NUVEEN MASSACHUSETTS PREMIUM INCOME MUNICIPAL FUND
Form N-CSRS
February 05, 2015

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM N-CSR

CERTIFIED SHAREHOLDER REPORT OF REGISTERED
MANAGEMENT INVESTMENT COMPANIES

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, IL 60606
(Address of principal executive offices) (Zip code)

Kevin J. McCarthy
Nuveen Investments
333 West Wacker Drive
Chicago, IL 60606
(Name and address of agent for service)

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

Date of fiscal year end: May 31

Date of reporting period: November 30, 2014

Form N-CSR is to be used by management investment companies to file reports with the Commission not later than 10 days after the transmission to stockholders of any report that is required to be transmitted to stockholders under Rule 30e-1 under the Investment Company Act of 1940 (17 CFR 270.30e-1). The Commission may use the information provided on Form N-CSR in its regulatory, disclosure review, inspection, and policymaking roles.

A registrant is required to disclose the information specified by Form N-CSR, and the Commission will make this information public. A registrant is not required to respond to the collection of information contained in Form N-CSR 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 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. ss. 3507.

ITEM 1. REPORTS TO STOCKHOLDERS.

NUVEEN INVESTMENTS ACQUIRED BY TIAA-CREF

On October 1, 2014, TIAA-CREF completed its previously announced acquisition of Nuveen Investments, Inc., the parent company of your fund's investment adviser, Nuveen Fund Advisors, LLC ("NFAL") and the Nuveen affiliates that act as sub-advisers to the majority of the Nuveen Funds. TIAA-CREF is a national financial services organization with approximately $840 billion in assets under management as of October 1, 2014 and is a leading provider of retirement services in the academic, research, medical and cultural fields. Nuveen expects to operate as a separate subsidiary within TIAA-CREF's asset management business. Nuveen's existing leadership and key investment teams have remained in place following the transaction.

NFAL and your fund's sub-adviser(s) continue to manage your fund according to the same objectives and policies as before, and there have been no changes to your fund's operations.

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Chairman's Letter to Shareholders

Dear Shareholders,

Over the past year, global financial markets were generally strong as stocks of many countries rose due to strengthening economies and abundant central bank support. A low and stable interest rate environment allowed the bond market to generate modest but positive returns.

More recently, markets have been less certain as economic growth is strengthening in some parts of the world, but in other areas recovery has been slow or uneven at best. Despite increasing market volatility, geopolitical turmoil and concerns over rising rates, better-than-expected earnings results and economic data have supported U.S. stocks. Europe continues to face challenges as disappointing growth and inflation measures led the European Central Bank to further cut interest rates. Japan is suffering from the burden of the recent consumption tax as the government's structural reforms continue to steadily progress. Flare-ups in hotspots, such as the ongoing Russia-Ukraine conflict and Middle East, have not yet been able to derail the markets, though that remains a possibility. With all the challenges facing the markets, accommodative monetary policy around the world has helped lessen the impact of these events.

It is in such changeable markets that professional investment management is most important. Investment teams who have experienced challenging markets in the past understand how their asset class can behave in rapidly changing times. Remaining committed to their investment disciplines during these times is a critical component to achieving long-term success. In fact, many strong investment track records are established during challenging periods because experienced investment teams understand that volatile markets place a premium on companies and investment ideas that can weather the short-term volatility. By maintaining appropriate time horizons, diversification and relying on practiced investment teams, we believe that investors can achieve their long-term investment objectives.

As always, I encourage you to communicate with your financial consultant if you have any questions about your investment in a Nuveen Fund. On behalf of the other members of the Nuveen Fund Board, we look forward to continuing to earn your trust in the months and years ahead.

William J. Schneider
Chairman of the Board
January 23, 2015

Portfolio Manager’s Comments

Nuveen Connecticut Premium Income Municipal Fund (NTC)
Nuveen Massachusetts Premium Income Municipal Fund (NMT)

These Funds feature portfolio management by Nuveen Asset Management, LLC, an affiliate of Nuveen Investments, Inc. Portfolio manager Michael S. Hamilton discusses key investment strategies and the six-month performance of the Nuveen Connecticut and Massachusetts Funds. Michael assumed portfolio management responsibility for these Funds in 2011.

What key strategies were used to manage NTC and NMT during the six-month reporting period ended November 30, 2014?

