

**PLYMOUTH COUNTY
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report

January 1, 2019

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Report Summary:

<u>Highlights</u>	<u>January 1, 2017</u>	<u>January 1, 2019</u>
<u>Contributions</u>		
Funding Schedule FY 2020	\$75,167,695	\$75,167,695
Funding Schedule FY 2021	77,267,153	81,152,214
<u>Funded Ratios</u>		
Using Actuarial Value of Assets	61.7%	61.9%
<u>Participants</u>		
Actives	5,815	5,669
Retirees and Beneficiaries	3,602	3,791
Vested	0	0
Inactives	1,808	1,742
Disabled	<u>366</u>	<u>378</u>
Total	11,591	11,580
<u>Payroll</u>		
Payroll of Active Members	\$265,029,194	\$281,665,696
Average Payroll	45,577	49,685
<u>Normal Cost</u>		
Employer	3,718,064	3,992,382
Employee	23,089,568	24,890,994
Administrative Expenses	<u>2,000,000</u>	<u>2,000,000</u>
Total	28,807,632	30,883,376
<u>Actuarial Accrued Liabilities</u>		
Actives	652,084,974	700,960,296
Retirees, Beneficiaries, Disabilities and Inactives	<u>868,005,471</u>	<u>968,236,518</u>
Total	1,520,090,445	1,669,196,814
<u>Actuarial Value of Assets</u>	<u>937,406,228</u>	<u>1,033,377,380</u>
<u>Unfunded Actuarial Accrued Liabilities</u>	\$582,684,217	\$635,819,434

Introduction

The purpose of this report is to present the findings of an actuarial valuation as of January 1, 2019, of the Plymouth 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, 2019.
- Employee data provided by the Retirement Board
- Asset information reported to the Public Employee Retirement Administration Commission by the Plymouth County Contributory Retirement System
- Actuarial assumptions approved by the Retirement Board

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2019. The report also includes results under GASB Statements #25 and #27.

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.

Actuarial Experience

In performing the actuarial valuation, various assumptions are made regarding such factors as mortality, retirement, disability, and withdrawal rates as well as both payroll, salary increases, and investment returns. A comparison of the current valuation and the prior valuation is made to determine how closely actual experience corresponded to anticipated occurrences. This analysis of the system provides insight into the overall quality of the actuarial assumptions and helps explain any change in the annual appropriation.

During the last two years, the total unfunded actuarial accrued liability increased by 9.1% to \$635,819,434. The increase is the result of changes in the actuarial assumptions and net unfavorable actuarial experience during the preceding years. The sources of change are as follows:

Asset losses	36,075,425
Salary Increases	6,008,883
New Participants	10,436,282
Active - Retirements	(12,094,249)
Active - Terminations	(3,065,366)
Active - Mortality	(1,739,575)
Active - Disabilities	2,396,577
Inactive - Mortality and data adjustments	41,898,166
Benefit Payments	20,936,593
Other, including data, contribution interest, purchased service	<u>1,412,899</u>
Total (Gain) / Loss	102,265,633

The investment return assumption was lowered to 7.875%. This change increased the Accrued Liability by \$19,750,049, and the Normal Cost by \$605,977.

Actuarial Costs and Liabilities:

Normal Costs

The normal cost is the sum of the individual normal costs determined for each member as if the assumptions underlying the cost determinations had been exactly realized. An individual normal cost represents that part of the cost of a member's future benefits which are assigned to the current year as if the costs are to remain level as a percentage of the member's pay. Benefits payable under all circumstances (i.e., retirement, death, disability, and terminations) are included in this calculation. Anticipated employee contributions to be made during the year are subtracted from the total normal cost to determine employer normal cost. The total normal cost is divided by total payroll to determine the normal cost as a percent of pay. The normal cost is shown in Table I.

Table I

	<u>January 1, 2017</u>	<u>January 1, 2019</u>
Superannuation	\$15,706,063	\$17,046,975
Termination	5,916,605	6,245,441
Death	2,050,994	2,171,734
Disability	3,133,970	3,419,226
Administrative Expenses	<u>2,000,000</u>	<u>2,000,000</u>
Total Normal Cost	28,807,632	30,883,376
% of Pay	10.9%	11.0%
Employee Contributions	23,089,568	24,890,994
% of Pay	8.7%	8.8%
Employer Normal Cost	\$5,718,064	\$5,992,382
% of Pay	2.2%	2.1%

Present Value of Actuarial Accrued Liabilities

The actuarial accrued liabilities (AAL) represents a portion of today's value of all projected benefits attributable to past service for the actives and inactive. The AAL can be compared to the assets to determine the funded status of the Plan. The value of these earned benefits is shown in Table II below.

Table II

	<u>January 1, 2017</u>	<u>January 1, 2019</u>
Actives		
Superannuations	\$592,548,579	\$637,344,631
Termination	10,466,136	11,275,190
Death	26,794,117	28,748,413
Disability	22,276,142	23,592,062
Retirees and Inactives		
Retirees and Beneficiaries	734,401,238	822,443,295
Vested	0	0
Terminated (Refund)	13,231,295	15,229,963
Disabled	<u>120,372,938</u>	<u>130,563,260</u>
Total	\$1,520,090,445	\$1,669,196,814

Present Value of Future Benefits

The present value of future benefits represents today's value of all benefits earned by the inactive participants as well as all benefits earned and expected to be earned in the coming years by the active participants. The difference between the present value of future benefits and the present value of actuarial accrued liabilities is the value of benefits to be earned in the coming years. The value of the total expected benefits is shown in Table III.

Table III

	<u>January 1, 2017</u>	<u>January 1, 2019</u>
Actives		
Superannuation	\$697,909,843	\$751,660,811
Termination	39,989,484	43,640,081
Death	38,895,554	41,690,611
Disability	44,025,957	47,562,893
Retirees and Inactives		
Retirees and Beneficiaries	734,401,238	822,443,295
Vested	0	0
Terminated (Refund)	13,231,295	15,229,963
Disabled	<u>120,372,938</u>	<u>130,563,260</u>
Total	<u>\$1,688,826,309</u>	<u>\$1,852,790,914</u>

Funded Status and Appropriations:

Market Value of Plan Assets

The trust fund composition on a market value basis is shown in Table IV.

Table IV

	<u>January 1, 2017</u>	<u>January 1, 2019</u>
Cash equivalents	\$3,126,639	\$12,099,482
Short term investments	6,632,517	6,448,143
Fixed income securities	166,924,643	143,024,572
Equities	458,640,108	399,581,089
International	81,812,790	200,020,170
Real Estate	111,742,432	110,167,658
Venture Capital	0	0
Other	52,164,811	67,263,335
Accounts receivable	6,417,472	4,040,185
Accounts payable	(3,900,129)	(8,148,591)
Accrued income	<u>1,157,441</u>	<u>1,051,163</u>
Total Market Value	\$884,718,724	\$935,547,206
Total Actuarial Value	\$937,406,228	\$1,033,377,380

Actuarial Value of Assets

The actuarial value of assets is determined by projecting the market value of assets as of the beginning of the prior plan year with the assumed rate of return during that year (8.00%) and accounting for deposits and disbursements with interest at the assumed rate of return. An adjustment is then applied to recognize the difference between the actual investment return and expected return over a five year period. This preliminary actuarial value is not allowed to differ from the market value of assets by more than 20%. The calculation of the actuarial value of assets as of January 1, 2019 is presented in Table V.

Table V

	<u>January 1, 2019</u>
(1) Market value at January 1, 2018	\$1,018,385,952
(2) 2018 Contributions	\$107,219,016
(3) 2018 Payments	(\$117,714,373)
(4) Net interest adjustment at 8.25% on (1), (2), and (3) to December 31, 2018	\$82,008,666
(5) Expected market value on January 1, 2019	\$1,089,899,261
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2019	\$935,547,206
(7) 2018 (Gain) / Loss	\$154,352,055
(8) 80% of 2018 (Gain) / Loss	\$123,481,644
(9) 2017 (Gain) / Loss	(\$74,006,545)
(10) 60% of 2017 (Gain) / Loss	(\$44,403,927)
(11) 2016 (Gain) / Loss	\$14,901,448
(12) 40% of 2016 (Gain) / Loss	\$5,960,579
(13) 2015 (Gain) / Loss	\$63,959,388
(14) 20% of 2015 (Gain) / Loss	\$12,791,878
(15) Actuarial value on January 1, 2019, (6) + (8) + (10) + (12) + (14) but not less than 80% nor greater than 120% of (6)	\$1,033,377,380
(16) Ratio of actuarial value to market value	110.46%
(17) Actuarial Value Return for 2017	8.02%
(18) Actuarial Value Return for 2018	4.35%
(19) Market Value Return for 2017	16.31%
(20) Market Value Return for 2018	-7.06%

Unfunded Actuarial Accrued Liabilities

Under the Entry Age Normal Actuarial Cost Method, the Actuarial Accrued Liability represents what the accumulated assets would have been as of the valuation date if:

- current plan provisions and assumptions had always been in effect,
- experience conformed exactly to assumptions, and
- the normal cost had been contributed each year since inception.

