

CREDIT OPINION

20 October 2017

New Issue

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Massachusetts (Commonwealth of)

New Issue - Moody's assigns Aa1 to Massachusetts' \$501M CTF bonds, 2017 Ser. A; outlook stable

Summary Rating Rationale

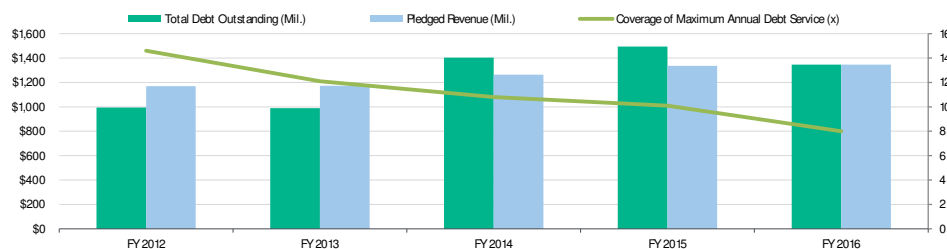
Moody's Investors Service has assigned an Aa1 rating to the Commonwealth of Massachusetts' Commonwealth Transportation Fund (CTF) \$350 million Revenue Bonds (Rail Enhancement & Accelerated Bridge Program) 2017 Series A and \$151 million Commonwealth Transportation Fund Revenue Refunding Bonds, 2017 Series A.

The Aa1 rating reflect both the fundamentals of the pledge and the relationship to the [Commonwealth of Massachusetts' general obligation \(GO\) rating](#) (Aa1 stable). The bonds benefit from strong debt service coverage levels, even after factoring in additional future debt, and steady historical revenue performance. Legal protections are strong, in addition to practical considerations that incentivize the commonwealth to make the annual debt service appropriations, including the constitutional limitation on the use of transportation revenues for transportation purposes.

The CTF rating is capped at the level of Massachusetts' GO rating given ties to the commonwealth. The ongoing need for annual appropriation of CTF debt service, along with the flow of pledged revenues through the commonwealth via the Department of Revenue and Registry of Motor Vehicles, connect the payment of debt service to the state.

Exhibit 1

Coverage remains strong even as additional leverage is added



Source: Commonwealth of Massachusetts; Moody's Investors Service

Credit Strengths

- » A strong additional bonds test that requires four times coverage of maximum annual debt service and the commonwealth's covenant not to alter the pledged revenues if it would result in maximum annual debt service coverage of less than four times
- » The deposit and segregation of the pledged revenues with the bond trustee and a legal structure that provides some insulation from the competing claims of the commonwealth's general obligation bondholders
- » Strong debt service coverage provided by the pledged gas taxes and motor vehicle-related fees

Credit Challenges

- » The need for annual legislative appropriation for debt service, somewhat mitigated by a mechanism that prohibits the use of the pledged funds for any other purpose unless that appropriation is made
- » Pledged revenues collected by the commonwealth, via the Department of Revenue and the Registry of Motor Vehicles, before being remitted to the trustee on a monthly basis, which then results in the separation of the pledged revenues
- » The aggregate limitation on debt secured by the pledged revenues is statutory and could be increased going forward

Rating Outlook

The outlook for the Commonwealth of Massachusetts' Commonwealth Transportation Fund bonds is stable. The outlook reflects the strong legal structure of the bonds and healthy debt service coverage.

Factors that Could Lead to an Upgrade

- » An upgrade of Massachusetts' general obligation rating
- » A change in legal structure that permits debt service to be paid without an appropriation, regardless of budget authorization
- » A change in the flow of funds that diverts the pledged revenues directly to the trustee rather than flowing through the commonwealth first

Factors that Could Lead to a Downgrade

- » A downgrade to the Massachusetts' general obligation rating
- » Additional leverage, or decline in the pledged revenues that materially weakens debt service coverage
- » Non-appropriation of funds for debt service

Key Indicators

Exhibit 2

Massachusetts Commonwealth Transportation Fund	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Coverage of Maximum Annual Debt Service (x)	14.6x	12.1x	10.8x	10.1x	8.0x
Total Debt Outstanding (Mil.)	\$995	\$989	\$1,404	\$1,495	\$1,347
Pledged Revenue (Mil.)	\$1,169	\$1,172	\$1,264	\$1,336	\$1,346
Pledged Revenue Annual Change	1.2%	0.3%	7.8%	5.7%	0.7%
Additional Bonds Test (x)	4x	4x	4x	4x	4x

Source: Commonwealth of Massachusetts; Moody's Investors Service

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.moody's.com for the most updated credit rating action information and rating history.

