

**NORFOLK COUNTY  
CONTRIBUTORY RETIREMENT SYSTEM**

December 31, 2019 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, 2020, 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, 2020.
- 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, 2019

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2020.

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 7.75% as the long term expectation of investment returns. The average return for the 35 years ending as of December 31, 2019 was 8.59%. The average return for the past 10 years ending December 31, 2019 was 8.59%.

### Net Position Restricted for Pensions

The Net Position Restricted for Pensions as of December 31, 2019 is \$1,070,461,310. The 2019 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, 2018 Net Position	911,848,561
Employer Contributions	74,899,528
Employee Contributions	33,722,562
Other Payments	3,760,532
Benefit Payments	(108,549,848)
Expenses	(1,233,819)
Investment Income	<u>156,013,794</u>
December 31, 2019 Net Position	1,070,461,310

**Pension Liability as of December 31, 2019**

The following presents the changes in the pension liability during 2019.

December 31, 2018 Liability	1,562,788,950
Service Cost	36,227,627
Interest on Liability and Service Cost	119,795,962
Change in Plan Provisions	5,395,128
Experience (Gain) and Loss	41,916,868
Change in Assumptions	0
Benefit Payments	(108,549,848)
Other	<u>0</u>
December 31, 2019 Liability	1,657,574,687

**Net Pension Liability as of December 31, 2019**

The following presents the net pension liability of the system calculated using the discount rate of 7.75%, 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 (6.75%) or 1-percentage-point higher (8.75%) than the current rate:

	<b>1% Decrease (6.75%)</b>	<b>Current Discount Rate (7.75%)</b>	<b>1% Increase (8.75%)</b>
Total Pension Liability	1,833,006,648	1,657,574,687	1,508,510,352
Plan Fiduciary Net Position	<u>1,070,461,310</u>	<u>1,070,461,310</u>	<u>1,070,461,310</u>
Net Pension Liability	762,545,338	587,113,377	438,049,042

The Plan Fiduciary Net Position as a percentage of the Total Pension Liability is 64.6%.

		<b>1% Decrease (6.75%)</b>	<b>Current Discount Rate (7.75%)</b>	<b>1% Increase (8.75%)</b>
Avon Housing Auth.	AHA	131,158	100,984	75,344
Town of Avon	AVO	13,500,103	10,394,255	7,755,220
Town of Bellingham	BEL	33,864,638	26,073,705	19,453,758
Bellingham Hous. Auth.	BHA	318,744	245,413	183,104
Town of Canton	CAN	57,370,861	44,172,062	32,957,058
Canton Housing Auth.	CHA	933,355	718,627	536,172
Cohasset Housing Auth.	CHH	179,961	138,559	103,380
Town of Cohasset	COH	25,071,728	19,303,701	14,402,614
Charles Riv. Poll. Cont.	CRP	1,795,794	1,382,652	1,031,605
County of Norfolk	CTY	39,808,679	30,650,254	22,868,350
Town of Dover	DOV	14,467,010	11,138,715	8,310,666
Dover/Shearborne Schl.	DSR	8,962,958	6,900,931	5,148,828
Foxboro Housing Auth.	FHA	835,750	643,476	480,102
Franklin Housing Auth.	FHH	935,643	720,388	537,486
Town of Foxboro	FOX	49,316,857	37,970,971	28,330,384
Town of Franklin	FRA	58,696,927	45,193,052	33,718,825
Holbrook Housing Auth	HHA	430,838	331,719	247,498
Town of Holbrook	HOL	21,796,596	16,782,049	12,521,194
Massachusetts Respiratory	HOS	-	-	-
King Phillip Reg School	KPR	7,646,805	5,887,573	4,392,756
Town of Medway	MDW	26,756,191	20,600,634	15,370,265
Town of Medfield	MED	28,244,679	21,746,679	16,225,337
Medfield Housing Auth.	MHA	154,034	118,597	88,486
Medway Housing Auth.	MHH	920,392	708,646	528,725
Town of Millis	MIL	18,512,313	14,253,351	10,634,517
Millis Housing Auth.	MLH	459,815	354,029	264,144
Norfolk Housing Auth.	NHA	354,584	273,008	203,693
Norfolk Cnty Mos. Con.	NMC	2,138,177	1,646,266	1,228,290
Town of Norfolk	NOR	23,017,431	17,722,017	13,222,510
Town of Plainville	PLA	20,077,819	15,458,695	11,533,831
Town of Randolph	RAN	63,555,104	48,933,552	36,509,635
Norfolk County Ret BD	RET	-	-	-
Randolph Housing Auth	RHA	1,017,998	783,796	584,795
Town of Sharon	SHA	45,145,734	34,759,460	25,934,255
Sharon Housing Auth.	SHH	138,021	106,268	79,287
Stoughton Hous. Auth.	STH	847,950	652,870	487,111
Town of Stoughton	STO	59,961,228	46,166,486	34,445,110
Town of Walpole	WAL	51,811,143	39,891,418	29,763,242
Town of Westwood	WES	55,040,522	42,377,844	31,618,380
Walpole Housing Auth.	WHA	589,448	453,839	338,612
Town of Wrentham	WRE	21,849,212	16,822,560	12,551,419
Wrentham Hous. Auth.	WRH	293,580	226,039	168,649
Dedham-Westwood Water Dist	DWW	5,595,558	4,308,238	3,214,404
Metacomet Emergency Comm	MEC	-	-	-

