Milliman

TOWN OF WESTPORT POLICE PENSION FUND

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

Prepared by

Rebecca A. Sielman, FSA
Consulting Actuary

80 Lamberton Road
Windsor, CT 06095 USA
Tel +1 860.687.2110
Fax +1 860.687.2111
milliman.com

January 5, 2018

Table of Contents

			Page
	CERTIFICATION		1
I	EXECUTIVE SUMMARY		
	A.	Highlights	3
	B.	Summary of Principal Results	9
II	PLAN ASSETS		
	A.	Summary of Fund Transactions	10
	B.	Development of Actuarial Value of Assets	11
III	DEVELOPMENT OF CONTRIBUTION		
	A.	Past Service Cost	12
	B.	Actuarially Determined Contribution	13
	C.	Long Range Forecast	14
IV	ACCOUNTING INFORMATION		
	A.	Notes to Required Supplementary Information	15
	B.	Schedule of Funding Progress	16
	C.	Schedule of Employer Contributions	17
	D.	Accrued and Vested Benefits	18
	E.	Statement of Changes in Accrued Plan Benefits	19
V	MEMBERSHIP DATA		
	A.	Reconciliation of Membership From Prior Valuation	20
	B.	Statistics of Membership	21
	C.	Distribution of Active Members - Count	22
	D.	Distribution of Active Members - Average Pay	23
	E.	Distribution of Inactive Members	24
	APPENDICES		
	A.	Actuarial Funding Method	25
	B.	Actuarial Assumptions	26
	C.	Summary of Plan Provisions	28

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.

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

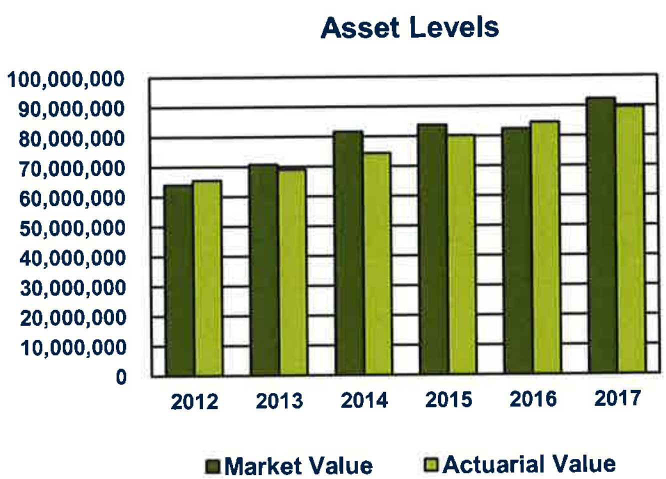
Section I - Executive Summary
A. Highlights

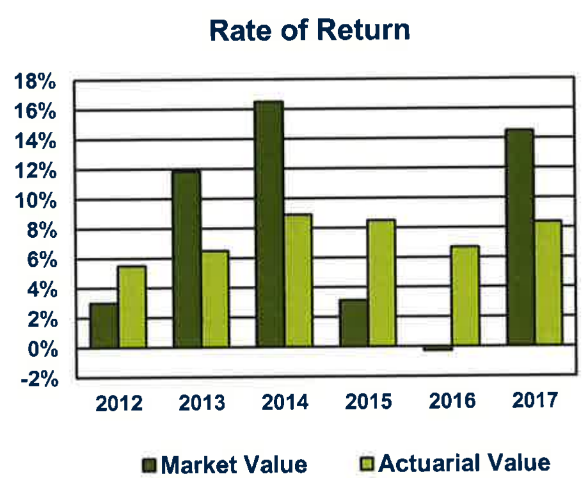
Assets

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	$82,438,322	$84,527,136
Contributions	3,100,837	3,100,837
Investment Income	11,801,989	6,982,396
Benefit Payments	(5,009,297)	(5,009,297)
Value as of July 1, 2017	92,331,851	89,601,072

For fiscal year 2016-17, the plan's assets earned 14.484% on a Market Value basis and 8.355% on an Actuarial Value basis. The actuarial assumption for this period was 6.125%; the result is an asset gain of $6.8 million on a Market Value basis and a gain of $1.9 million 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.