Recent Developments

Recent developments are incorporated in the Detailed Rating Considerations.

Detailed Rating Considerations

Tax Base and Nature of Pledge

The CTF bonds are secured by a broad mix of transportation related taxes and fees that are collected across the state. Pledged revenues are split fairly evenly between fuel taxes and registry fees; fuels excise taxes accounted for 56.2% of the pledged revenues and motor vehicle fees are 43.8% in fiscal 2017.

The bonds have a first lien pledge on 71% of the commonwealth's 24 cent fuel excise tax, a moderate rate compared to other northeast neighbors. The tax is collected on each gallon of gasoline, other than aviation fuel. Pledged revenues also include 100% of the tax collected on special fuels and liquefied gas sold in Massachusetts, as well as 100% of motor carrier taxes. The bonds also are backed by the excess of 6.86 cents of the gasoline fuels excise, after debt service is paid on outstanding 1994 Trust Indenture Special Obligation Revenue Bonds.

In addition to fuel taxes, the bonds are secured by a first lien pledge of a variety of motor vehicle license, registration and title fees. Fees were increased in fiscal years 2003, 2009 and again in 2015. Additionally, the federal Build America Bond and Recovery Zone Development Bond interest subsidies received in conjunction with the 2010 issuance are pledged to the bonds.

Debt Service Coverage and Revenue Metrics

We expect that even with increased leverage, pledged revenues can withstand another economic downturn and still maintain healthy coverage. Based on fiscal 2017 CTF receipts of nearly \$1.4 billion and debt service inclusive of the current issuance, coverage of maximum annual debt service (MADS) is 8.1 times. Using the same fiscal 2017 revenues and debt service that includes an additional \$1.2 billion of CTF issuance (which is planned to be issued through 2022), coverage remains strong at 6.0 times.

Historical performance of the pledged revenues is stable and we expect continued, though more moderate, growth going forward. Gas and special fuels tax collections are relatively inelastic, declining in only three times in the last ten years. Registry fees only declined once, and modestly, in fiscal 2016.

Debt and Legal Covenants

The CTF bonds benefit from an additional bonds test (ABT) that requires the pledged revenues to equal four times maximum annual debt service on outstanding bonds, as well as the planned issuance, in any 12 of the prior 18 months prior to issuance. A strong non-impairment covenant allows the commonwealth to reduce the pledged revenue tax rates or base but only if that action would continue to result in at least four times coverage of maximum annual debt service. Inclusion of the BAB subsidies, received as part of the 2010 issue, somewhat dilutes those protections but not materially; they are still strong relative to similar credits and the ability to issue new bonds under the BAB program has expired.

DEBT STRUCTURE

CTF bonds are issued under two programs: the Accelerated Bridge Program (ABP), which has nearly \$1.8 billion in outstanding debt, and Rail Enhancement Program (REP), which has \$729 million outstanding. The ABP was created in 2010 to fund capital improvements to bridges and related infrastructure. The REP was authorized in 2014 to fund MBTA and other rail projects. The commonwealth has limited additional authorization under the ABP, with an issuance cap of nearly \$1.9 billion. The REP remaining authorization is significantly larger, at nearly \$6.0 billion.

The commonwealth currently has \$940 million in outstanding federal Grant Anticipation Notes; the majority of outstanding proceeds are used to fund the commonwealth's Accelerated Bridge Program. The commonwealth expects to issue another \$30 million in GANs through 2021, but can issue up to \$1.1 billion.

DEBT-RELATED DERIVATIVES

All of the commonwealth's CTF debt is fixed rate and it does not have any derivative products outstanding.

PENSIONS AND OPEB

Based on the commonwealth's fiscal 2016 pension data, we have calculated that its adjusted net pension liability (ANPL) was \$65.2 billion, or 201.5% of revenues. The 50-state median ANPL to revenues is 82.2%, and Massachusetts ranks sixth highest in this ratio. Massachusetts is among the handful of states that take responsibility for directly funding teacher pensions. Moody's ANPL reflects certain adjustments made to improve comparability of reported pension liabilities.