**Employer Contributions during 2019**

	<u>Unit</u>	<u>Contribution</u>	<u>Portion</u>
Avon Housing Auth.	AHA	12,894	0.000172
Town of Avon	AVO	1,326,058	0.017704
Town of Bellingham	BEL	3,326,269	0.044410
Bellingham Hous. Auth.	BHA	31,271	0.000418
Town of Canton	CAN	5,635,051	0.075236
Canton Housing Auth.	CHA	91,654	0.001224
Cohasset Housing Auth.	CHH	17,653	0.000236
Town of Cohasset	COH	2,462,635	0.032879
Charles Riv. Poll. Cont.	CRP	176,400	0.002355
County of Norfolk	CTY	3,910,135	0.052205
Town of Dover	DOV	1,421,027	0.018972
Dover/Shearborne Schl.	DSR	880,379	0.011754
Foxboro Housing Auth.	FHA	82,115	0.001096
Franklin Housing Auth.	FHH	91,921	0.001227
Town of Foxboro	FOX	4,844,077	0.064674
Town of Franklin	FRA	5,765,354	0.076975
Holbrook Housing Auth	HHA	42,315	0.000565
Town of Holbrook	HOL	2,140,930	0.028584
Massachusetts Respiratory	HOS	-	-
King Phillip Reg School	KPR	751,063	0.010028
Town of Medway	MDW	2,628,086	0.035088
Town of Medfield	MED	2,774,283	0.037040
Medfield Housing Auth.	MHA	15,162	0.000202
Medway Housing Auth.	MHH	90,396	0.001207
Town of Millis	MIL	1,818,303	0.024277
Millis Housing Auth.	MLH	45,156	0.000603
Norfolk Housing Auth.	NHA	34,836	0.000465
Norfolk Cnty Mos. Con.	NMC	209,996	0.002804
Town of Norfolk	NOR	2,260,845	0.030185
Town of Plainville	PLA	1,972,106	0.026330
Town of Randolph	RAN	6,242,598	0.083346
Norfolk County Ret BD	RET	-	-
Randolph Housing Auth	RHA	100,000	0.001335
Town of Sharon	SHA	4,434,384	0.059204
Sharon Housing Auth.	SHH	13,559	0.000181
Stoughton Hous. Auth.	STH	83,283	0.001112
Town of Stoughton	STO	5,889,570	0.078633
Town of Walpole	WAL	5,089,078	0.067945
Town of Westwood	WES	5,406,233	0.072180
Walpole Housing Auth.	WHA	57,932	0.000773
Town of Wrentham	WRE	2,146,064	0.028653
Wrentham Hous. Auth.	WRH	28,867	0.000385
Dedham-Westwood Water Dist	DWW	549,590	0.007338
Metacomet Emergency Comm	MEC	-	0.000000



**Pension Expense for 2019**

Service Cost	36,227,627
Interest	119,795,962
Difference in Experience - Amortization	27,025,939
Change in Assumptions - Amortization	(2,085,239)
Changes in Plan Provisions	5,395,128
Employee Contributions	(33,722,562)
Projected Earnings	(70,767,094)
Administration Expense	1,233,819
Other Changes in Fiduciary Net Position	0
Asset (Gain) / Loss Amortization	<u>10,299,531</u>
Total Expense	93,403,112

**Reconciliation of Net Pension Liability for 2019**

NPL Beginning	650,940,389
Expense*	93,403,102
Contribution	(74,899,528)
Deferred Outflow changes	(33,425,087)
Deferred Inflow changes	(45,144,962)
Revenue	<u>(3,760,536)</u>
NPL Ending	587,113,377

\*Due to rounding, the Town of Avon's portion was reduced by .000001 so that the sum of the Unit NPL's equaled the total. This adjustment also impacted the Expense by Unit. The selection of Avon was purely arbitrary.

