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September 12, 2016

Mr. Kevin McNabola
Director of Finance
City of West Haven
355 Main Street
West Haven, CT 06516

Re: City of West Haven Police Pension Plan
January 1, 2016 Actuarial Valuation

Dear Kevin:

We have performed an actuarial valuation of the City of West Haven Police Pension Plan as of January 1, 2016 for the Fiscal Year 2016-17. The results of the valuation are contained in the following report.

Section I contains an Introduction in which we present the principal results of this valuation. Details regarding Plan assets, liabilities, and costs are found in Sections II, III and IV. Section V contains certain accounting information; please note that information to be included in the City's financial statements per GASB Statement No. 67 and 68 has been provided in a separate report. Sections VI, VII, and VIII contain information regarding Plan membership, an outline of the benefit provisions, and a description of the actuarial method and assumptions employed in this valuation.

The revised Actuarially Determined Contribution for Fiscal Year 2016-17 is \$1,734,045 (26.32% of payroll) if paid at the beginning of the fiscal year or \$1,861,931 (28.26% of payroll) if paid at the end of the fiscal year.

In our opinion, this report fairly presents the financial and actuarial position of the City of West Haven Police Pension Plan at January 1, 2016. On the basis of the foregoing, we hereby certify that, to the best of our knowledge, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices set forth by the American Academy of Actuaries.

Respectfully submitted,

Rebecca A. Sielman, FSA
Consulting Actuary

RAS/dlc

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CITY OF WEST HAVEN POLICE PENSION PLAN

**Actuarial Valuation as of January 1, 2016
For Fiscal Year 2016-2017**

Prepared by

Rebecca A. Sielman, FSA
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Certification

We have performed an actuarial valuation of the Plan as of January 1, 2016 for fiscal year 2016-2017. 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 City. 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 City may provide a copy of Milliman's work, in its entirety, to the City'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 City; and (b) the City 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 City. We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have found them to be reasonably consistent and comparable with data used for other purposes. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete and our calculations may need to be revised. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Certification

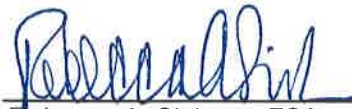
The calculations reported herein have been made on a basis consistent with our understanding of ERISA and the related sections of the tax code. Additional determinations may be needed for purposes other than meeting funding requirements, such as judging benefit security at plan termination or meeting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

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

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.

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

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.



Rebecca A. Sielman, FSA
Consulting Actuary

Section I - Executive Summary

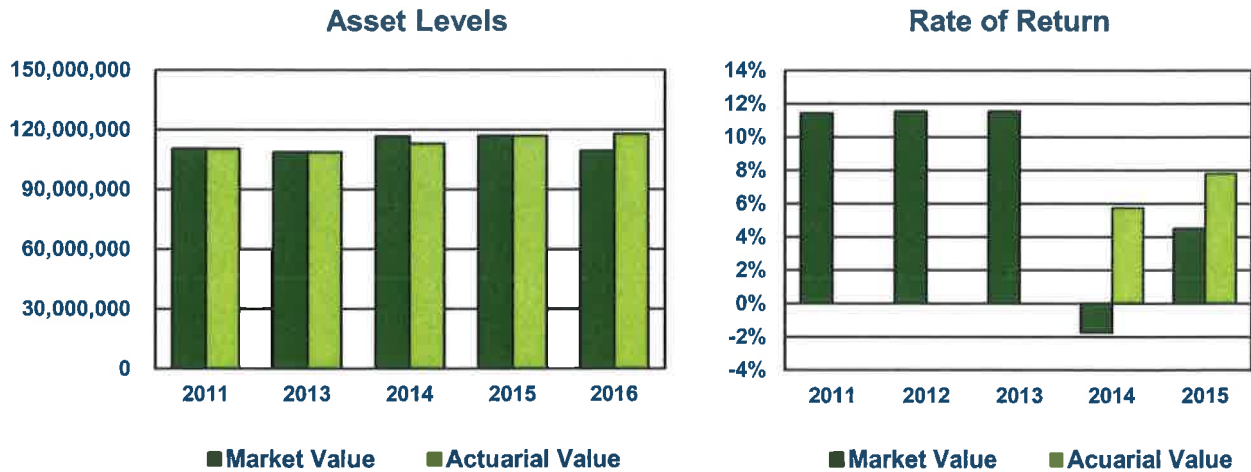
A. Highlights

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 January 1, 2014	\$116,619,167	\$113,076,770
Contributions	3,046,640	3,046,640
Investment Income	3,140,562	15,209,178
Benefit Payments and Administrative Expenses	(13,468,012)	(13,468,012)
Value as of January 1, 2016	109,338,357	117,864,576

On a Market Value basis, the assets earned 4.484% in 2014 and -1.736% in 2015. The actuarial assumption was 7.375%; the result was an asset loss of \$3,301,900 in 2014 and \$10,395,400 in 2015. On an Actuarial Value basis, the returns for 2014 and 2015 were 7.815% and 5.750%, respectively, for a gain of \$486,900 and a loss of \$1,854,100, respectively.



Please note that the Actuarial Value currently exceeds the Market Value by \$8,526,200. This figure represents investment losses that will be gradually recognized over the next five years. This process will exert upward pressure on the City's contribution, unless there are offsetting market gains.

