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February 19, 2019

***PERSONAL & CONFIDENTIAL***

Old Saybrook Pension & Benefits Board  
P.O. Box 408  
Old Saybrook, CT 06475-1741

Re: Town of Old Saybrook Retirement Plan

Dear Members of the Board:

We have performed an actuarial valuation of the Town of Old Saybrook Retirement Plan as of July 1, 2018 to determine the Actuarially Determined Contribution for Fiscal Year 2019-20. The results of the valuation are contained in the following report. We have enclosed 10 copies of the report; please let me know if you need additional copies.

Respectfully submitted,

A handwritten signature in blue ink that reads "Rebecca".

Rebecca A. Sielman, FSA  
Consulting Actuary

RAS:dlc 10

cc: Suzanne Taylor  
Lee Ann Palladino



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## **TOWN OF OLD SAYBROOK RETIREMENT PLAN**

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

**Prepared by**

**Rebecca A. Sielman, FSA**  
Consulting Actuary

**Teresa M. Medeiros, FSA**  
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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

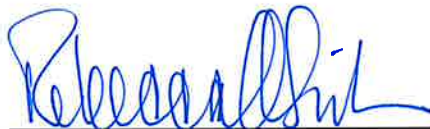
The calculations reported herein have been made on a basis consistent with our understanding of ERISA and the related sections of the tax code. Additional determinations may be needed for purposes other than meeting funding requirements, such as judging benefit security at plan termination or meeting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

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



Teresa M. Medeiros, FSA  
Consulting Actuary

## Section I - Executive Summary

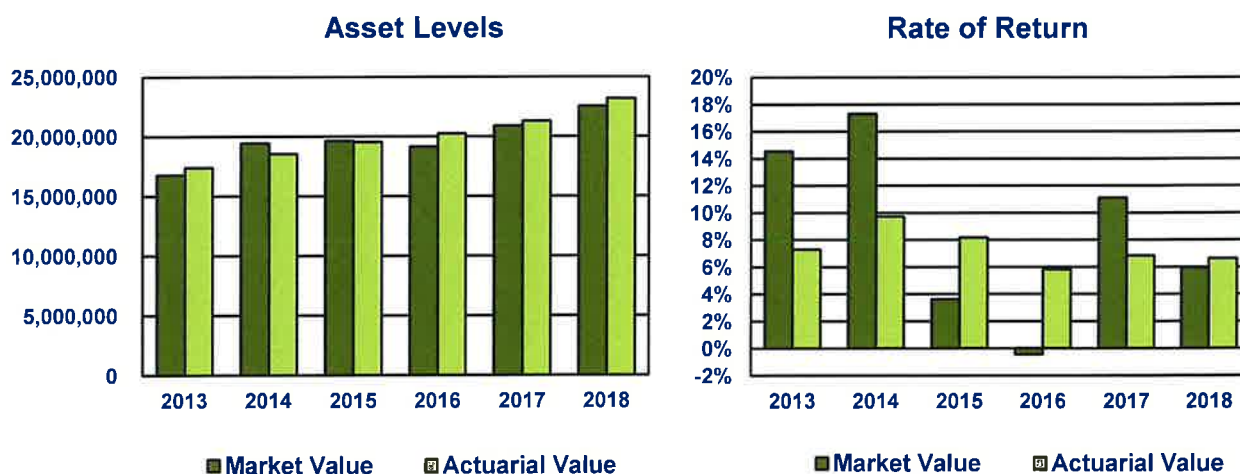
### A. Highlights

#### 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 four years.

	Market	Actuarial
Value as of July 1, 2017	\$20,904,256	\$21,294,870
Contributions	1,921,054	1,921,054
Investment Income	1,252,278	1,423,512
Benefit Payments and Administrative Expenses	(1,549,569)	(1,549,569)
Change in asset smoothing method	N/A	88,556
Value as of July 1, 2018	22,528,019	23,178,423

For fiscal year 2017-18, the plan's assets earned 5.94% on a Market Value basis and 6.63% on an Actuarial Value basis. The actuarial assumption for this period was 7.50%; the result is an asset loss of \$328,900 on a Market Value basis and a loss of \$187,300 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 exceeds the Market Value by \$650,400. This figure represents investment losses that will be gradually recognized over the next four years. This process will exert upward pressure on the Town's contribution, unless there are offsetting market gains.

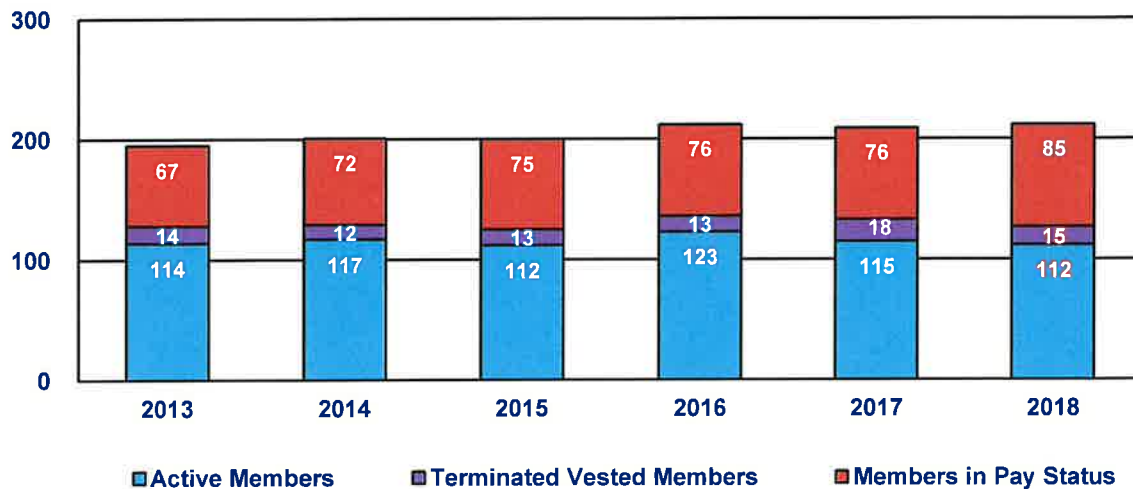
## Section I - Executive Summary

### A. Highlights

#### Membership

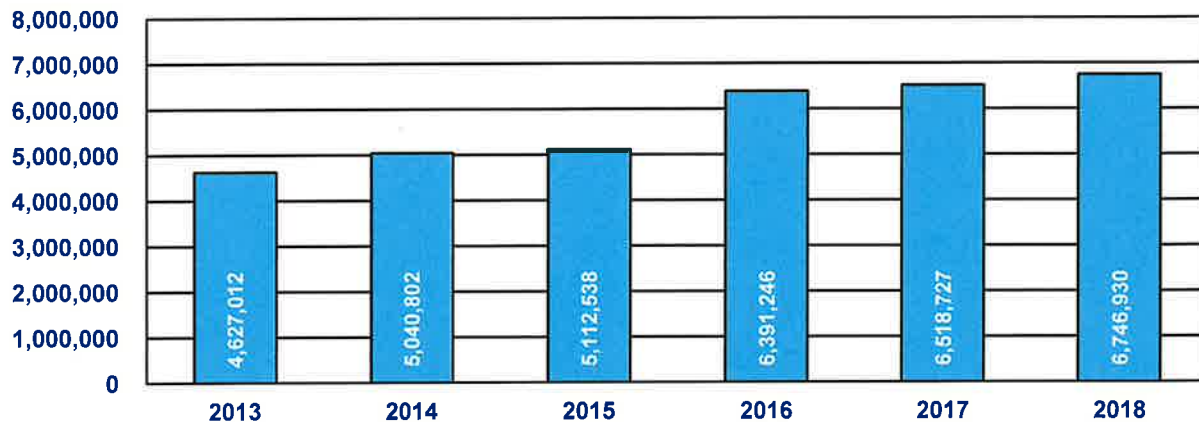
There are three basic categories of plan members included in the actuarial valuation: (1) active employees who have met the eligibility requirements for membership, (2) former employees who have a vested right to benefits but have not yet started collecting, and (3) members who are receiving monthly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

#### Number of Members



From July 1, 2017 to July 1, 2018, the overall membership increased from 209 to 212. During this period, there were 13 new members and one rehired employee, 2 active members who terminated with vested benefits, and 3 active members who terminated and received a refund of their contributions. A total of 12 members retired during the year, and 3 members in pay status died.

