

**CREDIT OPINION**

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# Massachusetts Bay Transportation Authority

## Update to credit analysis

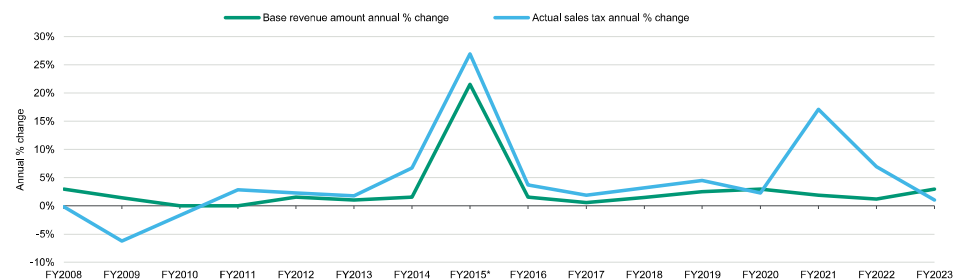
### Summary

[Massachusetts Bay Transportation Authority](#) (MBTA, senior sales tax rated Aa2 stable) is well positioned to maintain solid debt service coverage levels, while continuing to invest in the system to address safety concerns as well as the authority's ongoing capital improvement program. MBTA's primary revenues, the statewide dedicated sales tax (ex-meals), increased substantially over the last few years and continues to perform well. Further, MBTA's pledged sales tax revenue cannot decline because of a statutory revenue floor, the Base Revenue Amount (BRA, see Exhibit 1). This credit feature, a strength in regular times, can be particularly powerful during sustained economic declines.

Nonetheless, as an enterprise, MBTA is partially reliant on fares: they had been nearly one-third of its overall revenue, but declined to 9% in fiscal 2021. Ridership has been slowly recovering, but still was less than two-thirds of the pre-pandemic level as of July 2022. But the authority has two key tools to manage through this difficult scenario: 1) healthy liquidity which has been bolstered by over \$2 billion in aid from the federal government as well as access to additional liquidity through the expanded commercial paper program; and 2) continued strong financial, operational and capital support from the [Commonwealth of Massachusetts](#) (Aa1 stable).

Exhibit 1

### Statutory revenue floor prevents sales tax revenue from declining during stressed economic environments



In fiscal year 2015 \$160 million was added to the dedicated sales tax amount.

Fiscal 2023 sales taxes are budgeted amounts

Source: Massachusetts Bay Transportation Authority

## Credit strengths

- » Pledge of 1% commonwealth-wide sales tax (ex-meals) plus \$160 million annually, with statutorily guaranteed sales tax floor that insulates MBTA from downward economic fluctuations
- » Active state management including establishment of an MBTA oversight board has resulted in improved management practices, and additional pledge fund funds to address safety issues

## Credit challenges

- » High long-term debt burden relative to similarly rated sales tax-backed issuers
- » Sizable long-term capital needs to maintain a state of good repair for existing infrastructure that will result in additional leverage

## Rating outlook

The stable outlook reflects our view that despite operating pressures resulting from the large decline in ridership due to the coronavirus pandemic, MBTA bondholders are protected by the commonwealth-guaranteed sales tax floor.

## Factors that could lead to an upgrade

- » Significant increase in pledged revenues coupled with maintained higher coverage levels
- » Continued progress towards reducing the capital backlog
- » Stronger bondholder protections, such as a higher additional bonds test

## 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 stress that further reduces revenue or drives costs up materially, or reduced state support

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## Key indicators

Exhibit 2

### Massachusetts Bay Transportation Authority

#### Credit background

Pledged revenues Gross 1% commonwealth wide sales tax plus \$160 million annually from the Commonwealth and net assessment revenues

#### Legal structure

Additional Bonds Test \* 1.0x (all liens) from BRA or 1.5/2x from sales taxes for sub/sr liens; 1.5x from residual assmts

Open or Closed Lien Open (all liens)

Debt Service Reserve Fund requirement Senior: 50% of the 3 prong test Subordinate: None RRIF Loans: None

