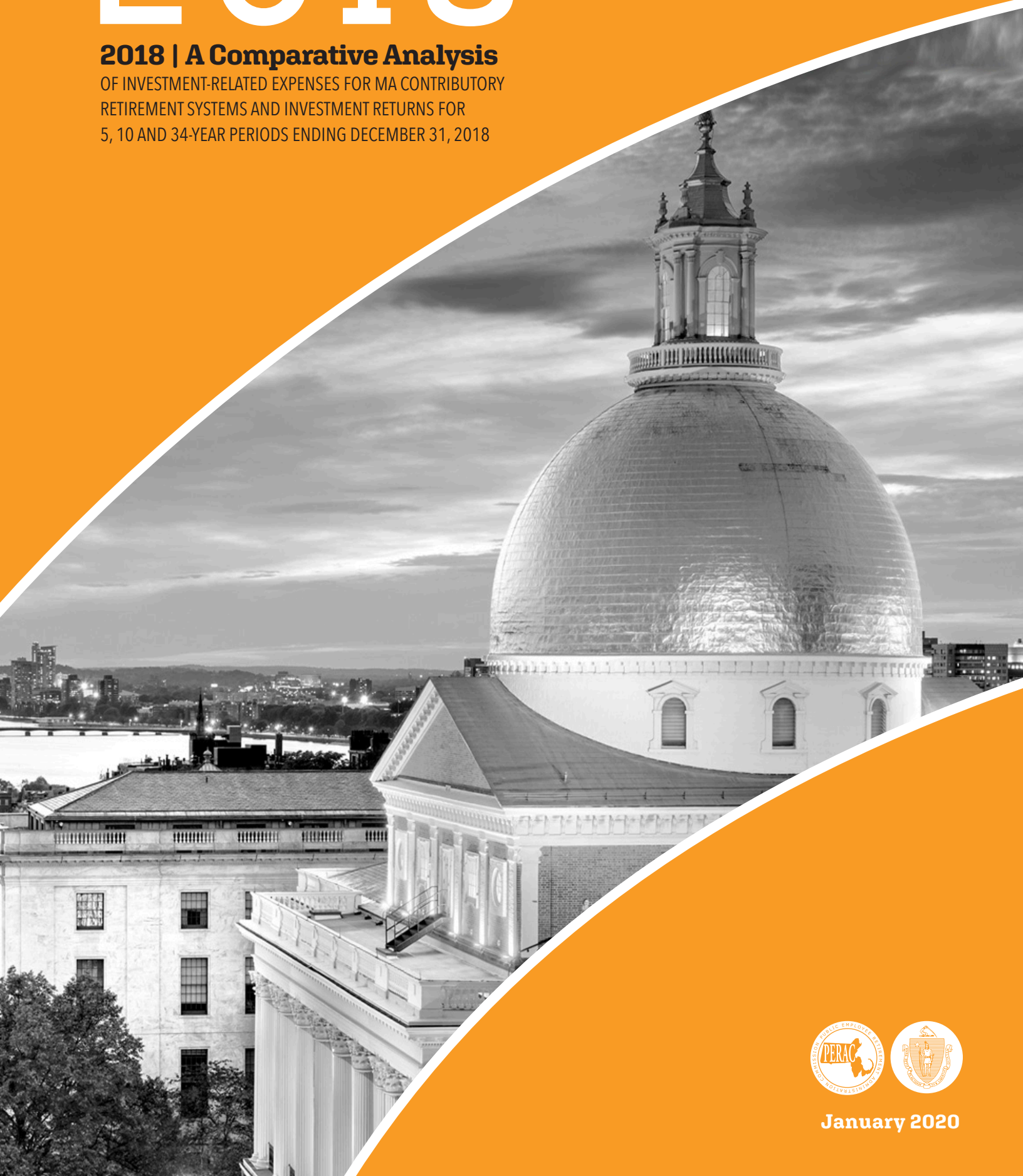


# 2018

## **2018 | A Comparative Analysis**

OF INVESTMENT-RELATED EXPENSES FOR MA CONTRIBUTORY  
RETIREMENT SYSTEMS AND INVESTMENT RETURNS FOR  
5, 10 AND 34-YEAR PERIODS ENDING DECEMBER 31, 2018



January 2020

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*Executive Director*

## **Public Employee Retirement Administration Commission**

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## Letter From the Executive Director

**“The Public Employee Retirement Administration Commission (PERAC) is pleased to release its 2018 Comparative Analysis of Investment-Related Expenses for Massachusetts Contributory Retirement Systems.”**

This represents a further installment in a series of Reports focused on the costs associated with the investment of the assets of these systems and is consistent with PERAC's statutory responsibility to provide “statistical and other reports and information to the Governor and the General Court and the public.”

The Report details the management, custodian and consultant fees for each public pension system based on that system's Annual Statement of Financial Condition for 2018. During that year, a total of \$469.8 million was expended by the 104 public pension retirement boards as they performed the vital task of investing \$81.5 billion of system funds. The State and Teachers Fund spent \$295.5 million and local retirement boards incurred expenses of \$174.3 million.

Studies such as this provide retirement board members, public officials and taxpayers with a critical tool with which to assess investment performance. Using this Report, board members are able to gauge their costs against those of their peers, public officials are able to analyze the management of the pension funds, and taxpayers can gain insight into the level of expenditure involved in this task. PERAC's effort in this area reflects its commitment to bring transparency to all aspects of retirement system management.

Although the primary data source for the information published herein is the Schedule 7 filed by each retirement board as part of its 2018 Annual Report of Financial Condition, PERAC, working with retirement boards,

consultants and managers has, in some cases, adjusted the Schedule 7 data to insure accuracy. Sources used in this process included Annual Vendor Disclosures, Schedule K-1 Filings, manager reports, consultant reports and cashbook submissions. PERAC did not audit the data submitted by the retirement boards.

In assessing this material it should be kept in mind that the level of cost, in and of itself, is neither a positive nor a negative. More important is whether the investment performance justifies the cost.

In publishing this information PERAC makes no comment regarding any retirement board's asset allocation, investment strategy or manager/fund commitments.

On behalf of the Commission, I would like to thank the PERAC staff who prepared, reviewed and published this report, particularly Cheryl Johnson, CFA, for compiling the investment analysis. If you have any questions or comments please contact Cheryl at 617-591-8927 or by email at [cljohnson@per.state.ma.us](mailto:cljohnson@per.state.ma.us).

Sincerely,

John W. Parsons, Esq.  
Executive Director



# SEC

OFFICE of INVESTOR  
EDUCATION and ADVOCACY

## INVESTOR BULLETIN

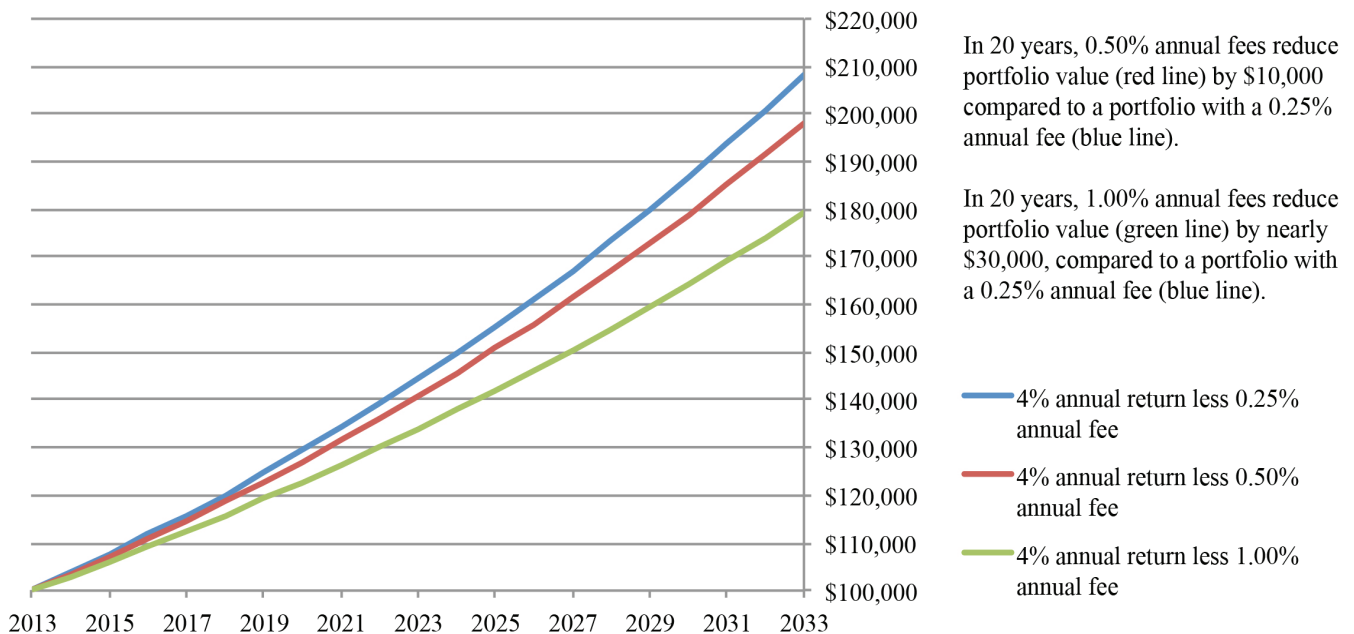
# How Fees and Expenses Affect Your Investment Portfolio

*The SEC's Office of Investor Education and Advocacy is issuing this bulletin to educate investors about how fees can impact the value of an investment portfolio.*

As with anything you buy, there are fees and costs associated with investment products and services.

