



**PLYMOUTH COUNTY  
CONTRIBUTORY RETIREMENT SYSTEM**

December 31, 2015 Actuarial Valuation Report  
GASB 67 & 68

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## **Introduction**

This report presents the Governmental Accounting Standards Statements 67 & 68 based on the findings of an actuarial valuation as of January 1, 2015, of the Plymouth County Contributory Retirement System, rolled forward to December 31, 2015.

The actuarial valuation is based on:

- Provisions of Chapter 32 of the Massachusetts General Laws, "M.G.L.", as of January 1, 2015.
- 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
- Assets as of December 31, 2015

The valuation and appropriation forecast are prepared in accordance with Chapter 32 of the M.G.L. as of January 1, 2015.

The valuation and forecast do not account for:

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

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

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

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

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

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

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

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

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

## Discount Rate

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

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

The Board selected 8.00% as the long term expectation of investment returns. The average return for the 31 years ending as of December 31, 2014 was 9.05%. The average return for the past 5 years ending December 31, 2015 was 7.02%.

## Net Position Restricted for Pensions

The Net Position Restricted for Pensions as of December 31, 2015 is \$832,637,491. The 2015 Annual Statement of the Financial Condition contains the values for previous years and the changes in Net Position Restricted for Pensions. Investments are reported at fair value.

December 31, 2014 Net Position	834,581,969
Employer Contributions	67,162,327
Employee Contributions	26,259,524
Other Payments	2,741,059
Benefit Payments	(94,903,555)
Expenses	(1,905,155)
Investment Income	<u>(1,298,678)</u>
December 31, 2015 Net Position	832,637,491

**Pension Liability as of December 31, 2015**

The following presents the changes in the pension liability during 2015.

December 31, 2013 Liability	1,417,490,110
Service Cost	32,038,175
Interest on Liability and Service Cost	115,962,263
Change in Plan Provisions	0
Experience (Gain) and Loss	0
Change in Assumptions	0
Benefit Payments	(94,903,555)
Interest on Benefit Payments	(3,723,112)
Other	<u>0</u>
December 31, 2014 Liability	1,466,863,880

**Net Pension Liability as of December 31, 2015**

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

	<b>1% Decrease (7.00%)</b>	<b>Current Discount Rate (8.00%)</b>	<b>1% Increase (9.00%)</b>
Total Pension Liability	1,619,510,055	1,466,863,880	1,335,959,453
Plan Fiduciary Net Position	<u>832,637,491</u>	<u>832,637,491</u>	<u>832,637,491</u>
Net Pension Liability	786,872,564	634,226,389	503,321,962

The Plan Fiduciary Net Position as a percentage of the Total Pension Liability is 56.8%.

	<u>Unit</u>	<b>1% Decrease (7.00%)</b>	<b>Current Discount Rate (8.00%)</b>	<b>1% Increase (9.00%)</b>
County of Plymouth	1	78,168,559	69,505,859	66,528,040
Hospital	2	9,748,066	8,815,357	8,570,825
Abington	3	59,151,824	51,933,574	49,109,657
Bridgewater	4	79,166,717	69,300,179	65,308,169
Bridgewater Housing	5	1,419,299	1,267,822	1,217,773
Bridgewater/Raynham				
Regional School	6	37,054,994	32,438,025	30,580,347
Carver	7	44,448,965	38,702,160	36,297,729
Carver/Marion/Wareham				
Regional Refuse	8	1,190,189	1,064,609	1,023,228
Duxbury	9	80,606,345	70,185,331	65,807,042
Duxbury Housing	10	578,209	515,988	495,457
East Bridgewater	11	56,577,264	49,414,191	46,477,205
East Bridgewater Housing	12	711,641	625,685	592,724
Halifax	13	26,543,930	23,147,558	21,739,565
Hanover	14	72,850,720	63,765,278	60,108,506
Hanson	15	34,940,548	30,439,646	28,560,227
Kingston	16	50,049,595	43,523,816	40,756,155
Kingston Housing	17	110,130	92,187	82,959
Lakeville	18	23,152,564	20,242,562	19,051,986
Marion	19	23,126,098	20,087,426	18,791,590
Marshfield	20	128,050,732	112,105,107	105,660,095
Marshfield Housing	21	770,038	676,169	639,104
Mattapoisett	22	26,812,077	23,370,112	21,930,244
Middleborough	23	147,748,175	129,448,086	122,134,817
Middleborough Housing	24	2,534,039	2,220,219	2,092,751
Norwell	25	55,764,018	48,741,925	45,875,300
Norwell Housing	26	654,293	567,573	529,664
Old Rochester Regional				
School	27	14,393,406	12,560,048	11,803,699
Onset Fire District	28	5,908,313	5,156,484	4,845,844
Pembroke	29	70,610,855	61,489,525	57,669,389
Plymouth County Mosquito				
Control	30	4,724,493	4,148,117	3,920,567
Plympton	31	9,241,732	8,141,883	7,719,118
Rochester	32	15,371,120	13,255,593	12,315,250
Rockland	33	89,675,421	78,595,520	74,151,147
Scituate	34	104,733,633	91,994,046	86,985,528
Scituate Housing	35	1,865,072	1,660,734	1,591,234
Silver Lake Regional School	36	18,617,820	16,308,253	15,381,377
South Shore Regional				
School	38	7,977,434	7,018,594	6,648,110
Wareham	39	86,848,725	75,894,715	71,431,713

