SCHEDULES OF EMPLOYER ALLOCATIONS,
PENSION AMOUNTS BY EMPLOYER AND
AMORTIZATION OF EMPLOYERS' DEFERRED OUTFLOWS/INFLOWS

YEAR ENDED DECEMBER 31, 2018

TABLE OF CONTENTS DECEMBER 31, 2018

	<u>Page</u>
Independent Auditor's Report	1-2
Schedule of Employer Allocations	3
Schedule of Pension Amounts by Employer	4-7
Schedule of Amortization of Employers' Deferred Outflows/Inflows	8
Notes to Schedules of Employer Allocations,	
Pension Amounts by Employer and Amortization	
of Employers' Deferred Outflows/Inflows	9-15

500 Victory Road, Marina Bay, Quincy, MA 02171



Telephone: 617-786-7775 | Fax: 617-786-9919

Dorothy F. Di Pesa, CPA John F. Oteri, CPA

INDEPENDENT AUDITOR'S REPORT

To the Board of the Norfolk County Retirement System Canton, Massachusetts 02021

Report on Schedules

We have audited the accompanying schedule of employer allocations of the Norfolk County Retirement System (the System) as of and for the year ended December 31, 2018, and the related notes. We have also audited the totals for all entities of the columns titled ending net pension liability, total deferred outflows of resources, total deferred inflows of resources, total pension expense, total pension revenue, and total covered payroll (specified column totals) included in the accompanying schedule of pension amounts by employer of the System as of and for the year ended December 31, 2018, and the related notes. We have also audited the column totals included in the accompanying schedule of amortization of employers' deferred outflows/inflows for the year ended December 31, 2018, and the related notes.

Management's Responsibility for the Schedules

Management is responsible for the preparation and fair presentation of these schedules in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of the schedules that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on the schedule of employer allocations and the specified column totals included in the schedule of pension amounts by employer based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the schedule of employer allocations and specified column totals included in the schedule of pension amounts by employer.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the schedules referred to above present fairly, in all material respects, the employer allocations and ending net pension liability, total deferred outflows of resources, total deferred inflows of resources, total pension expense, total pension revenue, total covered payroll and total amortization of deferred outflows/inflows for the total of all participating entities for the Norfolk County Retirement System as of and for the year ended December 31, 2018, in accordance with accounting principles generally accepted in the United States of America.

Other Matter

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, the financial statements of the Norfolk County Retirement System as of and for the years ended December 31, 2018 and 2017, and our report thereon, dated September 25, 2019, expressed an unmodified opinion on those financial statements.

Restriction on Use

Our report is intended solely for the information and use of the System's management, Board, employers and their auditors and is not intended to be and should not be used by anyone other than these specified parties.

DI PESA & COMPANY

Di Pesa & Company

Certified Public Accountants Quincy, Massachusetts September 25, 2019



SCHEDULE OF EMPLOYER ALLOCATIONS

FOR THE YEAR ENDED DECEMBER 31, 2018

<u>Employer</u>	Employer <u>Contributions</u>	Employer Allocation <u>Percentage</u>
	<u> </u>	
Town of Avon	\$ 1,292,888	1.8481%
Avon Housing Authority	23,024	0.0329%
Town of Bellingham	3,123,692	4.4651%
Bellingham Housing Authority	29,875	0.0427%
Town of Canton	5,245,794	7.4985%
Canton Housing Authority	100,243	0.1433%
Town of Cohasset	2,512,622	3.5916%
Cohasset Housing Authority	16,755	0.0240%
Norfolk County	3,623,165	5.1791%
Charles River Pollution Control	162,231	0.2319%
Town of Dover	1,325,669	1.8950%
Dover-Sherborn Regional High School	778,951	1.1135%
Town of Foxboro	4,388,893	6.2736%
Foxboro Housing Authority	59,280	0.0847%
Town of Franklin	5,223,882	7.4672%
Franklin Housing Authority	87,287	0.1248%
Town of Holbrook	2,071,187	2.9606%
Holbrook Housing Authority	50,793	0.0726%
King Philip Regional School District	768,014	1.0978%
Town of Medfield	2,529,530	3.6158%
Medfield Housing Authority	15,688	0.0224%
Town of Medway	2,452,486	3.5057%
Medway Housing Authority	91,009	0.1301%
Town of Millis	1,728,057	2.4701%
Millis Housing Authority	38,861	0.0555%
Town of Norfolk	2,122,281	3.0337%
Norfolk Housing Authority	32,050	0.0458%
Norfolk Mosquito Control	197,836	0.2828%
Town of Plainville	1,856,698	2.6540%
Town of Randolph	5,670,468	8.1056%
Randolph Housing Authority	65,350	0.0934%
Town of Sharon	4,109,068	5.8736%
Sharon Housing Authority	25,580	0.0366%
Town of Stoughton	5,400,160	7.7192%
Stoughton Housing Authority	73,851	0.1056%
Town of Walpole	4,977,378	7.1148%
Walpole Housing Authority	55,461	0.0793%
Town of Westwood	5,066,340	7.2420%
Town of Wrentham	1,943,608	2.7783%
Wrentham Housing Authority	25,948	0.0371%
Dedham Westwood Water District	595,803	0.8517%
	\$ 69,957,756	100.0000%
	- 33,337,730	100.0000/0

