NUVEEN MASSACHUSETTS PREMIUM INCOME MUNICIPAL FUND Form N-Q October 28, 2016

UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, DC 20549

FORM N-Q

QUARTERLY SCHEDULE OF PORTFOLIO HOLDINGS OF REGISTERED MANAGEMENT INVESTMENT COMPANY

Investment Company Act file number 811-07484

Nuveen Massachusetts Premium Income Municipal Fund (Exact name of registrant as specified in charter)

Nuveen Investments
333 West Wacker Drive, Chicago, Illinois 60606
(Address of principal executive offices) (Zip code)

Kevin J. McCarthy
Vice President and Secretary
333 West Wacker Drive, Chicago, Illinois 60606
(Name and address of agent for service)

Registrant's telephone number, including area code: 312-917-7700

Date of fiscal year end: 5/31

Date of reporting period: 8/31/16

Form N-Q is to be used by management investment companies, other than small business investment companies registered on Form N-5 (§§ 239.24 and 274.5 of this chapter), to file reports with the Commission, not later than 60 days after the close of the first and third fiscal quarters, pursuant to rule 30b1-5 under the Investment Company Act of 1940 (17 CFR 270.30b1-5). The Commission may use the information provided on Form N-Q in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-Q, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-Q unless the Form displays a currently valid Office of Management and Budget ("OMB") control number. Please direct comments concerning the accuracy of the information collection burden estimate and any suggestions for reducing the burden to the Secretary, Securities and Exchange Commission, 450 Fifth Street, NW, Washington, DC 20549-0609. The OMB has reviewed this collection of information under the clearance requirements of 44 U.S.C. § 3507.

### Item 1. Schedule of Investments

### Portfolio of Investments

Nuveen Massachusetts Premium Income Municipal Fund (NMT) August 31, 2016 (Unaudited)

Principal Amount (000)	Description (1)	Optional Call Provisions (2)	Ratings (3)	Value
	LONG-TERM INVESTMENTS – 149.3% (100.0% of Total Investments)			
	MUNICIPAL BONDS – 149.3% (100.0% of Total Investments)			
	Education and Civic Organizations – 38.8% (26.0% of Total Investments)  Massachusetts Development Finance Agency, Revenue Bonds, Boston University, Tender Option Bond Trust 2016-XG0070:			
\$ 1,880	15.404%, 10/01/48 (IF) (4)	10/23 at 100.00	A+	\$ 3,288,082
575	15.318%, 10/01/48 (IF) (4)	10/23 at 100.00	A+	1,005,135
2,200	Massachusetts Development Finance Agency, Revenue Bonds, Boston College Issue, Series 2013S, 5.000%, 7/01/38	7/23 at 100.00	AA-	2,666,444
750	Massachusetts Development Finance Agency, Revenue Bonds, Boston University, Series 2009V-1, 5.000%, 10/01/29	10/19 at 100.00	A+	845,318
1,400	Massachusetts Development Finance Agency, Revenue Bonds, Emerson College, Series 2010A, 5.000%, 1/01/40	1/20 at 100.00	BBB+	1,522,934
2,150	Massachusetts Development Finance Agency, Revenue Bonds, Lesley University, Series 2011B-1, 5.250%, 7/01/33 – AGM Insured	7/21 at 100.00	AA	2,490,775
2,135	Massachusetts Development Finance Agency, Revenue Bonds, Lesley University, Series 2016, 5.000%, 7/01/39 (WI/DD, Settling 9/13/16) Massachusetts Development Finance Agency, Revenue Bonds,	7/26 at 100.00	A-	2,579,806
	MCPHS University Issue, Series 2015H:			
450	3.500%, 7/01/35	7/25 at 100.00	AA	484,025
190	5.000%, 7/01/37	7/25 at 100.00	AA	229,440
550		No Opt. Call	A2	655,782