The actuarial value of the Fund's assets as of the end of the prior year are subtracted from the Actuarial Accrued Liability (AAL) to determine the Unfunded Actuarial Accrued Liability (UAAL) as of the valuation date. Over time, annual pension contributions will accumulate Plan assets equal to the AAL, and the UAAL will be eliminated. Thereafter, annual contributions equal to the normal cost will keep the Plan's assets and liabilities in balance. The UAAL is developed in Table VI.

Table VI

	<u>January 1, 2017</u>	<u>January 1, 2019</u>
Actuarial Accrued Liability	\$1,520,090,445	\$1,669,196,814
Actuarial Assets	<u>937,406,228</u>	<u>1,033,377,380</u>
Unfunded Actuarial Accrued Liability	\$582,684,217	\$635,819,434
Funded Status	61.7%	61.9%

Appropriations

The pension appropriation for the upcoming fiscal years have been calculated in accordance with the requirements set forth in Section 22D of Chapter 32 of the Massachusetts General Laws. These amounts were calculated to comply with the June 30, 2028, full funding mandate for all accrued liabilities. The pension appropriation is the sum of the:

- Employer normal cost,
- Increasing amortization of the unfunded actuarial accrued liability by June 30, 2029
 \$ 635,298,851 over 10 years with 7.0% increasing payments
- Level amortization of the 2003 Early Retirement Incentive June 30, 2020
 \$ 275,000 over 1 years
- Level amortization of the 2013 Early Retirement Incentive June 30, 2028
 \$ 245,583 over 9 years
- Interest adjustment for payments deposited semiannually.

The pension appropriation is shown in Table VII.

Table VII

	<u>January 1, 2017</u>	<u>January 1, 2019</u>
Normal cost	\$5,718,064	\$5,992,382
Amortization payment of the accrued liability	60,487,067	65,883,383
Amortization payment of 2002 ERI liability	549,533	0
Amortization payment of 2003 ERI liability	275,000	275,000
Amortization payment of 2011 ERI liability	<u>36,401</u>	<u>36,254</u>
Total cost	\$67,066,065	\$72,187,019
% of Pay	25.3%	25.6%
Fiscal 2020 cost	\$75,167,695	\$75,167,695
Fiscal 2021 cost	\$77,267,153	\$81,152,214

Appropriation Forecast

The following exhibit forecasts employer and employee contributions over the next 32 years under the adopted funding schedule.

Note that the forecast is based upon an "open group" method. This method assumes that sufficient employees will be hired each year to keep the number constant. The total payroll of the system is expected to increase 3.75% per year. The employee contribution rate is expected to increase to 10.5% by 2041 as members contributing base percentages 5%, 7%, and 8% are replaced by new members, whose base contribution is 9%. Payments are assumed to be made at the beginning of the year.

The employer total cost is expected to increase during the next 11 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents about 28% of payroll, increasing to about 34% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 1% thereafter. The decrease in the cost as a percentage of payroll is a result of the high rate of increase in amortization payments, offset by the increase in member deductions and the effect of the 2012 pension plan modifications to benefits.

Appropriation Forecast

Fiscal Year	Employee Contribution	Employer Normal Cost with Interest	Amortization Payments with Interest	Employer Total Cost with Interest	Employer Total Cost % of Payroll	Unfunded Liability	Funded Ratio %**
2020	\$24,890,994	\$6,341,794	\$68,825,901	\$75,167,695	26.7	\$635,819,434	61.9
2021	\$26,035,691	\$6,356,006	\$74,796,208	\$81,152,214	27.8	\$615,807,995	63.7
2022	\$27,231,237	\$6,362,367	\$80,029,257	\$86,391,624	28.5	\$588,052,979	66.1
2023	\$28,479,837	\$6,360,266	\$85,628,619	\$91,988,885	29.2	\$552,777,501	68.9
2024	\$29,783,788	\$6,349,061	\$91,619,937	\$97,968,998	30.0	\$509,015,890	72.0
2025	\$31,145,485	\$6,328,071	\$98,030,647	\$104,358,718	30.8	\$455,700,292	75.4
2026	\$32,567,426	\$6,296,578	\$104,890,106	\$111,186,684	31.7	\$391,650,786	79.3
2027	\$34,052,215	\$6,253,825	\$112,229,728	\$118,483,553	32.5	\$315,564,605	83.7
2028	\$35,602,564	\$6,199,011	\$120,083,123	\$126,282,134	33.4	\$226,004,368	88.5
2029	\$37,221,304	\$6,131,291	\$128,447,888	\$134,579,179	34.3	\$121,385,234	94.0
2030	\$38,911,383	\$6,049,775	\$0	\$6,049,775	1.5	(\$0)	100.0
2031	\$40,675,876	\$5,953,523	\$0	\$5,953,523	1.4	(\$0)	100.0
2032	\$42,517,986	\$5,841,544	\$0	\$5,841,544	1.3	(\$0)	100.0
2033	\$44,441,055	\$5,712,795	\$0	\$5,712,795	1.3	(\$0)	100.0
2034	\$46,448,562	\$5,566,175	\$0	\$5,566,175	1.2	(\$0)	100.0
2035	\$48,544,138	\$5,400,526	\$0	\$5,400,526	1.1	(\$0)	100.0
2036	\$50,731,563	\$5,214,624	\$0	\$5,214,624	1.0	(\$0)	100.0
2037	\$53,014,780	\$5,007,186	\$0	\$5,007,186	1.0	(\$0)	100.0
2038	\$55,397,897	\$4,776,857	\$0	\$4,776,857	0.9	(\$0)	100.0
2039	\$57,885,196	\$4,522,212	\$0	\$4,522,212	0.8	(\$0)	100.0
2040	\$60,481,139	\$4,241,751	\$0	\$4,241,751	0.7	(\$0)	100.0
2041	\$63,190,376	\$3,933,896	\$0	\$3,933,896	0.6	(\$0)	100.0
2042	\$66,017,755	\$3,596,987	\$0	\$3,596,987	0.6	(\$0)	100.0
2043	\$68,968,325	\$3,229,278	\$0	\$3,229,278	0.5	(\$0)	100.0
2044	\$71,554,637	\$3,350,376	\$0	\$3,350,376	0.5	(\$0)	100.0
2045	\$74,237,936	\$3,476,015	\$0	\$3,476,015	0.5	(\$0)	100.0
2046	\$77,021,859	\$3,606,366	\$0	\$3,606,366	0.5	(\$0)	100.0
2047	\$79,910,179	\$3,741,604	\$0	\$3,741,604	0.5	(\$0)	100.0
2048	\$82,906,810	\$3,881,915	\$0	\$3,881,915	0.5	(\$0)	100.0
2049	\$86,015,816	\$4,027,486	\$0	\$4,027,486	0.5	(\$0)	100.0
2050	\$89,241,409	\$4,178,517	\$0	\$4,178,517	0.5	(\$0)	100.0
2051	\$92,587,962	\$4,335,212	\$0	\$4,335,212	0.5	(\$0)	100.0

EXHIBITS

Exhibit 1 - Age/Service Distribution with Salary as of January 1, 2019

Attained Age	Average Salary	<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
< 20	2 26,007	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	2 26,007
20-24	187 33,140	3 58,672	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	190 33,543
25-29	340 43,969	51 63,794	1 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	392 46,523
30-34	216 47,416	123 61,879	43 64,310	0 0	0 0	0 0	0 0	0 0	0 0	0 0	382 53,974
35-39	174 43,456	93 59,268	117 73,415	28 73,153	3 87,047	0 0	0 0	0 0	0 0	0 0	415 57,764
40-44	188 35,872	77 51,205	68 71,697	74 74,736	41 83,199	0 0	0 0	0 0	0 0	0 0	448 54,696
45-49	230 32,221	139 40,588	110 53,129	116 68,915	107 82,568	33 84,791	1 157,823	0 0	0 0	0 0	736 52,557
50-54	226 35,180	164 37,822	194 40,415	135 56,112	104 75,554	68 91,247	54 97,146	1 128,421	0 0	0 0	946 51,803
55-59	166 39,282	125 38,400	242 40,212	181 45,332	143 52,649	64 71,140	75 87,849	15 91,396	2 152,132	1,013 48,966	
60-64	93 34,341	73 41,289	143 41,927	185 41,059	136 46,979	66 55,116	52 65,335	18 89,345	6 66,605	772 45,636	
65-69	26 29,381	23 37,233	49 41,174	51 42,066	47 49,602	33 48,064	26 48,812	2 122,165	3 63,265	260 43,861	
70+	20 28,442	11 32,897	15 39,190	17 35,583	15 35,589	13 38,493	14 35,100	5 42,325	4 43,552	114 35,394	
Total Employees	1,868	882	982	787	596	277	222	41	15	5,670	
Average Salary	38,627	46,907	49,132	52,985	62,328	69,603	77,254	86,915	71,193	49,685	

