

**WORCESTER REGIONAL RETIREMENT SYSTEM**

**INDEPENDENT AUDITORS' REPORT ON  
SCHEDULES OF EMPLOYER ALLOCATIONS AND  
SCHEDULES OF PENSION AMOUNTS BY EMPLOYER**

**YEAR ENDED DECEMBER 31, 2018**



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**WORCESTER REGIONAL RETIREMENT SYSTEM  
TABLE OF CONTENTS  
YEAR ENDED DECEMBER 31, 2018**

<b>INDEPENDENT AUDITORS' REPORT</b>	<b>1</b>
<b>SCHEDULE OF EMPLOYER ALLOCATIONS</b>	<b>3</b>
<b>SCHEDULE OF PENSION AMOUNTS BY EMPLOYER</b>	<b>6</b>
<b>NOTES TO SCHEDULES</b>	<b>31</b>



## INDEPENDENT AUDITORS' REPORT

Honorable Retirement Board  
Worcester Regional Retirement System  
Auburn, Massachusetts

### **Report on Schedules**

We have audited the accompanying schedule of employer allocations of the Worcester Regional Retirement System as of and for the year ended December 31, 2018, and the related notes. We have also audited the total for all entities of the rows titled ending net pension liability, total deferred outflows of resources, total deferred inflows of resources, pension expense, and covered payroll as of and for the year ended December 31, 2018 and the beginning net pension liability, as of and for the year ended December 31, 2017 (specified row totals) included in the accompanying schedule of pension amounts by employer of the Worcester Regional Retirement System, 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 opinions on the schedule of employer allocations and the specified row 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 row 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 row 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 row 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 row 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 row totals included in the schedule of pension amounts by employer.

Honorable Retirement Board  
Worcester Regional Retirement System

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

***Opinions***

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 and total covered payroll for the total of all participating entities for the Worcester Regional Retirement System as of and for the year ended December 31, 2018 and the beginning net pension liability for the total of all participating entities of the Worcester Regional Retirement System as of and for the year ended December 31, 2017, 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, the financial statements of the Worcester Regional Retirement System as of and for the year ended December 31, 2018, and our report thereon, dated August 27, 2019, expressed an unmodified opinion on those financial statements.

***Restriction on Use***

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



**CliftonLarsonAllen LLP**

Boston, Massachusetts  
August 27, 2019

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF EMPLOYER ALLOCATIONS  
YEAR ENDED DECEMBER 31, 2018**

Employer	Employer Contributions	Employer Allocation Percentage
Ashburnham	\$ 738,689	1.326799%
Ashburnham-Westminster Regional	602,476	1.082140%
Athol	1,329,300	2.387628%
Athol Housing Authority	38,167	0.068554%
Athol-Royalston Regional	528,350	0.948998%
Auburn	2,884,358	5.180752%
Auburn Housing Authority	61,048	0.109652%
Auburn Water District	95,200	0.170994%
Barre	293,130	0.526507%
Barre Housing Authority	15,271	0.027429%
Berlin	461,279	0.828528%
Berlin-Boylston Regional	122,776	0.220525%
Blackstone	733,583	1.317628%
Blackstone Housing Authority	18,506	0.033240%
Blackstone-Millville Regional	489,785	0.879729%
Bolton	410,977	0.738178%
Boylston	605,133	1.086912%
Boylston Water District	10,427	0.018729%
Brookfield	270,221	0.485359%
Charlton	1,165,224	2.092922%
Cherry Valley-Rochdale Water	46,094	0.082792%
Cherry Valley Sewer District	1,747	0.003138%
Douglas	998,134	1.792803%
Dudley	802,934	1.442193%
Dudley Housing Authority	14,002	0.025150%
Dudley-Charlton Regional	928,512	1.667751%
East Brookfield	137,783	0.247480%
Grafton	1,678,129	3.014179%
Grafton Housing Authority	50,350	0.090436%
Hardwick	191,746	0.344405%
Harvard	836,356	1.502224%
Hillcrest Water District	7,347	0.013196%
Holden	2,075,442	3.727814%
Holden Housing Authority	28,888	0.051887%
Hopedale	911,521	1.637232%
Hopedale Housing Authority	5,000	0.008981%
Hubbardston	255,716	0.459305%
Lancaster	560,308	1.006400%
Lancaster Housing Authority	14,766	0.026522%
Lancaster Sewer	1,586	0.002849%
Leicester	1,161,943	2.087029%
Leicester Housing Authority	38,234	0.068674%
Leicester Water District	44,900	0.080647%
Lunenburg	1,221,814	2.194566%
Lunenburg Housing Authority	1,346	0.002418%
Lunenburg Water District	49,960	0.089736%
Mendon	568,755	1.021572%
Mendon-Upton Regional	709,531	1.274427%

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF EMPLOYER ALLOCATIONS  
YEAR ENDED DECEMBER 31, 2018**

Employer	Employer Contributions	Employer Allocation Percentage
Millbury	\$ 1,749,124	3.141697%
Millbury Housing Authority	90,482	0.162520%
Millville	154,122	0.276827%
Narragansett Regional	370,470	0.665421%
Nashoba Regional	979,158	1.758719%
Nashoba Valley Dispatchers	17,063	0.030648%
New Braintree	50,451	0.090618%
Northboro	1,886,814	3.389009%
Northboro Housing Authority	62,318	0.111933%
Northboro-Southboro Regional	353,655	0.635219%
North Brookfield	424,197	0.761923%
North Brookfield Housing Authority	18,244	0.032769%
Oakham	64,138	0.115202%
Oxford	1,908,579	3.428102%
Oxford Housing Authority	57,696	0.103631%
Oxford-Rochdale Sewer District	29,467	0.052927%
Paxton	654,321	1.175261%
Petersham	151,368	0.271880%
Phillipston	123,033	0.220986%
Princeton	353,988	0.635817%
Quabbin Regional	961,940	1.727793%
Quaboag Regional	330,446	0.593532%
Royalston	52,449	0.094206%
Rutland	559,439	1.004839%
Southboro	1,777,093	3.191933%
Southboro Housing Authority	14,698	0.026400%
Spencer	840,649	1.509935%
Spencer-East Brookfield Regional	576,493	1.035470%
Spencer Housing Authority	39,634	0.071189%
Sterling	929,676	1.669842%
Sterling Housing Authority	8,849	0.015894%
Sturbridge	1,275,676	2.291311%
Sutton	1,066,773	1.916089%
Tantasqua Regional	628,020	1.128021%
Templeton	737,540	1.324736%
Templeton Housing Authority	40,190	0.072187%
Upton	564,142	1.013286%
Uxbridge	1,729,739	3.106878%
Uxbridge Housing Authority	47,624	0.085540%
Wachusett Regional	1,825,956	3.279699%
Warren	358,868	0.644582%
Warren Water District	15,342	0.027557%
Westboro	3,750,330	6.736171%
Westboro Housing Authority	36,891	0.066262%
West Boylston	1,158,181	2.080272%
West Boylston Housing Authority	10,385	0.018653%
West Boylston Water District	50,900	0.091424%
West Brookfield	258,800	0.464845%

**WORCESTER REGIONAL RETIREMENT SYSTEM  
 SCHEDULE OF EMPLOYER ALLOCATIONS  
 YEAR ENDED DECEMBER 31, 2018**

Employer	Employer Contributions	Employer Allocation Percentage
Westminster	\$ 812,024	1.458520%
Winchendon	1,407,627	2.528315%
Winchendon Housing Authority	92,698	0.166500%
Total	<u>\$ 55,674,504</u>	<u>100.000000%</u>