Massachusetts Development Finance Agency, Revenue Bonds, Northeastern University, Series 2012, 5.000%, 10/01/31 Massachusetts Development Finance Agency, Revenue Bonds, Northeastern University, Series 2014A: 3/24 at 875 5.000%, 3/01/39 A2 1,055,626 100.00 3/24 at 1,400 5.000%, 3/01/44 A2 1,680,378 100.00 Massachusetts Development Finance Agency, Revenue Bonds, 500 No Opt. Call BBB+ 591,235 Simmons College, Series 2013J, 5.250%, 10/01/39 Massachusetts Development Finance Agency, Revenue Bonds, 7/21 at 1,000 AA 1,154,490 Sterling and Francine Clark Art 100.00 Institute, Series 2011A, 5.000%, 7/01/41 Massachusetts Development Finance Agency, Revenue Bonds, 7/25 at 1,230 AA 1,522,900 Sterling and Francine Clark Art 100.00 Institute, Series 2015, 5.000%, 7/01/33 Massachusetts Development Finance Agency, Revenue Bonds, 4/21 at 3,000 3,506,640 AA-The Broad Institute, Series 2011A, 100.00 5.250%, 4/01/37 Massachusetts Development Finance Agency, Revenue Bonds, 8/25 at 875 Aa2 1,072,356 Tufts University, Series 2015Q, 100.00 5.000%, 8/15/38 Massachusetts Development Finance Agency, Revenue Bonds, 9/17 at 500 AA-520,635 Worcester Polytechnic Institute, 100.00 Series 2007, 5.000%, 9/01/37 - NPFG Insured Massachusetts Development Finance Agency, Revenue Bonds, 9/22 at 1,365 **A**1 1,579,564 Worcester Polytechnic Institute, 100.00 Series 2012, 5.000%, 9/01/50 Massachusetts Development Finance Agency, Revenue Bonds, 9/26 at 295 361,947 **A**1 Worcester Polytechnic Institute, 100.00 Series 2016, 5.000%, 9/01/37 Massachusetts Development Finance Authority, Revenue Bonds, 3,000 No Opt. Call A+ 4,420,980 WGBH Educational Foundation, Series 2002A, 5.750%, 1/01/42 – AMBAC Insured Massachusetts Development Finance Authority, Revenue Bonds, 1/18 at **A3** 5,543,599 5,275 WGBH Educational Foundation, 100.00 Series 2008A, 5.000%, 1/01/42 – AGC Insured Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2016: 7/26 at 4.000%, 1/01/38 875 983,089 A+ 100.00 7/26 at 675 5.000%, 1/01/40 819,977 A+ 100.00 Massachusetts Development Finance Authority, Revenue Refunding Bonds, Boston University, Series 1999P: 6.000%, 5/15/29 No Opt. Call A1 1,090 1,421,796