#### Covered Payroll



## Section I - Executive Summary

### A. Highlights

#### Plan Changes

None.

#### Changes in Actuarial Methods and Assumptions

To better reflect current market conditions and plan trends, we made the following actuarial method and assumption changes:

- We lowered the interest rate assumption from 7.50% to 7.25%.
- We lowered the inflation assumption from 3.0% to 2.75%.
- We lowered the salary scale age related factors.
- We updated the rates of retirement for non-Police to better reflect recent retirement trends.
- We switched from a 4 year asset smoothing method to a 5 year asset smoothing method.

The effect of these changes was an increase in the Unfunded Accrued Liability of \$266,800 and an increase in the Actuarially Determined Contribution of \$19,400.

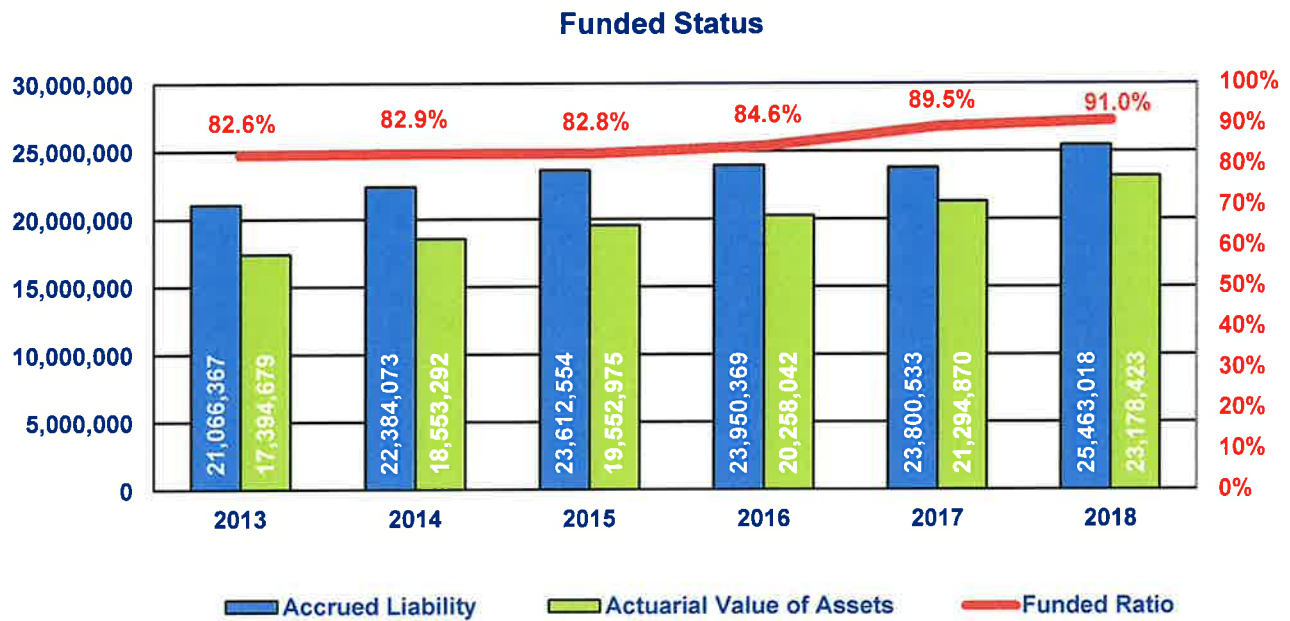


## Section I - Executive Summary

### A. Highlights

#### Funded Status

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



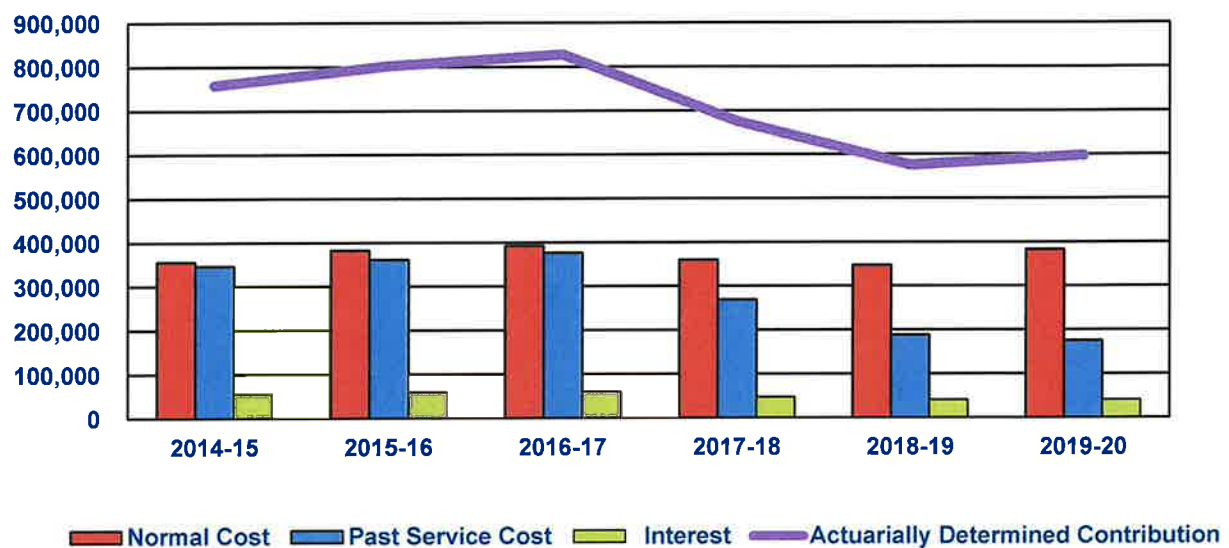
## Section I - Executive Summary

### 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 several fiscal years are shown below.

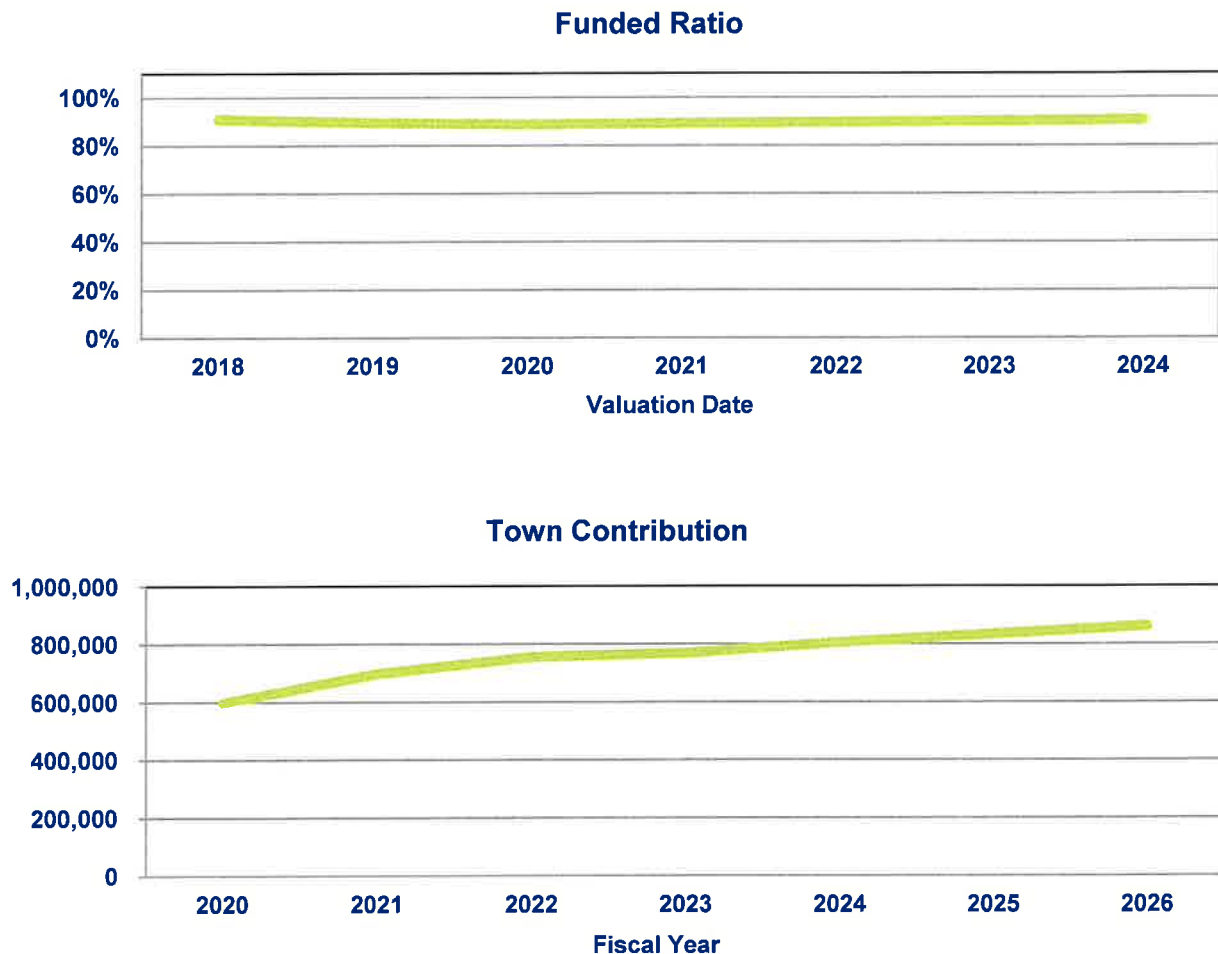


## Section I - Executive Summary

### 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

<b>Membership</b>	<b>July 1, 2017</b>	<b>July 1, 2018</b>
Active Members	115	112
Terminated Vested Members	18	15
Members in Pay Status	76	85
Payroll	\$6,518,727	\$6,746,930
<b>Assets and Liabilities</b>	<b>July 1, 2017</b>	<b>July 1, 2018</b>
Market Value of Assets	\$20,904,256	\$22,528,019
Actuarial Value of Assets	21,294,870	23,178,423
Accrued Liability for Active Members	\$11,478,121	\$10,414,571
Accrued Liability for Terminated Vested Members	618,691	758,592
Accrued Liability for Members in Pay Status	11,703,721	14,289,855
Total Accrued Liability	23,800,533	25,463,018
Unfunded Accrued Liability	2,505,663	2,284,595
Funded Ratio	89.5%	91.0%
<b>Actuarially Determined Contribution for Fiscal Year</b>	<b>2018-19</b>	<b>2019-20</b>
