

CLASSIFIED EMPLOYEES' RETIREMENT TRUST FUND OF THE CITY OF
STAMFORD

ACTUARIAL VALUATION REPORT

JULY 1, 2016





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Executive Summary

	July 1, 2016	July 1, 2015
Number of members		
Active employees	587	728 *
Terminated vested members	167	89 *
Vested in employee contributions only	17	7 *
Retired, disabled and beneficiaries	<u>702</u>	<u>676 *</u>
Total	1,473	1,500
Covered employee payroll	39,685,331	44,214,000 **
Average plan salary	67,607	60,734
Actuarial present value of future benefits	283,986,512	274,715,000
Actuarial accrued liability	249,941,161	241,905,000
Plan assets		
Market value of assets	190,594,323	206,622,350
Actuarial value of assets	216,205,953	213,353,135
Unfunded accrued liability	33,735,208	28,551,865
Funded ratio	86.5%	88.2%
Actuarially determined employer contribution (ADEC)		
Fiscal year ending	2018	2017
ADEC	6,348,000	5,923,000

* Not updated for Actuarial Valuation in interim year



Valuation Results and Highlights

Purpose of the Valuation

The purpose of the valuation is to develop the Actuarially Determined Employer Contribution (ADEC).

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,

$$\text{Ultimate cost} = \text{Benefits Paid} + \text{Expenses Incurred} - \text{Investment Return} - \text{Employee Contributions}$$

The actuarial cost method distributes this ultimate cost over the working lifetime of current plan participants. By means of this budgeting process, costs are allocated to both past and future years, and a cost is assigned to the current year. The current year's allocated cost, or normal cost, is the building block upon which the actuarially determined employer contribution is developed. The July 1, 2016 valuation produces the contribution for the fiscal year ending 2018.

Information Available in the Valuation Report

The Executive Summary is intended to emphasize the notable results of the valuation from the perspective of the Plan Sponsor. Supporting technical detail is documented in Results of the Valuation, Supporting Exhibits and Description of Actuarial Methods and Assumptions. A concise summary of the principal provisions of the Plan is outlined in Summary of Plan Provisions.

Changes Reflected in the Valuation

The investment rate of return assumption was lowered from 7.625% to 7.5%. This change increased liabilities by about \$3.0 million. In addition, the inflation assumption and the salary increase assumption were lowered by 0.25%.

The plan changes for the Teamster Union in the Collective Bargaining Agreement for July 1, 2015 to June 30, 2017 were reflected in this valuation. These changes decreased liabilities by about \$0.2 million.

Cash Contribution for Fiscal Year Ending 2018

The City cost is:	2018 Fiscal Year
Board of Education	\$660,000
City	5,330,000
WPCA	<u>358,000</u>
Total	\$6,348,000

Liability Experience During Period Under Review

The plan experienced a net actuarial gain on liabilities since the prior valuation of approximately \$1.8 million. The main reasons for the gain were that actual increases in salary were less than expected and there were more retirements than expected.



Asset Experience During Period Under Review

	2016 Fiscal Year
Market Value Basis	-4.4%
Actuarial Value Basis	4.6%

The Actuarial Value of assets, rather than the Market Value, is used to determine plan contributions. The Actuarial Value spreads the asset volatility over 5 years, thereby smoothing out fluctuations that are inherent in the Market Value.



Certification

This report presents the results of the July 1, 2016 Actuarial Valuation for Classified Employees' Retirement 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 Employer Contribution (ADEC) for the fiscal year ending 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 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 *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 factors such as, but not limited to, the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of this report, an analysis of the potential range of such future measurements has not been performed.

I have no relationship with the employer or the Plan that would impair, or appear to impair, my objectivity in performing the work presented in this report. 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, Jr., FCA, MAAA
Enrolled Actuary 14-04513