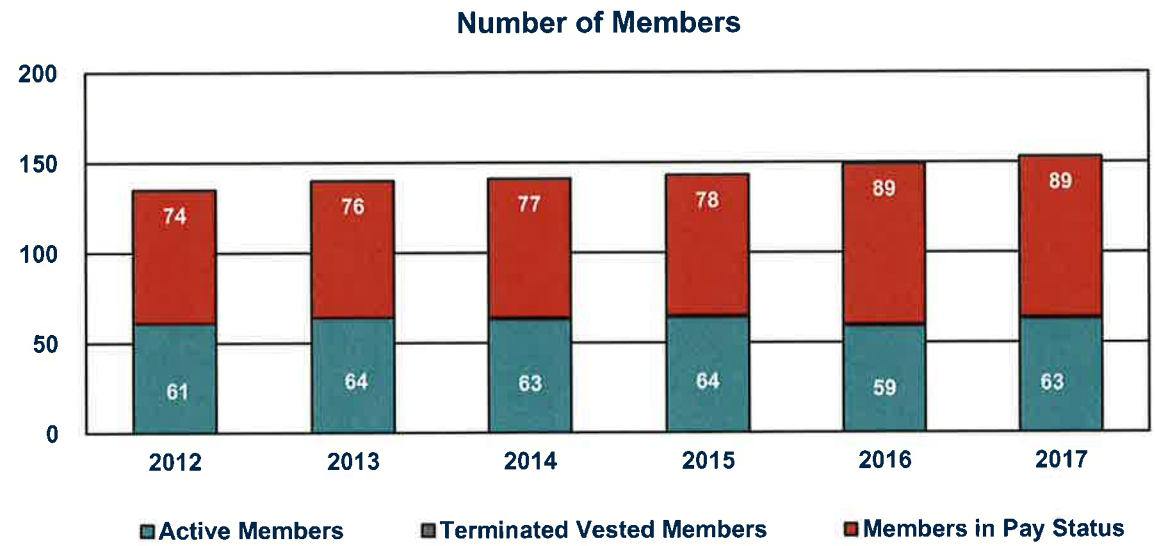


Please note that the Actuarial Value currently is less than the Market Value by $2.7 million. This figure represents investment gains that will be gradually recognized over the next five years. This process will exert downward pressure on the Town's contribution, unless there are offsetting market losses.

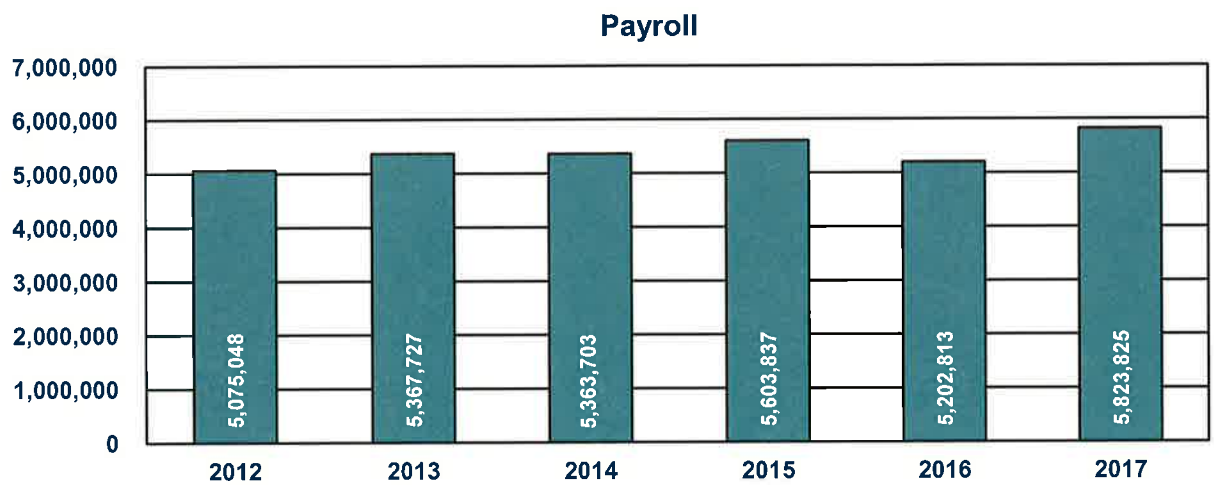
Section I - Executive Summary
A. Highlights

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.



From July 1, 2016 to July 1, 2017, the overall membership increased from 149 to 153. Active membership increased by 4, with 1 disability retirement and 5 new members. There was 1 member who died without a beneficiary and 3 members who died with a beneficiary.



Section I - Executive Summary
A. Highlights

Plan Changes

None.