Normal Cost	\$346,973	\$382,635
Past Service Cost	188,566	175,099
Interest	40,165	40,436
Actuarially Determined Contribution	575,704	598,170
<b>Actuarially Determined Contribution Allocation</b>		
Board of Education	\$117,359	\$118,057
Police and Town	458,345	480,113

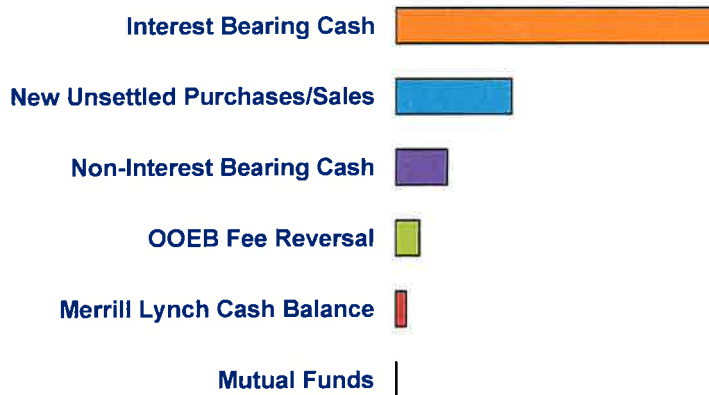
## Section II - Plan Assets

### A. Summary of Fund Transactions

<b>Market Value as of July 1, 2017</b>	\$20,904,256
Employer Contributions	1,576,474
Employee Contributions	344,580
Benefit Payments	(1,512,407)
Investment Income	1,252,278
Administrative Expenses	(37,162)
<b>Market Value as of July 1, 2018</b>	22,528,019
<b>Approximate Rate of Return</b>	5.94%

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.

#### Actual Asset Allocation as of July 1, 2018



## 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			\$20,904,256
b. Employer and Employee Contributions			1,921,054
c. Benefit Payments and Administrative Expenses			(1,549,569)
d. Expected Investment Return Based on 7.50% Interest			<u>1,581,159</u>
e. Expected Market Value of Assets as of July 1, 2018			22,856,900
2. Actual Market Value of Assets as of July 1, 2018			22,528,019
3. Market Value (Gain)/Loss: (1e) - (2)			328,881
4. Delayed Recognition of Market (Gains)/Losses:			
		<b>Percent Not</b>	<b>Amount Not</b>
<b>Plan Year End</b>	<b>(Gain)/Loss</b>	<b>Recognized</b>	<b>Recognized</b>
06/30/2018	\$328,881	80%	\$263,105
06/30/2017	(683,047)	60%	(409,828)
06/30/2016	1,573,671	40%	629,468
06/30/2015	838,294	20%	<u>167,659</u>
			650,404
5. Actuarial Value of Assets as of July 1, 2018: (2) + (4)			23,178,423
6. Approximate Rate of Return on Actuarial Value of Assets			7.04%
7. Actuarial Value (Gain)/Loss			98,800

## Section III - Development of Contribution

### A. Past Service Cost

Starting with the July 1, 2016 valuation, for determining the Past Service Cost, the Unfunded Accrued Liability is amortized as a level percent over a closed period of 20 years.