The Accompanying Notes are an Integral Part of the Schedule of Employer Allocations.

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2018

Deferred Outflows of Resources

<u>Employer</u>	mber 31, 2018 let Pension Liability	E aı	difference Setween Expected Ind Actual Experience	;	Difference Between Projected and Actual Investment Earnings	sumption Changes	and Co and	Changes in Proportion I Differences Between Employer ontributions Proportionate Share of ontributions	0	Total Deferred lutflows of Resources
Town of Avon	\$ 12,028,077	\$	654,372	\$	2,165,922	\$ 355,670	\$	9,498	\$	3,185,462
Avon Housing Authority	214,159		11,651		38,564	6,333		395		56,943
Town of Bellingham	29,065,139		1,581,268		5,233,832	859,458		297,828		7,972,386
Bellingham Housing Authority	277,952		15,122		50,051	8,220		-		73,393
Town of Canton	48,810,765		2,655,515		8,789,475	1,443,336		164,880		13,053,206
Canton Housing Authority	934,099		50,819		168,206	27,621		-		246,646
Town of Cohasset	23,379,175		1,271,928		4,209,946	691,324		646,428		6,819,626
Cohasset Housing Authority	156,226		8,499		28,132	4,619		-		41,250
Norfolk County	33,712,854		1,834,124		6,070,757	996,891		5,542,502		14,444,274
Charles River Pollution Control	1,509,531		82,126		271,825	44,637		777		399,365
Town of Dover	12,335,320		671,094		2,221,251	364,755		15,543		3,272,643
Dover-Sherborn Regional High School	7,248,221		394,334		1,305,205	214,331		82,596		1,996,466
Town of Foxboro	40,837,396		2,221,730		7,353,691	1,207,563		24,145		10,807,129
Foxboro Housing Authority	551,347		29,996		99,283	16,303		-		145,582
Town of Franklin	48,607,021		2,644,430		8,752,787	1,437,312		50,587		12,885,116
Franklin Housing Authority	812,374		44,196		146,287	24,021		10,552		225,056
Town of Holbrook	19,271,741		1,048,466		3,470,310	569,865		11,688		5,100,329
Holbrook Housing Authority	472,583		25,711		85,099	13,974		29,403		154,187
King Philip Regional School District	7,146,024		388,775		1,286,802	211,308		60,806		1,947,691
Town of Medfield	23,536,703		1,280,497		4,238,313	695,982		223,491		6,438,283
Medfield Housing Authority	145,811		7,933		26,256	4,311		13		38,513
Town of Medway	22,820,017		1,241,507		4,109,257	674,789		542,115		6,567,668
Medway Housing Authority	846,873		46,074		152,499	25,043		1,162		224,778
Town of Millis	16,078,879		874,760		2,895,363	475,454		19,870		4,265,447
Millis Housing Authority	361,272		19,654		65,055	10,683		40,183		135,575