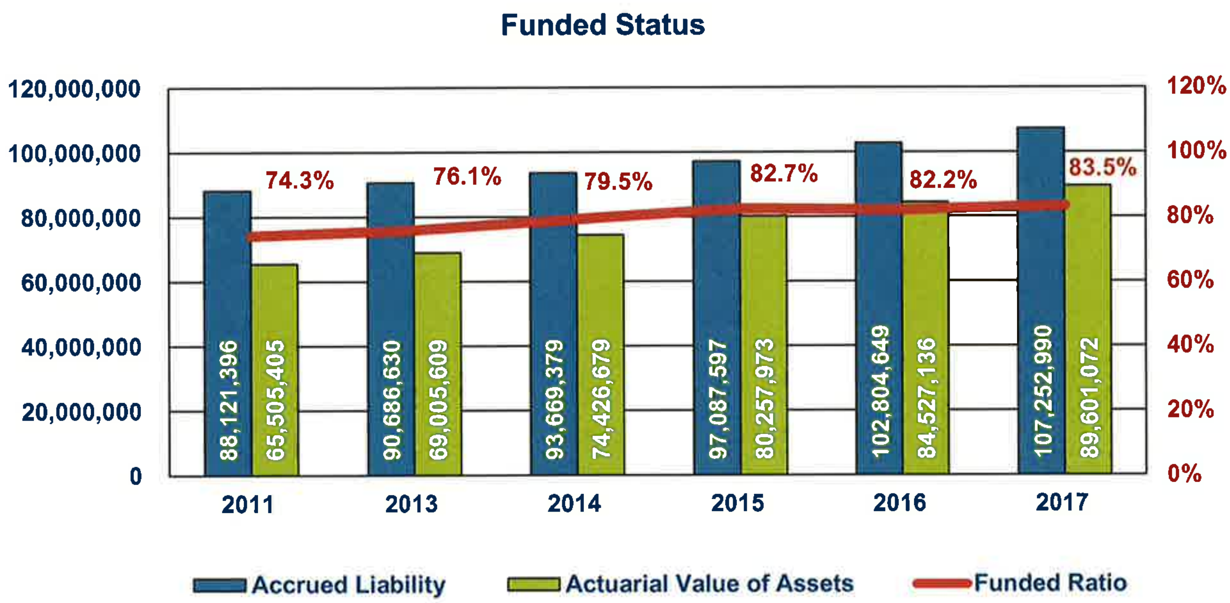
Changes in Actuarial Methods or Assumptions

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.

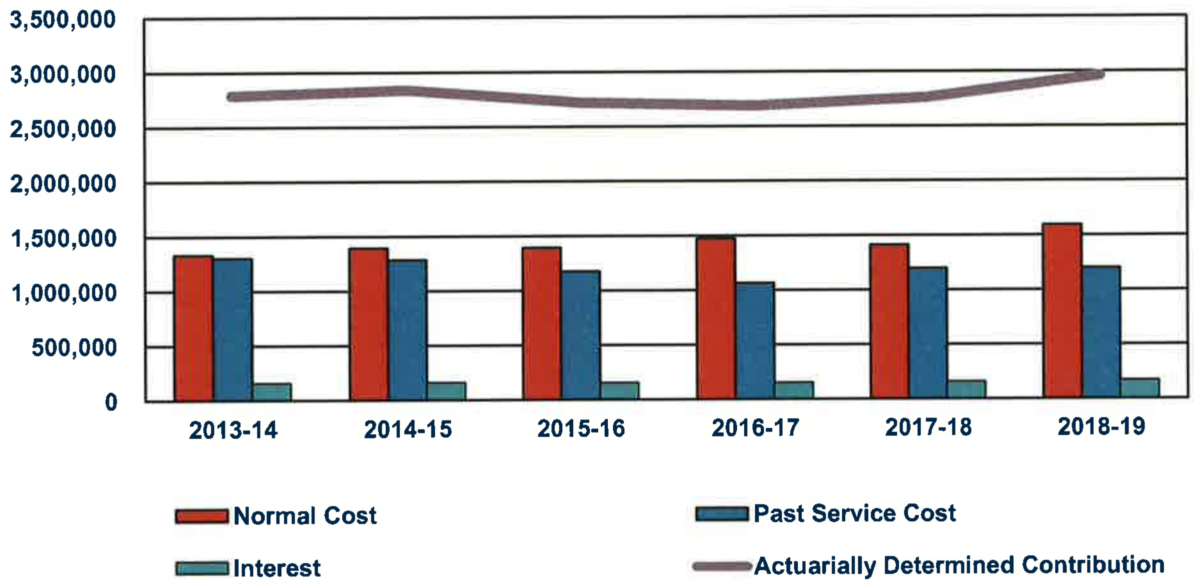


Section I - Executive Summary
A. Highlights

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.

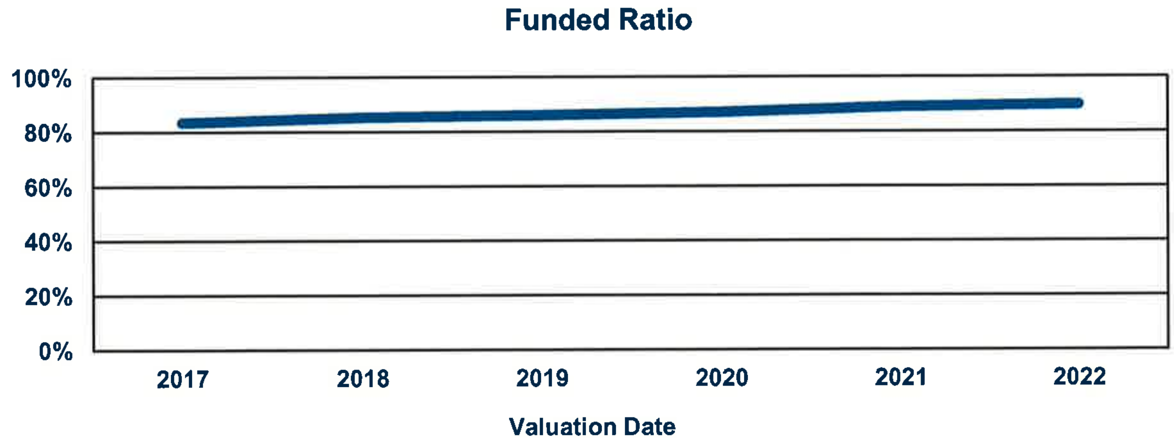
Contribution levels for the current year and the past few fiscal years are shown below.