Falling long-term interest rates helped municipal bonds rally during the reporting period. Additional tailwinds came from a supportive fundamental backdrop and demand continuing to outpace supply. In this environment, bond issuers sought to take advantage of declining rates by retiring older bonds and replacing them with newer debt issued at lower rates. As a result, the Funds experienced heightened call activity during the reporting period.

For NTC, we sought to increase the Fund’s duration and maintain a bias toward longer term bonds. We focused our sales on reducing exposure to credits with shorter call structures and shorter maturities. With the proceeds from called bonds and selling activity, we purchased credits with current call structures of approximately 10 years and maturities in the 16- to 30-year range. In NMT, we also continued to maintain a longer duration, but were able to buy credits where we found the most attractive values along the entire yield curve. We also bought pre-refunded bonds to keep the Fund fully invested. These purchases were funded mainly from the cash proceeds from called and matured bonds.

Other additions to NMT’s portfolio included some bonds transferred in when NMT acquired Nuveen Massachusetts Dividend Advantage Municipal Fund (NMB) and Nuveen Massachusetts AMT-Free Municipal Income Fund (NGX) in June 2014.

As of November 30, 2014, the Funds continued to use inverse floating rate securities. We employ inverse floaters for a variety of reasons, including duration management, income enhancement and total return enhancement.

How did NTC and NMT perform during the six-month reporting period ended November 30, 2014?

The tables in each Fund’s Performance Overview and Holding Summaries section of this report provide the Funds’ total returns for the six-month, one-year, five-year and ten-year periods ended November 30, 2014. Each Fund’s total returns at common share net asset value (NAV) are compared with the performance of a corresponding market index and Lipper classification averages.

Certain statements in this report are forward-looking statements. Discussions of specific investments are for illustration only and are not intended as recommendations of individual investments. The forward-looking statements and other views expressed herein are those of the portfolio manager as of the date of this report. Actual future results or occurrences may differ significantly from those anticipated in any forward-looking statements, and the views expressed herein are subject to change at any time, due to numerous market and other factors. The Funds disclaim any obligation to update publicly or revise any forward-looking statements or views expressed herein.

Ratings shown are the highest rating given by one of the following national rating agencies: Standard & Poor’s (S&P), Moody’s Investors Service, Inc. (Moody’s) or Fitch, Inc. (Fitch). Credit ratings are subject to change. AAA, AA, A and

BBB are investment grade ratings; BB, B, CCC, CC, C and D are below investment grade ratings. Certain bonds backed by U.S. government or agency securities are regarded as having an implied rating equal to the rating of such securities. Holdings designated N/R are not rated by these national rating agencies.

Bond insurance guarantees only the payment of principal and interest on the bond when due, and not the value of the bonds themselves, which will fluctuate with the bond market and the financial success of the issuer and the insurer. Insurance relates specifically to the bonds in the portfolio and not to the share prices of a Fund. No representation is made as to the insurers' ability to meet their commitments.

Refer to the Glossary of Terms Used in this Report for further definition of the terms used within this section.

Portfolio Manager's Comments (continued)

For the six months ended November 30, 2014, the total returns at common share NAV for NTC and NMT outperformed the returns for their respective state's S&P Municipal Bond Index as well as the S&P Municipal Bond Index. For the same period, these two Funds lagged the average return for the Lipper Other States Municipal Debt Funds Classification. Shareholders should note that the performance of the Lipper Other States classification represents the overall average of returns for funds from ten states with a wide variety of municipal market conditions, making direct comparisons less meaningful.

Key management factors that influenced the Funds' returns during this reporting period included duration and yield curve positioning, credit exposure and sector allocation. In addition, the use of regulatory leverage was an important factor affecting the performance of these Funds. Leverage is discussed in more detail later in the Fund Leverage section of this report.

Municipal bonds with longer maturities outperformed those with shorter maturities, as the municipal yield curve flattened somewhat during the reporting period. The Funds had higher weightings in the longer maturity bonds than the benchmark, specifically, an overweight to durations eight years and up and an underweight to durations under eight years, which was beneficial to returns.

In terms of the credit quality spectrum, lower rated municipal bonds performed better than those with higher grade ratings during this reporting period. Investors' search for yield in the current low rate environment was a benefit to lower quality bonds, which tended to offer higher yields in exchange for higher risk. Both Funds were positioned with underweights in segments that underperformed (namely, AAA- and AA-rated credits) and overweights in segments with better relative returns (essentially, A-, BBB- and BB-rated bonds) and this positioning was generally advantageous. However, NTC's performance was slightly biased by the structure of some of its AA-rated credits. Many of these AA-rated credits had short calls, which underperformed during the reporting period and detracted from NTC's performance.

