



**PLYMOUTH COUNTY  
CONTRIBUTORY RETIREMENT SYSTEM**

Actuarial Valuation Report  
January 1, 2020

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# Report Summary:

## Highlights

### January 1, 2019

### January 1, 2020

#### Contributions

Funding Schedule FY 2021	\$81,152,214	\$81,152,214
Funding Schedule FY 2022	86,391,624	87,644,391

#### Funded Ratios

Using Actuarial Value of Assets	61.9%	61.0%
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#### Participants

Actives	5,669	5,708
Retirees and Beneficiaries	3,791	3,940
Vested	0	0
Inactives	1,742	1,621
Disabled	<u>378</u>	<u>394</u>
Total	11,580	11,663

#### Payroll

Payroll of Active Members	\$281,665,696	\$294,614,062
Average Payroll	49,685	51,614

#### Normal Cost

Employer	3,992,382	4,217,452
Employee	24,890,994	26,181,441
Administrative Expenses	<u>2,000,000</u>	<u>2,000,000</u>
Total	30,883,376	32,398,893

#### Actuarial Accrued Liabilities

Actives	700,960,296	731,275,525
Retirees, Beneficiaries, Disabilities and Inactives	<u>968,236,518</u>	<u>1,045,899,996</u>
Total	1,669,196,814	1,777,175,521

#### Actuarial Value of Assets

	<u>1,033,377,380</u>	<u>1,083,858,357</u>
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#### Unfunded Actuarial Accrued Liabilities

	\$635,819,434	\$693,317,164
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## **Introduction**

The purpose of this report is to present the findings of an actuarial valuation as of January 1, 2020, 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, 2020.
- 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, 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.

## 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 4.4% to \$678,114,580. The increase is the result of changes in the plan provisions and net unfavorable actuarial experience during the preceding years. The sources of change are as follows:

Asset losses	19,566,478
Salary Increases	9,707,352
New Participants	3,985,829
Active - Retirements	14,688,683
Active - Terminations	(598,105)
Active - Mortality	(1,014,641)
Active - Disabilities	4,732,467
Inactive - Mortality and data adjustments	26,572,222
Benefit Payments	1,248,202
Other, including data, contribution interest, purchased service	<u>(6,154,582)</u>
Total (Gain) / Loss	77,834,507

The COLA base was increased to \$16,000. This change increased the Accrued Liability by an additional \$15,202,584, and the Normal Cost by \$227,086.

## 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, 2019</u>	<u>January 1, 2020</u>
Superannuation	\$17,046,975	\$17,933,334
Termination	6,245,441	6,554,134
Death	2,171,734	2,281,061
Disability	3,419,226	3,630,364
Administrative Expenses	<u>2,000,000</u>	<u>2,000,000</u>
Total Normal Cost	30,883,376	32,398,893
% of Pay	11.0%	11.0%
Employee Contributions	24,890,994	26,181,441
% of Pay	8.8%	8.9%
Employer Normal Cost	\$5,992,382	\$6,217,452
% of Pay	2.1%	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.

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**Table II**

	<u>January 1, 2019</u>	<u>January 1, 2020</u>
Actives		
Superannuations	\$637,344,631	\$665,103,704
Termination	11,275,190	11,973,635
Death	28,748,413	29,788,745
Disability	23,592,062	24,409,441
Retirees and Inactives		
Retirees and Beneficiaries	822,443,295	888,647,798
Vested	0	0
Terminated (Refund)	15,229,963	15,320,306
Disabled	<u>130,563,260</u>	<u>141,931,892</u>
<b>Total</b>	<b>\$1,669,196,814</b>	<b>\$1,777,175,521</b>

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**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, 2019</u>	<u>January 1, 2020</u>
Actives		
Superannuation	\$751,660,811	\$784,419,432
Termination	43,640,081	46,330,786
Death	41,690,611	43,303,939
Disability	47,562,893	49,744,952
Retirees and Inactives		
Retirees and Beneficiaries	822,443,295	888,647,798
Vested	0	0
Terminated (Refund)	15,229,963	15,320,306
Disabled	<u>130,563,260</u>	<u>141,931,892</u>
Total	<u>\$1,852,790,914</u>	<u>\$1,969,699,105</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, 2019</u>	<u>January 1, 2020</u>
Cash equivalents	\$12,099,482	\$23,775,931
Short term investments	6,448,143	0
Fixed income securities	143,024,572	157,947,708
Equities	399,581,089	381,035,116
International	200,020,170	248,884,237
Real Estate	110,167,658	94,529,484
Venture Capital	0	0
Other	67,263,335	188,385,347
Accounts receivable	4,040,185	10,540,972
Accounts payable	(8,148,591)	(11,358,622)
Accrued income	<u>1,051,163</u>	<u>306,943</u>
Total Market Value	\$935,547,206	\$1,094,047,116
Total Actuarial Value	\$1,033,377,380	\$1,083,858,357

**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 (7.875%) 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, 2020 is presented in Table V.

**Table V**

	<u>January 1, 2020</u>
(1) Market value at January 1, 2019	\$935,547,206
(2) 2019 Contributions	\$112,425,219
(3) 2019 Payments	(\$123,334,808)
(4) Net interest adjustment at 7.875% on (1), (2), and (3) to December 31, 2019	\$74,187,419
(5) Expected market value on January 1, 2020	\$998,825,036
(1) + (2) + (3) + (4)	
(6) Actual market value on January 1, 2020	\$1,094,047,116
(7) 2019 (Gain) / Loss	(\$95,222,080)
(8) 80% of 2019 (Gain) / Loss	(\$76,177,664)
(9) 2018 (Gain) / Loss	\$154,352,055
(10) 60% of 2018 (Gain) / Loss	\$92,611,233
(11) 2017 (Gain) / Loss	(\$74,006,545)
(12) 40% of 2017 (Gain) / Loss	(\$29,602,618)
(13) 2016 (Gain) / Loss	\$14,901,448
(14) 20% of 2016 (Gain) / Loss	\$2,980,290
(15) Actuarial value on January 1, 2020, (6) + (8) + (10) + (12) + (14) but not less than 80% nor greater than 120% of (6)	\$1,083,858,357
(16) Ratio of actuarial value to market value	99.07%
(17) Actuarial Value Return for 2018	4.35%
(18) Actuarial Value Return for 2019	5.97%
(19) Market Value Return for 2018	-7.06%
(20) Market Value Return for 2019	17.98%

**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, 2019</u>	<u>January 1, 2020</u>
Actuarial Accrued Liability	\$1,669,196,814	\$1,777,175,521
Actuarial Assets	<u>1,033,377,380</u>	<u>1,083,858,357</u>
Unfunded Actuarial Accrued Liability	\$635,819,434	\$693,317,164
Funded Status	61.9%	61.0%

**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  
 \$ 693,091,350 over 9 years with 7.0% increasing payments
- Level amortization of the 2013 Early Retirement Incentive June 30, 2028  
 \$ 225,814 over 8 years
- Interest adjustment for payments deposited semiannually.

The pension appropriation is shown in Table VII. The Retirement Board adopted a Funding Schedule that increases the appropriation 8% per year through 2028.

