

**NORFOLK COUNTY  
CONTRIBUTORY RETIREMENT SYSTEM**

December 31, 2016 Actuarial Valuation Report

GASB 67 & 68

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## **Introduction**

This report presents the Governmental Accounting Standards Statements 67 & 68 based on the findings of an actuarial valuation as of January 1, 2016, of the Norfolk County Contributory Retirement System.

The actuarial valuation is based on:

- Provisions of Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of January 1, 2016.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Norfolk County Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board
- Assets as of December 31, 2016

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2016.

The valuation and forecast do not account for:

- Any subsequent changes in the law
- Chapter 32 of the M.G.L., Section 3(8)(c) transfers between systems
- State-mandated benefits
- Cost-of-living increases granted to retired members between 1982 and 1997. The cost of these benefits has been assumed by the State under Proposition Two and One-Half.

## **GASB Statements No. 67 and No. 68**

Effective for periods beginning after June 15, 2013, the Governmental Accounting Standards Board (GASB) requires the disclosure of pension related liabilities for public employer financial statements in accordance with Statements 67 and 68. These statements, which amend GASB Statements No. 25 and No. 27, must be adhered to by any public employee retirement system that follows Generally Accepted Accounting Principles (GAAP).

These disclosures are intended to establish a reporting framework that distinguishes between:

- current financial information about plan assets and financial activities,
- actuarially determined information from a long-term perspective,
- the funded status of the plan, and
- progress being made in accumulating sufficient assets to pay benefits when due.

The statement requires the system to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position. The statement of fiduciary net position presents the following items as of the end of the plan’s reporting period, as applicable:

- Assets
- Deferred outflows of resources (consumption of net assets by the employers that is applicable to a future reporting period)
- Liabilities
- Deferred inflows of resources (acquisition of net assets by the employers that is applicable to a future reporting period)
- Fiduciary net position (Assets + Deferred outflows – Liabilities – Deferred inflows)

The system is considered a cost-sharing multiple-employer pension plan since pension obligations exist for employees of more than one employer and plan assets can be used to pay the benefits of the employees of any employer.

This report does not include all items required under GASB Statements No. 67 and No. 68. Rather, it provides all items required that are not readily available from other sources such as the Annual Statement of the Financial Condition prepared by the Board, Chapter 32 of the Massachusetts General Laws and investment reports prepared by the plan’s investment consultant.

### Discount Rate

The discount rate, and all other actuarial assumptions, are the as those described in Exhibit 5. The discount rate was selected based on a projection of employer and employee contributions, benefit payments, expenses and the long term expected rate of return on trust assets. Under Chapter 32 of the Massachusetts Laws, employers are required to make the necessary contributions to the trust such that the plan reaches a full funding status by 2040. In addition, Chapter 32 also gives the Retirement Board the right to go directly to the Assessors of the community and add an additional property tax to bills for amounts not paid by employer.

Based on these laws and assumptions, the pensions plan's Fiduciary Net Position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

The Board selected 8.00% as the long term expectation of investment returns. The average return for the 32 years ending as of December 31, 2016 was 8.55%. The average return for the past 5 years ending December 31, 2016 was 8.82%.

### Net Position Restricted for Pensions

The Net Position Restricted for Pensions as of December 31, 2016 is \$836,027,536. The 2016 Annual Statement of the Financial Condition contains the values for previous years and the changes in Net Position Restricted for Pensions. Investments are reported at fair value.

December 31, 2015 Net Position	767,348,723
Employer Contributions	58,539,478
Employee Contributions	29,448,484
Other Payments	2,939,696
Benefit Payments	(89,903,325)
Expenses	(1,193,583)
Investment Income	<u>68,848,063</u>
December 31, 2016 Net Position	836,027,536

**Pension Liability as of December 31, 2016**

The following presents the changes in the pension liability during 2016.

December 31, 2015 Liability	1,310,561,438
Service Cost	33,401,927
Interest on Liability and Service Cost	103,990,118
Change in Plan Provisions	0
Experience (Gain) and Loss	0
Change in Assumptions	0
Benefit Payments	(89,903,325)
Other	<u>0</u>
December 31, 2016 Liability	1,358,050,158

**Net Pension Liability as of December 31, 2016**

The following presents the net pension liability of the system calculated using the discount rate of 8.00%, as well as what the system's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (7.00%) or 1-percentage-point higher (9.00%) than the current rate:

	<b>1% Decrease (7.00%)</b>	<b>Current Discount Rate (8.00%)</b>	<b>1% Increase (9.00%)</b>
Total Pension Liability	1,496,517,821	1,358,050,158	1,239,354,551
Plan Fiduciary Net Position	<u>836,027,536</u>	<u>836,027,536</u>	<u>836,027,536</u>
Net Pension Liability	660,490,285	522,022,622	403,327,015

The Plan Fiduciary Net Position as a percentage of the Total Pension Liability is 61.6%.

