HOOKER & HOLCOMBE, INC.
Benefit Consultants and Actuaries

65 LaSalle Road
West Hartford, CT 06107-2397

860-521-8400 tel
860-521-3742 fax
www.hhconsultants.com

The Police Pension Trust Fund of the City of Stamford

Actuarial Valuation

July 1, 2014

Evan W. Woollacott, Jr.,
Vice President and
Consulting Actuary

Yelena Pelletier
Actuary

Michael Lindberg
Actuarial Analyst

March 31, 2015

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I. Introduction

A. Purpose of the Valuation

Liabilities were valued as of July 1, 2014 using data, cost information and assumptions.

The purpose of the valuation is to report the estimated funded status of the plan as of July 1, 2014 as well as an Actuarially Determined Contribution for the fiscal year ending June 30, 2016.

It is important to note that the ultimate cost of a pension plan is based primarily on the level of benefits promised by the plan. The pension fund's investment earnings serve to reduce the cost of plan benefits and expenses. Thus,

City's Ultimate Cost	=	*Benefits Paid*	+	*Expenses Incurred*	–	*Employee Contributions*	–	*Investment Return*

Assets reported are actual (including accruals) through June 30, 2014 and reflect the asset smoothing method.

Plan Changes

We have assumed that no changes have been made to the plan since the July 1, 2013 actuarial valuation.

Assumption and Other Changes

The interest rate assumption was decreased to 7.625% from the prior 7.75%.

The impact of the assumption changes was an increase in the Accrued Liability of approximately $3 million and an increase in the Recommended Contribution of $401,000.

I. Introduction

(continued)

B. Certification

This report presents the results of the July 1, 2014 Actuarial Valuation for The Police Pension Trust Fund of the City of Stamford (the Plan) for the purpose of estimating the funded status of the Plan and determining the Actuarially Determined Contribution (ADC) for the fiscal year ending June 30, 2016. This report is intended to satisfy the requirements of Connecticut General Statute 7-450a. This report may not be appropriate for any other purpose.

The valuation has been performed in accordance with generally accepted actuarial principles and practices. It is intended to comply with all applicable Actuarial Standards of Practice.

I certify that the actuarial assumptions and methods that were selected by me and represent my best estimate of anticipated actuarial experience under the Plan.

In preparing this valuation, I have relied on employee data provided by the Plan Sponsor, and on asset and contribution information provided by the Trustee. I have audited neither the employee data nor the financial information, although I have reviewed them for reasonableness.

The results in this valuation report are based on the Plan as summarized in the *Plan Provisions* section of this report and the actuarial assumptions and methods detailed in the *Description of Actuarial Methods and Assumptions* section of this report.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as: 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 this report, an analysis of the potential range of such future measurements has not been performed.

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

Evan W. Woollacott

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Evan W. Woollacott, Jr., FCA, MAAA, EA
14-04513

March 31, 2015

II. Results of the Valuation

A. Assets

Development of Market Value

1.	**Beginning value, 7/01/2013**	
	a. Trust assets	$169,457,506
	b. Accrued contributions - Employee	$0
	c. Benefits payable	$0
	d. Administrative expenses payable	$0
	e. Net: (a) + (b) – (c) – (d)	$169,457,506
2.	**Contributions**	
	a. Contributions during year - Employer	6,230,000
	b. Contributions during year - Employee	1,250,143
	c. Total for Plan Year	7,480,143
3.	**Disbursements**	
a.	Benefit payments during year	11,468,644
b.	Administrative expenses during year	82,936
c.	Change in benefits payable	0
d.	Change in administrative expenses payable	0
e.	Total for plan year	11,551,580
4.	**Net Investment Return**	
	a. Interest and dividends	3,155,888
	b. Other Income	0
	c. Realized/unrealized gain (loss)	22,870,756
	d. Investment – related expenses	-227,205
	e. Total	25,799,439
5.	**Ending Value, 7/01/2014**	
	a. Trust assets: (1e) + (2c) - (3e) + (4e)	191,185,508
	b. Accrued contribution – Employer	0
	c. Accrued contribution – Employee	0
	d. Benefit payable	0
	e. Administrative expenses payable	0
f. Net: (a) + (b) + (c) – (d) – (e) or (1) + (2) – (3) + (4)		191,185,508
6.	**Approximate rate of return 2013-2014**	15.41%

II. Results of the Valuation

(continued)