**Schedules of Required Supplementary Information**

	<u>2019</u>
Total Pension Liability – Beginning	1,562,788,950
Total Pension Liability – Ending (a)	1,657,574,687
Plan Fiduciary Net Position – Beginning	911,848,561
Plan Fiduciary Net Position – Ending (b)	1,070,461,310
Net Pension Liability – Ending (a) – (b)	587,113,377
Plan Fiduciary Net Positions as a percentage of the Total Pension Liability	64.6%
Covered-employee payroll	312,868,862
Net Pension Liability as a percentage of Covered-employee Payroll	187.7%

**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>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
2019	(85,246,700)	5	(17,049,340)	(17,049,340)	(17,049,340)	(17,049,340)	(17,049,340)
2018	127,723,896	5	25,544,779	25,544,779	25,544,779	25,544,780	
2017	(58,699,395)	5	(11,739,879)	(11,739,879)	(11,739,879)		
2016	(7,466,805)	5	(1,493,361)	(1,493,361)			
2015	75,186,656	5	15,037,332				

Experience

<u>Year</u>	<u>(Gain) / Loss</u>	<u>Period</u>	<u>Increase (Decrease) arising from (Gains) or Losses</u>				
			<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
2019	41,916,868	4.19	10,004,026	10,004,026	10,004,026	10,004,026	1,900,764
2017	61,837,812	4.27	14,481,923	14,481,923	3,910,120		
2015	13,828,826	4.90	2,539,988				

Assumptions

<u>Year</u>	<u>(Gain) / Loss</u>	<u>Period</u>	<u>Increase (Decrease) arising from (Gains) or Losses</u>				
			<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
2017	36,207,214	4.27	8,479,441	8,479,441	2,289,450		
2015	(57,518,820)	4.90	(10,564,681)				

	<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	100,984	10,394,255	26,073,705	245,413	44,172,062	718,627
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	8,653	890,598	2,234,039	21,027	3,784,739	61,573
Net Asset Loss	13,182	1,356,735	3,403,332	32,034	5,765,661	93,801
Changes in Assumptions	1,852	190,652	478,246	4,501	810,208	13,181
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	274	6,594	146,313	0	188,613	0
Total Deferred Outflows	23,961	2,444,579	6,261,930	57,562	10,549,221	168,555
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	16,025	1,649,490	4,137,701	38,944	7,009,775	114,041
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	68,489	450,826	248,210	24,251	246,484	119,960
Total Deferred Inflows	84,514	2,100,316	4,385,911	63,196	7,256,259	234,000
Pension Expense						
Proportionate share of plan Pension Expense	16,065	1,653,609	4,148,032	39,043	7,027,276	114,325
Net Amortization from changes in Share Proportions	(19,019)	(197,759)	10,549	(22,344)	(85,421)	(54,575)
Total Employer Pension Expense	(2,954)	1,455,850	4,158,581	16,699	6,941,855	59,750
Revenue	647	66,576	167,005	1,572	282,927	4,603

	<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	138,559	19,303,701	1,382,652	30,650,254	11,138,715	6,900,931
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	11,872	1,653,974	118,468	2,626,167	954,384	591,285
Net Asset Loss	18,087	2,519,661	180,474	4,000,695	1,453,908	900,759
Changes in Assumptions	2,541	354,071	25,361	562,190	204,307	126,577
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	0	309,810	15,731	3,275,481	20,094	302,165
Total Deferred Outflows	32,500	4,837,516	340,034	10,464,533	2,632,693	1,920,786
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	21,989	3,063,352	219,416	4,863,964	1,767,630	1,095,127
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	4,008	1,398,855	12,693	447,740	97,882	36,487
Total Deferred Inflows	25,997	4,462,207	232,109	5,311,704	1,865,512	1,131,614
Pension Expense						
Proportionate share of plan Pension Expense	22,043	3,071,001	219,964	4,876,109	1,772,044	1,097,860
Net Amortization from changes in Share Proportions	(2,931)	(78,468)	(7,571)	2,191,140	(81,482)	78,440
Total Employer Pension Expense	19,112	2,992,533	212,393	7,067,249	1,690,562	1,176,300
Revenue	887	123,643	8,856	196,319	71,345	44,201

