



TOWN OF WESTPORT FIRE PENSION FUND

**Actuarial Valuation as of July 1, 2017
For Fiscal Year 2018-19**

Prepared by

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Certification

We have performed an actuarial valuation of the Plan as of July 1, 2017 for fiscal year 2018-19. 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.

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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

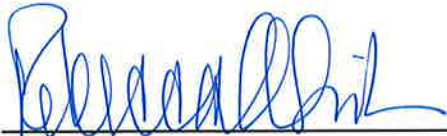
The calculations reported herein have been made on a basis consistent with our understanding of ERISA and the related sections of the tax code. Additional determinations may be needed for purposes other than meeting funding requirements, such as judging benefit security at plan termination or meeting 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.

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 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 actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

We 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.



Rebecca A. Sielman, FSA
Consulting Actuary

Section I - Executive Summary

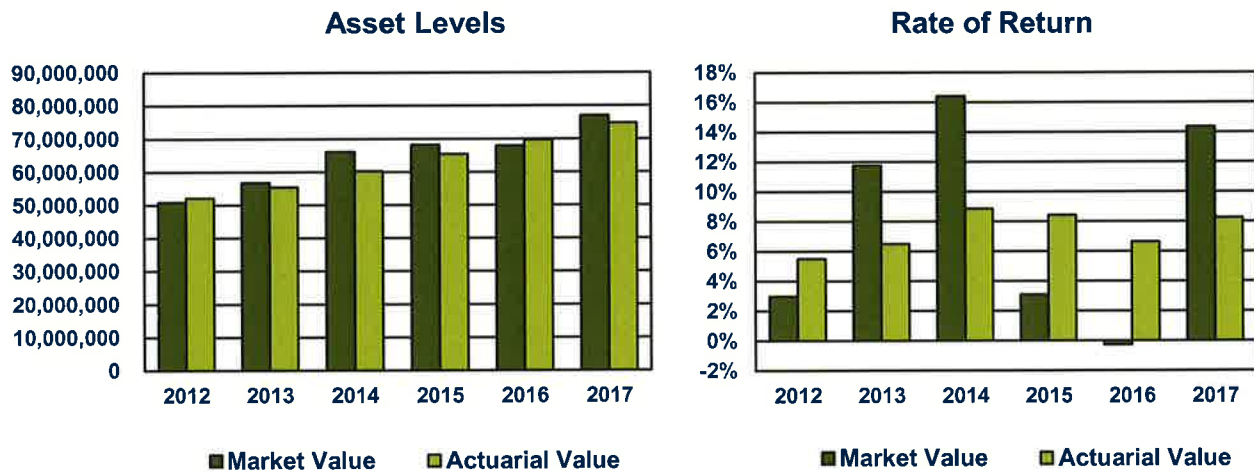
A. Highlights

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, 2016	\$67,882,779	\$69,669,006
Contributions	2,555,741	2,555,741
Investment Income	9,718,784	5,724,387
Benefit Payments and Administrative Expenses	(3,121,347)	(3,121,347)
Value as of July 1, 2017	77,035,957	74,827,787

For fiscal year 2016-17, the plan's assets earned 14.38% on a Market Value basis and 8.25% on an Actuarial Value basis. The actuarial assumption for this period was 6.125%; the result is an asset gain of \$5,578,300 on a Market Value basis and a gain of \$1,474,500 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 \$2,208,200. 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.