	July 1, 2017	July 1, 2018
1. Accrued Liability		
Active Members	\$11,478,121	\$10,414,571
Terminated Vested Members	618,691	758,592
Retired Members	11,226,490	13,828,599
Disabled Members	0	0
Beneficiaries of Deceased Members	<u>477,231</u>	<u>461,256</u>
Total	23,800,533	25,463,018
2. Actuarial Value of Assets (see Section II B)	21,294,870	23,178,423
3. Unfunded Accrued Liability: (1) - (2)	2,505,663	2,284,595
4. Funded Ratio: (2) / (1)	89.5%	91.0%
5. Amortization Period	19	18
6. Amortization Growth Rate	3.00%	3.00%
7. Past Service Cost: (3) amortized over (5)	188,566	175,099

## Section III - Development of Contribution

### B. Actuarially Determined Contribution

	Fiscal Year 2018-19	Fiscal Year 2019-20
1. Total Normal Cost	\$639,146	\$645,158
2. Expected Employee Contributions	298,773	300,823
3. Expected Administrative Expenses	6,600	38,300
4. Net Normal Cost: (1) - (2) + (3)	346,973	382,635
5. Past Service Cost (see Section III A)	188,566	175,099
6. Interest on (4) + (5) to start of next fiscal year	40,165	40,436
7. Actuarially Determined Contribution: (4) + (5) + (6)	575,704	598,170
8. Payroll	6,518,727	6,746,930
9. Actuarially Determined Contribution as a Percent of Payroll: (7) / (8)	8.83%	8.87%



## 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 contribute 100% of the Actuarially Determined Contribution each year, the assets will return 7.25% on a market value basis each year, and there are no 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.

Valuation Date	Values as of the Valuation Date				Cash Flows Projected to the Following Fiscal Year				
	Accrued Liability	Actuarial Value of Assets	Unfunded		Fiscal Year Ending	Town Contributions	Employee Contributions	Benefit Payments	Net Cash Flows
			Accrued Liability	Funded Ratio					
7/1/2018	\$25,463,018	\$23,178,423	\$2,284,595	91.0%	2020	\$598,170	\$329,390	(\$1,778,529)	(\$850,969)
7/1/2019	26,167,000	23,441,000	2,726,000	89.6%	2021	698,000	339,000	(1,849,000)	(812,000)
7/1/2020	26,991,000	23,957,000	3,034,000	88.8%	2022	756,000	340,000	(1,977,000)	(881,000)
7/1/2021	27,832,000	24,882,000	2,950,000	89.4%	2023	769,000	352,000	(2,030,000)	(909,000)
7/1/2022	28,608,000	25,658,000	2,950,000	89.7%	2024	806,000	360,000	(2,113,000)	(947,000)
7/1/2023	29,420,000	26,532,000	2,888,000	90.2%	2025	834,000	370,000	(2,153,000)	(949,000)
7/1/2024	30,229,000	27,428,000	2,801,000	90.7%	2026	863,000	377,000	(2,182,000)	(942,000)
7/1/2025	31,084,000	28,386,000	2,698,000	91.3%	2027	888,000	385,000	(2,208,000)	(935,000)
7/1/2026	31,994,000	29,419,000	2,575,000	92.0%	2028	919,000	389,000	(2,286,000)	(978,000)
7/1/2027	32,969,000	30,533,000	2,436,000	92.6%	2029	936,000	397,000	(2,355,000)	(1,022,000)
7/1/2028	33,944,000	31,681,000	2,263,000	93.3%	2030	966,000	401,000	(2,372,000)	(1,005,000)
7/1/2029	34,947,000	32,866,000	2,081,000	94.0%	2031	997,000	407,000	(2,437,000)	(1,033,000)
7/1/2030	36,026,000	34,152,000	1,874,000	94.8%	2032	1,023,000	408,000	(2,484,000)	(1,053,000)
7/1/2031	37,138,000	35,501,000	1,637,000	95.6%	2033	1,055,000	411,000	(2,568,000)	(1,102,000)
7/1/2032	38,301,000	36,926,000	1,375,000	96.4%	2034	1,079,000	421,000	(2,624,000)	(1,124,000)
7/1/2033	39,476,000	38,401,000	1,075,000	97.3%	2035	1,108,000	419,000	(2,718,000)	(1,191,000)
7/1/2034	40,708,000	39,959,000	749,000	98.2%	2036	1,131,000	413,000	(2,888,000)	(1,344,000)
7/1/2035	41,940,000	41,559,000	381,000	99.1%	2037	1,131,000	422,000	(2,962,000)	(1,409,000)
7/1/2036	43,077,000	43,114,000	(37,000)	100.1%	2038	746,000	416,000	(3,090,000)	(1,928,000)
7/1/2037	44,252,000	44,713,000	(461,000)	101.0%	2039	752,000	415,000	(3,262,000)	(2,095,000)

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:

---

<b>Valuation Date</b>	July 1, 2018
<b>Actuarial Cost Method</b>	Entry Age Normal
<b>Amortization Method</b>	Level percent
<b>Amortization Period</b>	Closed 20 years from July 1, 2016
<b>Asset Valuation Method</b>	5 Year Smoothed Market Value
<b>Actuarial Assumptions</b>	
Investment Rate of Return	7.25%
Amortization Growth Rate	3.00%
Projected Salary Increases	Age-based graded scale
Inflation	2.75%

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

Actuarial Valuation Date	For Fiscal Year	(1) Actuarial Value of Assets	(2) Actuarial Accrued Liability (AAL)	(3) Unfunded AAL (UAAL)	(4) Funded Ratio (1) / (2)	(5) Payroll	(6) UAAL as a Percentage of Payroll (3) / (5)
07/01/2009	2010-11	\$15,330,433	\$16,824,391	\$1,493,958	91.1%	\$3,852,237	38.8%
07/01/2010	2011-12	15,741,445	18,323,182	2,581,737	85.9%	3,737,359	69.1%
07/01/2011	2012-13	16,333,130	19,249,102	2,915,972	84.9%	4,140,391	70.4%
07/01/2012	2013-14	16,697,547	20,083,455	3,385,908	83.1%	4,542,061	74.5%
07/01/2013	2014-15	17,394,679	21,066,367	3,671,688	82.6%	4,627,012	79.4%
07/01/2014	2015-16	18,553,292	22,384,073	3,830,781	82.9%	5,040,802	76.0%
07/01/2015	2016-17	19,552,975	23,612,554	4,059,579	82.8%	5,112,538	79.4%
07/01/2016	2017-18	20,258,042	23,950,369	3,692,327	84.6%	6,391,246	57.8%
07/01/2017	2018-19	21,294,870	23,800,533	2,505,663	89.5%	6,518,727	38.4%
07/01/2018	2019-20	23,178,423	25,463,018	2,284,595	91.0%	6,746,930	33.9%

**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)	Payroll	Contribution as a Percentage of Payroll (2) / (4)
2011	\$475,358	\$298,579	\$176,779	\$3,852,237	7.75%
2012	574,829	302,965	271,864	3,737,359	8.11%
2013	675,246	359,336	315,910	4,140,391	8.68%
2014	712,919	411,211	301,708	4,542,061	9.05%
2015	758,105	437,437	320,668	4,627,012	9.45%
2016	802,803	475,113	327,690	5,040,802	9.43%
2017	828,573	500,830	327,743	5,112,538	9.80%
2018	675,326	1,576,474	(901,148)	6,391,246	24.67%
2019	575,704	TBD	TBD	6,518,727	TBD
2020	598,170	TBD	TBD	6,746,930	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	\$8,319,372	\$6,899,848
Terminated Vested Members	618,691	758,592
Retired Members	11,226,490	13,828,599
Disabled Members	0	0
Beneficiaries of Deceased Members	<u>477,231</u>	<u>461,256</u>
Total Value of Vested Benefits	20,641,784	21,948,295
2. Value of Non-Vested Benefits	569,787	845,726
3. Total Value of Accrued Benefits: (1) + (2)	21,211,571	22,794,021
4. Market Value of Assets	20,904,256	22,528,019
5. Vested Funded Ratio: (4) / (1)	101.3%	102.6%
6. Accrued Funded Ratio: (4) / (3)	98.6%	98.8%

