

NUVEEN MASSACHUSETTS PREMIUM INCOME MUNICIPAL FUND

Form N-Q

April 27, 2012

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 811-7484

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: 2/29/12

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 (Unaudited)
 Nuveen Massachusetts Premium Income Municipal Fund (NMT)
 February 29, 2012

| Principal Amount (000) | Description (1) | Optional Call Provisions (2) | Ratings (3) | Value |
|------------------------------|--|---------------------------------------|----------------|--------------|
| | Consumer Discretionary – 1.5% (1.0% of Total Investments) | | | |
| \$ 1,425 | Boston Industrial Development Financing Authority, Massachusetts, Senior Revenue Bonds, Crosstown Center Project, Series 2002, 6.500%, 9/01/35 (Alternative Minimum Tax) | 9/12 at 102.00 | Caa3 | \$ 1,064,076 |
| | Education and Civic Organizations – 33.9% (22.6% of Total Investments) | | | |
| 1,000 | Massachusetts Development Finance Agency Revenue Bonds, Lesley University Issue Series B-1 and B-2, 5.250%, 7/01/33 – AGM Insured | 7/21 at 100.00 | AA– | 1,117,630 |
| 375 | Massachusetts Development Finance Agency, Revenue Bonds, Boston University, Series 2009V-1, 5.000%, 10/01/29 | 10/19 at 100.00 | A | 418,410 |
| 1,000 | Massachusetts Development Finance Agency, Revenue Bonds, Emerson College, Series 2010A, 5.000%, 1/01/40 | 1/20 at 100.00 | BBB+ | 1,018,430 |
| 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 | 1,101,400 |
| 2,000 | Massachusetts Development Finance Agency, Revenue Bonds, The Broad Institute, Series 2011A, 5.250%, 4/01/37 | 4/21 at 100.00 | AA– | 2,202,480 |
| 1,045 | Massachusetts Development Finance Agency, Revenue Bonds, Worcester Polytechnic Institute, Series 2007, 5.000%, 9/01/37 – NCFG Insured | 9/17 at 100.00 | A+ | 1,102,778 |
| 705 | Massachusetts Development Finance Authority, Revenue Bonds, Curry College, Series 2000A, 6.000%, 3/01/20 – ACA Insured | 9/12 at 100.00 | BBB | 706,544 |
| 1,745 | Massachusetts Development Finance Authority, Revenue Bonds, Massachusetts College of Pharmacy and Allied Health Sciences, Series 2005D, 5.000%, 7/01/27 – AGC Insured | 7/15 at 100.00 | AA– | 1,855,022 |
| 1,500 | Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2002A, 5.750%, 1/01/42 – AMBAC Insured | No Opt. Call | A | 1,859,190 |
| 4,850 | Massachusetts Development Finance Authority, Revenue Bonds, WGBH Educational Foundation, Series 2008A, 5.000%, 1/01/42 – AGC Insured | 1/18 at 100.00 | AA– | 5,103,946 |

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| 1,090 | Massachusetts Development Finance Authority, Revenue Refunding Bonds, Boston University, Series 1999P, 6.000%, 5/15/29 | No Opt. Call | A2 | 1,407,637 |
| 1,000 | Massachusetts Educational Financing Authority, Educational Loan Revenue, Serie 2011J, 5.625%, 7/01/33 (Alternative Minimum Tax) | 7/21 at 100.00 | AA | 1,065,700 |
| 2,000 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Boston College, Series 2003N, 5.250%, 6/01/18 | 6/13 at 100.00 | AA- | 2,112,800 |
| 1,000 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Springfield College, Series 2010, 5.500%, 10/15/31 | 10/19 at 100.00 | Baa1 | 1,040,000 |
| 250 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Tufts University, Series 2008O, 5.375%, 8/15/38 | 8/18 at 100.00 | Aa2 | 293,498 |
| 500 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Wellesley College, Series 2003H, 5.000%, 7/01/26 | 7/13 at 100.00 | Aaa | 524,230 |
| 500 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Wheaton College Issues, Series 2010F, 5.000%, 1/01/41 | No Opt. Call | A2 | 537,340 |
| 555 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Williams College, Series 2003H, 5.000%, 7/01/21 | 7/13 at 100.00 | AAA | 586,629 |
| 500 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Worcester State College, Series 2002, 5.000%, 11/01/32 – AMBAC Insured | 11/12 at 100.00 | A | 504,035 |
| 305 | Puerto Rico Industrial, Tourist, Educational, Medical and Environmental Control Facilities Financing Authority, Higher Education Revenue Bonds, Ana G. Mendez University System, Series 1999, 5.375%, 2/01/19 | 8/12 at 100.00 | BBB- | 305,192 |
| 22,920 | Total Education and Civic Organizations Health Care – 25.6% (17.1% of Total Investments) | | | 24,862,891 |
| 1,000 | Massachusetts Development Finance Agency, Revenue Bonds, Partners HealthCare System, Series 2011K-6, 5.375%, 7/01/41 | 7/20 at 100.00 | AA | 1,101,470 |
| 1,250 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Berkshire Health System, Series 2001E, 6.250%, 10/01/31 | 10/13 at 100.00 | BBB+ | 1,263,875 |
| 1,000 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Cape Cod Health Care Inc., Series 2001C, 5.250%, 11/15/31 – RAAI Insured | 5/12 at 101.00 | BBB+ | 1,010,440 |
| 2,300 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Caregroup Inc., Series B1 Capital Asset Program Converted June 13,2008: 5.375%, 2/01/26 – NPFG Insured | 8/18 at 100.00 | A- | 2,600,104 |
| 770 | 5.375%, 2/01/28 – NPFG Insured | 8/18 at 100.00 | A- | 861,060 |
| 1,500 | | | A- | 1,686,615 |