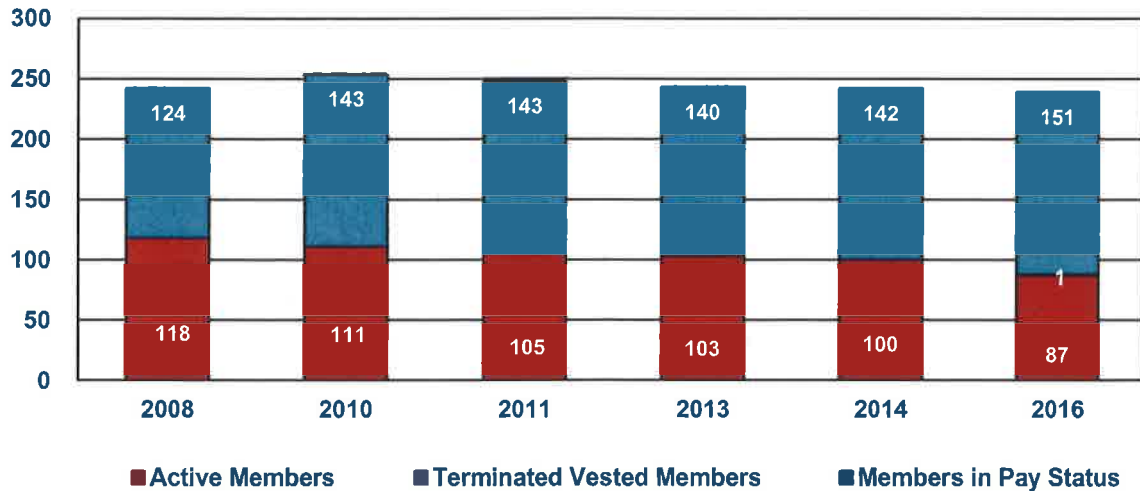
Section I - Executive Summary

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 January 1, 2014 to January 1, 2016, the overall membership decreased from 242 to 239. During this period, there were a total of 6 members who retired, 5 who became disabled, 1 who terminated with a vested benefit and 1 lump sum distribution. 2 retired members and 1 beneficiary died with no continuation of benefits. 2 retired members died with benefits continuing to their beneficiaries.

Section I - Executive Summary

A. Highlights

Plan Changes

None.

Changes in Actuarial Methods or Assumptions

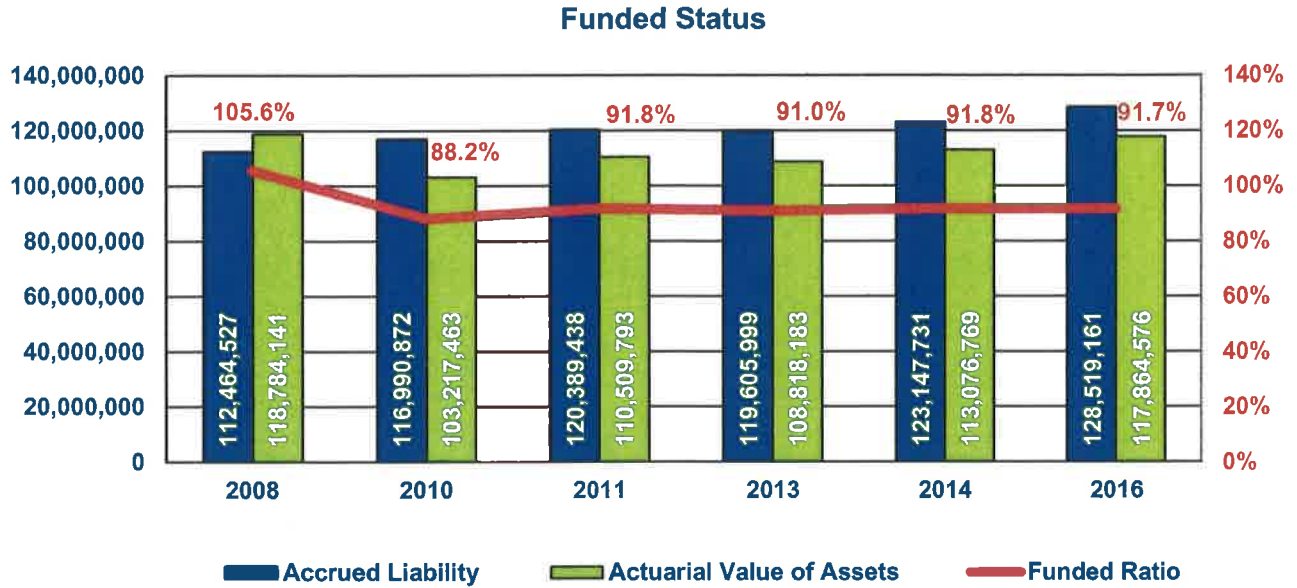
We lowered the assumption for the next pay grade adjustment from 5.00% to 4.00%. This change, measured as of January 1, 2016, decreased the unfunded accrued liability by \$255,000 and decreased the Actuarially Determined Contribution by \$32,000.