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Ashburnham</u>	<u>Ashburnham- Westminster Regional</u>	<u>Athol</u>	<u>Athol Housing Authority</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 10,850,701	\$ 8,851,684	\$ 19,573,204	\$ 552,162
Ending Net Pension Liability	\$ 12,030,916	\$ 9,812,435	\$ 21,650,107	\$ 621,620
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 53,327	\$ 43,494	\$ 95,964	\$ 2,755
Net Difference Between Projected and Actual Investment Earnings	452,639	369,173	814,542	23,387
Assumption Changes	\$ 747,554	\$ 609,706	\$ 1,345,252	\$ 38,625
Change in Allocated Proportion	<u>\$ 401,812</u>	<u>\$ 313,620</u>	<u>\$ 6,918,667</u>	<u>\$ 257,291</u>
Total Deferred Outflows of Resources	<u><u>\$ 1,655,332</u></u>	<u><u>\$ 1,335,993</u></u>	<u><u>\$ 9,174,425</u></u>	<u><u>\$ 322,058</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 89,186	\$ 72,740	\$ 160,494	\$ 4,608
Change in Allocated Proportion	<u>\$ 314,349</u>	<u>\$ 134,530</u>	<u>\$ 5,342,042</u>	<u>\$ 279,915</u>
Total Deferred Inflows of Resources	<u><u>\$ 403,535</u></u>	<u><u>\$ 207,270</u></u>	<u><u>\$ 5,502,536</u></u>	<u><u>\$ 284,523</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 1,551,837	\$ 1,265,681	\$ 2,792,592	\$ 80,181
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ (48,285)</u>	<u>\$ 19,866</u>	<u>\$ 2,149,955</u>	<u>\$ 56,549</u>
Total Pension Expense	<u><u>\$ 1,503,552</u></u>	<u><u>\$ 1,285,547</u></u>	<u><u>\$ 4,942,547</u></u>	<u><u>\$ 136,730</u></u>
Covered Payroll	\$ 3,562,028	\$ 2,956,844	\$ 5,627,892	\$ 173,620



**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Athol- Royalston Regional	Auburn	Auburn Housing Authority	Auburn Water District
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 7,703,849	\$ 42,441,700	\$ 894,936	\$ 1,382,894
Ending Net Pension Liability	\$ 8,605,156	\$ 46,977,102	\$ 994,280	\$ 1,550,508
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 38,142	\$ 208,229	\$ 4,407	\$ 6,873
Net Difference Between Projected and Actual Investment Earnings	323,752	1,767,419	37,408	58,335
Assumption Changes	\$ 534,690	\$ 2,918,969	\$ 61,781	\$ 96,342
Change in Allocated Proportion	<u>\$ 3,006,656</u>	<u>\$ 1,733,458</u>	<u>\$ 25,881</u>	<u>\$ 28,104</u>
Total Deferred Outflows of Resources	<u><u>\$ 3,903,240</u></u>	<u><u>\$ 6,628,075</u></u>	<u><u>\$ 129,477</u></u>	<u><u>\$ 189,654</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 63,791	\$ 348,248	\$ 7,371	\$ 11,494
Change in Allocated Proportion	<u>\$ 2,640,964</u>	<u>\$ 273,635</u>	<u>\$ 85,657</u>	<u>\$ 20,089</u>
Total Deferred Inflows of Resources	<u><u>\$ 2,704,755</u></u>	<u><u>\$ 621,883</u></u>	<u><u>\$ 93,028</u></u>	<u><u>\$ 31,583</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 1,109,957	\$ 6,059,455	\$ 128,250	\$ 199,996
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ 834,172</u>	<u>\$ 357,906</u>	<u>\$ (36,565)</u>	<u>\$ 6,091</u>
Total Pension Expense	<u><u>\$ 1,944,129</u></u>	<u><u>\$ 6,417,361</u></u>	<u><u>\$ 91,685</u></u>	<u><u>\$ 206,087</u></u>
Covered Payroll	\$ 2,290,076	\$ 14,866,580	\$ 249,469	\$ 757,074

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**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Barre	Barre Housing Authority	Berlin	Berlin- Boylston Regional
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 4,384,933	\$ 219,814	\$ 6,763,323	\$ 1,800,073
Ending Net Pension Liability	\$ 4,774,164	\$ 248,716	\$ 7,512,781	\$ 1,999,634
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 21,161	\$ 1,102	\$ 33,300	\$ 8,863
Net Difference Between Projected and Actual Investment Earnings	179,618	9,357	282,653	75,232
Assumption Changes	\$ 296,648	\$ 15,454	\$ 466,815	\$ 124,249
Change in Allocated Proportion	\$ 112,372	\$ 15,359	\$ 408,454	\$ 52,098
Total Deferred Outflows of Resources	<u>\$ 609,799</u>	<u>\$ 41,272</u>	<u>\$ 1,191,222</u>	<u>\$ 260,442</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 35,391	\$ 1,844	\$ 55,693	\$ 14,823
Change in Allocated Proportion	\$ 418,262	\$ -	\$ 5,601	\$ 63,444
Total Deferred Inflows of Resources	<u>\$ 453,653</u>	<u>\$ 1,844</u>	<u>\$ 61,294</u>	<u>\$ 78,267</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 615,807	\$ 32,081	\$ 969,054	\$ 257,928
Net Amortization of Deferred Amounts from Changes in Proportion	\$ (162,341)	\$ 4,913	\$ 132,812	\$ (18,431)
Total Pension Expense	<u>\$ 453,466</u>	<u>\$ 36,994</u>	<u>\$ 1,101,866</u>	<u>\$ 239,497</u>
Covered Payroll	\$ 1,658,812	\$ 144,881	\$ 2,142,491	\$ 743,249

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Blackstone</u>	<u>Blackstone Housing Authority</u>	<u>Blackstone- Millville Regional</u>	<u>Bolton</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 10,735,847	\$ 275,605	\$ 7,180,953	\$ 6,041,853
Ending Net Pension Liability	\$ 11,947,755	\$ 301,404	\$ 7,977,054	\$ 6,693,520
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 52,958	\$ 1,336	\$ 35,358	\$ 29,669
Net Difference Between Projected and Actual Investment Earnings	449,510	11,340	300,121	251,830
Assumption Changes	\$ 742,386	\$ 18,728	\$ 495,663	\$ 415,909
Change in Allocated Proportion	<u>\$ 538,977</u>	<u>\$ 23,458</u>	<u>\$ 48,433</u>	<u>\$ 344,249</u>
Total Deferred Outflows of Resources	<u><u>\$ 1,783,831</u></u>	<u><u>\$ 54,862</u></u>	<u><u>\$ 879,575</u></u>	<u><u>\$ 1,041,657</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 88,570	\$ 2,234	\$ 59,135	\$ 49,620
Change in Allocated Proportion	<u>\$ 894,298</u>	<u>\$ 3,512</u>	<u>\$ 226,757</u>	<u>\$ 30,167</u>
Total Deferred Inflows of Resources	<u><u>\$ 982,868</u></u>	<u><u>\$ 5,746</u></u>	<u><u>\$ 285,892</u></u>	<u><u>\$ 79,787</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 1,541,110	\$ 38,877	\$ 1,028,940	\$ 863,380
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ (316,040)</u>	<u>\$ 5,932</u>	<u>\$ (39,486)</u>	<u>\$ 119,000</u>
Total Pension Expense	<u><u>\$ 1,225,070</u></u>	<u><u>\$ 44,809</u></u>	<u><u>\$ 989,454</u></u>	<u><u>\$ 982,380</u></u>
Covered Payroll	\$ 4,021,888	\$ 104,196	\$ 2,433,738	\$ 2,223,858

