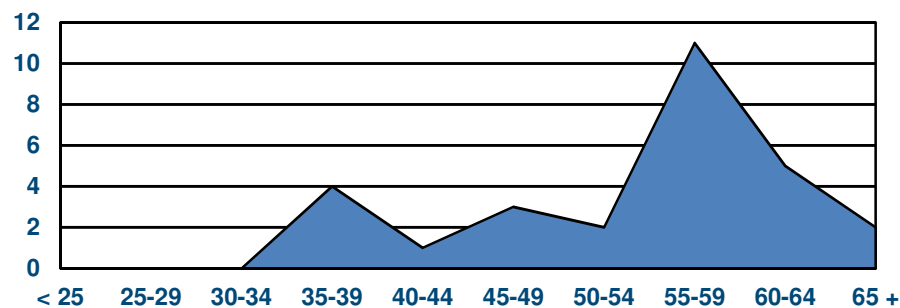


Section V - Membership Data

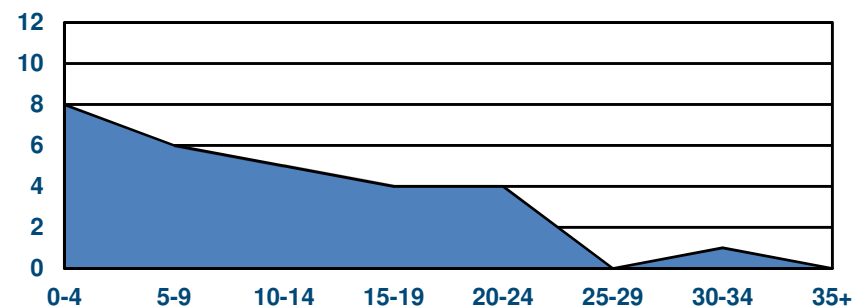
C. Distribution of Active Members as of July 1, 2018 - Board of Education

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

Distribution By Age



Distribution by Years of Service

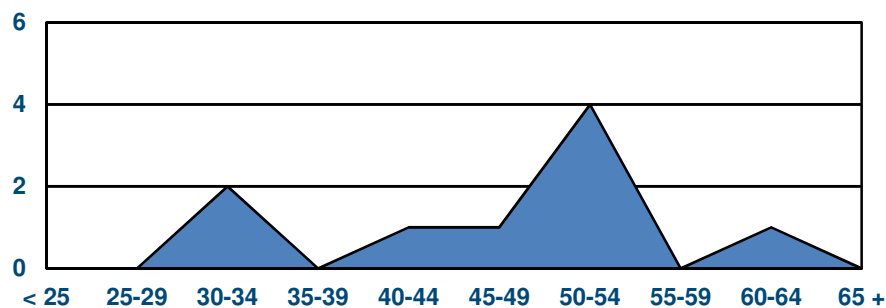


Section V - Membership Data

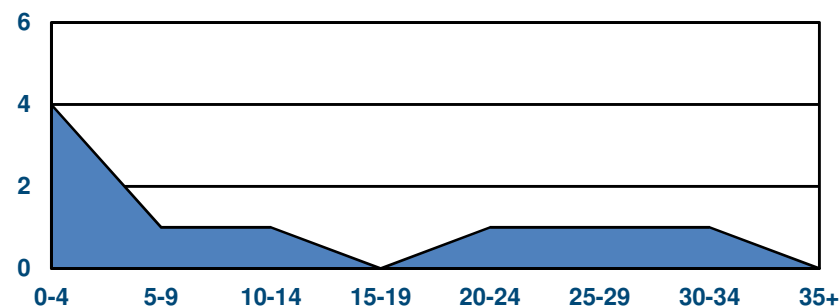
C. Distribution of Active Members as of July 1, 2018 - Police

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

Distribution By Age



Distribution by Years of Service



Section V - Membership Data

D. Distribution of Inactive Members as of July 1, 2018

General Government

		Age	Number	Annual Benefits
Terminated Vested Members /		< 30	0	\$0
Members Due Refunds		30 - 39	0	0
		40 - 49	0	0
Count	3	50 - 59	2	4,252
Average Age	57.5	60 - 64	1	4,001
Total Annual Benefit	\$24,414	65 +	0	0
Average Annual Benefit	8,138	Total	3	24,414
Retired Members		< 50	0	\$0
		50 - 59	1	47,410
Count	17	60 - 69	5	190,108
Average Age	74.0	70 - 79	7	241,080
Total Annual Benefit	\$501,818	80 - 89	2	11,112
Average Annual Benefit	29,519	90 +	2	12,109
		Total	17	501,818
Disabled Retirees		< 50	0	\$0
		50 - 59	0	0
Count	0	60 - 69	0	0
Average Age	0.0	70 - 79	0	0
Total Annual Benefit	\$0	80 - 89	0	0
Average Annual Benefit	0	90 +	0	0
		Total	0	0
Beneficiaries		< 50	0	\$0
		50 - 59	0	0
Count	2	60 - 69	1	4,441
Average Age	68.0	70 - 79	1	3,316
Total Annual Benefit	\$7,757	80 - 89	0	0
Average Annual Benefit	3,879	90 +	0	0
		Total	2	7,757