March 21, 2017

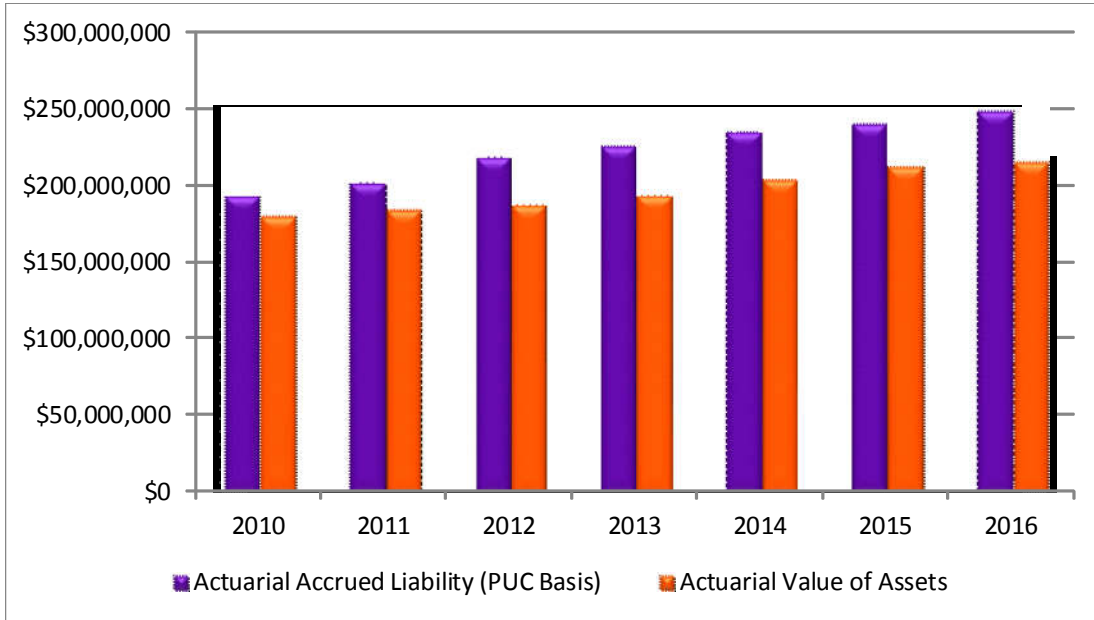


Development of Unfunded Accrued Liability and Funded Ratio

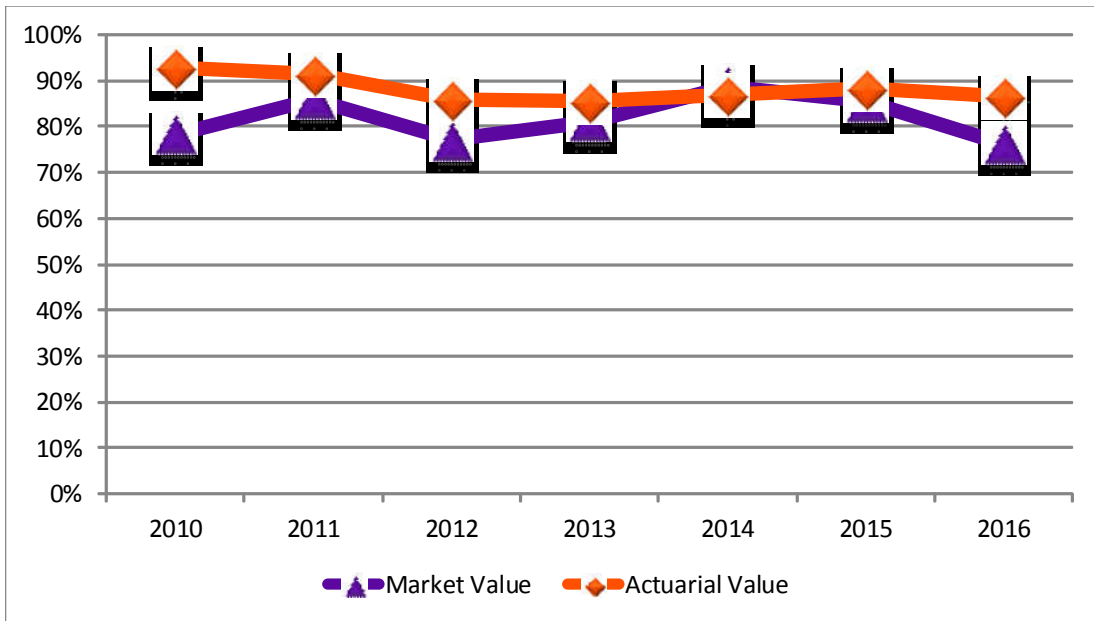
	July 1, 2016	July 1, 2015
Actuarial accrued liability for inactive members		
Retired, disabled and beneficiaries	\$129,265,750	\$118,751,000
Terminated vested members	15,075,940	11,772,000
Due refund of employee contributions only	<u>121,575</u>	<u>21,000</u>
Total	144,463,265	130,544,000
Actuarial accrued liability for active employees	<u>105,477,896</u>	<u>111,361,000</u>
Total actuarial accrued liability	249,941,161	241,905,000
Actuarial value of assets	<u>216,205,953</u>	<u>213,353,135</u>
Unfunded accrued liability	33,735,208	28,551,865
Funded ratio	86.5%	88.2%