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**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Boylston</u>	<u>Boylston Water District</u>	<u>Brookfield</u>	<u>Charlton</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 8,956,241	\$ 150,937	\$ 3,981,194	\$ 17,132,029
Ending Net Pension Liability	\$ 9,855,709	\$ 169,823	\$ 4,401,048	\$ 18,977,826
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 43,685	\$ 753	\$ 19,508	\$ 84,119
Net Difference Between Projected and Actual Investment Earnings	370,801	6,389	165,581	714,003
Assumption Changes	\$ 612,395	\$ 10,552	\$ 273,464	\$ 1,179,207
Change in Allocated Proportion	<u>\$ 627,734</u>	<u>\$ 12,223</u>	<u>\$ 199,210</u>	<u>\$ 585,720</u>
Total Deferred Outflows of Resources	<u><u>\$ 1,654,615</u></u>	<u><u>\$ 29,917</u></u>	<u><u>\$ 657,763</u></u>	<u><u>\$ 2,563,049</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 73,061	\$ 1,259	\$ 32,625	\$ 140,684
Change in Allocated Proportion	<u>\$ 238,731</u>	<u>\$ 54,299</u>	<u>\$ 139,260</u>	<u>\$ 54,127</u>
Total Deferred Inflows of Resources	<u><u>\$ 311,792</u></u>	<u><u>\$ 55,558</u></u>	<u><u>\$ 171,885</u></u>	<u><u>\$ 194,811</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 1,271,263	\$ 21,905	\$ 567,680	\$ 2,447,901
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ 64,270</u>	<u>\$ (24,593)</u>	<u>\$ (12,948)</u>	<u>\$ 222,613</u>
Total Pension Expense	<u><u>\$ 1,335,533</u></u>	<u><u>\$ (2,688)</u></u>	<u><u>\$ 554,732</u></u>	<u><u>\$ 2,670,514</u></u>
Covered Payroll	\$ 2,728,917	\$ 69,413	\$ 1,000,208	\$ 5,437,905

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**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Cherry Valley- Rochdale Water	Cherry Valley Sewer District	Douglas	Dudley
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 655,493	\$ 24,479	\$ 14,737,669	\$ 11,802,799
Ending Net Pension Liability	\$ 750,726	\$ 28,453	\$ 16,256,457	\$ 13,077,264
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 3,328	\$ 126	\$ 72,057	\$ 57,965
Net Difference Between Projected and Actual Investment Earnings	28,245	1,070	611,617	492,006
Assumption Changes	\$ 46,647	\$ 1,768	\$ 1,010,112	\$ 812,569
Change in Allocated Proportion	\$ 19,430	\$ 14,748	\$ 655,481	\$ -
Total Deferred Outflows of Resources	<u>\$ 97,650</u>	<u>\$ 17,712</u>	<u>\$ 2,349,267</u>	<u>\$ 1,362,540</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 5,565	\$ 211	\$ 120,511	\$ 96,943
Change in Allocated Proportion	\$ 36,365	\$ 1,203	\$ 202,277	\$ 767,300
Total Deferred Inflows of Resources	<u>\$ 41,930</u>	<u>\$ 1,414</u>	<u>\$ 322,788</u>	<u>\$ 864,243</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 96,834	\$ 3,670	\$ 2,096,879	\$ 1,686,803
Net Amortization of Deferred Amounts from Changes in Proportion	\$ (11,247)	\$ 3,162	\$ 98,217	\$ (309,158)
Total Pension Expense	<u>\$ 85,587</u>	<u>\$ 6,832</u>	<u>\$ 2,195,096</u>	<u>\$ 1,377,645</u>
Covered Payroll	\$ 190,610	\$ -	\$ 5,241,322	\$ 3,881,684

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Dudley Housing Authority	Dudley- Charlton Regional	East Brookfield	Grafton
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 192,627	\$ 13,629,816	\$ 2,047,251	\$ 24,608,648
Ending Net Pension Liability	\$ 228,048	\$ 15,122,534	\$ 2,244,051	\$ 27,331,432
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 1,011	\$ 67,031	\$ 9,947	\$ 121,146
Net Difference Between Projected and Actual Investment Earnings	8,580	568,955	84,428	1,028,290
Assumption Changes	\$ 14,170	\$ 939,654	\$ 139,436	\$ 1,698,267
Change in Allocated Proportion	\$ 9,589	\$ 165,556	\$ 309,022	\$ 189,741
Total Deferred Outflows of Resources	<u>\$ 33,350</u>	<u>\$ 1,741,196</u>	<u>\$ 542,833</u>	<u>\$ 3,037,444</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 1,691	\$ 112,105	\$ 16,635	\$ 202,610
Change in Allocated Proportion	\$ 124,062	\$ 31,187	\$ 24,402	\$ 101,413
Total Deferred Inflows of Resources	<u>\$ 125,753</u>	<u>\$ 143,292</u>	<u>\$ 41,037</u>	<u>\$ 304,023</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 29,415	\$ 1,950,617	\$ 289,454	\$ 3,525,411
Net Amortization of Deferred Amounts from Changes in Proportion	\$ (36,157)	\$ 55,086	\$ 93,057	\$ 5,788
Total Pension Expense	<u>\$ (6,742)</u>	<u>\$ 2,005,703</u>	<u>\$ 382,511</u>	<u>\$ 3,531,199</u>
Covered Payroll	\$ 61,641	\$ 5,007,211	\$ 619,046	\$ 9,044,015

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Grafton Housing Authority	Hardwick	Harvard	Hillcrest Water District
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 746,110	\$ 2,803,820	\$ 12,195,933	\$ 103,976
Ending Net Pension Liability	\$ 820,043	\$ 3,122,938	\$ 13,621,603	\$ 119,659
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 3,635	\$ 13,842	\$ 60,378	\$ 530
Net Difference Between Projected and Actual Investment Earnings	30,852	117,494	512,485	4,502
Assumption Changes	\$ 50,954	\$ 194,047	\$ 846,393	\$ 7,435
Change in Allocated Proportion	\$ 9,429	\$ 10,400	\$ 43,672	\$ 45,725
Total Deferred Outflows of Resources	<u>\$ 94,870</u>	<u>\$ 335,783</u>	<u>\$ 1,462,928</u>	<u>\$ 58,192</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 6,079	\$ 23,151	\$ 100,978	\$ 887
Change in Allocated Proportion	\$ 23,225	\$ 352,146	\$ 431,484	\$ 20,553
Total Deferred Inflows of Resources	<u>\$ 29,304</u>	<u>\$ 375,297</u>	<u>\$ 532,462</u>	<u>\$ 21,440</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 105,775	\$ 402,820	\$ 1,757,016	\$ 15,435
Net Amortization of Deferred Amounts from Changes in Proportion	\$ (1,105)	\$ (114,162)	\$ (183,752)	\$ 10,813
Total Pension Expense	<u>\$ 104,670</u>	<u>\$ 288,658</u>	<u>\$ 1,573,264</u>	<u>\$ 26,248</u>
Covered Payroll	\$ 309,255	\$ 759,778	\$ 4,335,704	\$ 17,709

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Holden	Holden Housing Authority	Hopedale	Hopedale Housing Authority
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 30,268,102	\$ 429,169	\$ 13,426,827	\$ 70,070
Ending Net Pension Liability	\$ 33,802,409	\$ 470,494	\$ 14,845,804	\$ 81,434
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 149,829	\$ 2,085	\$ 65,804	\$ 361
Net Difference Between Projected and Actual Investment Earnings	1,271,748	17,701	558,544	3,064
Assumption Changes	\$ 2,100,348	\$ 29,235	\$ 922,460	\$ 5,060
Change in Allocated Proportion	\$ 154,913	\$ 9,353	\$ 498,159	\$ 3,464
Total Deferred Outflows of Resources	<u>\$ 3,676,838</u>	<u>\$ 58,374</u>	<u>\$ 2,044,967</u>	<u>\$ 11,949</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 250,580	\$ 3,488	\$ 110,053	\$ 604
Change in Allocated Proportion	\$ 1,096,006	\$ 15,811	\$ 487,938	\$ 27,004
Total Deferred Inflows of Resources	<u>\$ 1,346,586</u>	<u>\$ 19,299</u>	<u>\$ 597,991</u>	<u>\$ 27,608</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 4,360,086	\$ 60,688	\$ 1,914,922	\$ 10,504
Net Amortization of Deferred Amounts from Changes in Proportion	\$ (342,200)	\$ 787	\$ (100,689)	\$ (6,748)
Total Pension Expense	<u>\$ 4,017,886</u>	<u>\$ 61,475</u>	<u>\$ 1,814,233</u>	<u>\$ 3,756</u>
Covered Payroll	\$ 9,206,279	\$ 139,228	\$ 4,428,604	\$ -