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|--------|---|--------------------|------|------------|
| | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Caregroup Inc., Series B2, Capital Asset Program, Converted June 9, 2009, 5.375%, 2/01/27 – NPFPG Insured | 8/18 at 100.00 | | |
| 1,000 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Children’s Hospital, Series 2009M, 5.500%, 12/01/39 | 12/19 at 100.00 | AA | 1,107,890 |
| 935 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Emerson Hospital, Series 2005E, 5.000%, 8/15/35 – RAAI Insured | 8/15 at 100.00 | N/R | 834,244 |
| 1,000 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Lahey Clinic Medical Center, Series 2005C, 5.000%, 8/15/21 – FGIC Insured | 8/15 at 100.00 | A+ | 1,063,380 |
| 2,000 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Lahey Medical Center, Series 2007D, 5.250%, 8/15/28 | 8/17 at 100.00 | A+ | 2,139,240 |
| 585 | 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– | 572,165 |
| 1,000 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Milton Hospital Project, Series 2005D, 5.250%, 7/01/30 | 7/15 at 100.00 | BB– | 944,790 |
| 1,445 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, UMass Memorial Health Care, Series 2005D, 5.000%, 7/01/33 | 7/15 at 100.00 | A– | 1,460,158 |
| 2,000 | Massachusetts State, Health and Educational Facilities Authority, Partners HealthCare System Inc., Series 2007G, 5.000%, 7/01/32 | 7/17 at 100.00 | AA | 2,138,320 |
| 17,785 | Total Health Care Housing/Multifamily – 6.3% (4.2% of Total Investments) | | | 18,783,751 |
| 1,300 | Massachusetts Development Finance Authority, Multifamily Housing Revenue Bonds, Emerson Manor Project, Series 2007, 4.800%, 7/20/48 | 7/17 at 100.00 | BB | 1,324,167 |
| 1,715 | Massachusetts Development Financing Authority, Assisted Living Revenue Bonds, Prospect House Apartments, Series 1999, 7.000%, 12/01/31 | 6/12 at 100.00 | N/R | 1,653,209 |
| 500 | Massachusetts Housing Finance Agency, Housing Revenue Bonds, Series 2003S, 5.050%, 12/01/23 (Alternative Minimum Tax) | 6/13 at 100.00 | AA– | 504,410 |
| 95 | Massachusetts Housing Finance Agency, Rental Housing Mortgage Revenue Bonds, Series 1999D, 5.500%, 7/01/13 – AMBAC Insured (Alternative Minimum Tax) | 7/12 at 100.00 | N/R | 95,677 |
| 1,000 | Somerville Housing Authority, Massachusetts, GNMA Collateralized Mortgage Revenue Bonds, Clarendon Hill Towers, Series 2002, 5.200%, 11/20/22 | 5/12 at 103.00 | N/R | 1,033,810 |
| 4,610 | Total Housing/Multifamily Housing/Single Family – 3.7% (2.4% of Total Investments) | | | 4,611,273 |
| 1,500 | Massachusetts Housing Finance Agency, Single Family Housing Revenue Bonds, Series 2006-126, 4.625%, 6/01/32 (Alternative Minimum Tax) | 6/16 at 100.00 | AA | 1,494,045 |
| 985 | | | AA | 1,199,977 |