	<u>Unit</u>	<b>1% Decrease (7.00%)</b>	<b>Current Discount Rate (8.00%)</b>	<b>1% Increase (9.00%)</b>
Wareham Fire District	40	15,901,171	13,785,130	12,861,314
Wareham Housing	41	608,627	535,118	506,882
West Bridgewater	42	44,399,093	38,786,973	36,490,993
Whitman	43	44,906,911	39,199,676	36,861,148
Whitman/Hanson Regional School	44	27,868,428	24,537,432	23,263,809
Whitman Housing	45	1,781,376	1,542,831	1,439,531
Abington Housing	46	836,388	731,746	689,074
Pembroke Housing	47	1,982,069	1,751,656	1,666,734
Hanson Housing	48	564,229	509,604	494,447
Rockland Housing	49	1,159,466	1,043,965	1,010,439
Halifax Housing	50	698,710	624,225	599,827
Mattapoisett Housing	51	476,629	414,542	387,481
Acushnet/Rochester/Marion Health District	53	394,363	336,159	307,864
West Bridgewater Housing	54	254,038	230,228	224,205
South Shore Tri Town Development	55	1,696,638	1,481,917	1,395,358
Carver Housing	56	512,788	457,988	440,094
Retirement Staff	59	3,572,080	3,100,961	2,896,117



**Employer Contributions during 2015**

	<u>Unit</u>	<u>Contribution</u>	<u>Portion</u>
County of Plymouth	1	7,629,339	11.3596%
Hospital	2		0.0000%
Abington	3	2,340,302	3.4845%
Bridgewater	4	3,115,204	4.6383%
Bridgewater Housing	5	75,817	0.1129%
Bridgewater/Raynham			
Regional School	6	1,472,687	2.1927%
Carver	7	1,804,375	2.6866%
Carver/Marion/Wareham			
Regional Refuse	8	41,717	0.0621%
Duxbury	9	3,180,625	4.7357%
Duxbury Housing	10	12,508	0.0186%
East Bridgewater	11	2,077,316	3.0930%
East Bridgewater Housing	12	36,435	0.0542%
Halifax	13	1,008,901	1.5022%
Hanover	14	2,849,033	4.2420%
Hanson	15	1,262,542	1.8798%
Kingston	16	1,906,248	2.8383%
Kingston Housing	17	2,845	0.0042%
Lakeville	18	915,693	1.3634%
Marion	19	879,507	1.3095%
Marshfield	20	5,134,471	7.6449%
Marshfield Housing	21	33,957	0.0506%
Mattapoisett	22	982,770	1.4633%
Middleborough	23	5,660,784	8.4285%
Middleborough Housing	24	85,565	0.1274%
Norwell	25	2,158,588	3.2140%
Norwell Housing	26	24,939	0.0371%
Old Rochester Regional			
School	27	561,614	0.8362%
Onset Fire District	28	219,219	0.3264%
Pembroke	29	2,776,769	4.1344%
Plymouth County Mosquito			
Control	30	184,944	0.2754%
Plympton	31	419,959	0.6253%
Rochester	32	633,590	0.9434%
Rockland	33	3,409,028	5.0758%
Scituate	34	4,141,767	6.1668%
Scituate Housing	35	111,214	0.1656%
Silver Lake Regional School	36	636,307	0.9474%
South Shore Regional			
School	38	317,381	0.4726%
Wareham	39	3,453,350	5.1418%

	<u>Unit</u>	<u>Contribution</u>	<u>Portion</u>
Wareham Fire District	40	594,158	0.8847%
Wareham Housing	41	16,846	0.0251%
West Bridgewater	42	1,671,609	2.4889%
Whitman	43	1,730,948	2.5773%
Whitman/Hanson Regional School	44	1,057,651	1.5748%
Whitman Housing	45	80,197	0.1194%
Abington Housing	46	31,931	0.0475%
Pembroke Housing	47	80,559	0.1199%
Hanson Housing	48	28,653	0.0427%
Rockland Housing	49	51,918	0.0773%
Halifax Housing	50	9,224	0.0137%
Mattapoisett Housing	51	8,241	0.0123%
Acushnet/Rochester/Marion Health District	53	5,507	0.0082%
West Bridgewater Housing	54	12,149	0.0181%
South Shore Tri Town Development	55	104,543	0.1557%
Carver Housing	56	18,322	0.0273%
Retirement Staff	59	<u>102,565</u>	<u>0.1527%</u>
		67,162,327	100.0000%

### **Pension Expense for 2015**

Service Cost	32,038,175
Interest	112,239,150
Difference in Experience - Amortization	0
Change in Assumptions - Amortization	0
Changes in Plan Provisions	0
Employee Contributions	(26,259,524)
Projected Earnings	(66,740,710)
Administration Expense	1,905,955
Other Changes in Fiduciary Net Position	0
Asset (Gain) / Loss Amortization	<u>20,346,551</u>
Total Expense	73,529,597

**Schedules of Required Supplementary Information**

	<u>2014</u>	<u>2015</u>
Total Pension Liability – Beginning	1,365,708,192	1,417,490,110
Total Pension Liability – Ending (a)	1,417,490,110	1,466,863,880
Plan Fiduciary Net Position – Beginning	811,013,848	834,581,969
Plan Fiduciary Net Position – Ending (b)	834,581,969	832,637,491
Net Pension Liability – Ending (a) – (b)	582,908,141	634,226,389
Plan Fiduciary Net Positions as a percentage of the Total Pension Liability	58.9%	56.8%
Covered-employee payroll	246,703,686	255,955,074
Net Pension Liability as a percentage of Covered-employee Payroll	236.3%	247.7%