	Unit	1% Decrease (7.00%)	Current Discount Rate (8.00%)	1% Increase (9.00%)
Avon Housing Auth.	AHA	217,306	171,749	132,697
Town of Avon	AVO	12,446,260	9,836,979	7,600,283
Town of Bellingham	BEL	30,072,150	23,767,712	18,363,496
Bellingham Hous. Auth.	BHA	287,323	227,088	175,453
Town of Canton	CAN	50,534,761	39,940,464	30,858,947
Canton Housing Auth.	CHA	968,933	765,802	591,677
Cohasset Housing Auth.	CHH	159,167	125,799	97,195
Town of Cohasset	COH	24,194,442	19,122,228	14,774,285
Charles Riv. Poll. Cont.	CRP	1,562,708	1,235,096	954,264
County of Norfolk	CTY	21,810,732	17,238,248	13,318,678
Town of Dover	DOV	12,754,041	10,080,236	7,788,229
Dover/Shearborne Schl.	DSR	7,493,931	5,922,875	4,576,153
Foxboro Housing Auth.	FHA	562,723	444,752	343,626
Franklin Housing Auth.	FHH	842,114	665,570	514,235
Town of Foxboro	FOX	42,268,742	33,407,364	25,811,319
Town of Franklin	FRA	50,272,583	39,733,250	30,698,848
Holbrook Housing Auth	HHA	482,839	381,615	294,845
Town of Holbrook	HOL	19,946,820	15,765,094	12,180,484
Massachusetts Respiratory	HOS	-	-	-
King Phillip Reg School	KPR	7,388,893	5,839,858	4,512,012
Town of Medway	MDW	23,594,670	18,648,195	14,408,036
Town of Medfield	MED	24,335,752	19,233,914	14,860,576
Medfield Housing Auth.	MHA	147,962	116,943	90,353
Medway Housing Auth.	MHH	875,788	692,184	534,798
Town of Millis	MIL	16,625,180	13,139,815	10,152,132
Millis Housing Auth.	MLH	368,565	291,297	225,063
Norfolk Housing Auth.	NHA	302,507	239,089	184,725
Norfolk Cnty Mos. Con.	NMC	1,905,538	1,506,054	1,163,613
Town of Norfolk	NOR	20,460,003	16,170,691	12,493,858
Town of Plainville	PLA	17,880,800	14,132,202	10,918,873
Town of Randolph	RAN	54,666,772	43,206,225	33,382,150
Norfolk County Ret BD	RET	-	-	-
Randolph Housing Auth	RHA	633,434	500,638	386,805
Town of Sharon	SHA	39,531,670	31,244,103	24,139,932
Sharon Housing Auth.	SHH	241,716	191,042	147,604
Stoughton Hous. Auth.	STH	698,780	552,285	426,709
Town of Stoughton	STO	52,001,058	41,099,361	31,754,338
Town of Walpole	WAL	47,944,332	37,893,102	29,277,106
Town of Westwood	WES	48,795,704	38,565,990	29,796,995
Walpole Housing Auth.	WHA	533,667	421,787	325,883
Town of Wrentham	WRE	18,698,499	14,778,475	11,418,199
Wrentham Hous. Auth.	WRH	249,663	197,322	152,456
Dedham-Westwood Water Dist	DWW	5,731,758	4,530,131	3,500,086

**Employer Contributions during 2016**

	<u>Unit</u>	<u>Contribution</u>	<u>Portion</u>
Avon Housing Auth.	AHA	20,915	0.000357
Town of Avon	AVO	1,047,572	0.017895
Town of Bellingham	BEL	2,579,977	0.044072
Bellingham Hous. Auth.	BHA	24,060	0.000411
Town of Canton	CAN	4,393,622	0.075054
Canton Housing Auth.	CHA	98,192	0.001677
Cohasset Housing Auth.	CHH	14,854	0.000254
Town of Cohasset	COH	1,880,030	0.032116
Charles Riv. Poll. Cont.	CRP	132,554	0.002264
County of Norfolk	CTY	3,321,523	0.05674
Town of Dover	DOV	1,129,266	0.019291
Dover/Shearborne Schl.	DSR	618,563	0.010567
Foxboro Housing Auth.	FHA	42,007	0.000718
Franklin Housing Auth.	FHH	68,948	0.001178
Town of Foxboro	FOX	3,655,092	0.062438
Town of Franklin	FRA	4,351,658	0.074337
Holbrook Housing Auth	HHA	31,899	0.000545
Town of Holbrook	HOL	1,831,085	0.031279
Massachusetts Respiratory	HOS	-	0
King Phillip Reg School	KPR	647,605	0.011063
Town of Medway	MDW	2,098,530	0.035848
Town of Medfield	MED	2,084,180	0.035603
Medfield Housing Auth.	MHA	18,860	0.000322
Medway Housing Auth.	MHH	76,395	0.001305
Town of Millis	MIL	1,494,769	0.025534
Millis Housing Auth.	MLH	27,202	0.000465
Norfolk Housing Auth.	NHA	27,633	0.000472
Norfolk Cnty Mos. Con.	NMC	156,229	0.002669
Town of Norfolk	NOR	1,810,010	0.030919
Town of Plainville	PLA	1,359,848	0.02323
Town of Randolph	RAN	4,750,895	0.081157
Norfolk County Ret BD	RET	-	0
Randolph Housing Auth	RHA	81,299	0.001389
Town of Sharon	SHA	3,686,874	0.062981
Sharon Housing Auth.	SHH	22,058	0.000377
Stoughton Hous. Auth.	STH	80,248	0.001371
Town of Stoughton	STO	4,437,692	0.075807
Town of Walpole	WAL	4,374,064	0.07472
Town of Westwood	WES	3,946,275	0.067412
Walpole Housing Auth.	WHA	47,760	0.000816
Town of Wrentham	WRE	1,569,071	0.026804
Wrentham Hous. Auth.	WRH	16,155	0.000276
Dedham-Westwood Water Dist	DWW	484,009	0.008268