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2018

Deferred Outflows of Resources

<u>Employer</u>	December 31, 2018 Net Pension <u>Liability</u>	Difference Between Expected and Actual Experience	Difference Between Projected and Actual Investment Earnings	Assumption <u>Changes</u>	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Outflows of Resources
Town of Norfolk	19,747,579	1,074,353	3,555,996	583,937	23,626	5,237,912
Norfolk Housing Authority	298,131	16,220	53,685	8,817	23,986	102,708
Norfolk Mosquito Control	1,840,859	100,151	331,489	54,435	31,295	517,370
Town of Plainville	17,275,958	939,887	3,110,925	510,850	439,432	5,001,094
Town of Randolph	52,762,624	2,870,514	9,501,097	1,560,194	119,406	14,051,211
Randolph Housing Authority	607,978	33,076	109,480	17,978	-	160,534
Town of Sharon	38,233,635	2,080,074	6,884,826	1,130,569	47,109	10,142,578
Sharon Housing Authority	238,244	12,961	42,902	7,044	3,095	66,002
Town of Stoughton	50,247,391	2,733,675	9,048,172	1,485,817	34,231	13,301,895
Stoughton Housing Authority	687,393	37,397	123,780	20,326	-	181,503
Town of Walpole	46,313,107	2,519,632	8,339,716	1,369,480	22,978	12,251,806
Walpole Housing Authority	516,196	28,083	92,953	15,264	767	137,067
Town of Westwood	47,141,103	2,564,679	8,488,816	1,393,964	1,010,075	13,457,534
Town of Wrentham	18,085,077	983,906	3,256,624	534,776	24,209	4,799,515
Wrentham Housing Authority	241,499	13,139	43,487	7,141	384	64,151
Dedham Westwood Water District	5,544,059	301,621	998,333	163,937	7,519	1,471,410
	\$ 650,940,390	\$ 35,413,949	\$ 117,216,449	\$ 19,248,332	\$ 9,562,574	\$ 181,441,304

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2018

	Deferred Inflows of Resources					Pension Expense				
<u>Employer</u>	Difference Between Expected and Actual Experience	Difference Between Projected and Actual Investment <u>Earnings</u>	Assumption <u>Changes</u>	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Inflows of Resources	Proportionate Share of Plan Pension Expense	Net Amortization from Changes in Proportions	Total Pension <u>Expense</u>	(Proportionate Share of Contributions from Nonemployer Entities) Total Pension Revenue	Total Covered <u>Payroll</u>
Town of Avon	\$ -	\$ 705,967	\$ 195,212	\$ 242,982	\$ 1,144,161	\$ 1,647,845	\$ (115,570) \$	1,532,275	\$ 61,558	\$ 5,435,819
Avon Housing Authority	-	12,570	3,476		20,815	29,340	, , .	26,978	1,096	52,547
Town of Bellingham	-	1,705,951	471,724	261,950	2,439,625	3,981,912		4,018,260	148,752	13,623,456
Bellingham Housing Authority	-	16,315	4,511	41,808	62,634	38,079		16,671	1,423	129,814
Town of Canton	-	2,864,905	792,193	440,565	4,097,663	6,687,054	(111,813)	6,575,241	249,807	22,791,591
Canton Housing Authority	-	54,827	15,160	63,139	133,126	127,971	(32,201)	95,770	4,781	340,481
Town of Cohasset	-	1,372,219	379,441	210,928	1,962,588	3,202,937	243,855	3,446,792	119,651	10,027,984
Cohasset Housing Authority	-	9,170	2,536	4,802	16,508	21,403	(2,495)	18,908	800	63,659
Norfolk County	-	1,978,746	547,155	742,149	3,268,050	4,618,647	2,142,977	6,761,624	172,538	9,614,553
Charles River Pollution Control	-	88,601	24,499	24,325	137,425	206,805	(11,387)	195,418	7,726	715,967
Town of Dover	-	724,011	200,201	186,455	1,110,667	1,689,934	(83,664)	1,606,270	63,131	5,899,222
Dover-Sherborn Regional High School	-	425,428	117,638	65,218	608,284	993,003	12,857	1,005,860	37,095	3,654,788
Town of Foxboro	-	2,396,915	662,786		3,491,581	5,594,706	, , ,	5,406,623	209,000	19,705,066
Foxboro Housing Authority	-	32,362			74,391	75,534	(17,118)	58,416	2,822	307,607
Town of Franklin	-	2,852,944	788,886		4,408,265	6,659,141		6,309,295	248,764	23,791,082
Franklin Housing Authority	-	47,681	13,185		68,531	111,295		113,523	4,158	361,050
Town of Holbrook	-	1,131,137	312,778		1,874,140	2,640,220		2,432,390	98,630	8,700,167
Holbrook Housing Authority	-	27,737	7,670		37,239	64,744		79,607	2,419	139,919
King Philip Regional School District	-	419,430	115,979		599,791	979,002		980,835	36,572	3,117,946
Town of Medfield	-	1,381,465	381,998		1,975,787	3,224,518		3,242,459	120,458	11,517,097
Medfield Housing Authority	-	8,558	2,366		37,180	19,976		6,161	746	61,790
Town of Medway	-	1,339,401	370,366		1,915,682	3,126,333	188,627	3,314,960	116,790	10,910,178
Medway Housing Authority	-	49,706	13,745		80,138	116,021		108,273	4,334	375,268
Town of Millis	-	943,735	260,958		1,656,303	2,202,800		1,983,834	82,290	7,548,460
Millis Housing Authority	-	21,204	5,863	1,025	28,092	49,494	20,791	70,285	1,849	167,230

