

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)	7/26 at 100.00	A–	2,579,806
	Massachusetts Development Finance Agency, Revenue Bonds, 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

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550	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:	No Opt. Call	A2	655,782
875	5.000%, 3/01/39	3/24 at 100.00	A2	1,055,626
1,400	5.000%, 3/01/44	3/24 at 100.00	A2	1,680,378
500	Massachusetts Development Finance Agency, Revenue Bonds, Simmons College, Series 2013J, 5.250%, 10/01/39	No Opt. Call	BBB+	591,235
1,000	Massachusetts Development Finance Agency, Revenue Bonds, Sterling and Francine Clark Art Institute, Series 2011A, 5.000%, 7/01/41	7/21 at 100.00	AA	1,154,490
1,230	Massachusetts Development Finance Agency, Revenue Bonds, Sterling and Francine Clark Art Institute, Series 2015, 5.000%, 7/01/33	7/25 at 100.00	AA	1,522,900
3,000	Massachusetts Development Finance Agency, Revenue Bonds, The Broad Institute, Series 2011A, 5.250%, 4/01/37	4/21 at 100.00	AA-	3,506,640
875	Massachusetts Development Finance Agency, Revenue Bonds, Tufts University, Series 2015Q, 5.000%, 8/15/38	8/25 at 100.00	Aa2	1,072,356
500	Massachusetts Development Finance Agency, Revenue Bonds, Worcester Polytechnic Institute, Series 2007, 5.000%, 9/01/37 – NPFQ Insured	9/17 at 100.00	AA-	520,635
1,365	Massachusetts Development Finance Agency, Revenue Bonds, Worcester Polytechnic Institute, Series 2012, 5.000%, 9/01/50	9/22 at 100.00	A1	1,579,564
295	Massachusetts Development Finance Agency, Revenue Bonds, Worcester Polytechnic Institute, Series 2016, 5.000%, 9/01/37	9/26 at 100.00	A1	361,947
3,000	Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2002A, 5.750%, 1/01/42 – AMBAC Insured	No Opt. Call	A+	4,420,980
5,275	Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2008A, 5.000%, 1/01/42 – AGC Insured Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2016:	1/18 at 100.00	A3	5,543,599
875	4.000%, 1/01/38	7/26 at 100.00	A+	983,089
675	5.000%, 1/01/40	7/26 at 100.00	A+	819,977
1,090	Massachusetts Development Finance Authority, Revenue Refunding Bonds, Boston University, Series 1999P: 6.000%, 5/15/29	No Opt. Call	A1	1,421,796

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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, 6.350%, 1/01/30 – AGC Insured (Alternative Minimum Tax)	1/18 at 100.00	AA	294,129
635	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 Issues, Series 2010F, 5.000%, 1/01/41	1/20 at 100.00	A3	2,261,522
500	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 2009-1, 5.000%, 5/01/39	No Opt. Call	Aa2	1,669,803
46,445	Total Education and Civic Organizations Health Care – 26.1% (17.5% of Total Investments)			56,467,140
1,000	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 Obligated Group, Series 2013, 5.250%, 11/15/41	11/23 at 100.00	A	1,675,940
1,000	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

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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 Massachusetts Development Finance Agency, Revenue Bonds, Lahey Health System Obligated Group Issue, Series 2015F:	7/22 at 100.00	A-	1,138,670
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 Massachusetts Development Finance Agency, Revenue Bonds, The Lowell General Hospital, Series 2013G:	7/23 at 100.00	A3	959,515
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., Series 2007G, 5.000%, 7/01/32	7/17 at 100.00	AA	978,737
160	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Baystate Medical Center, Series 2009I, 5.750%, 7/01/36	7/19 at 100.00	A+	180,194
500	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Cape Cod Healthcare	11/19 at 100.00	AA	564,055