**Table VII**

	<u>January 1, 2019</u>	<u>January 1, 2020</u>
Normal cost	\$5,992,382	\$6,217,452
Amortization payment of the accrued liability	65,883,383	79,542,654
Amortization payment of 2002 ERI liability	0	0
Amortization payment of 2003 ERI liability	275,000	0
Amortization payment of 2011 ERI liability	<u>36,254</u>	<u>36,254</u>
Total cost	\$72,187,019	\$85,796,360
% of Pay	25.6%	29.1%
Fiscal 2021 cost	\$81,152,214	\$81,152,214
Fiscal 2022 cost	\$86,391,624	\$87,644,391

## **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 twice per year.

The employer total cost is expected to increase during the next 8 years until the unfunded liabilities are completely paid off, at which time only the normal cost will remain. The total cost represents about 29% of payroll, increasing to about 36% by the time the unfunded liabilities are fully paid off, leaving only a normal cost of 1% thereafter. The increase 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.

https://shermanactuary-my.sharepoint.com/personal/dan\_shermanactuary\_com/Documents/Recovered Data/Plymouth/Val20/[Plymouth20\_Val 7875\_375 16COLA Current Mortality v2.xlsm]Amorts

**Appropriation Forecast**

<u>Fiscal</u> <u>Year</u> <u>Ending</u>	<u>Employee</u> <u>Contribution</u>	<u>Employer</u> <u>Normal Cost</u> <u>with Interest</u>	<u>Amortization</u> <u>Payments</u> <u>with Interest</u>	<u>Employer</u> <u>Total Cost</u> <u>with Interest</u>	<u>Employer</u> <u>Total Cost</u> <u>% of Payroll</u>	<u>Unfunded</u> <u>Liability</u>	<u>Funded</u> <u>Ratio %**</u>
2021	\$26,181,441	\$6,579,987	\$74,572,227	\$81,152,214	27.5	\$693,317,164	61.0
2022	\$27,387,394	\$6,589,518	\$81,054,873	\$87,644,391	28.7	\$672,476,710	62.8
2023	\$28,646,976	\$6,590,511	\$88,065,431	\$94,655,942	29.8	\$643,352,148	65.2
2024	\$29,962,512	\$6,582,311	\$95,646,106	\$102,228,417	31.1	\$604,746,137	68.0
2025	\$31,336,430	\$6,564,228	\$103,842,463	\$110,406,691	32.3	\$555,323,230	71.2
2026	\$32,771,256	\$6,535,533	\$112,703,693	\$119,239,226	33.7	\$493,595,500	74.9
2027	\$34,269,627	\$6,495,455	\$122,282,909	\$128,778,364	35.0	\$417,906,744	79.2
2028	\$35,834,292	\$6,443,181	\$132,637,452	\$139,080,633	36.5	\$326,415,138	84.1
2029	\$37,468,115	\$6,377,851	\$225,043,294	\$231,421,145	58.5	\$217,074,211	89.6
2030	\$39,174,082	\$6,298,561	\$0	\$6,298,561	1.5	\$0	100.0
2031	\$40,955,308	\$6,204,356	\$0	\$6,204,356	1.5	\$0	100.0
2032	\$42,815,037	\$6,094,227	\$0	\$6,094,227	1.4	\$0	100.0
2033	\$44,756,652	\$5,967,115	\$0	\$5,967,115	1.3	\$0	100.0
2034	\$46,783,680	\$5,821,898	\$0	\$5,821,898	1.2	\$0	100.0
2035	\$48,899,795	\$5,657,400	\$0	\$5,657,400	1.1	\$0	100.0
2036	\$51,108,830	\$5,472,377	\$0	\$5,472,377	1.1	\$0	100.0
2037	\$53,414,778	\$5,265,521	\$0	\$5,265,521	1.0	\$0	100.0
2038	\$55,821,799	\$5,035,456	\$0	\$5,035,456	0.9	\$0	100.0
2039	\$58,334,232	\$4,780,731	\$0	\$4,780,731	0.8	\$0	100.0
2040	\$60,956,599	\$4,499,821	\$0	\$4,499,821	0.8	\$0	100.0
2041	\$63,693,611	\$4,191,119	\$0	\$4,191,119	0.7	\$0	100.0
2042	\$66,550,178	\$3,852,937	\$0	\$3,852,937	0.6	\$0	100.0
2043	\$69,531,419	\$3,483,498	\$0	\$3,483,498	0.5	\$0	100.0
2044	\$72,138,847	\$3,614,129	\$0	\$3,614,129	0.5	\$0	100.0
2045	\$74,844,053	\$3,749,659	\$0	\$3,749,659	0.5	\$0	100.0
2046	\$77,650,705	\$3,890,271	\$0	\$3,890,271	0.5	\$0	100.0
2047	\$80,562,607	\$4,036,156	\$0	\$4,036,156	0.5	\$0	100.0
2048	\$83,583,705	\$4,187,512	\$0	\$4,187,512	0.5	\$0	100.0
2049	\$86,718,094	\$4,344,544	\$0	\$4,344,544	0.5	\$0	100.0
2050	\$89,970,022	\$4,507,464	\$0	\$4,507,464	0.5	\$0	100.0
2051	\$93,343,898	\$4,676,494	\$0	\$4,676,494	0.5	\$0	100.0
2052	\$96,844,294	\$4,851,863	\$0	\$4,851,863	0.5	\$0	100.0

**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	6	0	0	0	0	0	0	0	0	0	6
	34,578	0	0	0	0	0	0	0	0	0	34,578
20-24	178	5	0	0	0	0	0	0	0	0	183
	33,991	58,978	0	0	0	0	0	0	0	0	34,674
25-29	366	50	0	0	0	0	0	0	0	0	416
	43,884	59,336	0	0	0	0	0	0	0	0	45,741
30-34	235	144	32	0	0	0	0	0	0	0	411
	48,532	68,061	70,607	0	0	0	0	0	0	0	57,093
35-39	188	116	104	32	1	0	0	0	0	0	441
	44,198	62,124	74,519	75,492	61,003	0	0	0	0	0	58,373
40-44	180	95	59	78	35	1	0	0	0	0	448
	35,645	54,098	74,199	75,915	84,002	83,820	0	0	0	0	55,533
45-49	216	153	99	99	111	32	1	0	0	0	711
	34,070	42,464	57,805	71,366	85,162	90,333	91,533	0	0	0	54,964
50-54	227	189	150	128	100	71	55	1	0	0	921
	36,572	37,404	44,406	59,943	74,198	97,236	99,626	177,043	0	0	53,947
55-59	145	155	195	193	129	73	62	18	1	0	971
	40,095	41,160	41,401	47,064	57,585	76,697	92,527	95,617	147,778	0	51,476
60-64	87	102	120	175	151	63	52	23	8	0	781
	40,146	44,233	43,201	44,055	48,047	53,644	73,444	91,155	80,927	0	48,779
65-69	29	28	47	67	57	37	25	1	4	0	295
	33,395	35,863	38,515	47,592	48,453	47,794	58,383	69,740	77,557	0	45,224
70+	21	17	13	22	15	12	13	6	6	0	125
	27,567	40,190	53,066	36,802	43,864	35,436	35,846	36,507	48,544	0	38,569
Total Employees	1,878	1,054	819	794	599	289	208	49	19	0	5,709
Average Salary	39,917	48,912	51,927	55,247	63,401	72,839	81,982	87,418	73,510	0	51,616

**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	3	0	3	42,494	0	42,494
35-39	2	0	2	23,233	0	23,233
40-44	0	0	0	0	0	0
45-49	3	9	12	35,715	218,248	253,963
50-54	15	17	32	387,009	596,048	983,057
55-59	90	103	193	1,379,327	4,322,199	5,701,526
60-64	243	189	432	3,764,091	8,853,850	12,617,941
65-69	481	326	807	9,562,464	12,844,675	22,407,139
70-74	527	337	864	10,358,196	12,476,715	22,834,911
75-79	461	263	724	8,424,424	8,627,143	17,051,567
80-84	296	136	432	5,267,504	3,591,672	8,859,175
85-89	190	64	254	2,879,210	1,387,758	4,266,968
90-94	100	28	128	1,329,251	608,557	1,937,807
95+	49	11	60	403,291	185,063	588,354
<b>Total</b>	<b>2460</b>	<b>1483</b>	<b>3943</b>	<b>43,856,207</b>	<b>53,711,929</b>	<b>97,568,136</b>
<b>Average (Age/Payment)</b>	<b>74.34</b>	<b>71.73</b>	<b>73.36</b>	<b>17,828</b>	<b>36,218</b>	<b>24,745</b>
<b>Frequency Percent</b>	<b>62.4</b>	<b>37.6</b>	<b>100</b>	<b>44.9</b>	<b>55.1</b>	<b>100</b>