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

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

Increase for interest due to the decrease in the discount period	\$1,535,178
Benefits Accumulated/(Forfeited)	1,264,851
Benefit Payments	(1,512,407)
Plan Amendments	0
Changes in Actuarial Assumptions	294,828
Net Increase/(Decrease)	1,582,450

**Value of Accrued Plan Benefits:**

July 1, 2018	\$22,794,021
July 1, 2017	21,211,571
Net Increase/(Decrease)	1,582,450

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## 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
<b>Count as of July 1, 2017</b>	115	18	70	0	6	209
Terminated not vested	-	-	-	-	-	0
Terminated, benefits due	(2)	2	-	-	-	0
Retired	(12)	-	12	-	-	0
Died, with beneficiary	-	-	-	-	-	0
Died, no beneficiary	-	-	(3)	-	-	(3)
Paid refund	(3)	(5)	-	-	-	(8)
New member	13	-	-	-	-	13
Rehired	1	(1)	-	-	-	0
Correction	-	1	-	-	-	1
<b>Count as of July 1, 2018</b>	112	15	79	0	6	212

## Section V - Membership Data

### B. Statistics of Membership

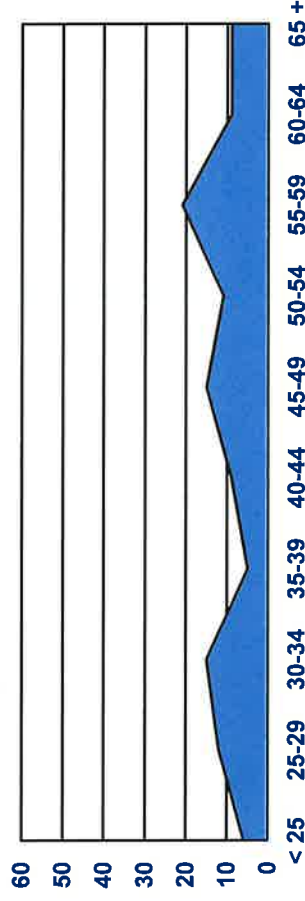
	As of July 1, 2017	As of July 1, 2018
<b>Active Members</b>		
Number	115	112
Average Age	48.8	46.9
Average Service	10.8	10.0
Payroll	\$6,518,727	\$6,746,930
Average Payroll	56,685	60,240
<b>Terminated Vested Members</b>		
Number	18	15
Total Annual Benefit	\$108,099	\$125,193
Average Annual Benefit	6,006	8,346
Average Age	48.5	50.9
<b>Retired Members</b>		
Number	70	79
Total Annual Benefit	\$1,271,095	\$1,471,504
Average Annual Benefit	18,159	18,627
Average Age	72.1	71.2
<b>Disabled Members</b>		
Number	0	0
Total Annual Benefit	\$0	\$0
Average Annual Benefit	0	0
Average Age	0.0	0.0
<b>Beneficiaries of Deceased Members</b>		
Number	6	6
Total Annual Benefit	\$43,245	\$43,245
Average Annual Benefit	7,208	7,208
Average Age	62.5	68.5



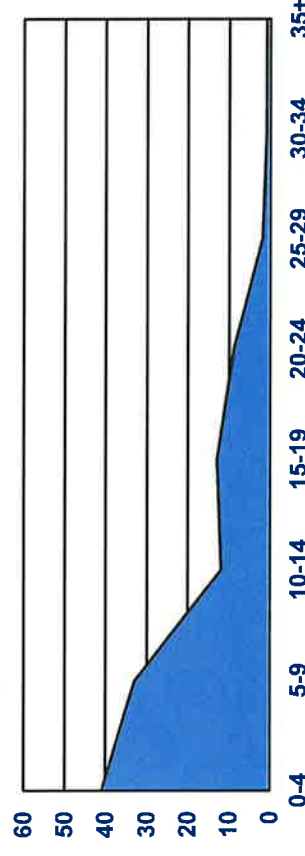
**Section V - Membership Data**  
**C. Distribution of Active Members as of July 1, 2018 - Count - Total**

Age	Years of Service								Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
< 25	5	1	0	0	0	0	0	0	6
25-29	8	4	0	0	0	0	0	0	12
30-34	6	8	1	0	0	0	0	0	15
35-39	2	1	2	0	0	0	0	0	5
40-44	2	0	2	3	2	0	0	0	9
45-49	7	2	0	3	3	0	0	0	15
50-54	3	3	1	1	3	0	0	0	11
55-59	4	8	4	3	1	0	1	0	21
60-64	2	4	2	1	0	0	0	0	9
65 +	2	2	0	2	0	2	0	1	9
Total	41	33	12	13	9	2	1	1	112

**Distribution By Age**



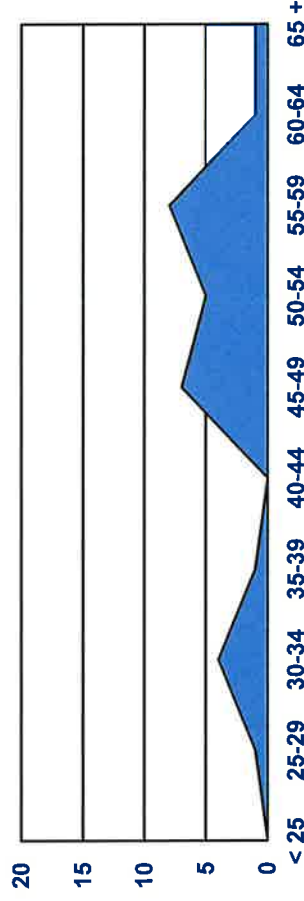
**Distribution by Years of Service**



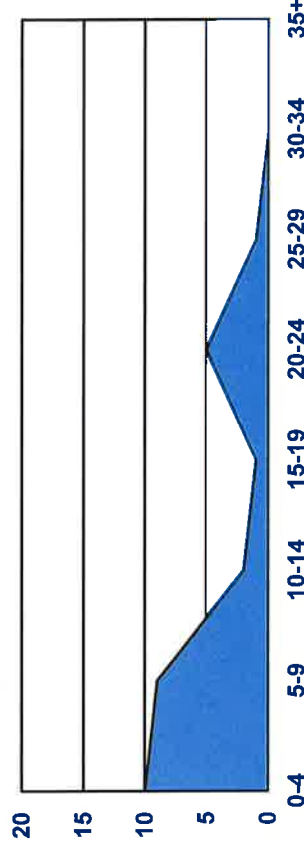
**Section V - Membership Data**  
**C. Distribution of Active Members as of July 1, 2018 - Count - Board of Education**

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	1	0	0	0	0	0	0	0	1
30-34	2	2	0	0	0	0	0	0	4
35-39	1	0	0	0	0	0	0	0	1
40-44	0	0	0	0	0	0	0	0	0
45-49	2	1	0	1	3	0	0	0	7
50-54	2	1	1	0	1	0	0	0	5
55-59	2	4	1	0	1	0	0	0	8
60-64	0	1	0	0	0	0	0	0	1
65 +	0	0	0	0	0	1	0	0	1
Total	10	9	2	1	5	1	0	0	28