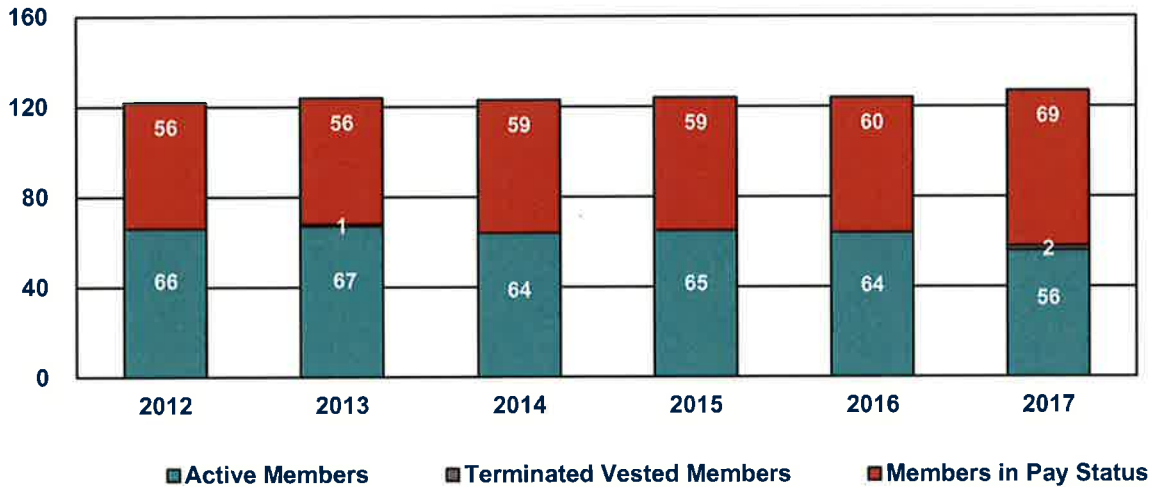
Section I - Executive Summary

A. Highlights

Membership

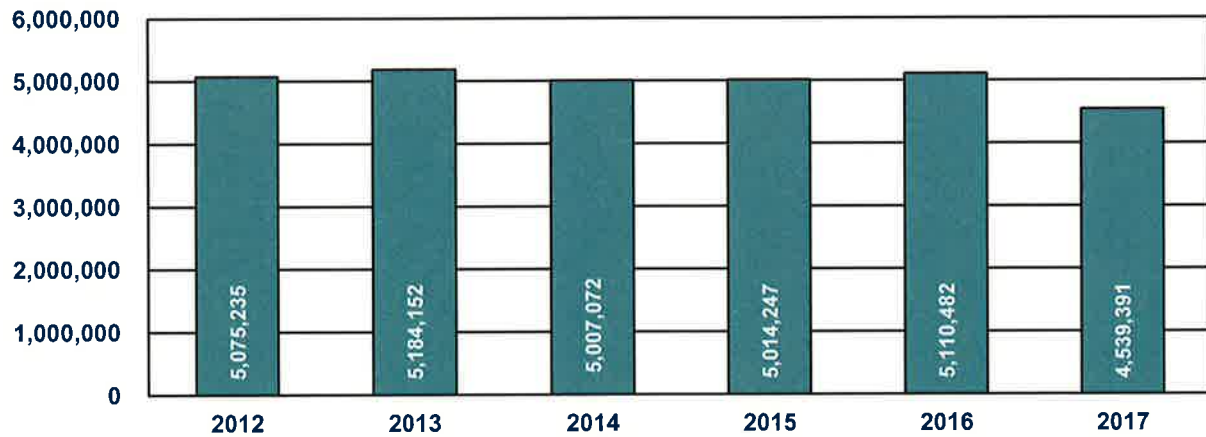
There are three basic categories of plan members included in the actuarial valuation: (1) active employees who have met the eligibility requirements for membership, (2) former employees who have a vested right to benefits but have not yet started collecting, and (3) members who are receiving monthly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

Number of Members



From July 1, 2016 to July 1, 2017, the overall membership increased from 124 to 127. During this period, there were 10 active members who retired and 2 who terminated with benefits due. This was partially offset by the addition of 4 new active members. There was 1 member who died without a beneficiary.

Payroll



Section I - Executive Summary

A. Highlights

Plan Changes

None.

Changes in Actuarial Methods or Assumptions

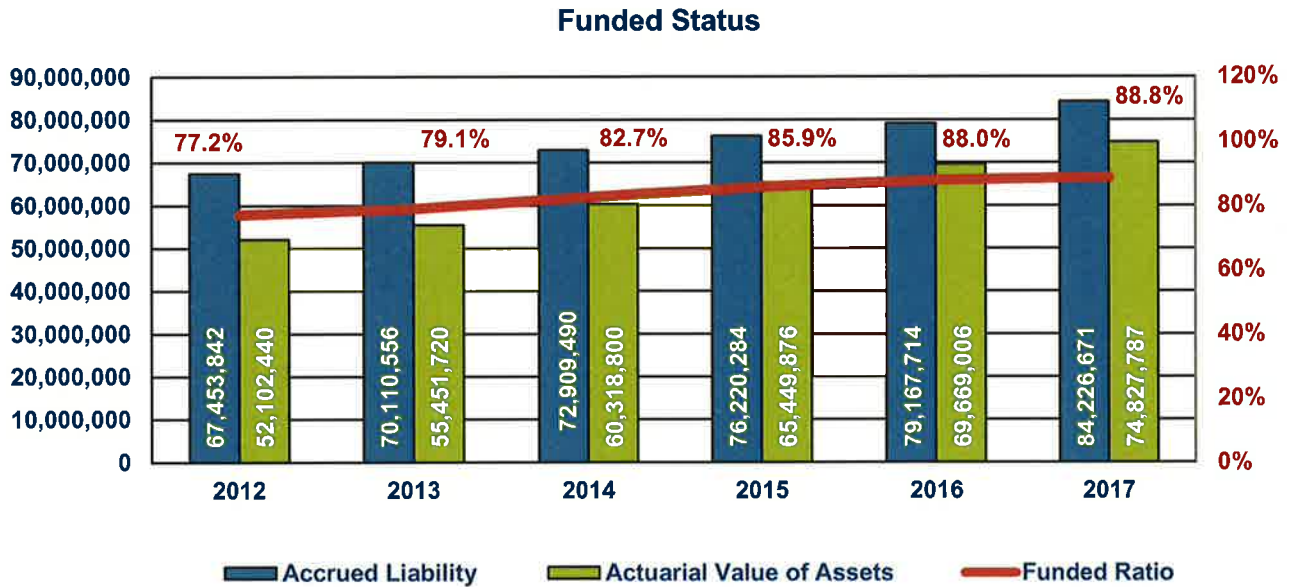
None.

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.



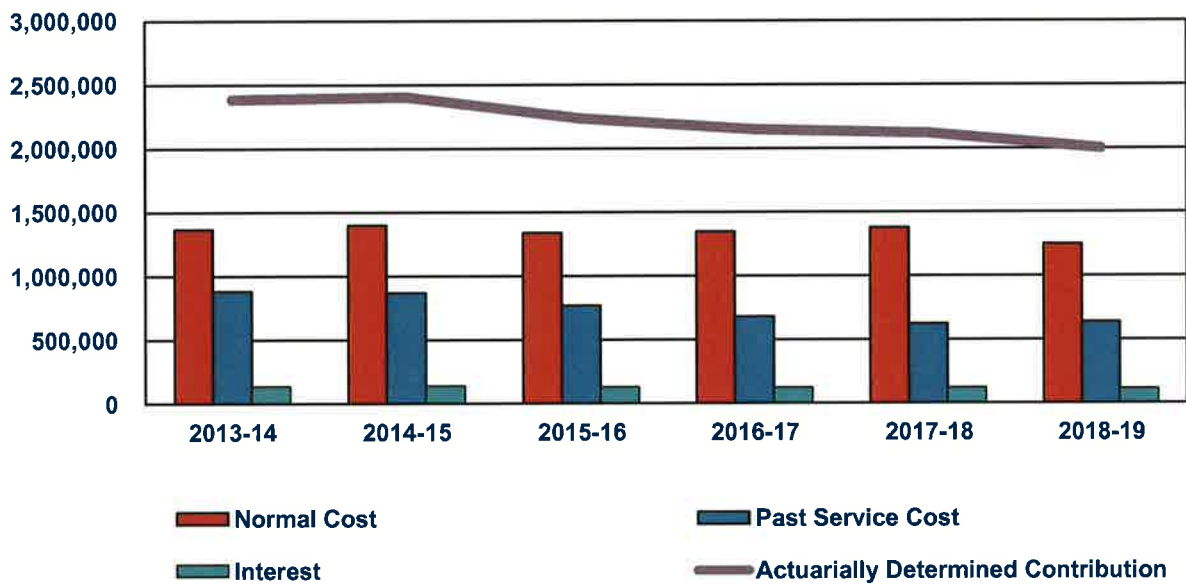
Section I - Executive Summary

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.

