



***CITY OF HARTFORD***  
**MUNICIPAL EMPLOYEES' RETIREMENT FUND (MERF)**

**Actuarial Valuation as of July 1, 2015**





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## Section I

### Valuation Report

#### 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 Section II of the report has 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,

<i>City's ultimate</i>	=	<i>benefits</i>	+	<i>expenses</i>	-	<i>investment</i>	-	<i>employee</i>
<i>cost</i>		<i>paid</i>		<i>incurred</i>		<i>return</i>		<i>contributions</i>

#### B. Contribution for 2016-2017 Fiscal Year

The City's recommended contribution for the 2016-2017 fiscal year, determined from the July 1, 2015 actuarial valuation, is shown below. We have shown the recommended contribution for the 2016-2017 fiscal year as a percentage of payroll, as well as an *estimated* dollar amount. Also shown are last year's figures for comparison.

	<b>Recommended 2016-2017 Fiscal Year Net Contribution (July 1, 2015 Valuation)</b>		<b>Recommended 2015-2016 Fiscal Year Net Contribution (July 1, 2014 Valuation)</b>	
	% of payroll	\$ in millions (est.)	% of payroll	\$ in millions (est.)
Police	39.08%	\$15.92	43.01%	\$16.51
Firefighters	30.58%	\$9.97	29.53%	\$9.46
Board of Education	8.01%	\$3.91	7.59%	\$3.41
Municipal Services	38.61%	\$10.23	39.62%	\$10.08
Library	18.58%	<u>\$0.82</u>	18.42%	<u>\$0.82</u>
<b>Total</b>		<b>\$40.85</b>		<b>\$40.28</b>

Please see Section II, Exhibit A for the development of these figures.

The recommended City contribution is expressed as a percentage of the payroll for each of the five groups of employees covered by the plan: Police, Firefighters, Board of Education, Municipal Services, and Library. Under the contribution procedure currently used by the MERF, the annual contribution is first developed as a flat dollar amount for each group and then converted to a percentage of payroll using an *estimated* payroll figure. Each of those percentages is then applied against the *actual* payroll for each group for the fiscal year, to yield the *actual* dollar amount of the cash contribution that will be paid to the fund.

The dollar amount shown above is an *estimate* of the cash contribution required. So, while the percentages of payroll will not change because they are set by the valuation, the dollar amount of the City's actual contribution will change -- upward or downward -- depending on whether *actual* payrolls in the fiscal year are more, or less, than currently estimated.



## Section I

### Valuation Report

(continued)

#### C. Funded Status

The funded status of the plan as of July 1, 2015 is summarized below. The figures are useful in accessing the health of the plan overall.

Specifically, the funded status is based on the smoothed (actuarial) value of assets used in the valuation, as well as a measure of the plan's liability known as the Actuarial Accrued Liability. The Actuarial Accrued Liability is the liability for benefits expected to be paid from the plan for inactive participants, as well as the liability for future expected benefit payments for active participants. For actives, the liability measure includes the impact of assumed future salary increases on projected benefits, but includes only that portion of their overall liability attributable to services rendered as of the valuation date.

	<b>July 1, 2015</b>
Actuarial Accrued Liability	\$1,366,370,000
Actuarial Value of Assets	<u>1,060,207,000</u>
Unfunded Status	306,163,000
Funded Percentage	77.6%

During the 2014-2015 fiscal year, the plan's funded status increased from 76.9% as of July 1, 2014 to 77.6% as of July 1, 2015, as detailed above. This was mostly due to unrecognized gains on the actuarial value of assets.

Even with a funded status of less than 100%, the plan is still in a healthy position with the ability to pay benefits due at the current 77.6% level. It is not the intent of the plan's funding method to fully fund such shortfalls in just one year. Absent of other significant changes, such underfunding will be reduced over a period of years as it is spread into future contribution requirements.



## Section I

### Valuation Report

(continued)

#### D. Plan Experience During Period Under Review

The recommended City contribution for the 2016-2017 fiscal year has increased from last year by approximately \$0.6 million based on estimates of payroll. This increase is the net impact of annual plan asset and liability experience.

The July 1, 2014 Valuation produced a net City contribution of \$40.3 million for the 2015-2016 fiscal year. Based on July 1, 2015 participant data and assets, the 2016-2017 net City contribution is \$40.9 million.

During 2014-2015, the market value of assets decreased from \$1,062.6 million to \$1,038.2 million, resulting in an asset return of approximately 2.0% over the period. In order to avoid dramatic fluctuations in contribution requirements with large swings in the market, a “smoothed” or “actuarial” value of assets is used to perform the valuation. This smoothed value recognizes the difference between the expected return on the market value of assets and the actual return over a 5-year period at 20% per year.

As of July 1, 2015, the actuarial value of assets used in the development of the contribution requirement was approximately \$1,060.2 million, \$22.0 million higher than the market value of assets of \$1,038.2 million at such date. The return for the year on the actuarial value was 8.7%. Since 8.7% is greater than the MERF’s 7.75% return assumption for the 2014-2015 plan year, asset gains were generated that decreased the fiscal year 2016-2017 contribution requirement. Specifically, these gains represented approximately a \$1.1 million decrease in contribution.

Changes in the plan’s population and the resulting impact on plan liabilities had the net effect of increasing the recommended City contribution by approximately \$1.1 million. The small loss related to non-investment experience in total indicates that the assumptions, put in place after the 2011 experience study, are closely modeling actual plan experience. While actual experience is reviewed each year and compared to expected, a full experience study is generally recommended every five years. The next study is expected to take place in 2016.

The final change in contribution from last year to this year is the result of the change in mortality assumption with the July 1, 2014 valuation. Rather than recognize the \$2.3 million increase to the City’s net contribution all in one year, the Pension Commission voted to phase-in the impact of the new mortality assumption over a four year period. Twenty five percent of the increase will be recognized each year beginning in 2014. Under this phase-in method, \$0.6 million of the \$2.3 million increase is recognized with the July 1, 2015 valuation, increasing the City’s contribution by \$0.6 million versus last year.



## Section I

### Valuation Report

(continued)

#### E. Changes Since The Last Valuation

None.

#### F. Future Contribution Requirements

The use of a smoothed (actuarial) value of assets is meant to produce a more level funding pattern, given asset volatility. With a large decrease (increase) in the market, asset losses (gains) are spread over a five-year period, leveling out the recommended funding rather than providing for a spike (drop) in contribution requirements in one year. As of July 1, 2015, there were approximately \$22.0 million in net unrecognized asset losses that eventually will be recognized in future City contribution requirements because of the use of this smoothing method. Due to these outstanding losses and the continued phase-in of the mortality assumption, the City's contribution is expected to increase for the 2017-2018 fiscal year, absent other significant changes.

To provide a sense of the level of expected future contributions, an estimate for the 2017-2018 fiscal year has been calculated. Specifically, the City's net estimated recommended contribution for that fiscal year is currently **\$43.9 million**. This figure is based on a projected market value of assets at July 1, 2016 of \$1,063 million, determined by projecting the market value of assets as of July 1, 2015 to June 30, 2016 assuming a 7.75% return. Projected plan liabilities inherent in this calculation were based on the results of the July 1, 2015 valuation, including the assumptions, methods, and census data as of such date.

The projected asset value and estimated contribution for the 2017-2018 fiscal year assume the City funds the recommended contribution for 2015-2016. If the City contributes an amount other than the annual recommended contribution, the estimated future contribution will vary from the amount shown here.

The final 2017-2018 recommended contribution will be based upon final liabilities, assets, and the investment return and other actuarial assumptions used in the July 1, 2016 Actuarial Valuation.



## Section I

### Valuation Report

(continued)

#### G. Certification

This report presents the results of the July 1, 2015 Actuarial Valuation for the City of Hartford Municipal Employees' Retirement Fund (MERF) (the Plan) for the purpose of estimating the funded status of the Plan and determining the Actuarial Determined Contribution (ADC) for the fiscal year ending June 30, 2017. This report is intended to satisfy the requirements of Connecticut General Statute 7-450a.

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.

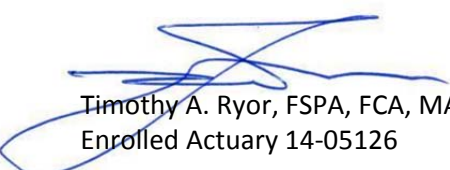
We certify that the actuarial assumptions and methods that were selected by us and represent our best estimate of anticipated actuarial experience under the Plan.

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

The results in this valuation report are based on the Plan as summarized in the *Summary of 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.

We are members of the American Academy of Actuaries and meet its Qualification Standards to render the actuarial opinion contained herein.