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	Obligated Group, Series 2004D, 5.125%, 11/15/35 – AGC Insured			
2,000	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Children’s Hospital, Series 2009M, 5.500%, 12/01/39	12/19 at 100.00	AA	2,265,560
2,500	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Dana-Farber Cancer Institute, Series 2008K, 5.000%, 12/01/37	12/18 at 100.00	A1	2,718,100
1,495	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Milford Regional Medical Center, Series 2007E, 5.000%, 7/15/32	7/17 at 100.00	BBB–	1,539,162
32,935	Total Health Care Housing/Multifamily – 3.5% (2.3% of Total Investments)			38,041,737
500	Boston Housing Authority, Massachusetts, Capital Program Revenue Bonds, Series 2008, 5.000%, 4/01/20 – AGM Insured	4/18 at 100.00	AA	532,995
2,480	Massachusetts Development Finance Authority, Multifamily Housing Revenue Bonds, Emerson Manor Project, Series 2007, 4.800%, 7/20/48	7/17 at 100.00	BB–	2,516,481
2,000	Massachusetts Housing Finance Agency, Housing Bonds, Series 2003H, 5.125%, 6/01/43	11/16 at 100.00	AA–	2,003,180
4,980	Total Housing/Multifamily Long-Term Care – 3.4% (2.3% of Total Investments)			5,052,656
460	Massachusetts Development Finance Agency, Revenue Bonds, Berkshire Retirement Community Lennox, Series 2015, 5.000%, 7/01/31	No Opt. Call	A–	549,222
285	Massachusetts Development Finance Agency, Revenue Bonds, Carleton-Willard Village, Series 2010, 5.625%, 12/01/30	12/19 at 100.00	A–	320,793
1,000	Massachusetts Development Finance Agency, Revenue Bonds, Loomis Communities, Series 2013A, 5.250%, 1/01/26	1/23 at 100.00	BBB–	1,156,000
500	Massachusetts Development Finance Agency, Revenue Bonds, North Hill Communities Issue, Series 2013A, 6.250%, 11/15/28	11/23 at 100.00	N/R	559,990
2,410	Massachusetts Development Finance Agency, Revenue Bonds, Orchard Cove, Series 2007, 5.250%, 10/01/26	10/16 at 101.00	N/R	2,437,595
4,655	Total Long-Term Care Tax Obligation/General – 15.4% (10.3% of Total Investments)			5,023,600
2,000	Hampden-Wilbraham Regional School District, Hampden County, Massachusetts, General Obligation Bonds, Series 2011, 5.000%, 2/15/41	2/21 at 100.00	Aa3	2,291,760
1,250	Hudson, Massachusetts, General Obligation Bonds, Municipal Purpose Loan Series 2011, 5.000%, 2/15/32	2/20 at 100.00	AA	1,411,500
1,010	Massachusetts Bay Transportation Authority, General Obligation Transportation System Bonds, Series 1991A, 7.000%, 3/01/21	No Opt. Call	AA+	1,180,842
2,440	Massachusetts State, General Obligation Bonds, Consolidated Loan, Refunding Series 2014C,	No Opt. Call	AA+	2,981,948