**Pension Expense for 2016**

Service Cost	33,401,927
Interest	103,990,118
Difference in Experience - Amortization	2,822,209
Change in Assumptions - Amortization	(11,738,535)
Changes in Plan Provisions	0
Employee Contributions	(29,448,484)
Projected Earnings	(61,381,258)
Administration Expense	1,193,583
Other Changes in Fiduciary Net Position	0
Asset (Gain) / Loss Amortization	<u>17,827,294</u>
Total Expense	56,666,854

**Reconciliation of Net Pension Liability for 2016**

NPL Beginning	543,212,715
Expense	56,666,854
Contribution	(58,539,478)
Deferred Outflows	(22,142,864)
Deferred Inflows	5,765,091
Revenue	(2,939,696)
NPL Ending	522,022,622

**Schedules of Required Supplementary Information**

	<u>2016</u>
Total Pension Liability – Beginning	1,310,561,438
Total Pension Liability – Ending (a)	1,358,050,158
Plan Fiduciary Net Position – Beginning	767,348,723
Plan Fiduciary Net Position – Ending (b)	836,027,536
Net Pension Liability – Ending (a) – (b)	522,022,622
Plan Fiduciary Net Positions as a percentage of the Total Pension Liability	61.6%
Covered-employee payroll	\$279,489,744
Net Pension Liability as a percentage of Covered-employee Payroll	186.8%

**Schedule of Net Position Restricted for Pensions Amortization Recognition**

Below is the schedule of amortization adjustments to the Pension Expense for the coming years. A positive number indicates that the actual return was less than the expected return and will be added to the Pension Expense.

Investment Return

<u>Year</u>	<u>(Gain) / Loss</u>	<u>Period</u>	<u>Increase (Decrease) arising from (Gains) or Losses</u>				
			<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
2016	(7,466,805)	5	(1,493,361)	(1,493,361)	(1,493,361)	(1,493,361)	(1,493,361)
2015	75,186,656	5	15,037,331	15,037,331	15,037,331	15,037,331	0
2014	21,416,618	5	4,283,324	4,283,324	4,283,324	0	

Experience

<u>Year</u>	<u>(Gain) / Loss</u>	<u>Period</u>	<u>Increase (Decrease) arising from (Gains) or Losses</u>				
			<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
2015	13,828,826	4.90	2,822,209	2,822,209	2,822,209	2,539,988	0

Assumptions

<u>Year</u>	<u>(Gain) / Loss</u>	<u>Period</u>	<u>Increase (Decrease) arising from (Gains) or Losses</u>				
			<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>
2015	(57,518,820)	4.90	(11,738,535)	(11,738,535)	(11,738,535)	(10,564,681)	0

	<u>Avon</u> <u>Housing</u> <u>Auth.</u>	<u>Town of</u> <u>Avon</u>	<u>Town of</u> <u>Bellingham</u>	<u>Bellingham</u> <u>Hous. Auth.</u>	<u>Town of</u> <u>Canton</u>	<u>Canton</u> <u>Housing Auth.</u>
Net Pension Liability	171,745	9,836,994	23,767,690	227,080	39,940,473	765,807
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	2,694	154,228	372,636	3,561	626,197	12,006
Net Asset Loss	17,660	1,011,520	2,443,988	23,351	4,107,006	78,747
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	1,305	0	418,337	0	218,977	9,853
Total Deferred Outflows	21,659	1,165,748	3,234,961	26,912	4,952,180	100,606
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	1,965	112,564	271,971	2,598	457,034	8,763
Changes in Assumptions	11,200	641,483	1,549,920	14,808	2,604,568	49,938
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	6,876	249,095	68,075	60,430	67,823	81,786
Total Deferred Inflows	20,041	1,003,141	1,889,966	77,836	3,129,425	140,487
Pension Expense						
Proportionate share of plan Pension Expense	18,643	1,067,830	2,580,042	24,650	4,335,638	83,130
Net Amortization from changes in Share Proportions	(2,037)	(81,997)	126,799	(20,734)	58,118	(25,676)
Total Employer Pension Expense	16,606	985,833	2,706,841	3,916	4,393,756	57,454
Revenue	967	55,396	133,844	1,279	224,919	4,313