**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	0	0	0	0	0	0
35-39	0	0	0	0	0	0
40-44	2	5	7	56,083	259,471	315,554
45-49	4	15	19	181,427	687,983	869,410
50-54	8	31	39	341,167	1,331,579	1,672,746
55-59	14	42	56	423,947	1,750,633	2,174,580
60-64	11	44	55	305,629	1,818,867	2,124,496
65-69	12	49	61	220,299	1,706,012	1,926,310
70-74	11	60	71	253,598	1,999,946	2,253,544
75-79	10	38	48	275,216	1,205,254	1,480,470
80-84	2	22	24	34,241	657,242	691,482
85-89	1	10	11	449	278,026	278,475
90-94	0	3	3	0	59,358	59,358
95-99	0	0	0	0	0	0
<b>Total</b>	<b>75</b>	<b>319</b>	<b>394</b>	<b>2,092,055</b>	<b>11,754,371</b>	<b>13,846,427</b>
<b>Average (Age/Payment)</b>	<b>64.16</b>	<b>66.73</b>	<b>66.24</b>	<b>27,894</b>	<b>36,848</b>	<b>35,143</b>
<b>Frequency Percent</b>	<b>19.0</b>	<b>81.0</b>	<b>100</b>	<b>15.1</b>	<b>84.9</b>	<b>100</b>

**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
2020	\$139,036,712	\$26,181,441	\$81,152,214	\$80,881,342	\$49,178,284
2021	129,048,169	27,387,394	87,644,391	85,314,500	71,298,117
2022	134,246,314	28,646,976	94,655,942	90,921,030	79,977,634
2023	139,481,731	29,962,512	102,228,417	97,229,380	89,938,579
2024	144,487,823	31,336,430	110,406,691	104,352,570	101,607,868
2025	149,354,768	32,771,256	119,239,226	112,423,618	115,079,332
2026	154,022,224	34,269,627	128,778,364	121,588,926	130,614,693
2027	158,508,263	35,834,292	139,080,633	132,012,659	148,419,321
2028	162,939,029	37,468,115	231,421,145	150,269,083	256,219,314
2029	166,941,311	39,174,082	6,298,561	161,190,438	39,721,770
2030	170,587,516	40,955,308	6,204,356	164,203,443	40,775,591
2031	173,674,517	42,815,037	6,094,227	167,322,687	42,557,435
2032	176,121,750	44,756,652	5,967,115	170,608,700	45,210,717
2033	177,923,109	46,783,680	5,821,898	174,130,438	48,812,907
2034	179,049,040	48,899,795	5,657,400	177,963,862	53,472,017
2035	179,496,362	51,108,830	5,472,377	182,192,430	59,277,275
2036	179,368,657	53,414,778	5,265,521	186,902,506	66,214,148
2037	178,700,791	55,821,799	5,035,456	192,181,967	74,338,431
2038	177,493,801	58,334,232	4,780,731	198,124,398	83,745,560
2039	175,734,693	60,956,599	4,499,821	204,831,446	94,553,173
2040	173,503,796	63,693,611	4,191,119	212,410,426	106,791,360
2041	171,071,548	66,550,178	3,852,937	220,963,679	120,295,246
2042	168,168,811	69,531,419	3,483,498	230,601,416	135,447,521
2043	164,928,692	72,138,847	3,614,129	241,419,075	152,243,359
2044	161,443,634	74,844,053	3,749,659	253,569,844	170,719,922
2045	157,785,714	77,650,705	3,890,271	267,183,332	190,938,594
2046	153,989,722	80,562,607	4,036,156	282,395,423	213,004,464
2047	149,970,247	83,583,705	4,187,512	299,354,923	237,155,893
2048	145,728,680	86,718,094	4,344,544	318,226,057	263,560,015
2049	141,281,377	89,970,022	4,507,464	339,185,636	292,381,745

## **EXHIBIT 5 – 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:

<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 \$16,000. 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, 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 7.875% 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 \$16,000 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, 2020, 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

## **BREAKOUTS**



**County of Plymouth**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	84
Inactives	14
Retirees and Disableds	230
Total	<u>328</u>

Payroll	3,916,900
Average	46,630

## Valuation Results

## Normal Cost

Employee	407,547
Employer	60,800
Administrative Expense	82,023
Total	<u>550,370</u>

## Actuarial Accrued Liability

Actives	12,307,140
Inactives	276,607
Retirees and Disableds	60,300,592
Total	<u>72,884,339</u>

Assets \$48,113,925

Unfunded Actuarial Accrued Liability \$24,770,414

Estimated FY22 Contribution - semiannual payments	\$2,835,509
Estimated FY22 Contribution - July payment	\$2,782,780
Estimated FY23 Contribution - semiannual payments	\$3,065,139
Estimated FY23 Contribution - July payment	\$3,008,139



## Hospital

Actuarial Valuation as of January 1, 2020

### Participant Information

Participants	
Actives	0
Inactives	1
Retirees and Disableds	62
Total	63
Payroll	0
Average	0

### Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	7,619
Total	7,619
Actuarial Accrued Liability	
Actives	0
Inactives	68,025
Retirees and Disableds	6,702,466
Total	6,770,491
Assets	\$4,114,613
Unfunded Actuarial Accrued Liability	\$2,655,878
Estimated FY22 Contribution - semiannual payments	\$320,415
Estimated FY22 Contribution - July payment	\$314,457
Estimated FY23 Contribution - semiannual payments	\$346,760
Estimated FY23 Contribution - July payment	\$340,311



**Abington**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	224
Inactives	67
Retirees and Disableds	156
Total	<u>447</u>
Payroll	10,957,546
Average	48,918

## Valuation Results

Normal Cost	
Employee	973,410
Employer	154,937
Administrative Expense	72,554
Total	<u>1,200,901</u>
Actuarial Accrued Liability	
Actives	24,518,734
Inactives	855,569
Retirees and Disableds	39,096,077
Total	<u>64,470,380</u>
Assets	\$39,180,416
Unfunded Actuarial Accrued Liability	\$25,289,964
Estimated FY22 Contribution - semiannual payments	\$3,204,297
Estimated FY22 Contribution - July payment	\$3,144,709
Estimated FY23 Contribution - semiannual payments	\$3,460,762
Estimated FY23 Contribution - July payment	\$3,396,405



**Bridgewater**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	170
Inactives	20
Retirees and Disableds	147
Total	<u>337</u>

Payroll	13,856,777
Average	81,510

## Valuation Results

## Normal Cost

Employee	1,266,836
Employer	28,754
Administrative Expense	99,048
Total	<u>1,394,638</u>

## Actuarial Accrued Liability

Actives	41,380,945
Inactives	313,234
Retirees and Disableds	46,318,741
Total	<u>88,012,920</u>

Assets \$53,487,862

Unfunded Actuarial Accrued Liability \$34,525,058

Estimated FY22 Contribution - semiannual payments	\$4,193,670
Estimated FY22 Contribution - July payment	\$4,115,684
Estimated FY23 Contribution - semiannual payments	\$4,537,176
Estimated FY23 Contribution - July payment	\$4,452,802



**Bridgewater Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	4
Inactives	2
Retirees and Disableds	6
Total	<u>12</u>

Payroll	244,588
Average	61,147

## Valuation Results

Normal Cost	
Employee	21,529
Employer	4,921
Administrative Expense	1,402
Total	<u>27,852</u>

Actuarial Accrued Liability	
Actives	468,311
Inactives	23,461
Retirees and Disableds	754,271
Total	<u>1,246,043</u>

Assets	\$757,254
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Unfunded Actuarial Accrued Liability	\$488,789
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Estimated FY22 Contribution - semiannual payments	\$63,836
Estimated FY22 Contribution - July payment	\$62,649
Estimated FY23 Contribution - semiannual payments	\$68,862
Estimated FY23 Contribution - July payment	\$67,582



**Bridgewater/Raynham Regional School**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	177
Inactives	48
Retirees and Disableds	143
Total	<u>368</u>

Payroll	6,952,105
Average	39,277

## Valuation Results

Normal Cost	
Employee	591,612
Employer	90,213
Administrative Expense	45,468
Total	<u>727,293</u>