#### Coverage

MADS coverage\*\* Sales taxes: 2.8x Sales tax + residual assessments: 2.9x

#### Trend analysis

Fiscal year	2017	2018	2019	2020	2021
Debt outstanding - all long-term sales tax (\$mil)***	\$3,858	\$4,236	\$4,416	\$5,299	\$5,868
Sales tax revenue - base revenue amount	\$992	\$1,007	\$1,032	\$1,063	\$1,083
Sales tax revenue (annual % change in BRA)	0.6%	1.5%	2.5%	3.0%	1.9%
Annual debt service coverage - sales tax revenue (BRA) (x)	2.4	2.5	2.5	2.4	2.4

\*Two different ABT tests must be met, see Debt and Legal Covenants section

\*\*Reflects full draw down of federal loans, which has not yet occurred

\*\*\*Reflects all sales tax debt (GTS, senior and sub liens, CP)

Source: Massachusetts Bay Transportation Authority, Moody's Investors Service

## 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 and into the northern portion of Rhode Island (Aa2 stable). Pre-pandemic, there were approximately 1.3 million passenger trips on average per business day, though to date ridership is still recovering and has not reached the pre-pandemic average. 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.

## Detailed credit considerations

### Tax base and nature of the pledge

MBTA's senior sales tax bonds are secured by a gross pledge of 1% of the statewide sales tax (ex-meals) plus \$160 million annually, along with a subordinate lien on local government assessment revenue after assessment bond debt service. The pledged sales tax is allocated from the commonwealth's pre-August 1, 2009 5% sales tax.

Sales tax collections have performed well over the last several years, and increased substantially in fiscal 2021 and 2022 (see Exhibit 1 on page 1), but the authority is completely insulated from declines in actual collections that may occur. Per state statute, MBTA's sales tax revenue is protected by a commonwealth-guaranteed minimum annual amount. The floor, the BRA, increases at CPI or the sales tax growth rate capped at 3% for the preceding year annually and cannot decline. The growth rate for fiscal 2023 was certified in March 2022, bringing the BRA to over \$1.1 billion, resulting in a five year annual growth rate of 2.3%.

The floor provides protection against annual fluctuations in an otherwise economically sensitive revenue stream, a unique attribute for MBTA and a key bondholder protection. For example, when actual collections declined by nearly 8.0% peak-to-trough during the Great Recession MBTA's sales tax revenue was a constant \$767 million and did not decline (see Exhibit 1).

### Debt service coverage and revenue metrics

Current projections reflect maximum annual debt service (MADS) coverage on the senior and subordinate lien bonds of 3.0 using the fiscal 2023 dedicated sales tax amount of \$1.3 billion, and debt service of \$437 million (including general transportation system bonds,

senior and subordinate lien sales tax debt and current debt service on the RRIF program). MADS coverage improves to 3.4 times of combined debt service when including assessment revenue that is available on a subordinate basis after debt service payments on the MBTA's assessment bonds. Assuming no growth in the base revenue amount, and including future planned issuances and draws on the RRIF loan tranches, debt service coverage will remain above 2 times.

### Liquidity

The pledged revenue provides timely liquidity for the payment of debt service. However, the MBTA does maintain ample unrestricted cash and access to additional liquidity. As of fiscal 2021, the MBTA reported \$651.6 million in unrestricted cash, representing a high of 141 days of expenses net of depreciation. The authority has additional sources of liquidity it can tap, if necessary. After the current issuance it will have access to \$400 million via its commercial paper program, with liquidity support provided by an agreement with [Barclays Bank PLC](#) (A1 (cr)/P-1 (cr)) that expires June 2026. In addition, MBTA has a \$50 million revolving credit facility with UBS AG (Aa2 long term counterparty risk rating).

Federal stimulus funds have been critical to MBTA's financial position through the pandemic, similar to other transits across the country. MBTA received \$827.7 million through the federal CARES Act. The authority also received an additional \$301 million in stimulus funding from CRRSAA in 2021, and \$860 million from ARPA funds. These federal stimulus funds are expected to be used in full by 2024.

### Debt and legal covenants

As of fiscal 2021, MBTA had a total of \$5.4 billion of debt outstanding, as well as \$851.2 million in total loan authorization under the RRIF program, split into three tranches. As of September 2022, \$360.1 million of the RRIF loan has been drawn down.