***These fees may seem small, but over time they can have a major impact on your investment portfolio.*** The following chart shows an investment portfolio with a 4% annual return over 20 years when the investment either has an ongoing fee of 0.25%, 0.50% or 1%. Notice how the fees affect the investment portfolio over 20 years.

Portfolio Value From Investing \$100,000 Over 20 Years



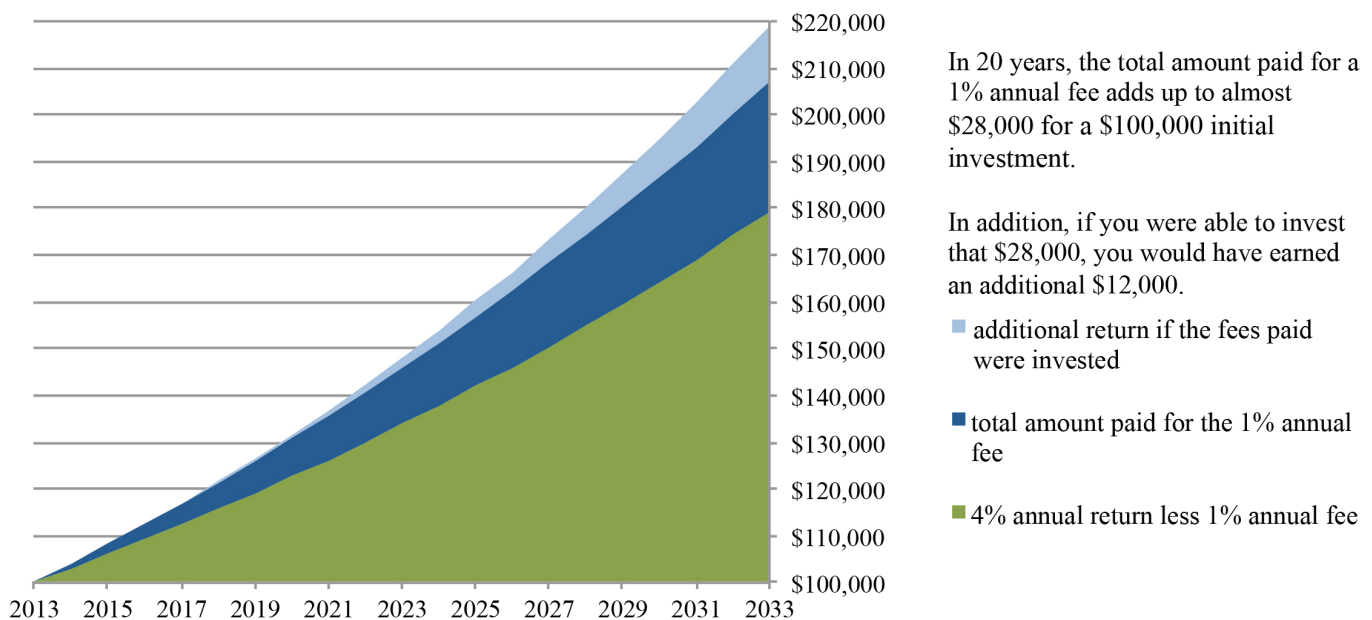
## How do ongoing fees affect your investment portfolio?

Ongoing fees can also reduce the value of your investment portfolio. This is particularly true over time, because not only is your investment balance reduced by the fee, but you also lose any return you would have earned *on* that fee. ***Over time, even ongoing fees that are small can have a big impact on your investment portfolio.*** The chart above illustrates the effect of different ongoing fees on a

\$100,000 investment portfolio with a 4% annual return over 20 years.

The chart below illustrates the impact of a 1% ongoing fee on a \$100,000 investment portfolio that grows 4% annually over 20 years. As the investment portfolio grows over time, so does the total amount of fees you pay. Because of the fees you pay, you have a smaller amount invested that is earning a return.

Illustration of Ongoing Fees Over 20 Years



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# 1 | EXPLANATORY NOTES

This Expense Report is a helpful tool for retirement board members, public officials and taxpayers to analyze the costs associated with the management of the assets of the 104 public employee retirement systems in Massachusetts. However, this tool must be used judiciously and in proper context. Investment strategies and asset allocation drive investment returns. Some strategies and allocations require the payment of greater fees than others. Expenses must be assessed in conjunction with investment performance.

Under Massachusetts law retirement boards may opt to invest assets through the Pension Reserves Investment Trust (PRIT). In several instances during the year covered by this Report boards were in the process of transferring assets to PRIT. As a result, the Expense Ratio for those boards does not reflect the results in future years which will mirror those of the PRIT systems noted. These transitioning systems include Brookline, Leominster, Winchester and Woburn.

Although the primary data source for the information published herein is the Schedule 7 filed by each retirement board as part of its 2018 Annual Report of Financial Condition, PERAC, working with retirement boards, consultants and managers has, in some cases, adjusted the Schedule 7 data to insure accuracy. Sources used in this process included Annual Vendor Disclosures, Schedule K-1 Filings, manager reports, consultant reports and cash book submissions. Those systems for which adjustments were more than 5 basis points include Adams, Belmont, Boston, Brockton, Haverhill, Lexington, MassWater, Marlborough, Natick, Norfolk County, North Adams, Plymouth County, Quincy, Waltham, and Weymouth.

In some instances the Report categorizes systems as either “PRIT” or “Non-PRIT”. “PRIT” systems are those that have invested all but a minimal amount of assets in the Pension Reserves Investment Trust (PRIT). In short, either system’s assets have been fully transferred to PRIT and are managed by the Pension Reserves Investment Management Board (PRIM) or all assets with the exception of limited holdings in non-public asset classes have been transferred to PRIT. “Non-PRIT” systems include those that have no assets invested in PRIT or those in which the retirement board has invested in various segments of the PRIT Fund but retained responsibility for investing most of the system assets.

The Expense Ratio in this report has been expressed in percentage points (%). Another method of reporting fees is in Basis Points, otherwise referred to as bps or “bips.” Basis Points also describe the cost to the Boards for engaging the Investment Service Providers (ISP) for their services. For example, the average of ISP expenses for the year, across all Boards, was 0.58% or 58 bps. This may also be expressed as \$5,800 per \$1,000,000 invested.