Exhibit 2 - Retiree Distribution as of January 1, 2019

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	0	2	2	0	14,956	14,956
35-39	1	1	2	13,236	10,219	23,455
40-44	0	0	0	0	0	0
45-49	1	7	8	8,776	219,264	228,039
50-54	10	23	33	180,879	827,634	1,008,513
55-59	74	87	161	952,768	3,317,860	4,270,628
60-64	231	213	444	3,188,294	10,002,393	13,190,687
65-69	477	337	814	9,256,838	13,183,067	22,439,905
70-74	480	330	810	9,016,162	11,099,946	20,116,107
75-79	393	270	663	7,171,690	8,279,717	15,451,407
80-84	260	166	426	4,261,619	3,997,656	8,259,275
85-89	172	82	254	2,468,256	1,577,159	4,045,416
90-94	90	35	125	1,119,733	636,431	1,756,164
95+	34	16	50	264,182	228,398	492,580
Total	2223	1569	3792	37,902,433	53,394,699	91,297,132
Average (Age/Payment)	74.2	72.1	73.3	17,050	34,031	24,076
Frequency Percent	58.6	41.4	100	41.5	58.5	100

Exhibit 3 - Disabled Retiree Distribution as of January 1, 2019

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	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	2	4	6	55,095	175,223	230,318
45-49	5	18	23	189,423	798,971	988,394
50-54	6	29	35	278,940	1,139,174	1,418,114
55-59	14	35	49	405,319	1,362,524	1,767,843
60-64	11	45	56	305,546	1,821,072	2,126,618
65-69	12	52	64	231,861	1,750,409	1,982,270
70-74	10	52	62	267,993	1,743,841	2,011,834
75-79	9	40	49	210,908	1,237,695	1,448,603
80-84	1	22	23	7,490	630,908	638,398
85-89	0	9	9	0	218,719	218,719
90-94	0	2	2	0	38,694	38,694
95-99	0	0	0	0	0	0
Total	70	308	378	1,952,577	10,917,228	12,869,805
Average (Age/Payment)	63.4	66.6	66	27,894	35,446	34,047
Frequency Percent	18.5	81.5	100	15.2	84.8	100

EXHIBIT 4 - CASHFLOW FORECAST:

The following is a 30 year forecast of benefit payments net of state reimbursable COLA payments, Contribution Income and Investment Returns.

Plan Year Ending	Benefit Payments	Employee Contributions	Employer Contributions	Investment Returns	Net change in plan assets
2019	\$131,382,879	\$24,890,994	\$75,167,695	\$77,484,764	\$46,160,575
2020	120,656,362	26,035,691	81,152,214	81,741,146	68,272,690
2021	125,338,512	27,231,237	86,391,624	87,048,791	75,333,141
2022	130,064,057	28,479,837	91,988,885	92,918,758	83,323,424
2023	134,896,277	29,783,788	97,968,998	99,422,374	92,278,883
2024	139,533,804	31,145,485	104,358,718	106,647,874	102,618,273
2025	144,046,088	32,567,426	111,186,684	114,702,187	114,410,209
2026	148,358,775	34,052,215	118,483,553	123,703,242	127,880,235
2027	152,445,879	35,602,564	126,282,134	133,784,906	143,223,725
2028	156,426,554	37,221,304	134,579,179	145,090,136	160,464,065
2029	160,040,274	38,911,383	6,049,775	155,109,486	40,030,370
2030	163,272,990	40,675,876	5,953,523	158,157,183	41,513,593
2031	165,878,024	42,517,986	5,841,544	161,347,356	43,828,862
2032	167,915,089	44,441,055	5,712,795	164,743,298	46,982,059
2033	169,293,442	46,448,562	5,566,175	168,414,585	51,135,880
2034	170,017,528	48,544,138	5,400,526	172,439,930	56,367,066
2035	170,067,110	50,731,563	5,214,624	176,905,050	62,784,127
2036	169,604,415	53,014,780	5,007,186	181,897,159	70,314,709
2037	168,638,869	55,397,897	4,776,857	187,503,682	79,039,567
2038	167,145,812	57,885,196	4,522,212	193,819,727	89,081,323
2039	165,227,170	60,481,139	4,241,751	200,945,172	100,440,892
2040	162,928,619	63,190,376	3,933,896	208,982,145	113,177,798
2041	160,277,311	66,017,755	3,596,987	218,038,182	127,375,613
2042	157,196,444	68,968,325	3,229,278	228,231,424	143,232,583
2043	153,807,193	71,554,637	3,350,376	239,659,252	160,757,071
2044	150,187,200	74,237,936	3,476,015	252,476,696	180,003,448
2045	146,402,367	77,021,859	3,606,366	266,816,835	201,042,693
2046	142,489,870	79,910,179	3,741,604	282,819,446	223,981,359
2047	138,380,744	82,906,810	3,881,915	300,636,798	249,044,779
2048	134,088,830	86,015,816	4,027,486	320,435,710	276,390,182

EXHIBIT 5 – SUMMARY OF PLAN PROVISIONS:

This summary is prepared in accordance with Chapter 32 as of January 1, 2019, 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 plus	9.0% of Salary
1979 and Later	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. Members with ten or more years of service are entitled to 100% of the credited interest on their contributions. Members with five to ten years of service are entitled to 50% of the credited interest on their contributions. No credited interest is provided for members with less than five years of service.

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 \$450 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 \$14,000. 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 6 – ACTUARIAL METHODS AND ASSUMPTIONS:

The actuarial cost method, factors, and assumptions used in determining cost estimates are presented below.

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, 2019.

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 7.875% per annum, net of investment expenses. The rationale for the selection of this rate is based on past performance and future expectations. Since 1987 the fund has had an average return of 8.75%. The asset policy continues to have a high concentration in equities and equity like investments. The Board continues to take an aggressive posture in its investment allocations.

5. Salary Scale

It is assumed that salaries including longevity will increase at a rate of 3.75% per year. The rationale for this assumption is based on the 2015 Experience Study and the history of municipal revenue and Proposition 2-1/2. The member units are limited to how much it can raise in property tax revenue to 2.5% of the previous year's figure, plus new growth. This restriction limits the largest portion of their revenue to about 3% per year. By extension, payroll increases are limited by the growth in revenue. Over an employee's career, promotions are expected to add .75% to the increases.

6. Cost-of-Living Increases

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$14,000 per year. Under State law the increase is limited to 3% or CPI. The Board has always granted 3%.

7. Value of Investments

Assets held by the fund are valued at market value as reported by the Public Employees' Retirement Administration Commission (PERAC). The actuarial value of assets is determined using a five-year smoothing of asset returns greater than or less than the assumed rate of return, with a 20% corridor.

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	0.1821	0.1500
5	0.1020	0.1000
10	0.0650	0.0600
15	0.0417	0.0600
20	0.0400	0.0000
25	0.0400	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-2016, 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-2016.

10. 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:

<u>Age</u>	<u>Male General Employees</u>	<u>Female General Employees</u>	<u>Male and Female Police and Fire Employees</u>
50	0.0360	0.1019	0.0382
51	0.0405	0.0714	0.0351
52	0.0437	0.0562	0.0436
53	0.0366	0.0448	0.0527
54	0.0451	0.0488	0.0999
55	0.0477	0.0469	0.1110
56	0.0574	0.0518	0.1413
57	0.0632	0.0509	0.1292
58	0.0765	0.0552	0.1499
59	0.0917	0.0645	0.1679
60	0.1057	0.0774	0.1871
61	0.1224	0.1038	0.2073
62	0.1473	0.1168	0.2176
63	0.1777	0.1440	0.3338
64	0.2136	0.1708	0.5664
65	0.2615	0.1939	1.0000
66	0.2682	0.1959	1.0000
67	0.2500	0.2000	1.0000
68	0.2500	0.2000	1.0000
69	0.2500	0.2000	1.0000
70 to 76	0.2500	0.2500	1.0000
77 to 79	0.3500	0.2500	1.0000
80	1.0000	1.0000	1.0000

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	0.0191
51	0.0000	0.0000	0.0176
52	0.0000	0.0000	0.0436
53	0.0000	0.0000	0.0211
54	0.0000	0.0000	0.0266
55	0.0000	0.0000	0.0370
56	0.0000	0.0000	0.1060
57	0.0000	0.0000	0.1938
58	0.0000	0.0000	0.1499
59	0.0000	0.0000	0.1119
60	0.0477	0.0469	0.0936
61	0.0574	0.0518	0.1555
62	0.0632	0.0509	0.1741
63	0.0765	0.0552	0.2670
64	0.0917	0.0645	0.4720
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

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 45% of all disabilities are ordinary (55% 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 male members will be survived by a spouse and 60% of all female members will be survived by a spouse. 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 2020 is \$2,000,000 and is anticipated to increase at 3.75% per year.

EXHIBIT 7 – GLOSSARY OF TERMS:

This glossary summarizes the technical terms contained in this report.