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

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

<u>Year</u>	<u>(Gain) / Loss</u>	<u>Period</u>	<u>Increase (Decrease) arising from (Gains) or Losses</u>				
			<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
2015	68,091,068	5	13,607,800	13,607,800	13,607,800	13,607,800	13,607,800
2014	33,693,756	5	6,738,751	6,738,751	6,738,751	6,738,751	0

**Reconciliation of Net Pension Liability for 2015**

NPL Beginning	582,908,141
Expense	73,529,597
Contribution	(67,162,327)
Deferred Outflows	47,692,447
Deferred Inflows	0
Revenue	(2,741,469)
NPL Ending	634,226,390

## Schedule of Pension Amounts

	Unit	Net Pension Liability Beginning	Expense	Contribution	Deferred Outflows	Deferred Inflows	Revenue	Net Pension Liability End
County of Plymouth	1	28,582,585	3,603,421	-7,629,339	2,338,573	0	-134,426	26,760,814
Hospital	2	3,625,100	457,018	0	296,599	0	-17,049	4,361,668
Abington	3	21,356,412	2,692,414	-2,340,302	1,747,342	0	-100,441	23,355,425
Bridgewater	4	28,498,004	3,592,758	-3,115,204	2,331,653	0	-134,029	31,173,182
Bridgewater Housing	5	521,361	65,728	-75,817	42,657	0	-2,452	551,477
Bridgewater/Raynham								
Regional School	6	13,339,344	1,681,698	-1,472,687	1,091,401	0	-62,736	14,577,020
Carver	7	15,915,317	2,006,452	-1,804,375	1,302,161	0	-74,851	17,344,704
Carver/Marion/Wareham								
Regional Refuse	8	437,794	55,193	-41,717	35,820	0	-2,059	485,032
Duxbury	9	28,862,001	3,638,647	-3,180,625	2,361,435	0	-135,741	31,545,717
Duxbury Housing	10	212,187	26,751	-12,508	17,361	0	-998	242,794
East Bridgewater	11	20,320,378	2,561,801	-2,077,316	1,662,575	0	-95,569	22,371,869
East Bridgewater Housing	12	257,298	32,438	-36,435	21,051	0	-1,210	273,142
Halifax	13	9,518,867	1,200,049	-1,008,901	778,815	0	-44,768	10,444,062
Hanover	14	26,221,911	3,305,810	-2,849,033	2,145,428	0	-123,324	28,700,792
Hanson	15	12,517,560	1,578,095	-1,262,542	1,024,163	0	-58,871	13,798,405
Kingston	16	17,898,105	2,256,423	-1,906,248	1,464,390	0	-84,176	19,628,494
Kingston Housing	17	37,910	4,779	-2,845	3,102	0	-178	42,768
Lakeville	18	8,324,259	1,049,444	-915,693	681,075	0	-39,150	9,099,935
Marion	19	8,260,463	1,041,401	-879,507	675,855	0	-38,850	9,059,362
Marshfield	20	46,100,484	5,811,912	-5,134,471	3,771,855	0	-216,815	50,332,965
Marshfield Housing	21	278,058	35,055	-33,957	22,750	0	-1,308	300,598
Mattapoisett	22	9,610,387	1,211,586	-982,770	786,303	0	-45,199	10,580,307
Middleborough	23	53,232,360	6,711,031	-5,660,784	4,355,372	0	-250,357	58,387,622
Middleborough Housing	24	913,011	115,104	-85,565	74,701	0	-4,294	1,012,957
Norwell	25	20,043,925	2,526,948	-2,158,588	1,639,956	0	-94,268	21,957,973
Norwell Housing	26	233,401	29,425	-24,939	19,097	0	-1,098	255,886
Old Rochester Regional								
School	27	5,165,013	651,156	-561,614	422,592	0	-24,292	5,652,855
Onset Fire District	28	2,120,478	267,330	-219,219	173,493	0	-9,973	2,332,109
Pembroke	29	25,286,063	3,187,827	-2,776,769	2,068,858	0	-118,923	27,647,056