**Distribution By Age**



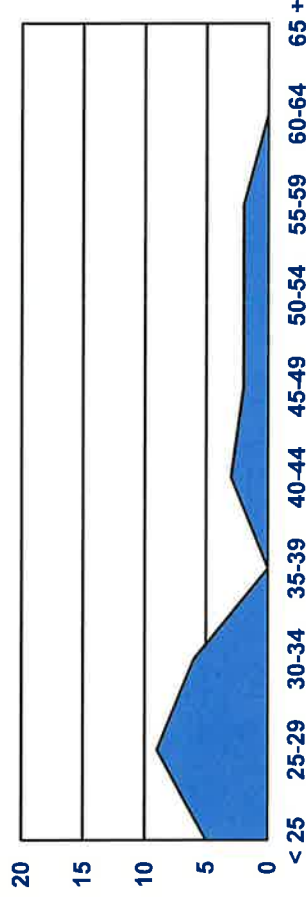
**Distribution by Years of Service**



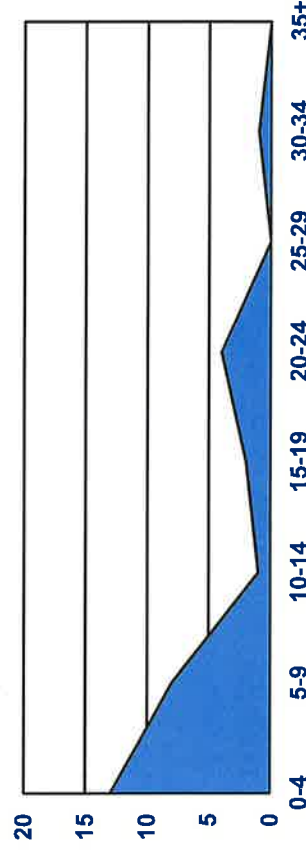
**Section V - Membership Data**  
**C. Distribution of Active Members as of July 1, 2018 - Count - Police**

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

**Distribution By Age**



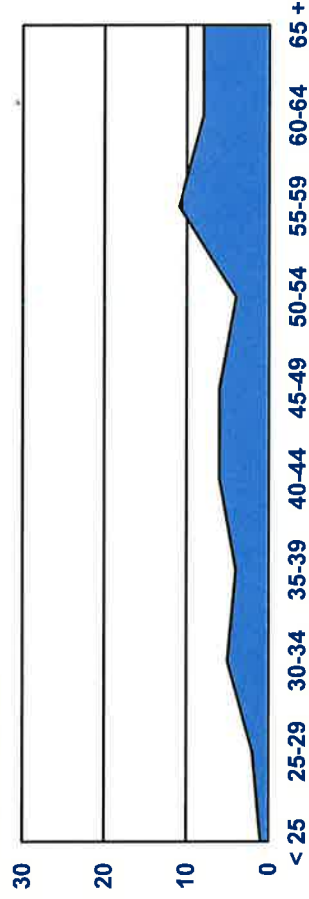
**Distribution by Years of Service**



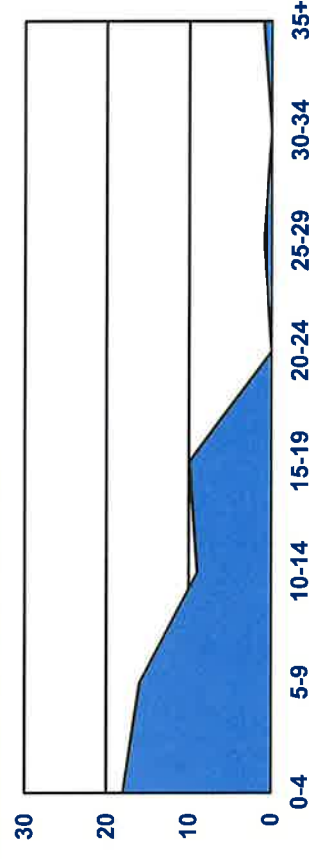
**Section V - Membership Data**  
**C. Distribution of Active Members as of July 1, 2018 - Count - Town**

Age	Years of Service										Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+			
< 25	0	1	0	0	0	0	0	0			1
25-29	1	1	0	0	0	0	0	0			2
30-34	2	2	1	0	0	0	0	0			5
35-39	1	1	2	0	0	0	0	0			4
40-44	2	0	2	2	0	0	0	0			6
45-49	5	0	0	1	0	0	0	0			6
50-54	1	2	0	1	0	0	0	0			4
55-59	2	4	2	3	0	0	0	0			11
60-64	2	3	2	1	0	0	0	0			8
65 +	2	2	0	2	0	1	0	1			8
<b>Total</b>	<b>18</b>	<b>16</b>	<b>9</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>			<b>55</b>

**Distribution By Age**



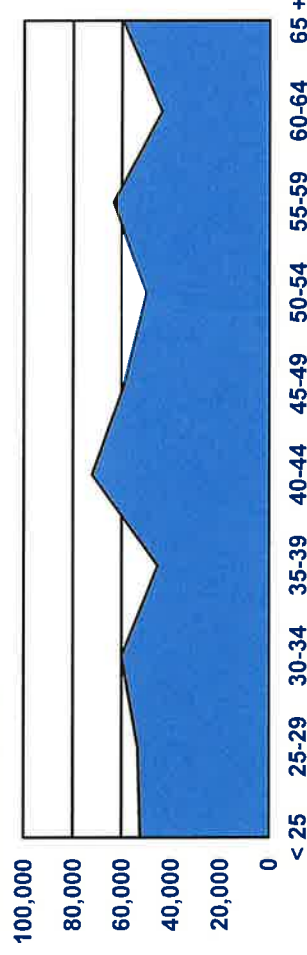
**Distribution by Years of Service**



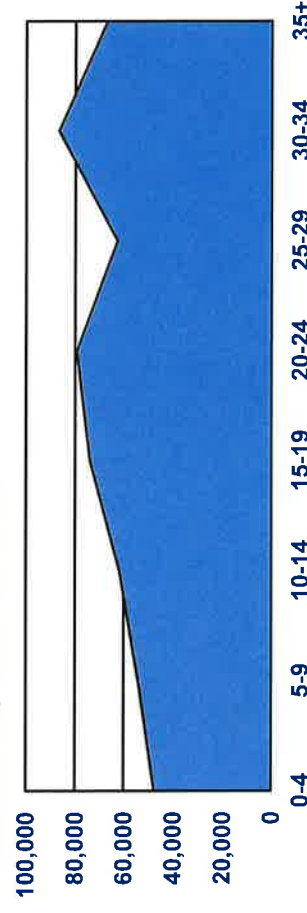
**Section V - Membership Data**  
**D. Distribution of Active Members as of July 1, 2018 - Average Pay - Total**

Age	Years of Service								Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
< 25	52,142	54,246	0	0	0	0	0	0	52,493
25-29	48,641	63,295	0	0	0	0	0	0	53,525
30-34	57,771	61,555	64,625	0	0	0	0	0	60,246
35-39	27,143	72,675	50,323	0	0	0	0	0	45,521
40-44	30,563	0	55,879	80,902	117,229	0	0	0	72,227
45-49	47,150	54,361	0	78,900	69,641	0	0	0	58,960
50-54	36,864	31,916	70,720	64,625	70,353	0	0	0	50,249
55-59	60,161	54,520	75,571	69,299	58,906	0	86,663	0	63,455
60-64	33,623	42,427	46,014	64,625	0	0	0	0	43,734
65 +	47,705	53,006	0	71,401	0	62,770	0	66,896	59,629
Total	47,703	54,209	61,838	73,796	79,261	62,770	86,663	66,896	57,487