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March 21, 2016



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## Section II

### Supporting Exhibits

#### A. Entry Age Normal Actuarial Accrued Liability as of July 1, 2015

	Police	Firefighters	Board Of Education	Municipal Services	Library	Total Membership
A. Covered Payroll						
Annual Payroll (000)	\$38,891	\$31,355	\$50,347	\$26,516	\$4,196	\$151,305
B. Actuarial Accrued Liability (AAL)						
Entry Age Normal AAL (000)						
1. Active Members						
a. Active Members' MERF Liability	\$123,652	\$108,049	\$85,375	\$56,967	\$9,037	\$383,080
b. Local 566 Payment Present Value	0	0	2,082	0	0	
c. Local 1716 Payment Present Value	0	0	0	971	0	
d. Total for Active Members	123,652	108,049	87,457	57,938	9,037	386,133
2. Terminated Non-Vested Members [allocated by (1d)]	370	324	256	171	27	1,148
3. Terminated Vested Members	1,080	6,408	9,046	6,154	375	23,063
4. Retired Members	325,073	242,483	102,040	269,371	16,545	955,512
5. Old Plans Cola 1987/1990/1997/1999/2001/2005/2007	278	174	55	9	0	516
6. Total	450,454	357,436	198,854	333,643	25,983	1,366,370
C. Valuation Assets (Adjusted Value)						
1. Amount prior to Recognizing Receivable (000)	\$341,588	\$287,851	\$169,568	\$241,273	\$19,927	\$1,060,207
2. Contribution Receivable (000)	0	0	0	0	0	0
3. Valuation Assets after Recognition of Receivable (000)	341,588	287,851	169,568	241,273	19,927	1,060,207
D. Unfunded Actuarial Accrued Liability (000)	\$108,866	\$69,585	\$29,286	\$92,370	\$6,056	\$306,163
E. Funded Percent (C. / B.)	75.8%	80.5%	85.3%	72.3%	76.7%	77.6%





## Section II

### Supporting Exhibits

(continued)

#### B. Cash Contributions

#### July 1, 2015 – June 30, 2016 Fiscal Year Contribution

	Police	Firefighters	Board Of Education	Municipal Services	Library	Total Membership
1. Development of Amortization						
a. Unfunded Actuarial Accrued Liability	\$108,866,760	\$69,585,717	\$29,285,975	\$92,369,598	\$6,055,527	\$306,163,577
b. Amortization of Unfunded AAL (23 year closed)	9,942,315	5,894,395	2,641,308	8,545,329	690,355	27,713,702
c. Amortization of Unfunded AAL (15 year open)	(483,896)	251,598	(89,679)	(544,078)	(194,166)	(1,060,221)
d. Total Amortization	9,458,419	6,145,993	2,551,629	8,001,251	496,189	26,653,481
2. Normal Cost Development						
a. Normal Cost Beginning of Year prior to Expense Load	\$4,869,294	\$2,853,244	\$1,611,475	\$2,189,331	\$284,286	\$11,807,630
b. Normal Cost Projected One Year prior to Expense Load	5,246,664	3,074,370	1,736,364	2,359,004	306,318	12,722,721
c. Expense Load (Allocated by AAL)	841,852	668,012	371,638	623,543	48,559	2,553,604
3. Fiscal Year Contribution for 07/01/2016 - 06/30/2017 Before Mortality Assumption Phase-In						
I. Gross City Contribution						
a. Total Contribution Due as of Beginning of Year (1d+2b+2c)	15,546,935	9,888,375	4,659,631	10,983,798	851,066	41,929,806
b. Total Interest Adjusted Gross City Contribution	16,138,138	10,264,400	4,836,823	11,401,479	883,430	43,524,270
II. Annual Adjusted Payroll as of 07/01/2015 w proj	40,894,354	32,708,596	52,739,562	27,832,707	4,406,412	158,581,631
III. Contribution as a % of Payroll prior to adjustments	39.46%	31.38%	9.17%	40.96%	20.05%	27.45%
IV. 07/01/2016 Payment for Local 566 (000)	0	0	303,918	0	0	303,918
V. 07/01/2016 Payment for Local 1716 (000)	0	0	0	509,126	0	509,126
VI. Old Plans COLA Annual Payment (000)	59,562	37,555	14,355	2,056	0	113,528
VII. Net City Contribution [(I.) - (IV.) - (V.) - (VI.)]	16,078,576	10,226,845	4,518,550	10,890,297	883,430	42,597,698
4. Fiscal Year Contribution for 07/01/2015 - 06/30/2016 Adjusted for Mortality Assumption Phase-In						
I. Portion of Net City City Contribution (3VII.) due to mortality assumption change	208,113	348,414	813,179	874,664	86,229	2,330,600
II. Percent of increase not recognized as of 07/01/2015 (recognize increase at 25% per year over 4-year period)	75%	75%	75%	75%	75%	75%
III. Dollar amount of increase not recognized as of 07/01/2015 (I. X II.)	156,085	261,311	609,884	655,998	64,672	1,747,950
IV. Reduction in Contribution as a % of Payroll (4III. / 3II.)	0.38%	0.80%	1.16%	2.36%	1.47%	1.10%
III. Contribution as a % of Payroll (3III. - 4IV.)	39.08%	30.58%	8.01%	38.61%	18.58%	26.34%
IV. Net City Contribution After Reflecting Phase-In [3VII. - 4III.]	15,922,491	9,965,534	3,908,666	10,234,299	818,758	40,849,748

	2016 - 2017 Contribution Sensitivity*					
	Police	Firefighters	Board of Education	Municipal Services	Library	Total
Estimated 2016-2017 Fiscal Year Payroll +5%	\$42,939,072	\$34,344,026	\$55,376,540	\$29,224,342	\$4,626,733	\$166,510,713
Net City Contribution Estimate for 2016-2017	16,721,027	10,464,848	4,117,388	10,772,336	859,647	42,935,246
Estimated 2016-2017 Fiscal Year Payroll -5%	38,849,636	31,073,166	50,102,584	26,441,072	4,186,091	150,652,549
Net City Contribution Estimate for 2016-2017	15,122,876	9,464,619	3,694,944	9,697,716	777,776	38,757,931

\*Based on contribution policy of depositing a % of payroll using actual fiscal year payroll.



## Section II

### Supporting Exhibits

(continued)

#### C. Actuarial Balance Sheet

	July 1, 2015	July 1, 2014
<b>Actuarial Liabilities</b>		
Present Value of Future Benefits for:		
Active Employees	\$574,053,746	\$570,245,217
Inactive Members		
• Regular Retirees	866,500,823	819,634,171
• Disability Retirees	65,530,128	64,529,438
• Survivors	23,481,467	24,923,912
• Terminated Non-Vesteds	1,147,476	553,450
• Terminated Vesteds	23,061,690	29,597,600
• Old Plans COLA	<u>516,140</u>	<u>765,357</u>
TOTAL	\$1,554,291,470	\$1,510,249,145
<b>Source of Funds</b>		
1. Actuarial Value of Assets	\$1,060,206,696	\$1,018,917,250
2. Present Value of Future Employee Contributions	89,923,326	82,570,127
3. Present Value of Future City Normal Cost Contributions	97,997,871	102,396,908
4. Unfunded Accrued Liability	<u>306,163,577</u>	<u>306,364,860</u>
5. TOTAL = (1) + (2) + (3) + (4)	\$1,554,291,470	\$1,510,249,145



## Section II

### Supporting Exhibits

(continued)

#### D. Value of Accrued Benefits as of July 1, 2015

	Police	Firefighters	Board Of Education	Municipal Services	Library	Total Membership
A. Covered Payroll						
Annual Payroll	\$38,891	\$31,355	\$50,347	\$26,516	\$4,196	\$151,305
B. Actuarial Accrued Liability (AAL)						
Unit Credit AAL						
1. Active Members						
a. Active Members' MERF Liability	\$86,496	\$85,105	\$58,850	\$45,561	\$6,600	\$282,612
b. Local 566 Payment Present Value	0	0	2,082	0	0	2,082
c. Local 1716 Payment Present Value	0	0	0	971	0	971
d. Total for Active Members	86,496	85,105	60,932	46,532	6,600	285,665
2. Terminated Non-Vested Members [allocated by (1d)]	370	324	256	171	27	1,148
3. Terminated Vested Members	1,080	6,408	9,046	6,154	375	23,063
4. Retired Members	325,073	242,483	102,040	269,371	16,545	955,512
5. Old Plans Cola 1987/1990/1997/1999/2001/2005/2007	278	174	55	9	0	516
6. Total	413,297	334,494	172,329	322,237	23,547	1,265,904



## Section II

### Supporting Exhibits

(continued)

#### E. Development of Asset Values

The Actuarial Value of assets is used in the determination of plan contributions. It phases in recognition of asset gains and losses. A method of smoothing is used because the Market Value can swing widely from one year to the next, resulting in undesirable fluctuations in pension contributions. The smoothing is accomplished by recognizing asset gains and losses over a five-year period at 20% per year.