	<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	643,476	720,388	37,970,971	45,193,052	331,719	16,782,049
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	55,133	61,724	3,253,418	3,872,218	28,422	1,437,915
Net Asset Loss	83,991	94,029	4,956,249	5,898,927	43,299	2,190,516
Changes in Assumptions	11,802	13,213	696,467	828,935	6,085	307,818
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	105,035	4,998	834,133	1,006,381	13,928	8,114
Total Deferred Outflows	255,961	173,964	9,740,267	11,606,461	91,734	3,944,363
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	102,115	114,320	6,025,708	7,171,798	52,642	2,663,185
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	15,971	13,184	236,178	400,628	69,139	649,735
Total Deferred Inflows	118,086	127,504	6,261,886	7,572,426	121,781	3,312,921
Pension Expense						
Proportionate share of plan Pension Expense	102,370	114,606	6,040,753	7,189,705	52,773	2,669,835
Net Amortization from changes in Share Proportions	9,312	8	17,274	(106,037)	(2,201)	(316,360)
Total Employer Pension Expense	111,682	114,614	6,058,027	7,083,668	50,572	2,353,475
Revenue	4,122	4,614	243,209	289,467	2,125	107,491

	<u>Massachusetts</u>	<u>King Phillip</u>	<u>Town of</u>	<u>Town of</u>	<u>Medfield</u>	<u>Medway</u>
	<u>Respiratory</u>	<u>Reg School</u>	<u>Medway</u>	<u>Medfield</u>	<u>Housing Auth.</u>	<u>Housing Auth.</u>
Net Pension Liability	0	5,887,573	20,600,634	21,746,679	118,597	708,646
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	0	504,458	1,765,098	1,863,293	10,161	60,719
Net Asset Loss	0	768,489	2,688,945	2,838,537	15,480	92,499
Changes in Assumptions	0	107,991	377,859	398,879	2,175	12,998
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	0	30,694	276,135	484,286	9	806
Total Deferred Outflows	0	1,411,632	5,108,037	5,584,995	27,825	167,022
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	0	934,314	3,269,166	3,451,034	18,820	112,457
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	0	436,705	115,204	118,790	21,692	48,223
Total Deferred Inflows	0	1,371,019	3,384,370	3,569,824	40,511	160,680
Pension Expense						
Proportionate share of plan Pension Expense	0	936,646	3,277,328	3,459,651	18,867	112,738
Net Amortization from changes in Share Proportions	0	(99,035)	191,644	111,224	(16,139)	(17,732)
Total Employer Pension Expense	0	837,611	3,468,972	3,570,875	2,728	95,006
Revenue	0	37,711	131,950	139,290	760	4,539

	<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	14,253,351	354,029	273,008	1,646,266	17,722,017	15,458,695
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	1,221,252	30,334	23,391	141,055	1,518,453	1,324,527
Net Asset Loss	1,860,453	46,212	35,634	214,884	2,313,207	2,017,782
Changes in Assumptions	261,436	6,494	5,008	30,196	325,059	283,545
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	13,793	39,272	14,408	14,995	11,191	210,472
Total Deferred Outflows	3,356,934	122,313	78,441	401,129	4,167,910	3,836,326
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	2,261,899	56,182	43,324	261,250	2,812,350	2,453,178
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	405,222	675	152	19,340	163,900	175,719
Total Deferred Inflows	2,667,121	56,857	43,476	280,590	2,976,250	2,628,897
Pension Expense						
Proportionate share of plan Pension Expense	2,267,547	56,322	43,432	261,902	2,819,373	2,459,304
Net Amortization from changes in Share Proportions	(264,146)	25,887	13,162	6,504	(82,263)	138,058
Total Employer Pension Expense	2,003,401	82,209	56,594	268,406	2,737,110	2,597,362
Revenue	91,294	2,268	1,749	10,545	113,512	99,015