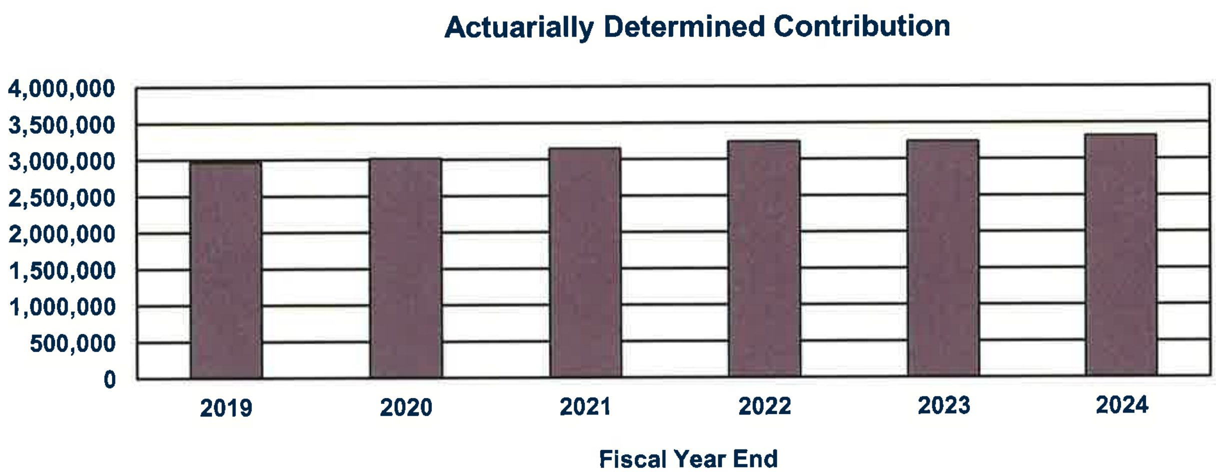


Section I - Executive Summary
A. Highlights

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	59	63
Terminated Vested Members	1	1
Members in Pay Status	89	89
Payroll	$5,202,813	$5,823,825

Assets and Liabilities	July 1, 2016	July 1, 2017
Market Value of Assets	$82,438,322	$92,331,851
Actuarial Value of Assets	84,527,136	89,601,072
Accrued Liability for Active Members	$22,573,754	$25,398,309
Accrued Liability for Terminated Vested Members	31,314	30,127
Accrued Liability for Members in Pay Status	80,199,581	81,824,554
Total Accrued Liability	102,804,649	107,252,990
Unfunded Accrued Liability	18,277,513	17,651,918
Funded Ratio	82.2%	83.5%

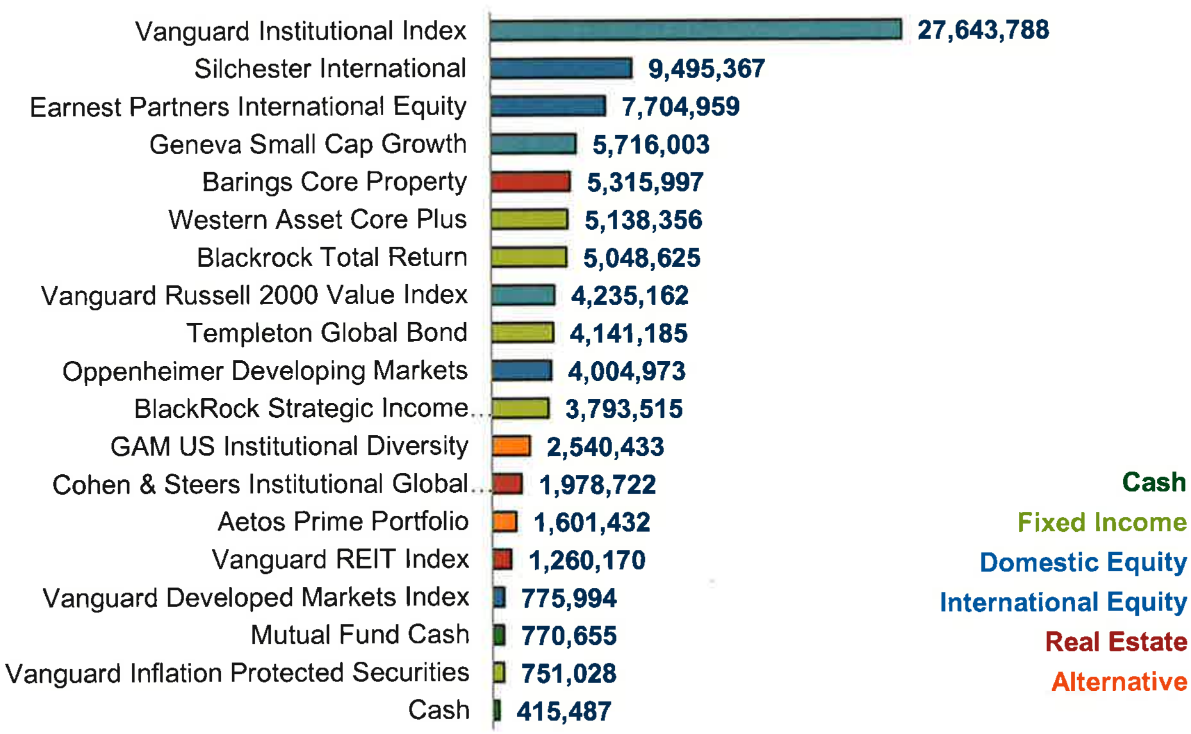
Actuarially Determined Contribution for Fiscal Year	2017-18	2018-19
Normal Cost	$1,410,196	$1,593,712
Past Service Cost	1,196,109	1,199,661
Interest	159,636	171,094
Actuarially Determined Contribution	2,765,941	2,964,467

