

CREDIT OPINION

7 June 2018

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Contacts

Genevieve Nolan +1.212.553.3912
 VP-Senior Analyst
 genevieve.nolan@moodys.com

Nicholas Samuels +1.212.553.7121
 VP-Sr Credit Officer
 nicholas.samuels@moodys.com

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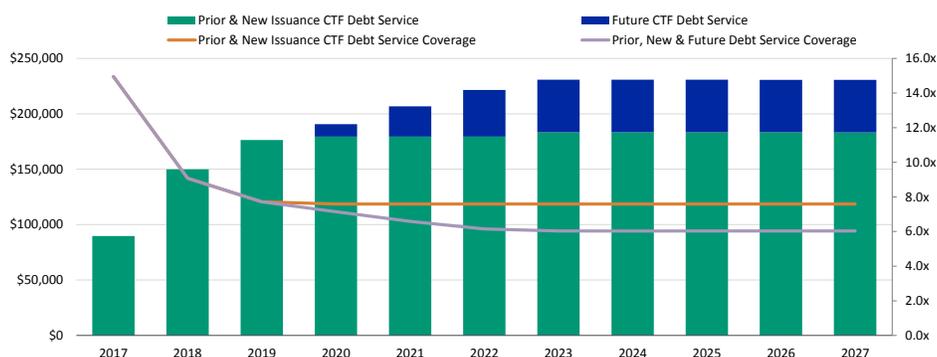
Massachusetts (Commonwealth of)

Update to credit analysis of Commonwealth Transportation Fund bonds

Summary

The Massachusetts Commonwealth Transportation Fund (Aa1 stable) benefits from strong credit fundamentals and legal protections for bondholders. A diverse revenue stream of fuel taxes and registry fees provides ample debt service coverage, projected at 6.0x holding current collections constant and adding in future planned issuances through fiscal 2022. Constitutional dedication of pledged revenues for transportation purposes, along with statutory requirements that debt service be paid before the excess revenues flow to other purposes, are key legal strengths of the credit. Debt service is subject to annual appropriation by the [Commonwealth of Massachusetts](#) (Aa1 stable), and pledged revenues are collected by the commonwealth before being deposited with the trustee. Those factors cap the CTF rating at the level of the commonwealth's general obligation debt.

Exhibit 1

Even with planned future issuance, coverage is very strong


*Coverage based on fiscal 2017 pledged revenue after payment of priority lien 1994 Trust Agreement bonds

Source: Commonwealth of Massachusetts

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
- » Constitutional dedication of the pledged revenues solely for transportation purposes and statutory and indenture provisions that prohibit the commonwealth from using them until debt service on CTF bonds is paid

- » Strong debt service coverage provided by the pledged gas taxes and motor vehicle-related fees, even after planned future issuance

Credit challenges

- » The need for annual legislative appropriation for debt service
- » Pledged revenues are 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					
Credit Background					
Pledged Revenues	Gas, special fuels, carrier taxes; Registry fees				
Legal Structure					
Additional Bonds Test	4.0x MADS				
Open or Closed Lien	Open				
Debt Service Reserve Fund Requirement	N/A				
MADS Coverage					
MADS Coverage (x)	7.6x				
Trend Analysis					
	2013	2014	2015	2016	2017
Debt Outstanding (\$ mil)	1,699	1,754	2,206	2,484	2,752
Revenues (\$mil)	1,172	1,264	1,336	1,346	1,367
Maximum Debt Service Coverage (x)	11.3x	10.8x	10.1x	9.7x	8.1x

Debt includes CTF APB, CTF REP and 1994 Trust Agreement bonds outstanding

Source: Commonwealth of Massachusetts

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Profile

The Commonwealth of Massachusetts is the 15th largest state by population, boasting nearly 6.9 million residents in 2017. Its gross domestic product, reaching \$505.8 billion, ranks 11th among the states. Per capita income was 131.4% of the national average in 2016, the 2nd highest.