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	5.000%, 8/01/22			
1,500	Massachusetts State, General Obligation Bonds, Consolidated Loan, Series 2004B, 5.250%, 8/01/21 – AGM Insured	No Opt. Call	AA+	1,812,165
2,000	Massachusetts State, General Obligation Bonds, Consolidated Loan, Series 2015C, 5.000%, 7/01/45	7/25 at 100.00	AA+	2,432,940
1,000	Newburyport, Massachusetts, General Obligation Bonds, Municipal Purpose Loan, Refunding Series 2013, 4.000%, 1/15/30	1/23 at 100.00	AAA	1,114,010
1,775	North Reading, Massachusetts, General Obligation Bonds, Municipal Purpose Loan Series 2012, 5.000%, 5/15/35 – AMBAC Insured	5/22 at 100.00	Aa2	2,118,818
1,760	Norwell, Massachusetts, General Obligation Bonds, Series 2003, 5.000%, 11/15/20 – FGIC Insured	No Opt. Call	AAA	2,021,870
	Quincy, Massachusetts, General Obligation Bonds, State Qualified Municipal Purpose Loan Series 2011:			
1,280	5.125%, 12/01/33	12/20 at 100.00	Aa2	1,473,690
2,000	5.250%, 12/01/38	12/20 at 100.00	Aa2	2,312,920
1,220	Worcester, Massachusetts, General Obligation Bonds, Series 2005A, 5.000%, 7/01/19 – FGIC Insured	11/16 at 100.00	AA–	1,252,745
19,235	Total Tax Obligation/General Tax Obligation/Limited – 16.5% (11.0% of Total Investments) Government of Guam, Business Privilege Tax Bonds, Series 2011A:			22,405,208
2,000	5.250%, 1/01/36	1/22 at 100.00	A	2,230,620
1,310	5.125%, 1/01/42	1/22 at 100.00	A	1,444,511
	Government of Guam, Business Privilege Tax Bonds, Series 2012B-1:			
400	5.000%, 1/01/37	1/22 at 100.00	A	438,728
1,055	5.000%, 1/01/42	1/22 at 100.00	A	1,154,423
855	Martha’s Vineyard Land Bank, Massachusetts, Revenue Bonds, Refunding Green Series 2014, 5.000%, 5/01/33 – BAM Insured	11/24 at 100.00	AA	1,035,884
1,000	Massachusetts Bay Transportation Authority, Assessment Bonds, Series 2012A, 5.000%, 7/01/41	7/22 at 100.00	AAA	1,189,550
770	Massachusetts Bay Transportation Authority, Sales Tax Revenue Bonds, Refunding Senior Lien Series 2004C, 5.250%, 7/01/21	No Opt. Call	AA+	925,640
	Massachusetts College Building Authority, Project Revenue Bonds, Green Series 2014B:			
360	5.000%, 5/01/39	5/24 at 100.00	AA	432,151
1,610	5.000%, 5/01/44		AA	1,926,397



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		5/24 at 100.00		
1,000	Massachusetts College Building Authority, Project Revenue Refunding Bonds, Series 2003B, 5.375%, 5/01/23 – SYNCORA GTY Insured	No Opt. Call	Aa2	1,264,050
855	Massachusetts College Building Authority, Revenue Bonds, Refunding Series 2012B, 5.000%, 5/01/37	5/22 at 100.00	AA	1,017,997
1,350	Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Senior Refunding Series 2015C, 5.000%, 8/15/37	8/25 at 100.00	AA+	1,665,603
1,875	Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Senior Series 2013A, 5.000%, 5/15/38	5/23 at 100.00	AA+	2,265,525
5	Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series 2007A, 5.000%, 8/15/37 – AMBAC Insured	8/17 at 100.00	AA+	5,201
975	Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series 2011B: 5.000%, 10/15/35	No Opt. Call	AA+	1,151,514
1,000	5.000%, 10/15/41	10/21 at 100.00	AA+	1,181,040
1,070	Massachusetts State, Special Obligation Dedicated Tax Revenue Bonds, Series 2005, 5.000%, 1/01/20 – FGIC Insured	No Opt. Call	AA–	1,214,108
1,500	Massachusetts, Transportation Fund Revenue Bonds, Accelerated Bridge Program, Series 2013A, 5.000%, 6/01/38	6/21 at 100.00	AAA	1,757,340
520	Virgin Islands Public Finance Authority, Gross Receipts Taxes Loan Note, Refunding Series 2012A, 5.000%, 10/01/32 – AGM Insured	No Opt. Call	AA	568,646
1,000	Virgin Islands Public Finance Authority, Matching Fund Loan Notes Revenue Bonds, Series 2012A, 5.000%, 10/01/32 – AGM Insured	10/22 at 100.00	AA	1,093,550
20,510	Total Tax Obligation/Limited Transportation – 8.9% (6.0% of Total Investments)			23,962,478
400	Massachusetts Department of Transportation, Metropolitan Highway System Revenue Bonds, Commonwealth Contract Assistance Secured, Refunding Series 2010B, 5.000%, 1/01/35	1/20 at 100.00	AA+	453,024
1,000	Massachusetts Port Authority, Airport System Revenue Bonds, Series 2010A, 5.000%, 7/01/30	7/20 at 100.00	AA	1,147,000
1,000	Massachusetts Port Authority, Revenue Bonds, Series 2012B, 5.000%, 7/01/33	7/22 at 100.00	AA	1,203,770
1,000	Massachusetts Port Authority, Revenue Bonds, Series 2014A: 5.000%, 7/01/39	7/24 at 100.00	AA	1,214,870
2,500	5.000%, 7/01/44	7/24 at 100.00	AA	3,027,100
715	Massachusetts Port Authority, Revenue Bonds, Series 2015A: 5.000%, 7/01/40		AA	871,699