Relationship of Actuarial Value to Market Value	
1. Market value 7/1/2015	\$ 1,038,194,319
2. Gain / (loss) not recognized in actuarial value 7/1/2015	(22,012,377)
3. Preliminary actuarial value 7/1/2015: (1)-(2)	1,060,206,696
4. Preliminary actuarial value as a percentage of market value: (3)÷(1)	102.1%
5. Gain / (loss) recognized for corridor min/max	N/A
6. Actuarial value 7/1/2015 after corridor min/max: (3)+(5)	1,060,206,696
7. Actuarial value as a percentage of market value: (6)÷(1)	102.1%

Development of Asset Gain / (Loss) for 2014-2015 Plan Year	
1. Market value 7/1/2014	\$ 1,062,551,220
2. Contributions	56,233,981
3. Benefit payments	98,654,382
4. Administrative expenses	2,715,106
5. Expected return at 7.75%	80,645,723
6. Expected value 7/1/2015: (1)+(2)-(3)-(4)+(5)	1,098,061,436
7. Market value 7/1/2015	1,038,194,319
8. Asset gain / (loss) for -1 Plan Year: (7)-(6)	(59,867,117)

Recognition of Gain / (Loss) in Actuarial Value					
Year	(a) Gain / (loss)	(b) Recognized as of 7/1/2014	(c) Recognized in current year: 20% of (a)	(d) Total recognized as of 7/1/2015: (b)+(c)	(e) Not recognized as of 7/1/2015: (a)-(d)
2010-2011	\$ 83,151,652	\$ 66,521,320	\$ 16,630,332	\$ 83,151,652	\$ 0
2011-2012	(58,190,952)	(34,914,570)	(11,638,190)	(46,552,760)	(11,638,192)
2012-2013	3,810,109	1,524,044	762,022	2,286,066	1,524,043
2013-2014	59,992,444	11,998,489	11,998,489	23,996,978	35,995,466
2014-2015	(59,867,117)	0	(11,973,423)	(11,973,423)	(47,893,694)
Total			5,779,230		(22,012,377)



## Section II

### Supporting Exhibits

(continued)

#### E. Development of Asset Values

Summary of Fund Activity		
	Market Value	Actuarial Value
<b>1. Beginning value 7/1/2014</b>		
a. Trust assets	\$ 1,062,551,220	\$ 1,018,917,250
b. Accrued contribution	0	0
c. Benefits payable	0	0
d. Administrative expenses payable	0	0
e. Net: (a)+(b)-(c)-(d)	1,062,551,220	1,018,917,250
<b>2. Contributions</b>		
a. Employer contributions during year	42,873,800	42,873,800
b. Employee contributions during year	13,360,181	13,360,181
c. Change in accrued contribution	0	0
d. Total for plan year	56,233,981	56,233,981
<b>3. Disbursements</b>		
a. Benefit payments during year	98,654,382	98,654,382
b. Administrative expenses during year	2,715,106	2,715,106
c. Change in benefits payable	0	0
d. Change in administrative expenses payable	0	0
e. Total for plan year	101,369,488	101,369,488
<b>4. Net investment return</b>		
a. Interest and dividends	17,084,648	N/A
b. Change in accrued income	0	N/A
c. Realized gain (loss)	79,379,683	N/A
d. Unrealized gain (loss)	(70,469,062)	N/A
e. Expected return	N/A	80,645,723
f. Recognized gain (loss)	N/A	5,779,230
g. Required adjustment due to corridor	N/A	0
h. Reversal of prior year required adjustment	N/A	0
i. Investment-related expenses	(5,216,663)	N/A
j. Total	20,778,606	86,424,953
<b>5. Ending value 7/1/2015</b>		
a. Trust assets: (1a)+(2a)-(3a)-(3b)+(4j)	1,038,194,319	1,060,206,696
b. Accrued contribution	0	0
c. Benefits payable	0	0
d. Administrative expenses payable	0	0
e. Net: (a)+(b)-(c)-(d)	1,038,194,319	1,060,206,696
<b>6. Approximate rate of return 2014-2015</b>	2.0%	8.7%



## Section II

### Supporting Exhibits

(continued)

#### E. Development of Asset Values

Rate of Return on Market Value of Assets				
Period Ending June 30	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
2006	8.7%	10.8%	6.6%	8.7%
2007	15.6%	11.1%	10.4%	8.3%
2008	-1.9%	7.2%	9.0%	8.3%
2009	-15.0%	-1.2%	2.7%	6.3%
2010	11.1%	-2.5%	3.1%	3.7%
2011	17.7%	3.6%	4.7%	5.7%
2012	1.9%	10.0%	2.1%	6.2%
2013	8.4%	9.1%	4.2%	6.6%
2014	14.1%	8.0%	10.5%	6.5%
2015	2.0%	8.1%	8.6%	5.8%



## Section II

### Supporting Exhibits

(continued)

#### F. Membership Data

##### Summary – Active Members as of July 1, 2015

	Number	Payroll*	Average Annual Pay*
Police	446	\$38,890,802	\$87,199
Firefighters	341	31,355,468	91,952
Board of Education	1,096	50,347,161	45,937
Municipal Services	414	26,516,085	64,049
Library	<u>73</u>	<u>4,195,509</u>	<u>57,473</u>
<b>Total</b>	<b>2,370</b>	<b>\$151,305,025</b>	<b>\$63,842</b>

\*Basic salary plus overtime.

##### Summary – Pensioners as of July 1, 2015

	Service Pensions*		Disability Pensions		Survivor Benefits*		Total	
	Count	Total Monthly Annuities	Count	Total Monthly Annuities	Count	Total Monthly Annuities	Count	Total Monthly Annuities
Police	520	\$2,346,025	71	\$166,383	115	\$76,485	706	\$2,588,893
Firefighters	342	1,661,566	122	349,378	129	99,542	593	2,110,486
Board of Ed.	614	937,633	24	10,934	66	16,888	704	965,455
Municipal Svcs.	766	2,238,012	10	8,250	104	44,223	880	2,290,485
Library	77	153,893	2	1,867	4	930	83	156,690
Vested Deferred	<u>173</u>	<u>237,214</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>173</u>	<u>237,214</u>
<b>TOTAL**</b>	<b>2,492</b>	<b>\$7,574,343</b>	<b>229</b>	<b>\$536,812</b>	<b>418</b>	<b>\$238,068</b>	<b>3,139</b>	<b>\$8,349,223</b>

\* 19 pensioners receiving benefits as retirees and as survivors are included in both groups.

\*\* Additional monthly benefits for the July 1, 1987, July 1, 1990, July 1, 1997, July 1, 1999, July 1, 2001, July 1, 2005, and July 1, 2007 COLA's for the unfunded plans (PBF, FRF, and RAF) are also included in the total liabilities for MERF. Such participants are not included in the counts shown here.



## Section II

### Supporting Exhibits

(continued)

#### F. Membership Data

##### Data Reconciliation – Police

Participant Data				
	Active	Terminated Vested	Pensioners	Total
<b>Total Participants 7/1/2014</b>	<b>439</b>	<b>7</b>	<b>685</b>	<b>1,131</b>
Adjustments	-1	+1	+2	+2
Retirements	-19	-5	+24	0
Disabilities	-2	0	+2	0
Terminations				
Vested	-1	+1	N/A	0
Non-vested	-3	N/A	N/A	-3
Deaths	0	-1	-11	-12
New beneficiaries	N/A	0	+4	+4
Lump Sum Settlements	N/A	0	0	0
Transfer group	+2	0	0	+2
Rehires	0	0	0	0
New entrants	<u>+31</u>	<u>N/A</u>	<u>N/A</u>	<u>+31</u>
<b>Total Participants 7/1/2015</b>	<b>446</b>	<b>3</b>	<b>706</b>	<b>1,155</b>
<b>Average Age</b>				
7/1/2014	40.1			
7/1/2015	39.8			
<b>Average Service</b>				
7/1/2014	11.3			
7/1/2015	11.0			
<b>Payroll**</b>				
7/1/2014	\$35,643,575			
7/1/2015	38,890,802			
<b>Total monthly benefits*</b>				
7/1/2014		\$39,720	\$2,417,179	
7/1/2015		8,626	2,588,893	

\* Excludes old plan COLA participants.





## Section II

### Supporting Exhibits

(continued)

#### F. Membership Data

##### Data Reconciliation – Firefighters

Participant Data				
	Active	Terminated Vested	Pensioners	Total
<b>Total Participants 7/1/2014</b>	<b>365</b>	<b>13</b>	<b>571</b>	<b>949</b>
Adjustments	0	+1	+4	+5
Retirements	-15	-11	+26	0
Disabilities	0	0	0	0
Terminations				
Vested	-8	+8	N/A	0
Non-vested	-1	N/A	N/A	-1
Deaths	-1	-2	-22	-25
New beneficiaries	N/A	0	+14	+14
Lump Sum Settlements	N/A	0	0	0
Transfer group	0	0	0	0
Rehires	0	0	0	0
New entrants	<u>+1</u>	<u>N/A</u>	<u>N/A</u>	<u>+1</u>
<b>Total Participants 7/1/2015</b>	<b>341</b>	<b>9</b>	<b>593</b>	<b>943</b>
<b>Average Age</b>				
7/1/2014	40.6			
7/1/2015	40.8			
<b>Average Service</b>				
7/1/2014	13.0			
7/1/2015	13.2			
<b>Payroll**</b>				
7/1/2014	\$30,818,355			
7/1/2015	31,355,468			
<b>Total monthly benefits*</b>				
7/1/2014		\$76,637	\$1,942,164	
7/1/2015		47,443	2,110,486	

\* Excludes old plan COLA participants.



