



TOWN OF FAIRFIELD EMPLOYEES' RETIREMENT SYSTEM

ACTUARIAL VALUATION REPORT

JULY 1, 2018





Table of Contents

Executive Summary2

Valuation Results and Highlights3

 Purpose of the Valuation3

 Information Available in the Valuation Report.....3

 Changes Reflected in the Valuation.....3

 Cash Contribution for Fiscal Year Ending 2020.....3

 Liability Experience During Period Under Review3

 Asset Experience During Period Under Review3

Certification4

Development of Unfunded Accrued Liability and Funded Ratio.....5

Determination of Normal Cost and Actuarially Determined Employer Contribution.....7

Determination of Actuarial Gain/Loss9

Development of Asset Values..... 10

Target Allocation and Expected Rate of Return 14

Amortization of Unfunded Liability 15

Member Data 16

Active Member Count by Age and Years of Service 19

Description of Actuarial Methods 20

Description of Actuarial Assumptions 21

Summary of Plan Provisions 25

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Executive Summary

	July 1, 2018	July 1, 2017
Number of members		
Active employees	519	565
Terminated vested members	52	50
Vested in employee contributions only	43	24
Retired, disabled and beneficiaries	447	444
Total	1,061	1,083
Covered employee payroll	27,907,025	29,832,813
Average plan salary	53,771	52,801
Actuarial present value of future benefits	254,275,627	253,081,602
Actuarial accrued liability	232,155,296	228,599,806
Plan assets		
Market value of assets	201,355,000	191,227,000
Actuarial value of assets	202,056,202	197,194,234
Unfunded accrued liability	30,099,094	31,405,572
Funded ratio	87.0%	86.3%
Actuarially determined employer contribution (ADEC)		
Fiscal year ending	2020	2019
ADEC	4,770,170	5,041,339



Certification

This report presents the results of the July 1, 2018 Actuarial Valuation for Town of Fairfield Employees' Retirement System (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, 2020. 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 17-04513