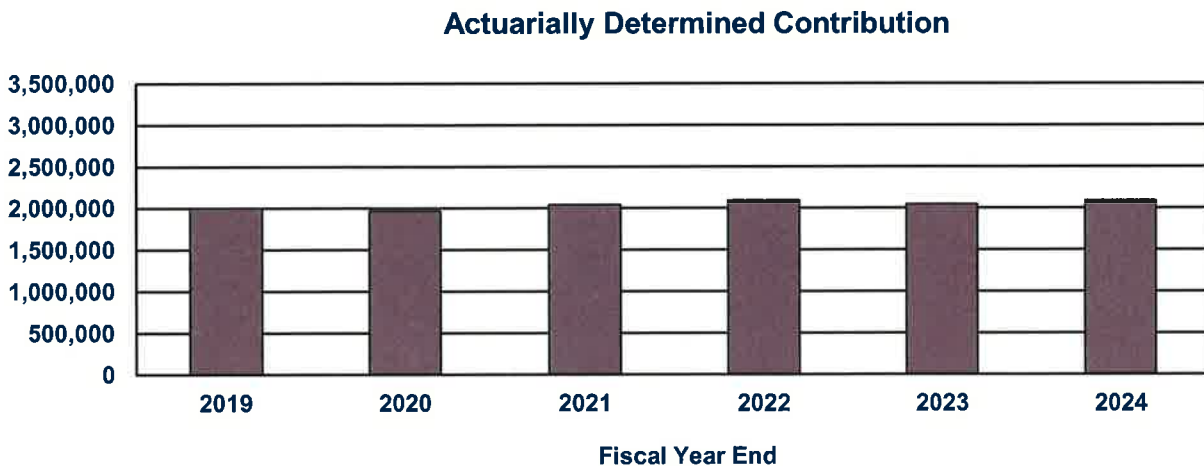
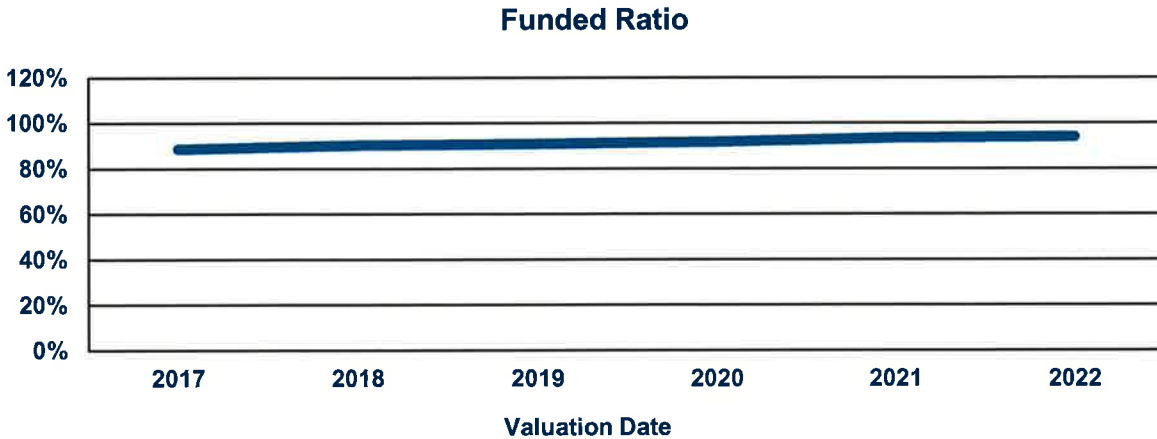


Section I - Executive Summary

A. Highlights

Long Range Forecast

We expect the valuation results for the next several years to follow the patterns illustrated below:



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, 2016	July 1, 2017
Active Members	64	56
Terminated Vested Members	0	2
Members in Pay Status	60	69
Payroll	\$5,317,597	\$4,539,391
Assets and Liabilities	July 1, 2016	July 1, 2017
Market Value of Assets	\$67,882,779	\$77,035,957
Actuarial Value of Assets	69,669,006	74,827,787
Accrued Liability for Active Members	\$31,361,603	\$19,810,876
Accrued Liability for Terminated Vested Members	0	1,048,282
Accrued Liability for Members in Pay Status	47,806,111	63,367,513
Total Accrued Liability	79,167,714	84,226,671
Unfunded Accrued Liability	9,498,708	9,398,884
Funded Ratio	88.0%	88.8%
Actuarially Determined Contribution for Fiscal Year	2017-18	2018-19
Normal Cost	\$1,376,713	\$1,249,744
Past Service Cost	621,610	638,768
Interest	122,397	115,671
Actuarially Determined Contribution	2,120,720	2,004,183