**Distribution By Age**



**Distribution by Years of Service**

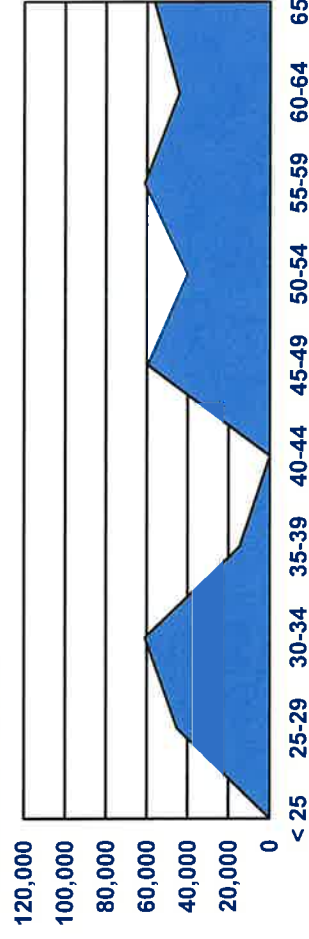


## Section V - Membership Data

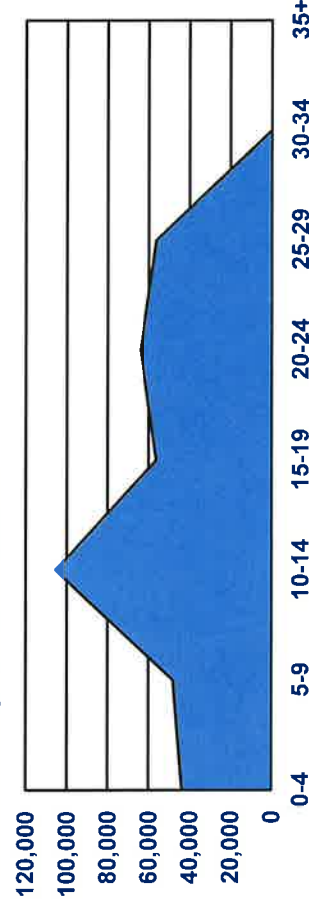
### D. Distribution of Active Members as of July 1, 2018 - Average Pay - Board of Education

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	0	
25-29	45,333	0	0	0	0	0	0	0	0	45,333	
30-34	67,350	54,985	0	0	0	0	0	0	0	61,168	
35-39	14,824	0	0	0	0	0	0	0	0	14,824	
40-44	0	0	0	0	0	0	0	0	0	0	
45-49	49,691	53,602	0	56,514	69,641	0	0	0	0	59,774	
50-54	30,220	17,510	70,720	0	53,726	0	0	0	0	40,479	
55-59	41,615	51,990	140,294	0	58,906	0	0	0	0	61,298	
60-64	0	44,323	0	0	0	0	0	0	0	44,323	
65 +	0	0	0	0	0	56,368	0	0	0	56,368	
Total	43,791	48,151	105,507	56,514	64,311	56,368	0	0	0	54,169	

Distribution By Age



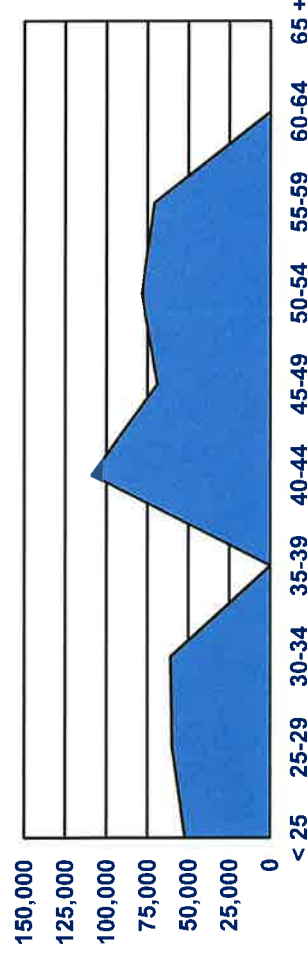
Distribution by Years of Service



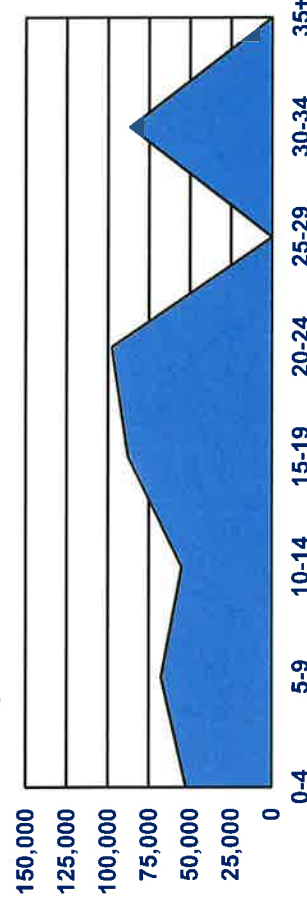
**Section V - Membership Data**  
**D. Distribution of Active Members as of July 1, 2018 - Average Pay - Police**

Age	Years of Service										Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+			
< 25	52,142	0	0	0	0	0	0	0			52,142
25-29	52,328	75,632	0	0	0	0	0	0			60,096
30-34	53,603	64,682	0	0	0	0	0	0			60,989
35-39	0	0	0	0	0	0	0	0			0
40-44	0	0	0	92,348	117,229	0	0	0			108,935
45-49	0	55,120	0	83,086	0	0	0	0			69,103
50-54	0	0	0	0	78,667	0	0	0			78,667
55-59	0	0	55,120	0	0	0	86,663	0			70,892
60-64	0	0	0	0	0	0	0	0			0
65 +	0	0	0	0	0	0	0	0			0
<b>Total</b>	<b>52,452</b>	<b>67,593</b>	<b>55,120</b>	<b>87,717</b>	<b>97,948</b>	<b>0</b>	<b>86,663</b>	<b>0</b>			<b>66,608</b>

**Distribution By Age**



**Distribution by Years of Service**

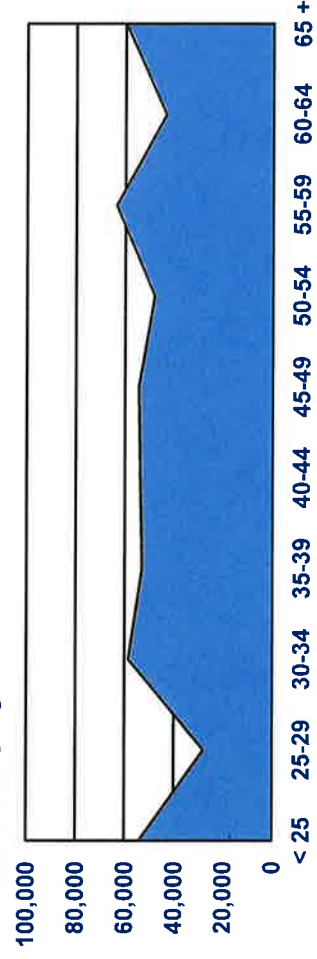




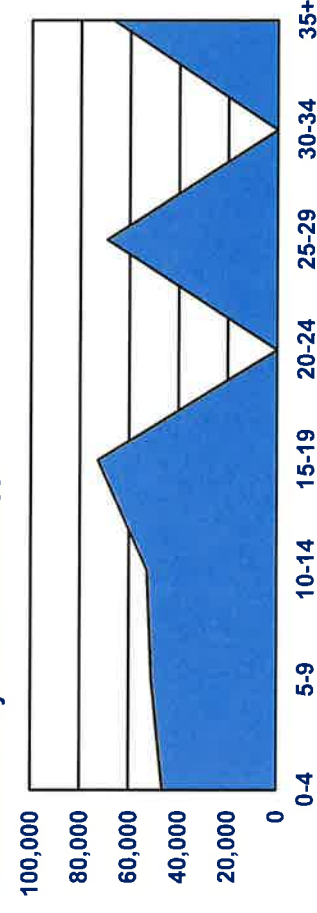
**Section V - Membership Data**  
**D. Distribution of Active Members as of July 1, 2018 - Average Pay - Town**