## Section II

### Supporting Exhibits

(continued)

### F. Membership Data

#### Data Reconciliation – Board of Education

Participant Data				
	Active	Terminated Vested	Pensioners	Total
<b>Total Participants 7/1/2014</b>	<b>1,032</b>	<b>85</b>	<b>696</b>	<b>1,813</b>
Adjustments	+4	+5	+3	+12
Retirements	-10	-12	+22	0
Disabilities	0	-1	+1	0
Terminations				
Vested	-55	+55	N/A	0
Non-vested	-49	N/A	N/A	-49
Deaths	0	0	-21	-21
New beneficiaries	N/A	0	+3	+3
Lump Sum Settlements	N/A	-34	0	-34
Transfer group	-2	0	0	-2
Rehires	+4	-4	0	0
New entrants	<u>+172</u>	<u>N/A</u>	<u>N/A</u>	<u>+172</u>
<b>Total Participants 7/1/2015</b>	<b>1,096</b>	<b>94</b>	<b>704</b>	<b>1,894</b>
<b>Average Age</b>				
7/1/2014	46.5			
7/1/2015	46.6			
<b>Average Service</b>				
7/1/2014	9.9			
7/1/2015	9.9			
<b>Payroll**</b>				
7/1/2014	\$46,974,844			
7/1/2015	50,347,161			
<b>Total monthly benefits*</b>				
7/1/2014		\$83,756	\$945,889	
7/1/2015		103,442	965,455	

\* Excludes old plan COLA participants.



## Section II

### Supporting Exhibits

(continued)

### F. Membership Data

#### Data Reconciliation – Municipal Services

Participant Data				
	Active	Terminated Vested	Pensioners	Total
<b>Total Participants 7/1/2014</b>	<b>410</b>	<b>60</b>	<b>900</b>	<b>1,370</b>
Adjustments	-1	+3	-11	-9
Retirements	-9	-2	+11	0
Disabilities	-1	0	+1	0
Terminations				
Vested	-5	+5	N/A	0
Non-vested	-15	N/A	N/A	-15
Deaths	-2	-1	-27	-30
New beneficiaries	N/A	0	+7	+7
Lump Sum Settlements	N/A	-2	0	-2
Transfer group	0	0	0	0
Rehires	+2	-1	-1	0
New entrants	<u>+35</u>	<u>N/A</u>	<u>N/A</u>	<u>+35</u>
<b>Total Participants 7/1/2015</b>	<b>414</b>	<b>62</b>	<b>880</b>	<b>1,356</b>
<b>Average Age</b>				
7/1/2014	49.3			
7/1/2015	49.5			
<b>Average Service</b>				
7/1/2014	10.7			
7/1/2015	11.0			
<b>Payroll**</b>				
7/1/2014	\$25,496,152			
7/1/2015	26,516,085			
<b>Total monthly benefits*</b>				
7/1/2014		\$74,995	\$2,345,970	
7/1/2015		72,628	2,290,485	

\* Excludes old plan COLA participants.



## Section II

### Supporting Exhibits

(continued)

### F. Membership Data

#### Data Reconciliation – Library

Participant Data				
	Active	Terminated Vested	Pensioners	Total
<b>Total Participants 7/1/2014</b>	<b>73</b>	<b>3</b>	<b>72</b>	<b>148</b>
Adjustments	0	+1	+9	+10
Retirements	-2	0	+2	0
Disabilities	-1	0	+1	0
Terminations				
Vested	-1	+1	N/A	0
Non-vested	-5	N/A	N/A	-5
Deaths	0	0	-1	-1
New beneficiaries	N/A	0	0	0
Lump Sum Settlements	N/A	0	0	0
Transfer group	0	0	0	0
Rehires	0	0	0	0
New entrants	<u>+9</u>	<u>N/A</u>	<u>N/A</u>	<u>+9</u>
<b>Total Participants 7/1/2015</b>	<b>73</b>	<b>5</b>	<b>83</b>	<b>161</b>
<b>Average Age</b>				
7/1/2014	47.5			
7/1/2015	48.0			
<b>Average Service</b>				
7/1/2014	12.3			
7/1/2015	12.7			
<b>Payroll**</b>				
7/1/2014	\$4,251,554			
7/1/2015	4,195,509			
<b>Total monthly benefits*</b>				
7/1/2014		\$1,941	\$140,980	
7/1/2015		5,075	156,690	

\* Excludes old plan COLA participants.



## Section II

### Supporting Exhibits

(continued)

### F. Membership Data

#### Data Reconciliation – Total

Participant Data				
	Active	Terminated Vested	Pensioners	Total
<b>Total Participants 7/1/2014</b>	<b>2,319</b>	<b>168</b>	<b>2,924</b>	<b>5,411</b>
Adjustments	+2	+11	+7	+20
Retirements	-55	-30	+85	0
Disabilities	-4	-1	+5	0
Terminations				
Vested	-70	+70	N/A	0
Non-vested	-73	N/A	N/A	-73
Deaths	-3	-4	-82	-89
New beneficiaries	N/A	0	+28	+28
Lump Sum Settlements	N/A	-36	0	-36
Transfer group	0	0	0	0
Rehires	+6	-5	-1	0
New entrants	<u>+248</u>	<u>N/A</u>	<u>N/A</u>	<u>+248</u>
<b>Total Participants 7/1/2015</b>	<b>2,370</b>	<b>173</b>	<b>2,966</b>	<b>5,509</b>
<b>Payroll</b>				
7/1/2014	\$143,184,480			
7/1/2015	151,305,025			
<b>Total monthly benefits*</b>				
7/1/2014		\$276,891	\$7,792,182	
7/1/2015		237,214	8,112,009	

\* Excludes old plan COLA participants.



**City of Hartford MERF - Police**

**Number of Persons/Average Salary of Persons in Processing Group by Age and Years of Service**

July 1, 2015

**Completed Years of Credited Service**

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 and over		All years	
	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.
Under 25	5	44,742	1	64,864	1	67,089															7	50,809
25 to 29	8	44,317	14	67,267	13	86,803	2	86,636													37	70,298
30 to 34	4	43,465	13	65,718	56	88,577	24	92,555													97	84,714
35 to 39	1	43,465	5	72,862	34	96,354	36	97,391	9	98,668											85	95,002
40 to 44	1	43,465	5	66,870	18	84,363	35	95,551	27	104,170	4	100,001									90	93,917
45 to 49			4	60,451	7	91,008	27	92,876	38	95,373	7	111,343	1	118,967							84	94,126
50 to 54			1	90,743	8	84,512	6	87,409	7	99,495	3	85,723	1	110,693	1	113,038					27	91,432
55 to 59			1	75,498			4	88,563	1	83,249	3	72,191	4	73,237							13	78,655
60 to 64									3	104,025					1	59,514					4	92,898
65 to 69																	1	71,680			1	71,680
70 & over														1	89,455					1	89,455	
All ages	19	44,160	44	67,492	137	89,472	134	94,263	85	99,045	17	97,244	6	87,101	3	87,336	1	71,680			446	88,866



**City of Hartford MERF - Fire**

**Number of Persons/Average Salary of Persons in Processing Group by Age and Years of Service**

July 1, 2015

**Completed Years of Credited Service**

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 and over		All years	
	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.
Under 25			4	63,977																	4	63,977
25 to 29			35	66,062	18	83,004															53	71,816
30 to 34			21	66,832	19	83,044	4	89,226													44	75,869
35 to 39			11	65,378	19	82,573	16	86,409	8	83,852	3	89,794									57	80,891
40 to 44			5	69,391	10	82,479	10	88,940	16	87,224	17	93,635									58	87,044
45 to 49			2	62,263	2	85,361	8	89,692	15	89,585	23	96,720	10	94,418	1	88,191					61	92,024
50 to 54			1	60,893	1	84,664	4	89,090	13	88,744	14	97,020	9	100,036	2	84,664					44	92,807
55 to 59					1	89,398	1	81,323	5	87,194	5	92,985	1	84,664	2	90,716	2	122,275			17	93,074
60 to 64									1	81,323							1	81,323	1	145,651	3	102,766
65 to 69																						
70 & over																						
All ages			79	66,115	70	83,005	43	88,002	58	87,606	62	95,305	20	96,458	5	87,790	3	108,624	1	145,651	341	84,010



