

CITY OF NORWICH VOLUNTEER FIREFIGHTERS' PENSION PLAN

ACTUARIAL VALUATION REPORT

JANUARY 1, 2016

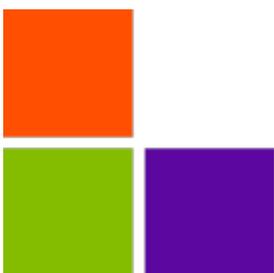




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Executive Summary

Executive Summary		
	January 1, 2016	January 1, 2014
Status		
Active Volunteers	47	54
Volunteers with a Deferred Benefit	0	6
Volunteers with an assumed Return of Contributions	81	77
Retired Pensioners	47	50
Vested Volunteers With a Future Benefit	<u>1</u>	<u>0</u>
Total	176	187
Actuarial present value of future benefits	\$ 6,370,951	\$ 5,475,119
Actuarial accrued liability	5,877,178	5,040,812
Asset value		
Market	2,308,178	2,139,179
Funded Ratio	39.27%	42.44%
Normal cost - employer	58,997	51,280
Unfunded accrued liability	3,569,000	2,901,633
Actuarially Determined Employer Contribution (ADEC)	373,322	303,861
Volunteer Contributions	12,408	11,664



I. Introduction

A. Purpose of the Valuation

The purpose of the valuation is to determine the funded status of the plan as well as the recommended cash contribution for the plan year. The information found in II. Results of the Valuation B and C of the report have been developed for this purpose.

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,

$$\text{City's Ultimate Cost} = \text{Benefits Paid} + \text{Expenses Incurred} - \text{Investment Return} - \text{Employee Contributions}$$

B. Experience During Period Under Review

This report shows an Unfunded Accrued Liability of \$3,569,000. This represents an increase of \$667,367 compared to the prior valuation. The actuarial loss was due to plan changes and investment returns in 2014 and 2015 were less than expected. The net loss increased the resulting contribution by about \$66,000.

C. Changes Since the Last Valuation

This report reflects the plan changes adopted on December 8, 2014. We also updated the mortality table and actuarial cost method.



I. Introduction (continued)

D. Certification

This report presents the results of the January 1, 2016 Actuarial Valuation for the City of Norwich Volunteer Firefighters' Pension Plan (the Plan) for the purpose of estimating the funded status of the Plan and determining the Actuarially Determined Contribution (ADC) for the fiscal years ending June 30, 2017 and June 30, 2018. 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.

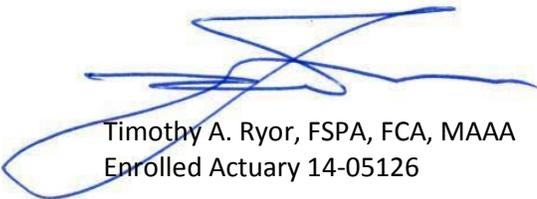
I certify that the actuarial assumptions and methods that were selected by me and represent my best estimate of anticipated actuarial experience under the Plan.

In preparing this valuation, I have relied on employee data provided by the City, and on asset and contribution information provided by the City. 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.



Timothy A. Ryor, FSPA, FCA, MAAA
Enrolled Actuary 14-05126

March 30, 2016



Section II. Results of the Valuation

A. Actuarial Balance Sheet

	January 1, 2016	January 1, 2014
Actuarial Liabilities		
Present Value of Future Benefits		
Active Employees	\$ 3,191,381	\$ 2,695,849
Retired Pensioners	<u>3,179,570</u>	<u>2,779,270</u>
TOTAL	\$ 6,370,951	\$ 5,475,119
Source of Funds		
Plan Assets (Market Value)	\$ 2,308,178	\$ 2,139,179
Unfunded Accrued Liability	3,569,000	2,901,633
Actuarial Present Value of Future Normal Cost Contributions	493,773	434,307
TOTAL	\$ 6,370,951	\$ 5,475,119



Section II. Results of the Valuation (continued)

B. Development of Unfunded Accrued Liability and Funded Ratio

	January 1, 2016	January 1, 2014
Accrued Liability:		
Active Employees	\$ 2,697,608	\$ 2,261,542
Retired Pensioners	<u>3,179,570</u>	<u>2,779,270</u>
Total Accrued Liability	5,877,178	5,040,812
Plan Assets (Market Value)	<u>2,308,178</u>	<u>2,139,179</u>
Unfunded Accrued Liability (UAL)	3,569,000	2,901,633
Unamortized UAL from 1/1/2014*	3,039,507	N/A
New (After 2014) Loss / (Gain)	\$ 529,493	N/A
Funded Ratio (Plan Assets Divided by Total Accrued Liability)	39.27%	42.44%

* After amendment to \$22 benefit.