Age	Years of Service								Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	
< 25	0	54,246	0	0	0	0	0	0	54,246
25-29	29,828	26,282	0	0	0	0	0	0	28,055
30-34	52,359	61,870	64,625	0	0	0	0	0	58,616
35-39	39,462	72,675	50,323	0	0	0	0	0	53,196
40-44	30,563	0	55,879	75,179	0	0	0	0	53,873
45-49	46,134	0	0	97,100	0	0	0	0	54,629
50-54	50,151	39,120	0	64,625	0	0	0	0	48,254
55-59	78,706	57,050	53,435	69,299	0	0	0	0	63,671
60-64	33,623	41,795	46,014	64,625	0	0	0	0	43,660
65 +	47,705	53,006	0	71,401	0	69,172	0	66,896	60,036
Total	46,446	50,924	52,881	72,740	0	69,172	0	66,896	54,367

**Distribution By Age**



**Distribution by Years of Service**





## Section V - Membership Data

### E. Distribution of Inactive Members as of July 1, 2018

	Age	Number	Annual Benefits
<b>Terminated Vested Members /</b>	< 30	0	\$0
<b>Members Due Refunds</b>	30 - 39	1	0
	40 - 49	6	53,745
	50 - 59	6	57,695
	60 - 64	2	13,752
	65 +	0	0
	Total	15	125,193
<b>Retired Members</b>	< 50	0	\$0
	50 - 59	10	337,714
	60 - 69	30	541,212
	70 - 79	27	452,580
	80 - 89	8	102,050
	90 +	4	37,947
	Total	79	1,471,504
<b>Disabled Members</b>	< 50	0	\$0
	50 - 59	0	0
	60 - 69	0	0
	70 - 79	0	0
	80 - 89	0	0
	90 +	0	0
	Total	0	0
<b>Beneficiaries</b>	< 50	1	\$18,545
	50 - 59	0	0
	60 - 69	1	7,774
	70 - 79	3	13,710
	80 - 89	1	3,216
	90 +	0	0
	Total	6	43,245

## 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 liability for the plan is the excess of the Accrued Liability over the assets which have been accumulated for the plan. Beginning July 1, 2016, the **Unfunded Accrued Liability** is amortized as a level percent over 20 years. 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 the Market Value plus any accrued contributions with future market gains and losses recognized 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 Rate** 7.25% (Prior: 7.50%)

**Amortization Growth Rate** 3.00%

**Expenses** Prior year actual administrative expenses increased by 3% and rounded to the nearest \$100.

Salary Scale	Age	Current Rate	Prior Rate
	25	5.25%	5.50%
	30	4.50%	4.75%
	35	4.00%	4.25%
	40	3.75%	4.00%
	45	3.50%	3.75%
	50	3.25%	3.50%
	55	3.00%	3.25%
	60+	2.75%	3.00%

**Healthy Mortality** RP-2000 Combined Healthy Mortality Table, 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 Life Mortality Table, Male and Female. This assumption does not assume any improvements in longevity beyond the valuation date.

**Percent Married** All members are assumed to have an eligible spouse with females 3 years younger than males.

Disability	Age	Police	All Others
	25	0.13%	0.06%
	30	0.19%	0.06%
	35	0.28%	0.08%
	40	0.41%	0.12%
	45	0.63%	0.23%
	50	1.02%	0.52%
	55	1.74%	0.00%
	60+	2.42%	0.00%

## Appendix B - Actuarial Assumptions

Turnover	Service	Rate
	0-5	8.00%
	6-9	4.00%
	10+	2.00%

**Retirement** Police: 100% are assumed to retire at the earlier of age 60 or the completion of 25 years of service.

All Others:

Age	Current Rate	Prior Rate
55	5%	5%
56-61	3%	3%
62	15%	30%
63-64	15%	15%
65	15%	30%
66-69	25%	25%
70+	100%	100%

All members older than the assumed retirement age as of the valuation date are assumed to retire immediately.

## 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.

<b>Eligibility</b>	Any individual employed by the Town of Old Saybrook who has completed 6 months (12 months prior to January 1, 2008) of continued employment and who elects to make the necessary contributions. The contributions begin as of the date the participant enters the Plan. The individuals covered include those individuals employed by the Town of Old Saybrook, the Board of Education, and Police.
<b>Employee Contributions</b>	<p>5% of Earnings.</p> <p>No contributions will be required after 35 years of service or after Normal Retirement Date.</p> <p>Employee Contributions will be credited with interest at the rate of 5% per year.</p> <p>A refund of Employee Contributions with interest to the date of termination of employment or death is paid, unless the employee is eligible for a deferred retirement benefit.</p>
<b>Credited Service</b>	Whole years and full months from date of hire and while contributing, else from date of participation, but not greater than 35 years.
<b>Final Average Earnings</b>	Highest average earnings received in any 3 years.
<b>Normal Retirement Date</b>	<p>Police - The earlier of age 60 or 25 years of Credited Service.</p> <p>All Others - The earlier of age 62 or 5 years of Credited Service.</p>
<b>Normal Retirement Benefit</b>	<p>Police - 2% of Final Average Earnings multiplied by Credited Service up to 35 years. If completes less than 25 years of Credited Service, benefit is based on 2% between age 60 to age 62 and then 1½% after age 62.</p> <p>All Others - 1½% of Final Average Earnings multiplied by Credited Service prior to July 1, 1988 plus 2% of Final Average Earnings multiplied by Credited Service after July 1, 1988. Total Credited Service is limited to 35 years with service after July 1, 1988 counted first.</p>

## Appendix C - Summary of Plan Provisions

<b>Early Retirement Date</b>	The later of age 55 and the completion of 15 years of Credited Service.
<b>Early Retirement Benefit</b>	Benefit is based on Credited Service and Final Average Earnings to actual retirement date reduced by 6% for each year by which Early Retirement Date precedes Normal Retirement Date.
<b>Deferred Retirement Date</b>	Members may continue to work beyond Normal Retirement.
<b>Deferred Retirement Benefit</b>	Benefit based on Credited Service and Final Average Earnings to actual date of retirement.
<b>Normal Form of Annuity</b>	Modified Cash Refund.
<b>Preretirement Death Benefit</b>	A monthly survivor benefit payable on behalf of a member who has attained age 55 and completed 15 years of Credited Service, and who has a surviving spouse to whom the member has been married at least one year. The benefit will be 50% of the monthly retirement benefit which such member would have received had he or she retired on the day before death and elected a 50% Joint & Survivor Annuity.
<b>Disability Eligibility</b>	Police - 5 years of Credited Service.  All Others - 15 years of Credited Service.
<b>Disability Benefit</b>	Benefit calculated using Credited Service and Final Average Earnings through Date of Disability, reduced by any payments received under the Worker's Compensation Act.
<b>Vesting</b>	A member is 100% vested after 10 years of Credited Service or upon attainment of Normal Retirement.
<b>Termination Benefit</b>	Normal Retirement Benefit calculated using Credited Service and Final Average Earnings through Date of Termination.  All benefits are forfeited upon withdrawal of Employee Contributions.