**City of Hartford MERF - Board of Education**

**Number of Persons/Average Salary of Persons in Processing Group by Age and Years of Service**

July 1, 2015

**Completed Years of Credited Service**

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 and over		All years	
	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.
Under 25	20	30,646	13	34,916																	33	32,328
25 to 29	29	34,465	47	39,842	3	35,117															79	37,661
30 to 34	18	41,523	45	44,056	27	38,591	7	57,064	1	32,733											98	42,887
35 to 39	17	43,480	47	48,767	44	43,599	19	39,661	10	32,845											137	43,994
40 to 44	14	41,426	35	46,938	28	55,932	32	53,599	26	46,466	7	38,344			1	69,052					143	49,284
45 to 49	15	42,055	30	42,342	29	52,163	20	47,663	36	54,426	10	51,322	9	44,877							149	48,614
50 to 54	11	28,662	28	47,532	30	51,699	19	55,164	45	46,004	9	35,996	11	52,596			1	28,875			154	47,064
55 to 59	2	69,026	15	43,758	22	44,294	21	49,871	27	39,229	19	42,455	8	57,052	6	49,217	1	39,559	1	79,522	122	45,515
60 to 64	7	28,415	14	42,244	19	40,897	19	55,857	22	41,834	16	49,568	11	40,394	4	64,050	4	44,017	1	39,559	117	44,942
65 to 69	3	35,982	4	44,517	16	47,820	6	67,087	8	42,936	7	49,852	3	46,413	2	57,977	1	35,266	3	39,119	53	48,187
70 & over			1	28,875	2	32,204	6	57,054	1	32,463							1	33,865			11	45,630
All ages	136	37,279	279	44,073	220	46,726	149	51,820	176	45,190	68	44,916	42	48,153	13	56,654	8	39,204	5	47,287	1,096	45,330





**City of Hartford MERF - Municipal Services**

**Number of Persons/Average Salary of Persons in Processing Group by Age and Years of Service**

July 1, 2015

**Completed Years of Credited Service**

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 and over		All years	
	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.
Under 25	11	25,286	2	42,517																	13	27,937
25 to 29	6	50,792	13	52,425	4	34,350															23	48,855
30 to 34	4	58,261	20	59,648	6	65,042	2	67,767													32	60,953
35 to 39	5	76,039	15	64,492	12	69,759	7	68,056	1	59,499	2	74,646									42	68,241
40 to 44	4	65,860	8	92,472	13	78,600	8	72,786	2	99,171	2	98,796									37	81,169
45 to 49	4	56,426	4	60,232	13	77,043	12	63,510	7	66,886	3	70,507	3	70,374			2	58,397	2	65,616	50	67,495
50 to 54	4	59,352	15	76,886	14	73,741	16	58,098	9	33,956	3	36,742	7	44,188	1	70,709	2	40,397	5	60,414	76	60,001
55 to 59	1	83,013	10	82,111	11	60,647	14	64,690	10	54,717	8	85,512	4	87,902	1	59,499					59	69,733
60 to 64	2	81,370	10	89,035	13	81,082	9	60,537	8	48,823	5	37,953	2	39,904	3	76,289					52	68,096
65 to 69			6	55,416	5	59,553	4	52,817	1	11,048	1	11,097					1	71,064	1	7,688	19	49,601
70 & over					2	85,620	4	11,085	3	11,081	1	11,097	1	63,129							11	29,368
All ages	41	52,889	103	68,923	93	71,173	76	60,485	41	49,114	25	62,587	17	59,705	5	71,815	5	53,730	8	55,124	414	63,214



**City of Hartford MERF - Library**

**Number of Persons/Average Salary of Persons in Processing Group by Age and Years of Service**

July 1, 2015

**Completed Years of Credited Service**

Attained Age	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 and over		All years		
	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	
Under 25																							
25 to 29	6	52,480	2	42,392																		8	49,598
30 to 34	1	46,536	3	61,737	2	44,801				1	42,392											7	51,963
35 to 39			2	72,389			1	45,739		2	47,095											5	56,941
40 to 44			1	44,443	1	42,983	1	45,739	1	49,854	1	42,392	1	55,872								6	46,881
45 to 49			4	54,482	1	56,748	4	54,268	1	84,644	2	45,739	3	46,243	1	50,449						16	53,565
50 to 54	1	21,070	1	126,674	1	56,748	3	55,825	2	89,970			2	45,739	2	54,021						12	62,619
55 to 59	1	77,618	1	46,737	3	85,103	1	45,739					1	44,394								7	67,114
60 to 64			1	48,451	1	157,501	4	63,121					1	45,739	2	47,679						9	66,615
65 to 69			1	52,967			1	42,392					1	89,178								3	61,512
70 & over																							
All ages	9	50,953	16	59,498	9	73,210	15	54,442	7	64,431	3	44,623	9	51,710	5	50,770						73	57,490



**City of Hartford MERF - All Groups**

**Number of Persons/Average Salary of Persons in Processing Group by Age and Years of Service  
July 1, 2015**

Attained Age	Completed Years of Credited Service														All years							
	Under 1		1 to 4		5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34		35 to 39		40 and over		No.	Avg. Comp.
	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.	No.	Avg. Comp.				
Under 25	36	30,966	20	42,986	1	67,089														57	35,817	
25 to 29	49	40,024	111	53,080	38	75,402	2	86,636												200	54,545	
30 to 34	27	44,476	102	55,132	110	72,844	37	84,141	2	37,562										278	64,788	
35 to 39	23	50,557	80	56,293	109	69,473	79	78,029	30	68,032	5	83,735								326	67,041	
40 to 44	19	46,677	54	57,763	70	70,868	86	76,744	72	78,314	31	80,651	1	55,872	1	69,052				334	71,354	
45 to 49	19	45,080	44	47,624	52	65,204	71	72,516	97	76,731	45	84,893	26	69,880	2	69,320	2	58,397	2	65,616	360	69,284
50 to 54	16	35,860	46	60,412	54	63,174	48	62,940	76	58,131	29	70,677	30	66,345	6	76,853	3	36,556	5	60,414	313	61,094
55 to 59	4	74,671	27	59,249	37	53,684	41	59,499	43	49,432	35	62,064	18	68,335	9	59,582	3	94,703	1	79,522	218	58,499
60 to 64	9	40,183	25	61,209	33	60,261	32	58,082	34	50,127	21	46,803	14	40,706	10	63,994	5	51,478	2	92,605	185	54,479
65 to 69	3	35,982	11	51,230	21	50,614	11	59,653	9	39,393	8	45,007	4	57,104	2	57,977	3	59,337	4	31,261	76	49,376
70 & over			1	28,875	4	58,912	10	38,666	4	16,426	1	11,097	1	63,129	1	89,455	1	33,865			23	39,758
All ages	205	41,593	521	54,895	529	67,146	417	70,835	367	64,947	175	70,371	94	63,347	31	66,142	17	57,637	14	58,791	2,370	62,519



## Section II

### Supporting Exhibits

(continued)

#### G. IRC Section 415(m) Valuation

The IRC Section 415(m) Fund\* is an unfunded "excess benefit plan" to provide that portion of certain retirees' pension benefits that exceed the limits permitted under Section 415 of the Federal Internal Revenue Code (IRC).

	<u>July 1, 2015</u>	<u>July 1, 2014</u>
1. Number of retirees and beneficiaries receiving benefits	9	9
2. Annual benefits payable	\$79,000	\$80,000
3. Present value of benefits	\$299,000	\$302,000

The "actives" are funded through MERF. The City provides contributions for the retirees' benefits payable each year, as determined by the Pension Commission.

#### Actuarial Assumptions

The actuarial assumptions used in the 2015 Section 415(m) Fund valuation are as follows:

##### Mortality Basis

RP-2000 Healthy Annuitants Table set forward one year projected by Scale MP to valuation date with separate male and female rates.

##### Mortality Improvement

Projected to date of decrement using Scale MP (generational mortality).

##### Termination

N/A.

##### Salary Scale

N/A.

##### Investment Return

7.75% per year, net of investment expenses.

##### Assumed Retirement age

Immediate as all are retired.

##### Increases in dollar limit on benefits under IRC Section 415

3% per year.

This assumption is based on long term 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.

##### Benefits

Retiree pension amounts in excess of IRC Section 415 limits. Benefits which do not exceed such amounts are payable from the City's MERF Plan. IRC Section 415 limits are assumed to increase annually and thus decrease the benefits payable from this Plan and increase the portion of the benefits payable from the City's MERF Plan.

*\*Section 415(m) Fund adopted by the Court of Common Council on March 24, 1997.*



## Section III

### Actuarial Cost Methods and Assumptions

#### A. Actuarial Cost Methods

##### Asset Valuation Method – Actuarial Value of Assets

In order to smooth the year-to-year fluctuations in asset values, the asset values are adjusted by phasing in recognition of gains and losses over a five-year period. (Phase-in started July 1, 2003). Gains and losses are defined as the difference between the actual and the expected return on assets.

The July 1, 2009 valuation reflected a change in the asset valuation method from the use of a four-year smoothing period for gains and losses to the use of a five-year period. In the year of implementation of the change, the five-year smoothing methodology was retroactively applied to the gains and losses for previous years.

The assets held by the insurance companies include the funds on deposit for future purchase of annuities, as well as the reserves and contingency reserves for annuities already purchased which are subject to experience rating.