Section V - Membership Data
D. Distribution of Inactive Members as of July 1, 2018
Board of Education

		Age	Number	Annual Benefits
Terminated Vested Members /		< 30	0	\$0
Members Due Refunds		30 - 39	0	0
		40 - 49	0	0
Count	8	50 - 59	4	0
Average Age	59.5	60 - 64	3	17,595
Total Annual Benefit	\$17,595	65 +	1	0
Average Annual Benefit	2,199	Total	8	17,595
Retired Members		< 50	0	\$0
		50 - 59	0	0
Count	28	60 - 69	9	180,827
Average Age	72.3	70 - 79	16	256,890
Total Annual Benefit	\$464,392	80 - 89	3	26,675
Average Annual Benefit	16,585	90 +	0	0
		Total	28	464,392
Disabled Retirees		< 50	0	\$0
		50 - 59	0	0
Count	0	60 - 69	0	0
Average Age	0.0	70 - 79	0	0
Total Annual Benefit	\$0	80 - 89	0	0
Average Annual Benefit	0	90 +	0	0
		Total	0	0
Beneficiaries		< 50	0	\$0
		50 - 59	0	0
Count	1	60 - 69	1	11,425
Average Age	61.1	70 - 79	0	0
Total Annual Benefit	\$11,425	80 - 89	0	0
Average Annual Benefit	11,425	90 +	0	0
		Total	1	11,425

Section V - Membership Data

D. Distribution of Inactive Members as of July 1, 2018

Police

		Age	Number	Annual Benefits
Terminated Vested Members /		< 30	0	\$0
Members Due Refunds		30 - 39	0	0
		40 - 49	0	0
Count	4	50 - 59	0	0
Average Age	45.5	60 - 64	0	0
Total Annual Benefit	\$0	65 +	0	0
Average Annual Benefit	0	Total	0	0
Retired Members		< 50	0	\$0
		50 - 59	1	37,260
Count	5	60 - 69	2	104,711
Average Age	66.7	70 - 79	2	59,191
Total Annual Benefit	\$201,162	80 - 89	0	0
Average Annual Benefit	40,232	90 +	0	0
		Total	5	201,162
Disabled Retirees		< 50	0	\$0
		50 - 59	0	0
Count	0	60 - 69	0	0
Average Age	0.0	70 - 79	0	0
Total Annual Benefit	\$0	80 - 89	0	0
Average Annual Benefit	0	90 +	0	0
		Total	0	0
Beneficiaries		< 50	0	\$0
		50 - 59	1	40,207
Count	1	60 - 69	0	0
Average Age	58.6	70 - 79	1	17,247
Total Annual Benefit	\$57,454	80 - 89	0	0
Average Annual Benefit	57,454	90 +	0	0
		Total	1	57,454

Appendix A - Actuarial Funding Method

The actuarial funding method used in the valuation of this Plan is the **Entry Age Normal Cost Method**. Recommended annual contributions until the accrued liability is completely funded will consist of three pieces: Normal Cost plus a payment towards the Unfunded Accrued Liability plus interest to adjust for the lag between the valuation date and the start of the fiscal year.

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** for the plan is the excess of the Accrued Liability over the Actuarial Value of Assets. This Unfunded Accrued Liability is amortized as a level percent. Beginning on July 1, 2010, the amortization period is 22 years; the amortization period will decrease each year until it reaches 10 years, after which point it will remain at 10 years.

The **Actuarial Value of Assets** is determined by recognizing market gains or losses over a five year period.

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 Current: 7.000%

Prior: 7.125%

Salary Scale 3.50%

Amortization Growth Rate 3.50%

Healthy Mortality RP-2000 Mortality Tables for Employees and Healthy Annuitants, Male and Female, with generational projection of future mortality improvements per Scale AA. This assumption includes a margin for improvements in longevity beyond the valuation date.

Disabled Mortality RP-2000 Disabled Mortality Table, Male and Female. This assumption does not include a margin for improvements in longevity beyond the valuation date.