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| | Massachusetts Housing Finance Agency, Single Family Housing Revenue Bonds, Series 2008, Trust 3145, 14.354%, 6/01/16 (IF) | No Opt. Call | | |
| 2,485 | Total Housing/Single Family Industrials – 0.9% (0.6% of Total Investments) | | | 2,694,022 |
| 220 | Massachusetts Development Finance Agency, Pioneer Valley Resource Recovery Revenue Bonds, Eco/Springfield LLC, Series 2006, 5.875%, 7/01/14 (Alternative Minimum Tax) | No Opt. Call | N/R | 216,014 |
| 400 | Massachusetts Development Finance Agency, Solid Waste Disposal Revenue Bonds, Waste Management Inc., Series 2003, 5.450%, 6/01/14 | No Opt. Call | BBB | 432,488 |
| 620 | Total Industrials Long-Term Care – 6.8% (4.5% of Total Investments) | | | 648,502 |
| 1,270 | Boston, Massachusetts, FHA-Insured Mortgage Revenue Bonds, Deutsches Altenheim Inc., Series 1998A, 6.125%, 10/01/31 | 4/12 at 102.00 | AAA | 1,297,800 |
| 185 | Massachusetts Development Finance Agency, Revenue Bonds, Carleton-Willard Village, Series 2010, 5.625%, 12/01/30 | 12/19 at 100.00 | A– | 199,931 |
| 1,685 | Massachusetts Development Finance Agency, Revenue Bonds, Orchard Cove, Series 2007, 5.250%, 10/01/26 | 10/12 at 102.00 | N/R | 1,533,417 |
| 1,500 | Massachusetts Development Finance Authority, GNMA Collateralized Assisted Living Facility Revenue Bonds, Arbors at Chicopee, Series 2001A, 6.250%, 9/20/42 (Alternative Minimum Tax) | 3/12 at 105.00 | AAA | 1,586,340 |
| 400 | Massachusetts Industrial Finance Agency, First Mortgage Revenue Bonds, Berkshire Retirement Community, Series 1994B, 4.750%, 7/01/17 | 7/12 at 100.00 | BBB | 400,408 |
| 5,040 | Total Long-Term Care Tax Obligation/General – 20.1% (13.4% of Total Investments) | | | 5,017,896 |
| 500 | Ashland, Massachusetts, General Obligation Bonds, Series 2004, 5.250%, 5/15/23 – AMBAC Insured | 5/15 at 100.00 | Aa2 | 544,140 |
| 300 | Boston, Massachusetts, General Obligation Bonds, Series 2005A, 5.000%, 1/01/17 | 1/15 at 100.00 | Aaa | 337,143 |
| 1,000 | Fall River, Massachusetts, General Obligation Bonds, Series 2003, 5.000%, 2/01/21 – AGM Insured | 2/13 at 101.00 | AA– | 1,033,700 |
| 1,000 | Hampden-Wilbraham Regional School District, Hampden County, Massachusetts, General Obligation Bonds, Series 2011, 5.000%, 2/15/41 | 2/21 at 100.00 | Aa3 | 1,104,390 |
| 1,250 | Hudson, Massachusetts, General Obligation Bonds, Municipal Purpose Loan Series 2011, 5.000%, 2/15/32 | 2/20 at 100.00 | AA | 1,419,700 |
| 1,205 | Massachusetts Bay Transportation Authority, General Obligation Transportation System Bonds, Series 1991A, 7.000%, 3/01/21 | No Opt. Call | AA+ | 1,583,237 |
| 1,275 | Massachusetts, General Obligation Bonds, Consolidated Loan, Series 2001D, 6.000%, 11/01/13 – NPFPG Insured | No Opt. Call | AA+ | 1,397,821 |
| 980 | | | A1 | 998,091 |