Section I - Executive Summary

A. Highlights

Funded Status

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



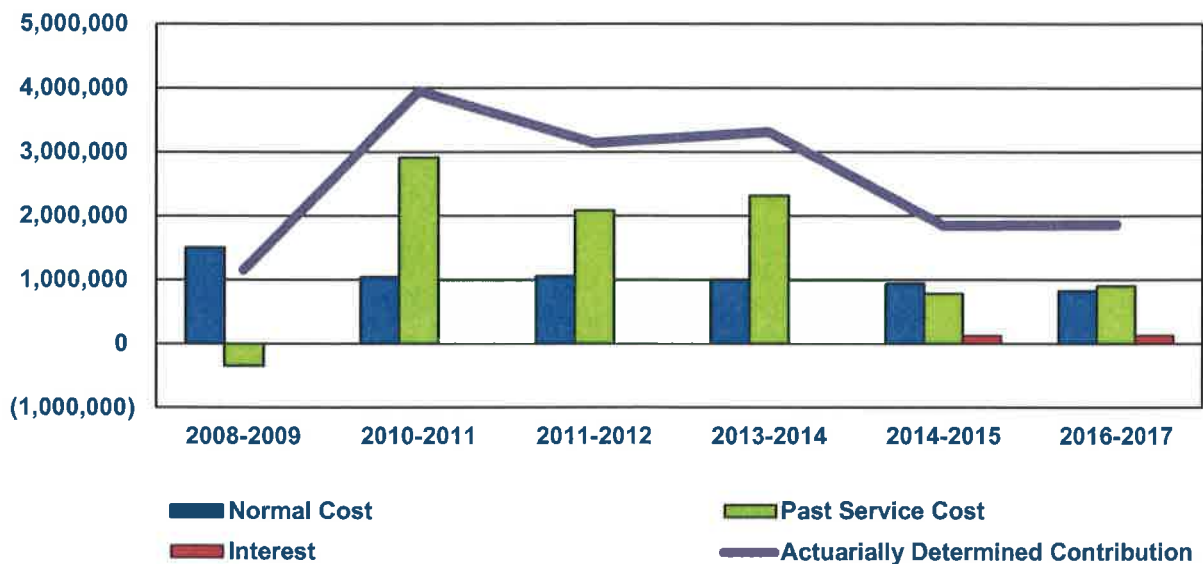
Section I - Executive Summary

A. Highlights

Actuarially Determined Contribution

The Actuarially Determined Contribution consists of three pieces: a **Normal Cost** payment to fund the benefits earned each year, a **Past Service Cost** to gradually reduce any unfunded or surplus liability, and **Interest** assuming payment is made mid-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.



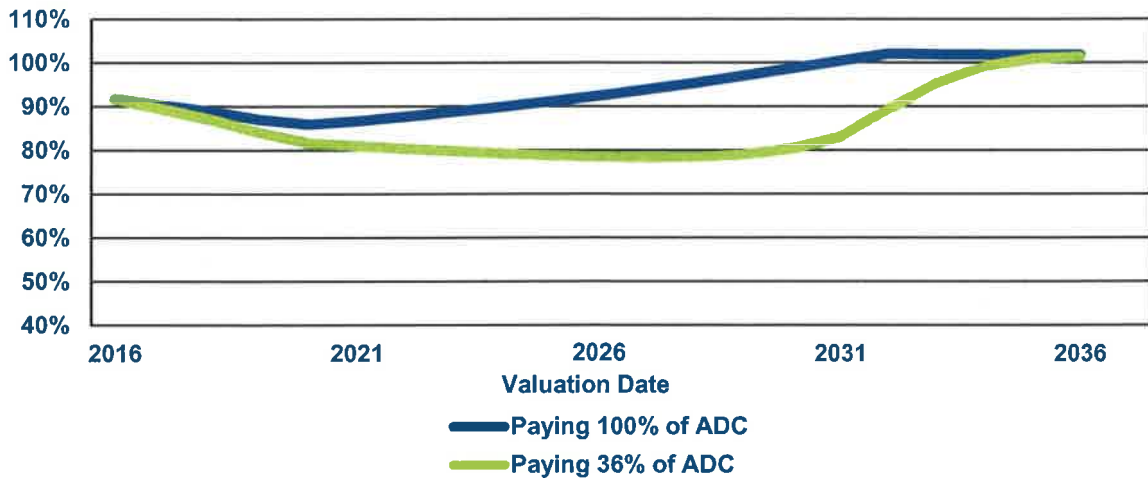
Section I - Executive Summary

A. Highlights

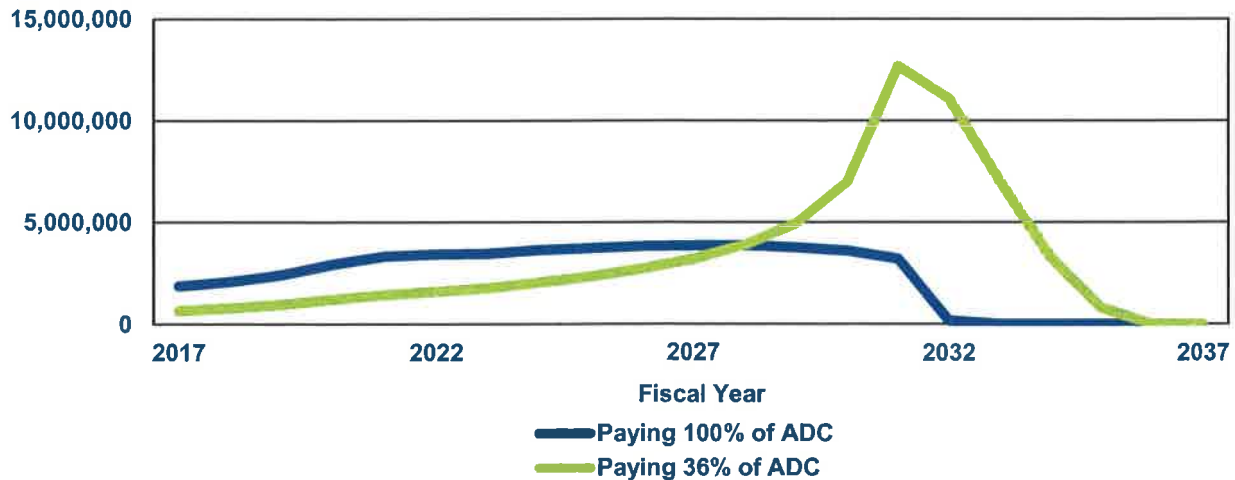
Long Range Forecast

For fiscal years ending 2011-2015, the City contributed approximately 36% of the Actuarial Determined Contribution (ADC). Based on the results of the January 1, 2016 valuation, we prepared long range forecasts under two scenarios: in blue below, we assume the City pays 100% of the ADC in all future years; in green below, we assume the City pays 36% of the ADC.

