CUSTODIANS AND MECHANICS PENSION TRUST FUND OF THE CITY OF STAMFORD

ACTUARIAL VALUATION REPORT

JULY 1, 2017

hooker & holcombe

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Executive Summary

	July 1, 2017	July 1, 2016
Number of members		
Active employees	523	528
Terminated vested members	67	61
Retired, disabled and beneficiaries	174	163
Total	764	752
Covered employee payroll	19,996,361	19,918,498
Average plan salary	38,234	37,724
Actuarial present value of future benefits	101,534,530	93,022,591
Actuarial accrued liability	78,223,415	71,139,979
Plan assets		
Market value of assets	63,418,939	55,125,767
Actuarial value of assets	66,218,281	61,912,878
Unfunded accrued liability	12,005,134	9,227,101
Funded ratio	84.7%	87.0%
Actuarially determined employer contribution (ADEC)		
Fiscal year ending	2019	2018
ADEC	2,645,000	2,206,000

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,

Ultimate cost = Benefits Paid + Expenses Incurred – Investment Return – 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, 2017 valuation produces the contribution for the fiscal year ending 2019.

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

Investment rate of return reduced by 0.30%.

Cash Contribution for Fiscal Year Ending 2019

The City cost is:	2019 Fiscal Year
	$2,645,000

Liability Experience During Period Under Review

The plan experienced a net actuarial gain on liabilities of approximately $1,716,400 since the prior valuation. Retiree mortality was the largest single source of the actuarial experience gain.

Asset Experience During Period Under Review

The plan's assets provided the following rates of return during the past fiscal year:

	2017 Fiscal Year
Market Value Basis	14.2%
Actuarial Value Basis	6.4%

The Actuarial Value of assets, rather than the Market Value, is used to determine plan contributions. The Actuarial Value spreads the asset volatility by recognizing 20% of the difference each year, thereby smoothing out fluctuations that are inherent in the Market Value.

Certification

This report presents the results of the July 1, 2017 Actuarial Valuation for Custodians and Mechanics Pension Trust Fund of the City of Stamford (the Plan) for the purpose of estimating the funded status of the Plan and determining the Actuarially Determined Employer Contribution (ADEC) for the fiscal year ending June 30, 2019. 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

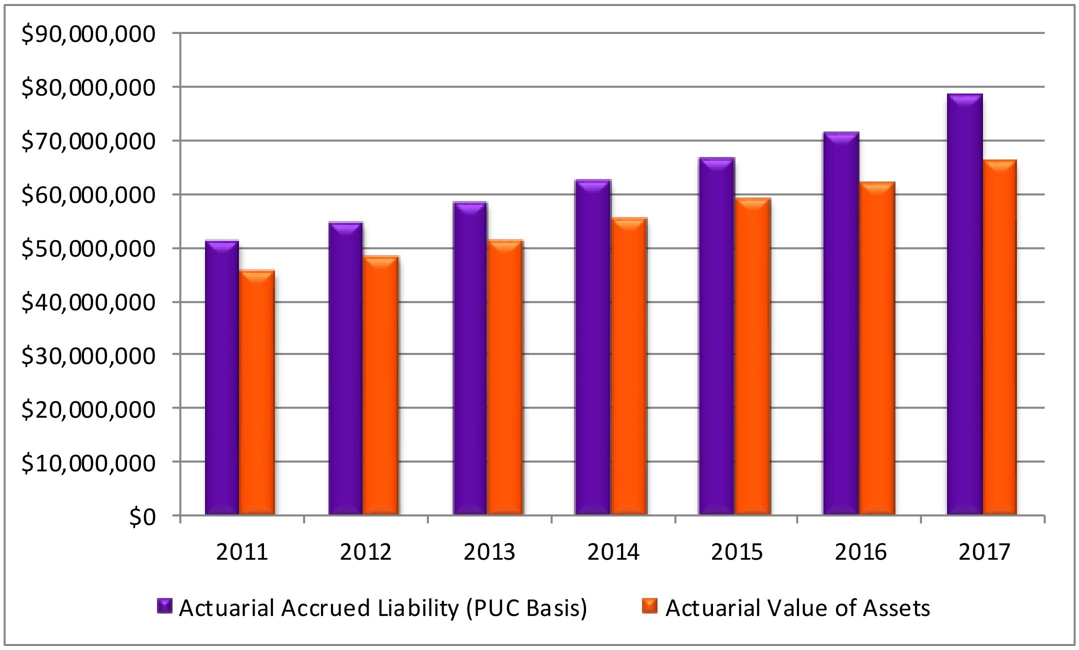
Evan W. Woollacott, Jr., FCA, MAAA
Enrolled Actuary 17-04513