Stephen Chykirda, ASA, MAAA,
Enrolled Actuary 17-07517

February 1, 2019

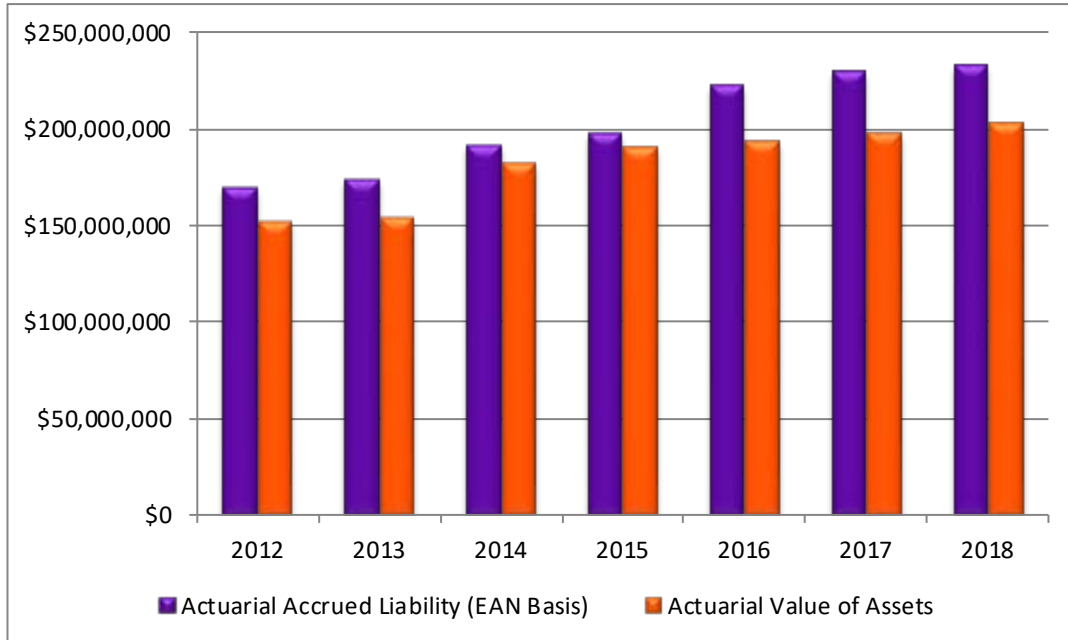


Development of Unfunded Accrued Liability and Funded Ratio

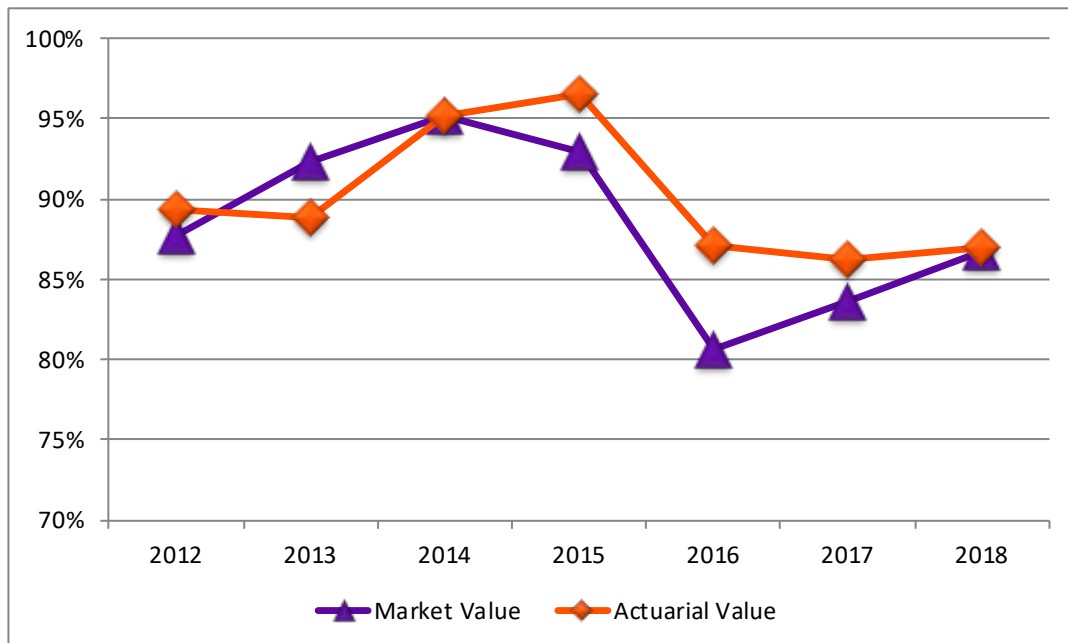
	July 1, 2018	July 1, 2017
Actuarial accrued liability for inactive members		
Retired pensioners	\$111,527,318	\$104,429,417
Disabled pensioners	2,717,539	3,300,555
Beneficiaries in payment status	4,569,360	4,427,662
Terminated vested members	8,080,489	7,135,269
Due refund of employee contributions only	562,735	212,880
Total	127,457,441	119,505,783
Actuarial accrued liability for active employees	104,697,855	109,094,023
Total actuarial accrued liability	232,155,296	228,599,806
Actuarial value of assets	202,056,202	197,194,234
Unfunded accrued liability	30,099,094	31,405,572
Funded ratio	87.0%	86.3%