## 2 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Alphabetical Order)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
ADAMS	\$32,396,766	2.60%	6.56%	7.47%	\$114,707	0.44%	0.35%
AMESBURY	\$55,070,036	6.45%	9.12%	7.90%	\$292,948	0.51%	0.53%
ANDOVER	\$137,529,805	6.13%	9.01%	8.18%	\$561,970	0.50%	0.41%
ARLINGTON	\$152,460,412	6.22%	8.70%	8.22%	\$827,158	0.54%	0.54%
ATTLEBORO	\$139,055,309	4.99%	9.44%	8.64%	\$815,012	0.60%	0.59%
BARNSTABLE COUNTY	\$1,072,642,281	6.50%	9.11%	7.42%	\$5,834,971	0.52%	0.54%
BELMONT	\$101,258,859	5.57%	9.83%	9.11%	\$712,422	0.71%	0.75%
BERKSHIRE COUNTY	\$236,096,140	6.47%	9.12%	8.84%	\$1,265,892	0.51%	0.54%
BEVERLY	\$121,535,060	6.48%	9.26%	8.44%	\$662,608	0.52%	0.55%
BLUE HILLS REGIONAL	\$10,941,232	6.41%	9.11%	8.52%	\$59,458	0.52%	0.54%
BOSTON (CITY)	\$4,786,346,484	4.57%	8.36%	8.61%	\$31,183,604	0.59%	0.69%
BOSTON TEACHERS*	\$1,638,029,039	6.47%			\$8,521,859	0.50%	0.52%
BRAINTREE	\$192,658,719	4.89%	8.23%	8.38%	\$1,339,538	0.60%	0.70%
BRISTOL COUNTY	\$647,605,663	5.16%	9.24%	8.64%	\$6,586,851	0.85%	0.99%
BROCKTON	\$385,276,393	4.59%	8.29%	8.39%	\$2,855,321	0.64%	0.74%
BROOKLINE	\$299,550,719	5.85%	8.67%	8.45%	\$2,613,251	0.69%	0.87%
CAMBRIDGE	\$1,270,275,254	5.67%	9.65%	9.06%	\$9,199,355	0.61%	0.72%
CHELSEA	\$165,334,302	6.51%	9.17%	7.86%	\$888,542	0.51%	0.54%
CHICOPEE	\$311,532,614	5.95%	10.73%	8.47%	\$2,219,378	0.80%	0.71%
CLINTON	\$49,065,214	6.56%	9.12%	7.63%	\$306,536	0.57%	0.62%
CONCORD	\$159,259,926	5.93%	8.92%	8.38%	\$849,902	0.49%	0.53%
DANVERS	\$107,737,942	4.01%	8.54%	7.76%	\$779,474	0.65%	0.72%
DEDHAM	\$138,483,536	6.54%	9.26%	9.33%	\$752,112	0.52%	0.54%
DUKES COUNTY	\$154,715,561	7.52%	9.85%	7.79%	\$792,825	0.51%	0.51%
EASTHAMPTON	\$52,245,369	6.47%	9.15%	8.15%	\$282,554	0.52%	0.54%
ESSEX REGIONAL	\$451,471,396	6.69%	9.82%	8.59%	\$2,497,005	0.57%	0.55%
EVERETT	\$154,265,907	6.55%	9.33%	8.33%	\$820,883	0.51%	0.53%
FAIRHAVEN	\$61,480,030	6.44%	9.15%	9.12%	\$333,922	0.51%	0.54%
FALL RIVER	\$257,334,290	6.33%	8.97%	8.23%	\$1,402,666	0.51%	0.55%
FALMOUTH	\$133,843,149	5.17%	8.70%	8.69%	\$1,026,260	0.77%	0.77%
FITCHBURG	\$115,991,586	6.34%	8.57%	7.54%	\$628,231	0.52%	0.54%
FRAMINGHAM	\$308,055,151	6.48%	9.16%	9.09%	\$1,656,376	0.51%	0.54%
FRANKLIN REGIONAL	\$138,792,634	5.99%	9.60%	8.21%	\$798,433	0.58%	0.58%
GARDNER	\$53,336,846	6.47%	9.16%	9.21%	\$290,752	0.52%	0.55%
GLOUCESTER	\$103,831,591	6.53%	9.17%	8.71%	\$559,922	0.52%	0.54%

\*In 2010, Boston Teachers' assets were separated from Boston City assets and transferred into the PRIT Fund.



## 2 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Alphabetical Order)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
GREATER LAWRENCE	\$17,916,950	6.20%	9.81%	7.54%	\$75,868	0.36%	0.42%
GREENFIELD	\$67,505,517	6.55%	9.35%	8.37%	\$365,998	0.52%	0.54%
HAMPDEN COUNTY	\$356,792,414	6.46%	8.80%	8.45%	\$1,926,974	0.52%	0.54%
HAMPSHIRE COUNTY	\$308,607,330	5.53%	8.71%	8.11%	\$1,939,320	0.81%	0.63%
HAVERHILL	\$192,531,160	5.91%	9.14%	9.68%	\$1,538,572	0.86%	0.82%
HINGHAM	\$115,083,148	6.10%	8.63%	8.92%	\$651,377	0.44%	0.57%
HOLYOKE	\$270,857,947	6.24%	10.93%	9.14%	\$1,938,509	0.80%	0.72%
HULL	\$47,463,868	6.53%	9.14%	7.82%	\$254,851	0.51%	0.54%
LAWRENCE	\$221,926,167	6.46%	9.15%	7.70%	\$1,198,339	0.51%	0.54%
LEOMINSTER	\$196,813,645	5.99%	9.59%	8.41%	\$1,217,491	0.62%	0.62%
LEXINGTON	\$157,854,265	5.77%	8.86%	8.55%	\$1,345,774	0.82%	0.85%
LOWELL	\$367,981,493	6.26%	8.88%	8.90%	\$1,999,732	0.52%	0.54%
LYNN	\$349,406,465	6.51%	8.51%	7.90%	\$1,879,625	0.57%	0.54%
MALDEN	\$258,265,604	6.84%	9.41%	9.53%	\$742,247	0.30%	0.29%
MARBLEHEAD	\$95,013,701	6.49%	9.20%	9.04%	\$524,059	0.53%	0.55%
MARLBOROUGH	\$162,112,826	4.42%	7.78%	8.06%	\$630,160	0.41%	0.38%
MA HOUSING FINANCE (MHFA)	\$146,209,683	4.58%	7.86%	7.26%	\$807,454	0.82%	0.55%
MASSPORT	\$606,474,045	5.22%	8.95%	8.72%	\$2,303,867	0.39%	0.38%
MASS. TEACHERS' (MTRS)	\$27,090,334,578	6.51%	9.25%	9.27%	\$150,343,868	0.55%	0.55%
MWRA**	\$508,781,941	4.91%	9.07%	7.95%	\$3,523,118	0.78%	0.69%
MAYNARD	\$42,110,930	5.51%	8.74%	7.67%	\$258,680	0.56%	0.61%
MEDFORD	\$183,852,733	4.40%	8.04%	8.47%	\$1,311,276	0.58%	0.71%
MELROSE	\$83,952,105	6.12%	8.50%	8.23%	\$432,270	0.53%	0.51%
METHUEN	\$149,831,557	6.90%	9.10%	7.91%	\$824,824	0.51%	0.55%
MIDDLESEX COUNTY	\$1,344,181,892	6.14%	8.45%	8.24%	\$7,059,397	0.50%	0.53%
MILFORD	\$92,815,489	6.47%	8.99%	8.09%	\$488,260	0.52%	0.53%
MILTON	\$131,827,703	6.45%	9.19%	9.18%	\$705,620	0.51%	0.54%
MINUTEMAN REGIONAL	\$13,358,282	6.27%	9.00%	9.24%	\$72,155	0.51%	0.54%
MONTAGUE	\$41,320,127	6.41%	9.12%	8.94%	\$224,321	0.52%	0.54%
NATICK	\$137,778,939	5.96%	9.47%	7.94%	\$966,572	0.67%	0.70%
NEEDHAM	\$158,656,981	6.44%	9.02%	9.43%	\$846,786	0.52%	0.53%
NEW BEDFORD	\$311,010,370	5.78%	9.03%	7.91%	\$2,412,160	0.73%	0.78%
NEWBURYPORT	\$80,576,898	6.27%	9.01%	8.08%	\$432,945	0.50%	0.54%
NEWTON	\$341,722,946	6.48%	8.94%	8.47%	\$1,791,604	0.51%	0.52%
NORFOLK COUNTY	\$913,802,949	4.83%	8.86%	8.35%	\$7,136,557	0.83%	0.78%