Section II - Plan Assets
A. Summary of Fund Transactions

Market Value as of July 1, 2016	$82,438,322
Employer Contributions	2,555,374
Employee Contributions	545,463
Benefit Payments	(5,009,297)
Investment Income	11,959,865
Investment Expenses	(157,876)
Market Value as of July 1, 2017	92,331,851
Approximate Rate of Return	14.484%

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	$82,438,322
	b. Employer and Employee Contributions	3,100,837
	c. Benefit Payments	(5,009,297)
	d. Expected Investment Return Based on 6.125% Interest	4,990,830
	e. Expected Market Value of Assets as of July 1, 2017	85,520,692
2.	Actual Market Value of Assets as of July 1, 2017	92,331,851
3.	Market Value (Gain)/Loss: (1e) - (2)	(6,811,159)
4.	Delayed Recognition of Market (Gains)/Losses:	

Plan Year End	(Gain)/Loss	Percent Not Recognized	Amount Not Recognized
06/30/2017	($6,811,159)	80%	($5,448,927)
06/30/2016	5,329,319	60%	3,197,591
06/30/2015	2,449,100	40%	979,640
06/30/2014	(7,295,413)	20%	(1,459,083)
			(2,730,779)

5.	Actuarial Value of Assets as of July 1, 2017: (2) + (4)	89,601,072
6.	Approximate Rate of Return on Actuarial Value of Assets	8.355%
7.	Actuarial Value (Gain)/Loss	(1,863,644)

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	$22,573,754	$25,398,309
Terminated Vested Members	31,314	30,127
Retired Members	58,952,277	59,597,856
Disabled Members	15,261,818	15,027,074
Beneficiaries of Deceased Members	5,985,486	7,199,624
Total	102,804,649	107,252,990
2. Actuarial Value of Assets (see Section II B)	84,527,136	89,601,072
3. Unfunded Accrued Liability: (1) - (2)	18,277,513	17,651,918
4. Funded Ratio: (2) / (1)	82.2%	83.5%
5. Amortization Period	20	19
6. Amortization Growth Rate	3.00%	3.00%
7. Past Service Cost: (3) amortized over (5)	1,196,109	1,199,661

Section III - Development of Contribution
B. Actuarially Determined Contribution

	Fiscal Year 2017-18	Fiscal Year 2018-19
1. Total Normal Cost	$1,931,161	$2,179,557
2. Expected Employee Contributions	520,965	585,845
3. Expected Expenses	0	0
4. Net Normal Cost: (1) - (2) + (3)	1,410,196	1,593,712
5. Past Service Cost (see Section III A)	1,196,109	1,199,661
6. Interest on (4) + (5) to start of next fiscal year	159,636	171,094
7. Actuarially Determined Contribution: (4) + (5) + (6)	2,765,941	2,964,467