##### Actuarial Funding Method

The “Entry Age Normal Actuarial Cost Method” is used to determine plan liabilities. The Unfunded Actuarial Accrued Liability developed with the July 1, 2013 valuation is amortized over 25 years using a level dollar, closed period. As of July 1, 2015, there are 23 years remaining. Future gains and losses after July 1, 2013 are amortized over a 15 year level dollar, open period.

The increase in contribution as a result of the change in mortality assumption adopted with the July 1, 2014 valuation will be phased-in over a 4-year period at 25% per year.

Since the MERF fund includes several classifications of members who have different provisions for benefits and contributions, it was necessary to apply this method by separate actuarial valuations for Police, Firefighters, Board of Education, Municipal Services, and Library participants.



## Section III

### Actuarial Cost Methods and Assumptions

(continued)

#### B. Actuarial Assumptions

The actuarial assumptions used in the 2015 MERF valuation are as follows:

##### Mortality Basis

For Police, Fire, Board of Education Corridor Supervisors and Building and Grounds Supervisors:

- Pre-retirement: RP2000 Employees Table – male and female rates, set forward one year, projected by Scale MP to valuation date with occupational (i.e., non-office worker, blue collar) adjustment.
- Post-retirement: RP2000 Healthy Annuitants Table – male and female rates, set forward one year, projected by Scale MP to valuation date with occupational (i.e., non-office worker, blue collar) adjustment. No adjustment reflected for assumed future beneficiaries.
- Disability: RP2000 Disabled Table – male and female rates.

For All Other Groups:

- Pre-retirement: RP2000 Employees Table – male and female rates, set forward one year, projected by Scale MP to valuation date with no adjustment.
- Post-retirement: RP2000 Healthy Annuitants Table – male and female rates, set forward one year, projected by Scale MP to valuation date with no adjustment.
- Disability: RP2000 Disabled Table – male and female rates.

##### Mortality Improvement

Pre and Post-retirement: Projected to date of decrement using Scale MP (generational mortality).

Disability: None.

We have selected a mortality table commonly used by public pension systems (such as the State of Connecticut). It is a recently published pension mortality study released by the Society of Actuaries. The plan has partially credible data, so actual experience was evaluated and reflected. We are using the MP-2014 mortality projection scale because it is based on the latest published pension mortality study.



## Section III

### Actuarial Cost Methods and Assumptions

(continued)

#### Termination

##### Yearly Rates of Employee Termination – Police and Fire

<b>Age</b>	<b>Police</b>	<b>Fire</b>
20-24	4.0%	1.0%
25-29	3.0%	1.0%
30-34	2.5%	1.0%
35-39	2.0%	1.0%
40-44	1.0%	0.5%
45+	0.0%	0.0%

##### Yearly Rates of Employee Termination – Bd of Ed

<b>Age</b>	<b>Years of Service</b>					
	<b>&lt;1</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5+</b>
20-29	30.0%	30.0%	28.0%	25.0%	20.0%	15.0%
30-39	25.0%	25.0%	20.0%	18.0%	15.0%	9.0%
40-49	20.0%	17.0%	15.0%	12.0%	10.0%	8.0%
50-54	17.0%	15.0%	12.0%	10.0%	8.0%	6.0%
55+	9.0%	8.0%	8.0%	7.0%	6.0%	5.0%

##### Yearly Rates of Employee Termination – Munic. Svc. & Lib.

<b>Age</b>	<b>Years of Service</b>					
	<b>&lt;1</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5+</b>
20-29	27.0%	25.0%	22.0%	19.0%	17.0%	15.0%
30-39	20.0%	17.0%	15.0%	12.0%	10.0%	6.0%
40-49	15.0%	10.0%	9.0%	7.0%	6.0%	5.0%
50+	8.0%	7.0%	6.0%	5.0%	4.0%	3.0%

The actuarial assumption in regards to rates of termination shown above is based on the results of an actuarial experience study for the period July 1, 2005 through June 30, 2010.



### Section III

## Actuarial Cost Methods and Assumptions

(continued)

#### Investment Return

7.75% per year, net of investment expenses.

This rate is supported by the City's target asset allocation and long term expected rates of return by asset class provided by the investment advisor.

#### Inflation

3.0%.

This assumption is based on long term 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.

#### Salary Scale

3% for inflationary salary increases plus a percentage for promotion or merit increases as follows.

#### Yearly Rates of Increases for Promotion or Merit

Age	Police	Fire	Bd of Ed	Munic. Svc. & Lib.
25	6.60%	4.5%	4.40%	6.40%
30	4.80%	2.63%	3.70%	4.78%
35	2.65%	1.25%	3.35%	2.75%
40	1.45%	0.85%	2.50%	2.21%
45	1.10%	0.75%	1.40%	2.00%
50	1.00%	0.75%	0.85%	1.55%
55+	1.00%	0.75%	0.75%	1.25%

Salaries are adjusted for groups in negotiations by 3% per year for the period of each open contract, and non-bargaining groups by 3% per year for one full fiscal year from the measurement date. Any wage increases negotiated beyond the valuation date have been reflected in our projections.\*

\* The following groups have future salary increases that have been negotiated and are reflected in this valuation:

- Firefighters
- Police
- Corridor Supervisors
- CHPEA

For Police, final average pay is loaded by a percentage for assumed private duty and overtime as follows: Pre-7/1/1999 hires: 43%; Post 7/1/1999 hires: 19% for employees remaining in the pre 2013 plan; 25% for employees moving to the 7/1/2013 plan.

The salary scale assumptions above are based on the results of an actuarial experience study for the period July 1, 2005 through June 30, 2010.





### Section III Actuarial Cost Methods and Assumptions (continued)

**Assumed Retirement Age**

Retirement Rates: Police

Service	Age <50	Age >50
20	50.0%	30.0%
21-24	40.0%	25.0%
25-29	30.0%	15.0%
30+	100.0%	100.0%

100% retire at age 65, regardless of service; must be age 40 to retire

Retirement Rates: Fire

Years of Service		
Age	20-24	25-29
45-49	2.5%	5.0%
50-54	5.0%	20.0%
55-59	10.0%	30.0%
60-64	25.0%	40.0%
65+	100.0%	100.0%

100% retire at 30 years of service for all ages

Retirement Rates: Board of Education

Age	Rate
55	10.0%
56-57	5.0%
58-61	10.0%
62-64	15.0%
65	40.0%
66-69	15.0%
70	100%

Retirement Rates: Municipal Services and Library

Age	<20 yrs svc or over age 65	Service	+20 on yrs svc and under age 65
55	15.0%	20	15%
56-59	7.5%	21	20%
60-64	15.0%	22	15%
65	30.0%	23-25	10%
66-74	15.0%	26-27	15%
75	100%	28	20%
		29	10%
		30	25%
		31-34	10%
		35	100%

Post 65 rates above used for all years of service.

The actuarial assumption in regards to rates of retirement shown above is based on the results of an actuarial experience study for the period July 1, 2005 through June 30, 2010.



## Section III

### Actuarial Cost Methods and Assumptions

(continued)

#### Social Security

Future tax wage bases are developed by projecting the 2015 base of \$118,500 forward at 4% per year.

#### Marital Status at Retirement

Non-Uniformed:

Males - 80% married, spouse 3 years younger.

Females - 60% married, spouse same age.

Uniformed: All - 80% married, spouse 2 years younger.

#### Disability

Disability benefits were explicitly valued using the DP85 Class 1 Male and Female Disability Incidence Rate Table increased 150% for the Police, 250% for Firefighter groups, 10% for the Board of Education groups, and 10% for the Municipal Services and Library groups.

*DP85 Class 1 Disability Incidence Table: Sample  
male and female rates*

<u>Age</u>	<u>Male</u>	<u>Female</u>
15	0.021%	0.023%
20	0.029%	0.030%
25	0.038%	0.047%
30	0.048%	0.080%
35	0.069%	0.136%
40	0.117%	0.211%
45	0.202%	0.323%
50	0.358%	0.533%
55	0.722%	0.952%
60	1.256%	1.159%
65	1.753%	1.358%

The actuarial assumption in regards to disability rates shown above is based on the results of an actuarial experience study for the period July 1, 2003 through June 30, 2010.

#### Expenses other than Investment Expenses

An explicit dollar amount was included in the development of the normal cost equal to an estimate of expenses (other than investment expenses) for the upcoming year. The estimate was developed based on an average of actual expenses over the last four years. For the 2015 valuation, \$2,553,604 was used. Estimated expenses were then allocated to the various groups by the actuarial accrued liability.



## Section III

### Actuarial Cost Methods and Assumptions

(continued)

#### Sick Exchange

Four years are exchanged by all actives if provision available. For Firefighters hired prior to July 1, 2003, six years are exchanged.

#### Military and Prior Service

Buy-backs: When a decision to buy-back service occurs, date of hire is adjusted accordingly.

#### Additional Liabilities

COLAs: Included in this valuation is the liability for the Cost of Living Adjustments (COLAs) effective July 1, 1987, July 1, 1990, July 1, 1997, July 1, 1999, July 1, 2001, July 1, 2005, and July 1, 2007 for both the MERF and the unfunded "Old Plans" (PBF, FRF, and RAF).