February 21, 2018

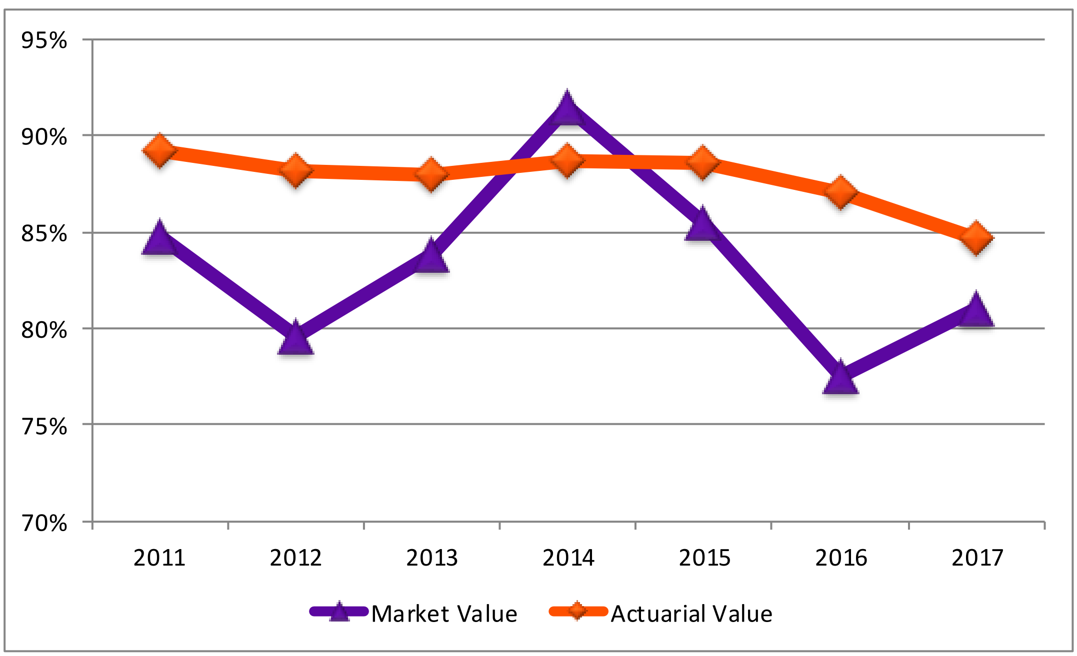
Development of Unfunded Accrued Liability and Funded Ratio

	July 1, 2017	July 1, 2016
Actuarial accrued liability for inactive members		
Retired, disabled and beneficiaries	$25,422,969	$24,005,612
Terminated vested members	510,468	673,411
Total	25,933,437	24,679,023
Actuarial accrued liability for active employees	52,289,978	46,460,956
Total actuarial accrued liability	78,223,415	71,139,979
Actuarial value of assets	66,218,281	61,912,878
Unfunded accrued liability	12,005,134	9,227,101
Funded ratio	84.7%	87.0%