**Schedule of Pension Amounts**

	Unit	Net Pension Liability Beginning	Expense	Contribution	Deferred Outflows	Deferred Inflows	Revenue	Net Pension Liability End
Plymouth County Mosquito								
Control	30	1,705,812	215,053	-184,944	139,566	0	-8,023	1,867,464
Plympton	31	3,348,150	422,103	-419,959	273,939	0	-15,747	3,608,486
Rochester	32	5,451,038	687,215	-633,590	445,994	0	-25,637	5,925,020
Rockland	33	32,320,486	4,074,660	-3,409,028	2,644,402	0	-152,006	35,478,514
Scituate	34	37,830,302	4,769,286	-4,141,767	3,095,204	0	-177,919	41,375,106
Scituate Housing	35	682,936	86,098	-111,214	55,877	0	-3,212	710,486
Silver Lake Regional School	36	6,706,370	845,476	-636,307	548,703	0	-31,541	7,432,701
South Shore Regional								
School	38	2,886,225	363,868	-317,381	236,146	0	-13,574	3,155,284
Wareham	39	31,209,845	3,934,641	-3,453,350	2,553,530	0	-146,783	34,097,883
Wareham Fire District	40	5,668,798	714,668	-594,158	463,810	0	-26,661	6,226,457
Wareham Housing	41	220,054	27,742	-16,846	18,004	0	-1,035	247,920
West Bridgewater	42	15,950,194	2,010,849	-1,671,609	1,305,015	0	-75,015	17,519,434
Whitman	43	16,119,908	2,032,245	-1,730,948	1,318,901	0	-75,813	17,664,293
Whitman/Hanson Regional								
School	44	10,090,419	1,272,104	-1,057,651	825,579	0	-47,456	11,082,995
Whitman Housing	45	634,452	79,986	-80,197	51,909	0	-2,984	683,167
Abington Housing	46	300,913	37,936	-31,931	24,620	0	-1,415	330,123
Pembroke Housing	47	720,326	90,812	-80,559	58,936	0	-3,388	786,127
Hanson Housing	48	209,562	26,420	-28,653	17,146	0	-986	223,489
Rockland Housing	49	429,305	54,123	-51,918	35,125	0	-2,019	464,616
Halifax Housing	50	256,697	32,362	-9,224	21,002	0	-1,207	299,631
Mattapoissett Housing	51	170,470	21,491	-8,241	13,947	0	-802	196,866
Health District	53	138,237	17,428	-5,507	11,310	0	-650	160,819
West Bridgewater Housing	54	94,676	11,936	-12,149	7,746	0	-445	101,764
Development	55	609,402	76,828	-104,543	49,860	0	-2,866	628,681
Carver Housing	56	188,336	23,744	-18,322	15,410	0	-886	208,282
Retirement Staff	59	1,275,194	160,764	-102,565	104,334	0	-5,997	1,431,730
		582,908,143	73,487,532	(67,162,327)	47,692,448	-	(2,741,472)	634,184,324

**Schedule of Pension Amounts**

**Deferred Outflows of Resources**

			Differences between Expected and Actual Experience	Net Asset Loss	Changes in Assumptions	Changes in Proportion and Differences between Employer Contributions and proportionate share of contributions	Recognition of previous Deferred Outflows	Total Deferred Outflows
	Unit	Net Pension Liability						
County of Plymouth	1	31,098,947	0	2,669,004	0	0	-330,431	2,338,573
Hospital	2	3,944,248	0	338,507	0	0	-41,908	296,599
Abington	3	23,236,595	0	1,994,234	0	0	-246,892	1,747,342
Bridgewater	4	31,006,920	0	2,661,106	0	0	-329,453	2,331,653
Bridgewater Housing	5	567,261	0	48,684	0	0	-6,027	42,657
Bridgewater/Raynham								
Regional School	6	14,513,718	0	1,245,611	0	0	-154,210	1,091,401
Carver	7	17,316,474	0	1,486,151	0	0	-183,990	1,302,161
Carver/Marion/Wareham								
Regional Refuse	8	476,337	0	40,881	0	0	-5,061	35,820
Duxbury	9	31,402,963	0	2,695,096	0	0	-333,661	2,361,435
Duxbury Housing	10	230,868	0	19,814	0	0	-2,453	17,361
East Bridgewater	11	22,109,349	0	1,897,490	0	0	-234,915	1,662,575
East Bridgewater Housing	12	279,950	0	24,026	0	0	-2,975	21,051
Halifax	13	10,356,892	0	888,859	0	0	-110,044	778,815
Hanover	14	28,530,444	0	2,448,568	0	0	-303,140	2,145,428
Hanson	15	13,619,585	0	1,168,873	0	0	-144,710	1,024,163
Kingston	16	19,473,824	0	1,671,302	0	0	-206,912	1,464,390
Kingston Housing	17	41,247	0	3,540	0	0	-438	3,102
Lakeville	18	9,057,112	0	777,308	0	0	-96,233	681,075
Marion	19	8,987,700	0	771,351	0	0	-95,496	675,855
Marshfield	20	50,159,092	0	4,304,803	0	0	-532,948	3,771,855
Marshfield Housing	21	302,538	0	25,965	0	0	-3,215	22,750
Mattapoisett	22	10,456,469	0	897,405	0	0	-111,102	786,303
Middleborough	23	57,918,847	0	4,970,768	0	0	-615,396	4,355,372
Middleborough Housing	24	993,391	0	85,256	0	0	-10,555	74,701