The Funds' sector positioning generally contributed positively to performance. NTC's overweight to pre-refunded bonds was particularly helpful, as the Fund benefited from exposure to some refunded credits during the reporting period. Typically, pre-refunded bonds are short term bonds that tend to lag in rallying markets. And, as expected, NMT's pre-refunded credits had flat performance during the reporting period. However, NTC held two bonds, Stamford Mill River Corridor Project and Yale-New Haven Hospital System, which were advance refunded with six-year calls, rather than the usual one to three years, which led to significant price rallies. NTC captured a large return from this price appreciation.

Overweight allocations in health care and utilities were also beneficial to both Funds' returns. Several long-term hospital and health care credits were top performers in NMT. In the utility sector, Guam Waterworks Authority Water and Waste Revenue was a particular standout for NTC and Guam Power Authority Revenue added to performance for NMT. In addition, NMT's underweight in state general obligation bonds was favorable to performance, as the sector lagged during the reporting period. Long-dated higher education credits and a Guam Government Business Tax Revenue bond further bolstered NMT's return.

While none of the major sectors detracted from the Funds' performance, exposure to Puerto Rico bonds had a negative impact on returns, as Puerto Rico paper underperformed the broader municipal market during the period. The Puerto Rico bonds were originally added to our portfolios to keep assets fully invested and working for the Funds' as well as to enhance diversity, duration and credit. The Puerto Rico credits offered higher yields, added diversification and triple exemption (i.e., exemption from most federal, state and local taxes). However, Puerto Rico's continued economic weakening, escalating debt service obligations and long-standing inability to deliver a balanced budget led to multiple downgrades on its debt over the past two years. Following the latest rating reduction by Moody's in July 2014, Puerto Rico general obligation debt was rated B2/BB+/BB (below investment grade) by Moody's, S&P and Fitch, respectively, with negative outlooks. In late June 2014, Puerto Rico approved new legislation creating a judicial framework and formal process that would allow several of the commonwealth's public corporations to restructure their public debt. As of November 2014, the Nuveen complex held $71 million in bonds backed by public corporations in Puerto Rico that could be restructured under this legislation, representing less than 0.1% of our municipal assets under management. In light of the evolving economic situation in Puerto Rico, Nuveen's credit analysis of the commonwealth had previously considered the possibility of a default and the restructuring of public corporations and we adjusted our portfolios to prepare for such an outcome, although no such default or restructuring has occurred to date. The Nuveen complex's entire exposure to obligations of the government of Puerto Rico and other Puerto Rico issuers totals 0.35% of assets under management as of November 30, 2014.

Overall, NTC reduced its allocation to Puerto Rico to 3.2% by the end of the period from 4.1% at the beginning of the period. The remaining Puerto Rico exposure was held in credits with structures that we consider attractive. NMT began the period with exposure of 2.4% and ended the reporting period at 0.7%, composed of an escrowed-to-maturity bond (backed by U.S. Treasuries) and a University of the Sacred Heart project bond.

FUND REORGANIZATIONS

Effective before the opening of business on June 9, 2014, certain Massachusetts Funds (the Target Funds) were reorganized into a larger Massachusetts Fund included in this report (the Acquiring Fund) as follows:

The reorganizations are as follows:

Target Funds		Symbol	Acquiring Fund	Symbol
•	Nuveen Massachusetts Dividend Advantage Municipal Fund	NMB	Nuveen Massachusetts Premium Income Municipal Fund	NMT
•	Nuveen Massachusetts AMT-Free Municipal Income Fund	NGX		

See Notes to Financial Statements, Note 1 – General Information and Significant Accounting Policies, Fund Reorganizations for further information.

Fund Leverage

IMPACT OF THE FUNDS' LEVERAGE STRATEGIES ON PERFORMANCE

One important factor impacting the returns of the Funds relative to their comparative benchmarks was the Funds' use of leverage through their issuance of preferred shares and/or investments in inverse floating rate securities, which represent leveraged investments in underlying bonds. The Funds use leverage because our research has shown that, over time, leveraging provides opportunities for additional income, particularly in the recent market environment where short-term market rates are at or near historical lows, meaning that the short-term rates the Fund has been paying on its leveraging instruments have been much lower than the interest the Fund has been earning on its portfolio of long-term bonds that it has bought with the proceeds of that leverage. However, use of leverage also can expose the Fund to additional price volatility. When a Fund uses leverage, the Fund will experience a greater increase in its net asset value if the municipal bonds acquired through the use of leverage increase in value, but it will also experience a correspondingly larger decline in its net asset value if the bonds acquired through leverage decline in value, which will make the Fund's net asset value more volatile, and its total return performance more variable over time. In addition, income in levered funds will typically decrease in comparison to unlevered funds when short-term interest rates increase and increase when short-term interest rates decrease. Leverage had a positive impact on the performance of these Funds over this reporting period.