Actuarial Accrued Liability vs. Actuarial Value of Assets



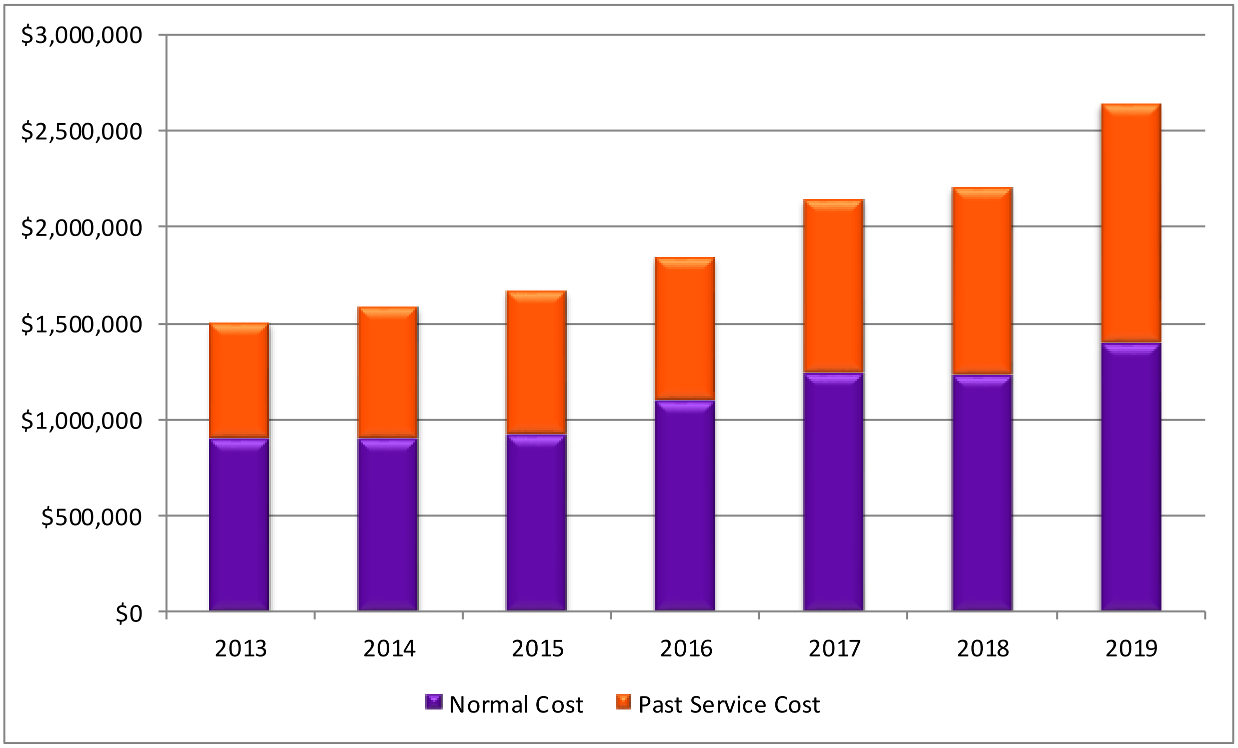
Funded Ratio



Determination of Normal Cost and Actuarially Determined Employer Contribution

	July 1, 2017		July 1, 2016	
	Cost	Percent of payroll	Cost	Percent of payroll
Gross normal cost	$2,569,361	13.3%	$2,413,778	12.5%
Estimated employee contributions	(1,246,147)	-6.4%	(1,251,712)	-6.5%
Estimated administrative expenses	40,000	0.1%	40,000	0.2%
City's normal cost	1,363,214	7.0%	1,202,066	6.2%
Amortization of unfunded accrued liability	1,245,148	6.5%	972,384	5.1%
Contribution before adjustment as of the valuation date	2,608,362	13.5%	2,174,450	11.3%
Contribution rounded to nearest $1,000	2,608,000		2,174,000	
Estimated valuation year payroll for actives not yet at 100% assumed retirement age	19,363,744		19,310,177	
Fiscal year ending	2019		2018	
Adjustment for interest and inflation	37,000		32,000	
Actuarially determined employer contribution	2,645,000		2,206,000	

Actuarially Determined Employer Contribution



Valuation Contribution Change

Valuation Contribution Change		
Contribution before adjustment as of July 1, 2016		$2,174,000
Increase due to actuarial return on assets	$75,000	
Decrease due to liability gains	(181,000)	
Expected increase in normal cost	33,000	
Increase due to assumption or method changes	427,000	
Miscellaneous increase	80,000	
Total increase in contribution		434,000
Contribution before adjustment as of July 1, 2017		2,608,000

Determination of Actuarial Gain/Loss

The Actuarial Gain/Loss is the difference between the expected unfunded accrued liability and the actual unfunded accrued liability, without regard to any changes in actuarial methods, actuarial assumptions or plan provisions. This can also be referred to an Experience Gain/Loss, since it reflects the difference between what was expected and what was actually experienced.