Turnover	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%

Rate of Retirement **General Government**

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

Appendix B - Actuarial Assumptions

Retirement

Board of Education

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

Police

75% of members are assumed to retire at age 55 with 20 years of Credited Service.

At all other ages:

Age	Rate
56-64	20%
65	100%

Marital Status

75% of participants are assumed to be married with husbands assumed to be 3 years older than their wives.

Cost of Living Adjustment

None.

Expenses

It is assumed that all expenses will be paid directly by the Town.

Form of Annuity

Life annuity with Modified Cash Refund.

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	<p>Non-bargaining unit members hired prior to age 25 may elect to participate on date of hire. Participation is mandatory at age 25.</p> <p>Bargaining unit members may elect to participate after 1 year of Continuous Service. Participation is retroactive to date of hire. The Town will pay the Member Contributions for the first year of service.</p>						
Final Average Earnings	<p>Certified Police Officers: Average of the 5 calendar years with the highest gross earnings. Gross earnings include overtime, educational incentive pay and longevity pay.</p> <p>Others: Average of the 5 consecutive calendar years with the highest gross earnings. Gross earnings include overtime and any other form of additional compensation.</p>						
Continuous Service	Continuous employment with the Town.						
Credited Service	All service counted in years and completed months from date of participation. Participation is retroactive to date of hire.						
Member Contributions	<p>Certified Police Officers: Effective July 1, 2000, 6% of earnings.</p> <p>Others: Effective July 1, 2004, 5% of earnings.</p> <p>Member contributions stop at Normal Retirement Date.</p> <p>Interest is credited from January 1 following the date of the contribution to the date of the distribution as follows:</p> <table data-bbox="552 1434 1331 1539"> <tr> <td>06/01/1966 to 12/31/1969</td><td>3.5%</td></tr> <tr> <td>01/01/1970 to 06/30/1986</td><td>4.5%</td></tr> <tr> <td>07/01/1986 and after</td><td>5.5%</td></tr> </table>	06/01/1966 to 12/31/1969	3.5%	01/01/1970 to 06/30/1986	4.5%	07/01/1986 and after	5.5%
06/01/1966 to 12/31/1969	3.5%						
01/01/1970 to 06/30/1986	4.5%						
07/01/1986 and after	5.5%						
Normal Form of Benefit	Life Annuity with Modified Cash Refund. Optional forms of benefit are available on an actuarially equivalent basis.						
Normal Retirement Date	<p>Certified Police Officers: The earlier of age 65 or age 55 with 20 years of Continuous Service.</p> <p>Others: Earlier of age 65 or the date the member's age plus Continuous Service total 80.</p>						

Appendix C - Summary of Plan Provisions

Normal Retirement Benefit	<p>Certified Police Officers: 2.5% of Final Average Earnings multiplied by Credited Service up to 20 years plus 1.5% of Final Average Earnings multiplied by Credited Service in excess of 20 years; maximum benefit is 65% of Final Average Earnings.</p> <p>Others: 2.0% of Final Average Earnings multiplied by Credited Service.</p>
Early Retirement Date	<p>Certified Police Officers: None.</p> <p>Others: Age 55 with 15 years of Continuous Service.</p>
Early Retirement Benefit	Benefit calculated at Early Retirement Date reduced actuarially for commencement prior to Normal Retirement Date.
Late Retirement Date	Any date beyond Normal Retirement Date.
Late Retirement Benefit	Benefit calculated at Late Retirement Date.
Vesting	100% vested after 5 years of Continuous Service.
Termination Benefit	If Member is not vested as of date of termination, the Member shall receive a return of Member Contributions with interest. If a Member is vested as of termination, the Member shall be entitled to a Normal Retirement Benefit. The Member with a vested benefit can elect to receive Member contributions with interest. If the Member contributions are withdrawn, any employer provided benefit is forfeited.
Disability Retirement Date	Available at total and permanent disability after age 50 with 15 years of Continuous Service.
Disability Retirement Benefit	Benefit is the same as for Early Retirement.
Pre-Retirement Survivor Benefit	If the member has at least 5 years of Continuous Service and is married at time of death, the surviving spouse will receive an immediate benefit equal to 50% of the benefit that would have payable had the member terminated immediately before death, elected to retire at the member's earliest retirement eligibility date or date of death if later, and elected a 50% joint and survivor annuity. The surviving spouse's benefit is payable on the date that would have been the member's earliest retirement date.
Pre-Retirement Death Benefit	Return of Member Contributions with interest, in lieu of any Pre-Retirement Survivor Benefit if applicable.
Post-Retirement Death Benefit	Return of Member Contributions with interest, less any retirement benefits paid.