MBTA has a robust \$9.4 billion five year capital improvement program (CIP) spanning 2023-2027, with funding sources including bonds, funds from the state and federal government and reimbursable funds. Of this, \$4.4 billion is expected to be funded by MBTA, including through bonds and loans approximately \$590 million annually in fiscal 2023 through 2025, and \$500 million annually in 2026 and 2027. The 2023-2027 CIP was adopted in May 2022, and before the Federal Transit Administration (FTA) completed their safety review of the system. The special directives from the FTA, which became available in June 2022, will add additional capital costs that will be incorporated into the CIP. The commonwealth is dedicating an additional \$266 million in funds to address the safety concerns.

### Legal security

A relatively small \$110 million (fiscal 2022 amount) of MBTA's debt consists of general transportation system (GTS) bonds (also known as prior obligations and rated Aa1 stable), which are payable from general system revenue 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 before senior and subordinated sales tax debt service.

Most of MBTA's debt consists of senior and subordinate lien sales tax bonds. 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%, and excluding meals), plus an additional \$160 million annually. The bonds are also cross-collateralized with a subordinated lien on assessment revenue 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 the statutory BRA, providing a guaranteed floor on sales tax amounts pledged to the MBTA. The BRA cannot decrease and grows at the lesser of CPI or the sales tax growth rate, capped at 3%.

For all sales tax bonds, 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.

MBTA may issue additional bonds, both on parity with senior lien sales tax debt or subordinate lien sales tax debt. The test includes a 1.5 times coverage requirement from the dedicated sales tax revenue (2 times for the senior lien), or 1.0 times coverage from the

base revenue amount, and 1.5 times coverage on outstanding assessment lien bonds when including residual sales taxes available after payment of sales tax lien bonds.

Bondholders of the senior lien debt also benefit from a debt service reserve funded at half of the least of a three-pronged test (10% of proceeds of sales tax bonds, 125% of average annual debt service and maximum annual debt service). The ABT for the subordinate lien does not require a debt service reserve fund.

MBTA entered into an agreement with the US Department of Transportation (USDOT) for two loans to fund its Positive Train Control project. The loans were refinanced in July 2020 under the RRIF program and consist of three tranches (Positive Train Control/PTC, Automatic Train Control/ATC and Fiber Resiliency) totaling \$851.2 million. The funds can be drawn down up until three months after achieving substantial completion of the project, and can be used to repay the authority's outstanding bond anticipation notes (BANs) and to fund other construction costs. The loans benefit from a number of legal protections, the most notable being the springing lien that puts debt service for the loans on parity with senior lien debt upon the occurrence of a bankruptcy related event. Bankruptcy related events include MBTA missing two consecutive loan repayment dates, MBTA's insolvency or it being placed under the control of a receiver. The loans also benefit from other standard covenants, including a 1.0 additional bonds test, based on the sales tax floor, but lack a debt service reserve fund.

### Debt structure

Most of MBTA's debt is fixed rate, and matures over the long term. As of fiscal 2021, approximately 11% of the debt is in variable rate mode, including the full commercial paper authorization of \$400 million.

Exhibit 3

#### MBTA Debt Outstanding Overview

Credit	Rating	Priority of Payment	Pledge	FY21 Debt (in \$ 000)
GTS/Prior Obligations*	Aa1/STA	Super senior	General system revenues but paid w/ sales taxes; ultimately secured by the GO guaranty of CW	\$ 121,165
Senior Sales Tax	Aa2/STA	1st	Gross 1% statewide sales tax, with collection floor, plus \$160M annually; sub lien on net assessment revenues	\$ 2,958,755
RRIF**	Aa2/STA	3rd to 1st via springing lien	Gross 1% statewide sales tax, with collection floor, plus \$160M annually; sub lien on net assessment revenues	\$ 851,150
Subordinated Sales Tax Bonds	Aa3/STA	2nd	Gross 1% statewide sales tax, with collection floor, plus \$160M annually; sub lien on net assessment revenues; sub to senior lien	\$ 1,266,095
Subordinated Sales Tax BANs	Aa3/STA	2nd	Gross 1% statewide sales tax, with collection floor, plus \$160M annually; sub lien on net assessment revenues; sub to senior lien	\$ 271,095
Assessment Revenue	Aa1/STA	N/A	GO of 175 communities, paid directly from local aid flowing from Mass; sub lien on net sales tax revenues	\$ 574,405
Commercial Paper***	P-1	1st	Liquidity facility funds can be used to pay principal and interest; interest on the notes may be repaid with sales taxes, a payment that is on parity with senior lien sales tax bonds	\$ 400,000
<b>Total</b>				<b>\$ 6,442,665</b>