SCHEDULE OF PENSION AMOUNTS BY EMPLOYER

AS OF AND FOR THE YEAR ENDED DECEMBER 31, 2018

	Deferred Inflows of Resources					Pension Expense				
<u>Employer</u>	Difference Between Expected and Actual Experience	Difference Between Projected and Actual Investment Earnings	Assumption <u>Changes</u>	Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Deferred Inflows of Resources	Proportionate Share of Plan Pension Expense	Net Amortization from Changes in Proportions	Total Pension Expense	(Proportionate Share of Contributions from Nonemployer Entities) Total Pension Revenue	Total Covered <u>Payroll</u>
Town of Norfolk	-	1,159,067	320,501	178,369	1,657,937	2,705,410	(66,139)	2,639,271	101,065	9,005,175
Norfolk Housing Authority	-	17,499	4,839	272	22,610	40,844	12,421	53,265	1,526	141,970
Norfolk Mosquito Control	-	108,048	29,877	16,447	154,372	252,197	9,061	261,258	9,421	849,391
Town of Plainville	-	1,013,996	280,387	155,779	1,450,162	2,366,799	160,438	2,527,237	88,416	8,022,442
Town of Randolph	-	3,096,856	856,331	476,795	4,429,982	7,228,457	(147,196)	7,081,261	270,032	24,898,145
Randolph Housing Authority	-	35,685	9,867	95,633	141,185	83,293	(49,388)	33,905	3,112	370,258
Town of Sharon	-	2,244,090	620,527	1,119,179	3,983,796	5,237,992	(544,603)	4,693,389	195,675	18,408,802
Sharon Housing Authority	-	13,983	3,867	5,812	23,662	32,639	(1,892)	30,747	1,219	55,259
Town of Stoughton	-	2,949,225	815,509	774,821	4,539,555	6,883,871	(358,106)	6,525,765	257,159	24,016,231
Stoughton Housing Authority	-	40,345	11,156	99,085	150,586	94,173	(52,099)	42,074	3,518	326,142
Town of Walpole	-	2,718,307	751,656	1,008,501	4,478,464	6,344,876	(487,684)	5,857,192	237,024	20,596,210
Walpole Housing Authority	-	30,298	8,378	43,641	82,317	70,719	(22,321)	48,398	2,642	240,498
Town of Westwood	-	2,766,904	765,094	425,495	3,957,493	6,458,311	338,516	6,796,827	241,262	21,953,678
Town of Wrentham	-	1,061,487	293,519	163,004	1,518,010	2,477,648	(63,818)	2,413,830	92,557	8,909,121
Wrentham Housing Authority	-	14,175	3,919	11,457	29,551	33,085	(5,718)	27,367	1,236	117,641
Dedham Westwood Water District		325,405	89,979	49,878	465,262	759,534	(19,486)	740,048	28,374	2,281,564
	\$ -	\$ 38,206,355	\$ 10,564,680	\$ 9,562,574	\$ 58,333,609	\$ 89,178,562	\$ -	\$ 89,178,562	\$ 3,331,428	\$ 299,245,268