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| | Monson, Massachusetts, General Obligation Bonds, Series 2002, 5.250%, 5/15/22 – AMBAC Insured | 5/12 at 101.00 | | |
| 1,260 | Norwell, Massachusetts, General Obligation Bonds, Series 2003, 5.000%, 11/15/20 – FGIC Insured | No Opt. Call | AAA | 1,591,002 |
| 1,000 | Puerto Rico, General Obligation and Public Improvement Bonds, Series 2002A, 5.500%, 7/01/29 – FGIC Insured | No Opt. Call | Baa1 | 1,139,600 |
| 2,000 | Quincy, Massachusetts, General Obligation Bonds, Series 2011, 5.250%, 12/01/38 | 12/20 at 100.00 | Aa2 | 2,270,760 |
| 1,220 | Worcester, Massachusetts, General Obligation Bonds, Series 2005A, 5.000%, 7/01/19 – FGIC Insured | 7/15 at 100.00 | A1 | 1,344,891 |
| 12,990 | Total Tax Obligation/General Tax Obligation/Limited – 12.3% (8.2% of Total Investments) | | | 14,764,475 |
| 210 | Martha's Vineyard Land Bank, Massachusetts, Revenue Bonds, Series 2004, 5.000%, 5/01/26 – AMBAC Insured | 5/14 at 100.00 | A– | 224,816 |
| 975 | Massachusetts Bay Transportation Authority, Sales Tax Revenue Bonds, Senior Lien Series 2006C, 5.000%, 7/01/26 | 7/18 at 100.00 | AAA | 1,118,267 |
| 385 | Massachusetts Bay Transportation Authority, Senior Lien Sales Tax Revenue Refunding Bonds, Series 2004C, 5.250%, 7/01/21 | No Opt. Call | AAA | 496,785 |
| 1,200 | Massachusetts College Building Authority, Project Revenue Bonds, Series 2008A, 5.000%, 5/01/33 – AGC Insured | 5/18 at 100.00 | Aa2 | 1,307,076 |
| 1,000 | Massachusetts College Building Authority, Project Revenue Refunding Bonds, Series 2003B, 5.375%, 5/01/23 – SYNCORA GTY Insured | No Opt. Call | Aa2 | 1,279,710 |
| 570 | Massachusetts College Building Authority, Revenue Bonds, Refunding Series 2012B, 5.000%, 5/01/37 (WI/DD, Settling 3/01/12) | 5/22 at 100.00 | AA | 644,442 |
| 1,300 | Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series 2005A, 5.000%, 8/15/20 – AGM Insured (UB) | 8/15 at 100.00 | AA+ | 1,483,859 |
| 1,000 | Massachusetts School Building Authority, Dedicated Sales Tax Revenue Bonds, Series 2011B, 5.000%, 10/15/41 | 10/21 at 100.00 | AA+ | 1,124,710 |
| 540 | Massachusetts State, Special Obligation Dedicated Tax Revenue Bonds, Series 2005, 5.000%, 1/01/20 – FGIC Insured | No Opt. Call | A1 | 637,438 |
| 240 | Puerto Rico Infrastructure Financing Authority, Special Tax Revenue Bonds, Series 2005A, 0.000%, 7/01/43 – AMBAC Insured | No Opt. Call | BBB+ | 32,935 |
| 1,650 | Puerto Rico Sales Tax Financing Corporation, Sales Tax Revenue Bonds, First Subordinate Series 2010C, 0.000%, 8/01/38 | No Opt. Call | A+ | 379,038 |
| 235 | Puerto Rico, Highway Revenue Bonds, Highway and Transportation Authority, Series 2003AA, 5.500%, 7/01/19 – NPFQ Insured | No Opt. Call | A3 | 270,673 |
| 9,305 | Total Tax Obligation/Limited | | | 8,999,749 |