A. Assets (continued)

Development of Actuarial Asset Value

1.	Actuarial Asset Value at July 1, 2013	$180,800,365
2.	Expected Return	14,098,886
3.	Contributions	7,480,143
4.	Disbursements (includes Inv. Management Fees)	11,551,580
5.	Expected Actuarial Asset Value at June 30, 2014 (1) + (2) + (3) - (4)	190,827,814
6.	Market Value of Assets	191,185,508
7.	Appreciation (Depreciation) Capitalized .20 x [(6) - (5)]	71,539
8.	Preliminary Actuarial Asset Value at June 30, 2014 (5) + (7)	190,899,353
9.	70% of Market Value .7 x (6)	133,829,856
10.	130% of Market Value 1.3 x (6)	248,541,160
11.	Actuarial Asset Value at June 30, 2014, less than (9); and not greater than (10)	190,899,353
12.	Round to nearest thousand	190,899,000
13.	Actuarial Asset Return	7.79%

II. Results of the Valuation
(continued)

A. Assets (continued)

June 30, 2014

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*	Weighting
U.S. Domestic Equities	29.00%	5.00%	1.45%
Non-U.S. Equities	18.00%	5.50%	0.99%
U.S. Domestic Income	10.00%	2.00%	0.20%
Non-U.S. Income	5.00%	2.00%	0.10%
High Yield	4.00%	3.25%	0.13%
Real Estate	10.00%	5.00%	0.50%
Alternative Investments	17.00%	5.25%	0.89%
Hedge Funds	5.00%	5.25%	0.26%
Cash	2.00%	0.50%	0.01%
	100.00%		4.53%
Long-Term Inflation Expectation			3.00%
Long-Term Expected Nominal Return			7.53%

**Long-Term Returns are provided by HHIA. The returns are geometric means.*

The long-term expected rate of return on pension plan investments was determined using a building block method in which best-estimate ranges of expected future real rates of return are developed. Best estimates of the real rates of return for each major asset class are included in the pension plan's target asset allocation.

The information above is based on geometric means and does not reflect additional returns through investment selection, asset allocation and rebalancing. The results support a rate between 7.5% and 8.0%. An expected rate of return of 7.625% was used.

II. Results of the Valuation
(continued)

B. Development of Unfunded Accrued Liability and Funded Ratio

		July 1, 2014 Valuation	July 1, 2013 Interim Valuation
1.	Projected Accrued Liability	$225,233,000	$213,642,000
2.	Assets (Actuarial Value)	$190,899,000	$180,800,000
3.	Unfunded Accrued Liability: (1) - (2)	$34,334,000	$32,842,000
4.	Funded Ratio: (2) ¸ (1)	84.8%	84.6%

C. Split of Accrued Liability

		July 1, 2014 Valuation
1.	Active Participants	$109,381,000
2.	Vested Terminated Participants	337,000
3.	Participants in Pay Status	115,515,000
4.	Total Accrued Liability: (1) + (2) + (3)	225,233,000

II. Results of the Valuation

(continued)

D. Actuarially Determined Contribution

		July 1, 2014 for Fiscal Year Ending June 30, 2016	July 1, 2013 for Fiscal Year Ending June 30, 2015	July 1, 2012 for Fiscal Year Ending June 30, 2014
1.	Ongoing Annual Cost	$4,779,000	$4,362,000	$4,235,000
2.	Estimated Employee Contributions	1,263,000	1,224,000	1,189,000
3.	City's Ongoing Annual Cost: (1) - (2)	3,516,000	3,138,000	3,046,000
4.	Amortization of Unfunded Accrued Liability (15 years)	3,642,000	3,507,000	3,184,000
5.	City's Annual Contribution: (3) + (4)	7,158,000	6,645,000	6,230,000

II. Results of the Valuation

(continued)

E. Change in Contribution

1.	July 1, 2013 valuation contribution	6,645,000
2.	Decrease due to assets	(8,000)
3.	Decrease due to liabilities	(107,000)
4.	Expected Increase	94,000
5.	Increase due to assumption changes	401,000
6.	Decrease due to plan changes	-
7.	Contribution timing	44,000
8.	Miscellaneous increase*	89,000
9.	July 1, 2014 valuation contribution	7,158,000

* *Primarily due to 27 new plan participants.*

II. Results of the Valuation

(continued)

F. Determination of Actuarial Gain/(Loss)

The Actuarial Gain/(Loss) for a year is the difference between the Expected Unfunded Actuarial Accrued Liability and the Actual Unfunded Actuarial Accrued Liability, without regard to any plan changes or changes in methods or actuarial assumptions. Such a gain/(loss) is also referred to as an Experience Gain/(Loss), since it reflects the difference between what was expected and what was actually experienced.