Actuarial Accrued Liability vs. Actuarial Value of Assets



Funded Ratio



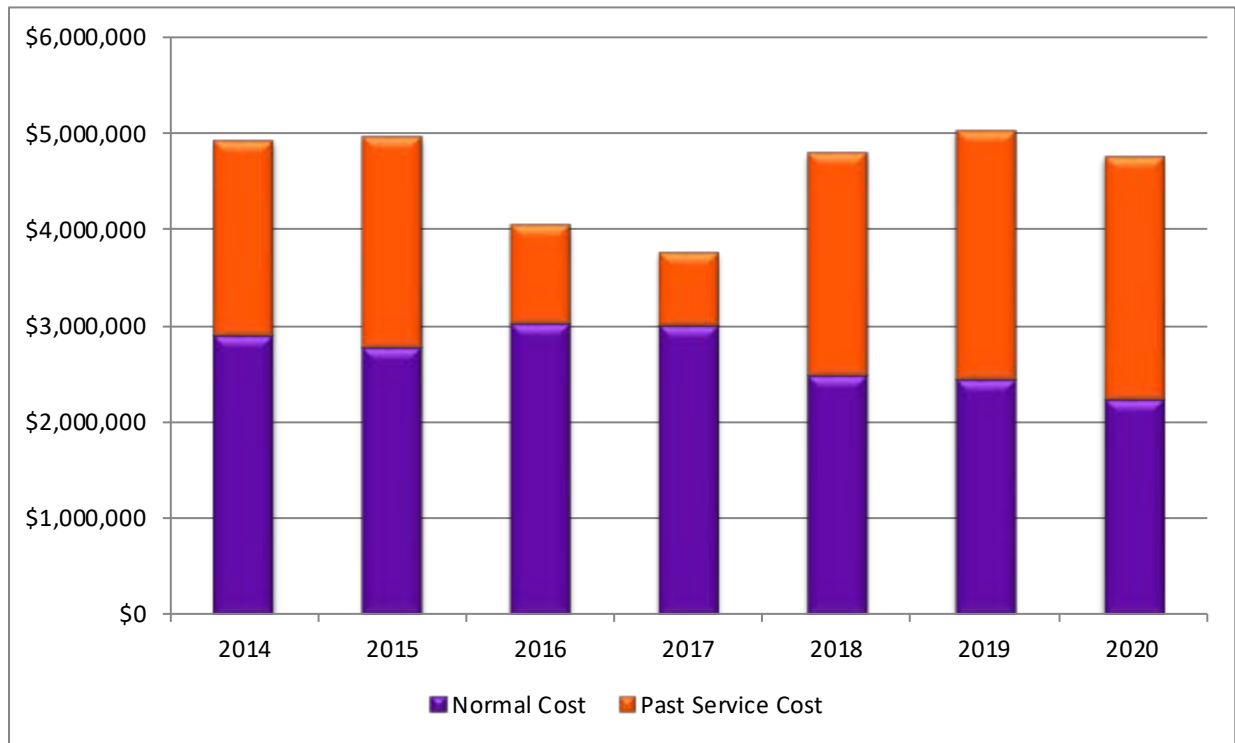


Determination of Normal Cost and Actuarially Determined Employer Contribution

	July 1, 2018		July 1, 2017	
	Cost	Percent of payroll	Cost	Percent of payroll
Gross normal cost	\$3,193,860	11.4%	\$3,456,255	11.7%
Estimated employee contributions	(1,153,344)	-4.1%	(1,217,819)	-4.1%
Estimated administrative expenses	150,000	0.5%	155,000	0.5%
Town's normal cost	2,190,516	7.8%	2,393,436	8.1%
Amortization of unfunded accrued liability	2,495,522	9.0%	2,559,085	8.6%
Contribution before adjustment as of the valuation date	4,686,038	16.8%	4,952,521	16.7%
Estimated valuation year payroll for actives not yet at 100% assumed retirement age	27,907,025		29,654,766	
Fiscal year ending	2020		2019	
Adjustment for interest and inflation	84,132		88,818	
Actuarially determined employer contribution	4,770,170		5,041,339	



Actuarially Determined Employer Contribution





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, 2018	
Expected unfunded accrued liability July 1, 2018	
Unfunded accrued liability July 1, 2017	31,405,572
Gross normal cost July 1, 2017	3,611,255
Town and employee contributions for 2017-2018	(5,772,638)
Interest at 7.00% to July 1, 2018	<u>2,146,188</u>
Expected unfunded accrued liability July 1, 2018	31,390,377
Actuarial (gain) / loss July 1, 2018	<u>(429,510)</u>
Actual unfunded accrued liability July 1, 2018, prior to plan provision, assumption and method changes	30,960,867
Sources of (gain) / loss	
Assets	2,758,234
Liabilities	<u>(3,187,744)</u>
Total (gain) / loss	(429,510)
Assumption and method changes since prior valuation	<u>(861,773)</u>
Actual unfunded accrued liability July 1, 2018, after plan provision, assumption and method changes	30,099,094



Development of Asset Values

Summary of Fund Activity		
	Market Value	Actuarial Value
1. Beginning value of assets July 1, 2017		
Trust assets	\$191,227,000	\$197,194,234
2. Contributions		
Town contributions during year	4,889,981	4,889,981
Employee contributions during year	882,657	882,657
Total for plan year	5,772,638	5,772,638
3. Disbursements		
Benefit payments during year	11,666,715	11,666,715
Administrative expenses during year	137,589	137,589
Total for plan year	11,804,304	11,804,304
4. Net investment return		
Interest and dividends	1,421,000	N/A
Realized and unrealized gain / (loss)	15,000,666	N/A
Expected return	N/A	13,252,919
Recognized gain / (loss)	N/A	(2,359,285)
Required adjustment due to corridor	N/A	0
Reversal of prior year required adjustment	N/A	0
Investment-related expenses	(262,000)	N/A
Total for plan year	16,159,666	10,893,634
5. Ending value of assets July 1, 2018		
Trust assets: (1) + (2) - (3) + (4)	201,355,000	202,056,202
6. Approximate rate of return	8.5%	5.6%