Section II. Results of the Valuation (continued)

C. Annual Contribution for Fiscal Years Beginning July 1, 2016 and July 1, 2017

Based on the employee data and asset information furnished us, the actuarial methods and assumptions shown in Section IV and the plan provisions outlined in Section V, we have developed the City's contribution for both the 2016-2017 and 2017-2018 fiscal years.

Recommended Contribution

For each of the 2016-2017 and 2017-2018 Fiscal Years, the Recommended Contribution for the City, in addition to the member contributions, is as follows:

a) Total Normal Cost (including expenses)	\$	71,405
b) Expected Employee Contributions		<u>12,408</u>
c) City Normal Cost (including expenses): (a) - (b)		58,997
d) Payment to Amortize the New Actuarial Unfunded Past Service Liability Over 20 Years		49,980
e) Payment on 1/1/2014 UAL (Over 25 Years)		252,006
f) City Contribution January 1: (c) + (d) + (e)		360,983
g) Interest Adjustment *		12,339
h) City Contribution due December 31: (f) + (g)		373,322
i) Expected Employee Contributions		<u>12,408</u>
j) Total Contributions	\$	385,730

* 3% adjustment on c) + 3.5% adjustment on d) + e)



Section III. Supporting Exhibits

A. Membership Data

	Active Participants					Total
	Occum	Taftville	Yantic	East Great Plains	Laurel Hill	
Active, 1/1/2014	17	27	39	50	4	137
Adjustment	0	0	0	0	0	0
Retirements*	0	0	-1	-2	0	-3
Terminations	0	0	-2	-7	-2	-11
Transfers	0	0	0	0	0	0
Deaths						
Without beneficiary	0	0	0	0	0	0
With beneficiary	0	0	0	0	0	0
New Entrants	<u>0</u>	<u>+2</u>	<u>+3</u>	<u>+1</u>	<u>0</u>	<u>+6</u>
Active, 1/1/2016	17	29	39	42	2	129
Active and Accruing Benefits (included above)	4	7	16	19	1	47

* Includes retirees who continue to accrue service.

	Retired Participants*					
Retired, 1/1/2014	10	15	14	9	2	50
Adjustment	0	0	0	0	0	0
New Retirements	0	0	+1	+2	0	+3
New Beneficiaries	0	0	0	0	0	0
QDRO Beneficiaries	0	0	0	0	0	0
Deaths	<u>-3</u>	<u>-2</u>	<u>0</u>	<u>-1</u>	<u>0</u>	<u>-6</u>
Total, 1/1/2016	7	13	15	10	2	47

* Includes Retirees accruing service.



Section III. Supporting Exhibits (continued)

B. Assets – Market Value

Summary of Fund Activity	
	Market Value
1. Beginning value 1/1/2014	
a. Trust assets	\$ 2,139,179
b. Accrued contribution	0
c. Benefits payable	0
d. Administrative expenses payable	0
e. Net: (a)+(b)-(c)-(d)	2,139,179
2. Contributions	
a. Contributions during year	344,664
b. Change in accrued contribution	0
c. Total for plan year	344,664
3. Disbursements	
a. Benefit payments during year	267,241
b. Administrative expenses during year	9,933
c. Change in benefits payable	0
d. Change in administrative expenses payable	0
e. Total for plan year	277,174
4. Net investment return	
a. Interest and dividends	110,478
b. Change in accrued income	0
c. Realized gain (loss)	6,057
d. Unrealized gain (loss)	(25,589)
e. Recognized capital appreciation	N/A
f. Required adjustment due to corridor	N/A
g. Reversal of prior year required adjustment	N/A
h. Investment-related expenses	(9,289)
i. Total	81,657
5. Ending value 1/1/2015	
a. Trust assets: (1a)+(2a)-(3a)-(3b)+(4i)	2,288,326
b. Accrued contribution	0
c. Benefits payable	0
d. Administrative expenses payable	0
e. Net: (a)+(b)-(c)-(d)	2,288,326
6. Approximate rate of return 2014	3.8%