Actuarial Accrued Liability vs. Actuarial Value of Assets



Funded Ratio



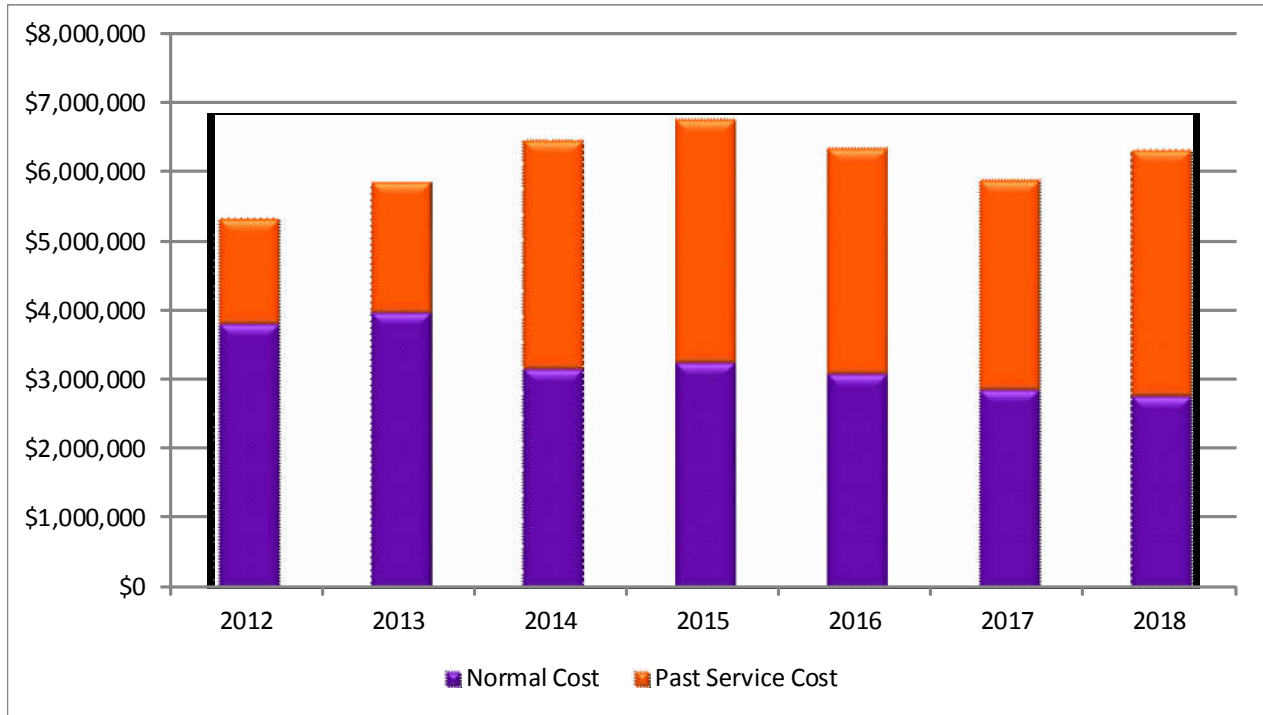


Determination of Normal Cost and Actuarially Determined Employer Contribution

	July 1, 2016		July 1, 2015	
	Cost	Percent of payroll	Cost	Percent of payroll
Gross normal cost	\$4,152,598	12.2%	\$4,182,000	9.5%
Estimated employee contributions	(1,548,869)	-4.5%	(1,586,000)	-3.6%
Estimated administrative expenses	113,955	0.3%	221,000	0.5%
City's normal cost	2,717,684	8.0%	2,817,000	6.4%
Amortization of unfunded accrued liability	3,555,133	10.4%	3,029,000	6.8%
Contribution before adjustment as of the valuation date	6,272,817	18.4%	5,846,000	13.2%
Contribution rounded to nearest \$1,000	6,273,000		5,846,000	
Estimated valuation year payroll	34,045,302		44,214,000	
Fiscal year ending	2018		2017	
Adjustment for interest and inflation	75,000		77,000	
Actuarially determined employer contribution	6,348,000		5,923,000	