Relationship of Actuarial Value to Market Value

1. Market value 7/1/2018	\$201,355,000
2. Gain / (loss) not recognized in actuarial value 7/1/2018	<u>(701,202)</u>
3. Preliminary actuarial value 7/1/2018: (1) - (2)	202,056,202
4. Preliminary actuarial value as a percentage of market value: (3) ÷ (1)	100.3%
5. Gain / (loss) recognized for corridor minimum / maximum	N/A
6. Actuarial value 7/1/2018 after corridor minimum / maximum: (3) + (5)	202,056,202
7. Actuarial value as a percentage of market value: (6) ÷ (1)	100.3%

Development of Market Value Gain / Loss for 2017-2018 Plan Year

1. Market value 7/1/2017	\$191,227,000
2. Town contributions	4,889,981
3. Employee contributions	882,657
4. Benefit payments	11,666,715
5. Administrative expenses	137,589
6. Expected return at 7.00%	<u>13,252,919</u>
7. Expected value 7/1/2018: (1) + (2) + (3) - (4) - (5) + (6)	198,448,253
8. Market value 7/1/2018	<u>201,355,000</u>
9. Market value gain / (loss) for 2017-2018 plan year: (8) - (7)	2,906,747

Recognition of Gain / Loss in Actuarial Value

Year	(a) Gain / (loss)	(b) Total recognized as of 7/1/2017	(c) Recognized in current year: 20% of (a)	(d) Total recognized as of 7/1/2018: (b) + (c)	(e) Not recognized as of 7/1/2018: (a) - (d)
2013-2014	\$0	\$0	\$0	\$0	\$0
2014-2015	(8,836,356)	(5,301,813)	(1,767,271)	(7,069,084)	(1,767,272)
2015-2016	(11,303,816)	(4,521,526)	(2,260,763)	(6,782,289)	(4,521,527)
2016-2017	5,436,999	1,087,400	1,087,400	2,174,800	3,262,199
2017-2018	2,906,747	0	<u>581,349</u>	581,349	<u>2,325,398</u>
Total			<u>(2,359,285)</u>		<u>(701,202)</u>