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		7/25 at 100.00		
1,000	5.000%, 7/01/45	7/25 at 100.00	AA	1,214,690
1,400	Massachusetts Port Authority, Special Facilities Revenue Bonds, BOSFUEL Corporation, Series 2007, 5.000%, 7/01/32 – FGIC Insured (Alternative Minimum Tax)	7/17 at 100.00	AA–	1,440,110
1,225	Massachusetts Port Authority, Special Facilities Revenue Bonds, Delta Air Lines Inc., Series 2001A, 5.000%, 1/01/27 – AMBAC Insured (Alternative Minimum Tax)	1/17 at 100.00	N/R	1,230,059
730	Metropolitan Boston Transit Parking Corporation, Massachusetts, Systemwide Senior Lien Parking Revenue Bonds, Series 2011, 5.000%, 7/01/41	7/21 at 100.00	A+	849,793
330	Virgin Islands Port Authority, Marine Revenue Bonds, Refunding Series 2014B, 5.000%, 9/01/44	9/24 at 100.00	BBB+	378,401
11,300	Total Transportation U.S. Guaranteed – 22.9% (15.4% of Total Investments) (5)			13,030,516
450	Massachusetts Bay Transportation Authority, General Obligation Transportation System Bonds, Series 1991A, 7.000%, 3/01/21 (ETM) Massachusetts Bay Transportation Authority, Sales Tax Revenue Bonds, Senior Lien Series 2006C:	No Opt. Call	N/R (5)	463,802
25	5.000%, 7/01/26 (Pre-refunded 7/01/18)	7/18 at 100.00	AA+ (5)	27,010
975	5.000%, 7/01/26 (Pre-refunded 7/01/18)	7/18 at 100.00	AA+ (5)	1,053,371
2,500	Massachusetts College Building Authority, Project Revenue Bonds, Series 2008A, 5.000%, 5/01/33 (Pre-refunded 5/01/18) – AGC Insured	5/18 at 100.00	AA (5)	2,682,925
2,185	Massachusetts Development Finance Agency, Revenue Bonds, Draper Laboratory, Series 2008, 5.875%, 9/01/30 (Pre-refunded 9/01/18)	9/18 at 100.00	Aa3 (5)	2,412,480
1,595	Massachusetts Development Finance Agency, Revenue Bonds, Worcester Polytechnic Institute, Series 2007, 5.000%, 9/01/37 (Pre-refunded 9/01/17) – NPF Insured	9/17 at 100.00	AA– (5)	1,666,201
4,675	Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2008A, 5.000%, 1/01/42 (Pre-refunded 1/01/18) – AGC Insured	1/18 at 100.00	A3 (5)	4,948,675
1,055	Massachusetts Health and Educational Facilities Authority, Partners HealthCare System Inc., Series 2007G, 5.000%, 7/01/32 (Pre-refunded 7/01/17)	7/17 at 100.00	N/R (5)	1,094,383
410	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, CareGroup Inc., Series 1998A, 5.000%, 7/01/25 (Pre-refunded 7/01/21) – NPF Insured Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Caregroup Inc.,	7/21 at 100.00	AA– (5)	476,760