Funded Ratio



City Contribution



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

Section I - Executive Summary

B. Summary of Principal Results

Membership	January 1, 2014	January 1, 2016
Active Members	100	87
Terminated Vested Members	0	1
Members in Pay Status	142	151
Payroll	\$7,160,460	\$6,588,354
Assets and Liabilities	January 1, 2014	January 1, 2016
Market Value of Assets	\$116,619,167	\$109,338,357
Actuarial Value of Assets	113,076,769	117,864,576
Accrued Liability for Active Members	\$37,093,545	\$34,992,999
Accrued Liability for Terminated Vested Members	0	264,593
Accrued Liability for Members in Pay Status	86,054,186	93,261,569
Total Accrued Liability	123,147,731	128,519,161
Unfunded Accrued Liability	10,070,962	10,654,585
Funded Ratio	91.8%	91.7%
Actuarially Determined Contribution for Fiscal Year	2014-2015	2016-2017
Normal Cost	939,381	826,804
Past Service Cost	782,180	907,241
Interest	126,967	127,886
Actuarially Determined Contribution	1,848,528	1,861,931
As a percent of Payroll	25.82%	28.26%

Section II - Plan Assets
A. Summary of Fund Transactions

Market Value of Assets as of January 1, 2014	\$116,619,167
Employer Contributions	1,103,450
Employee Contributions	618,379
Benefit Payments	(6,535,969)
Interest and Dividends	1,639,213
Unrealized Gains/(Losses)	3,963,766
Realized Gains/(Losses)	0
Investment Expenses	(481,696)
Administrative Expenses	0
 Market Value of Assets as of January 1, 2015	 116,926,310
Employer Contributions	750,000
Employee Contributions	574,811
Benefit Payments	(6,932,043)
Interest and Dividends	1,721,930
Unrealized Gains/(Losses)	(3,231,961)
Realized Gains/(Losses)	0
Investment Expenses	(470,690)
Administrative Expenses	0
 Market Value of Assets as of January 1, 2016	 109,338,357
 Approximate Rate of Return	
2014	4.484%
2015	-1.736%

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

Section II - Plan Assets

B. Development of Actuarial Value of Assets

In order to dampen the impact of market fluctuations on the contribution level, we use an Actuarial Value of Assets that recognizes market gains and losses over a five year period.

1.	Expected Market Value of Assets as of January 1, 2015			
	a. Market Value of Assets as of January 1, 2014	\$116,619,167		
	b. Employer and Employee Contributions	1,721,829		
	c. Benefit Payments	(6,535,969)		
	d. Expected Investment Return Based on 7.375% Interest	<u>8,423,163</u>		
	e. Expected Market Value of Assets as of January 1, 2015	120,228,190		
2.	Actual Market Value of Assets as of January 1, 2015	116,926,310		
3.	Market Value (Gain)/Loss for 2014: (1e) - (2)	3,301,880		
4.	Expected Market Value of Assets as of January 1, 2016			
	a. Market Value of Assets as of January 1, 2015	116,926,310		
	b. Employer and Employee Contributions	1,324,811		
	c. Benefit Payments	(6,932,043)		
	d. Expected Investment Return Based on 7.375% Interest	<u>8,414,641</u>		
	e. Expected Market Value of Assets as of January 1, 2016	119,733,719		
5.	Actual Market Value of Assets as of January 1, 2016	109,338,357		
6.	Market Value (Gain)/Loss for 2015: (4e) - (5)	10,395,362		
7.	Delayed Recognition of Market (Gains)/Losses:			
	Plan Year End	(Gain)/Loss	Percent Not Recognized	Amount Not Recognized
	12/31/2012	N/A	20%	\$0
	12/31/2013	(4,427,998)	40%	(1,771,199)
	12/31/2014	3,301,880	60%	1,981,128
	12/31/2015	10,395,362	80%	<u>8,316,290</u>
				8,526,219
8.	Actuarial Value of Assets as of January 1, 2016: (5) + (7)			117,864,576
9.	Approximate Rate of Return on Actuarial Value			
	2014			7.815%
	2015			5.750%

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 17 years starting on January 1, 2014.