Actuarial Accrued Liability	
Actives	17,861,640
Inactives	314,779
Retirees and Disableds	22,225,946
Total	<u>40,402,365</u>

Assets	\$24,553,624
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Unfunded Actuarial Accrued Liability	\$15,848,741
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Estimated FY22 Contribution - semiannual payments	\$2,001,265
Estimated FY22 Contribution - July payment	\$1,964,050
Estimated FY23 Contribution - semiannual payments	\$2,161,738
Estimated FY23 Contribution - July payment	\$2,121,538



**Carver**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	189
Inactives	106
Retirees and Disableds	119
Total	<u>414</u>

Payroll	7,550,248
Average	39,948

## Valuation Results

## Normal Cost

Employee	659,501
Employer	128,620
Administrative Expense	54,607
Total	<u>842,728</u>

## Actuarial Accrued Liability

Actives	19,514,955
Inactives	504,850
Retirees and Disableds	28,503,526
Total	<u>48,523,331</u>

Assets \$29,488,957

Unfunded Actuarial Accrued Liability \$19,034,374

Estimated FY22 Contribution - semiannual payments	\$2,451,978
Estimated FY22 Contribution - July payment	\$2,406,381
Estimated FY23 Contribution - semiannual payments	\$2,645,440
Estimated FY23 Contribution - July payment	\$2,596,245



**Carver/Marion/Wareham Regional Refuse**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	1
Inactives	2
Retirees and Disableds	2
Total	<u>5</u>

Payroll	34,273
Average	34,273

## Valuation Results

## Normal Cost

Employee	2,653
Employer	1,999
Administrative Expense	1,219
Total	<u>5,871</u>

## Actuarial Accrued Liability

Actives	85,320
Inactives	9,233
Retirees and Disableds	988,610
Total	<u>1,083,163</u>

Assets \$658,268

Unfunded Actuarial Accrued Liability \$424,895

Estimated FY22 Contribution - semiannual payments	\$53,238
Estimated FY22 Contribution - July payment	\$52,248
Estimated FY23 Contribution - semiannual payments	\$57,525
Estimated FY23 Contribution - July payment	\$56,455





**Duxbury**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	356
Inactives	113
Retirees and Disableds	246
Total	<u>715</u>
Payroll	18,073,102
Average	50,767

## Valuation Results

Normal Cost	
Employee	1,607,012
Employer	206,696
Administrative Expense	108,364
Total	<u>1,922,072</u>
Actuarial Accrued Liability	
Actives	44,301,295
Inactives	873,782
Retirees and Disableds	51,115,426
Total	<u>96,290,503</u>
Assets	\$58,518,376
Unfunded Actuarial Accrued Liability	\$37,772,127
Estimated FY22 Contribution - semiannual payments	\$4,761,378
Estimated FY22 Contribution - July payment	\$4,672,835
Estimated FY23 Contribution - semiannual payments	\$5,143,530
Estimated FY23 Contribution - July payment	\$5,047,880

**Duxbury Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	1
Inactives	0
Retirees and Disableds	5
Total	<u>6</u>

Payroll	48,826
Average	48,826

## Valuation Results

## Normal Cost

Employee	3,983
Employer	2,173
Administrative Expense	555
Total	<u>6,711</u>

## Actuarial Accrued Liability

Actives	121,351
Inactives	0
Retirees and Disableds	371,375
Total	<u>492,726</u>

Assets \$299,443

Unfunded Actuarial Accrued Liability \$193,283

Estimated FY22 Contribution - semiannual payments	\$25,467
Estimated FY22 Contribution - July payment	\$24,994
Estimated FY23 Contribution - semiannual payments	\$27,463
Estimated FY23 Contribution - July payment	\$26,952



**East Bridgewater**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	234
Inactives	91
Retirees and Disableds	136
Total	<u>461</u>
Payroll	11,493,973
Average	49,120

## Valuation Results

Normal Cost	
Employee	1,024,082
Employer	160,607
Administrative Expense	67,951
Total	<u>1,252,640</u>
Actuarial Accrued Liability	
Actives	26,332,764
Inactives	762,973
Retirees and Disableds	33,284,346
Total	<u>60,380,083</u>
Assets	\$36,694,630
Unfunded Actuarial Accrued Liability	\$23,685,453
Estimated FY22 Contribution - semiannual payments	\$3,016,330
Estimated FY22 Contribution - July payment	\$2,960,238
Estimated FY23 Contribution - semiannual payments	\$3,257,084
Estimated FY23 Contribution - July payment	\$3,196,515



**East Bridgewater Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	4
Inactives	1
Retirees and Disableds	3
Total	<u>8</u>

Payroll	223,386
Average	55,847

## Valuation Results

Normal Cost	
Employee	19,703
Employer	9,474
Administrative Expense	848
Total	<u>30,025</u>

Actuarial Accrued Liability	
Actives	518,992
Inactives	40,234
Retirees and Disableds	194,533
Total	<u>753,759</u>

Assets	\$458,080
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Unfunded Actuarial Accrued Liability	\$295,679
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Estimated FY22 Contribution - semiannual payments	\$45,041
Estimated FY22 Contribution - July payment	\$44,203
Estimated FY23 Contribution - semiannual payments	\$48,317
Estimated FY23 Contribution - July payment	\$47,418



**Halifax**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	114
Inactives	23
Retirees and Disableds	67
Total	<u>204</u>
Payroll	5,636,109
Average	49,440

## Valuation Results

Normal Cost	
Employee	502,220
Employer	71,343
Administrative Expense	33,756
Total	<u>607,319</u>
Actuarial Accrued Liability	
Actives	12,166,121
Inactives	217,454
Retirees and Disableds	17,262,966
Total	<u>29,646,541</u>
Assets	\$18,228,802
Unfunded Actuarial Accrued Liability	\$11,766,229
Estimated FY22 Contribution - semiannual payments	\$1,490,075
Estimated FY22 Contribution - July payment	\$1,462,365
Estimated FY23 Contribution - semiannual payments	\$1,609,369
Estimated FY23 Contribution - July payment	\$1,579,441

**Hanover**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	297
Inactives	84
Retirees and Disableds	193
Total	<u>574</u>

Payroll	16,723,142
Average	56,307

## Valuation Results

## Normal Cost

Employee	1,504,736
Employer	259,451
Administrative Expense	92,184
Total	<u>1,856,371</u>

## Actuarial Accrued Liability

Actives	36,665,701
Inactives	596,490
Retirees and Disableds	44,651,576
Total	<u>81,913,767</u>

Assets	\$49,781,240
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Unfunded Actuarial Accrued Liability	\$32,132,527
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Estimated FY22 Contribution - semiannual payments	\$4,133,165
Estimated FY22 Contribution - July payment	\$4,056,304
Estimated FY23 Contribution - semiannual payments	\$4,461,285
Estimated FY23 Contribution - July payment	\$4,378,322



**Hanson**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	95
Inactives	14
Retirees and Disableds	74
Total	<u>183</u>
Payroll	5,948,619
Average	62,617

## Valuation Results

Normal Cost	
Employee	534,700
Employer	82,761
Administrative Expense	43,765
Total	<u>661,226</u>
Actuarial Accrued Liability	
Actives	16,535,567
Inactives	349,348
Retirees and Disableds	22,004,166
Total	<u>38,889,081</u>
Assets	\$23,633,960
Unfunded Actuarial Accrued Liability	\$15,255,121
Estimated FY22 Contribution - semiannual payments	\$1,922,279
Estimated FY22 Contribution - July payment	\$1,886,532
Estimated FY23 Contribution - semiannual payments	\$2,076,594
Estimated FY23 Contribution - July payment	\$2,037,978



**Kingston**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	184
Inactives	43
Retirees and Disableds	114
Total	<u>341</u>

Payroll	10,317,018
Average	56,071

## Valuation Results

Normal Cost	
Employee	919,103
Employer	110,889
Administrative Expense	66,897
Total	<u>1,096,889</u>