Local 1716: Included in this valuation is the obligation for Local 1716 members who transferred to State MERF B on July 1, 1987.

29-year amortization payments (split between the City administration and the pension fund) commenced July 1, 1987 for this obligation. As of July 1, 2015, the City payment will be \$509,126 (\$509,000 on a present value basis) and the pension fund payment will be \$462,336 (\$462,000 on a present value basis).

Local 566: Included in this valuation is the obligation for Local 566 (included merged Local 1303) members who transferred to State MERF B on August 1, 1988.

30-year amortization payments (split between the City administration and the pension fund) commenced August 1, 1988 for this obligation. As of July 1, 2015, the City payment will be \$303,918 (\$1,091,000 on a present value basis) and the pension fund payment will be \$276,288 (\$991,000 on a present value basis).



## Section IV

### Hartford MERF - Summary of Principal Provisions of Pension Plan July 1, 2015

#### PROVISIONS FOR:

#### POLICE OFFICERS AND FIREFIGHTERS

#### BOARD OF EDUCATION MEMBERS

#### MUNICIPAL SERVICES & LIBRARY MEMBERS

#### Retirement Pensions:

Firefighters hired before July 1, 2003: 2.80% of Final Average Pay (rate of weekly pay immediately preceding retirement times 52, plus for firefighters who work a 42 hour week, holiday pay) multiplied by years of service up to 25 plus 2.0% for years over 25.

Firefighters hired after June 30, 2003: 2.5% of Final Average Pay (rate of weekly pay immediately preceding retirement times 52, plus for firefighters who work a 42 hour week, holiday pay) multiplied by years of service up to 20 plus 2% of Final Average Pay for years of service over 20.

Sworn Police Officers hired before July 1, 1999: 2.65% of Final Average Pay for highest 3 of last 5 years multiplied by years of service up to 20 plus 3% for year 21 plus a decreasing percentage for years over 21. Final Average Pay includes a provision for over-time and private duty pay.

Sworn Police Officers hired after June 30, 1999 not opting into 2013 plan: 2.5% of Final Average Pay for highest 3 of last 5 years times years of service up to 20 plus 2% for years of service-over 20. Final Average Pay includes a provision for over-time and private duty pay.

Sworn Police Officers hired after the July 1, 2013 and officers hired after June 30, 1999 opting into new Plan: 2.8% of final rate of pay times years of service up to 25 years plus 2.5% for years of service over 25. Final Average Pay includes a provision for over-time.

2% (2.5% for HFSHP, HSSSA and HESP) of Final Average Pay for highest 5 of last 10 years times years of service, with maximum benefit of 70% of Final Average Pay. Final Average Pay for HFSHP, HESP, HSSSA, and Local 2221, Hartford Federation of Paraprofessionals are based on highest 3 out of last 5 years. Benefit for Local 2221 is 2.5% of Final Average Pay multiplied by years of service up to 20 plus 2% of Final Average Pay for years of service over 20 (maximum of 10 years).

Effective July 1, 2008 for Local 818, employees hired prior to March 1, 2007 will get 2.5% of Final Average Pay (for each year of service) and employees hired after March 1, 2007 will get 2.0%. Final Average Pay is the highest 3 of the 7 years. Maximum benefit is 70% of pay.

Nonunion employees hired after September 30, 2010 no longer participate in the MERF.

For Library and MLA hired on or after July 1, 2006, HMEA hired after July 1, 2003, CHPEA hired after June 23, 2003, 2% of Final Average Pay for highest 2 of last 5 years times years of service with a maximum benefit of 70% of Final Average Pay. For Library with 5-year option, Final Average Pay is highest 5 of last 10 years.

For CHPEA hired on or before June 23, 2003, MLA hired before July 1, 2006, and Nonbargaining, 2.5% of Final Average Pay for highest 2 of last 5 years times years of service. Maximum benefit of 70% of Final Average Pay for CHPEA, 80% for Nonbargaining and MLA. For Nonbargaining with 5-year option, Final Average Pay is highest 5 of last 10 years.

For Nonbargaining municipal employees hired after January 1, 2011 and MLA employees hired after November 26, 2013, retirement benefit multiplier is reduced to 1.75%.

For HMEA hired before July 1, 2003, 2.75% of Final Average Pay for highest 2 of last 5 years times years of service with a maximum benefit of 75% (was 70%) of Final Average Pay.

For SCGA, 2% of Final Average Pay for highest 5 of last 10 years reduced by 1% of average Social Security covered earnings for all years included in computation of Social Security primary benefits. Maximum benefit of 100% of Final Average Pay.



**PROVISIONS FOR:**

**POLICE OFFICERS AND FIREFIGHTERS**

**BOARD OF EDUCATION MEMBERS**

**MUNICIPAL SERVICES & LIBRARY MEMBERS**

**Retirement Pensions:**

Non-Sworn Police Officers: 2.5% of Final Average Pay for highest 3 of last 5 years times years of service, with maximum benefit of 80% of Final Average Pay.

Sworn Police Officers have a maximum benefit of 70% of Final Average Pay. For Sworn Police Officers hired before July 1, 1999 and after July 1, 2013 or hired between July 1, 1999 and June 30, 2013 opting into 2013 plan, increase maximum benefit to 80% of Final Average Pay with sick exchange provision for pre July 1, 1999 hires only. Firefighters have a maximum benefit of 80% of Final Average Pay (85% with sick exchange if hired prior to July 1, 2003).

Assistant Police Chief, Police Chief, Assistant Fire Chief and Fire Chief: Same as Non-Bargaining.

**Normal Form of Benefit:**

For unmarried members: life annuity.  
For married members: surviving spouse benefit of 25% of member's final year's earnings, if non-service connected death, and 50% of member's final year's earnings, if service connected death. Minimum of 50% of pension benefit for firefighters for non-service connected death.

For married Non-Sworn Police Officers: life annuity with 50% to survivor.

For unmarried members: life annuity.  
For married members: life annuity with 50% to survivor.

For unmarried members: life annuity.  
For married members: life annuity with 50% to survivor.



**PROVISIONS FOR:**

**POLICE OFFICERS AND FIREFIGHTERS**

**Normal Retirement Age and Service Requirement:**

Firefighters and Sworn Police Officers hired before July 1, 1999: Full benefits after 20 years of continuous service.

Sworn Police Officers hired after June 30, 1999: Full benefits after 25 years of continuous service.

Sworn Police Officers hired after June 30, 2013, full benefits after 25 years of continuous service and age 55.

Non-Sworn Police Officers: Full benefits after 20 years of service, or age 60 plus 5 years of continuous service, or after 15 years of service, if contributions are left in the MERF until would have had 20 years of service.

**BOARD OF EDUCATION MEMBERS**

Age 60 plus 10 (5 for non-bargaining – was 10) years of service (continuous service for Local 2221). Members are also eligible at age 55 with 25 years of service. Local 818 employees hired prior to March 1, 2007 may retire after 20 years of service, regardless of age. For HSSSA, age 55 and 5 (was 10) years of service.

**MUNICIPAL SERVICES & LIBRARY MEMBERS**

For SCGA and MLA hired on or after July 1, 2006, earlier of (1) age 60 plus 5 years of continuous service or (2) age 55 with 25 years of continuous service.

For Nonbargaining and MLA hired prior to July 1, 2006, earlier of (1) age 60 plus 5 years of continuous service or (2) 20 years of service, or (3) after 20 years of service if participant leaves after 15 years of service and contributions are left in the MERF until would have had 20 years of service.

For CHPEA, earlier of (1) age 60 plus 5 years of continuous service or (2) 20 years of aggregate service if hired on or before June 23, 2003, age 55 with 25 years of aggregate service if hired after June 23, 2003.

For HMEA earlier of (1) age 60 plus 5 years of continuous service or (2) 20 years of continuous service if hired before July 1, 2003, age 55 with 25 years of continuous service if hired after July 1, 2003.

For Library non union, earlier of (1) age 60 plus 5 years of continuous service or (2) 25 years of continuous service.

For Library union, (1) age 60 plus 10 years of continuous service or (2) 25 years of continuous service.

For Nonbargaining municipal employees hired after January 1, 2011, earlier of age 55 with 20 years of service and age 62 with 5 years of service.



**PROVISIONS FOR:**

**POLICE OFFICERS AND FIREFIGHTERS**

**BOARD OF EDUCATION MEMBERS**

**MUNICIPAL SERVICES & LIBRARY MEMBERS**

**Optional Early Retirement:**

Sworn Police Officers: Age 50 with 10 years of continuous service, actuarially reduced for years prior to Normal Retirement Age. Non-Sworn Police Officers: Age 55 with 5 years of continuous service, reduced at 4% per whole year prior to age 60.

Firefighters: Age 50 with 5 years of continuous service, actuarially reduced or reduced at 2% per year (prorated for fractional years) prior to Normal Retirement Age.

At age 55 with 10 years (5 years for HESP) of service (continuous service for Local 2221), reduced at 4% per whole year prior to age 60. For Local 818, reduction is adjusted for partial years.