The commonwealth's other post-employment benefits (OPEB) accrued liability, assuming no pre-funding and a discount rate of 4.5%, was approximately \$16.3 billion as of January 1, 2016. The liability falls to \$10.2 billion assuming pre-funding and a discount rate of 7.75%. Massachusetts dedicates future tobacco settlement monies to its OPEB trust fund, phased-in starting in fiscal 2013.

The commonwealth contributes more than the full amount of its actuarially determined pension contribution, about \$1.9 billion in fiscal 2016. However, the state's contributions were 65.7% of our "tread water" benchmark, which is the payment covering the year's newly accrued service costs and interest on the NPL. The state's combined debt service, pension and OPEB contributions in fiscal 2016 were 20.0% of own-source governmental revenues, increasing to 23.1% if the state made its tread water contribution. The high fixed costs are partly attributable to the Commonwealth's absorption of certain costs covered by local governments in most other states.

For a more detailed discussion on Massachusetts' pension and OPEB liabilities, please refer to our most recent [rating report](#) for the Commonwealth.

Governance

Debt service for the CTF bonds is subject to annual appropriation. Revenues are collected by the commonwealth before being transferred on a monthly basis to the trustee. These governance connections result in the CTF rating being capped at Massachusetts' general obligation rating.

In addition to this connection, we continue note the strong legal framework supporting the CTF pledge. The Massachusetts constitution limits the use of transportation-related revenues to transportation purposes, which could be interpreted broadly in certain circumstances. Additionally, the authorizing statute under which the bonds are issued, the Special Obligation Act, permits the state treasurer to enter into a trust agreement and to pledge the CTF revenues and all right and title to them to bondholders, a pledge the act says is perfected.

While revenues are collected by the commonwealth, immediately after receiving the monthly transfer of CTF funds from the state treasurer, the trustee is required to make a deposit into the Debt Service Fund equal to one-fifth interest and one-tenth principal. Once the revenues are on account with the trustee, that account is subject to the pledge created by the master trust and cannot be used for any other purpose until debt service on the CTF bonds has been paid. Finally, if no debt service appropriation is made, the trustee is prohibited from releasing any CTF revenues, precluding their use for any other purpose and giving Massachusetts strong incentive to authorize use of the funds.

Legal Security

The CTF Bonds are special limited obligations of the commonwealth and are payable solely from the pledged revenues, which are primarily comprised of Motor Fuel Taxes and Registry Fees.

Use of Proceeds

Proceeds from the CTF bonds will be used to fund projects that are part of the Commonwealth's Accelerated Bridge Program and Rail Enhancement Program. Major bridge projects include the replacement of the temporary Fore River Bridge with a permanent structure, replacement of the John Greenleaf Whittier Memorial and Woods Memorial bridges and rehabilitation of the Longfellow Bridge linking [Cambridge](#) (Aaa stable) and [Boston](#) (Aaa stable). Rail projects include improvements and expansion to the Massachusetts Bay Transportation Authority's rail lines.

Proceeds from the refunding bonds will be used to refund outstanding CTF 2012 Series A and 2013 Series A bonds for expected net present value savings of nearly 10%.

Obligor Profile

The Commonwealth of Massachusetts has an estimated 2016 population of 6.8 million people and a gross state product of approximately \$507.9 billion. The state is economically well diversified and has very high wealth levels.

Methodology

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

Ratings

Exhibit 3

Massachusetts (Commonwealth of)

Issue	Rating
Commonwealth Transportation Fund Revenue Bonds (Rail Enhancement & Accelerated Bridge Programs) 2017 Series A	Aa1
Rating Type	Underlying LT
Sale Amount	\$350,000,000
Expected Sale Date	11/08/2017
Rating Description	Special Tax: Transportation-Related
Commonwealth Transportation Fund Revenue Refunding Bonds 2017 Series A	Aa1
Rating Type	Underlying LT
Sale Amount	\$151,255,000
Expected Sale Date	11/08/2017
Rating Description	Special Tax: Transportation-Related

Source: Moody's Investors Service

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REPORT NUMBER 1095507

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