SCHEDULE OF AMORTIZATION OF EMPLOYERS' DEFERRED OUTFLOWS/INFLOWS

FOR THE YEAR ENDED DECEMBER 31, 2018

FOR THE YEARS ENDING DECEMBER 31

<u>Employer</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>Thereafter</u>	<u>Total</u>
Town of Avon	\$ 665,694	\$ 543,183	\$ 359,620	\$ 472,799	\$ -	\$ 2,041,296
Avon Housing Authority	11,545	9,476	6,670	8,436	-	36,127
Town of Bellingham	1,924,210	1,596,664	869,325	1,142,562	_	5,532,761
Bellingham Housing Authority	(3,325)	(4,276)	7,679	10,682	-	10,760
Town of Canton	3,058,757	2,525,364	1,454,179	1,917,243	-	8,955,543
Canton Housing Authority	28,494	21,251	27,258	36,518	-	113,521
Town of Cohasset	1,762,427	1,477,399	698,396	918,816	-	4,857,038
Cohasset Housing Authority	7,649	6,204	4,761	6,128	-	24,742
Norfolk County	4,337,231	3,990,139	1,561,883	1,286,971	-	11,176,224
Charles River Pollution Control	86,668	70,966	45,005	59,301	-	261,940
Town of Dover	717,490	588,549	370,581	485,358	-	2,161,978
Dover-Sherborn Regional High School	483,621	401,658	217,723	285,180	-	1,388,182
Town of Foxboro	2,464,507	2,027,904	1,218,567	1,604,570	-	7,315,548
Foxboro Housing Authority	18,706	14,417	16,526	21,541	-	71,190
Town of Franklin	2,807,209	2,300,844	1,457,141	1,911,657	-	8,476,851
Franklin Housing Authority	55,002	45,695	23,979	31,848	-	156,524
Town of Holbrook	1,043,962	849,838	575,145	757,245	-	3,226,190
Holbrook Housing Authority	45,578	38,939	14,015	18,417	-	116,949
King Philip Regional School District	465,960	386,226	214,576	281,140	-	1,347,902
Town of Medfield	1,546,619	1,282,829	706,990	926,057	-	4,462,495
Medfield Housing Authority	(4,342)	(4,532)	4,484	5,723	-	1,333
Town of Medway	1,670,756	1,397,876	685,485	897,868	-	4,651,985
Medway Housing Authority	47,257	38,601	25,455	33,328	-	144,641
Town of Millis	825,337	668,247	482,940	632,621	-	2,609,145
Millis Housing Authority	44,268	38,260	10,839	14,115	-	107,482
Town of Norfolk	1,216,678	1,002,692	585,655	774,949	-	3,579,974
Norfolk Housing Authority	31,783	27,330	9,252	11,734	-	80,099
Norfolk Mosquito Control	128,638	107,199	54,856	72,305	-	362,998
Town of Plainville	1,282,593	1,073,903	515,610	678,825	-	3,550,931
Town of Randolph	3,280,302	2,705,601	1,564,768	2,070,558	-	9,621,229
Randolph Housing Authority	(9,869)	(11,788)	17,339	23,668	-	19,350
Town of Sharon	1,938,618	1,567,486	1,148,391	1,504,286	-	6,158,781
Sharon Housing Authority	13,554	11,176	8,002	9,606	-	42,338
Town of Stoughton	2,905,669	2,381,267	1,500,726	1,974,680	-	8,762,342
Stoughton Housing Authority	(7,444)	(9,665)	21,051	26,975	-	30,917
Town of Walpole	2,520,625	2,052,770	1,380,590	1,819,357	-	7,773,342
Walpole Housing Authority	11,203	7,690	15,536	20,322	-	54,751
Town of Westwood	3,400,574	2,840,970	1,406,326	1,852,171	-	9,500,041
Town of Wrentham	1,110,780	915,861	543,293	711,572	-	3,281,506
Wrentham Housing Authority	9,967	7,851	7,275	9,507	-	34,600
Dedham Westwood Water District	340,591	280,836	166,581	218,141		1,006,149
	\$ 42,285,542	\$ 35,272,900	\$ 20,004,473	\$ 25,544,780	\$ -	\$ 123,107,695

NOTES TO SCHEDULES OF EMPLOYER ALLOCATIONS, PENSION AMOUNTS BY EMPLOYER AND AMORTIZATION OF EMPLOYERS' DEFERRED OUTFLOWS/INFLOWS DECEMBER 31, 2018

NOTE 1 – DESCRIPTION OF THE ENTITY

The Norfolk County Retirement System (the System) was established to provide retirement benefits to eligible employees of its member employers. The System is governed by a five member Board who establish the policies under which the System operates. Board members also approve all of the System's financial transactions, including the approval of retirement benefits to members. The day-to-day operations of the System are managed by the Executive Director. The legislative body for the System is an Advisory Council consisting of full-time treasurers or other qualified officials of the member units. The Advisory Council meets at least twice annually and is responsible for supervising and certifying the procedures involved in the election of members to the retirement board.

The System issued a publicly available audited financial statement for the year ended December 31, 2018, which is available through the System's website at www.norfolkcountyretirement.org, or a copy may be obtained by submitting a request to the System's Executive Director at 480 Neponset Street, Building #15, Canton, MA 02021.

Plan Description

The System is a cost-sharing multiple-employer contributory defined benefit governmental pension plan established under Chapter 32 of the Massachusetts General Laws ("MGL") covering all employees of governmental member units deemed eligible by the Board. The System is a member of the Massachusetts Contributory Retirement System and is governed by Chapter 32 of MGL. The Public Employee Retirement Administration Commission (PERAC) is the state agency responsible for oversight of the Commonwealth's public retirement systems.