\*\*Based on a 33-year return

## 2 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Alphabetical Order)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
NORTH ADAMS	\$65,938,384	7.18%	10.01%	9.50%	\$275,215	0.47%	0.42%
NORTH ATTLEBORO	\$111,419,296	5.90%	9.57%	8.41%	\$628,584	0.67%	0.57%
NORTHAMPTON	\$128,491,089	7.35%	9.82%	9.32%	\$421,839	0.39%	0.33%
NORTHBRIDGE	\$34,785,612	6.52%	9.24%	9.16%	\$190,081	0.52%	0.55%
NORWOOD	\$154,175,077	5.90%	9.10%	8.88%	\$1,101,762	0.69%	0.71%
PEABODY	\$144,830,313	6.47%	9.20%	8.48%	\$795,004	0.52%	0.55%
PITTSFIELD	\$136,284,718	6.41%	8.86%	8.07%	\$713,336	0.51%	0.52%
PLYMOUTH	\$169,361,243	5.99%	9.71%	8.61%	\$1,265,338	0.83%	0.75%
PLYMOUTH COUNTY	\$939,559,694	4.49%	8.70%	8.75%	\$7,937,967	0.73%	0.90%
QUINCY	\$319,007,835	4.99%	8.06%	7.98%	\$1,571,236	0.62%	0.67%
READING	\$136,202,939	6.57%	9.26%	9.10%	\$694,633	0.52%	0.51%
REVERE	\$157,674,641	6.39%	8.92%	8.24%	\$844,907	0.51%	0.54%
SALEM	\$174,705,542	6.28%	8.63%	7.99%	\$933,414	0.51%	0.53%
SAUGUS	\$100,172,688	6.49%	9.20%	9.03%	\$545,440	0.52%	0.54%
SHREWSBURY	\$121,891,006	6.59%	9.81%	8.93%	\$525,894	0.35%	0.43%
SOMERVILLE	\$262,832,608	5.22%	9.89%	8.70%	\$1,288,578	0.51%	0.49%
SOUTHBRIDGE	\$52,713,414	6.51%	8.47%	7.93%	\$284,315	0.51%	0.54%
SPRINGFIELD	\$337,595,289	6.70%	8.97%	8.27%	\$1,796,079	0.52%	0.53%
STATE	\$26,223,284,352	6.52%	9.25%	9.26%	\$145,125,562	0.54%	0.55%
STONEHAM	\$88,103,358	6.09%	8.99%	8.59%	\$562,257	0.54%	0.64%
SWAMPSCOTT	\$56,395,263	6.22%	8.42%	8.83%	\$314,850	0.68%	0.56%
TAUNTON	\$295,983,293	5.47%	9.27%	9.28%	\$1,644,382	0.72%	0.56%
WAKEFIELD	\$118,321,185	6.50%	9.24%	9.45%	\$645,115	0.53%	0.55%
WALTHAM	\$233,516,181	5.83%	8.22%	8.41%	\$923,694	0.57%	0.54%
WATERTOWN	\$182,595,353	5.47%	8.53%	8.06%	\$1,285,171	0.76%	0.70%
WEBSTER	\$37,459,391	5.08%	9.29%	7.89%	\$304,463	0.85%	0.81%
WELLESLEY	\$187,848,687	6.49%	9.22%	9.72%	\$1,012,271	0.51%	0.54%
WEST SPRINGFIELD	\$121,713,785	6.81%	9.31%	8.15%	\$394,932	0.37%	0.32%
WESTFIELD	\$220,391,024	6.40%	9.96%	8.59%	\$1,561,346	0.68%	0.71%
WEYMOUTH	\$185,769,505	5.12%	9.13%	9.49%	\$1,371,109	0.74%	0.74%
WINCHESTER	\$118,250,062	5.48%	7.75%	8.74%	\$583,547	0.25%	0.49%
WINTHROP	\$69,002,722	6.49%	8.87%	8.50%	\$369,252	0.50%	0.54%
WOBURN	\$136,377,105	5.28%	9.41%	9.06%	\$1,106,109	0.76%	0.81%
WORCESTER	\$904,473,448	5.03%	8.44%	8.56%	\$5,059,765	0.64%	0.56%
WORCESTER REGIONAL	\$693,203,279	6.39%	8.46%	8.04%	\$3,743,928	0.56%	0.54%

### 3 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Ranked By 2018 Expense Ratio)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
BRISTOL COUNTY	\$647,605,663	5.16%	9.24%	8.64%	\$6,586,850	0.85%	0.99%
PLYMOUTH COUNTY	\$939,559,693	4.49%	8.70%	8.75%	\$7,937,967	0.73%	0.90%
BROOKLINE	\$299,550,718	5.85%	8.67%	8.45%	\$2,613,250	0.69%	0.87%
LEXINGTON	\$157,854,265	5.77%	8.86%	8.55%	\$1,345,773	0.82%	0.85%
HAVERHILL	\$192,531,160	5.91%	9.14%	9.68%	\$1,538,571	0.86%	0.82%
WEBSTER	\$37,459,391	5.08%	9.29%	7.89%	\$304,462	0.85%	0.81%
WOBURN	\$136,377,104	5.28%	9.41%	9.06%	\$1,106,108	0.76%	0.81%
NORFOLK COUNTY	\$913,802,948	4.83%	8.86%	8.35%	\$7,136,556	0.83%	0.78%
NEW BEDFORD	\$311,010,369	5.78%	9.03%	7.91%	\$2,412,160	0.73%	0.78%
FALMOUTH	\$133,843,149	5.17%	8.70%	8.69%	\$1,026,259	0.77%	0.77%
BELMONT	\$101,258,858	5.57%	9.83%	9.11%	\$712,422	0.71%	0.75%
PLYMOUTH	\$169,361,242	5.99%	9.71%	8.61%	\$1,265,337	0.83%	0.75%
BROCKTON	\$385,276,392	4.59%	8.29%	8.39%	\$2,855,320	0.64%	0.74%
WEYMOUTH	\$185,769,504	5.12%	9.13%	9.49%	\$1,371,109	0.74%	0.74%
CAMBRIDGE	\$1,270,275,253	5.67%	9.65%	9.06%	\$9,199,354	0.61%	0.72%
DANVERS	\$107,737,941	4.01%	8.54%	7.76%	\$779,474	0.65%	0.72%
HOLYOKE	\$270,857,947	6.24%	10.93%	9.14%	\$1,938,508	0.80%	0.72%
NORWOOD	\$154,175,077	5.90%	9.10%	8.88%	\$1,101,762	0.69%	0.71%
MEDFORD	\$183,852,732	4.40%	8.04%	8.47%	\$1,311,276	0.58%	0.71%
CHICOPEE	\$311,532,613	5.95%	10.73%	8.47%	\$2,219,377	0.80%	0.71%
WESTFIELD	\$220,391,023	6.40%	9.96%	8.59%	\$1,561,346	0.68%	0.71%
NATICK	\$137,778,939	5.96%	9.47%	7.94%	\$966,572	0.67%	0.70%
WATERTOWN	\$182,595,352	5.47%	8.53%	8.06%	\$1,285,171	0.76%	0.70%
BRAINTREE	\$192,658,719	4.89%	8.23%	8.38%	\$1,339,537	0.60%	0.70%
BOSTON (CITY)	\$4,786,346,484	4.57%	8.36%	8.61%	\$31,183,604	0.59%	0.69%
MWRA**	\$508,781,941	4.91%	9.07%	7.95%	\$3,523,118	0.78%	0.69%
QUINCY	\$319,007,834	4.99%	8.06%	7.98%	\$1,571,236	0.62%	0.67%
STONEHAM	\$88,103,358	6.09%	8.99%	8.59%	\$562,257	0.54%	0.64%
HAMPSHIRE COUNTY	\$308,607,329	5.53%	8.71%	8.11%	\$1,939,319	0.81%	0.63%
CLINTON	\$49,065,213	6.56%	9.12%	7.63%	\$306,535	0.57%	0.62%
LEOMINSTER	\$196,813,645	5.99%	9.59%	8.41%	\$1,217,490	0.62%	0.62%
MAYNARD	\$42,110,930	5.51%	8.74%	7.67%	\$258,679	0.56%	0.61%
ATTLEBORO	\$139,055,309	4.99%	9.44%	8.64%	\$815,011	0.60%	0.59%
FRANKLIN COUNTY	\$138,792,634	5.99%	9.60%	8.21%	\$798,432	0.58%	0.58%
NORTH ATTLEBORO	\$111,419,295	5.90%	9.57%	8.41%	\$628,584	0.67%	0.57%