**Schedule of Pension Amounts**

**Deferred Outflows of Resources**

			Differences between Expected and Actual Experience	Net Asset Loss	Changes in Assumptions	Changes in Proportion and Differences between Employer Contributions and proportionate share of contributions	Recognition of previous Deferred Outflows	Total Deferred Outflows
	Unit	Net Pension Liability						
Norwell	25	21,808,558	0	1,871,675	0	0	-231,719	1,639,956
Norwell Housing	26	253,949	0	21,795	0	0	-2,698	19,097
Old Rochester Regional School	27	5,619,732	0	482,302	0	0	-59,710	422,592
Onset Fire District	28	2,307,161	0	198,007	0	0	-24,514	173,493
Pembroke	29	27,512,206	0	2,361,179	0	0	-292,321	2,068,858
Plymouth County Mosquito Control	30	1,855,988	0	159,286	0	0	-19,720	139,566
Plympton	31	3,642,916	0	312,646	0	0	-38,707	273,939
Rochester	32	5,930,939	0	509,011	0	0	-63,017	445,994
Rockland	33	35,165,926	0	3,018,045	0	0	-373,643	2,644,402
Scituate	34	41,160,818	0	3,532,544	0	0	-437,340	3,095,204
Scituate Housing	35	743,061	0	63,772	0	0	-7,895	55,877
Silver Lake Regional School	36	7,296,788	0	626,232	0	0	-77,529	548,703
South Shore Regional School	38	3,140,324	0	269,512	0	0	-33,366	236,146
Wareham	39	33,957,508	0	2,914,334	0	0	-360,804	2,553,530
Wareham Fire District	40	6,167,869	0	529,345	0	0	-65,535	463,810
Wareham Housing	41	239,427	0	20,548	0	0	-2,544	18,004
West Bridgewater	42	17,354,422	0	1,489,408	0	0	-184,393	1,305,015
Whitman	43	17,539,078	0	1,505,256	0	0	-186,355	1,318,901
Whitman/Hanson Regional School	44	10,978,762	0	942,230	0	0	-116,651	825,579
Whitman Housing	45	690,308	0	59,244	0	0	-7,335	51,909
Abington Housing	46	327,404	0	28,099	0	0	-3,479	24,620
Pembroke Housing	47	783,742	0	67,263	0	0	-8,327	58,936

**Schedule of Pension Amounts**

**Deferred Outflows of Resources**

	Unit	Net Pension Liability	Differences between Expected and Actual Experience	Net Asset Loss	Changes in Assumptions	Changes in Proportion and Differences between Employer Contributions and proportionate share of contributions	Recognition of previous Deferred Outflows	Total Deferred Outflows
Hanson Housing	48	228,012	0	19,569	0	0	-2,423	17,146
Rockland Housing	49	467,100	0	40,088	0	0	-4,963	35,125
Halifax Housing	50	279,296	0	23,970	0	0	-2,968	21,002
Mattapoisett Housing	51	185,478	0	15,918	0	0	-1,971	13,947
Health District	53	150,407	0	12,908	0	0	-1,598	11,310
West Bridgewater Housing	54	103,011	0	8,841	0	0	-1,095	7,746
Development	55	663,053	0	56,905	0	0	-7,045	49,860
Carver Housing	56	204,917	0	17,587	0	0	-2,177	15,410
Retirement Staff	59	<u>1,387,460</u>	<u>0</u>	<u>119,076</u>	<u>0</u>	<u>0</u>	<u>-14,742</u>	<u>104,334</u>
		634,226,389	0	54,431,198	0	0	-6,738,751	47,692,447



**Schedule of Pension Amounts**

**Deferred Inflows of Resources**

		Differences between Expected and Actual Experience	Net Asset Gain	Changes in Assumptions	Changes in Proportion and Differences between Employer Contributions and proportionate share of contributions	Recognition of Previous Deferred Inflows	Total Deferred Inflows
	Unit						
County of Plymouth	1	0	0	0	0	0	0
Hospital	2	0	0	0	0	0	0
Abington	3	0	0	0	0	0	0
Bridgewater	4	0	0	0	0	0	0
Bridgewater Housing	5	0	0	0	0	0	0
Bridgewater/Raynham							
Regional School	6	0	0	0	0	0	0
Carver	7	0	0	0	0	0	0
Carver/Marion/Wareham							
Regional Refuse	8	0	0	0	0	0	0
Duxbury	9	0	0	0	0	0	0
Duxbury Housing	10	0	0	0	0	0	0
East Bridgewater	11	0	0	0	0	0	0
East Bridgewater Housing	12	0	0	0	0	0	0
Halifax	13	0	0	0	0	0	0
Hanover	14	0	0	0	0	0	0
Hanson	15	0	0	0	0	0	0
Kingston	16	0	0	0	0	0	0
Kingston Housing	17	0	0	0	0	0	0
Lakeville	18	0	0	0	0	0	0
Marion	19	0	0	0	0	0	0
Marshfield	20	0	0	0	0	0	0
Marshfield Housing	21	0	0	0	0	0	0
Mattapoisett	22	0	0	0	0	0	0
Middleborough	23	0	0	0	0	0	0
Middleborough Housing	24	0	0	0	0	0	0

**Schedule of Pension Amounts**

**Deferred Inflows of Resources**

		Differences between Expected and Actual Experience	Net Asset Gain	Changes in Assumptions	Changes in Proportion and Differences between Employer Contributions and proportionate share of contributions	Recognition of Previous Deferred Inflows	Total Deferred Inflows
	Unit						
Norwell	25	0	0	0	0	0	0
Norwell Housing	26	0	0	0	0	0	0
Old Rochester Regional School	27	0	0	0	0	0	0
Onset Fire District	28	0	0	0	0	0	0
Pembroke	29	0	0	0	0	0	0
Plymouth County Mosquito Control	30	0	0	0	0	0	0
Plympton	31	0	0	0	0	0	0
Rochester	32	0	0	0	0	0	0
Rockland	33	0	0	0	0	0	0
Scituate	34	0	0	0	0	0	0
Scituate Housing	35	0	0	0	0	0	0
Silver Lake Regional School	36	0	0	0	0	0	0
South Shore Regional School	38	0	0	0	0	0	0
Wareham	39	0	0	0	0	0	0
Wareham Fire District	40	0	0	0	0	0	0
Wareham Housing	41	0	0	0	0	0	0
West Bridgewater	42	0	0	0	0	0	0
Whitman	43	0	0	0	0	0	0
Whitman/Hanson Regional School	44	0	0	0	0	0	0
Whitman Housing	45	0	0	0	0	0	0
Abington Housing	46	0	0	0	0	0	0
Pembroke Housing	47	0	0	0	0	0	0