Membership

Membership in the Plan is mandatory immediately upon the commencement of employment for all non-teaching permanent employees regularly scheduled to work 20 hours or more per week. The pensions of school department employees who serve in a teaching capacity are administered by the Commonwealth of Massachusetts' Teachers Retirement System.

Benefits

Massachusetts Contributory Retirement System benefits are, with certain exceptions, uniform from system to system. The System provides for retirement allowance benefits up to a maximum of 80% of a member's highest three-year average annual rate of regular compensation. For persons who became members on or after April 2, 2012, average salary is the average annual rate of regular compensation received during the five consecutive years that produce the highest average, or, if greater, during the last five years (whether or not consecutive) preceding retirement. Benefit payments are based upon a member's age, length of creditable service, level of compensation, and group classification.

NOTES TO SCHEDULES OF EMPLOYER ALLOCATIONS, PENSION AMOUNTS BY EMPLOYER AND AMORTIZATION OF EMPLOYERS' DEFERRED OUTFLOWS/INFLOWS DECEMBER 31, 2018

NOTE 1 – DESCRIPTION OF THE ENTITY (Continued)

Benefits (Continued)

There are three classes of membership in the retirement system: group 1, group 2, and group 4. Group 1 consists of general employees which includes clerical and administrative positions. Group 2 consists of positions that have been specified as hazardous. Lastly, group 4 consists of police officers, firefighters, and other hazardous positions.

Members become vested after ten years of creditable service. A superannuation retirement allowance may be received upon the completion of 20 years of service or upon reaching the age of 55 with 10 years of service if hired after 1978 and if classified in groups 1 or 2. A person who became a member on or after April 2, 2012 is eligible for a superannuation retirement allowance upon reaching the age of 60 with 10 years of service if in group 1, 55 years of age with 10 years of service if in group 2, and 55 years of age if hired prior to 1978 or if classified in group 4. Normal retirement for most employees occurs at age 65 (except for certain hazardous duty and public safety positions, whose normal retirement is at age 55).

A retirement allowance consists of two parts: an annuity and a pension. A member's accumulated total deductions and the interest they generate constitute the annuity. The differential between the total retirement benefit and the annuity is the pension. The average retirement benefit is approximately 80-85% pension and 15-20% annuity.

Members who become permanently and totally disabled for further duty may be eligible to receive a disability retirement allowance. The amount of benefits to be received in such cases is dependent on several factors, including whether or not the disability is work related, the member's age, years of creditable service, level of compensation, veterans' status and group classification.

Employees who resign from service and who are not eligible to receive a retirement allowance or are under the age of 55 are entitled to request a refund of their accumulated total deductions. In addition, with at least ten years of creditable service, such employees are entitled to receive one hundred (100%) percent of the regular interest which has accrued upon those deductions. Survivor benefits are extended to eligible beneficiaries of members whose death occurs prior to or following retirement.

Contributions

Active members contribute between 5 and 9% of their gross regular compensation. Members joining the System after January 1, 1979 must contribute an additional 2% on regular compensation earned at a rate in excess of \$30,000. The percentage rate is keyed to the date upon which an employee's membership commences. These deductions are deposited in the Annuity Savings Fund and earn interest at a rate determined by the Public Employee Retirement Administration Commission's (PERAC) actuary. When a member's retirement becomes effective, his/her deductions and related interest are transferred to the Annuity Reserve Fund. Any cost-of-living adjustments granted between 1981 and 1997 and any increase in other benefits imposed by

NOTES TO SCHEDULES OF EMPLOYER ALLOCATIONS, PENSION AMOUNTS BY EMPLOYER AND AMORTIZATION OF EMPLOYERS' DEFERRED OUTFLOWS/INFLOWS DECEMBER 31, 2018

NOTE 1 – <u>DESCRIPTION OF THE ENTITY</u> (Continued)

Contributions (Continued)

the Commonwealth of Massachusetts' state law during those years are borne by the Commonwealth and are deposited into the Pension Fund. Cost-of-living adjustments granted after 1997 must be approved by the System and all costs are borne by the System. The pension portion of any retirement benefit is paid from the Pension Fund of the System. The governmental unit employing the member must annually appropriate and contribute the amount of current-year pension assessment.