\*\*Based on a 33-year return

### 3 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Ranked By 2018 Expense Ratio)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
HINGHAM	\$115,083,147	6.10%	8.63%	8.92%	\$651,376	0.44%	0.57%
WORCESTER	\$904,473,447	5.03%	8.44%	8.56%	\$5,059,765	0.64%	0.56%
SWAMPSCOTT	\$56,395,263	6.22%	8.42%	8.83%	\$314,849	0.68%	0.56%
TAUNTON	\$295,983,292	5.47%	9.27%	9.28%	\$1,644,381	0.72%	0.56%
MASS. TEACHERS' (MTRS)	\$27,090,334,578	6.51%	9.25%	9.27%	\$150,343,867	0.55%	0.55%
STATE	\$26,223,284,351	6.52%	9.25%	9.26%	\$145,125,562	0.54%	0.55%
ESSEX COUNTY	\$451,471,395	6.69%	9.82%	8.59%	\$2,497,004	0.57%	0.55%
MA HOUSING FINANCE (MHFA)	\$146,209,683	4.58%	7.86%	7.26%	\$807,453	0.82%	0.55%
MARBLEHEAD	\$95,013,701	6.49%	9.20%	9.04%	\$524,059	0.53%	0.55%
METHUEN	\$149,831,557	6.90%	9.10%	7.91%	\$824,823	0.51%	0.55%
PEABODY	\$144,830,313	6.47%	9.20%	8.48%	\$795,003	0.52%	0.55%
NORTHBRIDGE	\$34,785,611	6.52%	9.24%	9.16%	\$190,081	0.52%	0.55%
WAKEFIELD	\$118,321,184	6.50%	9.24%	9.45%	\$645,115	0.53%	0.55%
BEVERLY	\$121,535,060	6.48%	9.26%	8.44%	\$662,608	0.52%	0.55%
GARDNER	\$53,336,846	6.47%	9.16%	9.21%	\$290,751	0.52%	0.55%
FALL RIVER	\$257,334,289	6.33%	8.97%	8.23%	\$1,402,666	0.51%	0.55%
SAUGUS	\$100,172,688	6.49%	9.20%	9.03%	\$545,439	0.52%	0.54%
BARNSTABLE COUNTY	\$1,072,642,280	6.50%	9.11%	7.42%	\$5,834,970	0.52%	0.54%
BLUE HILLS REGIONAL	\$10,941,231	6.41%	9.11%	8.52%	\$59,458	0.52%	0.54%
LOWELL	\$367,981,492	6.26%	8.88%	8.90%	\$1,999,731	0.52%	0.54%
FAIRHAVEN	\$61,480,029	6.44%	9.15%	9.12%	\$333,922	0.51%	0.54%
DEDHAM	\$138,483,536	6.54%	9.26%	9.33%	\$752,111	0.52%	0.54%
MONTAGUE	\$41,320,127	6.41%	9.12%	8.94%	\$224,321	0.52%	0.54%
ARLINGTON	\$152,460,411	6.22%	8.70%	8.22%	\$827,158	0.54%	0.54%
GREENFIELD	\$67,505,517	6.55%	9.35%	8.37%	\$365,998	0.52%	0.54%
FITCHBURG	\$115,991,585	6.34%	8.57%	7.54%	\$628,230	0.52%	0.54%
EASTHAMPTON	\$52,245,368	6.47%	9.15%	8.15%	\$282,553	0.52%	0.54%
MINUTEMAN REGIONAL	\$13,358,282	6.27%	9.00%	9.24%	\$72,154	0.51%	0.54%
WORCESTER REGIONAL	\$693,203,279	6.39%	8.46%	8.04%	\$3,743,927	0.56%	0.54%
HAMPDEN COUNTY	\$356,792,413	6.46%	8.80%	8.45%	\$1,926,974	0.52%	0.54%
WALTHAM	\$233,516,180	5.83%	8.22%	8.41%	\$923,694	0.57%	0.54%
LAWRENCE	\$221,926,166	6.46%	9.15%	7.70%	\$1,198,339	0.51%	0.54%
SOUTHBRIDGE	\$52,713,414	6.51%	8.47%	7.93%	\$284,314	0.51%	0.54%
GLOUCESTER	\$103,831,591	6.53%	9.17%	8.71%	\$559,922	0.52%	0.54%
WELLESLEY	\$187,848,687	6.49%	9.22%	9.72%	\$1,012,271	0.51%	0.54%

### 3 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Ranked By 2018 Expense Ratio)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
LYNN	\$349,406,465	6.51%	8.51%	7.90%	\$1,879,624	0.57%	0.54%
FRAMINGHAM	\$308,055,151	6.48%	9.16%	9.09%	\$1,656,375	0.51%	0.54%
CHELSEA	\$165,334,301	6.51%	9.17%	7.86%	\$888,542	0.51%	0.54%
NEWBURYPORT	\$80,576,898	6.27%	9.01%	8.08%	\$432,944	0.50%	0.54%
HULL	\$47,463,868	6.53%	9.14%	7.82%	\$254,851	0.51%	0.54%
BERKSHIRE COUNTY	\$236,096,139	6.47%	9.12%	8.84%	\$1,265,892	0.51%	0.54%
REVERE	\$157,674,641	6.39%	8.92%	8.24%	\$844,906	0.51%	0.54%
MILTON	\$131,827,702	6.45%	9.19%	9.18%	\$705,619	0.51%	0.54%
WINTHROP	\$69,002,722	6.49%	8.87%	8.50%	\$369,252	0.50%	0.54%
SALEM	\$174,705,541	6.28%	8.63%	7.99%	\$933,413	0.51%	0.53%
NEEDHAM	\$158,656,980	6.44%	9.02%	9.43%	\$846,786	0.52%	0.53%
CONCORD	\$159,259,925	5.93%	8.92%	8.38%	\$849,902	0.49%	0.53%
EVERETT	\$154,265,907	6.55%	9.33%	8.33%	\$820,883	0.51%	0.53%
SPRINGFIELD	\$337,595,289	6.70%	8.97%	8.27%	\$1,796,079	0.52%	0.53%
AMESBURY	\$55,070,036	6.45%	9.12%	7.90%	\$292,947	0.51%	0.53%
MILFORD	\$92,815,489	6.47%	8.99%	8.09%	\$488,260	0.52%	0.53%
MIDDLESEX COUNTY	\$1,344,181,892	6.14%	8.45%	8.24%	\$7,059,396	0.50%	0.53%
NEWTON	\$341,722,946	6.48%	8.94%	8.47%	\$1,791,603	0.51%	0.52%
PITTSFIELD	\$136,284,718	6.41%	8.86%	8.07%	\$713,335	0.51%	0.52%
BOSTON TEACHERS*	\$1,638,029,039	6.47%			\$8,521,859	0.50%	0.52%
MELROSE	\$83,952,105	6.12%	8.50%	8.23%	\$432,270	0.53%	0.51%
DUKES COUNTY	\$154,715,561	7.52%	9.85%	7.79%	\$792,824	0.51%	0.51%
READING	\$136,202,939	6.57%	9.26%	9.10%	\$694,632	0.52%	0.51%
WINCHESTER	\$118,250,062	5.48%	7.75%	8.74%	\$583,547	0.25%	0.49%
SOMERVILLE	\$262,832,608	5.22%	9.89%	8.70%	\$1,288,578	0.51%	0.49%
SHREWSBURY	\$121,891,005	6.59%	9.81%	8.93%	\$525,893	0.35%	0.43%
GREATER LAWRENCE	\$17,916,949	6.20%	9.81%	7.54%	\$75,868	0.36%	0.42%
NORTH ADAMS	\$65,938,383	7.18%	10.01%	9.50%	\$275,215	0.47%	0.42%
ANDOVER	\$137,529,805	6.13%	9.01%	8.18%	\$561,970	0.50%	0.41%
MASSPORT	\$606,474,045	5.22%	8.95%	8.72%	\$2,303,867	0.39%	0.38%
MARLBOROUGH	\$162,112,826	4.42%	7.78%	8.06%	\$630,159	0.41%	0.38%
ADAMS	\$32,396,765	2.60%	6.56%	7.47%	\$114,707	0.44%	0.35%
NORTHAMPTON	\$128,491,088	7.35%	9.82%	9.32%	\$421,839	0.39%	0.33%
WEST SPRINGFIELD	\$121,713,785	6.81%	9.31%	8.15%	\$394,931	0.37%	0.32%
MALDEN	\$258,265,603	6.84%	9.41%	9.53%	\$742,246	0.30%	0.29%

\*In 2010, Boston Teachers' assets were separated from Boston City assets and transferred into the PRIT Fund.