Actuarially Determined Employer Contribution





Actuarially Determined Employer Contribution per Group

	Board of Education	City	WPCA	Total
Gross normal cost	\$433,177	\$3,454,175	\$265,246	\$4,152,598
Estimated employee contributions	(150,245)	(1,301,125)	(97,499)	(1,548,869)
Estimated administrative expenses	<u>11,887</u>	<u>94,789</u>	<u>7,279</u>	<u>113,955</u>
City's normal cost	294,819	2,247,839	175,026	2,717,684
Actuarial accrued liability	24,994,845	211,986,927	12,959,389	249,941,161
Actuarial value of assets	<u>21,615,158</u>	<u>183,323,039</u>	<u>11,267,756</u>	<u>216,205,953</u>
Unfunded accrued liability	3,379,687	28,663,888	1,691,633	33,735,208
Amortization of unfunded accrued liability	356,163	3,020,700	178,270	3,555,133
Contribution before adjustment as of the valuation date	650,982	5,268,539	353,296	6,272,817
Contribution rounded to nearest \$1,000	651,000	5,269,000	353,000	6,273,000
Fiscal year ending June 30, 2018				
Adjustment for interest and inflation	<u>9,000</u>	<u>61,000</u>	<u>5,000</u>	<u>75,000</u>
Actuarially determined employer contribution	660,000	5,330,000	358,000	6,348,000



Development of Asset Values

Summary of Fund Activity	
1. Beginning market value of assets July 1, 2015	
Trust assets	\$206,622,350
2. Contributions	
City contributions during year	6,388,000
Employee contributions during year	<u>2,059,606</u>
Total for plan year	8,447,606
3. Disbursements	
Benefit payments during year	15,324,091
Administrative expenses during year	<u>110,480</u>
Total for plan year	15,434,571
4. Net investment return	
Interest and dividends	39,054
Net appreciation (depreciation)	(9,080,116)
Investment-related expenses	<u>0</u>
Total for plan year	(9,041,062)
5. Ending market value of assets July 1, 2016	
Trust assets: (1) + (2) - (3) + (4)	190,594,323
6. Approximate rate of return	
	-4.4%



Determination of the Actuarial Value of Assets

1. Actuarial value of assets July 1, 2015	\$ 213,353,135
2. City contributions during 2015-2016	6,388,000
3. Employee contributions during 2015-2016	2,059,606
4. Benefit payments and administrative expenses during 2015-2016	(15,434,571)
5. Expected return during 2015-2016	<u>16,242,691</u>
6. Expected actuarial value of assets July 1, 2016	222,608,861
7. Market value of assets July 1, 2016	190,594,323
8. Appreciation (depreciation) recognized: 20% x [(7) - (6)]	(6,402,908)
9. Preliminary actuarial value of assets July 1, 2016: (6) + (8)	216,205,953
10. Preliminary actuarial value of assets as a percentage of market value of assets	113.4%
11. Actuarial value of assets July 1, 2016	216,205,953
2015-2016 return on actuarial value of assets	4.6%