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Series B1 Capital Asset Program Converted June 13,2008:				
3,380	5.375%, 2/01/26 (Pre-refunded 8/01/18) – NPFPG Insured	8/18 at 100.00	AA– (5)	3,686,634
600	5.375%, 2/01/27 (Pre-refunded 8/01/18) – NPFPG Insured	8/18 at 100.00	AA– (5)	654,432
770	5.375%, 2/01/28 (Pre-refunded 8/01/18) – NPFPG Insured	8/18 at 100.00	AA– (5)	839,854
Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Caregroup Inc., Series B2, Capital Asset Program, Converted June 9, 2009:				
2,000	5.375%, 2/01/27 (Pre-refunded 8/01/18) – NPFPG Insured	8/18 at 100.00	AA– (5)	2,181,440
1,500	5.375%, 2/01/28 (Pre-refunded 8/01/18) – NPFPG Insured	8/18 at 100.00	AA– (5)	1,636,080
3,000	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Lahey Medical Center, Series 2007D, 5.250%, 8/15/28 (Pre-refunded 8/15/17)	8/17 at 100.00	A+ (5)	3,135,810
1,500	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Springfield College, Series 2010, 5.500%, 10/15/31 (Pre-refunded 10/15/19)	10/19 at 100.00	Baa1 (5)	1,716,750
350	Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Tufts University, Series 2008O, 5.375%, 8/15/38 (Pre-refunded 8/15/18)	8/18 at 100.00	Aa2 (5)	382,389
1,870	Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series 2007A, 5.000%, 8/15/37 (Pre-refunded 8/15/17) – AMBAC Insured	8/17 at 100.00	Aa2 (5)	1,949,849
1,000	Massachusetts State, General Obligation Bonds, Consolidated Loan, Series 2009A, 5.000%, 3/01/21 (Pre-refunded 3/01/19)	3/19 at 100.00	AA+ (5)	1,104,590
95	Massachusetts Water Resources Authority, General Revenue Bonds, Series 2005A, 5.000%, 8/01/28 (Pre-refunded 8/01/17)	8/17 at 100.00	Aa1 (5)	98,876
1,065	Puerto Rico, Highway Revenue Bonds, Highway and Transportation Authority, Series 2003AA, 5.500%, 7/01/19 – NPFPG Insured (ETM)	No Opt. Call	A3 (5)	1,205,101
31,000	Total U.S. Guaranteed Utilities – 4.5% (3.0% of Total Investments)			33,417,412
2,580	Guam Power Authority, Revenue Bonds, Series 2010A, 5.000%, 10/01/37 – AGM Insured	10/20 at 100.00	AA	2,929,461
1,265	Massachusetts Clean Energy Cooperative Corporation, Revenue Bonds, Massachusetts Municipal Lighting Plant Cooperative, Series 2013, 5.000%, 7/01/32	7/23 at 100.00	A1	1,517,848
2,010	Massachusetts Development Finance Agency, Resource Recovery Revenue Refunding Bonds, Covanta Energy Project, Series 2012B, 4.875%, 11/01/42	11/17 at 100.00	BB+	2,048,873
5,855	Total Utilities Water and Sewer – 9.3% (6.2% of Total Investments)			6,496,182
500	Boston Water and Sewer Commission, Massachusetts, General Revenue Bonds, Refunding Senior Lien Series 2010A, 5.000%, 11/01/30	11/19 at 100.00	AA+	566,340
565			A–	662,711