1,000	6.000%, 5/15/59	5/29 at 105.00	A1	1,361,880
280	Massachusetts Educational Financing Authority, Education Loan Revenue Bonds, Series 2008H,	1/18 at 100.00	AA	294,129
635	6.350%, 1/01/30 – AGC Insured (Alternative Minimum Tax) Massachusetts Educational Financing Authority, Educational Loan Revenue, Series 2011J, 5.625%, 7/01/33 (Alternative Minimum Tax)	7/21 at 100.00	AA	710,965
255	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Northeastern University, Series 2010A, 4.875%, 10/01/35	10/20 at 100.00	A2	288,068
2,030	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Wheaton College	1/20 at 100.00	A3	2,261,522
500	Issues, Series 2010F, 5.000%, 1/01/41 Massachusetts Health and Educational Facilities Authority, Revenue Refunding Bonds, Suffolk University Issue, Series 2009A, 5.750%, 7/01/39	7/19 at 100.00	BBB	555,700
2,000	University of Massachusetts Building Authority, Project Revenue Bonds, Senior Series 2014-1, 5.000%, 11/01/44	11/24 at 100.00	Aa2	2,423,120
4,000	University of Massachusetts Building Authority, Project Revenue Bonds, Senior Series 2015-1, 5.000%, 11/01/40	11/25 at 100.00	Aa2	4,899,000
1,510	University of Massachusetts Building Authority, Senior Lien Project Revenue Bonds, Series	No Opt. Call	Aa2	1,669,803
46,445	2009-1, 5.000%, 5/01/39 Total Education and Civic Organizations			56,467,140
1,000	Health Care – 26.1% (17.5% of Total Investments)  Massachusetts Development Finance Agency Revenue Bonds, Children's Hospital Issue, Series 2014P, 5.000%, 10/01/46	10/24 at 100.00	AA	1,211,240
1,340	Massachusetts Development Finance Agency Revenue Bonds, South Shore Hospital, Series 2016I, 5.000%, 7/01/41	7/26 at 100.00	A-	1,609,045
1,410	Massachusetts Development Finance Agency, Hospital Revenue Bonds, Cape Cod Healthcare	11/23 at 100.00	A	1,675,940
1,000	Obligated Group, Series 2013, 5.250%, 11/15/41 Massachusetts Development Finance Agency, Revenue Bonds, Baystate Medical Center Issue, Series 2014N, 5.000%, 7/01/44	7/24 at 100.00	A+	1,171,000
	Massachusetts Development Finance Agency, Revenue Bonds, Berkshire Health Systems, Series 2012G:			
895	5.000%, 10/01/29	10/21 at 100.00	A	1,018,000
700	5.000%, 10/01/31	10/21 at 100.00	A	793,947
	Massachusetts Development Finance Agency, Revenue Bonds, CareGroup Issue, Series 2015H-1:			
900	5.000%, 7/01/30	7/25 at 100.00	A-	1,100,871

1,000	5.000%, 7/01/32	7/25 at 100.00	A–	1,216,030
500	5.000%, 7/01/33	7/25 at 100.00	A-	605,790
1,500	Massachusetts Development Finance Agency, Revenue Bonds, CareGroup Issue, Series 2016-I, 5.000%, 7/01/37	7/26 at 100.00	A-	1,814,175
1,000	Massachusetts Development Finance Agency, Revenue Bonds, Covenant Health System Obligated Group, Series 2012, 5.000%, 7/01/31	7/22 at 100.00	A-	1,138,670
	Massachusetts Development Finance Agency, Revenue Bonds, Lahey Health System Obligated Group Issue, Series 2015F:			
1,345	5.000%, 8/15/35	8/25 at 100.00	A+	1,616,287
3,500	5.000%, 8/15/45	8/25 at 100.00	A+	4,159,540
1,080	Massachusetts Development Finance Agency, Revenue Bonds, Milford Regional Medical Center Issue, Series 2014F, 5.750%, 7/15/43	7/23 at 100.00	BBB-	1,286,431
2,200	Massachusetts Development Finance Agency, Revenue Bonds, Partners HealthCare System, Series 2011K-6, 5.375%, 7/01/41	7/20 at 100.00	AA	2,528,790
1,000	Massachusetts Development Finance Agency, Revenue Bonds, Partners HealthCare System, Series 2012L, 5.000%, 7/01/36	7/21 at 100.00	AA	1,167,660
820	Massachusetts Development Finance Agency, Revenue Bonds, Southcoast Health System Obligated Group Issue, Series 2013F, 5.000%, 7/01/37	7/23 at 100.00	A3	959,515
	Massachusetts Development Finance Agency, Revenue Bonds, The Lowell General Hospital, Series 2013G:			
1,000	5.000%, 7/01/37	7/23 at 100.00	BBB+	1,132,930
2,200	5.000%, 7/01/44	7/23 at 100.00	BBB+	2,479,356
500	Massachusetts Development Finance Agency, Revenue Bonds, UMass Memorial Health, Series 2011H, 5.500%, 7/01/31	7/21 at 100.00	BBB+	576,365
445	Massachusetts Development Finance Agency, Revenue Bonds, UMass Memorial Healthcare, Refunding Series 2016I, 5.000%, 7/01/36	7/26 at 100.00	A-	534,347
945	Massachusetts Health and Educational Facilities Authority, Partners HealthCare System Inc.,	7/17 at 100.00	AA	978,737