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	$107,252,990	$89,601,072	$17,651,918	83.5%	2019	$2,964,467	$620,547	($5,312,122)	($1,727,108)
7/1/2018	110,734,000	94,627,000	16,107,000	85.5%	2020	3,020,000	648,000	(5,446,000)	(1,778,000)
7/1/2019	114,414,000	98,539,000	15,875,000	86.1%	2021	3,149,000	674,000	(5,598,000)	(1,775,000)
7/1/2020	118,300,000	103,140,000	15,160,000	87.2%	2022	3,244,000	694,000	(5,781,000)	(1,843,000)
7/1/2021	122,376,000	109,074,000	13,302,000	89.1%	2023	3,243,000	711,000	(5,985,000)	(2,031,000)
7/1/2022	126,595,000	113,855,000	12,740,000	89.9%	2024	3,317,000	725,000	(6,214,000)	(2,172,000)
7/1/2023	130,936,000	118,735,000	12,201,000	90.7%	2025	3,395,000	741,000	(6,446,000)	(2,310,000)
7/1/2024	135,384,000	123,770,000	11,614,000	91.4%	2026	3,477,000	755,000	(6,698,000)	(2,466,000)
7/1/2025	139,934,000	128,970,000	10,964,000	92.2%	2027	3,551,000	765,000	(6,981,000)	(2,665,000)
7/1/2026	144,547,000	134,327,000	10,220,000	92.9%	2028	3,621,000	774,000	(7,293,000)	(2,898,000)
7/1/2027	149,184,000	139,808,000	9,376,000	93.7%	2029	3,660,000	777,000	(7,627,000)	(3,190,000)
7/1/2028	153,796,000	145,385,000	8,411,000	94.5%	2030	3,673,000	786,000	(7,952,000)	(3,493,000)
7/1/2029	158,355,000	151,003,000	7,352,000	95.4%	2031	3,704,000	798,000	(8,246,000)	(3,744,000)
7/1/2030	162,930,000	156,651,000	6,279,000	96.1%	2032	3,743,000	804,000	(8,572,000)	(4,025,000)
7/1/2031	167,495,000	162,387,000	5,108,000	97.0%	2033	3,738,000	805,000	(8,936,000)	(4,393,000)
7/1/2032	172,026,000	168,185,000	3,841,000	97.8%	2034	3,672,000	791,000	(9,372,000)	(4,909,000)
7/1/2033	176,467,000	173,958,000	2,509,000	98.6%	2035	3,483,000	800,000	(9,707,000)	(5,424,000)
7/1/2034	180,710,000	179,554,000	1,156,000	99.4%	2036	3,260,000	781,000	(10,143,000)	(6,102,000)
7/1/2035	184,833,000	184,961,000	(128,000)	100.1%	2037	2,445,000	743,000	(10,696,000)	(7,508,000)
7/1/2036	188,738,000	190,001,000	(1,263,000)	100.7%	2038	1,084,000	749,000	(11,036,000)	(9,203,000)

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, 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%.

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	$62,550,205	$77,730,716	$15,180,511	80.5%	$5,338,349	284.4%
07/01/2012	2013-14	65,505,405	88,121,396	22,615,991	74.3%	5,075,048	445.6%
07/01/2013	2014-15	69,005,609	90,686,630	21,681,021	76.1%	5,367,727	403.9%
07/01/2014	2015-16	74,426,679	93,669,379	19,242,700	79.5%	5,363,703	358.8%
07/01/2015	2016-17	80,257,973	97,087,597	16,829,624	82.7%	5,603,837	300.3%
07/01/2016	2017-18	84,527,136	102,804,649	18,277,513	82.2%	5,202,813	351.3%
07/01/2017	2018-19	89,601,072	107,252,990	17,651,918	83.5%	5,823,825	303.1%

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	$1,239,465	$913,000	$326,465	$4,465,940	20.4%
2011	1,922,372	2,100,000	(177,628)	4,126,571	50.9%
2012	2,312,683	2,336,000	(23,317)	5,294,796	44.1%
2013	2,297,852	2,297,852	0	5,338,349	43.0%
2014	2,793,151	2,478,948	314,203	5,075,048	48.8%
2015	2,841,811	2,918,811	(77,000)	5,367,727	54.4%
2016	2,725,575	2,725,575	0	5,363,703	50.8%
2017	2,691,004	2,555,374	135,630	5,603,837	45.6%
2018	2,765,941	TBD	TBD	5,202,813	TBD
2019	2,964,467	TBD	TBD	5,823,825	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	$12,598,464	$14,451,201
Terminated Vested Members	31,314	30,127
Retired Members	58,952,277	59,597,856
Disabled Members	15,261,818	15,027,074
Beneficiaries of Deceased Members	5,985,486	7,199,624
Total Value of Vested Benefits	92,829,359	96,305,882
2. Value of Non-Vested Benefits	5,020,412	6,113,378
3. Total Value of Accrued Benefits: (1) + (2)	97,849,771	102,419,260
4. Market Value of Assets	82,438,322	92,331,851
5. Vested Funded Ratio: (4) / (1)	88.8%	95.9%
6. Accrued Funded Ratio: (4) / (3)	84.2%	90.2%

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	$5,842,169
Benefits Accumulated/(Forfeited)	3,736,617
Benefit Payments	(5,009,297)
Plan Amendments	0
Changes in Actuarial Assumptions	0
Net Increase/(Decrease)	4,569,489

Value of Accrued Plan Benefits:

July 1, 2017	$102,419,260
July 1, 2016	97,849,771
Net Increase/(Decrease)	4,569,489

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	59	1	49	22	18	149
Terminated, due refund	-	-	-	-	-	0
Terminated, benefits due	-	-	-	-	-	0
Retired	-	-	-	-	-	0
Disabled	(1)	-	-	1	-	0
Died, with beneficiary	-	-	-	(3)	3	0
Died, no beneficiary	-	-	(1)	-	-	(1)
Paid refund		-	-	-	-	0
Net transfers	-	-	-	-	-	0
New member	5	-	-	-	-	5
New beneficiary	-	-	-	-	-	0
Correction	-	-	-	-	-	0
Count as of July 1, 2017	63	1	48	20	21	153