	January 1, 2014	January 1, 2016
1. Accrued Liability		
Active Members	\$37,093,545	\$34,992,999
Terminated Vested Members	0	264,593
Terminated Non-Vested Members Due Refund	0	0
Retired Members	50,208,420	53,893,835
Disabled Members	25,839,561	28,349,282
Beneficiaries of Deceased Members	<u>10,006,205</u>	<u>11,018,452</u>
Total	123,147,731	128,519,161
2. Actuarial Value of Assets (see Section II B)	113,076,769	117,864,576
3. Unfunded Accrued Liability: (1) - (2)	10,070,962	10,654,585
4. Funded Ratio: (2) / (1)	91.8%	91.7%
5. Amortization Period	17	15
6. Amortization Growth Rate	3.50%	3.50%
7. Past Service Cost: (3) amortized over (5)	782,180	907,241

Section III - Development of Contribution
B. Actuarially Determined Contribution

	Fiscal Year 2014-2015	Fiscal Year 2016-2017
1. Total Normal Cost	\$1,533,700	\$1,399,501
2. Expected Employee Contributions	594,319	572,697
3. Expected Expenses	0	0
4. Net Normal Cost: (1) - (2) + (3)	939,381	826,804
5. Past Service Cost (see Section III A)	782,180	907,241
6. Interest on (4) + (5) assuming mid-year payment	126,967	127,886
7. Actuarially Determined Contribution: (4) + (5) + (6)	1,848,528	1,861,931
8. Payroll	7,160,460	6,588,354
9. Actuarially Determined Contribution as a percent of Payroll	25.82%	28.26%

Section III - Development of Contribution

C. Long Range Forecast - City Pays 100% of Actuarially Determined Contribution

This forecast is based on the results of the January 1, 2016 actuarial valuation and assumes that the City will pay 100% of the Actuarially Determined Contribution each year, the assets will return 7.375% 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.

Valuation Date	Values as of the Valuation Date				Cash Flows Projected to the Following Fiscal Year					
	Accrued Liability	Actuarial Value of Assets	Unfunded Accrued Liability	Funded Ratio	Fiscal Year	Employer Contributions	Employee Contributions	Benefit Payments	Net Cash Flows	
1/1/2016	\$128,519,161	\$117,864,576	\$10,654,585	91.7%	2017	\$1,861,931	\$533,809	(\$7,960,189)	(\$5,564,449)	
1/1/2017	131,741,000	118,905,000	12,836,000	90.3%	2018	2,091,000	531,000	(8,224,000)	(5,602,000)	
1/1/2018	134,535,000	119,558,000	14,977,000	88.9%	2019	2,414,000	544,000	(8,398,000)	(5,440,000)	
1/1/2019	137,278,000	119,473,000	17,805,000	87.0%	2020	2,936,000	551,000	(8,586,000)	(5,099,000)	
1/1/2020	140,170,000	120,411,000	19,759,000	85.9%	2021	3,334,000	539,000	(8,898,000)	(5,025,000)	
1/1/2021	143,117,000	124,004,000	19,113,000	86.6%	2022	3,432,000	521,000	(9,272,000)	(5,319,000)	
1/1/2022	145,933,000	127,939,000	17,994,000	87.7%	2023	3,467,000	509,000	(9,583,000)	(5,607,000)	
1/1/2023	148,496,000	131,858,000	16,638,000	88.8%	2024	3,636,000	501,000	(9,846,000)	(5,709,000)	
1/1/2024	151,023,000	135,768,000	15,255,000	89.9%	2025	3,737,000	497,000	(10,075,000)	(5,841,000)	
1/1/2025	153,475,000	139,861,000	13,614,000	91.1%	2026	3,831,000	475,000	(10,430,000)	(6,124,000)	
1/1/2026	155,906,000	144,119,000	11,787,000	92.4%	2027	3,860,000	433,000	(10,876,000)	(6,583,000)	
1/1/2027	158,081,000	148,399,000	9,682,000	93.9%	2028	3,867,000	396,000	(11,280,000)	(7,017,000)	
1/1/2028	159,889,000	152,518,000	7,371,000	95.4%	2029	3,765,000	361,000	(11,673,000)	(7,547,000)	
1/1/2029	161,269,000	156,491,000	4,778,000	97.0%	2030	3,612,000	339,000	(11,935,000)	(7,984,000)	
1/1/2030	162,255,000	160,207,000	2,048,000	98.7%	2031	3,206,000	323,000	(12,153,000)	(8,624,000)	
1/1/2031	163,019,000	163,743,000	(724,000)	100.4%	2032	173,000	269,000	(12,621,000)	(12,179,000)	
1/1/2032	163,554,000	166,877,000	(3,323,000)	102.0%	2033	0	207,000	(13,099,000)	(12,892,000)	
1/1/2033	163,428,000	166,556,000	(3,128,000)	101.9%	2034	0	167,000	(13,397,000)	(13,230,000)	
1/1/2034	162,549,000	165,473,000	(2,924,000)	101.8%	2035	0	139,000	(13,597,000)	(13,458,000)	
1/1/2035	161,116,000	163,959,000	(2,843,000)	101.8%	2036	0	126,000	(13,659,000)	(13,533,000)	

For purposes of this forecast the amortization period declines to 1 year to illustrate the progress of the plan towards becoming fully funded.

Section III - Development of Contribution C. Long Range Forecast - City Pays 36% of Actuarially Determined Contribution