1. Actuarial Accrued Liability

That portion of the Actuarial Present Value of projected plan benefits that is not provided for by future employer Normal Costs or employee contributions.

2. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting the Retirement System such as:

- Rates of investment returns
- Increases in a member's salary
- Inflation
- The probability of mortality, turnover, disablement
- Retirement at each age and other relevant items

3. Actuarial Cost Method

A procedure for allocating the Actuarial Present Value of projected pension plan benefits between Normal Cost and Actuarial Accrued Liability.

4. Actuarial Present Value

The single sum amount required at the valuation date that is required to provide for anticipated future events based upon the terms of the plan and the Actuarial Assumptions.

5. Forecast

A projection of future benefit payments or contribution requirements based upon the terms of the plan, the current asset amounts, the Actuarial Assumptions, and additional assumptions as to the replacement of terminating employees with new employees.

6. Normal Cost

That portion of the Actuarial Present Value of future benefits that is assigned to the current year.

7. Unfunded Actuarial Accrued Liability

That portion of the Actuarial Accrued Liability that is not provided for by current actuarial value of assets.

8. Actuarial Valuation Method

The method used to divide the cost of future benefits among the Actuarial Accrued Liability, the current year's Normal Costs, and future years' Normal Costs. The resulting current funding requirement is then determined as the current year's Normal Cost plus the payment necessary to amortize the Unfunded Actuarial Liability.

9. Vested Liability

That portion of the Actuarial Present Value of Accrued Benefits that a member would be entitled to if the member terminated employment with the employer as of the valuation date.

CERTIFICATION:

This report fairly represents the actuarial position of the Plymouth County Retirement System contributing as of January 1, 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

Daniel W. Sherman, ASA, MAAA

July, 2019

BREAKOUTS

County of Plymouth

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	85
Inactives	18
Retirees and Disableds	225
Total	328
Payroll	3,843,717
Average	45,220

Valuation Results

Normal Cost	
Employee	396,314
Employer	30,010
Administrative Expense	85,057
Total	511,381
Actuarial Accrued Liability	
Actives	12,486,590
Inactives	278,967
Retirees and Disableds	58,222,708
Total	70,988,265
Assets	\$46,586,831
Unfunded Actuarial Accrued Liability	\$24,401,434
Estimated FY21 Contribution - semiannual payments	\$2,776,238
Estimated FY21 Contribution - July payment	\$2,724,610
Estimated FY22 Contribution - semiannual payments	\$2,975,408
Estimated FY22 Contribution - July payment	\$2,920,077



Hospital

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	0
Inactives	1
Retirees and Disableds	67
Total	<u>68</u>
Payroll	0
Average	0

Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	8,475
Total	<u>8,475</u>
Actuarial Accrued Liability	
Actives	0
Inactives	67,957
Retirees and Disableds	7,005,344
Total	<u>7,073,301</u>
Assets	\$4,367,307
Unfunded Actuarial Accrued Liability	\$2,705,994
Estimated FY21 Contribution - semiannual payments	\$327,069
Estimated FY21 Contribution - July payment	\$320,987
Estimated FY22 Contribution - semiannual payments	\$351,007
Estimated FY22 Contribution - July payment	\$344,479



Abington

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	210
Inactives	73
Retirees and Disableds	153
Total	<u>436</u>
Payroll	9,922,438
Average	47,250

Valuation Results

Normal Cost	
Employee	881,146
Employer	131,706
Administrative Expense	72,041
Total	<u>1,084,893</u>
Actuarial Accrued Liability	
Actives	22,128,106
Inactives	822,586
Retirees and Disableds	37,174,511
Total	<u>60,125,203</u>
Assets	\$37,123,429
Unfunded Actuarial Accrued Liability	\$23,001,774
Estimated FY21 Contribution - semiannual payments	\$2,942,796
Estimated FY21 Contribution - July payment	\$2,888,071
Estimated FY22 Contribution - semiannual payments	\$3,118,753
Estimated FY22 Contribution - July payment	\$3,060,756

Bridgewater

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	167
Inactives	23
Retirees and Disableds	146
Total	<u>336</u>
Payroll	13,505,950
Average	80,874

Valuation Results

Normal Cost	
Employee	1,233,835
Employer	25,761
Administrative Expense	101,332
Total	<u>1,360,928</u>
Actuarial Accrued Liability	
Actives	39,050,669
Inactives	341,491
Retirees and Disableds	45,179,286
Total	<u>84,571,446</u>
Assets	\$52,217,406
Unfunded Actuarial Accrued Liability	\$32,354,040
Estimated FY21 Contribution - semiannual payments	\$3,937,489
Estimated FY21 Contribution - July payment	\$3,864,267
Estimated FY22 Contribution - semiannual payments	\$4,223,211
Estimated FY22 Contribution - July payment	\$4,144,676

Bridgewater Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	4
Inactives	1
Retirees and Disableds	6
Total	<u>11</u>
Payroll	242,261
Average	60,565

Valuation Results

Normal Cost	
Employee	21,368
Employer	5,235
Administrative Expense	<u>1,430</u>
Total	28,033
Actuarial Accrued Liability	
Actives	423,187
Inactives	5,990
Retirees and Disableds	<u>764,516</u>
Total	1,193,693
Assets	\$737,028
Unfunded Actuarial Accrued Liability	\$456,665
Estimated FY21 Contribution - semiannual payments	\$66,894
Estimated FY21 Contribution - July payment	\$65,650
Estimated FY22 Contribution - semiannual payments	\$64,606
Estimated FY22 Contribution - July payment	\$63,404

Bridgewater/Raynham Regional School

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	176
Inactives	56
Retirees and Disableds	139
Total	<u>371</u>
Payroll	6,786,878
Average	38,562

Valuation Results

Normal Cost	
Employee	577,792
Employer	75,486
Administrative Expense	46,296
Total	<u>699,574</u>
Actuarial Accrued Liability	
Actives	17,145,571
Inactives	468,372
Retirees and Disableds	21,024,899
Total	<u>38,638,842</u>
Assets	\$23,856,989
Unfunded Actuarial Accrued Liability	\$14,781,853
Estimated FY21 Contribution - semiannual payments	\$1,935,914
Estimated FY21 Contribution - July payment	\$1,899,914
Estimated FY22 Contribution - semiannual payments	\$1,994,846
Estimated FY22 Contribution - July payment	\$1,957,749

Carver

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	191
Inactives	101
Retirees and Disableds	115
Total	<u>407</u>
Payroll	7,271,380
Average	38,070

Valuation Results

Normal Cost	
Employee	634,209
Employer	101,336
Administrative Expense	54,920
Total	<u>790,465</u>
Actuarial Accrued Liability	
Actives	18,218,633
Inactives	482,181
Retirees and Disableds	27,135,105
Total	<u>45,835,919</u>
Assets	\$28,300,720
Unfunded Actuarial Accrued Liability	\$17,535,199
Estimated FY21 Contribution - semiannual payments	\$2,253,725
Estimated FY21 Contribution - July payment	\$2,211,815
Estimated FY22 Contribution - semiannual payments	\$2,406,917
Estimated FY22 Contribution - July payment	\$2,362,157

Carver/Marion/Wareham Regional Refuse

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	2
Inactives	2
Retirees and Disableds	2
Total	<u>6</u>
Payroll	45,349
Average	22,675

Valuation Results

Normal Cost	
Employee	3,540
Employer	2,642
Administrative Expense	1,341
Total	<u>7,523</u>
Actuarial Accrued Liability	
Actives	96,180
Inactives	25,162
Retirees and Disableds	998,060
Total	<u>1,119,402</u>
Assets	\$691,158
Unfunded Actuarial Accrued Liability	\$428,244
Estimated FY21 Contribution - semiannual payments	\$54,521
Estimated FY21 Contribution - July payment	\$53,507
Estimated FY22 Contribution - semiannual payments	\$58,259
Estimated FY22 Contribution - July payment	\$57,176



Duxbury

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	357
Inactives	132
Retirees and Disableds	227
Total	<u>716</u>
Payroll	17,792,029
Average	49,838

Valuation Results

Normal Cost	
Employee	1,569,809
Employer	221,018
Administrative Expense	108,473
Total	<u>1,899,300</u>
Actuarial Accrued Liability	
Actives	47,029,274
Inactives	805,826
Retirees and Disableds	42,696,640
Total	<u>90,531,740</u>
Assets	\$55,897,502
Unfunded Actuarial Accrued Liability	\$34,634,238
Estimated FY21 Contribution - semiannual payments	\$4,417,085
Estimated FY21 Contribution - July payment	\$4,334,944
Estimated FY22 Contribution - semiannual payments	\$4,719,258
Estimated FY22 Contribution - July payment	\$4,631,499

Duxbury Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	1
Inactives	0
Retirees and Disableds	5
Total	<u>6</u>
Payroll	46,995
Average	46,995