Actuarial Accrued Liability	
Actives	29,292,780
Inactives	466,911
Retirees and Disableds	29,683,798
Total	<u>59,443,489</u>

Assets	\$36,125,436
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Unfunded Actuarial Accrued Liability	\$23,318,053
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Estimated FY22 Contribution - semiannual payments	\$2,936,720
Estimated FY22 Contribution - July payment	\$2,882,108
Estimated FY23 Contribution - semiannual payments	\$3,172,031
Estimated FY23 Contribution - July payment	\$3,113,044





**Kingston Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	0
Inactives	3
Retirees and Disableds	0
Total	<u>3</u>
Payroll	0
Average	0

## Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	47
Total	<u>47</u>
Actuarial Accrued Liability	
Actives	0
Inactives	41,473
Retirees and Disableds	0
Total	<u>41,473</u>
Assets	\$25,204
Unfunded Actuarial Accrued Liability	\$16,269
Estimated FY22 Contribution - semiannual payments	\$1,963
Estimated FY22 Contribution - July payment	\$1,926
Estimated FY23 Contribution - semiannual payments	\$2,124
Estimated FY23 Contribution - July payment	\$2,085

**Lakeville**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	76
Inactives	17
Retirees and Disableds	75
Total	<u>168</u>
Payroll	4,482,469
Average	58,980

## Valuation Results

Normal Cost	
Employee	395,128
Employer	113,524
Administrative Expense	28,501
Total	<u>537,153</u>
Actuarial Accrued Liability	
Actives	8,584,038
Inactives	134,192
Retirees and Disableds	16,607,762
Total	<u>25,325,992</u>
Assets	\$15,391,299
Unfunded Actuarial Accrued Liability	\$9,934,693
Estimated FY22 Contribution - semiannual payments	\$1,310,825
Estimated FY22 Contribution - July payment	\$1,286,448
Estimated FY23 Contribution - semiannual payments	\$1,413,477
Estimated FY23 Contribution - July payment	\$1,387,192



**Marion**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	84
Inactives	19
Retirees and Disableds	61
Total	<u>164</u>
Payroll	4,786,787
Average	56,986

## Valuation Results

Normal Cost	
Employee	430,171
Employer	79,509
Administrative Expense	29,383
Total	<u>539,063</u>
Actuarial Accrued Liability	
Actives	11,389,981
Inactives	223,107
Retirees and Disableds	14,496,453
Total	<u>26,109,541</u>
Assets	\$15,867,483
Unfunded Actuarial Accrued Liability	\$10,242,058
Estimated FY22 Contribution - semiannual payments	\$1,314,268
Estimated FY22 Contribution - July payment	\$1,289,828
Estimated FY23 Contribution - semiannual payments	\$1,418,739
Estimated FY23 Contribution - July payment	\$1,392,356



**Marshfield**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	498
Inactives	174
Retirees and Disableds	332
Total	<u>1,004</u>
Payroll	24,456,407
Average	49,109

## Valuation Results

Normal Cost	
Employee	2,145,047
Employer	460,077
Administrative Expense	157,708
Total	<u>2,762,832</u>
Actuarial Accrued Liability	
Actives	59,666,576
Inactives	1,105,834
Retirees and Disableds	79,365,276
Total	<u>140,137,686</u>
Assets	\$85,165,510
Unfunded Actuarial Accrued Liability	\$54,972,176
Estimated FY22 Contribution - semiannual payments	\$7,087,029
Estimated FY22 Contribution - July payment	\$6,955,238
Estimated FY23 Contribution - semiannual payments	\$7,648,961
Estimated FY23 Contribution - July payment	\$7,506,720

**Marshfield Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	4
Inactives	0
Retirees and Disableds	2
Total	<u>6</u>

Payroll	199,165
Average	49,791

## Valuation Results

Normal Cost	
Employee	17,627
Employer	2,248
Administrative Expense	1,141
Total	<u>21,016</u>

Actuarial Accrued Liability	
Actives	613,037
Inactives	0
Retirees and Disableds	215,095
Total	<u>828,132</u>

Assets	\$616,352
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Unfunded Actuarial Accrued Liability	\$397,839
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Estimated FY22 Contribution - semiannual payments	\$50,220
Estimated FY22 Contribution - July payment	\$49,286
Estimated FY23 Contribution - semiannual payments	\$54,248
Estimated FY23 Contribution - July payment	\$53,239



**Mattapoisett**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	116
Inactives	18
Retirees and Disableds	64
Total	<u>198</u>

Payroll	5,891,579
Average	50,789

## Valuation Results

## Normal Cost

Employee	517,644
Employer	56,945
Administrative Expense	34,880
Total	<u>609,469</u>

## Actuarial Accrued Liability

Actives	15,359,860
Inactives	256,964
Retirees and Disableds	15,377,242
Total	<u>30,994,066</u>

Assets	\$18,835,943
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Unfunded Actuarial Accrued Liability	\$12,158,123
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Estimated FY22 Contribution - semiannual payments	\$1,523,116
Estimated FY22 Contribution - July payment	\$1,494,792
Estimated FY23 Contribution - semiannual payments	\$1,645,777
Estimated FY23 Contribution - July payment	\$1,615,172



**Middleborough**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	452
Inactives	102
Retirees and Disableds	335
Total	<u>889</u>
Payroll	25,302,468
Average	55,979

## Valuation Results

Normal Cost	
Employee	2,269,988
Employer	399,100
Administrative Expense	178,416
Total	<u>2,847,504</u>
Actuarial Accrued Liability	
Actives	63,661,950
Inactives	842,776
Retirees and Disableds	94,033,886
Total	<u>158,538,612</u>
Assets	\$96,348,257
Unfunded Actuarial Accrued Liability	\$62,190,355
Estimated FY22 Contribution - semiannual payments	\$7,897,557
Estimated FY22 Contribution - July payment	\$7,750,693
Estimated FY23 Contribution - semiannual payments	\$8,528,883
Estimated FY23 Contribution - July payment	\$8,370,279



**Middleborough Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	8
Inactives	0
Retirees and Disableds	8
Total	16
Payroll	444,793
Average	55,599

## Valuation Results

Normal Cost	
Employee	39,426
Employer	17,692
Administrative Expense	3,186
Total	60,304
Actuarial Accrued Liability	
Actives	877,079
Inactives	0
Retirees and Disableds	1,953,767
Total	2,830,846
Assets	\$1,720,383
Unfunded Actuarial Accrued Liability	\$1,110,463
Estimated FY22 Contribution - semiannual payments	\$151,466
Estimated FY22 Contribution - July payment	\$148,650
Estimated FY23 Contribution - semiannual payments	\$163,122
Estimated FY23 Contribution - July payment	\$160,088



**Norwell**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	217
Inactives	83
Retirees and Disableds	158
Total	<u>458</u>
Payroll	11,396,561
Average	52,519

## Valuation Results

Normal Cost	
Employee	1,007,703
Employer	199,810
Administrative Expense	70,160
Total	<u>1,277,673</u>
Actuarial Accrued Liability	
Actives	28,908,213
Inactives	605,446
Retirees and Disableds	32,829,674
Total	<u>62,343,333</u>
Assets	\$37,887,751
Unfunded Actuarial Accrued Liability	\$24,455,582
Estimated FY22 Contribution - semiannual payments	\$3,148,009
Estimated FY22 Contribution - July payment	\$3,089,469
Estimated FY23 Contribution - semiannual payments	\$3,397,821
Estimated FY23 Contribution - July payment	\$3,334,635

**Norwell Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	3
Inactives	2
Retirees and Disableds	1
Total	6

Payroll	139,261
Average	46,420

## Valuation Results

Normal Cost	
Employee	11,709
Employer	1,542
Administrative Expense	792
Total	14,043

Actuarial Accrued Liability	
Actives	561,611
Inactives	11,872
Retirees and Disableds	130,611
Total	704,094