Section V - Membership Data
B. Statistics of Membership

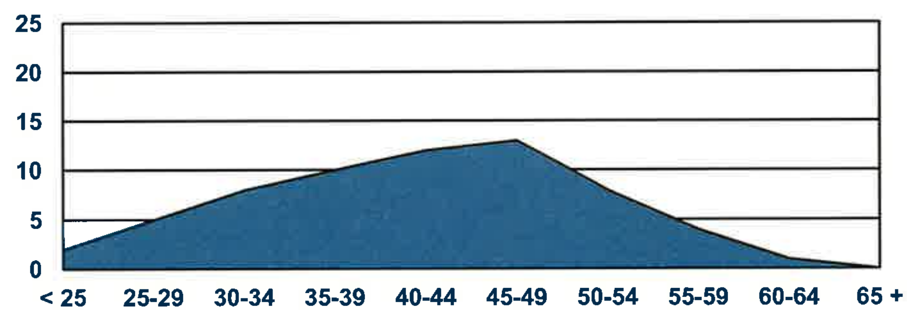
	As of July 1, 2016	As of July 1, 2017
Active Members		
Number	59	63
Average Age	41.6	41.7
Average Service	10.3	10.4
Total Payroll	$5,202,813	$5,823,825
Average Payroll	88,183	92,442
Terminated Vested Members		
Number	1	1
Total Annual Benefit	$0	$0
Average Annual Benefit	0	0
Average Age	52.0	53.0
Retired Members		
Number	49	48
Total Annual Benefit	$3,416,467	$3,487,529
Average Annual Benefit	69,724	72,657
Average Age	66.7	67.1
Disabled Members		
Number	22	20
Total Annual Benefit	$1,080,436	$1,047,952
Average Annual Benefit	49,111	52,398
Average Age	68.2	67.6
Beneficiaries of Deceased Members		
Number	18	21
Total Annual Benefit	$483,179	$593,135
Average Annual Benefit	26,843	28,245
Average Age	72.7	73.2

Section V - Membership Data

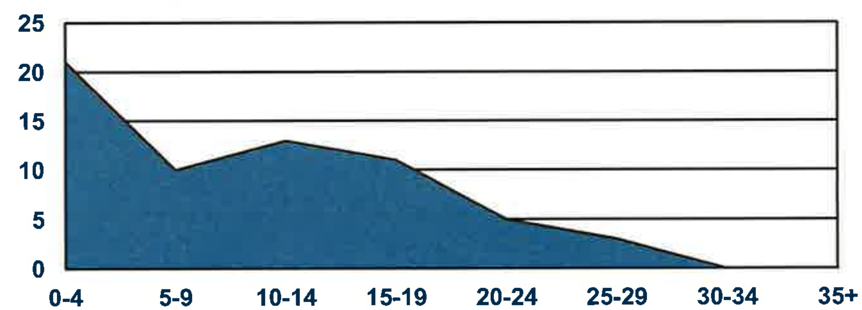
C. Distribution of Active Members as of July 1, 2017 - Count

	Years of Service								
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Total
< 25	2	0	0	0	0	0	0	0	2
25-29	4	1	0	0	0	0	0	0	5
30-34	4	2	2	0	0	0	0	0	8
35-39	0	4	5	1	0	0	0	0	10
40-44	3	1	3	5	0	0	0	0	12
45-49	4	1	1	3	4	0	0	0	13
50-54	2	0	2	2	1	1	0	0	8
55-59	2	1	0	0	0	1	0	0	4
60-64	0	0	0	0	0	1	0	0	1
65 +	0	0	0	0	0	0	0	0	0
Total	21	10	13	11	5	3	0	0	63