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	Guam Government Waterworks Authority, Water and Wastewater System Revenue Bonds, Refunding Series 2014A, 5.000%, 7/01/29	7/24 at 100.00		
735	Guam Government Waterworks Authority, Water and Wastewater System Revenue Bonds, Series 2016, 5.000%, 7/01/36	7/26 at 100.00	A-	867,587
415	Lynn Water and Sewer Commission, Massachusetts, General Revenue Bonds, Series 2003A, 5.000%, 12/01/32 – NCFG Insured	11/16 at 100.00	AA-	416,498
2,300	Massachusetts Clean Water Trust, State Revolving Fund Bonds, Green 18 Series 2015, 5.000%, 2/01/45	2/24 at 100.00	AAA	2,782,195
60	Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2003-9, 5.000%, 8/01/22	11/16 at 100.00	AAA	60,226
400	Massachusetts Water Pollution Abatement Trust, Revenue Bonds, MWRA Loan Program, Series 2002A, 5.250%, 8/01/20	11/16 at 100.00	AAA	401,592
1,820	Massachusetts Water Resources Authority, General Revenue Bonds, Refunding Green Bonds Series 2016C, 5.000%, 8/01/40	8/26 at 100.00	AA+	2,284,682
	Massachusetts Water Resources Authority, General Revenue Bonds, Refunding Series 2016B:			
455	5.000%, 8/01/40	8/26 at 100.00	AA+	571,171
1,000	4.000%, 8/01/40	8/26 at 100.00	AA+	1,133,830
1,000	Massachusetts Water Resources Authority, General Revenue Bonds, Series 2002J, 5.250%, 8/01/19 – AGM Insured	No Opt. Call	AA+	1,131,850
1,405	Massachusetts Water Resources Authority, General Revenue Bonds, Series 2005A, 5.000%, 8/01/28	8/17 at 100.00	AA+	1,459,317
720	Springfield Water and Sewer Commission, Massachusetts, General Revenue Bonds, Refunding Series 2010B, 5.000%, 11/15/30 – AGC Insured	11/20 at 100.00	AA	830,952
	Springfield Water and Sewer Commission, Massachusetts, General Revenue Bonds, Series 2014A:			
185	5.000%, 7/15/22	No Opt. Call	AA-	224,810
150	5.000%, 7/15/23	No Opt. Call	AA-	186,161
11,710	Total Water and Sewer			13,579,922
\$ 188,625	Total Long-Term Investments (cost \$197,646,607)			217,476,851
	Variable Rate MuniFund Term Preferred Shares, at Liquidation Preference – (50.8)% (6)			(74,000,000)
	Other Assets Less Liabilities – 1.5%			2,131,086
	Net Assets Applicable to Common Shares – 100%			\$ 145,607,937

### Fair Value Measurements

Fair Value is defined as the price that would be received upon selling an investment or transferring a liability in an orderly transaction to an independent buyer in the principal or most advantageous market for the investment. A three-tier hierarchy is used to maximize the use of observable market data and minimize the use of unobservable inputs and to establish classification of fair value measurements for disclosure purposes. Observable inputs reflect the assumptions market participants would use in pricing the asset or liability. Observable inputs are based on market data obtained from sources independent of the reporting entity. Unobservable inputs reflect the reporting entity's own assumptions about the assumptions market participants would use in pricing the asset or liability. Unobservable inputs are based on the best information available in the circumstances. The following is a summary of the three-tiered hierarchy of valuation input levels.

Level 1 – Inputs are adjusted and prices are determined using quoted prices in active markets for identical securities.

Level 2 – Prices are determined using other significant observable inputs (including quoted prices for similar securities, interest rates, prepayment speeds, credit risk, etc.).

Level 3 – Prices are determined using significant unobservable inputs (including management's assumptions in determining the fair value of investments).

The inputs or methodologies used for valuing securities are not an indication of the risk associated with investing in those securities. The following is a summary of the Fund's fair value measurements as of the end of the reporting period:

	Level 1	Level 2	Level 3	Total
Long-Term Investments:				
Municipal Bonds	\$ —	\$217,476,851	\$ —	\$217,476,851

### Income Tax Information

The following information is presented on an income tax basis. Differences between amounts for financial statement and federal income tax purposes are primarily due to timing differences in recognizing taxable market discount, timing differences in recognizing certain gains and losses on investment transactions and the treatment of investments in inverse floating rate securities reflected as financing transactions, if any. To the extent that differences arise that are permanent in nature, such amounts are reclassified within the capital accounts on the Statement of Assets and Liabilities presented in the annual report, based on their federal tax basis treatment; temporary differences do not require reclassification. Temporary and permanent differences do not impact the net asset value of the Fund.

