

CREDIT OPINION

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Massachusetts Bay Transportation Authority

New Issue - Moody's assigns initial Aa3 to MBTA Subordinated Sales Tax Bonds and BANs; outlook stable

Summary Rating Rationale

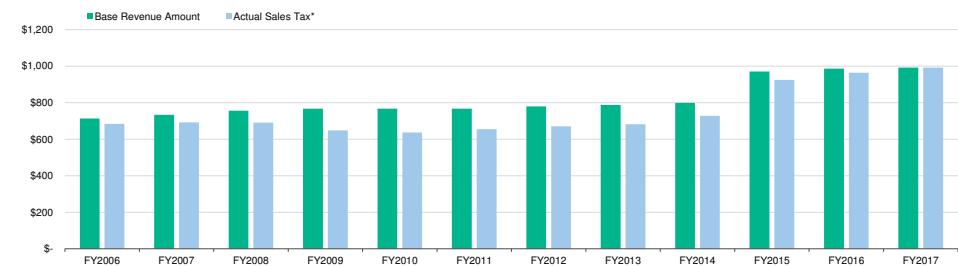
Moody's Investors Service has assigned a Aa3 rating to the Massachusetts Bay Transportation Authority's (MBTA) \$274 million Subordinated Sales Tax Bonds, 2017 Series A. Concurrently, we've assigned a Aa3 rating to the authority's \$300 million Subordinated Sales Tax Bond Anticipation Notes, Series 2017. The new bonds are scheduled to sell in a competitive transaction on September 26.

The Aa3 rating reflects the subordinated pledge on the authority's 1% gross sales tax revenue. The authority's Aa2 rating on the senior lien reflects the sound coverage of debt service provided by a minimum floor of sales tax revenue guaranteed by the [Commonwealth of Massachusetts](#) (Aa1 stable). The rating also reflects satisfactory bondholder protections, MBTA's manageable, yet growing, long-term liabilities and its ongoing efforts to improve operations.

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Exhibit 2

Base revenue amount has exceeded actual pledged revenues since 2006, highlighting the key credit strength of the pledged revenue stream



Source: MBTA FY12-FY16 CAFRs; Moody's Investors Service

Credit Strengths

- » Subordinated pledge of 1% of commonwealth-wide sales tax plus \$160 million annually, with guaranteed sales tax floor that insulates MBTA from sales tax fluctuations
- » Establishment of a state oversight board resulting in improved management practices and operations

Credit Challenges

- » High long-term debt burden relative to similarly rated sales tax-backed issuers
- » Sizeable long-term capital needs to maintain a state of good repair for existing infrastructure

Rating Outlook

The stable outlook reflects our view that despite MBTA's operating pressures, bondholders are protected by the commonwealth-guaranteed sales tax floor. Recent changes to MBTA's oversight and management structure have started to yield efficiencies, improving its strained financial operations.

Factors that Could Lead to an Upgrade

- » Significant increase in pledged revenues and maintenance at higher coverage levels
- » Stronger bondholder protections, such as a higher additional bonds test
- » Continued operational improvement, including reduction of annual structural operating deficit, progress towards reducing capital backlog and/or evidence of ongoing state support

Factors that Could Lead to a Downgrade

- » Significant additional leveraging of sales tax revenues that leads to lower debt service coverage
- » Economic decline across Massachusetts
- » Operating strain, including an inability to reduce structural deficit, growing capital needs and/or reduced state support

Key Indicators

Exhibit 3

Massachusetts Bay Transportation Authority	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Coverage of Maximum Annual Debt Service (x)	2.2x	2.1x	2.1x	2.5x	2.5x
Total Debt Outstanding (Mil.)	3,961	3,802	3,728	3,837	4,024
Pledged Revenue (Mil.)	779	790	799	971	986
Net Coverage (x)	4.1	4.0	3.3	3.4	3.9
Additional Bonds Test (x)	2.0x	2.0x	2.0x	2.0x	2.0x

*Table reflects senior sales tax data only; subordinated lien has not been used to date

Source: MBTA FY12-FY16 CAFRs; Moody's Investors Service

Recent Developments

Recent developments are incorporated in the Detailed Rating Considerations.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

Detailed Rating Considerations

Tax Base and Nature of Pledge

MBTA's senior sales tax bonds are secured by a gross pledge of 1% of the statewide sales tax plus \$160 million annually, along with a subordinate lien on assessment revenues after assessment bond debt service. The current issuances have a subordinated claim on each revenue stream.