## 4 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Ranked By Asset Size)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
<b>ASSETS &gt; \$500 MILLION</b>							
MASS. TEACHERS' (MTRS)	\$27,090,334,578	6.51%	9.25%	9.27%	\$150,343,867	0.55%	0.55%
STATE	\$26,223,284,351	6.52%	9.25%	9.26%	\$145,125,562	0.54%	0.55%
BOSTON (CITY)	\$4,786,346,484	4.57%	8.36%	8.61%	\$31,183,604	0.59%	0.69%
BOSTON TEACHERS*	\$1,638,029,039	6.47%			\$8,521,859	0.50%	0.52%
MIDDLESEX COUNTY	\$1,344,181,892	6.14%	8.45%	8.24%	\$7,059,396	0.50%	0.53%
CAMBRIDGE	\$1,270,275,253	5.67%	9.65%	9.06%	\$9,199,354	0.61%	0.72%
BARNSTABLE COUNTY	\$1,072,642,280	6.50%	9.11%	7.42%	\$5,834,970	0.52%	0.54%
PLYMOUTH COUNTY	\$939,559,693	4.49%	8.70%	8.75%	\$7,937,967	0.73%	0.90%
NORFOLK COUNTY	\$913,802,948	4.83%	8.86%	8.35%	\$7,136,556	0.83%	0.78%
WORCESTER	\$904,473,447	5.03%	8.44%	8.56%	\$5,059,765	0.64%	0.56%
WORCESTER REGIONAL	\$693,203,279	6.39%	8.46%	8.04%	\$3,743,927	0.56%	0.54%
BRISTOL COUNTY	\$647,605,663	5.16%	9.24%	8.64%	\$6,586,850	0.85%	0.99%
MASSPORT	\$606,474,045	5.22%	8.95%	8.72%	\$2,303,867	0.39%	0.38%
MWRA**	\$508,781,941	4.91%	9.07%	7.95%	\$3,523,118	0.78%	0.69%
<b>ASSETS \$250 - \$500 MILLION</b>							
ESSEX REGIONAL	\$451,471,395	6.69%	9.82%	8.59%	\$2,497,004	0.57%	0.55%
BROCKTON	\$385,276,392	4.59%	8.29%	8.39%	\$2,855,320	0.64%	0.74%
LOWELL	\$367,981,492	6.26%	8.88%	8.90%	\$1,999,731	0.52%	0.54%
HAMPDEN COUNTY	\$356,792,413	6.46%	8.80%	8.45%	\$1,926,974	0.52%	0.54%
LYNN	\$349,406,465	6.51%	8.51%	7.90%	\$1,879,624	0.57%	0.54%
NEWTON	\$341,722,946	6.48%	8.94%	8.47%	\$1,791,603	0.51%	0.52%
SPRINGFIELD	\$337,595,289	6.70%	8.97%	8.27%	\$1,796,079	0.52%	0.53%
QUINCY	\$319,007,834	4.99%	8.06%	7.98%	\$1,571,236	0.62%	0.67%
CHICOPEE	\$311,532,613	5.95%	10.73%	8.47%	\$2,219,377	0.80%	0.71%
NEW BEDFORD	\$311,010,369	5.78%	9.03%	7.91%	\$2,412,160	0.73%	0.78%
HAMPSHIRE COUNTY	\$308,607,329	5.53%	8.71%	8.11%	\$1,939,319	0.81%	0.63%
FRAMINGHAM	\$308,055,151	6.48%	9.16%	9.09%	\$1,656,375	0.51%	0.54%
BROOKLINE	\$299,550,718	5.85%	8.67%	8.45%	\$2,613,250	0.69%	0.87%
TAUNTON	\$295,983,292	5.47%	9.27%	9.28%	\$1,644,381	0.72%	0.56%
HOLYOKE	\$270,857,947	6.24%	10.93%	9.14%	\$1,938,508	0.80%	0.72%
SOMERVILLE	\$262,832,608	5.22%	9.89%	8.70%	\$1,288,578	0.51%	0.49%
MALDEN	\$258,265,603	6.84%	9.41%	9.53%	\$742,246	0.30%	0.29%
FALL RIVER	\$257,334,289	6.33%	8.97%	8.23%	\$1,402,666	0.51%	0.55%

\*In 2010, Boston Teachers' assets were separated from Boston City assets and transferred into the PRIT Fund.  
 \*\*Based on a 33-year return



## 4 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Ranked By Asset Size)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
ASSETS \$100 MILLION - \$250 MILLION							
BERKSHIRE COUNTY	\$236,096,139	6.47%	9.12%	8.84%	\$1,265,892	0.51%	0.54%
WALTHAM	\$233,516,180	5.83%	8.22%	8.41%	\$923,694	0.57%	0.54%
LAWRENCE	\$221,926,166	6.46%	9.15%	7.70%	\$1,198,339	0.51%	0.54%
WESTFIELD	\$220,391,023	6.40%	9.96%	8.59%	\$1,561,346	0.68%	0.71%
LEOMINSTER	\$196,813,645	5.99%	9.59%	8.41%	\$1,217,490	0.62%	0.62%
BRAINTREE	\$192,658,719	4.89%	8.23%	8.38%	\$1,339,537	0.60%	0.70%
HAVERHILL	\$192,531,160	5.91%	9.14%	9.68%	\$1,538,571	0.86%	0.82%
WELLESLEY	\$187,848,687	6.49%	9.22%	9.72%	\$1,012,271	0.51%	0.54%
WEYMOUTH	\$185,769,504	5.12%	9.13%	9.49%	\$1,371,109	0.74%	0.74%
MEDFORD	\$183,852,732	4.40%	8.04%	8.47%	\$1,311,276	0.58%	0.71%
WATERTOWN	\$182,595,352	5.47%	8.53%	8.06%	\$1,285,171	0.76%	0.70%
SALEM	\$174,705,541	6.28%	8.63%	7.99%	\$933,413	0.51%	0.53%
PLYMOUTH	\$169,361,242	5.99%	9.71%	8.61%	\$1,265,337	0.83%	0.75%
CHELSEA	\$165,334,301	6.51%	9.17%	7.86%	\$888,542	0.51%	0.54%
MARLBOROUGH	\$162,112,826	4.42%	7.78%	8.06%	\$630,159	0.41%	0.38%
CONCORD	\$159,259,925	5.93%	8.92%	8.38%	\$849,902	0.49%	0.53%
NEEDHAM	\$158,656,980	6.44%	9.02%	9.43%	\$846,786	0.52%	0.53%
LEXINGTON	\$157,854,265	5.77%	8.86%	8.55%	\$1,345,773	0.82%	0.85%
REVERE	\$157,674,641	6.39%	8.92%	8.24%	\$844,906	0.51%	0.54%
DUKES COUNTY	\$154,715,561	7.52%	9.85%	7.79%	\$792,824	0.51%	0.51%
EVERETT	\$154,265,907	6.55%	9.33%	8.33%	\$820,883	0.51%	0.53%
NORWOOD	\$154,175,077	5.90%	9.10%	8.88%	\$1,101,762	0.69%	0.71%
ARLINGTON	\$152,460,411	6.22%	8.70%	8.22%	\$827,158	0.54%	0.54%
METHUEN	\$149,831,557	6.90%	9.10%	7.91%	\$824,823	0.51%	0.55%
MASS HOUSING FINANCE (MHFA)	\$146,209,683	4.58%	7.86%	7.26%	\$807,453	0.82%	0.55%
PEABODY	\$144,830,313	6.47%	9.20%	8.48%	\$795,003	0.52%	0.55%
ATTLEBORO	\$139,055,309	4.99%	9.44%	8.64%	\$815,011	0.60%	0.59%
FRANKLIN REGIONAL	\$138,792,634	5.99%	9.60%	8.21%	\$798,432	0.58%	0.58%
DEDHAM	\$138,483,536	6.54%	9.26%	9.33%	\$752,111	0.52%	0.54%
NATICK	\$137,778,939	5.96%	9.47%	7.94%	\$966,572	0.67%	0.70%
ANDOVER	\$137,529,805	6.13%	9.01%	8.18%	\$561,970	0.50%	0.41%
WOBBURN	\$136,377,104	5.28%	9.41%	9.06%	\$1,106,108	0.76%	0.81%
PITTSFIELD	\$136,284,718	6.41%	8.86%	8.07%	\$713,335	0.51%	0.52%

## 4 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Ranked By Asset Size)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
<b>ASSETS \$100 MILLION - \$250 MILLION (Continued)</b>							
READING	\$136,202,939	6.57%	9.26%	9.10%	\$694,632	0.52%	0.51%
FALMOUTH	\$133,843,149	5.17%	8.70%	8.69%	\$1,026,259	0.77%	0.77%
MILTON	\$131,827,702	6.45%	9.19%	9.18%	\$705,619	0.51%	0.54%
NORTHAMPTON	\$128,491,088	7.35%	9.82%	9.32%	\$421,839	0.39%	0.33%
SHREWSBURY	\$121,891,005	6.59%	9.81%	8.93%	\$525,893	0.35%	0.43%
WEST SPRINGFIELD	\$121,713,785	6.81%	9.31%	8.15%	\$394,931	0.37%	0.32%
BEVERLY	\$121,535,060	6.48%	9.26%	8.44%	\$662,608	0.52%	0.55%
WAKEFIELD	\$118,321,184	6.50%	9.24%	9.45%	\$645,115	0.53%	0.55%
WINCHESTER	\$118,250,062	5.48%	7.75%	8.74%	\$583,547	0.25%	0.49%
FITCHBURG	\$115,991,585	6.34%	8.57%	7.54%	\$628,230	0.52%	0.54%
HINGHAM	\$115,083,147	6.10%	8.63%	8.92%	\$651,376	0.44%	0.57%
NORTH ATTLEBORO	\$111,419,295	5.90%	9.57%	8.41%	\$628,584	0.67%	0.57%
DANVERS	\$107,737,941	4.01%	8.54%	7.76%	\$779,474	0.65%	0.72%
GLOUCESTER	\$103,831,591	6.53%	9.17%	8.71%	\$559,922	0.52%	0.54%
BELMONT	\$101,258,858	5.57%	9.83%	9.11%	\$712,422	0.71%	0.75%
SAUGUS	\$100,172,688	6.49%	9.20%	9.03%	\$545,439	0.52%	0.54%