Detailed credit 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

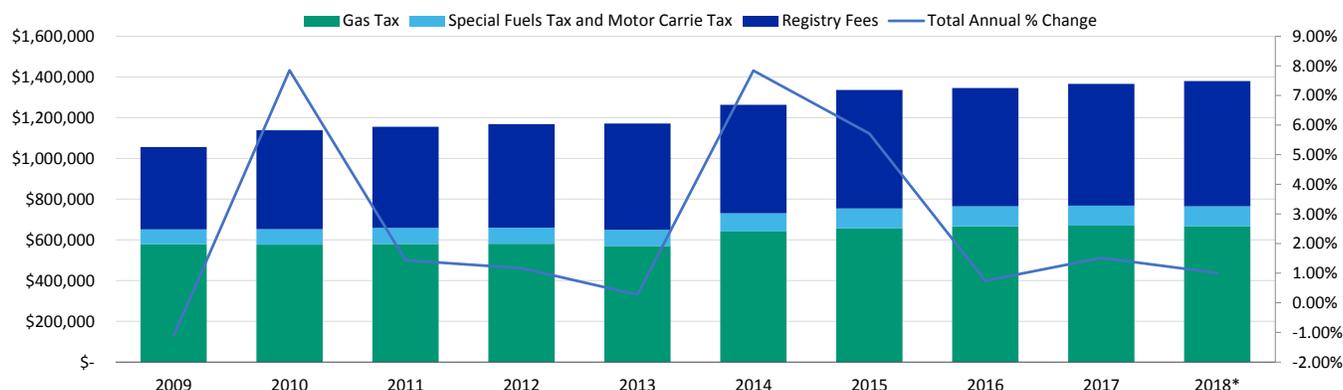
We expect that even with increased leverage, pledged revenues can withstand another economic downturn and still maintain healthy coverage. Based on fiscal 2017 CTF receipts of nearly \$1.4 billion and debt service inclusive of the current issuance, coverage of maximum annual debt service (MADS) is 7.6 times. Using the same fiscal 2017 revenues and debt service that includes an additional \$815 million 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. Total fiscal 2018 collections are estimated to grow by 1.0%; gas tax collections are slightly below last year's total, a modest -0.3%. Registry fees are estimated to grow by 2.7% in fiscal 2018.

Gas and special fuels tax collections are relatively inelastic, declining only three times in the last ten years, inclusive of projected collections for fiscal 2018. Registry fees only declined once, and modestly, in fiscal 2016.

Exhibit 3

Since 2009 total pledged revenues only declined once Gas, special fuels and registry taxes and fees



*Fiscal 2018 revenue estimated

Source: Commonwealth of Massachusetts

Debt and legal covenants

CTF bonds are issued under two programs: the Accelerated Bridge Program (ABP), which has approximately \$1.7 billion in outstanding debt and Rail Enhancement Program (REP), which has \$921 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 [Massachusetts Bay Transportation Authority](#) (senior sales tax bonds Aa2 stable) and other rail projects. The commonwealth has limited additional authorization under the ABP, with an issuance cap of nearly \$1.9 billion. The REP total authorized issuance cap is \$6.7 billion.

The commonwealth currently has \$797.4 million in outstanding federal Grant Anticipation Notes; proceeds are used to fund the commonwealth's Accelerated Bridge Program. The commonwealth expects to issue another \$50 million in GANs through fiscal 2021, under a statutory authorization cap of \$1.1 billion.

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

Debt service on the CTF bonds is level, with maximum annual debt service projected in fiscal 2024.

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

A key credit issue for Massachusetts is its [large unfunded pension burden](#), which ranked sixth-highest in the nation, along with associated elevated fixed costs. Favorably, the commonwealth's [growing economy has provided a solid base to keep pace with its long-term liabilities](#).

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.

Revenues are collected by the commonwealth and transferred to the trustee each month. 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. 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 appropriate for debt service.

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