Assets	\$427,897
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Unfunded Actuarial Accrued Liability	\$276,197
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Estimated FY22 Contribution - semiannual payments	\$34,846
Estimated FY22 Contribution - July payment	\$34,198
Estimated FY23 Contribution - semiannual payments	\$37,642
Estimated FY23 Contribution - July payment	\$36,942



**Old Rochester Regional School**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	70
Inactives	13
Retirees and Disableds	54
Total	<u>137</u>

Payroll	2,900,258
Average	41,432

## Valuation Results

Normal Cost	
Employee	252,442
Employer	45,187
Administrative Expense	18,342
Total	<u>315,971</u>

Actuarial Accrued Liability	
Actives	7,552,116
Inactives	139,956
Retirees and Disableds	8,606,105
Total	<u>16,298,177</u>

Assets	\$9,904,849
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Unfunded Actuarial Accrued Liability	\$6,393,328
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Estimated FY22 Contribution - semiannual payments	\$816,002
Estimated FY22 Contribution - July payment	\$800,827
Estimated FY23 Contribution - semiannual payments	\$881,054
Estimated FY23 Contribution - July payment	\$864,670



**Onset Fire District**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	13
Inactives	4
Retirees and Disableds	14
Total	<u>31</u>
Payroll	761,640
Average	58,588

## Valuation Results

Normal Cost	
Employee	67,921
Employer	1,638
Administrative Expense	6,966
Total	<u>76,525</u>
Actuarial Accrued Liability	
Actives	2,565,377
Inactives	23,594
Retirees and Disableds	3,600,956
Total	<u>6,189,927</u>
Assets	\$3,761,788
Unfunded Actuarial Accrued Liability	\$2,428,139
Estimated FY22 Contribution - semiannual payments	\$294,560
Estimated FY22 Contribution - July payment	\$289,082
Estimated FY23 Contribution - semiannual payments	\$318,705
Estimated FY23 Contribution - July payment	\$312,778



**Pembroke**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	237
Inactives	56
Retirees and Disableds	157
Total	<u>450</u>
Payroll	12,698,517
Average	53,580

## Valuation Results

Normal Cost	
Employee	1,142,599
Employer	133,746
Administrative Expense	89,463
Total	<u>1,365,808</u>
Actuarial Accrued Liability	
Actives	33,979,476
Inactives	703,049
Retirees and Disableds	44,813,465
Total	<u>79,495,990</u>
Assets	\$48,311,890
Unfunded Actuarial Accrued Liability	\$31,184,100
Estimated FY22 Contribution - semiannual payments	\$4,065,919
Estimated FY22 Contribution - July payment	\$3,990,309
Estimated FY23 Contribution - semiannual payments	\$4,380,084
Estimated FY23 Contribution - July payment	\$4,298,632

**Plymouth County Mosquito Control**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	13
Inactives	2
Retirees and Disableds	7
Total	<u>22</u>

Payroll	843,089
Average	64,853

## Valuation Results

Normal Cost	
Employee	77,085
Employer	(6,534)
Administrative Expense	4,893
Total	<u>75,444</u>

Actuarial Accrued Liability	
Actives	1,699,385
Inactives	39,008
Retirees and Disableds	2,609,391
Total	<u>4,347,784</u>

Assets	\$2,642,267
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Unfunded Actuarial Accrued Liability	\$1,705,517
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Estimated FY22 Contribution - semiannual payments	\$199,298
Estimated FY22 Contribution - July payment	\$195,592
Estimated FY23 Contribution - semiannual payments	\$215,980
Estimated FY23 Contribution - July payment	\$211,963



**Plympton**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	43
Inactives	10
Retirees and Disableds	32
Total	<u>85</u>

Payroll	1,956,540
Average	45,501

## Valuation Results

Normal Cost	
Employee	172,998
Employer	64,036
Administrative Expense	12,003
Total	<u>249,037</u>

Actuarial Accrued Liability	
Actives	3,352,116
Inactives	121,856
Retirees and Disableds	7,191,658
Total	<u>10,665,630</u>

Assets	\$6,481,795
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Unfunded Actuarial Accrued Liability	\$4,183,835
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Estimated FY22 Contribution - semiannual payments	\$568,080
Estimated FY22 Contribution - July payment	\$557,516
Estimated FY23 Contribution - semiannual payments	\$611,897
Estimated FY23 Contribution - July payment	\$600,518



**Rochester**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	63
Inactives	11
Retirees and Disableds	43
Total	<u>117</u>
Payroll	3,182,539
Average	50,516

## Valuation Results

Normal Cost	
Employee	279,025
Employer	53,117
Administrative Expense	21,501
Total	<u>353,643</u>
Actuarial Accrued Liability	
Actives	9,213,337
Inactives	231,088
Retirees and Disableds	9,660,916
Total	<u>19,105,341</u>
Assets	\$11,610,839
Unfunded Actuarial Accrued Liability	\$7,494,502
Estimated FY22 Contribution - semiannual payments	\$956,693
Estimated FY22 Contribution - July payment	\$938,903
Estimated FY23 Contribution - semiannual payments	\$1,032,956
Estimated FY23 Contribution - July payment	\$1,013,747



**Rockland**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	322
Inactives	101
Retirees and Disableds	231
Total	<u>654</u>

Payroll	15,398,021
Average	47,820

## Valuation Results

Normal Cost	
Employee	1,368,704
Employer	180,987
Administrative Expense	107,234
Total	<u>1,656,925</u>

Actuarial Accrued Liability	
Actives	39,166,108
Inactives	685,937
Retirees and Disableds	55,434,503
Total	<u>95,286,548</u>

Assets	\$57,908,245
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Unfunded Actuarial Accrued Liability	\$37,378,303
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Estimated FY22 Contribution - semiannual payments	\$4,688,441
Estimated FY22 Contribution - July payment	\$4,601,255
Estimated FY23 Contribution - semiannual payments	\$5,065,757
Estimated FY23 Contribution - July payment	\$4,971,554



**Scituate**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	384
Inactives	98
Retirees and Disableds	289
Total	<u>771</u>
Payroll	19,850,207
Average	51,693

## Valuation Results

Normal Cost	
Employee	1,746,893
Employer	444,462
Administrative Expense	129,114
Total	<u>2,320,469</u>
Actuarial Accrued Liability	
Actives	46,388,564
Inactives	1,429,564
Retirees and Disableds	66,911,384
Total	<u>114,729,512</u>
Assets	\$69,724,267
Unfunded Actuarial Accrued Liability	\$45,005,245
Estimated FY22 Contribution - semiannual payments	\$5,869,139
Estimated FY22 Contribution - July payment	\$5,759,996
Estimated FY23 Contribution - semiannual payments	\$6,331,641
Estimated FY23 Contribution - July payment	\$6,213,897

**Scituate Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	4
Inactives	0
Retirees and Disableds	8
Total	<u>12</u>

Payroll	227,923
Average	56,981

## Valuation Results

## Normal Cost

Employee	20,407
Employer	16,446
Administrative Expense	2,017
Total	<u>38,870</u>

## Actuarial Accrued Liability

Actives	377,104
Inactives	0
Retirees and Disableds	1,415,342
Total	<u>1,792,446</u>

Assets \$1,089,319

Unfunded Actuarial Accrued Liability \$703,127

Estimated FY22 Contribution - semiannual payments	\$101,092
Estimated FY22 Contribution - July payment	\$99,212
Estimated FY23 Contribution - semiannual payments	\$108,661
Estimated FY23 Contribution - July payment	\$106,641



**Silver Lake Regional School**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	105
Inactives	34
Retirees and Disableds	74
Total	<u>213</u>
Payroll	3,783,251
Average	36,031

## Valuation Results

Normal Cost	
Employee	326,641
Employer	87,955
Administrative Expense	23,578
Total	<u>438,174</u>
Actuarial Accrued Liability	
Actives	7,387,738
Inactives	175,256
Retirees and Disableds	13,388,461
Total	<u>20,951,455</u>
Assets	\$12,732,773
Unfunded Actuarial Accrued Liability	\$8,218,682
Estimated FY22 Contribution - semiannual payments	\$907,026
Estimated FY22 Contribution - July payment	\$890,159
Estimated FY23 Contribution - semiannual payments	\$991,731
Estimated FY23 Contribution - July payment	\$973,288