(Continued)



**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Hubbardston</u>	<u>Lancaster</u>	<u>Lancaster Housing Authority</u>	<u>Lancaster Sewer</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 3,847,404	\$ 8,200,606	\$ 215,898	\$ -
Ending Net Pension Liability	\$ 4,164,808	\$ 9,125,651	\$ 240,492	\$ 25,831
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 18,460	\$ 40,449	\$ 1,066	\$ 114
Net Difference Between Projected and Actual Investment Earnings	156,693	343,334	9,048	972
Assumption Changes	\$ 258,785	\$ 567,032	\$ 14,943	\$ 1,605
Change in Allocated Proportion	<u>\$ 267,999</u>	<u>\$ 23,589</u>	<u>\$ 42,834</u>	<u>\$ 17,889</u>
Total Deferred Outflows of Resources	<u><u>\$ 701,937</u></u>	<u><u>\$ 974,404</u></u>	<u><u>\$ 67,891</u></u>	<u><u>\$ 20,580</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 30,874	\$ 67,649	\$ 1,783	\$ 191
Change in Allocated Proportion	<u>\$ 95,071</u>	<u>\$ 50,793</u>	<u>\$ 27,713</u>	<u>\$ -</u>
Total Deferred Inflows of Resources	<u><u>\$ 125,945</u></u>	<u><u>\$ 118,442</u></u>	<u><u>\$ 29,496</u></u>	<u><u>\$ 191</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 537,208	\$ 1,177,094	\$ 31,020	\$ 3,332
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ 78,173</u>	<u>\$ (18,782)</u>	<u>\$ (2,991)</u>	<u>\$ 3,696</u>
Total Pension Expense	<u><u>\$ 615,381</u></u>	<u><u>\$ 1,158,312</u></u>	<u><u>\$ 28,029</u></u>	<u><u>\$ 7,028</u></u>
Covered Payroll	\$ 876,192	\$ 2,813,173	\$ 19,589	\$ 1,310

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Leicester</u>	<u>Leicester Housing Authority</u>	<u>Leicester Water District</u>	<u>Lunenburg</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 17,008,376	\$ 553,177	\$ 645,067	\$ 17,839,446
Ending Net Pension Liability	\$ 18,924,389	\$ 622,711	\$ 731,279	\$ 19,899,499
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 83,882	\$ 2,760	\$ 3,241	\$ 88,204
Net Difference Between Projected and Actual Investment Earnings	711,992	23,428	27,513	748,679
Assumption Changes	\$ 1,175,887	\$ 38,693	\$ 45,439	\$ 1,236,476
Change in Allocated Proportion	<u>\$ 24,577</u>	<u>\$ 6,400</u>	<u>\$ 9,668</u>	<u>\$ 282,668</u>
Total Deferred Outflows of Resources	<u><u>\$ 1,996,338</u></u>	<u><u>\$ 71,281</u></u>	<u><u>\$ 85,861</u></u>	<u><u>\$ 2,356,027</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 140,288	\$ 4,616	\$ 5,421	\$ 147,517
Change in Allocated Proportion	<u>\$ 839,687</u>	<u>\$ 30,582</u>	<u>\$ 133,578</u>	<u>\$ -</u>
Total Deferred Inflows of Resources	<u><u>\$ 979,975</u></u>	<u><u>\$ 35,198</u></u>	<u><u>\$ 138,999</u></u>	<u><u>\$ 147,517</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 2,441,009	\$ 80,322	\$ 94,326	\$ 2,566,785
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ (394,377)</u>	<u>\$ (7,789)</u>	<u>\$ (41,854)</u>	<u>\$ 97,863</u>
Total Pension Expense	<u><u>\$ 2,046,632</u></u>	<u><u>\$ 72,533</u></u>	<u><u>\$ 52,472</u></u>	<u><u>\$ 2,664,648</u></u>
Covered Payroll	\$ 4,997,991	\$ 192,364	\$ 280,944	\$ 5,642,383

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Lunenburg Housing Authority	Lunenburg Water District	Mendon	Mendon- Upton Regional
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 20,708	\$ 709,045	\$ 8,370,108	\$ 10,466,011
Ending Net Pension Liability	\$ 21,922	\$ 813,691	\$ 9,263,226	\$ 11,556,024
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 97	\$ 3,607	\$ 41,059	\$ 51,222
Net Difference Between Projected and Actual Investment Earnings	825	30,613	348,510	434,772
Assumption Changes	\$ 1,362	\$ 50,560	\$ 575,580	\$ 718,046
Change in Allocated Proportion	\$ -	\$ 26,293	\$ 444,729	\$ 287,230
Total Deferred Outflows of Resources	<u>\$ 2,284</u>	<u>\$ 111,073</u>	<u>\$ 1,409,878</u>	<u>\$ 1,491,270</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 163	\$ 6,032	\$ 68,669	\$ 85,666
Change in Allocated Proportion	\$ 32,783	\$ 93,837	\$ 30,748	\$ 86,779
Total Deferred Inflows of Resources	<u>\$ 32,946</u>	<u>\$ 99,869</u>	<u>\$ 99,417</u>	<u>\$ 172,445</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 2,828	\$ 104,956	\$ 1,194,840	\$ 1,490,582
Net Amortization of Deferred Amounts from Changes in Proportion	\$ (10,369)	\$ (29,733)	\$ 139,200	\$ 90,074
Total Pension Expense	<u>\$ (7,541)</u>	<u>\$ 75,223</u>	<u>\$ 1,334,040</u>	<u>\$ 1,580,656</u>
Covered Payroll	\$ 16,439	\$ 255,320	\$ 2,788,263	\$ 4,576,775

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Millbury</u>	<u>Millbury Housing Authority</u>	<u>Millville</u>	<u>Narragansett Regional</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 25,637,587	\$ 1,329,616	\$ 2,389,622	\$ 5,428,630
Ending Net Pension Liability	\$ 28,487,717	\$ 1,473,667	\$ 2,510,162	\$ 6,033,789
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 126,272	\$ 6,532	\$ 11,126	\$ 26,745
Net Difference Between Projected and Actual Investment Earnings	1,071,793	55,444	94,440	227,009
Assumption Changes	\$ 1,770,114	\$ 91,568	\$ 155,972	\$ 374,916
Change in Allocated Proportion	<u>\$ 154,963</u>	<u>\$ 17,930</u>	<u>\$ 396,446</u>	<u>\$ -</u>
Total Deferred Outflows of Resources	<u><u>\$ 3,123,142</u></u>	<u><u>\$ 171,474</u></u>	<u><u>\$ 657,984</u></u>	<u><u>\$ 628,670</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 211,182	\$ 10,924	\$ 18,608	\$ 44,729
Change in Allocated Proportion	<u>\$ 621,486</u>	<u>\$ 6,276</u>	<u>\$ 119,921</u>	<u>\$ 225,913</u>
Total Deferred Inflows of Resources	<u><u>\$ 832,668</u></u>	<u><u>\$ 17,200</u></u>	<u><u>\$ 138,529</u></u>	<u><u>\$ 270,642</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 3,674,558	\$ 190,084	\$ 323,779	\$ 778,283
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ (269,913)</u>	<u>\$ 7,507</u>	<u>\$ 123,272</u>	<u>\$ (79,468)</u>
Total Pension Expense	<u><u>\$ 3,404,645</u></u>	<u><u>\$ 197,591</u></u>	<u><u>\$ 447,051</u></u>	<u><u>\$ 698,815</u></u>
Covered Payroll	\$ 6,982,817	\$ 439,018	\$ 679,493	\$ 1,646,353