1. Expected unfunded actuarial accrued liability July 1, 2014	
a. Expected unfunded actuarial accrued liability July 1, 2013	
i. Unfunded actuarial accrued liability July 1, 2013	$32,841,658
ii. Normal cost July 1, 2013	4,361,805
iii. Interest at 7.75% to July 1, 2014	2,883,268
iv. City contributions for 2013/2014	7,480,143
v. Interest for ½ year on (iv)	289,856
vi. Expected unfunded actuarial accrued liability July 1, 2014:	
(i) + (ii) + (iii) - (iv) - (v)	32,316,733
2. Actual unfunded liability July 1, 2014 for gain/(loss) determination	31,312,894
3. Actuarial gain/(loss): (1a)(vi) - (2)	1,003,839
4. Sources of gain/(loss)	
a. Gain/(Loss) due to salaries	$339,000
b. Gain/(Loss) due to return on assets	71,000
c. Gain/(Loss) due to retirement, turnover and mortality	593,839
d. Total Gain/(Loss): (a) + (b) + (c)	$1,003,839

II. Results of the Valuation

(continued)

G. Participant Data

The data reported by the City for this valuation includes all active employees who met the Plan's minimum age and service requirements as of July 1, 2014.

Participant Data				
	Active	Terminated Vested	Retired	Total
Total Participants July 1, 2012	273	1	287	561
Adjustments	0	0	0	0
Retirements	-16	0	+16	0
Terminations				
Vested	-1	+1	N/A	0
Non-vested	0	N/A	N/A	0
Deaths				
Without death benefit	0	0	-12	-12
With death benefit	-1	0	-6	-7
New beneficiaries	N/A	0	+11	+11
Lump sum /cash outs	0	0	0	0
Rehires	0	0	0	0
New entrants	+27	N/A	N/A	+27
Total Participants July 1, 2014	282	2	296	580
Average age				
July 1, 2012	45.9	44.0	68.1	
July 1, 2014	45.8	46.5	68.5	
Average service				
July 1, 2012	18.0			
July 1, 2014	17.8			
Total annual plan salaries				
July 1, 2012	$21,353,457			
July 1, 2014	22,648,757			
Total annual benefits				
July 1, 2012		$24,367	$10,437,173	
July 1, 2014		73,287	11,398,134	

II. Results of the Valuation

(continued)

H. ASC 960 Information

Statement of Accumulated Plan Benefits

	July 1, 2014	July 1, 2012
1. Significant actuarial assumptions		
a. Rate of return	7.625%	7.75%
b. Retirement age	See attached	See attached
c. Mortality	RP-2000 Blue Collar	RP-2000 Blue Collar
2. Actuarial present value of vested benefits		
a. Participants currently receiving payments	$ 115,515,000	$ 105,563,000
b. Other vested members	92,604,000	86,092,000
c. Total	208,119,000	191,655,000
3. Actuarial present value of non-vested benefits	3,463,000	2,824,000
4. Actuarial present value of accumulated plan benefits: (2) + (3)	$211,582,000	$194,479,000

Statement of Changes in Accumulated Plan Benefits

1. Actuarial present value of accumulated plan benefits 07/01/2012	$194,479,000
2. Increase (decrease) during year attributable to:	
a. Increase for interest due to the decrease in the discount period	$31,312,000
b. Benefits paid	(22,256,000)
c. Changes in actuarial assumptions	2,714,000
d. Plan amendment	0
e. Benefits accumulated	5,333,000
f. Net increase (decrease)	17,103,000
3. Actuarial present value of accumulated plan benefits 07/01/2014	$211,582,000

Each of these actuarial assumptions reflects the best estimate of the Plan's future experience, solely with respect to that individual assumption, on an ongoing plan basis. Were the Plan to terminate, different actuarial assumptions and other factors might be applicable in determining the Actuarial Present Value of Accumulated Plan Benefits.

III. Actuarial Cost Methods and Assumptions

A. Actuarial Cost Methods

Funding Method

The actuarial method used to develop the Annual Recommended Contribution is the Projected Unit Credit Cost Method.

The Ongoing Annual Cost equals the total present value for all participants of the benefit accruing during the coming year, increased to reflect salaries projected to the assumed retirement date.

The Accrued Liability equals the present value of all benefits accrued to date, increased to reflect salaries for all active participants. The total Accrued Liability is reduced by plan assets to develop the Unfunded Accrued Liability.

The cost of amortizing the Unfunded Accrued Liability constitutes a portion of the Annual Recommended Contribution.

The total Annual Recommended Contribution equals the Ongoing Annual Cost, further increased by any positive amortization of the Unfunded Accrued Liability. The amortization period is 15 years.