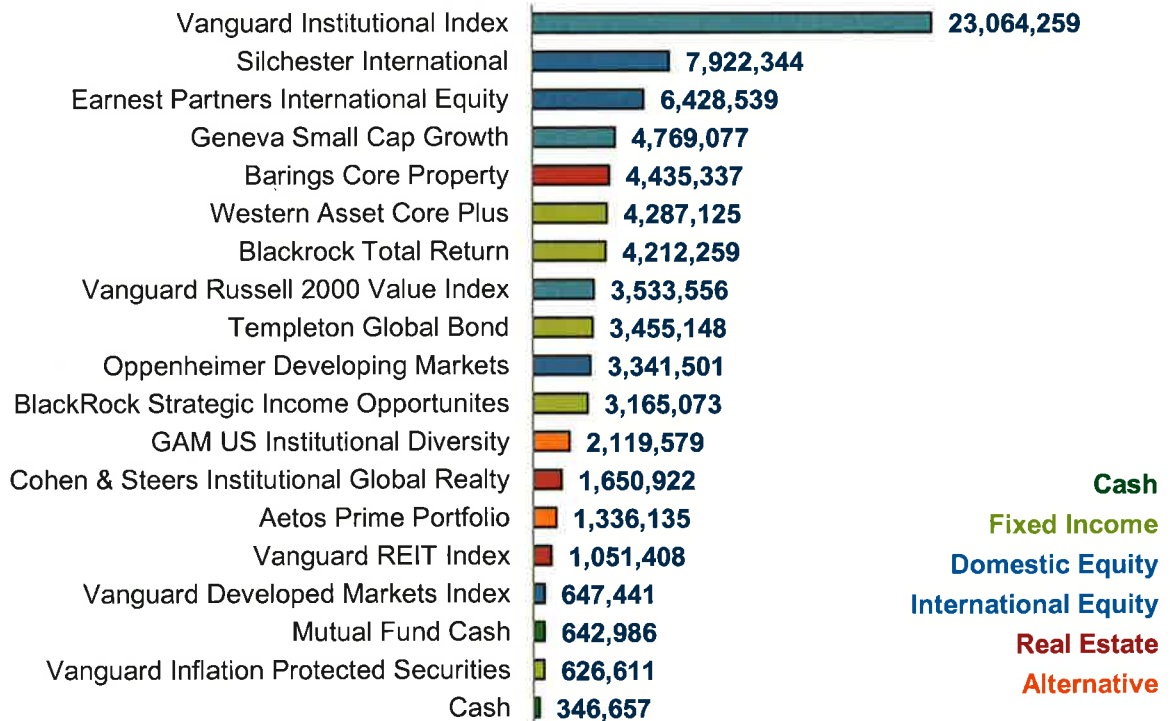
Section II - Plan Assets

A. Summary of Fund Transactions

Market Value as of July 1, 2016	\$67,882,779
Employer Contributions	2,052,753
Employee Contributions	502,988
Benefit Payments	(3,121,347)
Investment Income	9,848,785
Investment Expenses	(130,001)
 Market Value as of July 1, 2017	 77,035,957
 Approximate Rate of Return	 14.38%

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.

Asset Allocation as of June 30, 2017



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 starting on July 1, 2011. The Actuarial Value of Assets as of July 1, 2017 is determined below.

1.	Expected Market Value of Assets:		
	a. Market Value of Assets as of July 1, 2016		\$67,882,779
	b. Employer and Employee Contributions		2,555,741
	c. Benefit Payments and Administrative Expenses		(3,121,347)
	d. Expected Investment Return Based on 6.125% Interest		<u>4,140,471</u>
	e. Expected Market Value of Assets as of July 1, 2017		71,457,644
2.	Actual Market Value of Assets as of July 1, 2017		77,035,957
3.	Market Value (Gain)/Loss: (1e) - (2)		(5,578,313)
4.	Delayed Recognition of Market (Gains)/Losses:		
		Percent Not	Amount Not
	Plan Year End	(Gain)/Loss	Recognized
	06/30/2017	(\$5,578,313)	80%
	06/30/2016	4,371,710	60%
	06/30/2015	1,999,757	40%
	06/30/2014	(5,842,245)	20%
			<u>(1,168,449)</u>
			(2,208,170)
5.	Actuarial Value of Assets as of July 1, 2017: (2) + (4)		74,827,787
6.	Approximate Rate of Return on Actuarial Value of Assets		8.25%
7.	Actuarial Value (Gain)/Loss		(1,474,463)

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 25 years starting on July 1, 2011.

	July 1, 2016	July 1, 2017
1. Accrued Liability		
Active Members	\$31,361,603	\$19,810,876
Terminated Vested Members	0	1,048,282
Retired Members	34,035,926	49,643,996
Disabled Members	10,921,227	10,882,270
Beneficiaries of Deceased Members	<u>2,848,958</u>	<u>2,841,247</u>
Total	79,167,714	84,226,671
2. Actuarial Value of Assets (see Section II B)	69,669,006	74,827,787
3. Unfunded Accrued Liability: (1) - (2)	9,498,708	9,398,884
4. Funded Ratio: (2) / (1)	88.0%	88.8%
5. Amortization Period	20	19
6. Amortization Growth Rate	3.00%	3.00%
7. Past Service Cost: (3) amortized over (5)	621,610	638,768

Section III - Development of Contribution
B. Actuarially Determined Contribution

	Fiscal Year 2017-18	Fiscal Year 2018-19
1. Total Normal Cost	\$1,884,855	\$1,708,313
2. Expected Employee Contributions	508,142	458,569
3. Expected Expenses	0	0
4. Net Normal Cost: (1) - (2) + (3)	1,376,713	1,249,744
5. Past Service Cost (see Section III A)	621,610	638,768
6. Interest on (4) + (5) to start of next fiscal year	122,397	115,671
7. Actuarially Determined Contribution: (4) + (5) + (6)	2,120,720	2,004,183

Milliman Actuarial Valuation

**Section III - Development of Contribution
C. Long Range Forecast**

This forecast is based on the results of the July 1, 2017 actuarial valuation and assumes that the Town will pay the Actuarially Determined Contribution each year, the assets will return 6.125% on a market value basis each year, and there are no future changes in the actuarial methods or assumptions or in the plan provisions. Actual results at each point in time will yield different values, reflecting the actual experience of the plan membership and assets.