Actuarial Gain / Loss		
Expected unfunded accrued liability July 1, 2017		
Expected unfunded accrued liability July 1, 2017		
Unfunded accrued liability July 1, 2016	9,227,101	
Gross normal cost July 1, 2016	2,453,778	
City and employee contributions for 2016-2017	(3,294,755)	
Interest at 7.50% to July 1, 2017	674,682	
Expected unfunded accrued liability July 1, 2017	9,060,806	
Actuarial (gain) / loss July 1, 2017	(1,004,781)	
Actual unfunded accrued liability July 1, 2017, prior to plan provision, assumption and method changes		8,056,025
Sources of (gain) / loss		
Assets	711,600	
Liabilities	(1,716,400)	
Total (gain) / loss (rounded to nearest $100)	(1,004,800)	
Assumption and method changes since prior valuation		3,949,109
Actual unfunded accrued liability July 1, 2017, after plan provision, assumption and method changes		12,005,134

Development of Asset Values

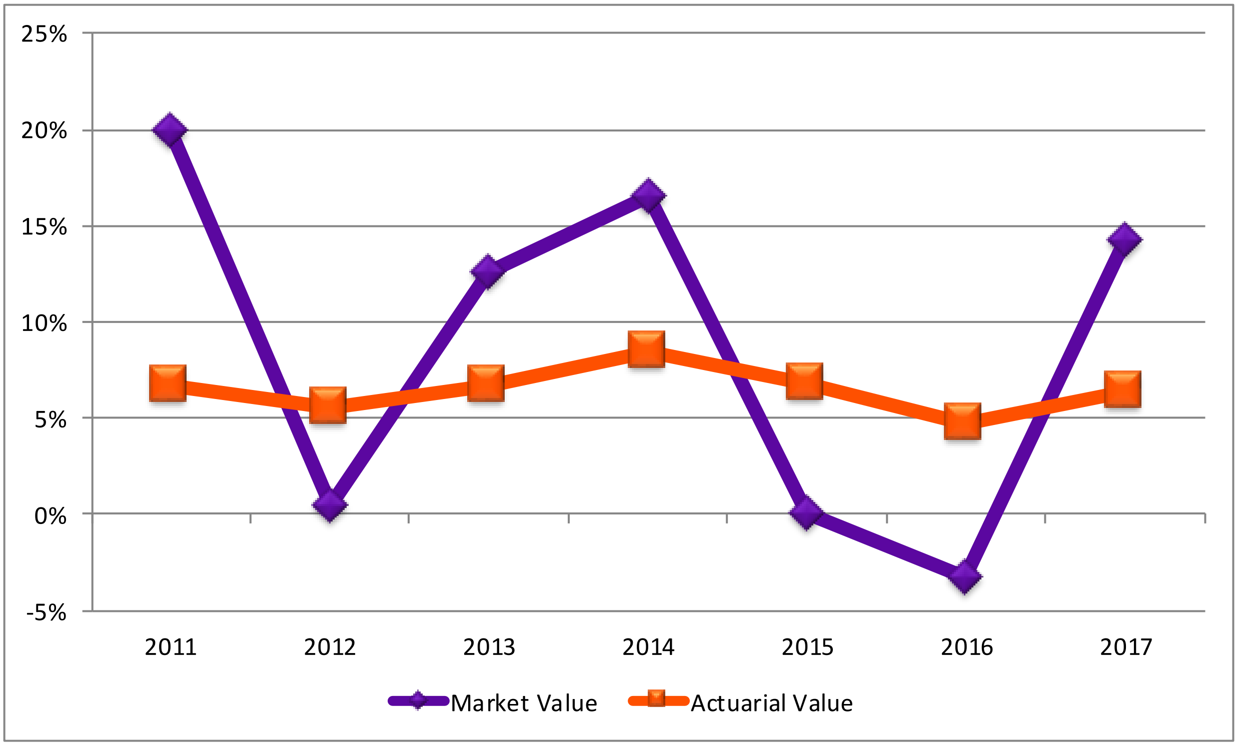
Summary of Fund Activity	
1. Beginning market value of assets July 1, 2016	
Trust assets	$55,125,767
2. Contributions	
City contributions during year	2,145,000
Employee contributions during year	1,149,755
Total for plan year	3,294,755
3. Disbursements	
Benefit payments during year	2,974,023
Administrative expenses during year	51,349
Total for plan year	3,025,372
4. Net investment return	
Interest and dividends	0
Net appreciation (depreciation)	8,023,789
Investment-related expenses	0
Total for plan year	8,023,789
5. Ending market value of assets July 1, 2017	
Trust assets: (1) + (2) - (3) + (4)	63,418,939
6. Approximate rate of return	14.2%