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Nashoba Regional</u>	<u>Nashoba Valley Dispatchers</u>	<u>New Braintree</u>	<u>Northboro</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 14,441,629	\$ -	\$ 729,495	\$ 27,381,868
Ending Net Pension Liability	\$ 15,947,398	\$ 277,902	\$ 821,688	\$ 30,730,253
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 70,687	\$ 1,232	\$ 3,642	\$ 136,212
Net Difference Between Projected and Actual Investment Earnings	599,989	10,456	30,914	1,156,164
Assumption Changes	\$ 990,908	\$ 17,268	\$ 51,056	\$ 1,909,456
Change in Allocated Proportion	<u>\$ 870,672</u>	<u>\$ 192,460</u>	<u>\$ 39,347</u>	<u>\$ 424,866</u>
Total Deferred Outflows of Resources	<u><u>\$ 2,532,256</u></u>	<u><u>\$ 221,416</u></u>	<u><u>\$ 124,959</u></u>	<u><u>\$ 3,626,698</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 118,220	\$ 2,060	\$ 6,091	\$ 227,806
Change in Allocated Proportion	<u>\$ 606,307</u>	<u>\$ -</u>	<u>\$ 186,186</u>	<u>\$ 329,539</u>
Total Deferred Inflows of Resources	<u><u>\$ 724,527</u></u>	<u><u>\$ 2,060</u></u>	<u><u>\$ 192,277</u></u>	<u><u>\$ 557,345</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 2,057,014	\$ 35,846	\$ 105,987	\$ 3,963,817
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ (53,925)</u>	<u>\$ 39,765</u>	<u>\$ (30,834)</u>	<u>\$ (62,305)</u>
Total Pension Expense	<u><u>\$ 2,003,089</u></u>	<u><u>\$ 75,611</u></u>	<u><u>\$ 75,153</u></u>	<u><u>\$ 3,901,512</u></u>
Covered Payroll	\$ 6,016,656	\$ 350,893	\$ 223,500	\$ 10,399,313

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Northboro Housing Authority	Northboro- Southboro Regional	North Brookfield	North Brookfield Housing Authority
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 913,662	\$ 5,228,622	\$ 6,199,284	\$ 259,007
Ending Net Pension Liability	\$ 1,014,964	\$ 5,759,925	\$ 6,908,832	\$ 297,137
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 4,499	\$ 25,531	\$ 30,623	\$ 1,317
Net Difference Between Projected and Actual Investment Earnings	38,186	216,706	259,931	11,179
Assumption Changes	\$ 63,066	\$ 357,899	\$ 429,288	\$ 18,463
Change in Allocated Proportion	\$ 71,691	\$ 329,770	\$ 15,531	\$ 15,059
Total Deferred Outflows of Resources	<u>\$ 177,442</u>	<u>\$ 929,906</u>	<u>\$ 735,373</u>	<u>\$ 46,018</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 7,524	\$ 42,699	\$ 51,216	\$ 2,203
Change in Allocated Proportion	\$ 1,659	\$ 222,163	\$ 282,286	\$ -
Total Deferred Inflows of Resources	<u>\$ 9,183</u>	<u>\$ 264,862</u>	<u>\$ 333,502</u>	<u>\$ 2,203</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 130,918	\$ 742,958	\$ 891,153	\$ 38,327
Net Amortization of Deferred Amounts from Changes in Proportion	\$ 28,513	\$ (15,383)	\$ (99,514)	\$ 5,051
Total Pension Expense	<u>\$ 159,431</u>	<u>\$ 727,575</u>	<u>\$ 791,639</u>	<u>\$ 43,378</u>
Covered Payroll	\$ 472,650	\$ 2,049,968	\$ 2,229,456	\$ 84,837

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Oakham	Oxford	Oxford Housing Authority	Oxford- Rochdale Sewer District
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 941,961	\$ 27,476,933	\$ 840,418	\$ 427,300
Ending Net Pension Liability	\$ 1,044,606	\$ 31,084,736	\$ 939,686	\$ 479,925
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 4,630	\$ 137,783	\$ 4,165	\$ 2,127
Net Difference Between Projected and Actual Investment Earnings	39,301	1,169,501	35,354	18,056
Assumption Changes	\$ 64,908	\$ 1,931,483	\$ 58,388	\$ 29,821
Change in Allocated Proportion	\$ -	\$ 367,167	\$ 16,710	\$ 95,597
Total Deferred Outflows of Resources	<u>\$ 108,839</u>	<u>\$ 3,605,934</u>	<u>\$ 114,617</u>	<u>\$ 145,601</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 7,744	\$ 230,434	\$ 6,966	\$ 3,558
Change in Allocated Proportion	\$ 177,671	\$ 1,898,036	\$ 13,935	\$ -
Total Deferred Inflows of Resources	<u>\$ 185,415</u>	<u>\$ 2,128,470</u>	<u>\$ 20,901</u>	<u>\$ 3,558</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 134,741	\$ 4,009,541	\$ 121,208	\$ 61,904
Net Amortization of Deferred Amounts from Changes in Proportion	\$ (66,217)	\$ (534,161)	\$ 3,670	\$ 28,959
Total Pension Expense	<u>\$ 68,524</u>	<u>\$ 3,475,380</u>	<u>\$ 124,878</u>	<u>\$ 90,863</u>
Covered Payroll	\$ 290,795	\$ 8,010,212	\$ 316,434	\$ 225,853

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Paxton</u>	<u>Petersham</u>	<u>Phillipston</u>	<u>Princeton</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 9,648,380	\$ 2,231,208	\$ 1,816,704	\$ 5,112,946
Ending Net Pension Liability	\$ 10,656,827	\$ 2,465,308	\$ 2,003,820	\$ 5,765,349
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 47,236	\$ 10,927	\$ 8,882	\$ 25,555
Net Difference Between Projected and Actual Investment Earnings	400,942	92,752	75,390	216,910
Assumption Changes	\$ 662,173	\$ 153,184	\$ 124,509	\$ 358,236
Change in Allocated Proportion	<u>\$ 894,904</u>	<u>\$ -</u>	<u>\$ 101,718</u>	<u>\$ 114,114</u>
Total Deferred Outflows of Resources	<u><u>\$ 2,005,255</u></u>	<u><u>\$ 256,863</u></u>	<u><u>\$ 310,499</u></u>	<u><u>\$ 714,815</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 79,000	\$ 18,276	\$ 14,855	\$ 42,739
Change in Allocated Proportion	<u>\$ 171,891</u>	<u>\$ 447,107</u>	<u>\$ 28,966</u>	<u>\$ 663,080</u>
Total Deferred Inflows of Resources	<u><u>\$ 250,891</u></u>	<u><u>\$ 465,383</u></u>	<u><u>\$ 43,821</u></u>	<u><u>\$ 705,819</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 1,374,597	\$ 317,994	\$ 258,468	\$ 743,658
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ 159,767</u>	<u>\$ (217,989)</u>	<u>\$ 44,556</u>	<u>\$ (239,055)</u>
Total Pension Expense	<u><u>\$ 1,534,364</u></u>	<u><u>\$ 100,005</u></u>	<u><u>\$ 303,024</u></u>	<u><u>\$ 504,603</u></u>
Covered Payroll	\$ 2,848,283	\$ 695,410	\$ 503,692	\$ 2,280,938

(Continued)