Values as of the Valuation Date				Cash Flows Projected to the Following Fiscal Year					
Valuation Date	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Fiscal Year Ending	Town Contributions	Employee Contributions	Benefit Payments	Net Cash Flows
7/1/2017	\$84,226,671	\$74,827,787	\$9,398,884	88.8%	2019	\$2,004,183	\$470,943	(\$4,064,054)	(\$1,588,928)
7/1/2018	87,394,000	79,154,000	8,240,000	90.6%	2020	1,967,000	491,000	(4,154,000)	(1,696,000)
7/1/2019	90,357,000	82,280,000	8,077,000	91.1%	2021	2,043,000	508,000	(4,261,000)	(1,710,000)
7/1/2020	93,468,000	85,895,000	7,573,000	91.9%	2022	2,089,000	523,000	(4,384,000)	(1,772,000)
7/1/2021	96,721,000	90,578,000	6,143,000	93.6%	2023	2,047,000	537,000	(4,514,000)	(1,930,000)
7/1/2022	100,105,000	94,300,000	5,805,000	94.2%	2024	2,089,000	541,000	(4,706,000)	(2,076,000)
7/1/2023	103,614,000	98,087,000	5,527,000	94.7%	2025	2,112,000	556,000	(4,876,000)	(2,208,000)
7/1/2024	107,179,000	101,955,000	5,224,000	95.1%	2026	2,167,000	568,000	(5,050,000)	(2,315,000)
7/1/2025	110,809,000	105,925,000	4,884,000	95.6%	2027	2,206,000	579,000	(5,234,000)	(2,449,000)
7/1/2026	114,509,000	110,028,000	4,481,000	96.1%	2028	2,239,000	581,000	(5,476,000)	(2,656,000)
7/1/2027	118,284,000	114,244,000	4,040,000	96.6%	2029	2,244,000	592,000	(5,702,000)	(2,866,000)
7/1/2028	122,067,000	118,504,000	3,563,000	97.1%	2030	2,271,000	597,000	(5,950,000)	(3,082,000)
7/1/2029	125,849,000	122,808,000	3,041,000	97.6%	2031	2,282,000	604,000	(6,216,000)	(3,330,000)
7/1/2030	129,614,000	127,154,000	2,460,000	98.1%	2032	2,258,000	600,000	(6,538,000)	(3,680,000)
7/1/2031	133,390,000	131,510,000	1,880,000	98.6%	2033	2,208,000	605,000	(6,851,000)	(4,038,000)
7/1/2032	137,041,000	135,772,000	1,269,000	99.1%	2034	2,162,000	608,000	(7,160,000)	(4,390,000)
7/1/2033	140,582,000	139,927,000	655,000	99.5%	2035	2,057,000	611,000	(7,460,000)	(4,792,000)
7/1/2034	143,990,000	143,973,000	17,000	100.0%	2036	1,839,000	614,000	(7,753,000)	(5,300,000)
7/1/2035	147,194,000	147,853,000	(659,000)	100.4%	2037	1,137,000	617,000	(8,030,000)	(6,276,000)
7/1/2036	150,405,000	151,447,000	(1,042,000)	100.7%	2038	772,000	619,000	(8,319,000)	(6,928,000)

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.

This work product was prepared solely for the Town for the purposes described herein and may not be appropriate to use for other purposes. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends that third parties be aided by their own actuary or other qualified professional when reviewing the Milliman work product.

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, 2017
Actuarial Cost Method	Entry Age Normal
Amortization Method	Level percent
Amortization Period	Closed 25 years from July 1, 2011
Asset Valuation Method	5 Year Smoothed Market Value
Actuarial Assumptions	
Investment Rate of Return	6.125%
Projected Salary Increases	Service based scale
Amortization Growth Rate	3.000%
Inflation	2.750%
Cost-of-Living Adjustments	Pre-2005 retirees with 75% Joint & Survivor annuities - 1.25%. Pre-2005 retirees with 100% Joint & Survivor annuities - 0.625%.

Milliman Actuarial Valuation

**Section IV - Accounting Information
B. Schedule of Funding Progress**

Actuarial Valuation Date	For Fiscal Year	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability (AAL)	(3) Unfunded AAL (UAAL) (2) - (1)	(4) Funded Ratio (1) / (2)	(5) Covered Payroll	(6) UAAL as a Percentage of Covered Payroll (3) / (5)
07/01/2011	2012-13	\$49,346,676	\$59,819,953	\$10,473,277	82.5%	\$4,655,430	225.0%
07/01/2012	2013-14	52,102,440	67,453,842	15,351,402	77.2%	5,075,235	302.5%
07/01/2013	2014-15	55,451,720	70,110,556	14,658,836	79.1%	5,184,152	282.8%
07/01/2014	2015-16	60,318,800	72,909,490	12,590,690	82.7%	5,140,048	245.0%
07/01/2015	2016-17	65,449,876	76,220,284	10,770,408	85.9%	5,256,316	204.9%
07/01/2016	2017-18	69,669,006	79,167,714	9,498,708	88.0%	5,317,597	178.6%
07/01/2017	2018-19	74,827,787	84,226,671	9,398,884	88.8%	4,539,391	207.1%