This forecast is based on the results of the January 1, 2016 actuarial valuation and assumes that the City will pay 36% of the Actuarially Determined Contribution each year, the assets will return 7.375% 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	Employer Contributions	Employee Contributions	Benefit Payments	Net Cash Flows
1/1/2016	\$128,519,161	\$117,864,576	\$10,654,585	91.7%	2017	\$670,295	\$533,809	(\$7,960,189)	(\$6,756,085)
1/1/2017	131,741,000	117,678,000	14,063,000	89.3%	2018	795,000	531,000	(8,224,000)	(6,898,000)
1/1/2018	134,535,000	117,005,000	17,530,000	87.0%	2019	963,000	544,000	(8,398,000)	(6,891,000)
1/1/2019	137,278,000	115,388,000	21,890,000	84.1%	2020	1,217,000	551,000	(8,586,000)	(6,818,000)
1/1/2020	140,170,000	114,520,000	25,650,000	81.7%	2021	1,447,000	539,000	(8,898,000)	(6,912,000)
1/1/2021	143,117,000	115,896,000	27,221,000	81.0%	2022	1,603,000	521,000	(9,272,000)	(7,148,000)
1/1/2022	145,933,000	117,277,000	28,656,000	80.4%	2023	1,776,000	509,000	(9,583,000)	(7,298,000)
1/1/2023	148,496,000	118,513,000	29,983,000	79.8%	2024	2,040,000	501,000	(9,846,000)	(7,305,000)
1/1/2024	151,023,000	119,686,000	31,337,000	79.3%	2025	2,334,000	497,000	(10,075,000)	(7,244,000)
1/1/2025	153,475,000	120,938,000	32,537,000	78.8%	2026	2,713,000	475,000	(10,430,000)	(7,242,000)
1/1/2026	155,906,000	122,346,000	33,560,000	78.5%	2027	3,199,000	433,000	(10,876,000)	(7,244,000)
1/1/2027	158,081,000	123,860,000	34,221,000	78.4%	2028	3,896,000	396,000	(11,280,000)	(6,988,000)
1/1/2028	159,889,000	125,484,000	34,405,000	78.5%	2029	4,968,000	361,000	(11,673,000)	(6,344,000)
1/1/2029	161,269,000	127,493,000	33,776,000	79.1%	2030	7,008,000	339,000	(11,935,000)	(4,588,000)
1/1/2030	162,255,000	130,317,000	31,938,000	80.3%	2031	12,708,000	323,000	(12,153,000)	878,000
1/1/2031	163,019,000	135,170,000	27,849,000	82.9%	2032	11,107,000	269,000	(12,621,000)	(1,245,000)
1/1/2032	163,554,000	146,049,000	17,505,000	89.3%	2033	7,065,000	207,000	(13,099,000)	(5,827,000)
1/1/2033	163,428,000	155,529,000	7,899,000	95.2%	2034	3,288,000	167,000	(13,397,000)	(9,942,000)
1/1/2034	162,549,000	160,959,000	1,590,000	99.0%	2035	804,000	139,000	(13,597,000)	(12,654,000)
1/1/2035	161,116,000	162,521,000	(1,405,000)	100.9%	2036	0	126,000	(13,659,000)	(13,533,000)

For purposes of this forecast the amortization period declines to 1 year to illustrate the progress of the plan towards becoming fully funded.

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	January 1, 2016
Actuarial Cost Method	Projected Unit Credit
Amortization Method	Level percent
Amortization Period	Closed 17 years from January 1, 2014
Asset Valuation Method	5 Year Smoothed Market Value
Actuarial Assumptions	
Investment Rate of Return	7.375%
Projected Salary Increases	3.50%
Amortization Growth Rate	3.50%
Inflation	2.75%
Cost-of-Living Adjustments	Hired before July 1, 1993: 3.00% per year Hired after June 30, 1993: 1.75% per year

Milliman Actuarial Valuation

**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) (2) - (1)	(4) Funded Ratio (1) / (2)	(5) Covered Payroll	(6) UAAL as a Percentage of Covered Payroll (3) / (5)
01/01/2010	2010-2011	\$103,217,463	\$116,990,872	\$13,773,409	88.23%	\$7,074,123	194.70%
01/01/2011	2011-2012	110,509,793	120,389,438	9,879,645	91.79%	7,008,211	140.97%
01/01/2013	2013-2014	108,818,183	119,605,999	10,787,816	90.98%	7,191,938	150.00%
01/01/2014	2014-2015	113,076,769	123,147,731	10,070,962	91.82%	7,160,460	140.65%
01/01/2016	2016-2017	117,864,576	128,519,161	10,654,585	91.71%	6,588,354	161.72%

This work product was prepared solely for the City 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
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)
2009	\$1,157,342	\$611,822	\$545,520	\$7,812,621	7.83%
2010	1,157,342	1,157,342	0	7,812,621	14.81%
2011	3,950,896	1,050,000	2,900,896	7,074,123	14.84%
2012	3,141,846	979,292	2,162,554	7,008,211	13.97%
2013	3,141,846	1,285,750	1,856,096	7,008,211	18.35%
2014	3,312,178	1,157,000	2,155,178	7,191,938	16.09%
2015	1,848,528	1,274,950	573,578	7,160,460	17.81%
2016	1,848,528	TBD	TBD	7,160,460	TBD
2017	1,861,931	TBD	TBD	6,588,354	TBD

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	Due Refund	Retirees	Disabled	Bene- ficiaries	Total
Count as of January 1, 2014	100	0	0	65	43	34	242
Terminated not vested	-	-	-	-	-	-	0
Terminated, benefits due	(1)	1	-	-	-	-	0
Retired	(6)	-	-	6	-	-	0
Disabled	(5)	-	-	-	5	-	0
Died, with beneficiary	-	-	-	(1)	(1)	2	0
Died, no beneficiary	-	-	-	-	(2)	(1)	(3)
New member	-	-	-	-	-	-	0
New beneficiary	-	-	-	-	-	-	0
Lump sum paid	(1)	-	-	-	-	-	(1)
Rehired	-	-	-	-	-	-	0
New QDRO	-	-	-	-	-	1	1
Correction	-	-	-	-	-	-	0
Count as of January 1, 2016	87	1	0	70	45	36	239