Section III. Supporting Exhibits (continued)

Summary of Fund Activity	
	Market Value
1. Beginning value 1/1/2015	
a. Trust assets	\$ 2,288,326
b. Accrued contribution	0
c. Benefits payable	0
d. Administrative expenses payable	0
e. Net: (a)+(b)-(c)-(d)	2,288,326
2. Contributions	
a. Contributions during year	365,969
b. Change in accrued contribution	0
c. Total for plan year	365,969
3. Disbursements	
a. Benefit payments during year	295,625
b. Administrative expenses during year	5,899
c. Change in benefits payable	0
d. Change in administrative expenses payable	0
e. Total for plan year	301,524
4. Net investment return	
a. Interest and dividends	126,059
b. Change in accrued income	0
c. Realized gain (loss)	2,263
d. Unrealized gain (loss)	(163,511)
e. Recognized capital appreciation	N/A
f. Required adjustment due to corridor	N/A
g. Reversal of prior year required adjustment	N/A
h. Investment-related expenses	(9,404)
i. Total	(44,593)
5. Ending value 1/1/2016	
a. Trust assets: (1a)+(2a)-(3a)-(3b)+(4i)	2,308,178
b. Accrued contribution	0
c. Benefits payable	0
d. Administrative expenses payable	0
e. Net: (a)+(b)-(c)-(d)	2,308,178
6. Approximate rate of return 2015	-1.9%



Actuarial Cost Methods

Actuarial Cost Method

The actuarial method is the Entry Age Actuarial Cost Method (level percentage of salary*).

Under this method, the normal cost is the sum of the individual normal costs for all active participants. For an active participant, the normal cost is the participant's normal cost accrual rate, multiplied by the participant's current compensation*. The normal cost accrual rate equals the present value of future benefits for the participant, determined as of the participant's entry age, divided by the present value of the compensation* expected to be paid to the participant for each year of the participant's anticipated future service, determined as of the participant's entry age.

The cost of amortizing the Unfunded Accrued liability constitutes the remaining portion of the Annual Funding Percentage for all benefits and is determined as follows:

1. An Accrued Liability for these benefits is developed for the active employee group by multiplying each active employee's annual cost (described in the above paragraph) by his credited service accrued to the current actuarial valuation date. This operation will produce an Accrued Liability for each active employee. These individual Accrued Liabilities are then added together to obtain a total Accrued Liability for the active employee group.
2. An Accrued Liability for these benefits is also developed for those members or their beneficiaries who are currently receiving benefit payments. This Accrued Liability is equal to the present value of these benefit payments currently being made to such members or their beneficiaries.
3. The sum of these Accrued Liabilities is reduced by the plan assets to develop the Unfunded Accrued Liability for these benefits.
4. The Unfunded Accrued Liability as of January 1, 2014 is amortized over a closed 25 years period. Unfunded liability after January 1, 2014 is amortized over an open-20 year period.

Past Service Liability

The Actuarial Present Value of Future Pension Benefits that relates to service before the valuation date is the Actuarial Past Service Liability. The Unfunded City Actuarial Past Service Liability is the difference between the total Actuarial Past Service Liability and any Assets (including Accumulated Volunteer Contributions).

Gains and Losses

All gains and losses (the financial effect of the difference between the actual experience of the prior year and the result expected by the actuarial assumptions for that prior year) appear directly in the Actuarial Past Service Liability and are amortized at the same rate the City is amortizing the remaining Unfunded Actuarial Past Service Liability (an open 20-year amortization as of January 1, 2016).

* Per GASB 68 32b, entry age normal costs are projected to increase at the assumed long-term rate of inflation. Compensation for all active participants is assumed to be \$1 increased at the assumed inflation rate.



Actuarial Assumptions

Interest Return

7.0%.

Inflation

3.0%.