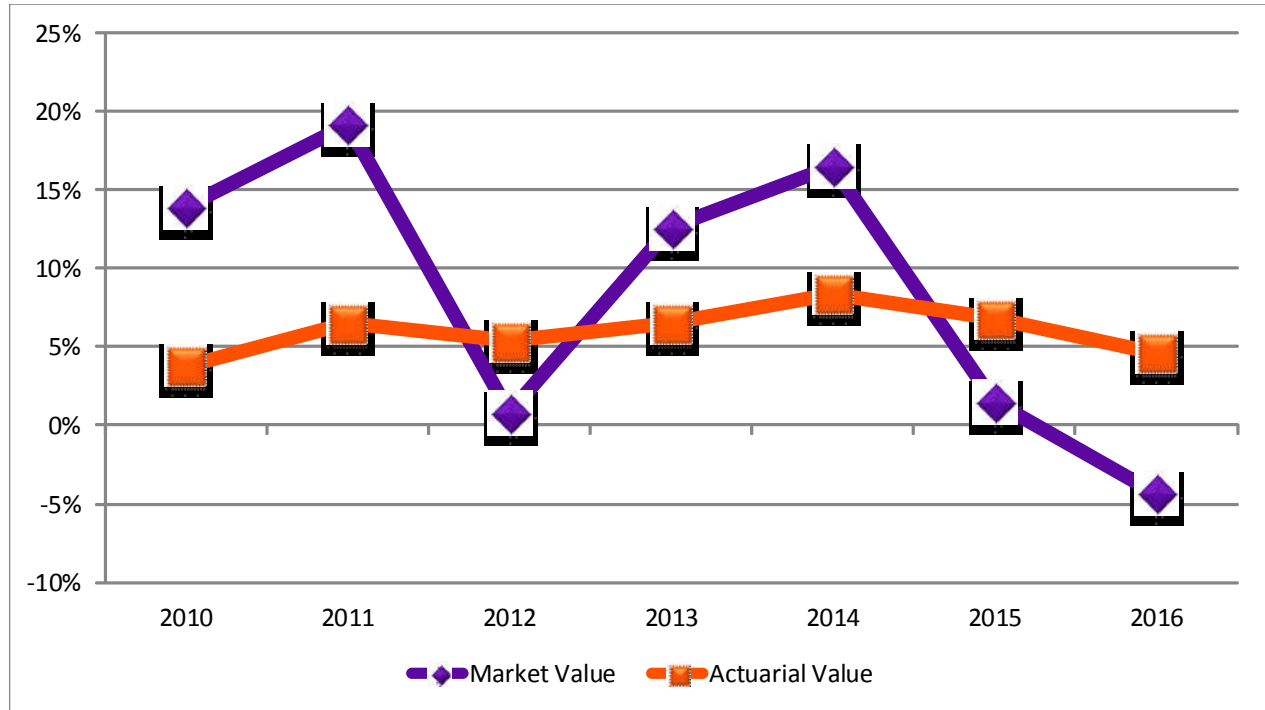


Rate of Return on Market Value of Assets				
Period Ending	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
2007	N/A	N/A	N/A	N/A
2008	N/A	N/A	N/A	N/A
2009	N/A	N/A	N/A	N/A
2010	13.9%	N/A	N/A	N/A
2011	19.2%	N/A	N/A	N/A
2012	0.8%	11.0%	N/A	N/A
2013	12.6%	10.6%	N/A	N/A
2014	16.5%	9.8%	12.4%	N/A
2015	1.5%	10.0%	9.8%	N/A
2016	-4.4%	4.2%	5.1%	N/A

Rate of Return on Actuarial Value of Assets				
Period Ending	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
2007	N/A	N/A	N/A	N/A
2008	N/A	N/A	N/A	N/A
2009	N/A	N/A	N/A	N/A
2010	3.8%	N/A	N/A	N/A
2011	6.5%	N/A	N/A	N/A
2012	5.4%	5.2%	N/A	N/A
2013	6.5%	6.1%	N/A	N/A
2014	8.4%	6.7%	6.1%	N/A
2015	6.8%	7.2%	6.7%	N/A
2016	4.6%	6.6%	6.3%	N/A



Actual Rate of Return on Assets





Target Allocation and Expected Rate of Return July 1, 2016

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*	Weighting
Fixed Income	15.00%	1.95%	0.29%
Domestic Equity	30.00%	5.08%	1.52%
International Equity	20.00%	6.00%	1.20%
Asset Allocation	35.00%	4.06%	1.42%
	100.00%		4.43%
Long-Term Inflation Expectation			2.75%
Long-Term Expected Nominal Return			7.18%

**Long-Term Returns are provided by HHIA & FIA. 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 7.0% and 7.5%. An expected rate of return of 7.50% was used.