**Schedule of Pension Amounts**

**Deferred Inflows of Resources**

	Unit	Differences between Expected and Actual Experience	Net Asset Gain	Changes in Assumptions	Changes in Proportion and Differences between Employer Contributions and proportionate share of contributions	Recognition of Previous Deferred Inflows	Total Deferred Inflows
Hanson Housing	48	0	0	0	0	0	0
Rockland Housing	49	0	0	0	0	0	0
Halifax Housing	50	0	0	0	0	0	0
Mattapoisett Housing	51	0	0	0	0	0	0
Health District	53	0	0	0	0	0	0
West Bridgewater Housing	54	0	0	0	0	0	0
Development	55	0	0	0	0	0	0
Carver Housing	56	0	0	0	0	0	0
Retirement Staff	59	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
		0	0	0	0	0	0

**Schedule of Pension Amounts**

**Pension Expense**

	Unit	Proportionate share of plan Pension Expense	Net Amortization from changes in Share Proportions	Total Employer Pension Expense	Revenue
County of Plymouth	1	3,605,484	0	3,603,421	134,426
Hospital	2	457,280	0	457,018	17,049
Abington	3	2,693,955	0	2,692,414	100,441
Bridgewater	4	3,594,815	0	3,592,758	134,029
Bridgewater Housing	5	65,766	0	65,728	2,452
Bridgewater/Raynham					
Regional School	6	1,682,661	0	1,681,698	62,736
Carver	7	2,007,601	0	2,006,452	74,851
Carver/Marion/Wareham					
Regional Refuse	8	55,225	0	55,193	2,059
Duxbury	9	3,640,730	0	3,638,647	135,741
Duxbury Housing	10	26,766	0	26,751	998
East Bridgewater	11	2,563,267	0	2,561,801	95,569
East Bridgewater Housing	12	32,456	0	32,438	1,210
Halifax	13	1,200,735	0	1,200,049	44,768
Hanover	14	3,307,702	0	3,305,810	123,324
Hanson	15	1,578,999	0	1,578,095	58,871
Kingston	16	2,257,715	0	2,256,423	84,176
Kingston Housing	17	4,782	0	4,779	178
Lakeville	18	1,050,044	0	1,049,444	39,150
Marion	19	1,041,997	0	1,041,401	38,850
Marshfield	20	5,815,239	0	5,811,912	216,815
Marshfield Housing	21	35,075	0	35,055	1,308
Mattapoisett	22	1,212,280	0	1,211,586	45,199
Middleborough	23	6,714,873	0	6,711,031	250,357
Middleborough Housing	24	115,170	0	115,104	4,294

**Schedule of Pension Amounts**

**Pension Expense**

	Unit	Proportionate share of plan Pension Expense	Net Amortization from changes in Share Proportions	Total Employer Pension Expense	Revenue
Norwell	25	2,528,394	0	2,526,948	94,268
Norwell Housing	26	29,442	0	29,425	1,098
Old Rochester Regional School	27	651,529	0	651,156	24,292
Onset Fire District	28	267,483	0	267,330	9,973
Pembroke	29	3,189,652	0	3,187,827	118,923
Plymouth County Mosquito Control	30	215,176	0	215,053	8,023
Plympton	31	422,345	0	422,103	15,747
Rochester	32	687,609	0	687,215	25,637
Rockland	33	4,076,993	0	4,074,660	152,006
Scituate	34	4,772,016	0	4,769,286	177,919
Scituate Housing	35	86,147	0	86,098	3,212
Silver Lake Regional School	36	845,960	0	845,476	31,541
South Shore Regional School	38	364,076	0	363,868	13,574
Wareham	39	3,936,894	0	3,934,641	146,783
Wareham Fire District	40	715,077	0	714,668	26,661
Wareham Housing	41	27,758	0	27,742	1,035
West Bridgewater	42	2,012,000	0	2,010,849	75,015
Whitman	43	2,033,408	0	2,032,245	75,813
Whitman/Hanson Regional School	44	1,272,833	0	1,272,104	47,456
Whitman Housing	45	80,031	0	79,986	2,984
Abington Housing	46	37,958	0	37,936	1,415
Pembroke Housing	47	90,864	0	90,812	3,388

**Schedule of Pension Amounts**

**Pension Expense**

	Unit	Proportionate share of plan Pension Expense	Net Amortization from changes in Share Proportions	Total Employer Pension Expense	Revenue
Hanson Housing	48	26,435	0	26,420	986
Rockland Housing	49	54,154	0	54,123	2,019
Halifax Housing	50	32,380	0	32,362	1,207
Mattapoissett Housing	51	21,504	0	21,491	802
Health District	53	17,438	0	17,428	650
West Bridgewater Housing	54	11,943	0	11,936	445
Development	55	76,872	0	76,828	2,866
Carver Housing	56	23,757	0	23,744	886
Retirement Staff	59	<u>160,856</u>	<u>0</u>	<u>160,764</u>	<u>5,997</u>
		73,529,597	0	73,487,532	2,741,469