Valuation Results

Normal Cost	
Employee	3,818
Employer	1,829
Administrative Expense	598
Total	<u>6,245</u>
Actuarial Accrued Liability	
Actives	113,121
Inactives	0
Retirees and Disableds	385,675
Total	<u>498,796</u>
Assets	\$307,974
Unfunded Actuarial Accrued Liability	\$190,822
Estimated FY21 Contribution - semiannual payments	\$24,975
Estimated FY21 Contribution - July payment	\$24,511
Estimated FY22 Contribution - semiannual payments	\$26,628
Estimated FY22 Contribution - July payment	\$26,133

East Bridgewater

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	227
Inactives	97
Retirees and Disableds	137
Total	<u>461</u>
Payroll	10,891,412
Average	47,980

Valuation Results

Normal Cost	
Employee	970,766
Employer	144,723
Administrative Expense	69,449
Total	<u>1,184,938</u>
Actuarial Accrued Liability	
Actives	25,108,138
Inactives	586,451
Retirees and Disableds	32,267,209
Total	<u>57,961,798</u>
Assets	\$35,787,667
Unfunded Actuarial Accrued Liability	\$22,174,131
Estimated FY21 Contribution - semiannual payments	\$2,831,346
Estimated FY21 Contribution - July payment	\$2,778,694
Estimated FY22 Contribution - semiannual payments	\$3,024,747
Estimated FY22 Contribution - July payment	\$2,968,499

East Bridgewater Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	4
Inactives	1
Retirees and Disableds	3
Total	<u>8</u>
Payroll	224,175
Average	56,044

Valuation Results

Normal Cost	
Employee	19,730
Employer	8,719
Administrative Expense	882
Total	<u>29,331</u>
Actuarial Accrued Liability	
Actives	497,210
Inactives	40,194
Retirees and Disableds	198,403
Total	<u>735,807</u>
Assets	\$454,313
Unfunded Actuarial Accrued Liability	\$281,494
Estimated FY21 Contribution - semiannual payments	\$43,133
Estimated FY21 Contribution - July payment	\$42,331
Estimated FY22 Contribution - semiannual payments	\$45,457
Estimated FY22 Contribution - July payment	\$44,611

Halifax

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	109
Inactives	26
Retirees and Disableds	60
Total	<u>195</u>
Payroll	5,064,885
Average	46,467

Valuation Results

Normal Cost	
Employee	449,391
Employer	72,782
Administrative Expense	31,751
Total	<u>553,924</u>
Actuarial Accrued Liability	
Actives	11,069,226
Inactives	167,654
Retirees and Disableds	14,901,135
Total	<u>26,138,015</u>
Assets	\$16,361,483
Unfunded Actuarial Accrued Liability	\$10,137,618
Estimated FY21 Contribution - semiannual payments	\$1,301,354
Estimated FY21 Contribution - July payment	\$1,277,154
Estimated FY22 Contribution - semiannual payments	\$1,389,648
Estimated FY22 Contribution - July payment	\$1,363,806

Hanover

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	303
Inactives	85
Retirees and Disableds	193
Total	<u>581</u>
Payroll	16,072,154
Average	53,043

Valuation Results

Normal Cost	
Employee	1,436,125
Employer	281,501
Administrative Expense	92,153
Total	<u>1,809,779</u>
Actuarial Accrued Liability	
Actives	32,858,509
Inactives	579,016
Retirees and Disableds	43,473,015
Total	<u>76,910,540</u>
Assets	\$47,487,291
Unfunded Actuarial Accrued Liability	\$29,423,249
Estimated FY21 Contribution - semiannual payments	\$3,850,431
Estimated FY21 Contribution - July payment	\$3,778,828
Estimated FY22 Contribution - semiannual payments	\$4,105,354
Estimated FY22 Contribution - July payment	\$4,029,011

Hanson

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	96
Inactives	17
Retirees and Disableds	72
Total	<u>185</u>
Payroll	5,822,446
Average	60,650

Valuation Results

Normal Cost	
Employee	521,926
Employer	60,526
Administrative Expense	43,224
Total	<u>625,676</u>
Actuarial Accrued Liability	
Actives	15,670,735
Inactives	326,808
Retirees and Disableds	20,077,320
Total	<u>36,074,863</u>
Assets	\$22,273,898
Unfunded Actuarial Accrued Liability	\$13,800,965
Estimated FY21 Contribution - semiannual payments	\$1,731,332
Estimated FY21 Contribution - July payment	\$1,699,136
Estimated FY22 Contribution - semiannual payments	\$1,852,266
Estimated FY22 Contribution - July payment	\$1,817,821

Kingston

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	178
Inactives	48
Retirees and Disableds	112
Total	<u>338</u>
Payroll	9,636,972
Average	54,140

Valuation Results

Normal Cost	
Employee	857,346
Employer	115,839
Administrative Expense	66,491
Total	<u>1,039,676</u>
Actuarial Accrued Liability	
Actives	26,907,549
Inactives	546,088
Retirees and Disableds	28,039,764
Total	<u>55,493,401</u>
Assets	\$34,263,591
Unfunded Actuarial Accrued Liability	\$21,229,810
Estimated FY21 Contribution - semiannual payments	\$2,700,913
Estimated FY21 Contribution - July payment	\$2,650,687
Estimated FY22 Contribution - semiannual payments	\$2,886,512
Estimated FY22 Contribution - July payment	\$2,832,834

Kingston Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	0
Inactives	3
Retirees and Disableds	0
Total	3
Payroll	0
Average	0

Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	50
Total	50
Actuarial Accrued Liability	
Actives	0
Inactives	41,432
Retirees and Disableds	0
Total	41,432
Assets	\$25,582
Unfunded Actuarial Accrued Liability	\$15,850
Estimated FY21 Contribution - semiannual payments	\$1,916
Estimated FY21 Contribution - July payment	\$1,880
Estimated FY22 Contribution - semiannual payments	\$2,056
Estimated FY22 Contribution - July payment	\$2,018



Lakeville

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	75
Inactives	17
Retirees and Disableds	70
Total	<u>162</u>
Payroll	4,268,584
Average	56,914

Valuation Results

Normal Cost	
Employee	374,777
Employer	94,385
Administrative Expense	<u>27,644</u>
Total	496,806
Actuarial Accrued Liability	
Actives	9,153,949
Inactives	129,179
Retirees and Disableds	<u>13,788,229</u>
Total	23,071,357
Assets	\$14,245,073
Unfunded Actuarial Accrued Liability	\$8,826,284
Estimated FY21 Contribution - semiannual payments	\$1,165,425
Estimated FY21 Contribution - July payment	\$1,143,753
Estimated FY22 Contribution - semiannual payments	\$1,241,707
Estimated FY22 Contribution - July payment	\$1,218,616

Marion

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	84
Inactives	20
Retirees and Disableds	57
Total	<u>161</u>
Payroll	4,562,725
Average	54,318

Valuation Results

Normal Cost	
Employee	406,175
Employer	77,383
Administrative Expense	29,553
Total	<u>513,111</u>
Actuarial Accrued Liability	
Actives	11,338,778
Inactives	305,374
Retirees and Disableds	13,020,782
Total	<u>24,664,934</u>
Assets	\$15,229,004
Unfunded Actuarial Accrued Liability	\$9,435,930
Estimated FY21 Contribution - semiannual payments	\$1,221,349
Estimated FY21 Contribution - July payment	\$1,198,637
Estimated FY22 Contribution - semiannual payments	\$1,303,348
Estimated FY22 Contribution - July payment	\$1,279,111

Marshfield

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	480
Inactives	197
Retirees and Disableds	324
Total	<u>1,001</u>
Payroll	22,333,198
Average	46,527

Valuation Results

Normal Cost	
Employee	1,947,290
Employer	453,250
Administrative Expense	159,518
Total	<u>2,560,058</u>
Actuarial Accrued Liability	
Actives	55,364,592
Inactives	1,556,039
Retirees and Disableds	76,213,075
Total	<u>133,133,706</u>
Assets	\$82,201,465
Unfunded Actuarial Accrued Liability	\$50,932,241
Estimated FY21 Contribution - semiannual payments	\$6,629,617
Estimated FY21 Contribution - July payment	\$6,506,332
Estimated FY22 Contribution - semiannual payments	\$7,071,543
Estimated FY22 Contribution - July payment	\$6,940,040

Marshfield Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	4
Inactives	0
Retirees and Disableds	2
Total	<u>6</u>
Payroll	193,801
Average	48,450

Valuation Results

Normal Cost	
Employee	17,174
Employer	1,787
Administrative Expense	1,143
Total	<u>20,104</u>
Actuarial Accrued Liability	
Actives	556,646
Inactives	0
Retirees and Disableds	204,859
Total	<u>761,505</u>
Assets	\$589,212
Unfunded Actuarial Accrued Liability	\$365,077
Estimated FY21 Contribution - semiannual payments	\$45,993
Estimated FY21 Contribution - July payment	\$45,138
Estimated FY22 Contribution - semiannual payments	\$49,189
Estimated FY22 Contribution - July payment	\$48,274



