

MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM

Schedule of Nonemployer Allocations and
Schedule of Collective Pension Amounts

June 30, 2016

(With Independent Auditors' Report Thereon)



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 nonemployer allocations, net pension liability, total deferred outflows of resources, total deferred inflows of resources, and total nonemployer pension expense for MTRS as of and for the year ended June 30, 2016, in accordance with U.S. generally accepted accounting principles.

Supplemental Information

The supplemental schedule of employer allocations of special funding amounts, the supplemental schedule of special funding amounts by employer, and related notes have not been subject to the auditing procedures applied in the audit of the schedule of nonemployer allocations and the schedule of collective pension amounts, and accordingly, we do not express an opinion or provide any assurance on them.

Restriction on Use

Our report is intended solely for information and use of MTRS management and its board, MTRS employers and their auditors, and the Commonwealth of Massachusetts, and is not intended to be used by anyone other than these specified parties.

KPMG LLP

Boston, Massachusetts
May 2, 2017

MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM
SCHEDULE OF NONEMPLOYER ALLOCATIONS
 As of and for the fiscal year ended June 30, 2016

Allocation Percentage	Nonemployer Contributions	Nonemployer
100.00000%	\$ 1,124,583,000	Commonwealth of Massachusetts.....

See accompanying notes to schedule of nonemployer allocations and schedule of collective pension amounts.

MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM
SCHEDULE OF COLLECTIVE PENSION AMOUNTS
As of and for the fiscal year ended June 30, 2016

	Deferred Outflows of Resources	Deferred Inflows of Resources	Pension Expense
		Net Differences Between Projected and Actual Investment Earnings on Pension Plan Investments	
		Differences Between Expected and Actual Experience	Total Nonemployer Pension Expense
Nonemployer	Net Pension Liability	Differences Between Expected and Actual Experience	Total Deferred Inflows of Resources
Commonwealth of Massachusetts.....	\$ 22,357,928,000	\$ 103,645,161	\$ 62,085,484
		Changes of Assumptions	Total Deferred Outflows of Resources
		\$ 978,282,400	\$ 62,085,484
		\$ 2,141,336,859	\$ 2,280,655,227
		\$ 3,223,264,420	

See accompanying notes to schedule of nonemployer allocations and schedule of collective pension amounts.

MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM

Notes to Schedule of Nonemployer Allocations and

Schedule of Collective Pension Amounts

June 30, 2016

NOTE 1 - PLAN DESCRIPTION

The Massachusetts Teachers' Retirement System (MTRS) is a public employee retirement system (PERS) that administers a cost-sharing multiple employer defined benefit pension plan, as defined in Governmental Accounting Standards Board (GASB) Statement No. 67, *Financial Reporting for Pension Plans*. MTRS is managed by the Commonwealth on behalf of municipal teachers and municipal teacher retirees. The Commonwealth is a nonemployer contributing entity and is responsible for all contributions and future benefit requirements of the MTRS. The MTRS covers certified teachers in cities (except Boston), towns, regional school districts, charter schools, educational collaboratives and Quincy College. The MTRS is part of the Commonwealth's reporting entity and does not issue a stand-alone audited financial report.

Management of MTRS is vested in the Massachusetts Teachers' Retirement Board (MTRB), which consists of seven members-two elected by the MTRS members, one who is chosen by the six other MTRB members, the State Treasurer (or their designee), the State Auditor (or their designee), a member appointed by the Governor, and the Commissioner of Education (or their designee), who serves ex-officio as the Chairman of the MTRB.

Benefits provided. MTRS provides retirement, disability, survivor and death benefits to members and their beneficiaries. Massachusetts General Laws (MGL) establishes uniform benefit and contribution requirements for all contributory PERS. These requirements provide for superannuation retirement allowance benefits up to a maximum of 80% of a member's highest three-year average annual rate of regular compensation. For employees hired after April 1, 2012, retirement allowances are calculated on the basis of the last five years or any five consecutive years, whichever is greater in terms of compensation. Benefit payments are based upon a member's age, length of creditable service, group creditable service, and group classification. The authority for amending these provisions rests with the Legislature.