Amortization of Unfunded Liability

Schedule of Amortization Bases					
	Date established	Original amount	Amortization installment	Years remaining	Present value of remaining installments as of July 1, 2016
2016 base	July 1, 2016	33,735,208	3,555,133	15	33,735,208



Member Data

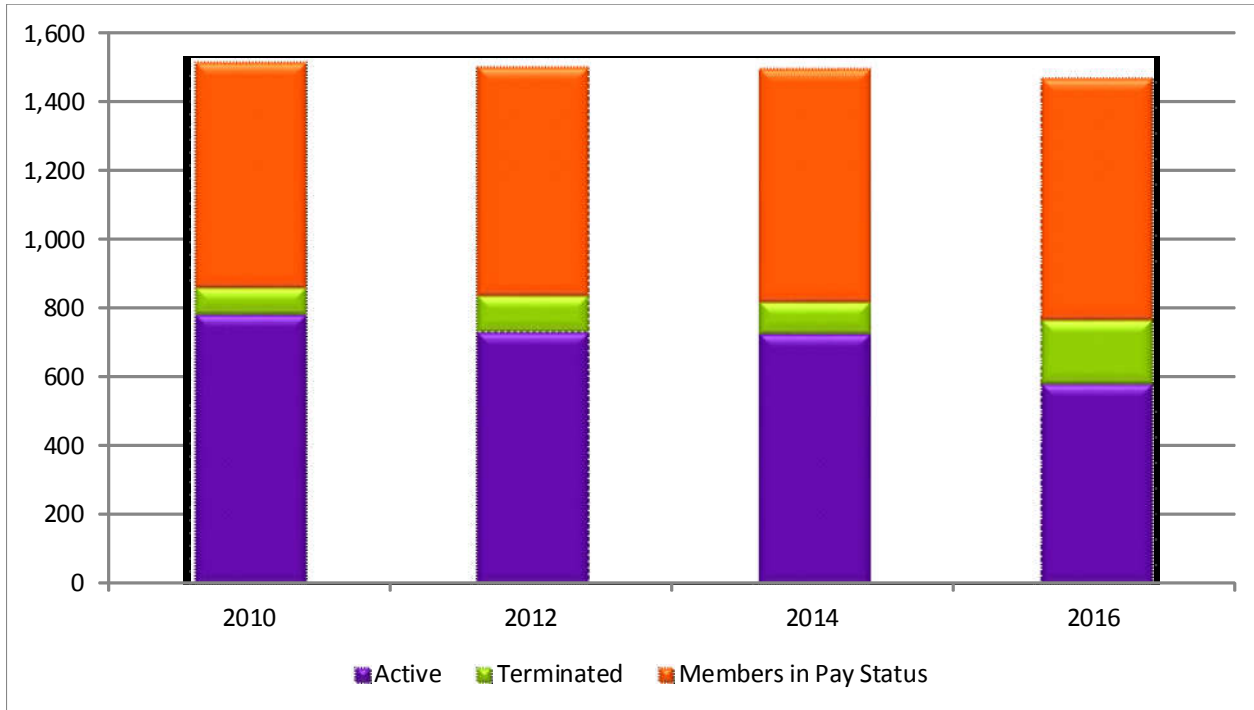
The data reported by the Plan Sponsor for this valuation includes 587 active employees who met the Plan's minimum age and service requirements as of July 1, 2016.

Member Data					
	Active	Terminated vested	Due refund of contributions	Members in pay status	Total
Total members July 1, 2014	728	89	7	676	1,500
Adjustments	-1	-2	0	0	-3
Retirements	-89	0	N/A	+89	0
Disabilities	-2	N/A	N/A	+2	0
Terminations					
Vested	-83	+83	N/A	N/A	0
Lump sum payments	-11	-2	-1	N/A	-14
Due contributions only	-11	N/A	+11	N/A	0
Deaths					
With death benefit	+1	0	0	0	+1
Without death benefit	0	-1	0	-65	-66
Transfers	0	0	0	N/A	0
Rehires	+1	0	0	-1	0
New beneficiaries	N/A	N/A	N/A	+1	+1
New entrants	+54	N/A	0	N/A	+54
Total members July 1, 2016	587	167	17	702*	1,473

**Includes 2 members who are receiving both a retiree and survivor benefits.*



Member Counts by Status





Member Data					
	Active	Terminated vested	Due refund of contributions	Members in pay status	Total
Average age					
July 1, 2014	52.3	49.9	38.4	75.8	
July 1, 2016	52.0	51.3	48.7	75.3	
Average service					
July 1, 2014	14.8	N/A	N/A	N/A	
July 1, 2016	15.2	N/A	N/A	N/A	
Covered employee payroll					
July 1, 2014	\$44,213,643	N/A	N/A	N/A	\$44,213,643
July 1, 2016	39,685,331	N/A	N/A	N/A	39,685,331
Total annual benefits					
July 1, 2014	N/A	1,006,615	N/A	\$13,156,057	\$14,162,672
July 1, 2016	N/A	2,043,330	N/A	15,208,693	17,252,023



Description of Actuarial Methods

Asset Valuation Method

The Actuarial Value of assets used in the development of plan contributions phases in differences between the Market Value and Expected Actuarial Value by recognizing 20% of the difference each year. The Actuarial Value is adjusted, if necessary, to be within the range off 70% and 130% of the Market Value of assets.