Mattapoisett

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	112
Inactives	17
Retirees and Disableds	60
Total	189
Payroll	5,493,964
Average	49,053

Valuation Results

Normal Cost	
Employee	479,507
Employer	38,818
Administrative Expense	33,601
Total	551,926
Actuarial Accrued Liability	
Actives	15,927,158
Inactives	127,210
Retirees and Disableds	11,988,917
Total	28,043,285
Assets	\$17,314,917
Unfunded Actuarial Accrued Liability	\$10,728,368
Estimated FY21 Contribution - semiannual payments	\$1,337,273
Estimated FY21 Contribution - July payment	\$1,312,405
Estimated FY22 Contribution - semiannual payments	\$1,431,440
Estimated FY22 Contribution - July payment	\$1,404,821

Middleborough

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	445
Inactives	105
Retirees and Disableds	328
Total	<u>878</u>
Payroll	23,802,868
Average	53,490

Valuation Results

Normal Cost	
Employee	2,112,699
Employer	382,054
Administrative Expense	180,078
Total	<u>2,674,831</u>
Actuarial Accrued Liability	
Actives	59,346,810
Inactives	942,895
Retirees and Disableds	90,002,762
Total	<u>150,292,467</u>
Assets	\$92,795,891
Unfunded Actuarial Accrued Liability	\$57,496,576
Estimated FY21 Contribution - semiannual payments	\$7,366,353
Estimated FY21 Contribution - July payment	\$7,229,368
Estimated FY22 Contribution - semiannual payments	\$7,850,008
Estimated FY22 Contribution - July payment	\$7,704,028

Middleborough Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	8
Inactives	0
Retirees and Disableds	7
Total	15
Payroll	415,320
Average	51,915

Valuation Results

Normal Cost	
Employee	36,457
Employer	17,065
Administrative Expense	2,958
Total	56,480
Actuarial Accrued Liability	
Actives	765,926
Inactives	0
Retirees and Disableds	1,702,707
Total	2,468,633
Assets	\$1,524,221
Unfunded Actuarial Accrued Liability	\$944,412
Estimated FY21 Contribution - semiannual payments	\$131,978
Estimated FY21 Contribution - July payment	\$129,524
Estimated FY22 Contribution - semiannual payments	\$140,007
Estimated FY22 Contribution - July payment	\$137,404

Norwell

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	211
Inactives	96
Retirees and Disableds	150
Total	<u>457</u>
Payroll	10,700,440
Average	50,713

Valuation Results

Normal Cost	
Employee	936,825
Employer	198,195
Administrative Expense	68,992
Total	<u>1,204,012</u>
Actuarial Accrued Liability	
Actives	27,641,453
Inactives	696,400
Retirees and Disableds	29,242,507
Total	<u>57,580,360</u>
Assets	\$35,552,153
Unfunded Actuarial Accrued Liability	\$22,028,207
Estimated FY21 Contribution - semiannual payments	\$2,869,572
Estimated FY21 Contribution - July payment	\$2,816,209
Estimated FY22 Contribution - semiannual payments	\$3,060,664
Estimated FY22 Contribution - July payment	\$3,003,748

Norwell Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	4
Inactives	1
Retirees and Disableds	1
Total	6
Payroll	148,908
Average	37,227

Valuation Results

Normal Cost	
Employee	12,593
Employer	1,898
Administrative Expense	904
Total	15,395
Actuarial Accrued Liability	
Actives	556,803
Inactives	4,599
Retirees and Disableds	192,997
Total	754,399
Assets	\$465,793
Unfunded Actuarial Accrued Liability	\$288,606
Estimated FY21 Contribution - semiannual payments	\$36,866
Estimated FY21 Contribution - July payment	\$36,181
Estimated FY22 Contribution - semiannual payments	\$39,383
Estimated FY22 Contribution - July payment	\$38,651

Old Rochester Regional School

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	72
Inactives	16
Retirees and Disableds	50
Total	<u>138</u>
Payroll	2,960,708
Average	41,121

Valuation Results

Normal Cost	
Employee	257,144
Employer	56,325
Administrative Expense	18,422
Total	<u>331,891</u>
Actuarial Accrued Liability	
Actives	7,041,589
Inactives	241,719
Retirees and Disableds	8,091,592
Total	<u>15,374,900</u>
Assets	\$9,493,008
Unfunded Actuarial Accrued Liability	\$5,881,892
Estimated FY21 Contribution - semiannual payments	\$769,779
Estimated FY21 Contribution - July payment	\$755,464
Estimated FY22 Contribution - semiannual payments	\$820,739
Estimated FY22 Contribution - July payment	\$805,476

Onset Fire District

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	14
Inactives	5
Retirees and Disableds	13
Total	<u>32</u>
Payroll	849,951
Average	60,711

Valuation Results

Normal Cost	
Employee	75,962
Employer	6,087
Administrative Expense	7,012
Total	<u>89,061</u>
Actuarial Accrued Liability	
Actives	2,744,664
Inactives	15,727
Retirees and Disableds	3,091,530
Total	<u>5,851,921</u>
Assets	\$3,613,183
Unfunded Actuarial Accrued Liability	\$2,238,738
Estimated FY21 Contribution - semiannual payments	\$276,952
Estimated FY21 Contribution - July payment	\$271,801
Estimated FY22 Contribution - semiannual payments	\$296,640
Estimated FY22 Contribution - July payment	\$291,124



Pembroke

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	245
Inactives	60
Retirees and Disableds	142
Total	<u>447</u>
Payroll	12,960,237
Average	52,899

Valuation Results

Normal Cost	
Employee	1,152,010
Employer	143,019
Administrative Expense	88,734
Total	<u>1,383,763</u>
Actuarial Accrued Liability	
Actives	35,212,224
Inactives	464,626
Retirees and Disableds	38,380,741
Total	<u>74,057,591</u>
Assets	\$45,725,779
Unfunded Actuarial Accrued Liability	\$28,331,812
Estimated FY21 Contribution - semiannual payments	\$3,769,992
Estimated FY21 Contribution - July payment	\$3,699,885
Estimated FY22 Contribution - semiannual payments	\$3,978,791
Estimated FY22 Contribution - July payment	\$3,904,801

Plymouth County Mosquito Control

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	13
Inactives	1
Retirees and Disableds	8
Total	<u>22</u>
Payroll	815,928
Average	62,764

Valuation Results

Normal Cost	
Employee	74,304
Employer	(2,707)
Administrative Expense	5,087
Total	<u>76,684</u>
Actuarial Accrued Liability	
Actives	1,552,575
Inactives	26,333
Retirees and Disableds	2,666,914
Total	<u>4,245,822</u>
Assets	\$2,621,521
Unfunded Actuarial Accrued Liability	\$1,624,301
Estimated FY21 Contribution - semiannual payments	\$193,498
Estimated FY21 Contribution - July payment	\$189,900
Estimated FY22 Contribution - semiannual payments	\$207,919
Estimated FY22 Contribution - July payment	\$204,052

Plympton

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	46
Inactives	12
Retirees and Disableds	28
Total	<u>86</u>
Payroll	2,033,653
Average	44,210

Valuation Results

Normal Cost	
Employee	178,994
Employer	62,702
Administrative Expense	11,871
Total	<u>253,567</u>
Actuarial Accrued Liability	
Actives	3,721,426
Inactives	156,509
Retirees and Disableds	6,029,227
Total	<u>9,907,162</u>
Assets	\$6,117,033
Unfunded Actuarial Accrued Liability	\$3,790,129
Estimated FY21 Contribution - semiannual payments	\$523,613
Estimated FY21 Contribution - July payment	\$513,876
Estimated FY22 Contribution - semiannual payments	\$555,947
Estimated FY22 Contribution - July payment	\$545,609

Rochester

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	60
Inactives	16
Retirees and Disableds	40
Total	<u>116</u>
Payroll	3,038,290
Average	50,638

Valuation Results

Normal Cost	
Employee	265,809
Employer	49,024
Administrative Expense	<u>21,013</u>
Total	335,846
Actuarial Accrued Liability	
Actives	8,599,797
Inactives	284,422
Retirees and Disableds	<u>8,652,971</u>
Total	17,537,190
Assets	\$10,828,082
Unfunded Actuarial Accrued Liability	\$6,709,108
Estimated FY21 Contribution - semiannual payments	\$862,135
Estimated FY21 Contribution - July payment	\$846,103
Estimated FY22 Contribution - semiannual payments	\$920,552
Estimated FY22 Contribution - July payment	\$903,433



Rockland

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	323
Inactives	100
Retirees and Disableds	219
Total	<u>642</u>
Payroll	15,062,375
Average	46,633