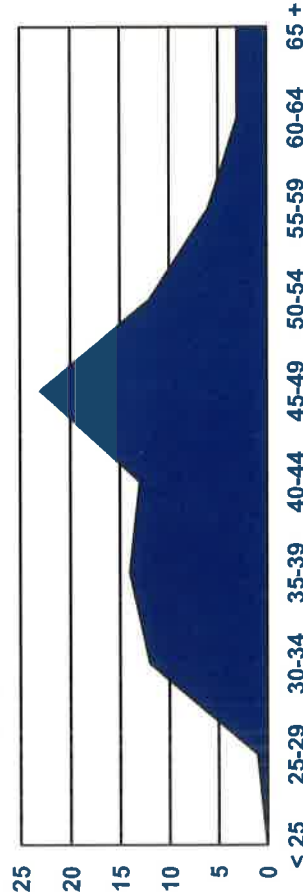
Section V - Membership Data
B. Statistics of Membership

	As of January 1, 2014	As of January 1, 2016
Active Members		
Number	100	87
Average Age	44.2	45.0
Average Service	16.8	17.6
Payroll	\$7,160,460	\$6,588,354
Average Payroll	71,605	75,728
Terminated Vested Members		
Number	0	1
Total Annual Benefit	\$0	\$21,776
Average Annual Benefit	0	21,776
Average Age	0.0	42.0
Retired Members		
Number	65	70
Total Annual Benefit	\$3,342,363	\$3,696,162
Average Annual Benefit	51,421	52,802
Average Age	64.1	65.1
Disabled Members		
Number	43	45
Total Annual Benefit	\$1,862,595	\$2,050,765
Average Annual Benefit	43,316	45,573
Average Age	62.9	62.6
Beneficiaries of Deceased Members		
Number	34	36
Total Annual Benefit	\$1,108,891	\$1,289,294
Average Annual Benefit	32,614	35,814
Average Age	74.4	75.5

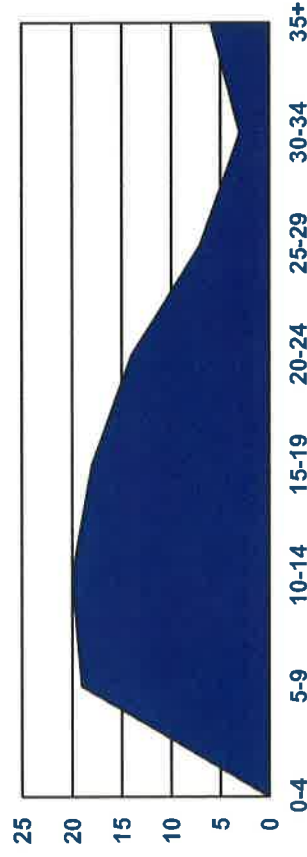
Section V - Membership Data
C. Distribution of Active Members as of January 1, 2016

Age	Years of Service										Total
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35+	Total		
<25	0	0	0	0	0	0	0	0	0	0	0
25-29	0	1	0	0	0	0	0	0	0	0	1
30-34	0	11	1	0	0	0	0	0	0	0	12
35-39	0	3	9	2	0	0	0	0	0	0	14
40-44	0	2	4	6	1	0	0	0	0	0	13
45-49	0	1	4	6	9	3	0	0	0	0	23
50-54	0	1	2	2	3	2	2	0	0	0	12
55-59	0	0	0	1	1	1	1	2	0	0	6
60-64	0	0	0	1	0	1	0	1	0	0	3
65 +	0	0	0	0	0	0	0	0	0	0	3
Total	0	19	20	18	14	7	3	6	3	6	87

Distribution By Age



Distribution by Years of Service



Section V - Membership Data
D. Distribution of Inactive Members as of January 1, 2016

	Age	Number	Annual Benefits
Terminated Vested Members	< 30	0	\$0
	30 - 39	0	0
	40 - 49	1	21,776
	50 - 59	0	0
	60 - 64	0	0
	65 +	0	0
	Total	1	21,776
Retired Members	< 50	4	\$149,201
	50 - 59	19	1,075,317
	60 - 69	17	952,047
	70 - 79	25	1,333,990
	80 - 89	4	181,239
	90 +	1	4,368
	Total	70	3,696,162
Disabled Members	< 50	3	\$100,685
	50 - 59	18	922,216
	60 - 69	13	654,318
	70 - 79	8	294,048
	80 - 89	3	79,498
	90 +	0	0
	Total	45	2,050,765
Beneficiaries of Deceased Members	< 50	2	\$61,181
	50 - 59	4	67,705
	60 - 69	2	106,930
	70 - 79	11	471,003
	80 - 89	13	468,044
	90 +	4	114,431
	Total	36	1,289,294

Appendix A - Actuarial Funding Method

The actuarial funding method used in the valuation of this Plan is known as the **Projected Unit Credit Cost Method**. Recommended annual contributions until the accrued liability is completely funded will consist of two pieces: Normal Cost plus a payment towards the Unfunded Accrued Liability.

The **Accrued Liability** is determined directly as the present value of benefits accrued to date, where the accrued benefits for each Member is the pro-rata portion (based on service to date) of the benefit payable at death, disability, retirement or termination.

The **Normal Cost** is then similarly determined as the present value of the portion of the benefit accrued during the current year.