Actuarial Cost Method

- A. Changes in Actuarial Cost Method: None.
- B. Description of Current Actuarial Cost Method: Projected Unit Credit

Normal Cost: Under this method, the normal cost equals the total present value of the benefits accruing for all members during the upcoming year, increased to reflect salaries projected to the assumed retirement date.

Unfunded Accrued Liability: The actuarial accrued liability equals the present value of all benefits accrued to date, increased to reflect salaries for all active members. The actuarial accrued liability is reduced by plan assets to develop the unfunded accrued liability. This amount is amortized over 15 years on an open basis.

Full actuarial valuations are performed every other year. For interim year valuations, the actuarial accrued liability and the normal cost are estimated based on the results of the prior full valuation.



Description of Actuarial Assumptions

Changes in Actuarial Assumptions as of July 1, 2016

The valuation reflects changes in the actuarial assumptions listed below. (The assumptions used before and after these changes are more fully described in the next section.)

- Investment rate of return
- Inflation

The assumptions indicated were changed to represent the Enrolled Actuary's current best estimate of anticipated experience of the plan.

Investment rate of return (net of investment-related and administrative expenses)

7.5% (Prior: 7.625%)

Salary Scale

Yearly Rates of Increases

	Current Year	Prior Year
Age	Rate	Rate
20	6.25%	6.50%
25	6.25%	6.50%
30	5.60%	5.85%
35	5.20%	5.20%
40	4.55%	4.55%
45	3.90%	3.90%
50	3.25%	3.25%
55+	3.00%	3.00%

The assumption is based on input from the plan sponsor regarding future expectations, as well as knowledge that younger employees generally earn higher annual percentage increases than older employees.

Inflation

2.75% (Prior: 3.00%)

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.

Mortality

50/50 Blend of RP-2000 No Collar Combined Table and RP-2000 Blue Collar Combined Table.

Mortality Improvement

Projected to date of decrement using Scale BB (generational).

We have selected mortality tables commonly used by public pension systems (such as the State of Connecticut). The plan does not have sufficiently credible data on which to perform a mortality experience study.

We are using Scale BB because it is the most up to date mortality improvement scale which was developed for use with RP-2000.



Retirement age

Assumed annual rates of retirement after the earliest of 1) 50 with 25 years of service, 2) 55 with 15 years of service, or 3) 60 with 10 years of service are as follows:

Age	Retirement Rate
50-61	5%
62-65	100%

Termination prior to retirement

The following annual rates of turnover are assumed:

Age	Probability
20	10.6%
25	7.9%
30	5.8%
35	4.2%
40	3.1%
45	2.1%
50	1.3%
55	0.5%
60	0.5%

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	.85%

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.

Administrative expenses

The assumed administrative expense is the average of the prior two years. For this valuation, that amount is \$113,955. That amount is added to the Plan's Normal Cost.

Payroll growth

2.75% per year (3.0% prior year).



Percent of active employees married

80%.

Spouse's age

Husbands are assumed to be 4 years older than wives.

Medicare Part B Reimbursement

2.75% per year increase assumption (3.0% prior year).

Pension Service Exchange and Payout Bank

50% of retirees are assumed to elect the maximum exchange (based on their current bank) and 50% of retirees are assumed to elect a lump sum payout.



Summary of Plan Provisions

Pension Earnings

Salary in Final Year of Employment. For UAW and TEA, the average of the highest three years out of the last 10 years.

Normal Retirement

Eligibility: The earlier of 1) age 58 with 15 years of service, or 2) age 60 with 10 years of service, or 3) 25 years of service for MAA only.

For UE participants hired on or after 7/1/2012, the 58 and 15 criteria does not apply. For UAW, the 58 and 15 criteria only applies for a grandfathered group (those age 55 with 25+ year of service on 1/1/2015). For TEA, the 58 and 15 criteria does not apply.