	<u>Cohasset Housing Auth.</u>	<u>Town of Cohasset</u>	<u>Charles Riv. Poll. Cont.</u>	<u>County of Norfolk</u>	<u>Town of Dover</u>	<u>Dover/Shearb orne Schl.</u>
Net Pension Liability	125,807	19,122,211	1,235,106	17,238,231	10,080,257	5,922,869
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	1,972	299,802	19,364	270,266	158,041	92,861
Net Asset Loss	12,937	1,966,303	127,003	1,772,576	1,036,534	609,038
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	655	961,685	0	1,104,933	0	112,440
Total Deferred Outflows	15,564	3,227,789	146,367	3,147,775	1,194,575	814,338
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	1,440	218,813	14,133	197,255	115,347	67,775
Changes in Assumptions	8,204	1,246,983	80,542	1,124,127	657,346	386,237
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	6,884	210,536	20,939	466,895	115,206	36,345
Total Deferred Inflows	16,527	1,676,332	115,614	1,788,277	887,900	490,357
Pension Expense						
Proportionate share of plan Pension Expense	13,657	2,075,764	134,074	1,871,253	1,094,237	642,942
Net Amortization from changes in Share Proportions	(2,206)	277,633	(6,808)	122,318	(39,663)	29,453
Total Employer Pension Expense	11,451	2,353,397	127,266	1,993,571	1,054,574	672,395
Revenue	708	107,684	6,955	97,075	56,766	33,354

	<u>Foxboro Housing Auth.</u>	<u>Franklin Housing Auth.</u>	<u>Town of Foxboro</u>	<u>Town of Franklin</u>	<u>Holbrook Housing Auth</u>	<u>Town of Holbrook</u>
Net Pension Liability	444,763	665,579	33,407,360	39,733,230	381,599	15,765,083
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	6,974	10,434	523,769	622,949	5,983	247,170
Net Asset Loss	45,735	68,440	3,435,218	4,085,696	39,239	1,621,095
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	0	16,105	0	0	44,879	50,216
Total Deferred Outflows	52,709	94,979	3,958,987	4,708,645	90,101	1,918,481
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	5,089	7,616	382,277	454,663	4,367	180,398
Changes in Assumptions	29,003	43,404	2,178,535	2,591,054	24,885	1,028,061
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	54,059	4,479	169,532	584,144	8,804	391,269
Total Deferred Inflows	88,151	55,499	2,730,343	3,629,861	38,056	1,599,728
Pension Expense						
Proportionate share of plan Pension Expense	48,280	72,250	3,626,452	4,313,141	41,423	1,711,339
Net Amortization from changes in Share Proportions	(18,096)	4,405	(52,037)	(194,096)	13,219	(122,044)
Total Employer Pension Expense	30,184	76,655	3,574,415	4,119,045	54,642	1,589,295
Revenue	2,505	3,748	188,129	223,752	2,149	88,779

	<u>Massachusetts</u> <u>Respiratory</u>	<u>King Phillip</u> <u>Reg School</u>	<u>Town of</u> <u>Medway</u>	<u>Town of</u> <u>Medfield</u>	<u>Medfield</u> <u>Housing Auth.</u>	<u>Medway</u> <u>Housing Auth.</u>
Net Pension Liability	0	5,839,867	18,648,214	19,233,924	116,933	692,202
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	0	91,559	292,372	301,554	1,833	10,852
Net Asset Loss	0	600,504	1,917,562	1,977,789	12,024	71,178
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	0	79,722	790,090	296,574	4,501	0
Total Deferred Outflows	0	771,784	3,000,025	2,575,917	18,358	82,030
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	0	66,825	213,389	220,092	1,338	7,921
Changes in Assumptions	0	380,825	1,216,074	1,254,268	7,624	45,139
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	0	5,712	0	57,790	40,064	14,411
Total Deferred Inflows	0	453,362	1,429,463	1,532,150	49,026	67,471
Pension Expense						
Proportionate share of plan Pension Expense	0	633,932	2,024,310	2,087,890	12,693	75,140
Net Amortization from changes in Share Proportions	0	26,025	271,916	87,449	(12,661)	(4,895)
Total Employer Pension Expense	0	659,957	2,296,226	2,175,339	32	70,245
Revenue	0	32,886	105,015	108,313	658	3,898