**EXHIBITS**

**Exhibit 1 - Age/Service Distribution with Salary as of January 1, 2015**

Attained Age	Average Salary	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+	Total
	<5									
< 20	13 31,598	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	13 31,598
20-24	158 28,478	4 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	162 28,487
25-29	417 31,603	62 49,954	3 0	0 0	0 0	0 0	0 0	0 0	0 0	482 34,090
30-34	168 37,507	117 56,830	46 57,359	4 0	0 0	0 0	0 0	0 0	0 0	335 47,478
35-39	156 32,363	76 53,441	83 62,370	53 69,009	0 0	0 0	0 0	0 0	0 0	368 48,762
40-44	238 25,546	146 38,915	120 55,843	122 64,189	59 73,800	3 0	0 0	0 0	0 0	688 44,972
45-49	272 25,672	207 31,253	165 43,756	133 60,036	74 74,580	77 77,392	10 0	0 0	0 0	938 43,743
50-54	192 31,003	241 31,061	235 39,774	189 41,597	87 56,106	99 73,083	38 79,624	7 100,543	0 0	1,088 42,732
55-59	138 30,572	141 32,480	246 34,799	196 37,959	111 41,996	102 62,649	53 80,263	20 78,718	6 68,613	1,013 41,551
60-64	37 29,834	72 30,439	83 37,594	112 39,351	89 43,609	82 47,890	31 65,592	7 78,981	13 70,320	526 42,075
65-69	18 24,253	25 32,315	29 31,364	33 40,787	28 35,936	20 39,504	11 0	5 42,072	5 54,001	174 35,726
70+	9 13,949	12 0	15 28,950	10 28,698	12 42,126	13 35,393	8 32,884	3 25,334	2 18,642	84 29,699
Total Employees	1,816	1,103	1,025	852	460	396	151	42	26	5,871
Average Salary	29,922	37,193	43,032	47,905	53,932	62,530	63,418	74,224	62,812	42,021



**Exhibit 2 - Retiree Distribution as of January 1, 2015**

Attained Age	Number of Employees			Total Payments		
	Female	Male	Total	Female	Male	Total
< 20	0	0	0	0	0	0
20-24	0	0	0	0	0	0
25-29	0	0	0	0	0	0
30-34	1	0	1	6,000	0	6,000
35-39	0	0	0	0	0	0
40-44	0	3	3	0	113,002	113,002
45-49	4	8	12	51,585	130,193	181,778
50-54	20	32	52	280,286	884,548	1,164,834
55-59	95	122	217	911,724	5,342,189	6,253,913
60-64	289	256	545	4,470,781	9,860,028	14,330,809
65-69	426	325	751	7,136,948	10,721,600	17,858,548
70-74	384	284	668	6,403,072	8,579,968	14,983,040
75-79	283	204	487	4,207,439	4,641,825	8,849,264
80-84	210	125	335	2,837,173	2,496,932	5,334,105
85-89	146	71	217	1,554,438	1,172,067	2,726,505
90-94	73	42	115	602,861	464,217	1,067,077
95+	20	9	29	127,327	106,405	233,732
<b>Total</b>	<b>1951</b>	<b>1481</b>	<b>3432</b>	<b>28,589,634</b>	<b>44,512,973</b>	<b>73,102,607</b>
<b>Average (Age/Payment)</b>	<b>72.84</b>	<b>70.72</b>	<b>71.93</b>	<b>14,654</b>	<b>30,056</b>	<b>21,300</b>
<b>Frequency Percent</b>	<b>56.8</b>	<b>43.2</b>	<b>100</b>	<b>39.1</b>	<b>60.9</b>	<b>100</b>

**Exhibit 3 - Disabled Retiree Distribution as of January 1, 2015**

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	1	2	3	6,595	92,589	99,184
40-44	1	9	10	16,157	339,704	355,860
45-49	3	16	19	126,384	526,407	652,791
50-54	10	27	37	309,485	1,067,018	1,376,503
55-59	10	38	48	261,669	1,372,467	1,634,137
60-64	11	52	63	180,518	1,555,994	1,736,512
65-69	8	57	65	203,172	1,726,300	1,929,473
70-74	10	46	56	216,769	1,360,517	1,577,286
75-79	1	32	33	6,653	851,583	858,236
80-84	1	15	16	4,954	363,719	368,673
85-89	0	5	5	0	85,976	85,976
90-94	0	4	4	0	77,140	77,140
95-99	0	0	0	0	0	0
<b>Total</b>	<b>56</b>	<b>303</b>	<b>359</b>	<b>1,332,357</b>	<b>9,419,414</b>	<b>10,751,771</b>
<b>Average (Age/Payment)</b>	<b>61.27</b>	<b>65.06</b>	<b>64.47</b>	<b>23,792</b>	<b>31,087</b>	<b>29,949</b>
<b>Frequency Percent</b>	<b>15.6</b>	<b>84.4</b>	<b>100</b>	<b>12.4</b>	<b>87.6</b>	<b>100</b>

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

This summary is prepared in accordance with Chapter 32 as of January 1, 2015, and does not take into account any subsequent changes.