Section IV - Accounting Information
C. Schedule of Employer Contributions

Fiscal Year Ending June 30	(1) Actuarially Determined Contribution	(2) Contribution in Relation to the Actuarially Determined Contribution	(3) Contribution Deficiency/ (Excess) (1) - (2)	(4) Covered Payroll	(5) Contribution as a Percentage of Covered Payroll (2) / (4)
2010	\$1,034,423	\$895,000	\$139,423	\$4,413,566	20.28%
2011	1,534,510	1,675,000	(140,490)	\$3,817,411	43.88%
2012	1,310,377	1,946,736	(636,359)	4,641,204	41.94%
2013	1,870,427	1,870,427	0	4,655,430	40.18%
2014	2,389,263	1,962,573	426,690	5,075,235	38.67%
2015	2,407,768	2,407,768	0	5,184,152	46.44%
2016	2,239,366	2,239,366	0	5,140,048	43.57%
2017	2,152,383	2,052,753	99,630	5,256,316	39.05%
2018	2,120,720	TBD	TBD	5,317,597	TBD
2019	2,004,183	TBD	TBD	4,539,391	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, 2016	As of July 1, 2017
1. Value of Vested Benefits		
Active Members	\$21,724,079	\$10,949,963
Terminated Vested Members	0	1,048,282
Retired Members	34,035,926	49,643,996
Disabled Members	10,921,227	10,882,270
Beneficiaries of Deceased Members	<u>2,848,958</u>	<u>2,841,247</u>
Total Value of Vested Benefits	69,530,190	75,365,758
2. Value of Non-Vested Benefits	4,745,406	4,462,125
3. Total Value of Accrued Benefits: (1) + (2)	74,275,596	79,827,883
4. Market Value of Assets	67,882,779	77,035,957
5. Vested Funded Ratio: (4) / (1)	97.6%	102.2%
6. Accrued Funded Ratio: (4) / (3)	91.4%	96.5%

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

Increase/(Decrease) during the 2016-2017 plan year attributable to:

Increase for interest due to the decrease in the discount period	\$4,455,210
Benefits Accumulated/(Forfeited)	4,218,424
Benefit Payments	(3,121,347)
Plan Amendments	0
Changes in Actuarial Assumptions	0
Net Increase/(Decrease)	5,552,287

Value of Accrued Plan Benefits:

July 1, 2017	\$79,827,883
July 1, 2016	74,275,596
Net Increase/(Decrease)	5,552,287

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	Term. Vested	Retirees	Disabled	Bene- ficiaries	Total
Count as of July 1, 2016	64	0	34	15	11	124
Terminated, due refund	(1)	1	-	-	-	0
Terminated, benefits due	(1)	1	-	-	-	0
Retired	(10)	-	10	-	-	0
Disabled	-	-	-	-	-	0
Died, with beneficiary	-	-	-	-	-	0
Died, no beneficiary	-	-	-	(1)	-	(1)
Paid refund	-	-	-	-	-	0
New member	4	-	-	-	-	4
New beneficiary	-	-	-	-	-	0
Correction	-	-	-	-	-	0
Count as of July 1, 2017	56	2	44	14	11	127

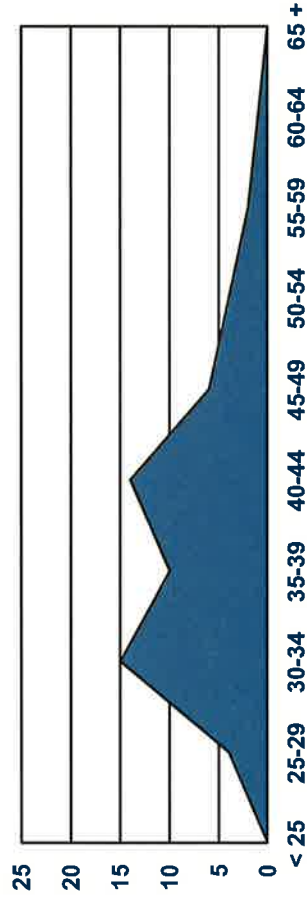
Section V - Membership Data
B. Statistics of Membership

	As of July 1, 2016	As of July 1, 2017
Active Members		
Number	64	56
Average Age	41.9	39.5
Average Service	13.6	10.3
Total Payroll	\$5,317,597	\$4,539,391
Average Payroll	83,087	81,061
Terminated Vested Members		
Number	0	2
Total Annual Benefit	\$0	\$70,097
Average Annual Benefit	0	35,049
Average Age	0.0	44.5
Retired Members		
Number	34	44
Total Annual Benefit	\$1,976,440	\$2,801,128
Average Annual Benefit	58,131	63,662
Average Age	66.6	65.3
Disabled Members		
Number	15	14
Total Annual Benefit	\$780,297	\$784,234
Average Annual Benefit	52,020	56,017
Average Age	69.3	69.5
Beneficiaries of Deceased Members		
Number	11	11
Total Annual Benefit	\$263,616	\$268,176
Average Annual Benefit	23,965	24,380
Average Age	79.4	80.4

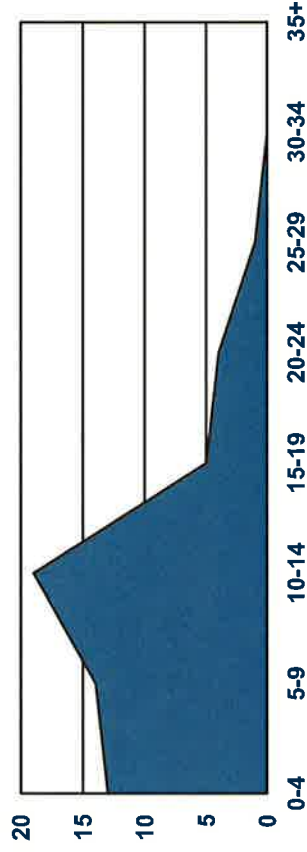
**Section V - Membership Data
C. Distribution of Active Members as of July 1, 2017 - Count**