**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Quabbin Regional</u>	<u>Quaboag Regional</u>	<u>Royalston</u>	<u>Rutland</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 13,849,034	\$ 4,857,807	\$ 761,678	\$ 8,243,715
Ending Net Pension Liability	\$ 15,666,971	\$ 5,381,924	\$ 854,229	\$ 9,111,498
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 69,444	\$ 23,855	\$ 3,786	\$ 40,387
Net Difference Between Projected and Actual Investment Earnings	589,438	202,484	32,139	342,802
Assumption Changes	\$ 973,484	\$ 334,411	\$ 53,078	\$ 566,152
Change in Allocated Proportion	<u>\$ 184,727</u>	<u>\$ -</u>	<u>\$ 80,066</u>	<u>\$ 564,678</u>
Total Deferred Outflows of Resources	<u><u>\$ 1,817,093</u></u>	<u><u>\$ 560,750</u></u>	<u><u>\$ 169,069</u></u>	<u><u>\$ 1,514,019</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 116,141	\$ 39,897	\$ 6,332	\$ 67,544
Change in Allocated Proportion	<u>\$ 668,385</u>	<u>\$ 157,084</u>	<u>\$ 40,399</u>	<u>\$ 337,151</u>
Total Deferred Inflows of Resources	<u><u>\$ 784,526</u></u>	<u><u>\$ 196,981</u></u>	<u><u>\$ 46,731</u></u>	<u><u>\$ 404,695</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 2,020,842	\$ 694,201	\$ 110,185	\$ 1,175,269
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ (195,383)</u>	<u>\$ (65,682)</u>	<u>\$ 28,581</u>	<u>\$ (13,504)</u>
Total Pension Expense	<u><u>\$ 1,825,459</u></u>	<u><u>\$ 628,519</u></u>	<u><u>\$ 138,766</u></u>	<u><u>\$ 1,161,765</u></u>
Covered Payroll	\$ 4,481,694	\$ 1,701,835	\$ 253,854	\$ 2,533,259

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Southboro</u>	<u>Southboro Housing Authority</u>	<u>Spencer</u>	<u>Spencer- East Brookfield Regional</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 25,973,383	\$ 227,888	\$ 12,285,970	\$ 8,433,957
Ending Net Pension Liability	\$ 28,943,244	\$ 239,384	\$ 13,691,523	\$ 9,389,254
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 128,291	\$ 1,061	\$ 60,688	\$ 41,618
Net Difference Between Projected and Actual Investment Earnings	1,088,931	9,006	515,116	353,252
Assumption Changes	\$ 1,798,419	\$ 14,874	\$ 850,737	\$ 583,411
Change in Allocated Proportion	<u>\$ 224,529</u>	<u>\$ -</u>	<u>\$ 386,397</u>	<u>\$ 28,203</u>
Total Deferred Outflows of Resources	<u><u>\$ 3,240,170</u></u>	<u><u>\$ 24,941</u></u>	<u><u>\$ 1,812,938</u></u>	<u><u>\$ 1,006,484</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 214,559	\$ 1,775	\$ 101,497	\$ 69,603
Change in Allocated Proportion	<u>\$ 172,177</u>	<u>\$ 28,502</u>	<u>\$ 208,454</u>	<u>\$ 66,565</u>
Total Deferred Inflows of Resources	<u><u>\$ 386,736</u></u>	<u><u>\$ 30,277</u></u>	<u><u>\$ 309,951</u></u>	<u><u>\$ 136,168</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 3,733,315	\$ 30,878	\$ 1,766,034	\$ 1,211,096
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ (28,655)</u>	<u>\$ (10,909)</u>	<u>\$ (6,589)</u>	<u>\$ (26,585)</u>
Total Pension Expense	<u><u>\$ 3,704,660</u></u>	<u><u>\$ 19,969</u></u>	<u><u>\$ 1,759,445</u></u>	<u><u>\$ 1,184,511</u></u>
Covered Payroll	\$ 9,054,955	\$ 19,830	\$ 3,874,769	\$ 1,700,471

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Spencer Housing Authority	Sterling	Sterling Housing Authority	Sturbridge
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 572,080	\$ 13,656,520	\$ 131,614	\$ 18,875,360
Ending Net Pension Liability	\$ 645,513	\$ 15,141,492	\$ 144,122	\$ 20,776,741
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 2,861	\$ 67,115	\$ 639	\$ 92,093
Net Difference Between Projected and Actual Investment Earnings	24,286	569,668	5,422	781,683
Assumption Changes	\$ 40,110	\$ 940,832	\$ 8,955	\$ 1,290,985
Change in Allocated Proportion	\$ 32,470	\$ 217,738	\$ 9,162	\$ 617,676
Total Deferred Outflows of Resources	<u>\$ 99,727</u>	<u>\$ 1,795,353</u>	<u>\$ 24,178</u>	<u>\$ 2,782,437</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 4,785	\$ 112,245	\$ 1,068	\$ 154,020
Change in Allocated Proportion	\$ 25,730	\$ 216,105	\$ 2,037	\$ 213,964
Total Deferred Inflows of Resources	<u>\$ 30,515</u>	<u>\$ 328,350</u>	<u>\$ 3,105</u>	<u>\$ 367,984</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 83,263	\$ 1,953,062	\$ 18,590	\$ 2,679,939
Net Amortization of Deferred Amounts from Changes in Proportion	\$ 7,708	\$ (44,163)	\$ 3,385	\$ 99,976
Total Pension Expense	<u>\$ 90,971</u>	<u>\$ 1,908,899</u>	<u>\$ 21,975</u>	<u>\$ 2,779,915</u>
Covered Payroll	\$ 355,637	\$ 4,677,931	\$ -	\$ 5,816,847

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Sutton	Tantasqua Regional	Templeton	Templeton Housing Authority
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 15,578,505	\$ 9,250,346	\$ 10,758,199	\$ 602,200
Ending Net Pension Liability	\$ 17,374,370	\$ 10,228,466	\$ 12,012,202	\$ 654,568
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 77,012	\$ 45,338	\$ 53,244	\$ 2,901
Net Difference Between Projected and Actual Investment Earnings	653,676	384,826	451,935	24,627
Assumption Changes	\$ 1,079,575	\$ 635,556	\$ 746,391	\$ 40,672
Change in Allocated Proportion	\$ 150,407	\$ 93,544	\$ 47,994	\$ -
Total Deferred Outflows of Resources	<u>\$ 1,960,670</u>	<u>\$ 1,159,264</u>	<u>\$ 1,299,564</u>	<u>\$ 68,200</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 128,798	\$ 75,825	\$ 89,048	\$ 4,852
Change in Allocated Proportion	\$ 542,304	\$ 100,831	\$ 929,275	\$ 64,497
Total Deferred Inflows of Resources	<u>\$ 671,102</u>	<u>\$ 176,656</u>	<u>\$ 1,018,323</u>	<u>\$ 69,349</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 2,241,075	\$ 1,319,344	\$ 1,549,423	\$ 84,431
Net Amortization of Deferred Amounts from Changes in Proportion	\$ (238,844)	\$ (12,273)	\$ (407,830)	\$ (28,126)
Total Pension Expense	<u>\$ 2,002,231</u>	<u>\$ 1,307,071</u>	<u>\$ 1,141,593</u>	<u>\$ 56,305</u>
Covered Payroll	\$ 5,925,505	\$ 3,703,020	\$ 3,594,982	\$ 115,715