Benefit: 2% of pension earnings per year of service to a maximum of 33 years.

For UE participant hired on or after 7/1/2012, the maximum is 30 years of service.

For UAW and TEA:

- 1.75% for service after 1/1/2015 for those who are not grandfathered (grandfathered if 25+ years of service for UAW or 20+ years of service for TEA, or otherwise eligible to retire on 1/1/2015 for either union.
- 1.5% for new hires after 1/1/2015
- The maximum multiplier is 70% for UAW, 66% for TEA.

Limits on Annual Benefit

Maximum: None.

Minimum: \$1,000 with 25 years of service.

Early Retirement

Eligibility: Age 50 with 25 years of service.

Benefit: Accrued retirement benefit reduced .25% for each of the first 36 months prior to age 58 and .55% for each month in excess of 36. There is no reduction for a member of the MAA who retires with 25 years of service.

Disability – Non-Service Connected

Service Requirement: 10 years of service, except 15 for UAW, Nurses, and Dental.

Benefit: 50% of pension earnings if less than 25 years of service. Accrued retirement benefit if more than 25 years of service.

Disability – Service Connected

Service Requirement: None.

Benefit: 50% of pension earnings.



Pre-Retirement Death Benefit – Non Service Connected

Service Requirement: None.

Benefit: Return of contributions if less than 15 years of service. \$166.67 minus social security with 15 years of service or more and not eligible to retire. 100% Joint & Survivor benefit if eligible to retire.

Pre-Retirement Death Benefit – Service Connected

Service Requirement: None.

Benefit: 50% of pension earnings less workman's compensation, minimum \$83.33.

Post-Retirement Spouse's Benefit

None.

Post-Retirement Death Benefit

Lump sum, excess of accumulated contributions over benefits paid to member or survivors (if not eligible for spouse's benefit).

Postretirement Life Insurance

Lump sum equal to 6,000 for all retirees except for the LAW.

Vesting in Accrued Benefit

Eligibility: 5 years of service (10 years of service for TEA and UE), payable at later of termination date and age 60 (age 58 if 15+ years of vesting service and eligible for Normal Retirement at 58 and 15).

Benefit: Accrued retirement benefit.

Termination Benefit

Accumulated contributions as lump sum, if not vested.

Employee Contributions

Current: 3% of salary for 1199, 6% of salary for UE and 5% of salary for all others. For UAW participants with multiplier less than 2%, 4.5% of salary.

For LAW, those with 33+ years of service on 8/5/13 do not contribute. For MAA, Nurses, Teamsters, UE and Dental Hygienists, those with 33+ years of service on 7/1/2012 do not contribute. For all other unions, no contributions for those with service over the limit for benefit calculation purposes.



Vacation/Sick Leave Banks:

Union	Payout Bank Source	Additional Pension Credits Available		Eligibility Cut off Date for Sick Pay	Eligibility Cut off Date for Vacation Pay
		Vacation	Sick		
1119	Operating Budget	Yes-payout only	Yes-payout only	7/1/1998	-
Dental	CERF	No	Yes	7/1/1997	-
Law	Operating Budget	Yes-payout only	Yes-payout only	-	-
MAA	CERF	Yes	Yes	7/1/1997	-
Nurses	CERF	Yes	Yes	7/1/1997	-
Teamsters	CERF	Yes	Yes	7/1/1997	-
UAW	CERF	Yes	Yes	7/1/1998	1/1/2015
UE	CERF	Yes	Yes	7/1/2012	7/1/2012

UE hires on or after 7/1/2012 not eligible for exchange. UAW hires on or after 1/1/2015 not eligible for exchange.

The amount of the exchange/payout bank is equal to 50% of sick days subject to a 75 day maximum, plus vacation days. Employees can trade in up to 100 days of eligible time for additional pension credit. Each 25 days grants an additional 1% of salary up to a maximum of 4%. The remainder of the bank is paid out in a lump sum.

Additional Provisions

Employees in the MAA, LAW and Dental Hygienists Union can pay 3% of 2011-2012 base salary for one additional year of service credit. The additional benefit will only be paid at age 65+. Payment must be made by 6/30/2013 or 6/30/2014 (depending on Union). Not reflected in prior valuation.