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|---|--|-------------------|---------|-----------|
| Transportation – 11.4% (7.6% of Total Investments) | | | | |
| 500 | Massachusetts Port Authority, Airport System Revenue Bonds, Series 2010A, 5.000%, 7/01/30 | 7/20 at 100.00 | AA– | 564,030 |
| 2,000 | Massachusetts Port Authority, Revenue Bonds, Series 2003A, 5.000%, 7/01/33 – NPMG Insured | 7/13 at 100.00 | AA– | 2,088,460 |
| 1,000 | 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 | A2 | 1,027,020 |
| 225 | Massachusetts Port Authority, Special Facilities Revenue Bonds, Delta Air Lines Inc., Series 2001A, 5.000%, 1/01/27 – AMBAC Insured (Alternative Minimum Tax) | 7/12 at 100.00 | N/R | 185,301 |
| 4,000 | Massachusetts Port Authority, Special Facilities Revenue Bonds, US Airways Group Inc., Series 1996A, 5.750%, 9/01/16 – NPMG Insured (Alternative Minimum Tax) | 9/12 at 100.00 | BBB | 3,999,560 |
| 470 | Metropolitan Boston Transit Parking Corporation, Massachusetts, Systemwide Parking Revenue Bonds, Senior Lien Series 2011, 5.000%, 7/01/41 | 7/21 at 100.00 | A+ | 503,840 |
| 8,195 | Total Transportation | | | 8,368,211 |
| U.S. Guaranteed – 14.2% (9.5% of Total Investments) (4) | | | | |
| 650 | Boston, Massachusetts, General Obligation Bonds, Series 2005A, 5.000%, 1/01/17 (Pre-refunded 1/01/15) | 1/15 at 100.00 | N/R (4) | 735,007 |
| 1,115 | Massachusetts Bay Transportation Authority, General Obligation Transportation System Bonds, Series 1991A, 7.000%, 3/01/21 (Pre-refunded 3/01/17) | 3/17 at 100.00 | N/R (4) | 1,306,669 |
| 25 | Massachusetts Bay Transportation Authority, Sales Tax Revenue Bonds, Senior Lien Series 2006C, 5.000%, 7/01/26 (Pre-refunded 7/01/18) | 7/18 at 100.00 | AAA | 31,205 |
| 550 | Massachusetts College Building Authority, Project Revenue Bonds, Series 2004A, 5.000%, 5/01/19 (Pre-refunded 5/01/14) – NPMG Insured | 5/14 at 100.00 | Aa2 (4) | 604,940 |
| 325 | Massachusetts College Building Authority, Project Revenue Bonds, Series 2006A, 5.000%, 5/01/31 (Pre-refunded 5/01/16) – AMBAC Insured | 5/16 at 100.00 | Aa2 (4) | 383,715 |
| 1,000 | Massachusetts Development Finance Authority, Revenue Bonds, Massachusetts College of Pharmacy and Allied Health Sciences, Series 2003C, 5.750%, 7/01/33 (Pre-refunded 7/01/13) | 7/13 at 101.00 | A (4) | 1,082,370 |
| 750 | Massachusetts Development Finance Authority, Revenue Bonds, Milton Academy, Series 2003A, 5.000%, 9/01/19 (Pre-refunded 9/01/13) | 9/13 at 100.00 | AA– (4) | 802,380 |
| 410 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, CareGroup Inc., Series 1998A, 5.000%, 7/01/25 (Pre-refunded 7/01/21) – NPMG Insured | 7/21 at 100.00 | BBB (4) | 501,385 |
| 1,000 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, Caritas Christi Obligated Group, Series 2002B, 6.250%, 7/01/22 (Pre-refunded 7/01/12) | 7/12 at 101.00 | N/R (4) | 1,030,110 |