	<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>Sharon</u> <u>Housing Auth.</u>	<u>Stoughton</u> <u>Hous. Auth.</u>
Net Pension Liability	48,933,552	0	783,796	34,759,460	106,268	652,870
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	4,192,711	0	67,157	2,978,251	9,105	55,939
Net Asset Loss	6,387,165	0	102,306	4,537,059	13,872	85,218
Changes in Assumptions	897,543	0	14,376	637,562	1,949	11,975
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	1,022,387	0	169,129	230,106	2,149	23,614
Total Deferred Outflows	12,499,805	0	352,968	8,382,978	27,075	176,746
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	7,765,387	0	124,382	5,516,066	16,864	103,605
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	266,755	0	46,269	559,707	80,967	46,987
Total Deferred Inflows	8,032,142	0	170,651	6,075,773	97,831	150,593
Pension Expense						
Proportionate share of plan Pension Expense	7,784,776	0	124,693	5,529,838	16,906	103,864
Net Amortization from changes in Share Proportions	95,739	0	(6,822)	(495,413)	(21,548)	(46,158)
Total Employer Pension Expense	7,880,515	0	117,871	5,034,425	(4,642)	57,706
Revenue	313,425	0	5,020	222,639	681	4,182

	<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	46,166,486	39,891,418	42,377,844	453,839	16,822,560	226,039
Deferred Outflows of Resources						
Differences between Expected and Actual Experience	3,955,624	3,417,965	3,631,006	38,887	1,441,387	19,367
Net Asset Loss	6,025,989	5,206,920	5,531,466	59,238	2,195,805	29,505
Changes in Assumptions	846,790	731,693	777,299	8,325	308,561	4,146
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	631,502	15,951	484,378	533	383,338	6,194
Total Deferred Outflows	11,459,905	9,372,529	10,424,149	106,983	4,329,091	59,212
Deferred Inflows of Resources						
Differences between Expected and Actual Experience	0	0	0	0	0	0
Net Asset Gain	7,326,274	6,330,468	6,725,044	72,021	2,669,614	35,871
Changes in Assumptions	0	0	0	0	0	0
Changes in Proportion and Differences between Employer						
Contributions and proportionate share of contributions	405,915	1,864,413	339,284	29,486	91,196	5,618
Total Deferred Inflows	7,732,189	8,194,880	7,064,328	101,507	2,760,810	41,489
Pension Expense						
Proportionate share of plan Pension Expense	7,344,567	6,346,274	6,741,837	72,201	2,676,279	35,960
Net Amortization from changes in Share Proportions	(205,574)	(827,682)	312,792	(24,444)	28,243	(4,228)
Total Employer Pension Expense	7,138,993	5,518,592	7,054,629	47,757	2,704,522	31,732
Revenue	295,702	255,509	271,435	2,907	107,751	1,448

	<u>Dedham- Westwood Water Dist</u>	<u>Metacomet Emergency Comm</u>	<u>Total</u>
Net Pension Liability	4,308,238	0	587,113,377
Deferred Outflows of Resources			
Differences between Expected and Actual Experience	369,136	0	50,304,885
Net Asset Loss	562,344	0	76,634,349
Changes in Assumptions	79,022	0	10,768,888
Changes in Proportion and Differences between Employer			
Contributions and proportionate share of contributions	5,102	0	10,308,106
Total Deferred Outflows	1,015,604	0	148,016,228
Deferred Inflows of Resources			
Differences between Expected and Actual Experience	0	0	0
Net Asset Gain	683,685	0	93,170,478
Changes in Assumptions	0	0	0
Changes in Proportion and Differences between Employer			
Contributions and proportionate share of contributions	525,167	0	10,308,105
Total Deferred Inflows	1,208,852	0	103,478,583
Pension Expense			
Proportionate share of plan Pension Expense	685,392	0	93,403,110
Net Amortization from changes in Share Proportions	(144,632)	0	(8)
Total Employer Pension Expense	540,760	0	93,403,102
Revenue	27,595	0	3,760,536