NOTE 2 - <u>ACTUARIAL ASSUMPTIONS AND METHODS</u>

The total pension liability was determined by an actuarial valuation as of January 1, 2018. The following actuarial assumptions were applied to all periods included in the measurement that was rolled forward to December 31, 2018:

Actuarial cost method: Entry Age Normal Cost Method

Asset valuation method Market value

Investment rate of return 7.75%

Projected salary increases 3.5% - 5.5%

Inflation 4.0%

Cost of living increases 3.0% of first \$17,000 of retirement income

Mortality: The RP-2014 Blue Collar Mortality Table adjusted with

Scale with MP-2014

NOTE 3 – <u>NET PENSION LIABILITY</u>

The components of the net pension liability of the System as of December 31, 2018, is as follows:

Total Pension Liability \$1,562,788,951
Fiduciary Net Position 911,848,561
System's Net Pension Liability \$650,940,390

Fiduciary Net Position as a percentage of

total pension liability 58.3%

NOTES TO SCHEDULES OF EMPLOYER ALLOCATIONS, PENSION AMOUNTS BY EMPLOYER AND AMORTIZATION OF EMPLOYERS' DEFERRED OUTFLOWS/INFLOWS DECEMBER 31, 2018

NOTE 3 – <u>NET PENSION LIABILITY</u> (Continued)

The total pension liability is calculated by the System's actuary and plan fiduciary net position is reported in the System's financial statements. The net pension liability is disclosed in accordance with the requirements of Governmental Accounting Standards Board (GASB) Statement No. 67 in the System's notes to financial statements and required supplementary information.

Discount Rate

The discount rate used to measure the total pension liability as of December 31, 2018 was 7.75%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at contractually required rates, actuarially determined. Under Chapter 32 of the MGL, employers are required to make the necessary contributions such that the Plan reaches full funding status by 2040. Based on those assumptions, the 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 Plan investments was applied to all periods of projected benefit payments to determine total pension liability.

Long-Term Expected Rate of Return

The long term expected rate of return on Plan investments was determined using a building-block method in which best-estimates ranges of expected future real rates of return (expected returns, net of plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target allocation and best estimates of arithmetic real rates of return for each major asset class are summarized as follows:

Asset Class	Target <u>Allocation</u>	Long-term Expected Real <u>Rate of Return</u>
Domestic Equity	32.0%	8.1%
International Equities	17.5	8.2%
Fixed Income	19.0	3.2%
Real Estate	9.0	7.3%
Private Equity	8.5	10.4%
Hedge Funds	9.0	7.4%
Real Assets	5.0	10.4%
Total	<u>100.0</u> %	

The System's policy in regard to the allocation of invested Plan assets is established and may be amended by the Board. Plan assets are managed with a long-term objective of achieving and maintaining a fully funded status for the benefits provided through the Plan.

The annual money-weighted rate of return on investments, net of investment expense was -4.54% for the year ended December 31, 2018. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

NOTES TO SCHEDULES OF EMPLOYER ALLOCATIONS, PENSION AMOUNTS BY EMPLOYER AND AMORTIZATION OF EMPLOYERS' DEFERRED OUTFLOWS/INFLOWS DECEMBER 31, 2018

NOTE 3 – <u>NET PENSION LIABILITY</u> (Continued)

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the System as of December 31, 2018, calculated using the discount rate of 7.75%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is one-percentage point lower (6.75%) or one-percentage point higher (8.75%) than the current rate:

g (6.1. 6.7.5) u.a u.a. camen.	1% Decrease (6.75%)	Current Discount Rate (7.75%)	1% Increase (8.75%)
System's Net Pension Liability	\$816,336,350	\$650,940,390	\$510,329,389

NOTE 4 – BASIS OF PRESENTATION

The Schedule of Employer Allocations, Schedule of Pension Amounts by Employer, and Schedule of Amortization of Employers' Deferred Outflows/Inflows present amounts that are elements of the financial statements of the System or of its participating employers. Accordingly, they do not purport to be a complete presentation of the financial position or changes in financial position of either the System or its participating employers. The amounts presented in the schedules were prepared in accordance with U.S. generally accepted accounting principles. Such preparation requires management of the System to make a number of estimates and assumptions relating to the reported amounts. Due to inherent nature of these estimates, actual results may differ from those estimates.

NOTE 5 – PENSION EXPENSE

System pension expense for the year ended December 31, 2018 is as follows:

Service Cost	\$ 33,120,792
Interest Cost	116,162,593
Expected Return on Assets	(74,706,564)
Member Contributions	(32,290,608)
Current Year Amortization of Difference Between	
Expected and Actual Experience	17,304,136
Current Year Amortization of Assumption Changes	(3,259,094)
Current Year Amortization of Difference Between	
Projected and Actual Investment Earnings	31,632,191
Change in Plan Provisions	-
Administrative Expenses	<u>1,215,116</u>
Total	\$ <u>89,178,562</u>

The System pension expense is based on the January 1, 2018 valuation. The employers' allocation of the pension expense is shown in the Schedule of Pension Amounts by Employer. The difference between expected and actual experience and the effect of assumption changes are amortized over the average expected remaining service lives of active and inactive members as of January 1, 2018 (4.27 years). The difference between projected and actual investment earnings is amortized over 5 years.