	<u>Town of</u> <u>Millis</u>	<u>Millis</u> <u>Housing Auth.</u>	<u>Norfolk</u> <u>Housing Auth.</u>	<u>Norfolk Cnty</u> <u>Mos. Con.</u>	<u>Town of</u> <u>Norfolk</u>	<u>Town of</u> <u>Plainville</u>
Net Pension Liability	13,139,831	291,289	239,086	1,506,035	16,170,695	14,132,196
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	206,010	4,567	3,749	23,612	253,529	221,569
Net Asset Loss	1,351,145	29,953	24,584	154,863	1,662,803	1,453,188
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	17,065	61,332	36,647	46,583	36,060	654,654
Total Deferred Outflows	1,574,220	95,852	64,980	225,058	1,952,392	2,329,411
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	150,358	3,333	2,736	17,233	185,039	161,713
Changes in Assumptions	856,866	18,995	15,591	98,211	1,054,512	921,579
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	467,734	4,419	0	10,231	2,648	179,067
Total Deferred Inflows	1,474,957	26,747	18,327	125,675	1,242,199	1,262,359
Pension Expense						
Proportionate share of plan Pension Expense	1,426,361	31,620	25,953	163,484	1,755,369	1,534,085
Net Amortization from changes in Share Proportions	(156,912)	20,016	12,580	13,440	11,755	179,828
Total Employer Pension Expense	1,269,449	51,636	38,533	176,924	1,767,124	1,713,913
Revenue	73,995	1,640	1,346	8,481	91,063	79,583

	<u>Town of</u> <u>Randolph</u>	<u>Norfolk</u> <u>County Ret</u> <u>BD</u>	<u>Randolph</u> <u>Housing Auth</u>	<u>Town of</u> <u>Sharon</u> <u>Housing Auth.</u>	<u>Sharon</u> <u>Housing Auth.</u>	<u>Stoughton</u> <u>Hous. Auth.</u>
Net Pension Liability	43,206,246	0	500,620	31,244,098	191,060	552,300
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	677,399	0	7,848	489,853	2,996	8,659
Net Asset Loss	4,442,820	0	51,477	3,212,774	19,647	56,792
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	182,251	0	19,869	145,741	661	14,710
Total Deferred Outflows	5,302,469	0	79,194	3,848,368	23,304	80,161
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	494,404	0	5,729	357,523	2,186	6,320
Changes in Assumptions	2,817,533	0	32,646	2,037,467	12,459	36,015
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	74,843	0	134,311	1,182,118	5,469	150,340
Total Deferred Inflows	3,386,780	0	172,686	3,577,108	20,114	192,675
Pension Expense						
Proportionate share of plan Pension Expense	4,690,146	0	54,344	3,391,625	20,740	59,954
Net Amortization from changes in Share Proportions	43,654	0	(41,219)	(370,257)	(1,717)	(48,069)
Total Employer Pension Expense	4,733,800	0	13,125	3,021,368	19,023	11,885
Revenue	243,310	0	2,819	175,947	1,076	3,110



	<u>Town of Stoughton</u>	<u>Town of Walpole</u>	<u>Town of Westwood</u>	<u>Walpole Housing Auth.</u>	<u>Town of Wrentham</u>	<u>Wrentham Hous. Auth.</u>
Net Pension Liability	41,099,363	37,893,100	38,565,987	421,794	14,778,460	197,325
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	644,366	594,097	604,647	6,612	231,701	3,094
Net Asset Loss	4,226,174	3,896,479	3,965,671	43,373	1,519,642	20,290
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	0	99,240	1,500,711	427	2,533	0
Total Deferred Outflows	4,870,540	4,589,816	6,071,029	50,412	1,753,876	23,384
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	470,295	433,606	441,306	4,827	169,108	2,258
Changes in Assumptions	2,680,142	2,471,058	2,514,935	27,506	963,722	12,867
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	626,878	901,319	301,279	59,387	70,303	18,825
Total Deferred Inflows	3,777,315	3,805,984	3,257,520	91,719	1,203,133	33,950
Pension Expense						
Proportionate share of plan Pension Expense	4,461,438	4,113,390	4,186,434	45,787	1,604,239	21,420
Net Amortization from changes in Share Proportions	(204,118)	(285,354)	440,236	(20,368)	(17,153)	(6,073)
Total Employer Pension Expense	4,257,320	3,828,036	4,626,670	25,419	1,587,086	15,347
Revenue	231,445	213,390	217,179	2,375	83,223	1,111

	<u>Dedham- Westwood Water Dist</u>	<u>Total</u>
Net Pension Liability	4,530,112	522,022,622
Deferred Outflows of Resources		
Differences between Expected and Actual Experience	71,024	8,184,409
Net Asset Loss	465,823	53,678,643
Changes in Assumptions	0	0
Changes in Proportion and Differences between Employer Contributions and proportionate share of contributions	817	6,929,572
Total Deferred Outflows	537,665	68,792,624
Deferred Inflows of Resources		
Differences between Expected and Actual Experience	0	0
Net Asset Gain	51,838	5,973,444
Changes in Assumptions	295,414	34,041,746
Changes in Proportion and Differences between Employer Contributions and proportionate share of contributions	19,249	6,929,574
Total Deferred Inflows	366,501	46,944,764
Pension Expense		
Proportionate share of plan Pension Expense	491,755	56,666,854
Net Amortization from changes in Share Proportions	(4,654)	1
Total Employer Pension Expense	487,101	56,666,855
Revenue	25,511	2,939,696

**EXHIBITS**

## **EXHIBIT 4 – SUMMARY OF PLAN PROVISIONS:**

This summary is prepared in accordance with Chapter 32 as of January 1, 2016, and does not take into account any subsequent changes.