Determination of the Actuarial Value of Assets		
1. Actuarial value of assets July 1, 2016	$	61,912,878
2. City contributions during 2016-2017		2,145,000
3. Employee contributions during 2016-2017		1,149,755
4. Benefit payments and administrative expenses during 2016-2017		(3,025,372)
5. Expected return during 2016-2017		4,735,855
6. Expected actuarial value of assets July 1, 2017		66,918,116
7. Market value of assets July 1, 2017		63,418,939
8. Appreciation (depreciation) recognized: 20% x [(7) - (6)]		(699,835)
9. Preliminary actuarial value of assets July 1, 2017: (6) + (8)		66,218,281
10. Preliminary actuarial value of assets as a percentage of market value of assets		104.4%
11. Actuarial value of assets July 1, 2017		66,218,281
2016-2017 return on actuarial value of assets		6.4%

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
2008	N/A	N/A	N/A	N/A
2009	N/A	N/A	N/A	N/A
2010	N/A	N/A	N/A	N/A
2011	19.9%	N/A	N/A	N/A
2012	0.5%	N/A	N/A	N/A
2013	12.6%	10.7%	N/A	N/A
2014	16.5%	9.7%	N/A	N/A
2015	0.0%	9.5%	9.6%	N/A
2016	-3.3%	4.1%	5.0%	N/A
2017	14.2%	3.4%	7.7%	N/A

Rate of Return on Actuarial Value of Assets				
Period Ending June 30	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
2008	N/A	N/A	N/A	N/A
2009	N/A	N/A	N/A	N/A
2010	N/A	N/A	N/A	N/A
2011	6.7%	N/A	N/A	N/A
2012	5.5%	N/A	N/A	N/A
2013	6.6%	6.3%	N/A	N/A
2014	8.4%	6.8%	N/A	N/A
2015	6.7%	7.3%	6.8%	N/A
2016	4.7%	6.6%	6.4%	N/A
2017	6.4%	5.9%	6.6%	N/A

Actual Rate of Return on Assets



Target Allocation and Expected Rate of Return
July 1, 2017

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*	Weighting
Core Fixed Income	23.70%	1.65%	0.39%
Global Fixed Income	5.50%	1.85%	0.10%
Domestic Large Cap	29.90%	5.55%	1.66%
Domestic Small Cap	7.50%	6.00%	0.45%
Intl Developed Equity	26.70%	5.55%	1.48%
Intl Emerging Markets Equity	6.70%	6.50%	0.44%
	100.00%		4.52%
Long-Term Inflation Expectation			2.25%
Long-Term Expected Nominal Return			6.77%

**Long-Term Returns are provided by 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 6.50% and 7.00%. An expected rate of return of 7.20% was used.