## South Shore Mosquito Control

Actuarial Valuation as of January 1, 2020

### 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 FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0
Estimated FY23 Contribution - semiannual payments	\$0
Estimated FY23 Contribution - July payment	\$0



**South Shore Regional School**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	41
Inactives	13
Retirees and Disableds	26
Total	<u>80</u>

Payroll	1,757,100
Average	42,856

## Valuation Results

Normal Cost	
Employee	152,919
Employer	33,679
Administrative Expense	9,728
Total	<u>196,326</u>

Actuarial Accrued Liability	
Actives	3,474,640
Inactives	151,595
Retirees and Disableds	5,017,509
Total	<u>8,643,744</u>

Assets	\$5,253,040
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Unfunded Actuarial Accrued Liability	\$3,390,704
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Estimated FY22 Contribution - semiannual payments	\$442,373
Estimated FY22 Contribution - July payment	\$434,147
Estimated FY23 Contribution - semiannual payments	\$477,225
Estimated FY23 Contribution - July payment	\$468,351



**Wareham**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	316
Inactives	68
Retirees and Disableds	253
Total	<u>637</u>

Payroll	15,425,355
Average	48,814

## Valuation Results

Normal Cost	
Employee	1,357,348
Employer	151,661
Administrative Expense	107,082
Total	<u>1,616,091</u>

Actuarial Accrued Liability	
Actives	38,696,069
Inactives	806,100
Retirees and Disableds	55,649,466
Total	<u>95,151,635</u>

Assets	\$57,826,255
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Unfunded Actuarial Accrued Liability	\$37,325,380
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Estimated FY22 Contribution - semiannual payments	\$4,653,056
Estimated FY22 Contribution - July payment	\$4,566,527
Estimated FY23 Contribution - semiannual payments	\$5,028,785
Estimated FY23 Contribution - July payment	\$4,935,270



**Wareham Fire District**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	48
Inactives	3
Retirees and Disableds	36
Total	<u>87</u>
Payroll	3,362,383
Average	70,050

## Valuation Results

Normal Cost	
Employee	308,511
Employer	20,634
Administrative Expense	25,439
Total	<u>354,584</u>
Actuarial Accrued Liability	
Actives	9,111,212
Inactives	41,404
Retirees and Disableds	13,452,128
Total	<u>22,604,744</u>
Assets	\$13,737,522
Unfunded Actuarial Accrued Liability	\$8,867,222
Estimated FY22 Contribution - semiannual payments	\$1,090,181
Estimated FY22 Contribution - July payment	\$1,069,908
Estimated FY23 Contribution - semiannual payments	\$1,178,884
Estimated FY23 Contribution - July payment	\$1,156,961





**Wareham Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	1
Inactives	1
Retirees and Disableds	3
Total	<u>5</u>

Payroll	81,118
Average	81,118

## Valuation Results

## Normal Cost

Employee	7,742
Employer	464
Administrative Expense	1,291
Total	<u>9,497</u>

## Actuarial Accrued Liability

Actives	191,668
Inactives	26
Retirees and Disableds	955,197
Total	<u>1,146,891</u>

Assets	\$696,997
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Unfunded Actuarial Accrued Liability	\$449,894
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Estimated FY22 Contribution - semiannual payments	\$54,736
Estimated FY22 Contribution - July payment	\$53,718
Estimated FY23 Contribution - semiannual payments	\$59,215
Estimated FY23 Contribution - July payment	\$58,114



**West Bridgewater**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	161
Inactives	33
Retirees and Disableds	113
Total	<u>307</u>

Payroll	8,927,767
Average	55,452

## Valuation Results

## Normal Cost

Employee	805,441
Employer	122,374
Administrative Expense	58,067
Total	<u>985,882</u>

## Actuarial Accrued Liability

Actives	20,853,515
Inactives	369,736
Retirees and Disableds	30,374,809
Total	<u>51,598,060</u>

Assets \$31,357,554

Unfunded Actuarial Accrued Liability \$20,240,506

Estimated FY22 Contribution - semiannual payments	\$2,562,909
Estimated FY22 Contribution - July payment	\$2,515,249
Estimated FY23 Contribution - semiannual payments	\$2,768,109
Estimated FY23 Contribution - July payment	\$2,716,633



**Whitman**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	119
Inactives	15
Retirees and Disableds	95
Total	<u>229</u>

Payroll	7,648,077
Average	64,270

## Valuation Results

Normal Cost	
Employee	702,589
Employer	84,856
Administrative Expense	56,350
Total	<u>843,795</u>

Actuarial Accrued Liability	
Actives	23,068,669
Inactives	145,927
Retirees and Disableds	26,857,444
Total	<u>50,072,040</u>

Assets	\$30,430,150
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Unfunded Actuarial Accrued Liability	\$19,641,890
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Estimated FY22 Contribution - semiannual payments	\$2,453,588
Estimated FY22 Contribution - July payment	\$2,407,960
Estimated FY23 Contribution - semiannual payments	\$2,651,492
Estimated FY23 Contribution - July payment	\$2,602,185



**Whitman/Hanson Regional School**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	153
Inactives	109
Retirees and Disableds	127
Total	<u>389</u>

Payroll	4,582,201
Average	29,949

## Valuation Results

Normal Cost	
Employee	392,621
Employer	78,954
Administrative Expense	31,613
Total	<u>503,188</u>

Actuarial Accrued Liability	
Actives	9,304,880
Inactives	931,260
Retirees and Disableds	17,855,167
Total	<u>28,091,307</u>

Assets	\$17,071,857
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Unfunded Actuarial Accrued Liability	\$11,019,450
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Estimated FY22 Contribution - semiannual payments	\$1,407,507
Estimated FY22 Contribution - July payment	\$1,381,333
Estimated FY23 Contribution - semiannual payments	\$1,519,669
Estimated FY23 Contribution - July payment	\$1,491,409



**Whitman Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	5
Inactives	1
Retirees and Disableds	5
Total	<u>11</u>

Payroll	294,285
Average	58,857

## Valuation Results

## Normal Cost

Employee	25,372
Employer	(4,900)
Administrative Expense	2,210
Total	<u>22,682</u>

## Actuarial Accrued Liability

Actives	965,229
Inactives	80,604
Retirees and Disableds	918,124
Total	<u>1,963,957</u>

Assets	\$1,193,550
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Unfunded Actuarial Accrued Liability	\$770,407
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Estimated FY22 Contribution - semiannual payments	\$88,099
Estimated FY22 Contribution - July payment	\$86,461
Estimated FY23 Contribution - semiannual payments	\$95,564
Estimated FY23 Contribution - July payment	\$93,787



**Abington Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	3
Inactives	0
Retirees and Disableds	3
Total	<u>6</u>

Payroll	113,682
Average	37,894

## Valuation Results

Normal Cost	
Employee	10,123
Employer	1,013
Administrative Expense	989
Total	<u>12,125</u>

Actuarial Accrued Liability	
Actives	146,134
Inactives	0
Retirees and Disableds	732,913
Total	<u>879,047</u>

Assets	\$534,221
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Unfunded Actuarial Accrued Liability	\$344,826
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Estimated FY22 Contribution - semiannual payments	\$42,603
Estimated FY22 Contribution - July payment	\$41,811
Estimated FY23 Contribution - semiannual payments	\$46,060
Estimated FY23 Contribution - July payment	\$45,203



**Pembroke Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	7
Inactives	0
Retirees and Disableds	7
Total	<u>14</u>

Payroll	425,759
Average	60,823

## Valuation Results

Normal Cost	
Employee	39,096
Employer	3,439
Administrative Expense	2,587
Total	<u>45,122</u>

Actuarial Accrued Liability	
Actives	574,472
Inactives	0
Retirees and Disableds	1,724,420
Total	<u>2,298,892</u>