## 4 | INVESTMENT EXPENSE ANALYSIS: All Retirement Systems (Ranked By Asset Size)

RETIREMENT SYSTEM	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
ASSETS < \$100 MILLION							
MARBLEHEAD	\$95,013,701	6.49%	9.20%	9.04%	\$524,059	0.53%	0.55%
MILFORD	\$92,815,489	6.47%	8.99%	8.09%	\$488,260	0.52%	0.53%
STONEHAM	\$88,103,358	6.09%	8.99%	8.59%	\$562,257	0.54%	0.64%
MELROSE	\$83,952,105	6.12%	8.50%	8.23%	\$432,270	0.53%	0.51%
NEWBURYPORT	\$80,576,898	6.27%	9.01%	8.08%	\$432,944	0.50%	0.54%
WINTHROP	\$69,002,722	6.49%	8.87%	8.50%	\$369,252	0.50%	0.54%
GREENFIELD	\$67,505,517	6.55%	9.35%	8.37%	\$365,998	0.52%	0.54%
NORTH ADAMS	\$65,938,383	7.18%	10.01%	9.50%	\$275,215	0.47%	0.42%
FAIRHAVEN	\$61,480,029	6.44%	9.15%	9.12%	\$333,922	0.51%	0.54%
SWAMPSCOTT	\$56,395,263	6.22%	8.42%	8.83%	\$314,849	0.68%	0.56%
AMESBURY	\$55,070,036	6.45%	9.12%	7.90%	\$292,947	0.51%	0.53%
GARDNER	\$53,336,846	6.47%	9.16%	9.21%	\$290,751	0.52%	0.55%
SOUTHBRIDGE	\$52,713,414	6.51%	8.47%	7.93%	\$284,314	0.51%	0.54%
EASTHAMPTON	\$52,245,368	6.47%	9.15%	8.15%	\$282,553	0.52%	0.54%
CLINTON	\$49,065,213	6.56%	9.12%	7.63%	\$306,535	0.57%	0.62%
HULL	\$47,463,868	6.53%	9.14%	7.82%	\$254,851	0.51%	0.54%
MAYNARD	\$42,110,930	5.51%	8.74%	7.67%	\$258,679	0.56%	0.61%
MONTAGUE	\$41,320,127	6.41%	9.12%	8.94%	\$224,321	0.52%	0.54%
WEBSTER	\$37,459,391	5.08%	9.29%	7.89%	\$304,462	0.85%	0.81%
NORTHBRIDGE	\$34,785,611	6.52%	9.24%	9.16%	\$190,081	0.52%	0.55%
ADAMS	\$32,396,765	2.60%	6.56%	7.47%	\$114,707	0.44%	0.35%
GREATER LAWRENCE	\$17,916,949	6.20%	9.81%	7.54%	\$75,868	0.36%	0.42%
MINUTEMAN REGIONAL	\$13,358,282	6.27%	9.00%	9.24%	\$72,154	0.51%	0.54%
BLUE HILLS REGIONAL	\$10,941,231	6.41%	9.11%	8.52%	\$59,458	0.52%	0.54%

## 5 | INVESTMENT EXPENSE ANALYSIS: Non-PRIT / PRIT

NON-PRIT							
NON-PRIT RETIREMENT BOARDS	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
ADAMS	\$32,396,766	2.60%	6.56%	7.47%	\$114,707	0.44%	0.35%
ANDOVER	\$137,529,805	6.13%	9.01%	8.18%	\$561,970	0.50%	0.41%
ATTLEBORO	\$139,055,309	4.99%	9.44%	8.64%	\$815,012	0.60%	0.59%
BELMONT	\$101,258,859	5.57%	9.83%	9.11%	\$712,422	0.71%	0.75%
BOSTON (CITY)	\$4,786,346,484	4.57%	8.36%	8.61%	\$31,183,604	0.59%	0.69%
BRAINTREE	\$192,658,719	4.89%	8.23%	8.38%	\$1,339,538	0.60%	0.70%
BRISTOL COUNTY	\$647,605,663	5.16%	9.24%	8.64%	\$6,586,851	0.85%	0.99%
BROCKTON	\$385,276,393	4.59%	8.29%	8.39%	\$2,855,321	0.64%	0.74%
BROOKLINE	\$299,550,719	5.85%	8.67%	8.45%	\$2,613,251	0.69%	0.87%
CAMBRIDGE	\$1,270,275,254	5.67%	9.65%	9.06%	\$9,199,355	0.61%	0.72%
CHICOPEE	\$311,532,614	5.95%	10.73%	8.47%	\$2,219,378	0.80%	0.71%
CLINTON	\$49,065,214	6.56%	9.12%	7.63%	\$306,536	0.57%	0.62%
CONCORD	\$159,259,926	5.93%	8.92%	8.38%	\$849,902	0.49%	0.53%
DANVERS	\$107,737,942	4.01%	8.54%	7.76%	\$779,474	0.65%	0.72%
DUKES COUNTY	\$154,715,561	7.52%	9.85%	7.79%	\$792,825	0.51%	0.51%
FALMOUTH	\$133,843,149	5.17%	8.70%	8.69%	\$1,026,260	0.77%	0.77%
FRANKLIN REGIONAL	\$138,792,634	5.99%	9.60%	8.21%	\$798,433	0.58%	0.58%
GREATER LAWRENCE	\$17,916,950	6.20%	9.81%	7.54%	\$75,868	0.36%	0.42%
HAMPSHIRE COUNTY	\$308,607,330	5.53%	8.71%	8.11%	\$1,939,320	0.81%	0.63%
HAVERHILL	\$192,531,160	5.91%	9.14%	9.68%	\$1,538,572	0.86%	0.82%
HINGHAM	\$115,083,148	6.10%	8.63%	8.92%	\$651,377	0.44%	0.57%
HOLYOKE	\$270,857,947	6.24%	10.93%	9.14%	\$1,938,509	0.80%	0.72%
LEOMINSTER	\$196,813,645	5.99%	9.59%	8.41%	\$1,217,491	0.62%	0.62%
LEXINGTON	\$157,854,265	5.77%	8.86%	8.55%	\$1,345,774	0.82%	0.85%
MALDEN	\$258,265,604	6.84%	9.41%	9.53%	\$742,247	0.30%	0.29%
MARLBOROUGH	\$162,112,826	4.42%	7.78%	8.06%	\$630,160	0.41%	0.38%
MA HOUSING FINANCE (MHFA)	\$146,209,683	4.58%	7.86%	7.26%	\$807,454	0.82%	0.55%
MASSPORT	\$606,474,045	5.22%	8.95%	8.72%	\$2,303,867	0.39%	0.38%