Amortization of Unfunded Liability

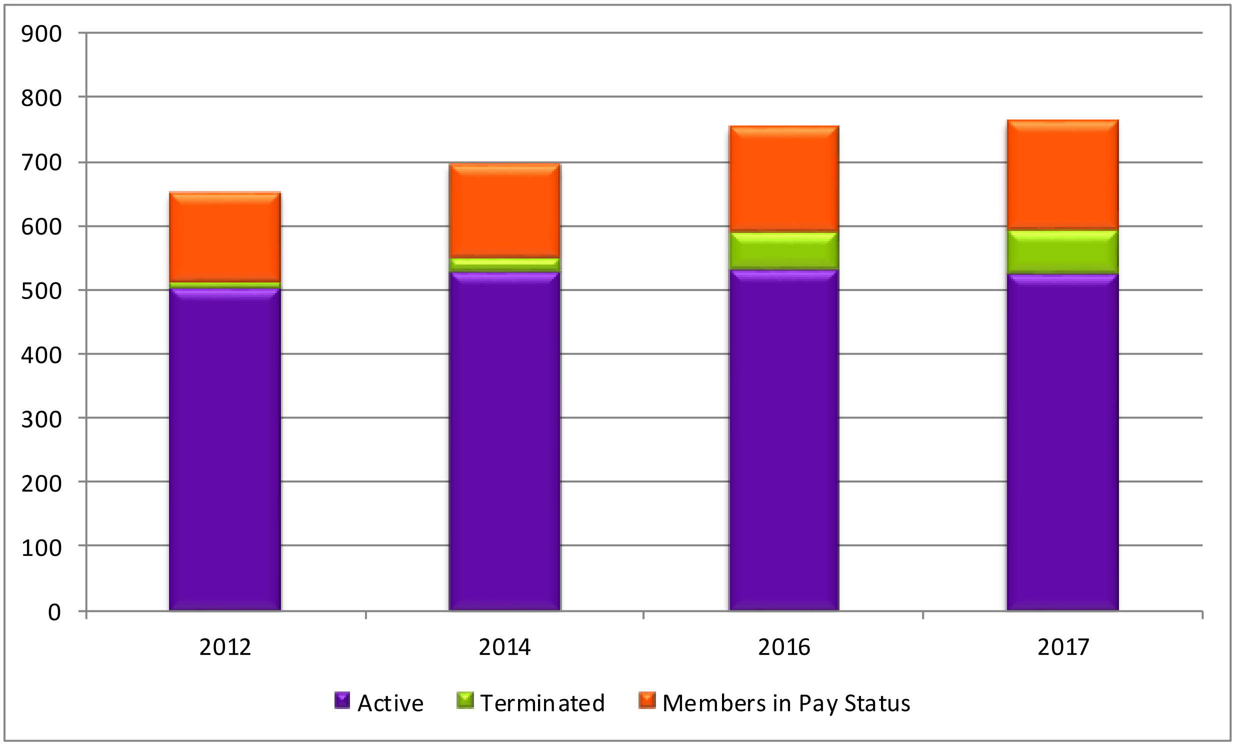
Schedule of Amortization Bases				
	Date established	Amortization installment	Years remaining	Present value of remaining installments as of July 1, 2017
2017 base	July 1, 2017	1,245,148	15	12,005,134

Member Data

The data reported by the Plan Sponsor for this valuation includes 523 active employees who met the Plan's minimum age and service requirements as of July 1, 2017.

Member Data				
	Active	Terminated vested	Members in pay status	Total
Total members July 1, 2016	528	61	163	752
Adjustments	0	0	0	0
Retirements	-16	-1	+17	0
Disabilities	0	N/A	0	0
Terminations				
Vested	-11	+11	N/A	0
Lump sum payments	-10	-4	N/A	-14
Due contributions only	0	N/A	N/A	0
Deaths				
With death benefit	0	0	-2	-2
Without death benefit	0	0	-6	-6
Transfers	0	0	N/A	0
Rehires	0	0	N/A	0
New beneficiaries	N/A	N/A	+2	+2
New entrants	+32	N/A	N/A	+32
Total members July 1, 2017	523	67	174	764

Member Counts by Status



Member Data			
	Active	Terminated vested	Members in pay status
Average age			
July 1, 2016	51.6	42.1	75.8
July 1, 2017	51.4	41.9	75.8
Average service			
July 1, 2016	13.2	N/A	N/A
July 1, 2017	13.4	N/A	N/A
Covered employee payroll			
July 1, 2016	$19,918,498	N/A	N/A
July 1, 2017	19,996,361	N/A	N/A
Total annual benefits			
July 1, 2016	N/A	$71,492	$2,805,685
July 1, 2017	N/A	25,283	2,912,439

Description of Actuarial Methods

Asset Valuation Method

The Actuarial Value of assets used in the development of plan contributions phases in the recognition of 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 of 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

<u>Normal Cost:</u> 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.