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Upton</u>	<u>Uxbridge</u>	<u>Uxbridge Housing Authority</u>	<u>Wachusett Regional</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 8,240,959	\$ 25,242,018	\$ 686,209	\$ 27,047,828
Ending Net Pension Liability	\$ 9,188,095	\$ 28,171,996	\$ 775,645	\$ 29,739,068
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 40,726	\$ 124,872	\$ 3,438	\$ 131,818
Net Difference Between Projected and Actual Investment Earnings	345,684	1,059,915	29,182	1,118,873
Assumption Changes	\$ 570,912	\$ 1,750,496	\$ 48,196	\$ 1,847,868
Change in Allocated Proportion	<u>\$ 418,742</u>	<u>\$ 298,142</u>	<u>\$ 37,273</u>	<u>\$ 1,767,412</u>
Total Deferred Outflows of Resources	<u><u>\$ 1,376,064</u></u>	<u><u>\$ 3,233,425</u></u>	<u><u>\$ 118,089</u></u>	<u><u>\$ 4,865,971</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 68,112	\$ 208,842	\$ 5,750	\$ 220,458
Change in Allocated Proportion	<u>\$ 362,417</u>	<u>\$ 671,074</u>	<u>\$ 108,044</u>	<u>\$ 1,026,740</u>
Total Deferred Inflows of Resources	<u><u>\$ 430,529</u></u>	<u><u>\$ 879,916</u></u>	<u><u>\$ 113,794</u></u>	<u><u>\$ 1,247,198</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 1,185,149	\$ 3,633,834	\$ 100,048	\$ 3,835,966
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ (76,206)</u>	<u>\$ (131,323)</u>	<u>\$ (11,871)</u>	<u>\$ 49,506</u>
Total Pension Expense	<u><u>\$ 1,108,943</u></u>	<u><u>\$ 3,502,511</u></u>	<u><u>\$ 88,177</u></u>	<u><u>\$ 3,885,472</u></u>
Covered Payroll	\$ 3,910,035	\$ 7,900,674	\$ 196,812	\$ 9,287,357

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	Warren	Warren Water District	Westboro	Westboro Housing Authority
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 5,331,180	\$ 227,163	\$ 54,696,505	\$ 544,281
Ending Net Pension Liability	\$ 5,844,829	\$ 249,873	\$ 61,081,055	\$ 600,838
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 25,907	\$ 1,108	\$ 270,742	\$ 2,663
Net Difference Between Projected and Actual Investment Earnings	219,900	9,401	2,298,052	22,605
Assumption Changes	\$ 363,175	\$ 15,526	\$ 3,795,335	\$ 37,334
Change in Allocated Proportion	\$ 341,668	\$ 29,650	\$ 734,389	\$ 25,469
Total Deferred Outflows of Resources	<u>\$ 950,650</u>	<u>\$ 55,685</u>	<u>\$ 7,098,518</u>	<u>\$ 88,071</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 43,328	\$ 1,852	\$ 452,800	\$ 4,454
Change in Allocated Proportion	\$ 72,136	\$ 2,595	\$ 14,687	\$ 3,052
Total Deferred Inflows of Resources	<u>\$ 115,464</u>	<u>\$ 4,447</u>	<u>\$ 467,487</u>	<u>\$ 7,506</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 753,909	\$ 32,230	\$ 7,878,689	\$ 77,501
Net Amortization of Deferred Amounts from Changes in Proportion	\$ 80,639	\$ 9,921	\$ 304,235	\$ 6,333
Total Pension Expense	<u>\$ 834,548</u>	<u>\$ 42,151</u>	<u>\$ 8,182,924</u>	<u>\$ 83,834</u>
Covered Payroll	\$ 1,656,945	\$ 114,475	\$ 19,768,185	\$ 158,193

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	West Boylston	West Boylston Housing Authority	West Boylston Water District	West Brookfield
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 17,050,437	\$ 148,391	\$ 735,587	\$ 3,756,207
Ending Net Pension Liability	\$ 18,863,118	\$ 169,139	\$ 829,001	\$ 4,215,036
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 83,611	\$ 750	\$ 3,675	\$ 18,683
Net Difference Between Projected and Actual Investment Earnings	709,687	6,364	31,189	158,582
Assumption Changes	\$ 1,172,080	\$ 10,510	\$ 51,511	\$ 261,906
Change in Allocated Proportion	\$ 153,889	\$ 5,189	\$ 10,545	\$ 26,389
Total Deferred Outflows of Resources	<u>\$ 2,119,267</u>	<u>\$ 22,813</u>	<u>\$ 96,920</u>	<u>\$ 465,560</u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 139,834	\$ 1,254	\$ 6,145	\$ 31,246
Change in Allocated Proportion	\$ 442,764	\$ 14,086	\$ 62,895	\$ 273,935
Total Deferred Inflows of Resources	<u>\$ 582,598</u>	<u>\$ 15,340</u>	<u>\$ 69,040</u>	<u>\$ 305,181</u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 2,433,105	\$ 21,817	\$ 106,931	\$ 543,687
Net Amortization of Deferred Amounts from Changes in Proportion	\$ (162,754)	\$ (2,044)	\$ (28,234)	\$ (123,354)
Total Pension Expense	<u>\$ 2,270,351</u>	<u>\$ 19,773</u>	<u>\$ 78,697</u>	<u>\$ 420,333</u>
Covered Payroll	\$ 5,690,295	\$ 70,913	\$ 387,451	\$ 971,479

(Continued)

**WORCESTER REGIONAL RETIREMENT SYSTEM  
SCHEDULE OF PENSION AMOUNTS BY EMPLOYER  
YEAR ENDED DECEMBER 31, 2018**

	<u>Westminster</u>	<u>Winchendon</u>	<u>Winchendon Housing Authority</u>	<u>Totals</u>
<u>Net Pension Liability</u>				
Beginning Net Pension Liability	\$ 11,847,454	\$ 20,533,375	\$ 1,354,563	\$ 815,427,852
Ending Net Pension Liability	\$ 13,225,312	\$ 22,925,807	\$ 1,509,758	\$ 906,762,192
<u>Deferred Outflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 58,621	\$ 101,619	\$ 6,692	\$ 4,019,220
Net Difference Between Projected and Actual Investment Earnings	497,576	862,537	56,802	34,115,107
Assumption Changes	\$ 821,769	\$ 1,424,519	\$ 93,810	\$ 56,342,617
Change in Allocated Proportion	<u>\$ 323,455</u>	<u>\$ 86,577</u>	<u>\$ 101,762</u>	<u>\$ 30,343,421</u>
Total Deferred Outflows of Resources	<u><u>\$ 1,701,421</u></u>	<u><u>\$ 2,475,252</u></u>	<u><u>\$ 259,066</u></u>	<u><u>\$ 124,820,365</u></u>
<u>Deferred Inflows of Resources</u>				
Net Difference Between Expected and Actual Experience	\$ 98,040	\$ 169,951	\$ 11,192	\$ 6,721,912
Change in Allocated Proportion	<u>\$ 9,377</u>	<u>\$ 1,120,146</u>	<u>\$ 5</u>	<u>\$ 30,343,421</u>
Total Deferred Inflows of Resources	<u><u>\$ 107,417</u></u>	<u><u>\$ 1,290,097</u></u>	<u><u>\$ 11,197</u></u>	<u><u>\$ 37,065,333</u></u>
<u>Pension Expense</u>				
Proportionate Share of Pension Expense	\$ 1,705,899	\$ 2,957,141	\$ 194,740	\$ 116,960,934
Net Amortization of Deferred Amounts from Changes in Proportion	<u>\$ 149,159</u>	<u>\$ (314,420)</u>	<u>\$ 36,817</u>	<u>\$ -</u>
Total Pension Expense	<u><u>\$ 1,855,058</u></u>	<u><u>\$ 2,642,721</u></u>	<u><u>\$ 231,557</u></u>	<u><u>\$ 116,960,934</u></u>
Covered Payroll	\$ 4,027,276	\$ 5,501,269	\$ 793,820	\$ 273,888,022

(Concluded)



**WORCESTER REGIONAL RETIREMENT SYSTEM  
NOTES TO SCHEDULES  
DECEMBER 31, 2018**

**NOTE 1 DESCRIPTION OF THE ENTITY**

The Worcester Regional Retirement System (System) was established to provide retirement benefits to eligible employees of its member employers. The System is governed by a five-member board comprised of the Chairman/Chief Executive Officer, who serves ex-officio and is appointed by the other members of the board; two members who are elected by the participants in or retired from the services of the System; a fourth member appointed by the member employers; and a fifth member appointed by the other members of the board.

The System issued a publicly available audited financial statement for the year ended December 31, 2018. A copy may be obtained by submitting a request to the System's Chairman/Chief Executive Officer at 23 Midstate Drive, Suite 106, Auburn, Massachusetts 01501.