The pledged sales tax is allocated from the commonwealth's pre-August 1, 2009 5% sales tax. Statewide sales tax revenues generally performed well over the last several years, though statewide sales tax revenues dropped by a substantial 6.2% in fiscal 2009. Sales tax revenue grew by 2.6% in fiscal 2017 over previous year's collections, highlighting the state's continued economic growth. The state's population grew by 3.8% since 2010, while its unemployment rate (3.65%) continues to be one of the lowest in the country. Per capita income is the second highest in the nation at 131.4% of the national average.

Despite some revenue fluctuations, and unlike other sales tax dependent transit systems, the MBTA's sales tax revenue has grown steadily each year as it is protected by a commonwealth-guaranteed minimum floor. This floor, or Base Revenue Amount, has grown from \$756 million in fiscal 2008 to \$1.0 billion for fiscal 2018. A significant portion of the increase occurred in fiscal 2015 when the Base Revenue Amount was increased by \$160 million, replacing the annual appropriation received in fiscal years 2010 to 2014. The guaranteed minimum has exceeded the amount generated by the dedicated 1% sales tax in each year from fiscal 2002 through fiscal 2017. The floor provides protection against annual fluctuations in an otherwise economically sensitive revenue stream, a key protection for creditors.

Debt Service Coverage and Revenue Metrics

Current projections reflect maximum annual debt service (MADS) coverage on the subordinated lien of about 2.48 times using the fiscal 2018 floor of \$1.0 billion. MADS coverage improves to 2.66 times combined debt service when including assessment revenues that are available on a subordinate lien basis after debt service payments on the MBTA's assessment bonds. While available for debt service, the authority's operations are dependent upon residual sales taxes and assessments after respective debt service payments.

Liquidity

The pledged revenue stream provides timely and ample liquidity for the payment of debt service. For fiscal 2016, the authority had approximately 47 days cash on hand.

Debt and Legal Covenants

Subordinated bondholders benefit from a number of legal protections, though some are weaker in comparison to peer issuers. Commonwealth statute requires sales tax revenue to be deposited into a special fund held by the state treasurer in trust for bondholders. The statute also includes a covenant by the commonwealth that it will not divert the revenue streams or reduce them below their specified floor amount. Bond counsel has opined that these represent valid contractual pledges that are binding on future legislatures.

Other security features are somewhat weak relative to other sales tax dependent transit systems, including an additional bonds test (ABT) of 1 times, based on the sales tax floor, and the lack of a debt service reserve fund for the subordinated lien.

Debt Structure

As of September 1, 2017, MBTA had approximately \$4.9 billion in outstanding debt, including \$3.7 billion of sales tax, \$688.1 million assessment, \$196.8 million GTS, and \$304.6 million parking bonds. Of the total debt outstanding \$4.4 billion or 92.0% of MBTA's debt is fixed-rate, with \$590 million in variable rate mode, including commercial paper.

Post sale the authority will also have \$300 million of Bond Anticipation notes outstanding. The BANs will mature in December 2021, with proceeds being used to finance initial costs associated with the authority's Positive Train Control program.

MBTA's general transportation system (GTS) bonds (also known as prior obligations and rated Aa1 stable) are payable from general system revenues but are ultimately secured by the general obligation guaranty of the commonwealth. MBTA also uses its sales tax receipts to pay the GTS bonds, which have a final maturity in 2030 and a closed lien. Should the authority fail to appropriate for debt service, then GTS debt service is paid prior to senior and subordinated sales tax debt service.

The MBTA has liquidity facilities outstanding for its two Series 2001A VRDO debt. The authority's Series 2000A-1 GTS bonds are supported by [Barclays Bank PLC](#) (A1(cr)/P-1(cr)) and its Series 2001A-2 GTS bonds are supported by the [Bank of Toyko-Mitsubishi UFJ, Ltd](#) (A1(cr)/P-1(cr)), with both facilities expiring in September 2018. The authority privately placed its \$232.1 million Series 2008A-1 and 2008A-2 bonds via a direct loan agreement executed in March 2017.

The authority currently has \$167.3 million of commercial paper outstanding. The \$100 million Series A commercial paper is supported by [US Bank, N.A.](#) (Aa2(cr)/P-1(cr)) and currently has \$79.8 million in principal outstanding. The \$100 million Series B commercial paper is supported by [Sumitomo Mitsui Banking Corporation](#) (A1(cr)/P-1(cr)) with \$87.5 million outstanding. The \$50 million Series C commercial paper is supported by the [TD Bank](#) (Aa3(cr)/P-1(cr)) with no outstanding principal. We note the amounts outstanding will decline post issuance. All commercial paper liquidity facilities are set to expire on December 10, 2018.