Members become vested after ten years of creditable service. A superannuation retirement allowance may be received upon the completion of 20 years of creditable service or upon reaching the age of 55 with ten years of service. Normal retirement for most employees occurs at age 65. Most employees who joined the system after April 1, 2012 cannot retire prior to age 60.

The MTRS' funding policies have been established by Chapter 32 of the MGL. The Legislature has the authority to amend these policies. The annuity portion of the MTRS retirement allowance is funded by employees, who contribute a percentage of their regular compensation. Costs of administering the plan are funded out of plan assets.

1. (a) 7.50% investment rate of return, (b) 3.50% interest rate credited to the annuity savings fund and (c) 3.00% cost of living increase on the first \$13,000 per year.

The total pension liability for the June 30, 2016 measurement date was determined by an actuarial valuation as of January 1, 2016 rolled forward to June 30, 2016. This valuation used the following assumptions:

Actuarial Assumptions

Total pension liability.....	\$ 47,300,000
Less:	
Plan fiduciary net position.....	24,942,072
Net pension liability.....	\$ 22,357,928
Plan fiduciary net position as a percentage of total pension liability.....	52.73%

The collective net pension liability at June 30, 2016 was as follows (amounts in thousands):

NOTE 3 - COLLECTIVE NET PENSION LIABILITY

The Schedule of Nonemployer Allocations and Schedule of Collective Pension Amounts (the Schedules) present amounts that are elements of the financial statements of the MTRS and the Commonwealth of Massachusetts as the nonemployer entity. Accordingly, they do not purport to be a complete presentation of the financial position or changes in financial position of the MTRS or the Commonwealth of Massachusetts. The amounts presented in the Schedules were prepared in accordance with U.S. generally accepted accounting principles. Such preparation requires management of the MTRS to make a number of estimates and assumptions related to the reported amounts. Actual results could differ from those estimates.

NOTE 2 - BASIS OF PRESENTATION

Prior to 1975.....	5% of regular compensation
1975 - 1983.....	7% of regular compensation
1984 to 6/30/1996.....	8% of regular compensation
7/1/1996 to present.....	9% of regular compensation
7/1/2001 to present.....	11% of regular compensation (for teachers hired after 7/1/01 and those accepting provisions of Chapter 114 of the Acts of 2000)
1979 to present.....	An additional 2% of regular compensation in excess of \$30,000

Member contributions for MTRS vary depending on the most recent date of membership:

Hire Date	% of Compensation
<hr/> MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM Notes to Schedule of Nonemployer Allocations and Schedule of Collective Pension Amounts June 30, 2016 <hr/>	

MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM

Notes to Schedule of Nonemployer Allocations and

Schedule of Collective Pension Amounts

June 30, 2016

2. Salary increases are based on analyses of past experience but range from 4.0% to 7.5% depending on length of service.

3. Mortality rates were as follows:

- Pre-retirement - reflects RP-2014 Employees table projected generationally with Scale BB and a base year of 2014 (gender distinct).
- Post-retirement - reflects RP-2014 Healthy Annuitant table projected generationally with Scale BB and a base year of 2014 (gender distinct).
- Disability - assumed to be in accordance with the RP-2014 Healthy Annuitant Table projected generationally with Scale BB and a base year of 2014 set forward 4 years.

4. Experience study was performed as follows:

- Dated July 21, 2014 and encompasses the period January 1, 2006 to December 31, 2011.

Investment assets of the MTRS are with the Pension Reserves Investment Trust (PRIT) Fund. 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 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. Best estimates of geometric rates of return for each major asset class included in the PRIT Fund's target asset allocation as of June 30, 2016 are summarized in the following table:

Asset Class	Target Allocation	Expected Real Rate of Return
Global Equity.....	40.0%	6.9%
Core Fixed Income.....	13.0%	1.6%
Private Equity.....	10.0%	8.7%
Real Estate.....	10.0%	4.6%
Value Added Fixed Income.....	10.0%	4.8%
Hedge Funds.....	9.0%	4.0%
Portfolio Completion Strategies.....	4.0%	3.6%
Timber/Natural Resources.....	4.0%	5.4%
Total.....	100.0%	

Discount Rate

The discount rate used to measure the total pension liability was 7.50%. 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 the Commonwealth's contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rates. Based on those assumptions,

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.