**Plan Description**

The System is a cost-sharing multiple-employer public employee retirement system established in 1937, under Massachusetts General Laws (MGL), Chapter 32, and is regulated by the Massachusetts Public Employee Retirement Administration Commission (PERAC). The System is a defined benefit pension plan that covers eligible employees of its member employers.

**Membership**

Membership in the System is mandatory immediately upon the commencement of employment for all permanent full-time employees working at least 20 hours weekly, except for school teachers and school administrators who participate in the Massachusetts Teachers' Retirement System.

**Benefits**

Benefit provisions and state law establishes contribution requirements of the System. Members of the System become vested after 10 years of creditable service. Normal retirement occurs at age 65 (age 67 if hired on or after April 2, 2012), except for certain public safety employees and other special situations.

For employees hired prior to April 2, 2012, the annual amount of the retirement allowance is based on the member's final three-year average salary multiplied by (1) the number of years and full months of creditable service at the time of retirement and (2) a percentage based on age at retirement in accordance with a schedule provided by state law. Assuming normal retirement at age 65, this percentage is 2.5%, which is reduced for individuals who retire prior to age 65 to reflect the longer pay out period. A member's final three-year average salary is defined as the greater of the highest consecutive three-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last three years of creditable service prior to retirement.

**WORCESTER REGIONAL RETIREMENT SYSTEM  
NOTES TO SCHEDULES  
DECEMBER 31, 2018**

**NOTE 1 DESCRIPTION OF THE ENTITY (CONTINUED)**

**Benefits (Continued)**

For employees hired on or after April 2, 2012, the annual amount of the retirement allowance is based on the member's final five-year average salary multiplied by (1) the number of years and full months of creditable service at the time of retirement and (2) a percentage based on age at retirement in accordance with a schedule provided by state law. Assuming normal retirement at age 67, this percentage is 2.5%. A member's final five-year average salary is defined as the greater of the highest consecutive five-year average annual rate of regular compensation and the average annual rate of regular compensation received during the last five years of creditable service prior to retirement.

Employees may elect early retirement after 20 years of service or at any time after attaining age 55 (age 60 if hired on or after April 2, 2012) with 10 years of eligible service. Plan members who become permanently and totally disabled may be eligible to receive a disability retirement allowance. The amount of benefits to be received depends on several factors, including the member's age, compensation, veteran status, years of service, and whether or not the disability is work-related. In addition, certain death benefits exist for beneficiaries of employees who die in active service.

Under MGL, c.32 Section 3(8)(c), members leaving a member employer to work for other Massachusetts governmental units requires the System transfer their accumulated account balances and creditable service to the retirement system of their new employer. Other such retirement systems are in turn required to make comparable transfers to the System for employees coming to work at a member employer of the System. Per statute, the PERAC actuary shall consider length of service as well as acceptance of military service credit and salary cap provisions if applicable in calculating the liability.

**Contributions**

Chapter 32 of MGL governs the contributions of plan members and member employers. Depending on their employment date, active System members must contribute anywhere between 5%-9% of their gross regular compensation. Members hired after December 31, 1978 must contribute an additional 2% of regular compensation in excess of \$30,000. Employees in Group 1 hired on or after April 2, 2012 with 30 years of creditable service or greater will pay a base contribution rate of 6%. These deductions earn interest at a rate determined by PERAC that vests based upon years of service. Employers are required to pay into the System its share of the system-wide actuarial determined contribution, in accordance with Chapter 32, Section 22D of MGL, apportioned among the employers based on annual employer normal cost and amortization payments to pay the unfunded actuarial accrued liability.

Except for a portion of benefits owed due to cost-of-living adjustments (COLA's) granted through June 30, 1998, member employers are required to contribute the remaining amounts necessary to finance benefits. Member employer contributions are determined by actuarial valuations.

**WORCESTER REGIONAL RETIREMENT SYSTEM  
NOTES TO SCHEDULES  
DECEMBER 31, 2018**

**NOTE 1 DESCRIPTION OF THE ENTITY (CONTINUED)**

**Contributions (Continued)**

COLA's granted through June 30, 1998 are reimbursed by the Commonwealth of Massachusetts (the Commonwealth). COLA's granted subsequent to June 30, 1998 must be granted by the Board and are the responsibility of the System. COLA's may be approved in excess of the Consumer Price Index but not to exceed 3% of the base retirement allowance.

**NOTE 2 ACTUARIAL ASSUMPTIONS AND METHODS**

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

Amortization method:	Payment increases 4.0% per year
Remaining amortization period:	17 years, except for ERI for 2002 and 2003 (10 years) and 2010 (4 years)
Asset valuation method:	Market value
Inflation:	3.0% per year
Salary increases:	Group 1: 4.25-6.00%, based on service Group 4: 4.75-7.00%, based on service
Investment rate of return:	7.75%, net of pension plan investment expense, including inflation
Mortality rates:	Based on the RP-2000 Mortality Table (base year 2009) with full generational mortality improvement using Scale BB.  For disabled lives, the mortality rates were based on the RP-2000 Mortality Table (base year 2012) with full generational mortality improvement using Scale BB.

**WORCESTER REGIONAL RETIREMENT SYSTEM  
NOTES TO SCHEDULES  
DECEMBER 31, 2018**

**NOTE 3 NET PENSION LIABILITY**

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

Total Pension Liability	\$ 1,592,300,205
Plan Fiduciary Net Position	<u>(685,538,013)</u>
Net Pension Liability	<u>\$ 906,762,192</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	43.05%

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 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 rates and that member employer contributions will be made in accordance with Sections 22D and 22F of Chapter 32 of the Massachusetts General Laws. Based on those assumptions, the System'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.

**Long-Term Expected Rate of Return**

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future rates of return (expected returns, net of pension 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 rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plan's target asset allocation as of December 31, 2018 are summarized in the following table:

<u>Asset Class</u>	<u>Target Allocation (%)</u>	<u>Long-Term Expected Rate of Return (%)</u>
Global Equity	39.00	4.75
Fixed Income	23.00	2.28
Private Equity	13.00	8.15
Real Estate	10.00	3.43
Timber/Natural Resources	4.00	4.00
Portfolio Completion Strategies	11.00	3.76

**WORCESTER REGIONAL RETIREMENT SYSTEM  
NOTES TO SCHEDULES  
DECEMBER 31, 2018**

**NOTE 3 NET PENSION LIABILITY (CONTINUED)**

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

The following presents the net pension liability of the System calculated using the discount rate of 7.75%, as well as what the System's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (6.75%) or 1-percentage-point higher (8.75%) than the current rate:

	1% Decrease (6.75%)	Current Discount Rate (7.75%)	1% Increase (8.75%)
Net Pension Liability	\$ 1,092,251,619	\$ 906,762,192	\$ 750,061,573

**NOTE 4 DEFERRED INFLOWS OF RESOURCES AND DEFERRED OUTFLOWS OF RESOURCES**

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

Measurement Period <u>Ending December 31,</u>	<u>Amount</u>
2019	\$ 33,969,230
2020	25,062,108
2021	16,835,661
2022	13,054,645
2023	(1,166,612)
Thereafter	-

**NOTE 5 EMPLOYER CONTRIBUTIONS**

Employers' proportionate shares were calculated on the basis of actual employer contributions for the year ended December 31, 2018. Although GASB Statement No. 68 encourages the use of the employer's projected long-term contribution effort to the System, allocating on the basis of historical employer contributions is considered acceptable.

**NOTE 6 ADDITIONAL FINANCIAL AND ACTUARIAL INFORMATION**

Information contained in these Notes to Schedules was extracted from the audited financial statements of the System for the year ended December 31, 2018. 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 year ended December 31, 2018. A copy may be obtained by submitting a request to the System's Chairman/Chief Executive Officer at 23 Midstate Drive, Suite 106, Auburn, Massachusetts 01501.

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