Assets	\$1,397,100
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Unfunded Actuarial Accrued Liability	\$901,792
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Estimated FY22 Contribution - semiannual payments	\$112,197
Estimated FY22 Contribution - July payment	\$110,110
Estimated FY23 Contribution - semiannual payments	\$121,266
Estimated FY23 Contribution - July payment	\$119,011



**Hanson Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	1
Inactives	0
Retirees and Disableds	4
Total	<u>5</u>

Payroll	58,730
Average	58,730

## Valuation Results

## Normal Cost

Employee	5,344
Employer	3,841
Administrative Expense	683
Total	<u>9,868</u>

## Actuarial Accrued Liability

Actives	40,299
Inactives	0
Retirees and Disableds	566,957
Total	<u>607,256</u>

Assets	\$369,046
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Unfunded Actuarial Accrued Liability	\$238,210
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Estimated FY22 Contribution - semiannual payments	\$32,537
Estimated FY22 Contribution - July payment	\$31,932
Estimated FY23 Contribution - semiannual payments	\$35,039
Estimated FY23 Contribution - July payment	\$34,387





**Rockland Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	2
Inactives	0
Retirees and Disableds	5
Total	<u>7</u>

Payroll	139,315
Average	69,658

## Valuation Results

## Normal Cost

Employee	11,757
Employer	121
Administrative Expense	1,180
Total	<u>13,058</u>

## Actuarial Accrued Liability

Actives	396,976
Inactives	0
Retirees and Disableds	651,325
Total	<u>1,048,301</u>

Assets \$637,081

Unfunded Actuarial Accrued Liability \$411,220

Estimated FY22 Contribution - semiannual payments	\$49,731
Estimated FY22 Contribution - July payment	\$48,806
Estimated FY23 Contribution - semiannual payments	\$53,814
Estimated FY23 Contribution - July payment	\$52,813



**Halifax Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	0
Inactives	0
Retirees and Disableds	2
Total	<u>2</u>

Payroll	0
Average	0

## Valuation Results

## Normal Cost

Employee	0
Employer	0
Administrative Expense	(0)
Total	<u>(0)</u>

## Actuarial Accrued Liability

Actives	0
Inactives	0
Retirees and Disableds	534,549
Total	<u>534,549</u>

Assets (\$0)

Unfunded Actuarial Accrued Liability (\$0)

Estimated FY22 Contribution - semiannual payments (\$0)

Estimated FY22 Contribution - July payment (\$0)

Estimated FY23 Contribution - semiannual payments (\$0)

Estimated FY23 Contribution - July payment (\$0)



## Mattapoisett Housing

Actuarial Valuation as of January 1, 2020

### Participant Information

Participants	
Actives	1
Inactives	0
Retirees and Disableds	2
Total	3

Payroll	31,816
Average	31,816

### Valuation Results

Normal Cost	
Employee	2,429
Employer	(1,810)
Administrative Expense	736
Total	1,355

Actuarial Accrued Liability	
Actives	58,202
Inactives	0
Retirees and Disableds	596,094
Total	654,296

Assets \$397,634

Unfunded Actuarial Accrued Liability \$256,662

Estimated FY22 Contribution - semiannual payments	\$29,175
Estimated FY22 Contribution - July payment	\$28,632
Estimated FY23 Contribution - semiannual payments	\$31,655
Estimated FY23 Contribution - July payment	\$31,067



## Hanover Housing

Actuarial Valuation as of January 1, 2020

### Participant Information

Participants	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	<u>0</u>

Payroll	0
Average	0

### Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	0
Total	<u>0</u>

Actuarial Accrued Liability	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	<u>0</u>

Assets \$0

Unfunded Actuarial Accrued Liability \$0

Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0
Estimated FY23 Contribution - semiannual payments	\$0
Estimated FY23 Contribution - July payment	\$0



**Acushnet/Rochester/Marion Health District**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	1
Inactives	0
Retirees and Disableds	0
Total	<u>1</u>

Payroll	79,231
Average	79,231

## Valuation Results

## Normal Cost

Employee	6,629
Employer	(2,261)
Administrative Expense	527
Total	<u>4,895</u>

## Actuarial Accrued Liability

Actives	468,472
Inactives	0
Retirees and Disableds	0
Total	<u>468,472</u>

Assets \$284,703

Unfunded Actuarial Accrued Liability \$183,769

Estimated FY22 Contribution - semiannual payments	\$19,935
Estimated FY22 Contribution - July payment	\$19,564
Estimated FY23 Contribution - semiannual payments	\$21,676
Estimated FY23 Contribution - July payment	\$21,273



**West Bridgewater Housing**

Actuarial Valuation as of January 1, 2020

## Participant Information

## Participants

Actives	1
Inactives	0
Retirees and Disableds	1
Total	<u>2</u>

Payroll	56,780
Average	56,780

## Valuation Results

## Normal Cost

Employee	5,227
Employer	1,922
Administrative Expense	392
Total	<u>7,541</u>

## Actuarial Accrued Liability

Actives	60,057
Inactives	0
Retirees and Disableds	287,916
Total	<u>347,973</u>

Assets	\$211,473
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Unfunded Actuarial Accrued Liability	\$136,500
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Estimated FY22 Contribution - semiannual payments	\$18,369
Estimated FY22 Contribution - July payment	\$18,027
Estimated FY23 Contribution - semiannual payments	\$19,792
Estimated FY23 Contribution - July payment	\$19,424



**South Shore Tri Town Development**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	2
Inactives	2
Retirees and Disableds	4
Total	8

Payroll	209,055
Average	104,528

## Valuation Results

Normal Cost	
Employee	20,508
Employer	(1,660)
Administrative Expense	3,539
Total	22,387

Actuarial Accrued Liability	
Actives	489,749
Inactives	349,732
Retirees and Disableds	2,305,310
Total	3,144,791

Assets	\$1,911,176
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Unfunded Actuarial Accrued Liability	\$1,233,615
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Estimated FY22 Contribution - semiannual payments	\$147,186
Estimated FY22 Contribution - July payment	\$144,449
Estimated FY23 Contribution - semiannual payments	\$159,363
Estimated FY23 Contribution - July payment	\$156,400



## Carver Housing

Actuarial Valuation as of January 1, 2020

### 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
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Unfunded Actuarial Accrued Liability	\$0
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Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0
Estimated FY23 Contribution - semiannual payments	\$0
Estimated FY23 Contribution - July payment	\$0





## No Carver Water District

Actuarial Valuation as of January 1, 2020

### 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 FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0
Estimated FY23 Contribution - semiannual payments	\$0
Estimated FY23 Contribution - July payment	\$0



## No Carver Water District

Actuarial Valuation as of January 1, 2020

### Participant Information

Participants	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	<u>0</u>

Payroll	0
Average	0

### Valuation Results

Normal Cost	
Employee	0
Employer	0
Administrative Expense	0
Total	<u>0</u>

Actuarial Accrued Liability	
Actives	0
Inactives	0
Retirees and Disableds	0
Total	<u>0</u>

Assets \$0

Unfunded Actuarial Accrued Liability \$0

Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0
Estimated FY23 Contribution - semiannual payments	\$0
Estimated FY23 Contribution - July payment	\$0



**Other (Retirement Staff)**

Actuarial Valuation as of January 1, 2020

## Participant Information

Participants	
Actives	9
Inactives	1
Retirees and Disableds	6
Total	<u>16</u>

Payroll	743,319
Average	82,591

## Valuation Results

Normal Cost	
Employee	64,715
Employer	(4,933)
Administrative Expense	5,468
Total	<u>65,250</u>

Actuarial Accrued Liability	
Actives	1,683,095
Inactives	94,943
Retirees and Disableds	3,081,029
Total	<u>4,859,067</u>

Assets	\$2,952,988
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Unfunded Actuarial Accrued Liability	\$1,906,079
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Estimated FY22 Contribution - semiannual payments	\$0
Estimated FY22 Contribution - July payment	\$0
Estimated FY23 Contribution - semiannual payments	\$0
Estimated FY23 Contribution - July payment	\$0