For Library union, age 55 with 10 years of continuous service. For all others, age 55 with 5 years of continuous service. Benefit reduced at 4% per whole year prior to age 60 (prorate for partial years for HMEA and CHPEA). For SCG members, reduction is 2% per whole year and fraction of a year prior to age 60.

For Nonbargaining municipal employees hired after January 1, 2011, early retirement reduction is 4% per year prior to age 62.

**Vesting of Earned Deferred Pension:**

Sworn Police Officers: After 10 years of continuous service.

Firefighters and Non-Sworn Police Officers: After 5 years of continuous service.

After 10 years (5 years for HESP, HSSSA and non-bargaining) of continuous service. Payments begin no earlier than age 55. (Was 10 years for HSSSA and non-bargaining).

For Library union, 10 years of continuous service. For all others, 5 years of continuous service. Payments begin no earlier than age 55.

**Benefits to Survivors:  
(Death of Active Member  
Prior to Retirement)**

Surviving Spouse: 25% of final year's earnings (50% if service connected death), payable until death or remarriage. Minimum of 50% of pension benefit for Firefighters for non-service connected death. Surviving Child: \$100 per month for first child, \$50 for each additional child (10% of final year's earnings if service connected death, or 15% if no surviving spouse). Total benefit, including Worker's Compensation, cannot exceed 100% of current pay rate for Member's rank. Non-Sworn Police Officers: Same as General Government members.

Member must meet qualifications for vesting. Surviving Spouse: 50% of pension which Member is receiving or would be entitled to when retired, payments beginning no earlier than date of Member's 55th birthday. Surviving Spouse benefits are payable until death or remarriage.



**PROVISIONS FOR:**

**POLICE OFFICERS AND FIREFIGHTERS**

**BOARD OF EDUCATION MEMBERS**

**MUNICIPAL SERVICES & LIBRARY MEMBERS**

**Refund of Contributions upon Discontinuance of Employment or at Death (Non-Vested Members):**  
**(May be taken in lieu of earned deferred pension by vested members)**

Refund of total contributions, without interest.

Termination: Refund of total contributions, with 3% interest compounded annually.

Death: Refund of total contributions with interest preretirement and without interest postretirement.

Non-Sworn Police Officers: Same as General Government members.

**Pensions for Permanent, Total Disability - Service Requirements:**

5 years of continuous service, but no requirement if disability is service connected as defined in Worker's Compensation Act.

10 years of continuous service, except no requirement if disability is service connected as defined in Worker's Compensation Act.

Non-Sworn Police Officers: Same as General Government members.

**Amount of Total Disability Pension:**  
**(Payable as long as total disability continues.)**

Retirement Pension with minimum of 25% of "final average pay." If disability is service connected, the pension equals 100% of the Member's final annual pay less Worker's Compensation benefits.

Retirement Pension using Final Average Pay for last 10 years. If disability is service connected, amount not less than 50% of Member's final annual pay at time of disability. Maximum benefit of 2/3 of 10-year Final Average Pay less Social Security benefit. Minimum benefit of \$30 per month. All service connected disability benefits are offset by benefits payable by Worker's Compensation (exception: no offset for \$30 minimum).

Non-Sworn Police Officers: Same as General Government members.

If non service connected, same as above, but no 50% Final Average Pay minimum and minimum benefit equals \$10 per month instead of \$30 per month.

**Pensions for Permanent Partial Disability:**  
**(Where earnings capacity is reduced by at least 10%.)**

Ten years of continuous service, but no service requirement if disability is service connected. Same as retirement pension with reduction for less than 15 years of service. If non-service connected, retirement pension, subject to a minimum equal to 25% of Final Average Pay. This minimum is reduced by earnings if less than 15 years of service at time of disability. If service connected, pension equals 50% of final annual pay (regular 20 year pension for Firefighters) if 15 years of service, with reductions for earnings if less than 15 years of service. If at least 20 years of service, pension equals retirement pension.

10 years of continuous service, except no requirement if disability is service connected as defined in Worker's Compensation Act. Retirement Pension using Final Average Pay for last 10 years (with offset for Worker's Compensation benefits if service-related disability), subject to a minimum pension of \$10 monthly (non-service connected), or \$30 (service connected). If the disability is service connected, benefit not less than 50% of the reduction in earnings with offset for Worker's Compensation benefits. For service connected disability, the maximum benefit is 2/3 of 10 year final average pay less Worker's Compensation and Social Security benefits. For non-service connected disability, the maximum is 2/3 of 10 year final average pay less Social Security benefits, or 1-<sup>2</sup>/3% of the reduction in income times years of service.

Non-Sworn Police Officers: Same as General Government members.





**PROVISIONS FOR:**

**Member's Contribution  
Rate of Total Earnings:  
(City pays full balance of  
costs to fund MERF  
benefits; also Members  
and City pay taxes for  
those covered by Social  
Security.)**

**POLICE OFFICERS AND FIREFIGHTERS**

Firefighters and Sworn Police Officers hired before July 1, 1999: 8%.

Sworn Police Officers hired after June 30, 1999: 6.5%. If opt into 2013 plan, rate increases to 8.0%

Sworn Police Officers hired after June 30, 2013, 9.5%

Non-Sworn Police Officers: 4% on earnings taxed for Social Security and 7% on excess.

Sworn and Non-Sworn Police Officers hired prior to July 1, 2013 had the option to elect retiree health insurance. If such election was made, the employee contribution rate increases by 1.5%.

Assistant Police Chief, Police Chief, Assistant Fire Chief and Fire Chief: Same as Non-Bargaining.

**BOARD OF EDUCATION MEMBERS**

4% on earnings taxed for Social Security and 7% on excess. For HESP, 9% and 12%, respectively. For HSSSA, 9.25% and 12.25%, respectively (was 8.75%/11.75%). For HFSHP 10.14% and 13.14%, respectively. For Non-bargaining 4.5% and 7.5%, respectively (was 4%/7%).

For Local 818, 5.2% up to Social Security Wage Base and 8.2% of the excess. If hired on or after March 1, 2007, 7.1% and 10.1%, respectively.

**MUNICIPAL SERVICES & LIBRARY MEMBERS**

For Nonbargaining, 5% on earnings taxed by Social Security and 8% on excess if 5 year Final Average Pay option elected (was 4%/7%). With 2 year option, 6% and 9%, respectively (was 5%/8).

For Library, 4% on earnings taxed by Social Security and 7% on excess if 5 year Final Average Pay option elected. With 2 year option, 5% and 8%, respectively.

For MLA, HMEA hired after July 1, 2003, and CHPEA hired after June 30, 2003, 5% on earnings taxed by Social Security and 8% on excess. For CHPEA hired on or before June 30, 2003, 6.5% and 9.5%, respectively. For HMEA hired before July 1, 2003, 7.8% on all earnings.

For SCGA, 4% on earnings taxed by Social Security and 7% on excess (was 3%/6%).



**Note 1** Any Member (other than a Police Officer or Firefighter) who was a Member before January 1, 1958 is guaranteed a minimum total benefit, including Social Security based on earnings from the City, equal to the pension the Member would have received under the terms of the MERF plan in existence prior to the enactment of the 1957 Special Act No. 347. Also, several active Members who transferred to MERF on or after July 1, 1968 from the City's Retirement Allowance Fund are entitled to a pension determined by the RAF provisions if it is greater than that based on the MERF provisions.

**Note 2** Section 2-166 of the Municipal Code provides a minimum benefit of \$155 monthly for all pensions granted by reason of service or for service-connected disability, and for joint annuitants under elected options, except members for whom Social Security taxes have been paid and anyone for whom more than half of the total pension is paid by the Metropolitan District.

**Note 3** All members (other than SCG) may purchase up to 4 years of pension credit for military service. Pension credit is at the following rates of Final Average Pay per year purchased:

HMEA members hired before July 1, 2003	2.75%
Sworn Police Officers, Firefighters, CHPEA members hired on or before June 23, 2003, HFSHP, Local 818 hired prior to March 1, 2007, HSSSA, HESP, Non-bargaining (including Assistant Police Chief, Police Chief, Assistant Fire Chief, and Fire Chief), Non-Sworn Police Officers, and MLA hired prior to July 1, 2006	2.50%
Other (including CHPEA members hired after June 23, 2003, HMEA members hired prior to July 1, 2003, MLA hired on or after July 1, 2006, and Local 818 hired on or after March 1, 2007)	2.00%

**Note 4** All members (other than Sworn Police Officers hired after July 1, 1999, all Board of Education members, CHPEA hired after June 23, 2003, HMEA hired on or after July 1, 2003, Library, SCG and MLA hired on or after July 1, 2006, Nonbargaining municipal members hired after January 1, 2011) may exchange accumulated sick leave upon retirement for up to 4 years (6 years for Firefighters hired prior to July 1, 2003) of pension service time. Additional pension service time may be purchased from accumulated sick leave at the rate of twenty days of accumulated sick leave for each year of pension service time.