## 5 | INVESTMENT EXPENSE ANALYSIS: Non-PRIT / PRIT

NON-PRIT (Continued)							
NON-PRIT RETIREMENT BOARDS	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
MWRA**	\$508,781,941	4.91%	9.07%	7.95%	\$3,523,118	0.78%	0.69%
MAYNARD	\$42,110,930	5.51%	8.74%	7.67%	\$258,680	0.56%	0.61%
MEDFORD	\$183,852,733	4.40%	8.04%	8.47%	\$1,311,276	0.58%	0.71%
NATICK	\$137,778,939	5.96%	9.47%	7.94%	\$966,572	0.67%	0.70%
NEW BEDFORD	\$311,010,370	5.78%	9.03%	7.91%	\$2,412,160	0.73%	0.78%
NORFOLK COUNTY	\$913,802,949	4.83%	8.86%	8.35%	\$7,136,557	0.83%	0.78%
NORTH ADAMS	\$65,938,384	7.18%	10.01%	9.50%	\$275,215	0.47%	0.42%
NORTH ATTLEBORO	\$111,419,296	5.90%	9.57%	8.41%	\$628,584	0.67%	0.57%
NORTHAMPTON	\$128,491,089	7.35%	9.82%	9.32%	\$421,839	0.39%	0.33%
NORWOOD	\$154,175,077	5.90%	9.10%	8.88%	\$1,101,762	0.69%	0.71%
PLYMOUTH	\$169,361,243	5.99%	9.71%	8.61%	\$1,265,338	0.83%	0.75%
PLYMOUTH COUNTY	\$939,559,694	4.49%	8.70%	8.75%	\$7,937,967	0.73%	0.90%
QUINCY	\$319,007,835	4.99%	8.06%	7.98%	\$1,571,236	0.62%	0.67%
SAUGUS	\$100,172,688	6.49%	9.20%	9.03%	\$545,440	0.52%	0.54%
SHREWSBURY	\$121,891,006	6.59%	9.81%	8.93%	\$525,894	0.35%	0.43%
SOMERVILLE	\$262,832,608	5.22%	9.89%	8.70%	\$1,288,578	0.51%	0.49%
STONEHAM	\$88,103,358	6.09%	8.99%	8.59%	\$562,257	0.54%	0.64%
SWAMPSCOTT	\$56,395,263	6.22%	8.42%	8.83%	\$314,850	0.68%	0.56%
TAUNTON	\$295,983,293	5.47%	9.27%	9.28%	\$1,644,382	0.72%	0.56%
WALTHAM	\$233,516,181	5.83%	8.22%	8.41%	\$923,694	0.57%	0.54%
WATERTOWN	\$182,595,353	5.47%	8.53%	8.06%	\$1,285,171	0.76%	0.70%
WEBSTER	\$37,459,391	5.08%	9.29%	7.89%	\$304,463	0.85%	0.81%
WEST SPRINGFIELD	\$121,713,785	6.81%	9.31%	8.15%	\$394,932	0.37%	0.32%
WESTFIELD	\$220,391,024	6.40%	9.96%	8.59%	\$1,561,346	0.68%	0.71%
WEYMOUTH	\$185,769,505	5.12%	9.13%	9.49%	\$1,371,109	0.74%	0.74%
WOBURN	\$136,377,105	5.28%	9.41%	9.06%	\$1,106,109	0.76%	0.81%
WORCESTER	\$904,473,448	5.03%	8.44%	8.56%	\$5,059,765	0.64%	0.56%

\*\*Based on a 33-year return

## 5 | INVESTMENT EXPENSE ANALYSIS: Non-PRIT / PRIT

PRIT							
PRIT RETIREMENT BOARDS	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
AMESBURY	\$55,070,036	6.45%	9.12%	7.90%	\$292,948	0.51%	0.53%
ARLINGTON	\$152,460,412	6.22%	8.70%	8.22%	\$827,158	0.54%	0.54%
BARNSTABLE COUNTY	\$1,072,642,281	6.50%	9.11%	7.42%	\$5,834,971	0.52%	0.54%
BERKSHIRE COUNTY	\$236,096,140	6.47%	9.12%	8.84%	\$1,265,892	0.51%	0.54%
BEVERLY	\$121,535,060	6.48%	9.26%	8.44%	\$662,608	0.52%	0.55%
BLUE HILLS REGIONAL	\$10,941,232	6.41%	9.11%	8.52%	\$59,458	0.52%	0.54%
BOSTON TEACHERS*	\$1,638,029,040	6.47%			\$8,521,859	0.50%	0.52%
CHELSEA	\$165,334,302	6.51%	9.17%	7.86%	\$888,542	0.51%	0.54%
DEDHAM	\$138,483,536	6.54%	9.26%	9.33%	\$752,112	0.52%	0.54%
EASTHAMPTON	\$52,245,369	6.47%	9.15%	8.15%	\$282,554	0.52%	0.54%
ESSEX REGIONAL	\$451,471,396	6.69%	9.82%	8.59%	\$2,497,005	0.57%	0.55%
EVERETT	\$154,265,907	6.55%	9.33%	8.33%	\$820,883	0.51%	0.53%
FAIRHAVEN	\$61,480,030	6.44%	9.15%	9.12%	\$333,922	0.51%	0.54%
FALL RIVER	\$257,334,290	6.33%	8.97%	8.23%	\$1,402,666	0.51%	0.55%
FITCHBURG	\$115,991,586	6.34%	8.57%	7.54%	\$628,231	0.52%	0.54%
FRAMINGHAM	\$308,055,151	6.48%	9.16%	9.09%	\$1,656,376	0.51%	0.54%
GARDNER	\$53,336,846	6.47%	9.16%	9.21%	\$290,752	0.52%	0.55%
GLOUCESTER	\$103,831,591	6.53%	9.17%	8.71%	\$559,922	0.52%	0.54%
GREENFIELD	\$67,505,517	6.55%	9.35%	8.37%	\$365,998	0.52%	0.54%
HAMPDEN COUNTY	\$356,792,414	6.46%	8.80%	8.45%	\$1,926,974	0.52%	0.54%
HULL	\$47,463,868	6.53%	9.14%	7.82%	\$254,851	0.51%	0.54%
LAWRENCE	\$221,926,167	6.46%	9.15%	7.70%	\$1,198,339	0.51%	0.54%
LOWELL	\$367,981,493	6.26%	8.88%	8.90%	\$1,999,732	0.52%	0.54%
LYNN	\$349,406,465	6.51%	8.51%	7.90%	\$1,879,625	0.57%	0.54%
MARBLEHEAD	\$95,013,701	6.49%	9.20%	9.04%	\$524,059	0.53%	0.55%

\*In 2010, Boston Teachers' assets were separated from Boston City assets and transferred into the PRIT Fund.



## 5 | INVESTMENT EXPENSE ANALYSIS: Non-PRIT / PRIT

PRIT (Continued)							
PRIT RETIREMENT BOARDS	MARKET VALUE (12/31/18)	5-Year RETURN	10-Year RETURN	34-Year RETURN	2018 INVESTMENT RELATED FEES	2015 EXPENSE RATIO (%)	2018 EXPENSE RATIO (%)
MASS. TEACHERS' (MTRS)	\$27,090,334,578	6.51%	9.25%	9.27%	\$150,343,868	0.55%	0.55%
MELROSE	\$83,952,105	6.12%	8.50%	8.23%	\$432,270	0.53%	0.51%
METHUEN	\$149,831,557	6.90%	9.10%	7.91%	\$824,824	0.51%	0.55%
MIDDLESEX COUNTY	\$1,344,181,892	6.14%	8.45%	8.24%	\$7,059,397	0.50%	0.53%
MILFORD	\$92,815,489	6.47%	8.99%	8.09%	\$488,260	0.52%	0.53%
MILTON	\$131,827,703	6.45%	9.19%	9.18%	\$705,620	0.51%	0.54%
MINUTEMAN REGIONAL	\$13,358,282	6.27%	9.00%	9.24%	\$72,155	0.51%	0.54%
MONTAGUE	\$41,320,127	6.41%	9.12%	8.94%	\$224,321	0.52%	0.54%
NEEDHAM	\$158,656,981	6.44%	9.02%	9.43%	\$846,786	0.52%	0.53%
NEWBURYPORT	\$80,576,898	6.27%	9.01%	8.08%	\$432,945	0.50%	0.54%
NEWTON	\$341,722,946	6.48%	8.94%	8.47%	\$1,791,604	0.51%	0.52%
NORTHBRIDGE	\$34,785,612	6.52%	9.24%	9.16%	\$190,081	0.52%	0.55%
PEABODY	\$144,830,313	6.47%	9.20%	8.48%	\$795,004	0.52%	0.55%
PITTSFIELD	\$136,284,718	6.41%	8.86%	8.07%	\$713,336	0.51%	0.52%
READING	\$136,202,939	6.57%	9.26%	9.10%	\$694,633	0.52%	0.51%
REVERE	\$157,674,641	6.39%	8.92%	8.24%	\$844,907	0.51%	0.54%
SALEM	\$174,705,542	6.28%	8.63%	7.99%	\$933,414	0.51%	0.53%
SOUTHBRIDGE	\$52,713,414	6.51%	8.47%	7.93%	\$284,315	0.51%	0.54%
SPRINGFIELD	\$337,595,289	6.70%	8.97%	8.27%	\$1,796,079	0.52%	0.53%
STATE	\$26,223,284,352	6.52%	9.25%	9.26%	\$145,125,562	0.54%	0.55%
WAKEFIELD	\$118,321,185	6.50%	9.24%	9.45%	\$645,115	0.53%	0.55%
WELLESLEY	\$187,848,687	6.49%	9.22%	9.72%	\$1,012,271	0.51%	0.54%
WINCHESTER	\$118,250,062	5.48%	7.75%	8.74%	\$583,547	0.25%	0.49%
WINTHROP	\$69,002,722	6.49%	8.87%	8.50%	\$369,252	0.50%	0.54%
WORCESTER REGIONAL	\$693,203,279	6.39%	8.46%	8.04%	\$3,743,928	0.56%	0.54%

# NOTES

# NOTES



**COMMONWEALTH OF MASSACHUSETTS**  
**PUBLIC EMPLOYEE RETIREMENT ADMINISTRATION COMMISSION**  
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