NOTES TO SCHEDULES OF EMPLOYER ALLOCATIONS, PENSION AMOUNTS BY EMPLOYER AND AMORTIZATION OF EMPLOYERS' DEFERRED OUTFLOWS/INFLOWS DECEMBER 31, 2018

NOTE 6 - DEFERRED INFLOWS OF RESOURCES AND DEFERRED OUTFLOWS OF RESOURCES

Annual changes to the net pension liability resulting from differences between expected and actual experience and from changes in assumptions are deferred and amortized over a closed period equal to the average of the expected service lives of all members determined for the period during which the changes occurred. Differences between projected and actual earnings are amortized over a closed 5 year period. The following presents a summary of the changes in the collective deferred outflows of resources and deferred inflows of resources for the year ended December 31, 2018:

<u>Year</u>	Amortization Period	Original <u>Amount</u>	Accumulated Amortization	Beginning Of year <u>Balance</u>	Current Year <u>Deferrals</u>	Current Year <u>Amortizations</u>	End Of Year <u>Balance</u>
	d Outflows of t Between Expe 4.9 4.27	Resources ected and Actual \$ 13,828,826 61,837,812	Experience \$ 8,466,627 14,481,926	\$ 5,362,199 47,355,886	\$ - -	\$ 2,822,210 14,481,926	\$ 2,539,989 32,873,960
Difference 2014 2015 2018	ce Between Pro 5 5 5 5	ojected and Actu 21,416,618 75,186,656 -	al Investment Ea 17,133,296 45,111,992 -	arnings 4,283,322 30,074,664 -	- 127,723,896	4,283,322 15,037,332 25,544,779	- 15,037,332 102,179,117
Difference 2017	ce from Assum 4.27	ption Changes 36,207,214	8,479,441	27,727,773	-	8,479,441	19,248,332
	d Inflows of Roce Between Pro 5 5	esources ojected and Actu (7,466,805) (58,699,395)	al Investment Ea (2,986,722) (11,739,881)	arnings (4,480,083) (46,959,514)	- -	(1,493,361) (11,739,881)	(2,986,722) (35,219,633)
2015	4.9	ption Changes (57,518,820)	(35,215,605)	(22,303,215)	-	(11,738,535)	(10,564,680)
Total De	eferred Outflov	ws/Inflows of Re	esources				\$ <u>123,107,695</u>

The following schedule reflects the amortization of the balance of deferred outflows of resources and deferred inflows of resources at December 31, 2018:

Measurement Period Ending December 31:	Amount
<u> </u>	<u>/</u>
2019	\$42,285,542
2020	35,272,900
2021	20,004,473
2022	25,544,780
Thereafter	_ _
Total	\$ <u>123,107,695</u>

NOTES TO SCHEDULES OF EMPLOYER ALLOCATIONS, PENSION AMOUNTS BY EMPLOYER AND AMORTIZATION OF EMPLOYERS' DEFERRED OUTFLOWS/INFLOWS DECEMBER 31, 2018

NOTE 7 – PROPORTIONATE SHARE ALLOCATION METHODOLOGY AND EMPLOYER ALLOCATIONS

GASB Statement No. 68 requires employers in the Plan to recognize their proportionate share of the collective net pension liability. Employers' proportionate shares were calculated on the basis of actual employer contributions for the year ended December 31, 2018. The Schedule of Employer Allocations display the proportionate allocation used to allocate the Difference Between Expected and Actual Experience; Difference Between Projected and Actual Investment Earnings; Proportionate Share of Plan Pension Expense; and Proportionate Share of Contributions from Nonemployer Entities.

NOTE 8 – ADDITIONAL FINANCIAL AND ACTUARIAL INFORMATION

Information contained in these Notes to Schedules of Employer Allocations and Pension Amounts by Employer (the Schedules) was extracted from the audited financial statements of the System for the years ended December 31, 2018 and 2017. Additional financial information supporting the preparation of the Schedules (including the unqualified audit opinion on the financial statements and required supplementary information) is located in the audited financial statements of the System for the years ended December 31, 2018 and 2017. A copy may be obtained by submitting a request to the System's Executive Director at 480 Neponset Street, Building #15, Canton, MA 02021.