Asset Valuation Method

The Actuarial Value of Assets used in the development of the Annual Recommended Contribution is designed to smooth out fluctuations in the market value. An Expected Actuarial Value of Assets is determined based on the prior year's Actuarial Value of Assets and the assumed interest rate equal to the valuation interest rate. The Actuarial Value of Assets is equal to the Expected Actuarial Asset Value plus 20% of the difference between the Market Value and the Expected Value. The Actuarial Value of Assets is limited to a minimum of 70% or a maximum of 130% of the Market Value.

III. Actuarial Cost Methods and Assumptions

B. Actuarial Assumptions

Mortality:	RP-2000 Blue Collar Combined - Generational Mortality Table.
Mortality Improvement:	Pre and Post-retirement: Projected to date of decrement using Scale AA.
Investment Return:	7.625% per year (7.75% per year in last valuation).
Salary Scale:	Yearly Rates of Increases

Age	Rate
20	6.50%
25	6.50%
30	5.85%
35	5.20%
40	4.55%
45	3.90%
50	3.25%
55+	3.00%

Payroll Growth Assumption:	3% used to project normal cost only.
Medicare Part B Reimbursements:	3% increase assumption each year.
Retirement Age:	Sample rates of assumed annual rates of retirement after completion of 25 years are as follows:

Age	**Retirement Rate**
55	50%
56	50%
57	50%
58	50%
59	50%

An additional 50% is added upon attainment of 20 years of service and 100% of members remaining beyond the earlier of age 60 with 25 years of service or age 65 are assumed to retire.

III. Actuarial Cost Methods and Assumptions

Turnover: The following annual rates of turnover are assumed:

Age	Probability
20	5.44%
25	4.89%
30	3.70%
35	2.35%
40	0.00%
45	0.00%
50	0.00%
55	0.00%
60	0.00%

Disability: The following annual rates of disability are assumed:

Age	Probability
20	.05%
25	.05%
30	.05%
35	.06%
40	.09%
45	.18%
50	.40%
55	.85%
60	1.74%

Survivorship: 80% of employees assumed to be married, with wives 4 years younger than husbands.

Expenses: None, administrative expenses are assumed to be paid directly by City.

Sick Bank and Vacation Bank: 50% of retirees are assumed to elect an annuity from the fund.

Post-Retirement Life Insurance: 100% of active and retired employees are assumed to have a $4,000 life insurance policy beginning at retirement.

IV. Summary of Current Principal Pension Plan Provisions

Pension Earnings:	Base Salary in Final Year of Employment plus 14 paid holidays.
Normal Retirement:	
Eligibility:	20 years of service
Benefit:	

Years of Service	% of Pension Earnings
20	50.00%
21	53.00%
22	56.00%
23	59.00%
24	62.00%
25	65.00%
26	67.33%
27	69.66%
28	71.99%
29	74.32%
30	76.65%

Limits on Annual Benefit:	
Maximum:	76.65% of pension earnings.
Minimum:	None.
Early Retirement:	
Eligibility:	None.
Benefit:	See Termination Benefit.
Disability – Non-Service Connected:	
Service Requirement:	20 years of service.
Benefit:	50% of salary, not less than accrued benefit.
Disability – Service Connected:	
Service Requirement:	None.
Benefit:	100% of pay (or 75% of pay depending on extent of disability).

IV. Summary of Current Principal Pension Plan Provisions (continued)

<u>Pre-Retirement Death Benefit</u> – Non Service Connected:

Service Requirement:	10 years of service.
Benefit:	50% of salary.

<u>Pre-Retirement Death Benefit</u> – Service Connected:

Service Requirement:	None.
Benefit:	50% of salary.

<u>Post-Retirement Spouse's Benefit</u>:	100% of pension retiree was receiving.
<u>Post-Retirement Death Benefit</u>:	Lump sum, excess of accumulated contributions over benefits paid to member or survivors (if not eligible for spouse's benefit).
<u>Post-Retirement Life Insurance</u>:	Lump Sum equal to $4,000.00.

<u>Vesting in Accrued Benefit</u>:

Eligibility:	10 years of service.
Benefit:	50% off final salary times the ratio of service at termination to 20 years. Benefit is payable when the officer would have had 20 years of service but not earlier than age 48.

<u>Termination Benefit</u>:	Accumulated contributions as lump sum, if not vested.
<u>Employee Contributions</u>:	7% of salary; no contributions for those with 30 or more years of service.
<u>Additional Retirement Benefits</u>:	Employees can trade in 50% of sick leave for additional pension credit. If an officer's sick bank has less than 200 days, unused vacation time may be added, subject to a maximum of 200 sick and unused vacation days combined. Each 20 days grants an additional 1.5% of salary up to a maximum of 7.5%.

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