Age	Years of Service										Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	35+	Total	
< 25	0	0	0	0	0	0	0	0	0	0	0
25-29	4	0	0	0	0	0	0	0	0	0	4
30-34	8	6	1	0	0	0	0	0	0	0	15
35-39	0	2	6	2	0	0	0	0	0	0	10
40-44	1	4	7	2	0	0	0	0	0	0	14
45-49	0	1	4	1	0	0	0	0	0	0	6
50-54	0	0	0	0	3	1	0	0	0	0	4
55-59	0	1	1	0	0	0	0	0	0	0	2
60-64	0	0	0	0	1	0	0	0	0	0	1
65 +	0	0	0	0	0	0	0	0	0	0	0
Total	13	14	19	5	4	1	0	0	0	0	56

Distribution By Age



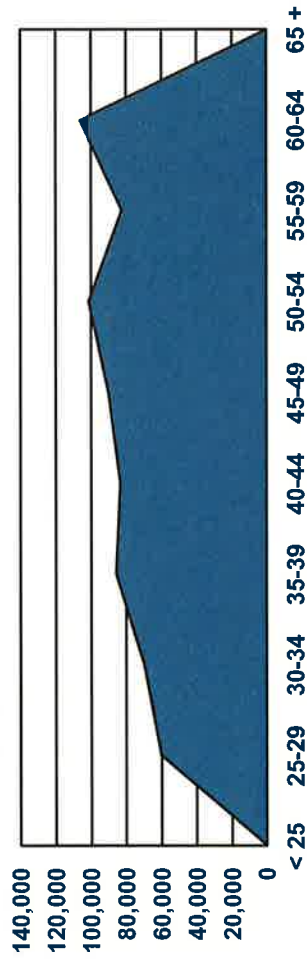
Distribution by Years of Service



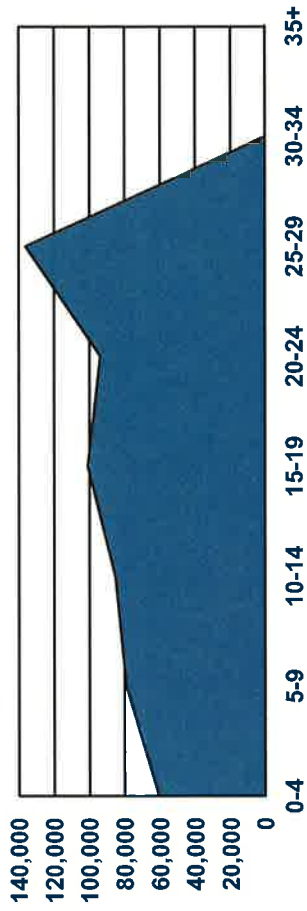
Section V - Membership Data
D. Distribution of Active Members as of July 1, 2017 - Average Pay

Age	Years of Service											Total			
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	35+	35+	35+				
< 25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25-29	60,423	0	0	0	0	0	0	0	0	0	0	0	0	0	60,423
30-34	61,906	79,030	81,831	0	0	0	0	0	0	0	0	0	0	0	70,084
35-39	0	80,634	86,887	88,319	0	0	0	0	0	0	0	0	0	0	85,923
40-44	54,510	80,598	84,100	101,633	0	0	0	0	0	0	0	0	0	0	83,490
45-49	0	70,120	86,578	125,052	0	0	0	0	0	0	0	0	0	0	90,247
50-54	0	0	0	0	89,680	136,269	0	0	0	0	0	0	0	0	101,327
55-59	0	80,134	85,014	0	0	0	0	0	0	0	0	0	0	0	82,574
60-64	0	0	0	0	106,410	0	0	0	0	0	0	0	0	0	106,410
65 +	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	60,881	79,149	85,430	100,991	93,863	136,269	0	0	0	0	0	0	0	0	81,061

Distribution By Age



Distribution by Years of Service



Section V - Membership Data
E. Distribution of Inactive Members as of July 1, 2017

	Age	Number	Annual Benefits
Terminated Vested Members /	< 30	0	\$0
Members Due Refunds	30 - 39	1	0
	40 - 49	0	0
	50 - 59	1	70,097
	60 - 64	0	0
	65 +	0	0
	Total	2	70,097
Retired Members	< 50	0	\$0
	50 - 59	11	746,976
	60 - 69	22	1,690,062
	70 - 79	5	253,967
	80 - 89	5	101,407
	90 +	1	8,716
	Total	44	2,801,128
Disabled Retirees	< 50	0	\$0
	50 - 59	0	0
	60 - 69	7	339,729
	70 - 79	5	380,142
	80 - 89	2	64,363
	90 +	0	0
	Total	14	784,234
Beneficiaries	< 50	0	\$0
	50 - 59	0	0
	60 - 69	3	116,059
	70 - 79	3	97,468
	80 - 89	1	10,705
	90 +	4	43,944
	Total	11	268,176

Appendix A - Actuarial Funding Method

The actuarial funding method used in the valuation of this Plan is known as 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 liability for the plan 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. Beginning on July 1, 2011, the amortization period is 25 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 asset gains and losses over **five** 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 6.125%

Amortization Growth Rate 3.000%

Salary Scale According to the following table:

Service	Rate
0-1	9.00%
2-5	11.50%
6+	3.50%

Expenses None.

Mortality RP-2000 Mortality Tables for employees (assumed 20% in-service and 80% non-service), healthy annuitants, and disabled annuitants, with generational projection of future mortality improvements per Scale AA. This assumption includes a margin for improvements in longevity beyond the valuation date.

Turnover None.

Rate of Retirement Active members are assumed to retire according to the following table:

Age	Rate
49	15%
50-53	5%
54-55	10%
56	20%
57	15%
58	20%
59-61	50%
62	100%

Terminated vested members are assumed to retire at their Normal Retirement Date.