Distribution By Age



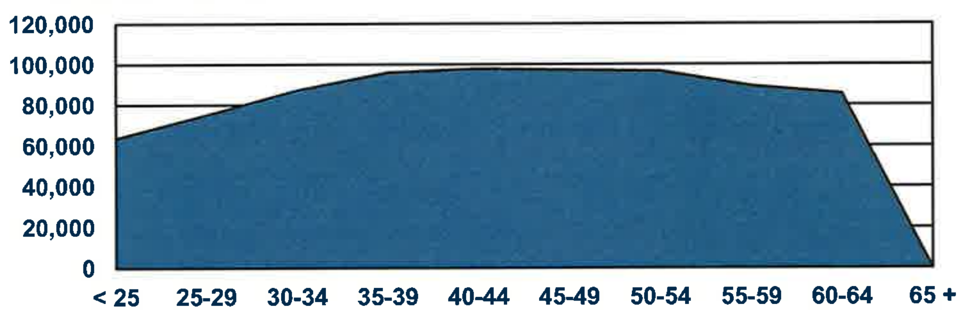
Distribution by Years of Service



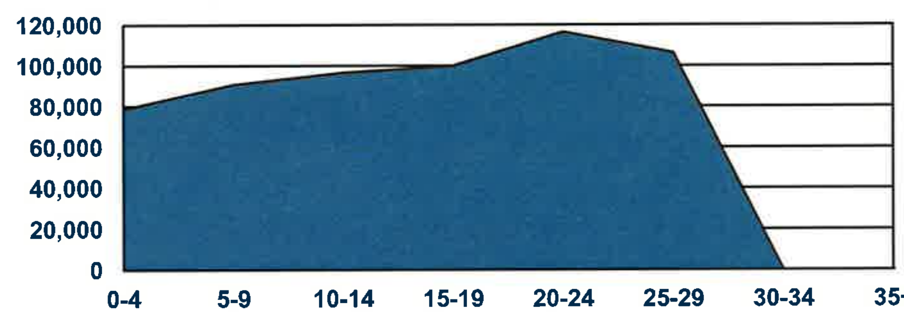
Section V - Membership Data
D. Distribution of Active Members as of July 1, 2017 - Average Pay

	Years of Service								
Age	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Total
< 25	63,843	0	0	0	0	0	0	0	63,843
25-29	71,485	90,320	0	0	0	0	0	0	75,252
30-34	78,375	86,276	106,652	0	0	0	0	0	87,419
35-39	0	92,850	101,078	84,292	0	0	0	0	96,109
40-44	86,110	91,933	88,805	111,862	0	0	0	0	97,999
45-49	79,710	86,616	85,624	94,925	122,553	0	0	0	97,389
50-54	90,538	0	93,469	85,983	92,694	141,660	0	0	96,792
55-59	84,800	95,871	0	0	0	91,967	0	0	89,359
60-64	0	0	0	0	0	85,621	0	0	85,621
65 +	0	0	0	0	0	0	0	0	0
Total	78,808	90,869	96,744	100,031	116,581	106,416	0	0	92,442

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 / Members Due Refunds	< 30	0	$0
	30 - 39	0	0
	40 - 49	0	0
	50 - 59	1	0
	60 - 64	0	0
	65 +	0	0
	Total	1	0
Retired Members	< 50	0	$0
	50 - 59	9	643,099
	60 - 69	21	1,691,738
	70 - 79	12	955,493
	80 - 89	6	197,199
	90 +	0	0
	Total	48	3,487,529
Disabled Retirees	< 50	2	$94,361
	50 - 59	0	0
	60 - 69	8	450,263
	70 - 79	9	480,629
	80 - 89	1	22,699
	90 +	0	0
	Total	20	1,047,952
Beneficiaries	< 50	1	$73,214
	50 - 59	0	0
	60 - 69	9	278,216
	70 - 79	5	140,794
	80 - 89	3	49,342
	90 +	3	51,569
	Total	21	593,135

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.

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

Age	Rate
<54	5%
54-56	20%
57	15%
58	20%
59-61	30%
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):

	In-Service		Non-Service	
Age	**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%.

Marriage Assumption

80% of members are assumed to be married and husbands are assumed to be 3 years older than their wives.

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 2.00% 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 Police Officer is eligible to participate as of date of employment.

Employee Contributions

10% of Compensation, with no contributions required after 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 service. Credited Service includes unused sick time up to 120 days.

Compensation

Base Salary plus any additional increments and allowances for college credit, weapons qualification and "pick-up" contributions. Compensation excludes overtime or any other income.

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 January 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 January 1, 1985, the later of July 1 following attainment of age 49 or the first day of the month 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 of 32.5 years).

Early Retirement Date

None provided.

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. If the disability is deemed to be at a level of severity of less than 30%, then commencing with the 6th year of disability, the benefit will be reduced to 50% of base salary or, if greater, accrued benefit.

Payable as a 100% Joint & Survivor annuity.

Appendix C - Summary of Plan Provisions

Disability Retirement (On Duty)	For members hired after January 1, 1985, 75% of the amount described above is payable. The benefit will be adjusted by a Pension Adjustment beginning on the July 1 after 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 January 1, 1985, 66⅔% of base salary or, if greater, the Normal Retirement Benefit calculated assuming the member terminated employment at date of death. For members hired on or after January 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 terminated employment at date of death. The monthly 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 January 1, 1985. 75% Joint & Survivor for members hired on or after January 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. 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 monthly benefit is not subject to Pension Adjustments. Can opt to receive a refund of employee contributions with interest in lieu of monthly benefits.
Termination Benefit	If not vested at termination, a refund of accumulated employee contributions with interest will be paid.

Appendix C - Summary of Plan Provisions

Pension Adjustment

Retirements prior to July 1, 2001:

- elected 75% Joint & Survivor annuity - COLA is ⅓ of active member pay increases but not more than 2%.
- elected 100% Joint & Survivor annuity - COLA is ⅙ of active member pay increases but not more than 1%.

Retirements on or after November 1, 2005:

- 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.
- 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.

Retirements between July 1, 2001 and November 1, 2005 - member could elect either COLA structure.

Pre-1985 retirees and certain surviving spouses may not be eligible for COLAs.