**EXHIBITS**

Exhibit 1 - Age/Service Distribution with Salary as of January 1, 2020

Attained Age	Average Salary <5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	2 21,317	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	2 21,317
20-24	212 34,359	1 48,369	0 0	0 0	0 0	0 0	0 0	0 0	0 0	213 34,425
25-29	389 42,641	49 59,282	4 25,816	1 33,886	0 0	0 0	0 0	0 0	0 0	443 44,310
30-34	263 48,126	174 63,705	28 77,556	0 0	0 0	0 0	0 0	0 0	0 0	465 55,728
35-39	203 45,417	117 64,509	112 76,403	38 85,423	1 31,052	0 0	0 0	0 0	0 0	471 60,725
40-44	210 36,918	93 58,196	76 74,495	82 81,959	25 85,475	2 71,414	0 0	0 0	0 0	488 57,023
45-49	217 38,090	113 46,822	79 63,781	76 77,018	93 92,351	32 92,629	3 66,193	0 0	0 0	613 59,054
50-54	261 39,683	160 43,012	123 46,708	111 62,808	123 82,174	79 96,983	45 90,202	0 0	0 0	902 57,410
55-59	196 35,443	148 45,550	171 45,968	153 51,726	119 63,981	62 79,501	51 98,278	20 86,232	1 78,998	921 53,009
60-64	96 39,233	72 41,939	112 46,840	155 46,861	138 57,058	41 68,354	53 79,658	15 101,544	7 116,397	689 53,021
65-69	33 35,142	27 53,790	36 45,151	51 45,179	58 48,930	23 61,240	21 58,959	2 94,627	5 67,890	256 49,042
70+	12 26,014	15 43,720	22 49,413	13 31,984	18 54,268	15 43,519	12 55,041	6 54,325	3 84,070	116 46,027
Total Employees	2,094	969	763	680	575	254	185	43	16	5,579
Average Salary	40,283	52,673	56,483	59,887	69,855	80,951	83,191	87,512	92,840	53,877

## Exhibit 2 - Retiree Distribution as of January 1, 2020

Attained Age	Number of Employees			Total Payments		
	Female	Male	Total	Female	Male	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	2	0	2	34730.4	0	34,730
35-39	3	1	4	21,465	6,180	27,645
40-44	3	2	5	53,669	35,391	89,060
45-49	5	1	6	70,929	24,412	95,341
50-54	11	14	25	192,326	451,275	643,601
55-59	52	82	134	734,452	3,501,130	4,235,581
60-64	187	168	355	3,152,398	7,559,807	10,712,205
65-69	358	302	660	7,731,755	12,975,596	20,707,351
70-74	398	278	676	8,644,612	10,889,187	19,533,800
75-79	294	209	503	6,189,735	7,423,253	13,612,989
80-84	232	121	353	4,879,563	3,897,363	8,776,926
85-89	176	79	255	3,118,068	2,048,333	5,166,400
90-94	92	30	122	1,294,997	696,024	1,991,021
95+	36	10	46	347,587	252,529	600,116
Total	1849	1297	3146	36,466,289	49,760,477	86,226,766
Average (Age/Payment)	74.61	71.98	73.53	19,722	38,366	27,408
Frequency Percent	58.8	41.2	100	42.3	57.7	100

## Exhibit 3 - Disabled Retiree Distribution as of January 1, 2020

Attained Age	Number of Employees			Total Payments		
	Female	Male	Total	Female	Male	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	1	0	1	6,008	0	6,008
35-39	0	2	2	0	87,120	87,120
40-44	1	2	3	54,693	103,488	158,180
45-49	2	10	12	59,181	410,318	469,499
50-54	4	34	38	168,831	1,401,850	1,570,681
55-59	16	34	50	495,959	1,506,354	2,002,313
60-64	9	36	45	195,503	1,520,263	1,715,767
65-69	10	53	63	253,270	2,264,788	2,518,058
70-74	12	49	61	282,290	1,882,529	2,164,818
75-79	7	35	42	206,366	1,184,475	1,390,841
80-84	3	24	27	84,596	716,048	800,644
85-89	3	8	11	55,147	213,343	268,490
90-94	2	1	3	32,598	17,394	49,992
95-99	0	0	0	0	0	0
Total	70	288	358	1,894,441	11,307,969	13,202,411
Average (Age/Payment)	66.24	66.95	66.81	27,063	39,264	36,878
Frequency Percent	19.6	80.4	100	14.3	85.7	100

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

This summary is prepared in accordance with Chapter 32 as of January 1, 2020, 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:

<b><u>Date of Hire</u></b>	<b><u>Member Contribution Rate</u></b>
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		
	Group 1	Group 2	Group 4
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 \$18,000. 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, 2020.

### 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 7.75% 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 \$18,000 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:

<u>Attained Age</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
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 2019 is \$1,775,000 and is anticipated to increase at 4.0% per year.

## CERTIFICATION:

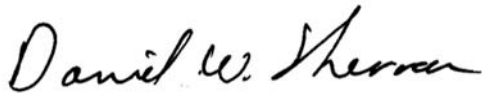
This report fairly represents the actuarial position of the Norfolk County Retirement System as of December 31, 2019, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued 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

October, 2020