This assumption is based on long term (1926-2013) historical inflation numbers. While near term averages have been lower, we do not believe this trend will continue indefinitely and expect that there will be a reversion to the long term average.

Mortality

Current: RPH-2014 Adjusted to 2006 Blue Collar Mortality Table projected to valuation date with Scale MP-2015 (Total Dataset for beneficiaries).

Prior Valuation: RP-2000 Mortality Table with separate male and female rates, with no collar adjustment, combined table for non-annuitants and annuitants projected to the valuation date with Scale AA.

Mortality Improvement

Current: Projected to date of decrement using Scale MP-2015 (generational mortality).

Prior: Projected to date of decrement using Scale AA (generational mortality).

We have selected this mortality assumption because it is based on the latest published pension mortality study released by the Society of Actuaries.

Retirement Age

The later of age 55 or 20 years of service. Active participants who are past their normal retirement age are assumed to retire immediately.

Turnover

Volunteers who do not currently meet the Plan's eligibility requirements are excluded from the costs. In addition, termination rates based on the following scale are assumed:

Age	Rate
25	5.00%
35	2.50%
45	0.75%
55	0.00%

Proportionate rates apply to intermediate ages. The above turnover is applied to all active volunteers to reflect the impact of turnover on the plan costs.

The actuarial assumptions in regards to rates of decrement shown above are based on standard tables modified for certain plan features such as eligibility for full and early retirement where applicable and input from the plan sponsor. The plan does not have sufficient data on which to perform an experience study.



Expense Loading

Estimated annual expenses are included in the Normal Cost, \$6,000 currently. (Prior: \$3,500.)
The estimate is based on actual expenses from the trust in the prior year.

Asset Valuation

Market Value of assets.

Death Benefits, Disability Benefits and Return of Contribution

Valued explicitly using the underlying Actuarial Cost Method.

Rates of Disability Table Class 1

Age	Male	Female
25	.038%	.047%
35	.069%	.136%
45	.202%	.303%
55	.722%	.952%

The actuarial assumptions in regards to rates of decrement shown above are based on standard table.

Percent of Active Employees Married

80% of males and 80% of females.

Spouse's Age

Husbands are assumed to be 3 years older than wives.



Summary of Plan Provisions - (according to City Ordinance)

Effective Date

January 1, 1988, Amended as of January 1, 2011 and January 1, 2015.

Eligibility

Volunteers who have at least one year of service as of January 1, 1988 become eligible for membership on January 1, 1988.

Volunteers after January 1, 1987 shall become Members on the first of the year following completion of 12 months of continuous volunteer service.

Normal Retirement Date

Hired before January 1, 2015: Age 55 with 20 years of Credited Service.

Hired on or after January 1, 2015: Age 55 with 25 years of Credited Service.

Normal Retirement Benefit

Hired on or after January 1, 2015: \$22.00 (was \$18.00) per month multiplied by years of Credited Service to Normal Retirement Date maximized at 30 years (Hired before January 1, 2015: Credited Service is maximized at 40 years).

Deferred Retirement

A member who is satisfactorily able to perform his duties may remain in active volunteer service after Normal Retirement Date. A member may begin to receive benefits at Normal Retirement Date even though he continues volunteer service; benefits will be adjusted annually to reflect the additional year of credit and to reflect any change in benefit level.

Form of Annuity

90% Joint and Survivor Annuity.

Disability

Totally and permanently disabled in the line of duty, benefit based on 30 years (was 40 years) of service.

Termination

A refund of volunteer contributions with interest at 3%.



Pre-Retirement Death Benefits Spouse's Benefit

Upon the death of an active Member who dies as a result of volunteer service to the City, his surviving spouse shall receive \$660 (was \$720) a month. A refund of volunteer contributions with interest shall be payable to a beneficiary if there is no surviving spouse.

Post-Retirement Death Benefits

The surviving spouse shall receive (until death or remarriage) 90% of the pension the deceased member was receiving. If there is no surviving spouse, or the spouse dies or remarries payments shall be made to the then living children until they attain age 24.

Member's Contributions

\$22.00 per month (was \$18.00 per month). No contributions after completion of 30 years (was 40 years) of service.