### **1. Administration**

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

### **2. Participation**

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

There are four classes of membership as follows:

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

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

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

### 3. **Salary**

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

### 4. **Member Contributions**

Member contributions vary depending upon date hired as follows:

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

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

### 5. **Average Salary**

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

### 6. **Creditable Service**

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

**7. Service Retirement**

a. Eligibility:

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

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

b. Benefit Amount:

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

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

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

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

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

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

**8. Deferred Vested Retirement**

a. Eligibility:

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

b. Benefit Amount:

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



c. Refund of Contributions:

In lieu of the deferred pension benefit, a member may elect to receive a refund of their accumulated contributions. 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 \$13,000. All COLAs granted to members after 1981 and prior to July 1, 1998 are deemed to be an obligation of the State and are not the liability of the Retirement System.

**13. Postretirement Death Benefits**

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

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

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

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

### **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, 2015.

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

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

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

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

### **5. Salary Scale**

It is assumed that salaries including longevity will increase at a rate of 3.75% per year.

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

Cost-of-living increases have been assumed to be 3.0% of the lesser of the pension amount and \$13,000 per year.

### **7. Value of Investments**

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

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

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

<u>Service</u>	<u>General Employees</u>	<u>Police and Fire Employees</u>
0	0.1500	0.0150
10	0.0540	0.0150
20	0.0200	0.0000
30	0.0000	0.0000

**9. Annual Rate of Mortality**

It is assumed that both pre-retirement and post retirement mortality are represented by the RP-2000 Mortality Table for males and females, adjusted to 2015 with Scale AA. Mortality for disabled members is represented by the RP-2000 Mortality Table set forward two years for all disabled members. Sample rates are as follows:

<u>Age</u>	<u>Healthy Male</u>	<u>Healthy Female</u>	<u>Disabled Male</u>	<u>Disabled Female</u>
25	0.000376	0.000207	0.000382	0.000223
30	0.000444	0.000264	0.000562	0.000350
35	0.000773	0.000475	0.000904	0.000554
40	0.001079	0.000706	0.001215	0.000852
45	0.001508	0.001124	0.001734	0.001326
50	0.002138	0.001676	0.002667	0.002018
55	0.003624	0.002717	0.004693	0.003478
60	0.006747	0.005055	0.008757	0.006657
65	0.012737	0.009706	0.016075	0.012163
70	0.022206	0.016742	0.027281	0.020665
75	0.037834	0.028106	0.046906	0.034105
80	0.064368	0.045879	0.080486	0.056294
85	0.110757	0.077446	0.136043	0.096337
90	0.183408	0.131682	0.216605	0.157618
95	0.267491	0.194509	0.299852	0.215240
100	0.344556	0.237467	0.371685	0.254498

**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	0.0100	0.0150	0.02000
51	0.0100	0.0150	0.02000
52	0.0100	0.0200	0.02000
53	0.0100	0.0250	0.05000
54	0.0200	0.0250	0.07500
55	0.0200	0.0550	0.15000
56	0.0250	0.0650	0.10000
57	0.0250	0.0650	0.10000
58	0.0500	0.0650	0.10000
59	0.0650	0.0650	0.15000
60	0.1200	0.0500	0.20000
61	0.2000	0.1300	0.20000
62	0.3000	0.1500	0.25000
63	0.2500	0.1250	0.25000
64	0.2200	0.1800	0.30000
65	0.4000	0.1500	1.00000
66	0.2500	0.2000	1.00000
67	0.2500	0.2000	1.00000
68	0.3000	0.2500	1.00000
69	0.3000	0.2000	1.00000
70	1.0000	1.0000	1.00000

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	0.0100
51	0.0000	0.0000	0.0100
52	0.0000	0.0000	0.0200
53	0.0000	0.0000	0.0200
54	0.0000	0.0000	0.0200
55	0.0000	0.0000	0.0500
56	0.0000	0.0000	0.0750
57	0.0000	0.0000	0.1500
58	0.0000	0.0000	0.1000
59	0.0000	0.0000	0.1000
60	0.0500	0.0650	0.1000
61	0.0650	0.0650	0.1500
62	0.2000	0.1500	0.2000
63	0.2000	0.1300	0.2000
64	0.3000	0.1500	0.3000
65	0.2500	0.1250	1.0000
66	0.2200	0.1800	1.0000
67	0.4000	0.2500	1.0000
68	0.3000	0.2000	1.0000
69	0.3000	0.2000	1.0000
70	1.0000	1.0000	1.0000

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

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

<b><u>Attained Age</u></b>	<b><u>General Employees</u></b>	<b><u>Police and Fire Employees</u></b>
20	0.0001	0.0010
30	0.0003	0.0030
40	0.0010	0.0030
50	0.0019	0.0125

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 members will be survived by a spouse and that females (males) are three years younger (older) than members.

**14. Administrative Expenses**

The normal cost is increased by an amount equal to the anticipated administrative expenses for the upcoming fiscal year. The amount for fiscal year 2014 is \$1,600,000 and is anticipated to increase at 4.0% per year.



## CERTIFICATION:

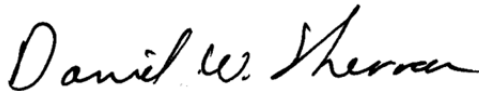
This report fairly represents the actuarial position of the Plymouth County Retirement System as of December 31, 2014, in accordance with generally accepted actuarial principles applied consistently with the preceding valuation. In our opinion, the actuarial assumptions used to compute actuarial accrued liability and normal cost are reasonably related to plan experience and to reasonable expectations, and represents our best estimate of anticipated plan experience.

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

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of such future measurements.

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

Sherman Actuarial Services, LLC



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Daniel W. Sherman, ASA, MAAA

July, 2016