Sensitivity Analysis

The following illustrates the sensitivity of the collective net pension liability to changes in the discount rate as of June 30, 2016. In particular, the table presents the MTRS collective net pension liability assuming it was calculated using a single discount rate that is one-percentage-point lower or one-percentage-point higher than the current discount rate (amounts in thousands):

1% Decrease	\$ 27,464,000	Current Discount Rate 7.50%	\$ 22,357,928	1% Increase	\$ 18,022,000
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NOTE 4 - SPECIAL FUNDING SITUATION

The Commonwealth is a nonemployer contributing entity and is required by statute to make all actuarially determined employer contributions on behalf of the member employers. Therefore, these employers are considered to be in a special funding situation as defined by GASB Statement No. 68, *Accounting and Financial Reporting for Pensions* and the Commonwealth is a nonemployer contributing entity in MTRS. Since the employers do not contribute directly to MTRS, there is no net pension liability to recognize for each employer. However, the notes to the financial statements must disclose the portion of the nonemployer contributing entities' share of the collective net pension liability that is associated with the employer. In addition, each employer must recognize its portion of the collective pension expense as both a revenue and pension expense.

NOTE 5 - DEFERRED OUTFLOW AND INFLOW OF RESOURCES

The following table summarizes the changes in both deferred outflows and deferred inflows of resources (amounts in thousands):

MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM

Notes to Schedule of Nonemployer Allocations and

Schedule of Collective Pension Amounts

June 30, 2016

Year of Deferral	Amortization Period	Balance July 1, 2015	Additions	Deletions	Balance June 30, 2016
2015	6.2 years	\$ 128,323	-	\$ (24,678)	\$ 103,645
Deferred Outflows of Resources: Difference between expected and actual experience.....					
2014	5 years	(1,195,992)	-	398,664	(797,328)
2015	5 years	860,819	-	(215,205)	645,614
2016	5 years	-	1,412,495	(282,499)	1,129,996
Subtotal.....					
2014	6.1 years	72,590	-	(17,705)	54,885
2015	6.2 years	2,583,226	-	(496,774)	2,086,452
Subtotal.....					
Change of assumptions.....					
Subtotal.....					
Total deferred outflows of resources.....					
Deferred Inflows of Resources: Difference between expected and actual experience.....					
2016	6.2 years	-	\$ (74,025)	\$ 11,940	\$ (62,085)

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in the collective pension expense as follows (amounts in thousands):

Fiscal Year	Ending June 30
2017.....	\$ 626,257
2018.....	626,257
2019.....	1,024,921
2020.....	793,781
2021.....	92,351
Thereafter.....	(2,388)
Total.....	\$ 3,161,179

MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM
Notes to Schedule of Nonemployer Allocations and
Schedule of Collective Pension Amounts
June 30, 2016

NOTE 6 - COLLECTIVE PENSION EXPENSE

The following table shows the components of pension expense as of June 30, 2016 (amounts in thousands):

	\$ 843,800
Service cost.....	3,402,525
Interest on the total pension liability.....	(699,422)
Employee contributions.....	(1,853,858)
Projected earnings on plan investments.....	(53,271)
Transfers and reimbursements from other systems.....	(26,160)
Member make up, redemptions and payments from rollovers.....	(2,931)
Other reimbursements.....	24,220
Administrative expense.....	19,495
Other changes.....	12,738
Recognition (amortization) of deferred outflows and inflows of resources:	99,040
Differences between expected and actual experience.....	514,479
Differences between projected and actual earnings on plan investments.....	2,280,655
Changes of assumptions.....	\$ 2,280,655

SUPPLEMENTAL INFORMATION
(SEE ACCOMPANYING INDEPENDENT AUDITORS' REPORT)
(UNAUDITED)

MASSACHUSETTS TEACHERS' RETIREMENT SYSTEM
SUPPLEMENTAL SCHEDULE OF EMPLOYER ALLOCATIONS OF SPECIAL FUNDING AMOUNTS

As of and for the fiscal year ended June 30, 2016

(Unaudited)