Valuation Results

Normal Cost	
Employee	1,324,564
Employer	149,323
Administrative Expense	106,429
Total	<u>1,580,316</u>
Actuarial Accrued Liability	
Actives	39,212,463
Inactives	726,044
Retirees and Disableds	48,887,219
Total	<u>88,825,726</u>
Assets	\$54,844,149
Unfunded Actuarial Accrued Liability	\$33,981,577
Estimated FY21 Contribution - semiannual payments	\$4,344,569
Estimated FY21 Contribution - July payment	\$4,263,777
Estimated FY22 Contribution - semiannual payments	\$4,561,062
Estimated FY22 Contribution - July payment	\$4,476,244

Scituate

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	380
Inactives	103
Retirees and Disableds	271
Total	<u>754</u>
Payroll	18,435,372
Average	48,514

Valuation Results

Normal Cost	
Employee	1,614,886
Employer	394,094
Administrative Expense	127,388
Total	<u>2,136,368</u>
Actuarial Accrued Liability	
Actives	43,584,755
Inactives	1,243,375
Retirees and Disableds	61,490,061
Total	<u>106,318,191</u>
Assets	\$65,644,616
Unfunded Actuarial Accrued Liability	\$40,673,575
Estimated FY21 Contribution - semiannual payments	\$5,327,868
Estimated FY21 Contribution - July payment	\$5,228,790
Estimated FY22 Contribution - semiannual payments	\$5,680,170
Estimated FY22 Contribution - July payment	\$5,574,541

Scituate Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	4
Inactives	0
Retirees and Disableds	8
Total	<u>12</u>
Payroll	213,764
Average	53,441

Valuation Results

Normal Cost	
Employee	18,839
Employer	16,294
Administrative Expense	<u>2,069</u>
Total	37,202
Actuarial Accrued Liability	
Actives	303,925
Inactives	0
Retirees and Disableds	<u>1,422,931</u>
Total	1,726,856
Assets	\$1,066,222
Unfunded Actuarial Accrued Liability	\$660,634
Estimated FY21 Contribution - semiannual payments	\$96,873
Estimated FY21 Contribution - July payment	\$95,071
Estimated FY22 Contribution - semiannual payments	\$102,406
Estimated FY22 Contribution - July payment	\$100,502

Silver Lake Regional School

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	108
Inactives	36
Retirees and Disableds	69
Total	<u>213</u>
Payroll	3,794,468
Average	35,134

Valuation Results

Normal Cost	
Employee	326,151
Employer	77,134
Administrative Expense	24,056
Total	<u>427,341</u>
Actuarial Accrued Liability	
Actives	7,128,271
Inactives	253,029
Retirees and Disableds	12,695,912
Total	<u>20,077,212</u>
Assets	\$12,396,382
Unfunded Actuarial Accrued Liability	\$7,680,830
Estimated FY21 Contribution - semiannual payments	\$858,669
Estimated FY21 Contribution - July payment	\$842,701
Estimated FY22 Contribution - semiannual payments	\$918,379
Estimated FY22 Contribution - July payment	\$901,301

South Shore Mosquito Control

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Payroll	0
Average	0

Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	0
Total	0
Actuarial Accrued Liability	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Assets	\$0
Unfunded Actuarial Accrued Liability	\$0
Estimated FY21 Contribution - semiannual payments	\$0
Estimated FY21 Contribution - July payment	\$0
Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0



South Shore Regional School

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	43
Inactives	18
Retirees and Disableds	25
Total	<u>86</u>
Payroll	1,819,022
Average	42,303

Valuation Results

Normal Cost	
Employee	157,409
Employer	55,720
Administrative Expense	9,852
Total	<u>222,981</u>
Actuarial Accrued Liability	
Actives	3,366,611
Inactives	198,797
Retirees and Disableds	4,657,334
Total	<u>8,222,742</u>
Assets	\$5,077,012
Unfunded Actuarial Accrued Liability	\$3,145,730
Estimated FY21 Contribution - semiannual payments	\$438,432
Estimated FY21 Contribution - July payment	\$430,279
Estimated FY22 Contribution - semiannual payments	\$465,198
Estimated FY22 Contribution - July payment	\$456,547

Wareham

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	308
Inactives	78
Retirees and Disableds	242
Total	<u>628</u>
Payroll	14,460,244
Average	46,949

Valuation Results

Normal Cost	
Employee	1,266,011
Employer	149,435
Administrative Expense	105,366
Total	<u>1,520,812</u>
Actuarial Accrued Liability	
Actives	36,298,690
Inactives	901,531
Retirees and Disableds	50,737,692
Total	<u>87,937,913</u>
Assets	\$54,295,982
Unfunded Actuarial Accrued Liability	\$33,641,931
Estimated FY21 Contribution - semiannual payments	\$4,263,985
Estimated FY21 Contribution - July payment	\$4,184,691
Estimated FY22 Contribution - semiannual payments	\$4,517,120
Estimated FY22 Contribution - July payment	\$4,433,119

Wareham Fire District

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	50
Inactives	2
Retirees and Disableds	32
Total	<u>84</u>
Payroll	3,062,815
Average	61,256

Valuation Results

Normal Cost	
Employee	278,523
Employer	32,692
Administrative Expense	23,025
Total	<u>334,240</u>
Actuarial Accrued Liability	
Actives	8,470,716
Inactives	14,116
Retirees and Disableds	10,731,512
Total	<u>19,216,344</u>
Assets	\$11,864,851
Unfunded Actuarial Accrued Liability	\$7,351,493
Estimated FY21 Contribution - semiannual payments	\$922,716
Estimated FY21 Contribution - July payment	\$905,558
Estimated FY22 Contribution - semiannual payments	\$987,127
Estimated FY22 Contribution - July payment	\$968,770

Wareham Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	1
Inactives	1
Retirees and Disableds	3
Total	<u>5</u>
Payroll	87,650
Average	87,650

Valuation Results

Normal Cost	
Employee	8,396
Employer	2,561
Administrative Expense	<u>1,330</u>
Total	12,287
Actuarial Accrued Liability	
Actives	174,765
Inactives	26
Retirees and Disableds	<u>935,580</u>
Total	1,110,371
Assets	\$685,582
Unfunded Actuarial Accrued Liability	\$424,789
Estimated FY21 Contribution - semiannual payments	\$54,019
Estimated FY21 Contribution - July payment	\$53,014
Estimated FY22 Contribution - semiannual payments	\$57,728
Estimated FY22 Contribution - July payment	\$56,655

West Bridgewater

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	164
Inactives	26
Retirees and Disableds	111
Total	<u>301</u>
Payroll	8,581,947
Average	52,329

Valuation Results

Normal Cost	
Employee	770,741
Employer	110,661
Administrative Expense	59,048
Total	<u>940,450</u>
Actuarial Accrued Liability	
Actives	19,085,159
Inactives	303,199
Retirees and Disableds	29,892,793
Total	<u>49,281,151</u>
Assets	\$30,427,928
Unfunded Actuarial Accrued Liability	\$18,853,223
Estimated FY21 Contribution - semiannual payments	\$2,394,367
Estimated FY21 Contribution - July payment	\$2,349,842
Estimated FY22 Contribution - semiannual payments	\$2,559,040
Estimated FY22 Contribution - July payment	\$2,511,452

Whitman

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	122
Inactives	18
Retirees and Disableds	97
Total	<u>237</u>
Payroll	7,539,224
Average	61,797

Valuation Results

Normal Cost	
Employee	688,667
Employer	86,143
Administrative Expense	56,047
Total	<u>830,857</u>
Actuarial Accrued Liability	
Actives	22,100,100
Inactives	168,716
Retirees and Disableds	24,507,607
Total	<u>46,776,423</u>
Assets	\$28,881,420
Unfunded Actuarial Accrued Liability	\$17,895,003
Estimated FY21 Contribution - semiannual payments	\$2,252,934
Estimated FY21 Contribution - July payment	\$2,211,038
Estimated FY22 Contribution - semiannual payments	\$2,409,597
Estimated FY22 Contribution - July payment	\$2,364,788

Whitman/Hanson Regional School

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	159
Inactives	110
Retirees and Disableds	120
Total	<u>389</u>
Payroll	4,572,893
Average	28,760

Valuation Results

Normal Cost	
Employee	389,474
Employer	70,029
Administrative Expense	31,495
Total	<u>490,998</u>
Actuarial Accrued Liability	
Actives	9,184,078
Inactives	725,282
Retirees and Disableds	16,376,289
Total	<u>26,285,649</u>
Assets	\$16,229,691
Unfunded Actuarial Accrued Liability	\$10,055,958
Estimated FY21 Contribution - semiannual payments	\$1,288,608
Estimated FY21 Contribution - July payment	\$1,264,645
Estimated FY22 Contribution - semiannual payments	\$1,376,232
Estimated FY22 Contribution - July payment	\$1,350,639

Whitman Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	5
Inactives	1
Retirees and Disableds	5
Total	<u>11</u>
Payroll	294,553
Average	58,911