DEBT-RELATED DERIVATIVES

In May 2016 the board voted to terminate a portion of MBTA's outstanding swap portfolio, reducing the outstanding notional amount from \$603.8 million to \$166.4 million. All of the remaining interest rate derivatives require MBTA to pay a fixed interest rate and receive a variable interest rate. MBTA would be subject to termination payments on the swaps although the rating level for termination, which is A3, is well below the current rating.

PENSIONS AND OPEB

MBTA's pension obligations are sizeable and growing, but fall below debt service in the priority of payment waterfall. According to Moody's adjustments, fiscal 2016 adjusted net pension liability reached 110% of gross revenues. Employer contributions are manageable, with the fiscal 2016 contribution of \$81.5 million at 4.1% of gross revenues and slightly below our estimated treadwater contribution of \$85.5 million. MBTA's other post-employment benefits (OPEB) contribution in 2015 was \$49.8 million, or 3.0% of its operating budget.

Management and Governance

After severe weather led to system-wide failures in the winter of 2015, the governor appointed a special panel to review the management and financial condition of the MBTA, which resulted in the establishment of a Fiscal and Management Control Board (FMCB). The five-member FMCB was initially delegated authority over the system through June 30, 2018. The time frame was recently extended to June 30, 2020 to help with the transition to a new General Manager who begins in September 2017. The board term was extended to also help with continued efforts to streamline operations and implement significant new capital projects, such as Positive Train Control.

In addition to delegating most powers and authority to the FMCB, the authorizing legislation also mandated that the rights of MBTA bondholders shall not be altered or impaired by the board. Upon dissolution, oversight of the authority will revert back to the eleven member MassDOT board, which includes three members of the FMCB.

Operations have improved in recent years, with the new management team and board reducing the annual operating deficit from a high of \$261.0 million in fiscal 2014 to an estimated \$50.1 million in fiscal 2017. The reductions have largely been attributable to streamlining employment costs and savings result in additional revenues being available for capital. Going forward, management is focused on continuing to reduce the annual operating deficit and using the savings to fund its estimated \$7.0 billion backlog of good repair.

Legal Security

The subordinated sales tax bonds and BANs are secured by a second claim, before transit operations but after senior lien debt, on 1% of statewide sales tax allocated from the Commonwealth of Massachusetts' existing sales tax (currently 6.25%), plus an additional \$160 million annually. The bonds are also cross-collateralized with a subordinated lien on assessment revenues that are paid by cities and towns located in the authority's territory, after assessment bond and senior lien sales tax debt service.

The pledge is enhanced by a statutorily set Base Revenue Amount (BRA), providing a guaranteed floor on sales tax amounts pledged to the MBTA. The BRA cannot decrease and grows at the lesser of 3% or the sales tax growth rate.

Use of Proceeds

Proceeds of the 2017 Series A new money bonds will be used to replenish a portion of the authority's commercial paper program (\$100 million), with the remaining \$174 million funding ongoing capital costs. BAN proceeds will be used to fund initial costs for the authority's Positive Train Control project.

Obligor Profile

The MBTA is the oldest and fifth largest transit system in the country, providing transportation service through subway, trackless trolley, trolley, bus and commuter rail service throughout the eastern portion of Massachusetts. There are approximately 1.3 million passenger trips on average per business day and MBTA operates over 38 miles of rapid transit rail routes. Service is also provided by streetcars and light rail vehicles on 26 miles of additional rail routes.

Methodology

The principal methodology used in this rating was US Public Finance Special Tax Methodology published in July 2017. Please see the Rating Methodologies page on www.moodys.com for a copy of this methodology.

Ratings

Exhibit 4

Massachusetts Bay Transportation Authority

Issue	Rating
(Subordinated) Sales Tax Bond Anticipation Notes Series 2017	Aa3
Rating Type	Underlying LT
Sale Amount	\$300,000,000
Expected Sale Date	09/26/2017
Rating Description	Special Tax: Sales
Subordinated Sales Tax Bonds, 2017 Series A	Aa3
Rating Type	Underlying LT
Sale Amount	\$274,000,000
Expected Sale Date	09/26/2017
Rating Description	Special Tax: Sales

Source: Moody's Investors Service

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