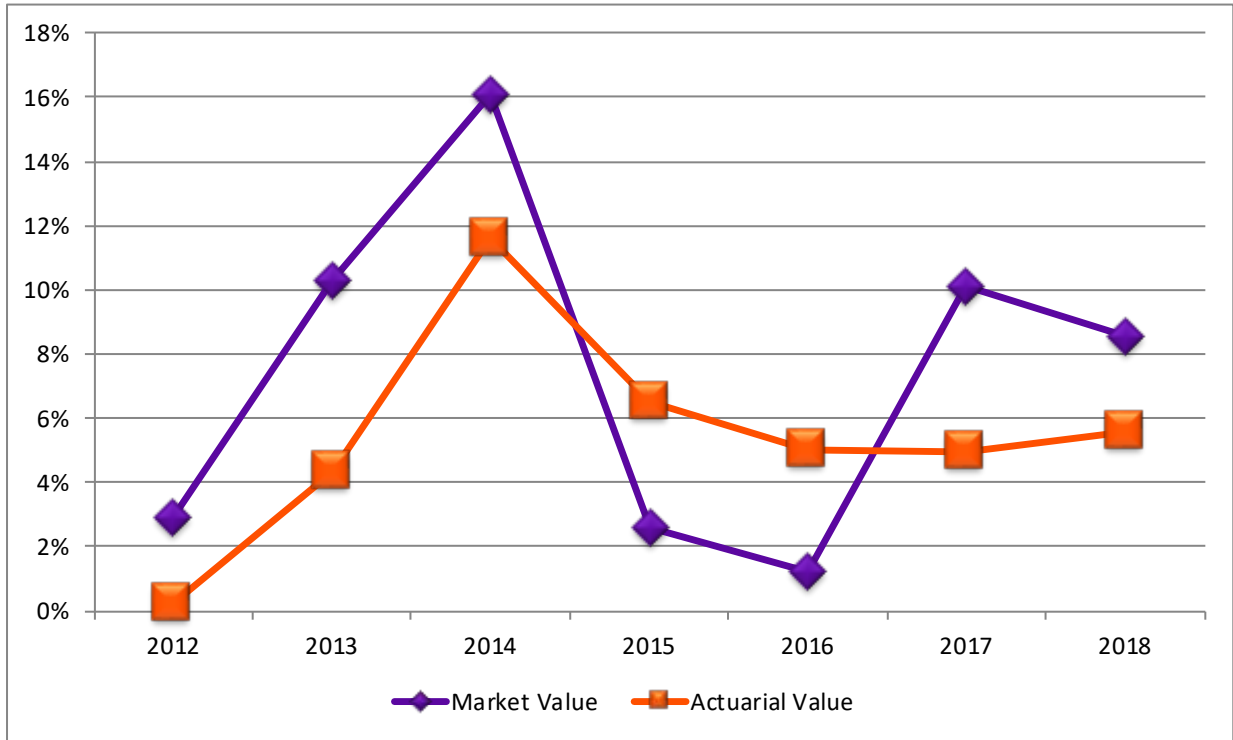


Rate of Return on Market Value of Assets				
Period Ending	Average Annual Effective Rate of Return			
	1 Year	3 Years	5 Years	10 Years
June 30				
2009	N/A	N/A	N/A	N/A
2010	N/A	N/A	N/A	N/A
2011	N/A	N/A	N/A	N/A
2012	2.9%	N/A	N/A	N/A
2013	10.3%	N/A	N/A	N/A
2014	16.1%	9.6%	N/A	N/A
2015	2.6%	9.5%	N/A	N/A
2016	1.2%	6.4%	6.5%	N/A
2017	10.1%	4.6%	7.9%	N/A
2018	8.5%	6.5%	7.6%	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
June 30				
2009	N/A	N/A	N/A	N/A
2010	N/A	N/A	N/A	N/A
2011	N/A	N/A	N/A	N/A
2012	0.2%	N/A	N/A	N/A
2013	4.3%	N/A	N/A	N/A
2014	11.6%	5.3%	N/A	N/A
2015	6.5%	7.4%	N/A	N/A
2016	5.0%	7.7%	5.5%	N/A
2017	5.0%	5.5%	6.4%	N/A
2018	5.6%	5.2%	6.7%	N/A



Actual Rate of Return on Assets





Target Allocation and Expected Rate of Return July 1, 2018

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return*	Weighting
US Large Cap	15.00%	4.65%	0.70%
US Mid/Small Cap	12.50%	5.50%	0.69%
International Developed	15.00%	5.50%	0.83%
International Emerging	7.50%	6.50%	0.49%
Cash & Cash Equivalents	2.00%	0.00%	0.00%
US Govt Intermediate	10.00%	1.75%	0.18%
US Corp Intermediate	10.00%	2.25%	0.23%
International	10.00%	2.50%	0.25%
Commodities	3.00%	5.25%	0.16%
Real Estate	5.00%	5.00%	0.25%
Other (hedge fund, etc.)	10.00%	5.25%	0.53%
	100.00%		4.31%
Long-Term Inflation Expectation			2.60%
Long-Term Expected Nominal Return			6.91%

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

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

The information above is based on arithmetic means. The investment return assumption was selected using the long term asset allocation shown above. An expected rate of return of 7.00% 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, 2018
2018 base	July 1, 2018	2,495,522	23	30,099,094