Valuation Results

Normal Cost	
Employee	25,527
Employer	(5,087)
Administrative Expense	2,278
Total	<u>22,718</u>
Actuarial Accrued Liability	
Actives	895,351
Inactives	80,523
Retirees and Disableds	924,953
Total	<u>1,900,827</u>
Assets	\$1,173,638
Unfunded Actuarial Accrued Liability	\$727,189
Estimated FY21 Contribution - semiannual payments	\$82,579
Estimated FY21 Contribution - July payment	\$81,044
Estimated FY22 Contribution - semiannual payments	\$89,109
Estimated FY22 Contribution - July payment	\$87,452

Abington Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	3
Inactives	0
Retirees and Disableds	3
Total	<u>6</u>
Payroll	106,394
Average	35,465

Valuation Results

Normal Cost	
Employee	9,345
Employer	1,157
Administrative Expense	<u>1,027</u>
Total	11,529
Actuarial Accrued Liability	
Actives	121,555
Inactives	0
Retirees and Disableds	<u>735,423</u>
Total	856,978
Assets	\$529,129
Unfunded Actuarial Accrued Liability	\$327,849
Estimated FY21 Contribution - semiannual payments	\$45,779
Estimated FY21 Contribution - July payment	\$44,927
Estimated FY22 Contribution - semiannual payments	\$43,714
Estimated FY22 Contribution - July payment	\$42,901

Pembroke Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	6
Inactives	0
Retirees and Disableds	7
Total	<u>13</u>
Payroll	376,778
Average	62,796

Valuation Results

Normal Cost	
Employee	34,595
Employer	1,071
Administrative Expense	2,624
Total	<u>38,290</u>
Actuarial Accrued Liability	
Actives	467,911
Inactives	0
Retirees and Disableds	1,722,324
Total	<u>2,190,235</u>
Assets	\$1,352,329
Unfunded Actuarial Accrued Liability	\$837,906
Estimated FY21 Contribution - semiannual payments	\$102,395
Estimated FY21 Contribution - July payment	\$100,491
Estimated FY22 Contribution - semiannual payments	\$109,787
Estimated FY22 Contribution - July payment	\$107,746

Hanson Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	1
Inactives	0
Retirees and Disableds	4
Total	<u>5</u>
Payroll	56,294
Average	56,294

Valuation Results

Normal Cost	
Employee	5,048
Employer	3,732
Administrative Expense	726
Total	<u>9,506</u>
Actuarial Accrued Liability	
Actives	27,403
Inactives	0
Retirees and Disableds	578,121
Total	<u>605,524</u>
Assets	\$373,872
Unfunded Actuarial Accrued Liability	\$231,652
Estimated FY21 Contribution - semiannual payments	\$31,898
Estimated FY21 Contribution - July payment	\$31,305
Estimated FY22 Contribution - semiannual payments	\$33,876
Estimated FY22 Contribution - July payment	\$33,247

Rockland Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	2
Inactives	1
Retirees and Disableds	4
Total	<u>7</u>
Payroll	137,209
Average	68,605

Valuation Results

Normal Cost	
Employee	11,983
Employer	(748)
Administrative Expense	<u>1,164</u>
Total	12,399
Actuarial Accrued Liability	
Actives	367,844
Inactives	1,724
Retirees and Disableds	<u>601,548</u>
Total	971,116
Assets	\$599,601
Unfunded Actuarial Accrued Liability	\$371,515
Estimated FY21 Contribution - semiannual payments	\$44,123
Estimated FY21 Contribution - July payment	\$43,302
Estimated FY22 Contribution - semiannual payments	\$47,424
Estimated FY22 Contribution - July payment	\$46,542

Halifax Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	1
Inactives	0
Retirees and Disableds	1
Total	<u>2</u>
Payroll	34,509
Average	34,509

Valuation Results

Normal Cost	
Employee	2,766
Employer	2,285
Administrative Expense	<u>(0)</u>
Total	5,051
Actuarial Accrued Liability	
Actives	100,431
Inactives	0
Retirees and Disableds	<u>453,439</u>
Total	553,870
Assets	(\$0)
Unfunded Actuarial Accrued Liability	(\$0)
Estimated FY21 Contribution - semiannual payments	\$2,387
Estimated FY21 Contribution - July payment	\$2,343
Estimated FY22 Contribution - semiannual payments	\$2,344
Estimated FY22 Contribution - July payment	\$2,300

Mattapoisett Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants

Actives	1
Inactives	0
Retirees and Disableds	1
Total	<u>2</u>
Payroll	52,124
Average	52,124

Valuation Results

Normal Cost

Employee	4,187
Employer	(965)
Administrative Expense	675
Total	<u>3,897</u>

Actuarial Accrued Liability

Actives	253,832
Inactives	0
Retirees and Disableds	309,523
Total	<u>563,355</u>

Assets \$347,835

Unfunded Actuarial Accrued Liability \$215,520

Estimated FY21 Contribution - semiannual payments	\$25,041
Estimated FY21 Contribution - July payment	\$24,576
Estimated FY22 Contribution - semiannual payments	\$26,966
Estimated FY22 Contribution - July payment	\$26,465



Hanover Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Payroll	0
Average	0

Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	0
Total	0
Actuarial Accrued Liability	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Assets	\$0
Unfunded Actuarial Accrued Liability	\$0
Estimated FY21 Contribution - semiannual payments	\$0
Estimated FY21 Contribution - July payment	\$0
Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0



Acushnet/Rochester/Marion Health District

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	1
Inactives	0
Retirees and Disableds	0
Total	<u>1</u>
Payroll	76,957
Average	76,957

Valuation Results

Normal Cost	
Employee	6,467
Employer	(2,339)
Administrative Expense	535
Total	<u>4,663</u>
Actuarial Accrued Liability	
Actives	446,378
Inactives	0
Retirees and Disableds	0
Total	<u>446,378</u>
Assets	\$275,610
Unfunded Actuarial Accrued Liability	\$170,768
Estimated FY21 Contribution - semiannual payments	\$18,197
Estimated FY21 Contribution - July payment	\$17,858
Estimated FY22 Contribution - semiannual payments	\$19,752
Estimated FY22 Contribution - July payment	\$19,385

West Bridgewater Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	1
Inactives	0
Retirees and Disableds	1
Total	<u>2</u>
Payroll	55,331
Average	55,331

Valuation Results

Normal Cost	
Employee	5,071
Employer	1,865
Administrative Expense	317
Total	<u>7,253</u>
Actuarial Accrued Liability	
Actives	48,117
Inactives	0
Retirees and Disableds	216,710
Total	<u>264,827</u>
Assets	\$163,514
Unfunded Actuarial Accrued Liability	\$101,313
Estimated FY21 Contribution - semiannual payments	\$14,194
Estimated FY21 Contribution - July payment	\$13,930
Estimated FY22 Contribution - semiannual payments	\$15,055
Estimated FY22 Contribution - July payment	\$14,775

South Shore Tri Town Development

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	3
Inactives	1
Retirees and Disableds	4
Total	8
Payroll	375,662
Average	125,221

Valuation Results

Normal Cost	
Employee	37,508
Employer	(11,085)
Administrative Expense	4,059
Total	30,482
Actuarial Accrued Liability	
Actives	994,853
Inactives	76,392
Retirees and Disableds	2,316,179
Total	3,387,424
Assets	\$2,091,516
Unfunded Actuarial Accrued Liability	\$1,295,908
Estimated FY21 Contribution - semiannual payments	\$145,053
Estimated FY21 Contribution - July payment	\$142,356
Estimated FY22 Contribution - semiannual payments	\$156,728
Estimated FY22 Contribution - July payment	\$153,814

Carver Housing

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Payroll	0
Average	0

Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	0
Total	0
Actuarial Accrued Liability	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Assets	\$0
Unfunded Actuarial Accrued Liability	\$0
Estimated FY21 Contribution - semiannual payments	\$0
Estimated FY21 Contribution - July payment	\$0
Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0



No Carver Water District

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Payroll	0
Average	0

Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	0
Total	0
Actuarial Accrued Liability	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Assets	\$0
Unfunded Actuarial Accrued Liability	\$0
Estimated FY21 Contribution - semiannual payments	\$0
Estimated FY21 Contribution - July payment	\$0
Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0



No Carver Water District

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Payroll	0
Average	0

Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	0
Total	0
Actuarial Accrued Liability	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	0
Assets	\$0
Unfunded Actuarial Accrued Liability	\$0
Estimated FY21 Contribution - semiannual payments	\$0
Estimated FY21 Contribution - July payment	\$0
Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0



Other (Retirement Staff)

Actuarial Valuation as of January 1, 2019

Participant Information

Participants	
Actives	9
Inactives	0
Retirees and Disableds	6
Total	<u>15</u>
Payroll	722,492
Average	80,277

Valuation Results

Normal Cost	
Employee	63,130
Employer	(8,547)
Administrative Expense	5,776
Total	<u>60,359</u>
Actuarial Accrued Liability	
Actives	1,720,715
Inactives	0
Retirees and Disableds	3,099,916
Total	<u>4,820,631</u>
Assets	\$2,976,428
Unfunded Actuarial Accrued Liability	\$1,844,203
Estimated FY21 Contribution - semiannual payments	\$0
Estimated FY21 Contribution - July payment	\$0
Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0