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

The Unfunded Accrued Liability is the Accrued Liability less the Market Value of Assets. The Unfunded Accrued Liability is amortized as a level percent of pay over 35 years, beginning with Fiscal Year 1998-99. Due to the funded status of the Plan, the Unfunded Accrued Liability for fiscal years 2010 through 2013 were amortized as a level percent of pay over 5 years. Beginning with the January 1, 2014 valuation, the Unfunded Accrued Liability is amortized over 17 years; the amortization period will decrease each year by 1 year until it reaches 10 years.

Prior to the January 1, 2014 valuation, the **Actuarial Value of Assets** was equal to the Market Value. Beginning January 1, 2014 the Actuarial Value of Assets is determined by recognizing Market Value gains and losses over five years at 20% per year.

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	7.375%
Next Pay Grade Adjustment	Current- 4.00% for Members hired before January 1, 1999 with 25 years of service. Previously- 5.00% for Members hired before January 1, 1999 with 25 years of service.
Salary Scale	3.50%
Amortization Growth Rate	3.50%
Cost of Living Increases	3.00% for Members hired before July 1, 1993 1.75% for Members hired after June 30, 1993
Expenses	None
Healthy Mortality	RP-2000 Mortality Table (with blue collar adjustment) for Healthy Annuitants and Non-Annuitants projected to 2020 per Scale AA. This assumption includes a margin for improvements in longevity beyond the valuation date. No deaths are assumed to be in the line of duty.
Disabled Mortality	RP-2000 Disabled Mortality Table. This assumption does not include a margin for improvements in longevity beyond the valuation date.
Turnover	None
Disability	1965 Railroad Disability rates. No disabilities are assumed to be in the line of duty.
Retirement	40% are assumed to retire on the 25th anniversary of employment; 95% of the remaining are assumed to retire on the 30th anniversary of employment and every year thereafter; all remaining participants are assumed to retire no later than age 65 or attained age.
Percent Married	100% of participants are assumed to have an eligible spouse.
Age of Spouse	The female spouse is assumed to be three years younger than the male spouse.

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.

Effective Date of Plan	July 1, 1991
Eligibility	Any Police employee of the City of West Haven hired prior to November 1, 2009.
Years of Service	Years and completed months from date of employment.
Compensation	Base salary rate, excluding extra duty, overtime, longevity, shift premiums and all other additional pay.
Final Compensation	Annual Compensation on final day of employment. For a member employed prior to January 1, 1999 who completed 25 or more years of service, annual compensation of a Member holding the next higher rank.
Member Contributions	9.0% of annual compensation through July 1, 2016, 9.5% as of July 1, 2016. Interest is credited from January 1 following the date of the contribution to the date of distribution at a rate of 3.0%.
Normal Retirement Date	Age 65 or 20 years of service, whichever is earlier.
Normal Retirement Benefit	2.25% of Final Compensation for years of service up to 20 <u>plus</u> 3% of Final Compensation for Years of Service in excess of 20. If a Member who commenced employment prior to January 1, 1999 retires with 25 or more Years of Service, the Final Compensation used for calculating benefits will be that of one job grade higher than that attained at retirement. The minimum benefit is \$2,000 per year. The maximum benefit is 75% of Final Compensation.
Non-Service Disability Benefit	2.25% of Final Compensation for years of service up to 20 <u>plus</u> 3% of Final Compensation for Years of Service in excess of 20. If a Member who commenced employment prior to January 1, 1999 retires with 25 or more Years of Service, the Final Compensation used for calculating benefits will be that of one job grade higher than that attained at retirement. The minimum benefit is \$2,000 per year. The maximum benefit is 50% of Final Compensation.

Appendix C - Summary of Plan Provisions

In-Service Disability	If Member is disabled as a result of being shot or stabbed in the line of duty, 2.25% of Final Compensation for Years of Service up to 20 <u>plus</u> 3% of Final Compensation for Years of Service in excess of 20. If a Member who commenced employment prior to January 1, 1999 retires with 25 or more Years of Service, the Final Compensation used for calculating benefits will be that of one job grade higher than that attained at retirement. The minimum benefit is \$2,000 per year. The maximum benefit is 75% of Final Compensation.
Normal Form of Annuity	100% Joint and Survivor Annuity.
Vested Benefit Eligibility	10 Years of Service.
Vested Benefit	2.25% of Final Compensation at date of termination, multiplied by Years of Service as of the date of the Member's termination of employment. Benefit is payable on the date the Member would have had 20 Years of Service if termination of employment had not occurred.
Pre-Retirement Spouse's Non-Service Death Benefit	2.25% of Final Compensation for years of service up to 20 <u>plus</u> 3% of Final Compensation for Years of Service in excess of 20. If a Member who commenced employment prior to January 1, 1999 retires with 25 or more Years of Service, the Final Compensation used for calculating benefits will be that of one job grade higher than that attained at retirement. The minimum benefit is \$2,000 per year. The maximum benefit is 75% of Final Compensation.
Pre-Retirement Spouse's In-Service Death Benefit	2.25% of Final Compensation for years of service up to 20 <u>plus</u> 3% of Final Compensation for Years of Service in excess of 20. If a Member who commenced employment prior to January 1, 1999 retires with 25 or more Years of Service, the Final Compensation used for calculating benefits will be that of one job grade higher than that attained at retirement. The minimum benefit is \$2,000 per year. The maximum benefit is 90% of Final Compensation.
Cost of Living Adjustment	Members hired before July 1, 1993: 50% of the dollar amount of annual compensation increase granted to active employees holding a rank equivalent to the rank held by the retired member. Members hired after June 30, 1993: 50% of the percentage of compensation increase granted to active employees.