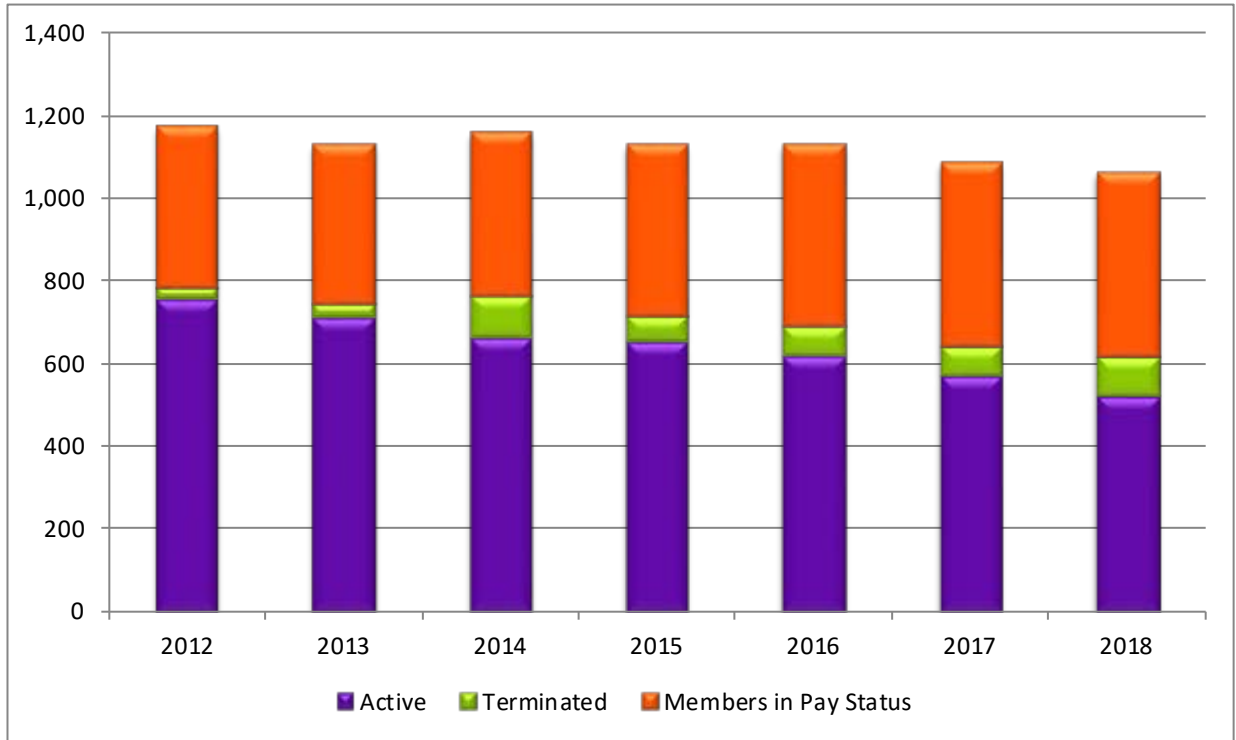
Member Data

The data reported by the Plan Sponsor for this valuation includes 519 active employees who met the Plan's minimum age and service requirements as of July 1, 2018.

Member Data							
	Active	Terminated vested	Due refund of contributions	Retirees	Disabilities	Beneficiaries	Total
Total members July 1, 2017	565	50	24	406	10	28	1,083
Adjustments	0	0	0	0	0	0	0
Retirements	-20	-4	N/A	+24	N/A	N/A	0
Disabilities	0	N/A	N/A	N/A	0	N/A	0
Terminations							
Vested	-6	+6	N/A	N/A	N/A	N/A	0
Lump sum payments	-6	0	0	N/A	N/A	-2	-8
Due contributions only	-18	N/A	+18	N/A	N/A	N/A	0
Deaths							
With death benefit	-1	0	0	0	0	1	0
Without death benefit	-2	0	0	-20	-1	-2	-25
Transfers	0	0	0	N/A	N/A	N/A	0
Rehires	+6	0	0	N/A	N/A	N/A	+6
New beneficiaries	N/A	0	1	N/A	N/A	+3	+4
New entrants	+1	N/A	0	N/A	N/A	N/A	+1
Total members July 1, 2018	519	52	43	410	9	28	1,061



Member Counts by Status





Member Data						
	Active	Terminated vested	Due refund of contributions	Retirees	Disabilities	Beneficiaries
Average age						
July 1, 2017	53.6	53.9	37.0	75.2	68.4	71.5
July 1, 2018	54.1	55.5	40.7	75.1	69.1	73.7
Average service						
July 1, 2017	14.0	N/A	N/A	N/A	N/A	N/A
July 1, 2018	14.7	N/A	N/A	N/A	N/A	N/A
Covered employee payroll						
July 1, 2017	\$29,832,813	N/A	N/A	N/A	N/A	N/A
July 1, 2018	27,907,025	N/A	N/A	N/A	N/A	N/A
Total annual benefits						
July 1, 2017	N/A	\$824,357	N/A	\$10,057,490	\$339,548	\$616,011
July 1, 2018	N/A	919,316	N/A	10,645,537	280,791	576,554