### **1. Administration**

Each of the 104 contributory retirement systems for public employees of the Commonwealth of Massachusetts are guided by the applicable provisions of Chapter 32 of the Massachusetts General Laws and other applicable statutes. Although these boards operate semi-independently, there is a uniform set of rules governing benefits, eligibility, contributions, financing, and accounting.

### **2. Participation**

Participation is mandatory for all full-time employees whose employment commences prior to age 65. Eligibility with respect to part-time, professional, temporary, or intermittent employment is governed by the local board. Membership is optional for certain elected officials, State officials appointed by the Governor, and certain hospital interns.

There are four classes of membership as follows:

- (i) Group 1: Most general employees in State and local government
- (ii) Group 2: Certain specified hazardous duty positions
- (iii) Group 3: State police officers and inspectors
- (iv) Group 4: Local police officers, firefighters, and designated employees of the municipal light department.

For members in more than one group, participation will be proportional.

Chapter 176 of the Acts of 2011 created different plan provisions within these groups for those hired on or after April 2, 2012.

### 3. Salary

Salary is defined as gross regular compensation. Salary does not include bonuses, overtime, severance pay, unused sick leave credit, or other similar compensation.

### 4. Member Contributions

Member contributions vary depending upon date hired as follows:

<u>Date of Hire</u>	<u>Member Contribution Rate</u>
Prior to 1975	5.0% of Salary
1975 to 1983	7.0% of Salary
1984 to 1996	8.0% of Salary
1996 and Later	9.0% of Salary
1979 and Later	Plus 2.0% of Salary in excess of \$30,000

For Group 1 employees who become members on or after April 2, 2012, the Contribution Rate shall be 6% after the completion of 30 years of service.

### 5. Average Salary

Average salary is used to determine a participant's benefit. It is defined as the average salary during the three consecutive-year period that produces the highest average. (Alternatively, if a greater amount results, it is the average rate of salary earned during the period or periods, whether or not consecutive, that constitutes the last three years preceding retirement.). For employees who become members on or after April 2, 2012, the averaging period shall be five years.

### 6. Creditable Service

In general, creditable service is awarded during the period in which a member contributes to the retirement system.

**7. Service Retirement**

a. Eligibility:

For an employee to be eligible for service retirement (also referred to as superannuation), one of the following conditions must be met:

- (i) completion of 20 years of service
- (ii) for an employee hired prior to January 1, 1978, attainment of age 55 as an active member
- (iii) for an employee hired on or after January 1, 1978, attainment of age 55 as an active member and completion of ten years of service
- (iv) for a Group 1 employee hired on or after April 2, 2012, attainment of age 60 and completion of ten years of service

b. Benefit Amount:

The retirement allowance is determined as a product of the participant's Benefit Rate times Average Salary times Creditable Service, where Benefit Rate is determined from the following table for those hired prior to April 2, 2012:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
65 or Over	.025	.025	.025
64	.024	.025	.025
63	.023	.025	.025
62	.022	.025	.025
61	.021	.025	.025
60	.020	.025	.025
59	.019	.024	.025
58	.018	.023	.025
57	.017	.022	.025
56	.016	.021	.025
55	.015	.020	.025
54	.014	.014	.024
53	.013	.013	.023
52	.012	.012	.022
51	.011	.011	.021
50	.010	.010	.020
49	.009	.009	.019
48	.008	.008	.018
47	.007	.007	.017
46	.006	.006	.016
45	.005	.005	.015
44	.004	.004	.004
43	.003	.003	.003
42	.002	.002	.002
41	.001	.001	.001

For those hired after April 1, 2012 who retire with less than 30 years of service, the following rates are applied:

<u>Age at Retirement</u>	<u>Percentage of Average Salary</u>		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
67 or Over	.0250	.0250	.0250
66	.0235	.0250	.0250
65	.0220	.0250	.0250
64	.0205	.0250	.0250
63	.0190	.0250	.0250
62	.0175	.0250	.0250
61	.0160	.0235	.0250
60	.0145	.0220	.0250
59		.0205	.0250
58		.0190	.0250
57		.0175	.0250
56		.0160	.0235
55		.0145	.0220
54			.0205
53			.0190
52			.0175
51			.0160
50			.0145



For those hired after April 1, 2012 who retire with at least 30 years of service, the following rates are applied:

Age at Retirement	Percentage of Average Salary		
	<u>Group 1</u>	<u>Group 2</u>	<u>Group 4</u>
67 or Over	.02500	.02500	.02500
66	.02375	.02500	.02500
65	.02250	.02500	.02500
64	.02125	.02500	.02500
63	.02000	.02500	.02500
62	.01875	.02500	.02500
61	.01750	.02375	.02500
60	.01625	.02250	.02500
59		.02125	.02500
58		.02000	.02500
57		.01875	.02500
56		.01750	.02375
55		.01625	.02250
54			.02125
53			.02000
52			.01875
51			.01750
50			.01625

## 8. Deferred Vested Retirement

### a. Eligibility:

A participant who has completed ten or more years of creditable service is eligible for a deferred vested retirement benefit. If termination is involuntary, the participant is vested after six years.