As of August 31, 2016, the cost of investments was \$197,592,215.

Gross unrealized appreciation and gross unrealized depreciation of investments as of August 31, 2016, were as follows:

Gross unrealized:	
Appreciation	\$19,893,523
Depreciation	(8,887)
Net unrealized appreciation (depreciation) of investments	\$19,884,636

- (1) All percentages shown in the Portfolio of Investments are based on net assets applicable to common shares unless otherwise noted.
- (2) Optional Call Provisions: Dates (month and year) and prices of the earliest optional call or redemption. There may be other call provisions at varying prices at later dates. Certain mortgage-backed securities may be subject to periodic principal paydowns.
- (3) For financial reporting purposes, the ratings disclosed are the highest of Standard & Poor's Group ("Standard & Poor's"), Moody's Investors Service, Inc. ("Moody's") or Fitch, Inc. ("Fitch") rating. This treatment of split-rated securities may differ from that used for other purposes, such as for Fund investment policies. Ratings below BBB by Standard & Poor's, Baa by Moody's or BBB by Fitch are considered to be below investment grade. Holdings designated N/R are not rated by any of these

- national rating agencies.
- (4) Investment, or portion of investment, has been pledged to collateralize the net payment obligations for investments in inverse floating rate transactions.
  - (5) Backed by an escrow or trust containing sufficient U.S. Government or U.S. Government agency securities, which ensure the timely payment of principal and interest. Certain bonds backed by U.S. Government or agency securities are regarded as having an implied rating equal to the rating of such securities.
  - (6) Variable Rate MuniFund Term Preferred Shares, at Liquidation Preference as a percentage of Total Investments is 34.0%.
- (ETM) Escrowed to maturity.
- (IF) Inverse floating rate investment.
- (WI/DD) Investment, or portion of investment, purchased on a when-issued or delayed delivery basis.
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Item 2. Controls and Procedures.

- a. The registrant's principal executive and principal financial officers, or persons performing similar functions, have concluded that the registrant's disclosure controls and procedures (as defined in Rule 30a-3(c) under the Investment Company Act of 1940, as amended (the "1940 Act") (17 CFR 270.30a-3(c))) are effective, as of a date within 90 days of the filing date of this report that includes the disclosure required by this paragraph, based on their evaluation of the controls and procedures required by Rule 30a-3(b) under the 1940 Act (17 CFR 270.30a-3(b)) and Rule 13a-15(b) or 15d-15(b) under the Securities Exchange Act of 1934 (17 CFR 240.13a-15(b) or 240.15d-15(b)).
- b. There were no changes in the registrant's internal control over financial reporting (as defined in Rule 30a-3(d) under the 1940 Act (17 CFR 270.30a-3(d)) that occurred during the registrant's last fiscal quarter that have materially affected, or are reasonably likely to materially affect, the registrant's internal control over financial reporting.

Item 3. Exhibits.

File as exhibits as part of this Form a separate certification for each principal executive officer and principal financial officer of the registrant as required by Rule 30a-2(a) under the 1940 Act (17 CFR 270.30a-2(a)), exactly as set forth below: See EX-99 CERT attached hereto.

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SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

(Registrant) Nuveen Massachusetts Premium Income Municipal Fund

By (Signature and Title) /s/ Gifford R. Zimmerman  
Gifford R. Zimmerman  
Vice President and Secretary

Date: October 28, 2016

Pursuant to the requirements of the Securities Exchange Act of 1934 and the Investment Company Act of 1940, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

By (Signature and Title) /s/ Cedric H. Antosiewicz  
Cedric H. Antosiewicz  
Chief Administrative Officer (principal executive officer)

Date: October 28, 2016

By (Signature and Title) /s/ Stephen D. Foy  
Stephen D. Foy  
Vice President and Controller (principal financial officer)

Date: October 28, 2016