Appendix B - Actuarial Assumptions

Disability 1985 Pension Class 4 Table (assumed 80% in-service, 20% non-service)

Age	In-Service		Non-Service	
	Male	Female	Male	Female
25	0.20%	0.14%	0.05%	0.04%
35	0.41%	0.37%	0.10%	0.09%
45	0.75%	0.71%	0.19%	0.18%
55	1.83%	1.70%	0.46%	0.43%
65	3.70%	2.30%	0.94%	0.58%

Cost of Living Adjustments Pre-2005 retirees with 75% Joint & Survivor annuities - 1.25%. Pre-2005 retirees with 100% Joint & Survivor annuities - 0.625%.

Marital Status 80% of members are assumed to be married with wives 3 years younger than husbands.

Form of Benefit 100% Joint & Survivor for members hired before January 1, 1985. 75% Joint & Survivor for members hired on or after January 1, 1985.

Load for Unused Sick Days The Accrued Liability and Total Normal Cost for active members are loaded by 2.0% to anticipate the trade of unused sick days for additional pension service.

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	Each regular full-time firefighter is eligible to participate as of the date of employment.
Employee Contributions	10% of Compensation for up to 34.5 years of service. Contributions are credited with 5% interest.
Credited Service	Service from date of hire rounded to nearest 0.25 of a year up to a maximum of 32.5 years of continuous Credited Service. Credited Service includes unused sick time up to 90 days.
Compensation	Base Salary including additional increments and allowances for college credit and stand-by pay, and excluding overtime pay, bonuses, gratuities, commissions, retainer fees, benefits, severance pay, allowance for expenses or other special remuneration paid, but including "pick-up" contributions.
Final Average Earnings	Compensation earned during the last 12 months of service, or Compensation earned prior to the member's 34.5th year of service, if earlier.
Normal Retirement Date	If hired before July 1, 1985, the first day of the month coincident with or next following completion of 20 years of Credited Service. If hired on or after July 1, 1985, the later of July 1 following attainment of age 49 or the first day of the month coincident with or next following completion of 20 years of Credited Service. Mandatory retirement upon completion of 34.5 years of Credited Service.
Normal Retirement Benefit	2.5% of Final Average Compensation times Credited Service (maximum 32.5 years).
Early Retirement Date	None provided.

Appendix C - Summary of Plan Provisions

Disability Retirement (On Duty)

For a disability governed by State of Connecticut Statute Section 7-433c (Heart and Hypertension Act): 66⅔% of base salary or, if greater, the Normal Retirement Benefit calculated as if the member terminated employment at date of disability.

For a disability not governed by State of Connecticut Statute Section 7-433c (Heart and Hypertension Act): 66⅔% of base salary or, if greater, the Normal Retirement Benefit calculated as if the member terminated employment at date of disability. However, if such disability is deemed to be at a level of severity of less than 30%, then commencing with the 6th year of such disability, the benefit will be reduced to 50% of base salary or, if greater, the accrued benefit.

For members hired after July 1, 1985, 75% of the amount described above is payable as a 100% Joint & Survivor annuity.

The benefit will be adjusted by a Pension Adjustment beginning on the July 1 following the date the member attains age 49.

Disability Retirement (Non Duty)

Refund of accumulated employee contributions with interest. The Pension Board may award an annual pension equal to 50% of base salary or, if greater, the Normal Retirement Benefit calculated as if the member terminated employment at date of disability. The benefit is subject to the appropriate Pension Adjustment upon approval of the Pension Board. Payable as a 100% Joint & Survivor annuity.

Death Benefits (On Duty)

For members hired prior to July 1, 1985, 66⅔% of base salary or, if greater, the Normal Retirement Benefit calculated as if the member terminated employment at date of death. For members hired on or after July 1, 1985, 75% of the amount described above is payable to the beneficiary. The benefit will be adjusted by a Pension Adjustment beginning on the July 1 following the date the member would have attained age 49.

Death Benefits (Non Duty)

Refund of accumulated employee contributions with interest. The Pension Board may award an Annual pension equal to 50% of base salary or, if greater, the Normal Retirement Benefit calculated assuming the member had terminated employment at date of death. The benefit is subject to the appropriate Pension Adjustment upon approval of the Pension Board.

Normal Form of Payment

100% Joint & Survivor for members hired before July 1, 1985. 75% Joint & Survivor for members hired on or after July 1, 1985. Upon the death of the member and any beneficiaries, the excess of employee contributions with interest over the sum of benefits previously paid is payable to the member's estate.

Appendix C - Summary of Plan Provisions

Vesting	100% vested after completion of 10 years of service from date of hire.
Vested Retirement	If vested, Normal Retirement Benefit payable at the July 1 coincident with or next following the earlier of age 65 or when the member would have completed 34 years of service. The benefit is not subject to the Pension Adjustment. Can opt to receive a refund of employee contributions with interest in lieu of monthly benefits.
Pension Adjustment	<p>Retirements prior to July 1, 2001:</p> <ul style="list-style-type: none">• elected 75% Joint & Survivor annuity - COLA is $\frac{1}{3}$ of active member pay increases but not more than 2%.• elected 100% Joint & Survivor annuity - COLA is $\frac{1}{6}$ of active member pay increases but not more than 1%. <p>Retirements on or after November 1, 2005:</p> <ul style="list-style-type: none">• elected 75% Joint & Survivor annuity - COLA is 1.5% until member's 60th birthday, then 2.0% until member's or surviving spouse's 65th birthday, then 4.0% thereafter.• if hired before July 1, 1985 and elected 100% Joint & Survivor annuity - COLA is 0.75% until member's 60th birthday, then 1.25% until member's or surviving spouse's 65th birthday, then 3.25% thereafter. <p>Retirements between July 1, 2001 and November 1, 2005 - member could elect either COLA structure.</p> <p>Pre-1985 retirees and certain surviving spouses may not be eligible for COLAs.</p>
Termination Benefit	If not vested at termination, a refund of accumulated employee contributions with interest will be paid.