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| 600 | Massachusetts Health and Educational Facilities Authority, Revenue Bonds, New England Medical Center Hospitals, Series 2002H, 5.375%, 5/15/19 (Pre-refunded 5/15/12) – FGIC Insured | 5/12 at 100.00 | N/R (4) | 606,432 |
| 295 | Massachusetts Port Authority, Revenue Bonds, Series 1982, 13.000%, 7/01/13 (ETM) | 5/12 at 100.00 | AAA | 325,028 |
| 1,500 | Massachusetts State, Special Obligation Dedicated Tax Revenue Bonds, Series 2004, 5.250%, 1/01/25 (Pre-refunded 1/01/14) – FGIC Insured | 1/14 at 100.00 | A1 (4) | 1,635,615 |
| 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 (4) | 1,372,806 |
| 9,285 | Total U.S. Guaranteed Utilities – 2.7% (1.8% of Total Investments) | | | 10,417,662 |
| 1,000 | Massachusetts Development Finance Agency, Resource Recovery Revenue Bonds, SEMass System, Series 2001A, 5.625%, 1/01/16 – NPFPG Insured | 1/13 at 100.00 | BBB | 1,012,460 |
| 1,000 | Massachusetts Industrial Finance Agency, Resource Recovery Revenue Refunding Bonds, Ogden Haverhill Project, Series 1998A, 5.600%, 12/01/19 (Alternative Minimum Tax) | 6/12 at 100.00 | A– | 1,003,700 |
| 2,000 | Total Utilities Water and Sewer – 10.8% (7.1% of Total Investments) | | | 2,016,160 |
| 500 | Boston Water and Sewerage Commission, Massachusetts, General Revenue Bonds, Senior Lien Refunding Series 2010A, 5.000%, 11/01/30 | 11/19 at 100.00 | AA+ | 580,510 |
| 2,000 | Boston Water and Sewerage Commission, Massachusetts, General Revenue Bonds, Senior Series 2004A, 5.000%, 11/01/25 | 11/14 at 100.00 | AA+ | 2,224,720 |
| 60 | Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2003-9, 5.000%, 8/01/22 | 8/13 at 100.00 | AAA | 63,625 |
| 285 | Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2004-10, 5.000%, 8/01/26 | 8/14 at 100.00 | AAA | 311,602 |
| 750 | Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2005-11, 4.500%, 8/01/29 | 8/15 at 100.00 | AAA | 819,128 |
| 1,000 | Massachusetts Water Pollution Abatement Trust, Pooled Loan Program Bonds, Series 2006-12, 4.375%, 8/01/31 (UB) | 8/16 at 100.00 | AAA | 1,060,150 |
| 500 | Massachusetts Water Pollution Abatement Trust, Revenue Bonds, MWRA Loan Program, Series 2002A, 5.250%, 8/01/20 | 8/12 at 100.00 | AAA | 510,220 |
| 1,500 | Massachusetts Water Resources Authority, General Revenue Bonds, Series 2005A, 5.000%, 8/01/28 – NPFPG Insured | 8/17 at 100.00 | AA+ | 1,685,385 |
| 625 | Massachusetts Water Resources Authority, General Revenue Bonds, Series 2006A, 4.000%, 8/01/46 | 8/16 at 100.00 | AA+ | 622,430 |
| 7,220 | Total Water and Sewer Total Investments (cost \$103,853,522) – 150.2% | | | 7,877,770 110,126,438 |

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| | | |
|---------|--|--------------|
| \$ | | |
| 103,880 | | |
| | Floating Rate Obligations – (2.0)% | (1,435,000) |
| | MuniFund Term Preferred Shares, at Liquidation Value – (50.0)% (5) | (36,645,000) |
| | Other Assets Less Liabilities – 1.8% | 1,269,726 |
| | | \$ |
| | Net Assets Applicable to Common Shares – 100% | 73,316,164 |

Fair Value Measurements

Fair value is defined as the price that the Fund would receive 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 three-tier hierarchy of inputs is summarized in the three broad levels listed below:

Level 1 – Quoted prices in active markets for identical securities.

Level 2 – Other significant observable inputs (including quoted prices for similar securities, interest rates, prepayment speeds, credit risk, etc.).

Level 3 – 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 February 29, 2012:

| | Level 1 | Level 2 | Level 3 | Total |
|-----------------|---------|---------------|---------|---------------|
| Investments: | | | | |
| Municipal Bonds | \$— | \$110,126,438 | \$— | \$110,126,438 |

During the period ended February 29, 2012, the Fund recognized no significant transfers to or from Level 1, Level 2 or Level 3.

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.

At February 29, 2012, the cost of investments was \$102,374,023.

Gross unrealized appreciation and gross unrealized depreciation of investments at February 29, 2012, were as follows:

| | |
|-------------------|-------------|
| Gross unrealized: | |
| Appreciation | \$7,063,035 |
| Depreciation | (745,263) |

Net unrealized appreciation (depreciation) of investments

\$6,317,772

- (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) Ratings: Using the highest of Standard & Poor's Group ("Standard & Poor's"), Moody's Investors Service, Inc. ("Moody's") or Fitch, Inc. ("Fitch") rating. 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) 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.
 - (5) MuniFund Term Preferred Shares, at Liquidation Value as a percentage of Total Investments is 33.3%.
- N/R Not rated.
- WI/DD Purchased on a when-issued or delayed delivery basis.
- (ETM) Escrowed to maturity.
- (IF) Inverse floating rate investment.
- (UB) Underlying bond of an inverse floating rate trust reflected as a financing transaction.
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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.

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/ Kevin J. McCarthy
Kevin J. McCarthy
Vice President and Secretary

Date April 27, 2012

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/ Gifford R. Zimmerman
Gifford R. Zimmerman
Chief Administrative Officer (principal executive officer)

Date April 27, 2012

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

Date April 27, 2012