### b. Benefit Amount:

The participant's accrued benefit is payable commencing at age 55, or may be deferred until later at the employee's option.

c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions, with interest.

**9. Accidental Disability**

a. Eligibility:

Participants are eligible for an accidental disability benefit, regardless of service or age, if they become permanently and totally incapacitated for further duty as a result of personal injury sustained while in the performance of duties.

b. Benefit Amount:

The accidental disability amount is 72% of annual salary plus \$871.56 per year for each child plus an additional annuity based upon accumulated Member Contributions with credited interest.

**10. Ordinary Disability**

a. Eligibility:

An ordinary disability occurs when a member becomes permanently and totally disabled due to sickness or injury that is not job related. In order to be eligible for an ordinary disability benefit, a member must have ten years of service (and be less than age 55 or age 60 if hired on or after April 2, 2012).

b. Benefit Amount:

The ordinary disability amount is equal to the accrued retirement benefit as if the member were age 55 (age 60 if hired on or after April 2, 2012). If the member was a veteran, the benefit is 50% of the member's final rate of Salary during the preceding 12 months, plus an annuity based upon accumulated Member Contributions plus credited interest. If the participant is over age 55 (age 60 if hired on or after April 2, 2012), he will receive not less than the superannuation allowance to which he is entitled.

**11. Survivor Benefits**

a. Occupational Death:

The survivors of a member who dies due to an occupational injury will be entitled to a lump sum return of contributions plus a pension benefit equal to 72% of the participant's annual Salary.

b. Non-Occupational Death:

Upon the death of a member other than due to an occupational injury, the designated beneficiary will be entitled to a retirement benefit as if Option C had been elected with a minimum of \$250 per month to the surviving spouse, plus \$120 for the first child, plus \$90 for each additional child. If no beneficiary is designated and if the employee worked two years, and is married at least one year, the spouse may elect benefits. If there is no designated beneficiary or surviving spouse, then member contributions are returned. If there are dependent children but no surviving spouse, they may elect minimum survivor benefits of \$250 per month plus \$120 for the first child and \$90 for each additional child.

c. Refund of Contributions:

Upon the death of a member not entitled to survivor benefits, the beneficiary is entitled to a refund of all member contributions with interest.

**12. Cost-of-Living Increases**

In accordance with the adoption of Chapter 17 of the Acts of 1997, the granting of a cost-of-living adjustment will be determined by an annual vote by the Retirement Board. The amount of increase will be based upon the Consumer Price Index, limited to a maximum of 3.0%, beginning on July 1. All retirees, disabled retirees, and beneficiaries who have been receiving benefits payments for at least one year as of July 1 are eligible for the adjustment. The maximum amount of pension benefit subject to a COLA is \$15,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

**13. Postretirement Death Benefits**

Any benefits following the death of a member after retirement are based upon the form of benefit the participant elected at the time of retirement. There are three available forms as

follows:

- (i) Option A – Life annuity
- (ii) Option B – Life annuity with death benefit equal to excess of member contributions plus credited interest to retirement over annuity benefit paid to member
- (iii) Option C – Life annuity with 66-2/3% of benefit continued after death of member to designated joint annuitant

## **EXHIBIT 5 – ACTUARIAL METHODS AND ASSUMPTIONS:**

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below. They are based on the 2015 Experience Study conducted by Sherman Actuarial Services, LLC.

### **1. Member Data**

The member data used in the determination of cost estimates consist of pertinent information with respect to the active, inactive, retired, and disabled members of the employer as supplied by the employer to the actuary.

### **2. Valuation Date**

January 1, 2016.

### **3. Actuarial Cost Method**

The costs of the Plan have been determined in accordance with the individual entry age normal actuarial cost method.

### **4. Rate of Investment Return**

It is assumed that the assets of the fund will accumulate at a compound annual rate of 8.00% per annum. This includes a 3% inflation assumption.

### **5. Salary Scale**

It is assumed that salaries including longevity will increase at the following rates.

<u>Service</u>	<u>Rate</u>
0 - 1	5.50%
2	5.00%
3 - 4	4.50%
5	4.00%
6 +	3.50%

**6. Cost-of-Living Increases**

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$15,000 per year.

**7. Value of Investments**

Assets held by the fund are valued at market value as reported to the Public Employees' Retirement Administration Commission (PERAC).