Active Member Count by Age and Years of Service

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
Under 25											
25 to 29		15	5								20
30 to 34		5	6	2							13
35 to 39		6	7	9							22
40 to 44		4	11	10	5						30
45 to 49		6	13	22	9	7		1			58
50 to 54		8	11	25	22	9	9	3	1		88
55 to 59		13	19	31	38	12	8	10	5		136
60 to 64		4	15	24	27	17	9	3		2	101
65 to 69		5	6	8	8	7	2	1			37
70 & over		1	1	4		3	1	3	1		14
All ages		67	94	135	109	55	29	21	7	2	519



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 actual return on Market Value and expected return on Market Value over a 5-year period at 20% per year.

Actuarial Cost Method

Changes in Actuarial Cost Method: Entry Age Normal (level percentage of salary)

Normal Cost: Under this method, the total normal cost is the sum of amounts necessary to fund each active member's normal retirement benefit if paid annually from entry age to assumed retirement age. Entry age is the age at which the employee would have been first eligible for the plan, if it had always been in effect. The normal cost for each participant is expected to remain a level percentage of the employee's salary. The normal cost for the plan is the difference between the total normal cost for the year and the anticipated member contributions for that year.

Past Service Liability: The present value of future benefits that relates to service before the valuation date is the total past service liability. The unfunded past service liability is the difference between the total past service liability and any assets (including accumulated member contributions). This amount is amortized over 23 years on a closed basis.

Experience Gains and Losses: 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 past service liability and are amortized at the same rate the plan is amortizing the remaining unfunded past service 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.)

- Mortality
- 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)

7.00%.

Rate of compensation increase (including inflation)

Age	Town Non-DPW	Age	Town DPW
20-22	5.60%	20	7.10%
23-24	5.10%	21	7.00%
25	4.85%	22	6.90%
26-27	4.60%	23	6.80%
28	3.60%	24	6.70%
29-40	4.10%	25	6.60%
41	4.05%	26	6.50%
42	4.00%	27	6.40%
43	3.95%	28	6.30%
44	3.90%	29	6.20%
45	3.85%	30	6.10%
46	3.80%	31	6.00%
47	3.75%	32	5.90%
48	3.70%	33	5.80%
49	3.65%	34	5.70%
50	3.60%	35	5.60%
51	3.55%	36	5.40%
52	3.50%	37	5.20%
53	3.45%	38	5.00%
54	3.40%	39	4.80%
55	3.35%	40	4.60%
56	3.30%	41	4.10%
57	3.25%	42	3.60%
58	3.20%	43	3.35%
59	3.15%	44	3.15%
60+	3.10%	45-49	2.85%
		50+	2.60%

The actuarial assumption in regards to rate of compensation increases shown above are based on the results of an actuarial experience study for the period 2011 through 2016.



Inflation

2.60%. (Prior: 2.75%)

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

RP-2014 Adjusted to 2006 Total Dataset Mortality Table projected to valuation date with Scale MP-2018.

RP-2014 Adjusted to 2006 Blue Collar Mortality Table projected to valuation date with Scale MP-2018 used for DPW, BOE Custodians, and BOE Maintenance divisions (i.e., BU codes 21, 46, and 49).

Disabled: RP-2014 Disabled Retiree Mortality Table projected to the valuation date with Scale MP-2018.

Prior: RP-2014 Adjusted to 2006 Total Dataset Mortality Table projected to valuation date with Scale MP-2017.

RP-2014 Adjusted to 2006 Blue Collar Mortality Table projected to valuation date with Scale MP-2017 used for DPW, BOE Custodians, and BOE Maintenance divisions (i.e., BU codes 21, 46, and 49).

Disabled: RP-2014 Disabled Retiree Mortality Table projected to the valuation date with Scale MP-2017.

Mortality Improvement

Projected to date of decrement using Scale MP-2018 (generational).

Prior: Projected to date of decrement using Scale MP-2017 (generational).

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

The mortality assumption was updated to better reflect anticipated experience. The change in assumption decreased liabilities by about 0.4%.