As of November 30, 2014, the Funds' percentages of leverage are as shown in the accompanying table.

	NTC	NMT
Effective Leverage*	38.18%	36.95%
Regulatory Leverage*	33.42%	34.78%

* Effective Leverage is a Fund's effective economic leverage, and includes both regulatory leverage and the leverage effects of certain derivative and other investments in a Fund's portfolio that increase the Fund's investment exposure. Currently, the leverage effects of Tender Option Bond (TOB) inverse floater holdings are included in effective leverage values, in addition to any regulatory leverage. Regulatory leverage consists of preferred shares issued or borrowings of a Fund. Both of these are part of a Fund's capital structure. Regulatory leverage is subject to asset coverage limits set forth in the Investment Company Act of 1940.

THE FUNDS' REGULATORY LEVERAGE

As of November 30, 2014, the Funds have issued and outstanding Variable Rate MuniFund Term Preferred (VMTP) Shares as shown in the accompanying table.

	VMTP Shares		
	Series	Shares Issued at Liquidation Value	
NTC	2017	$	106,000,000
NMT	2017	$	74,000,00

During the current reporting period, NMT refinanced all of its MuniFund Term Preferred (MTP) Shares with the proceeds from newly issued VMTP Shares.

Refer to Notes to Financial Statements, Note 1— General Information and Significant Accounting Policies for further details on MTP and VMTP Shares and each Fund's respective transactions.

Common Share Information

COMMON SHARE DISTRIBUTION INFORMATION

The following information regarding the Funds' distributions is current as of November 30, 2014. Each Fund's distribution levels may vary over time based on each Fund's investment activity and portfolio investments value changes.

During the current reporting period, each Fund's monthly distributions to common shareholders were as shown in the accompanying table.

	Per Common Share Amounts			
Ex-Dividend Date		NTC		NMT
June 2014*	$	0.0570	$	0.0555
July		0.0570		0.0555
August		0.0570		0.0555
September		0.0570		0.0555
October		0.0570		0.0555
November 2014		0.0570		0.0555
Market Yield**		5.43%		5.08%
Taxable-Equivalent Yield**		8.02%		7.44%

* In connection with NMT's reorganization, the Fund declared a dividend of $0.0147 per common share with an ex-dividend date of June 4, 2014, payable on July 1, 2014 and a dividend of $0.0408 per common share with an ex-dividend date of June 17, 2014, payable on July 1, 2014.

** Market Yield is based on the Fund's current annualized monthly dividend divided by the Fund's current market price as of the end of the reporting period. Taxable-Equivalent Yield represents the yield that must be earned on a fully taxable investment in order to equal the yield of the Fund on an after-tax basis. It is based on a combined federal and state income tax rate of 32.3% and 31.7% for Connecticut and Massachusetts, respectively. When comparing a Fund to investments that generate qualified dividend income, the Taxable-Equivalent Yield would be lower.

Both Funds in this report seeks to pay regular monthly dividends out of their net investment income at a rate that reflects their past and projected net income performance. To permit each Fund to maintain a more stable monthly dividend, the Fund may pay dividends at a rate that may be more or less than the amount of net income actually earned by the Fund during the period. If a Fund has cumulatively earned more than it has paid in dividends, it will hold the excess in reserve as undistributed net investment income (UNII) as part of the Fund's net asset value. Conversely, if a Fund has cumulatively paid in dividends more than it has earned, the excess will constitute a negative UNII that will likewise be reflected in the Fund's net asset value. Each Fund will, over time, pay all its net investment income as dividends to shareholders.

As of November 30, 2014, all the Funds in this report had positive UNII balances, based upon our best estimate, for tax purposes and positive UNII balances for financial reporting purposes.

All monthly dividends paid by the Funds during the six months ended November 30, 2014 were paid from net investment income. If a portion of a Fund's monthly distributions was sourced from or comprised of elements other than net investment income, including capital gains and/or a return of capital, the Funds' shareholders would have received a notice to that effect. The composition and per share amounts of each Fund's monthly dividends for the reporting period are presented in the Statement of Changes in