**8. Annual Rate of Withdrawal Prior to Retirement**

Based on an analysis of experience, the assumed annual rates of withdrawal may best be illustrated by the following rates at the following ages:

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
0	0.2080	0.0150
5	0.1020	0.0150
10	0.0650	0.0150
15	0.0417	0.0150
20	0.0400	0.0000
30	0.0000	0.0000

**9. Annual Rate of Mortality**

It is assumed that both pre-retirement mortality and beneficiary mortality is represented by the RP-2014 Blue Collar Mortality with Scale MP-2014, fully generational. Mortality for retired members for Group 1 and 2 is represented by the RP-2014 Blue Collar Mortality Table set forward five years for males and 3 years for females, fully generational. Mortality for retired members for Group 4 is represented by the RP-2014 Blue Collar Mortality Table set forward three years for males, and six years for females, fully generational. Mortality for disabled members for Group 1 and 2 is represented by the RP-2000 Mortality Table set forward six years. Mortality for disabled members for Group 4 is represented by the RP-2000 Mortality Table set forward two years. Generational adjusting is based on Scale MP-2014

**Service Retirement**

Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired prior to April 2, 2012:

<b><u>Age</u></b>	<b><u>Male General Employees</u></b>	<b><u>Female General Employees</u></b>	<b><u>Male and Female Police and Fire Employees</u></b>
50	0.0360	0.1019	0.0144
51	0.0405	0.0714	0.0144
52	0.0437	0.0562	0.0123
53	0.0366	0.0448	0.0210
54	0.0451	0.0488	0.0569
55	0.0477	0.0469	0.0879
56	0.0574	0.0518	0.0931
57	0.0632	0.0509	0.0897
58	0.0765	0.0552	0.0846
59	0.0917	0.0645	0.1022
60	0.1057	0.0774	0.1455
61	0.1224	0.1038	0.1844
62	0.1473	0.1168	0.2741
63	0.1777	0.1440	0.1984
64	0.2136	0.1708	0.4139
65	0.2615	0.1939	1.00000
66	0.2682	0.1959	1.00000
67	0.2500	0.2000	1.00000
68	0.2500	0.2000	1.00000
69	0.2500	0.2000	1.00000
70 to 76	0.2500	0.2500	1.00000
77 to 79	0.3500	0.2500	1.00000
80	1.0000	1.0000	1.00000

10. Based on an analysis of experience, the assumed annual retirement rates are illustrated at the following ages for those hired on or after April 2, 2012:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0000	0.0000	0.0072
51	0.0000	0.0000	0.0072
52	0.0000	0.0000	0.0062
53	0.0000	0.0000	0.0105
54	0.0000	0.0000	0.0105
55	0.0000	0.0000	0.0389
56	0.0000	0.0000	0.0631
57	0.0000	0.0000	0.0897
58	0.0000	0.0000	0.0846
59	0.0000	0.0000	0.1022
60	0.0477	0.0469	0.1455
61	0.0574	0.0518	0.1844
62	0.0632	0.0509	0.2741
63	0.0765	0.0552	0.1984
64	0.0917	0.0645	0.4139
65	0.1057	0.0774	1.0000
66	0.1224	0.1038	1.0000
67	0.1473	0.1168	1.0000
68	0.1777	0.1440	1.0000
69	0.2136	0.1708	1.0000
70	0.2615	0.1939	1.0000
70 to 76	0.2682	0.1959	1.0000
77 to 79	0.2500	0.2000	1.0000
80	1.0000	1.0000	1.0000



**12. Annual Rate of Disability Prior to Retirement**

Based on an analysis of experience, the assumed annual rates of disability may best be illustrated by the following probabilities at the following ages:

<b><u>Attained Age</u></b>	<b><u>General Employees</u></b>	<b><u>Police and Fire Employees</u></b>
20	0.000100	0.000500
30	0.000152	0.000967
40	0.000663	0.002500
50	0.001271	0.007634

In addition, it is assumed for the general employees that 20% of all disabilities are ordinary (80% are service connected). For police and fire employees, 10% of all disabilities are assumed to be ordinary (90% are service connected).

**13. Family Composition**

It is assumed that 80% of all members will be survived by a spouse and that females (males) are three years younger (older) than members.

**14. Administrative Expenses**

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2016 is \$1,700,000 and is anticipated to increase at 4.0% per year.

## CERTIFICATION:

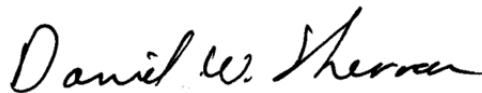
This report fairly represents the actuarial position of the Norfolk County Retirement System as of December 31, 2016, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

The funded status measure is appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the plan's benefit obligations. The funded status measure is appropriate for assessing the need for or the amount of future contributions. The funded status measure would be different if the measure reflected the market value of assets rather than the actuarial value of assets.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as 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 our assignment, we did not perform an analysis of the potential range of such future measurements.

The report was prepared under the supervision of Daniel Sherman, an Associate of the Society of Actuaries and a Member of the American Academy of Actuaries, who takes responsibility for the overall appropriateness of the analysis, assumptions and results. Daniel Sherman is deemed to meet the General Qualification Standard and the basic education and experience requirement in the pension area. Based on over thirty years of performing valuations of similar complexity, Mr. Sherman is qualified by experience. Daniel Sherman has met the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Sherman Actuarial Services, LLC



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Daniel W. Sherman, ASA, MAAA

July 2017