Retirement age

DPW

Age	Rate
55-58	2%
59	35%
60-69	20%
70+	100%

Non-DPW

Age	Rate
55-59	3.8%
60-61	7.0%
62	24.0%
63-64	17.4%
65	26.0%
66-74	24.0%
75-79	30.0%
80+	100.0%



Termination prior to retirement

DPW

Age	Town
20	10.0%
25	8.5%
30	7.0%
35	5.5%
40	4.0%
45	1.5%
50+	1.0%

Non-DPW

Age	Years of Service			
	0	5	10	>=15
20	60.0%	38.0%	15.0%	6.0%
25	52.0%	28.0%	10.0%	5.0%
30	30.0%	12.0%	7.0%	4.0%
35	26.0%	10.0%	7.0%	3.5%
40	26.0%	10.0%	7.0%	3.5%
45	26.0%	10.0%	7.0%	3.5%
50	20.0%	10.0%	6.0%	3.0%
55+	10.0%	6.0%	4.5%	3.0%

Disability

Age	Town Non-DPW	Town DPW
20	0.01%	0.02%
25	0.01%	0.03%
30	0.02%	0.04%
35	0.02%	0.05%
40	0.04%	0.07%
45	0.06%	0.12%
50	0.10%	0.20%
55	0.17%	0.34%
60	0.27%	0.54%

The actuarial assumptions in regards to rates of decrement shown above are based on the results of an actuarial experience study for the period 2011 through 2016. Rationale and the impact of the changes can be found in the study.



Administrative expenses

The estimate is based on actual expenses paid from the trust in the past 4 years.

Cost of living increases

Average of 2.4% per year.

Percent of active employees married

85%.

Spouse's age

Husbands are assumed to be 3 years older than wives.



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.

Final Salary

Public Works: Base pay including longevity over period of highest two consecutive years divided by two.

All Others: Base pay including longevity.

Highest Salary

Highest Salary (including base pay plus longevity) earned over a period of 12 consecutive paid months during the active years of employment.

Normal Retirement

Eligibility: Public Works: Later of age 59½ and 10 years of service.

All Others: Later of age 62 and 10 years of service.

Benefit: Public Works: 2.2% of Final Salary times years of service.

Educational Office Professionals and Professional and Technical Employees: 2.275% of member's Highest Salary times years of service.

All Others: 1.25% of Final Salary up to \$7,800 plus 2.3% of the excess times years of service.

Early Retirement

Eligibility: Later of age 55 or 15 years of service.

Benefit: Normal Retirement Benefit reduced 5/9% for each month younger than age 62 (59½ for Public Works).

Disability Retirement Benefit

Job Related:

Benefit: 50% of final salary less Workers Compensation.

Not Job Related:

Eligibility: 10 years of continuous service.

Benefit: Accrued benefit at time of disability.

Post-Retirement Death Benefit

Balance of 60 total payments to participant and beneficiary, or according to terms of optional form of payment elected.



Pre-Retirement Death Benefit

Job Related:

Eligibility: All are eligible.

Benefit: 50% of final salary payable to spouse until death or remarriage, then continuing to surviving children younger than age 18.

Not Job Related:

Eligibility: Eligible to retire.

Benefit: Pension that employee would have received if retired day before death and elected the 100% Joint & Survivor form of benefit.

Deferred Vested Retirement Benefit

Eligibility: 10 years of full-time employment with the Town

Benefit: Accrued benefit at time of termination payable at age 62.

Cost of Living Increases

On July 1st based on CPI-U, not to exceed 3%.

Employee Contributions

4% of basic salary including longevity.

Division Freeze Dates

Group/BU	BU Code	Freeze date
Town	01 - NON-UNION*	11/1/2015
Town	02 - PETA / Mid Mngmnt	4/23/2013
Town	03 - DEPARTMENT HEADS*	11/1/2015
Town	11 - THEA	4/1/2011
Town	21 - DPW	9/9/2013
Town	40 - ECC	7/1/2012
Town	72 - Nurses	3/11/2013
BOE	04 – Secretaries	9/23/2014
BOE	05 – Paraprofessionals*	12/8/2015
BOE	13 – Support Staff	7/1/2015
BOE	24 – IT Tech	3/7/2014
BOE	28 – Educational Trainers	3/7/2014
BOE	46- Custodians	11/6/2014
BOE	49 – Maintenance	11/6/2014

* Future freeze dates included in chart.

Employees hired after the freeze dates listed above are eligible for the 401A Plan.