Employer	Commonwealth Pension Support Provided	Employer Allocation Percentage
0100-ABINGTON PUBLIC SCHOOLS.....	2,070,957	0.184153%
0110-ACTON-BOXBOROUGH REGIONAL SCHOOL.....	6,387,587	0.567996%
0115-ACUSHNET PUBLIC SCHOOLS.....	1,091,699	0.097076%
0120-ADAMS-CHESHIRE REGIONAL SCHOOLS.....	1,334,354	0.118653%
0125-AGAWAM PUBLIC SCHOOLS.....	4,945,728	0.439783%
0130-AMESBURY PUBLIC SCHOOLS.....	2,607,893	0.231899%
0135-AMHERST PUBLIC SCHOOLS.....	2,017,880	0.179434%
0140-AMHERST-PELHAM REGIONAL SCHOOL DISTRICT.....	2,086,059	0.185496%
0145-ANDOVER PUBLIC SCHOOLS.....	8,192,165	0.728462%
0150-ARLINGTON PUBLIC SCHOOLS.....	5,881,202	0.522967%
0160-ASHBURNHAM-WESTMINSTER REGIONAL SCHOOL.....	2,382,133	0.211824%
0170-ASHLAND PUBLIC SCHOOLS.....	3,094,548	0.275173%
0175-ASSABET VALLEY REGIONAL VOCATIONAL SCH.....	1,829,008	0.162639%
0180-ASSABET VALLEY COLLABORATIVE SCHOOL.....	550,201	0.048925%
0185-ATHOL-ROYALSTON REGIONAL SCHOOL.....	1,581,489	0.140629%
0190-ATTLEBORO PUBLIC SCHOOLS.....	6,382,398	0.567535%
0195-AUBURN PUBLIC SCHOOLS.....	2,672,558	0.237649%
0200-AVON PUBLIC SCHOOLS.....	946,433	0.084159%
0210-BARNSTABLE PUBLIC SCHOOLS.....	6,922,136	0.615529%
0220-BEDFORD PUBLIC SCHOOLS.....	3,945,443	0.350836%
0225-BELCHERTOWN PUBLIC SCHOOLS.....	2,590,339	0.230338%
0230-BELLINGHAM PUBLIC SCHOOLS.....	2,612,392	0.232299%
0235-BELMONT PUBLIC SCHOOLS.....	4,594,421	0.408544%
0240-BERKLEY PUBLIC SCHOOLS.....	825,033	0.073364%
0245-BERKSHIRE HILLS REGIONAL SCHOOL DISTRICT.....	1,739,947	0.154719%
0250-BERLIN PUBLIC SCHOOLS.....	290,508	0.025833%
0255-BERLIN-BOYLSTON REGIONAL SCHOOL.....	699,622	0.062212%
0265-BEVERLY PUBLIC SCHOOLS.....	5,002,209	0.444806%
0270-BICOOUNTY COLLABORATIVE.....	720,126	0.064035%
0275-BILLERICA PUBLIC SCHOOLS.....	6,528,137	0.580494%
0280-BLACKSTONE-MILLVILLE REGIONAL SCHOOL.....	1,907,037	0.169577%
0285-BLACKSTONE VALLEY REG. VOC.....	1,589,526	0.141344%
0300-BLUE HILLS REGIONAL TECH.....	1,405,088	0.124943%
0315-BOURNE PUBLIC SCHOOLS.....	2,509,538	0.223153%
0325-BOXFORD PUBLIC SCHOOLS.....	1,074,243	0.095524%
0330-BOYLSTON PUBLIC SCHOOLS.....	329,882	0.029334%
0335-BRAINTREE PUBLIC SCHOOLS.....	6,986,776	0.621277%
0340-BREWSTER PUBLIC SCHOOLS.....	669,999	0.059578%
0350-BRIDGEMATER-RAYNHAM REGIONAL SCHOOL.....	5,521,942	0.491021%
0355-BRIMFIELD PUBLIC SCHOOLS.....	366,639	0.032602%
0360-BRISTOL COUNTY AGRICULTURAL.....	557,092	0.049538%
0365-BRISTOL-PLYMOUTH REGIONAL SCHOOL.....	1,793,428	0.159475%
0370-BROCKTON PUBLIC SCHOOLS.....	19,615,020	1.744204%
0375-BROOKFIELD PUBLIC SCHOOLS.....	323,900	0.028802%
0380-BROOKLINE PUBLIC SCHOOLS.....	12,082,025	1.074356%

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