<u>Unfunded Accrued Liability:</u> 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.

<u>Experience Gains and Losses:</u> All experience gains and losses (the financial effect of the difference between the actual experience during the prior period and the result expected by the actuarial assumptions for that prior period) appear directly in the actuarial accrued liability and are amortized at the same rate the plan is amortizing the remaining unfunded accrued liability.

Description of Actuarial Assumptions

Changes in Actuarial Assumptions

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

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

Investment rate of return

7.20%. (Prior: 7.5%)

The assumption was changed to better reflect anticipated experience. The change in assumption increased liabilities by about 3%.

Inflation

2.75%.

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

Mortality

RP-2000 Mortality Table with separate male and female rates, with blue collar adjustment, combined table for non-annuitants and annuitants, projected to the valuation date with Scale BB.

Mortality Improvement

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

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

Salary Scale

Based on age. Sample rates shown below.

Age	Rate
20	6.25%
25	6.25%
30	5.60%
35	4.95%
40	4.30%
45	3.65%
50	3.00%
52+	2.75%

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.

Retirement

Assumed annual rates of retirement after the completion of 10 years of service are as follows:

Age	Retirement Rate
60	20%
61	5%
62-69	20%
70	100%

An additional 50% probability of retirement is added upon completion of 25 years of service.

Turnover

The following annual rates of turnover are assumed:

Age	Probability
20	5.44%
25	4.89%
30	3.70%
35	2.35%
40	1.13%
45	0.00%
50	0.00%
55	0.00%
60	0.00%

Disability

The following annual rates of disability are assumed:

Age	Probability
20	.05%
25	.05%
30	.05%
35	.06%
40	.09%
45	.18%
50	.40%
55	.85%
60	.00%

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.

Deaths

For purposes of valuing the plan’s pre-retirement death benefit, we assume all deaths are non-service related.

Payroll Growth

2.75%, only used to project normal cost to the next year.

Survivorship

70% of employees assumed to be married, with wives 4 years younger than husbands.

Expenses

The normal cost includes a load for expected administrative expenses. Expenses are estimated based on actual amounts for the two prior years.

Sick Bank

50% of retirees are assumed to elect an annuity from the fund and 50% of retirees are assumed to elect a lump sum paid from the operating budget.

Medicare Part B Reimbursement

2.75% increase assumption each year.

Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan. It is not intended to be, nor should it be interpreted as a complete statement of all plan provisions. To the extent that this summary does not accurately reflect the plan provisions, then the results of this valuation may not be accurate.

Pension Earnings

Salary in Final Year of Employment.

Normal Retirement

Eligibility: The earlier of 1) age 60 with 10 years of service, or 2) 25 years of service.

Benefit: Educational Assistants and Security Workers: 1.5% of pension earnings per year of service to a maximum of 33 years.

Custodians: 2.25% of pension earnings times year of service to a maximum of 33 years.

Limits on Annual Benefit

Maximum: None.

Minimum: None.

Disability – Non-Service Connected

Service Requirement: 10 years of service.

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 10 years of service. 50% of pension earnings with 10 years of service.

Pre-Retirement Death Benefit – Service Connected

Service Requirement: None.

Benefit: 50% of pension earnings.

Post-Retirement Spouse's Benefit

100% of pension retiree was receiving.

Post-Retirement Death Benefit

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

Vesting in Accrued Benefit

Eligibility: 10 years of service.

Benefit: Accrued retirement benefit.

Termination Benefit

Accumulated contributions as lump sum, if not vested.

Employee Contributions

5% of salary; no contributions for those with 33 or more years of service (7% for Custodians with a 33 year maximum).

Additional Retirement Benefits

Employees can trade in up to 125 days of sick leave for additional pension credit. Each 25 days grants an additional 1.5% of salary up to a maximum of 7.5%.

Educational Assistants and Security Workers are not eligible for this additional retirement benefit.