\*If debt service in budget then GTS debt service must be paid out of gross sales tax revenues prior to senior sales tax debt

\*\* Debt outstanding reflects full amount of program, not draws; \$360.1 million has been drawn down to date

\*\*\* Commercial paper program reflects full amount authorized

Source: MBTA, Moody's Investors Service

### Debt-related derivatives

The authority's Series 2000A-1 and 2000A-2 variable rate demand GTS bonds have liquidity support from a standby bond purchase agreement provided by T.D. Bank N.A. (A1 (cr)/P-1 (cr)), with the facility expiring in March 2030. The Series 2022A subordinated sales tax bonds have a standby bond purchase agreement also with T.D. Bank N.A. that expires September 2027.

The MBTA is party to one swap agreement with JPMorgan Chase Bank, N.A. (Aa1 (cr)/P-1 (cr)) which has a total notional amount of \$79.6 million as of September 1, 2022. The bond issue associated with the swap was refunded to fixed rate so the authority has applied the agreements to other outstanding, unhedged variable rate debt. The two agreements result in MBTA receiving a SIFMA-based rate and will expire March 1, 2030. All of the 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

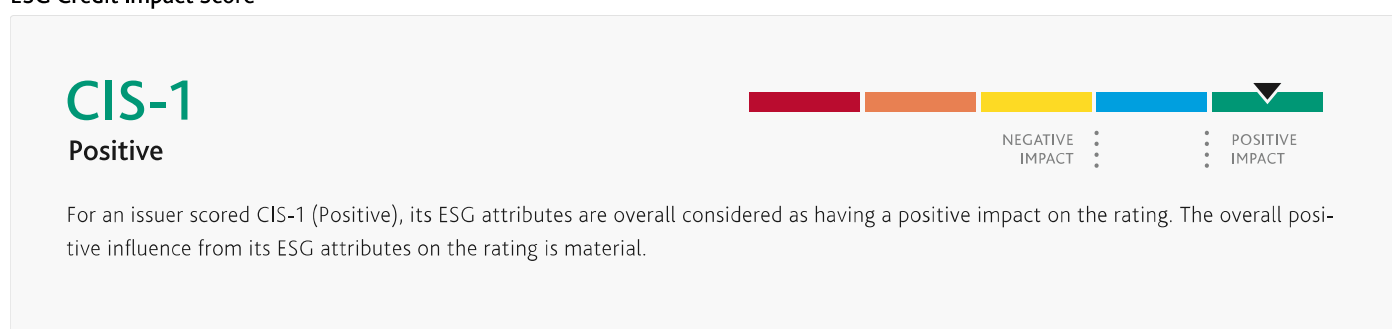
MBTA's pension obligations are sizable and growing, but fall below debt service in the priority of payment waterfall. Based on our adjustments, fiscal 2021 adjusted net pension liability was \$3.3 billion, reached 184% of gross revenue. Employer contributions are manageable, with the fiscal 2021 contribution of \$112.1 million at 6.2% of gross revenue, but below our estimated tread water contribution of \$121.3 million. MBTA's adjusted other post-employment benefits (OPEB) liability was \$2.1 billion as of fiscal 2020 (2021 reporting), or 117% of gross revenues. Contributions in 2021 to the OPEB were \$164.4 million or 9.2% of total revenues.

## ESG considerations

### Massachusetts Bay Transportation Authority's ESG Credit Impact Score is Positive CIS-1

Exhibit 4

#### ESG Credit Impact Score



Source: Moody's Investors Service

MBTA's ESG Credit Impact Score is positive (**CIS-1**), reflecting a very strong governance structure that offsets its moderately negative environmental and social risks.

Exhibit 5

#### ESG Issuer Profile Scores



Source: Moody's Investors Service

### Environmental

The US mass transit sector overall will benefit from carbon transition opportunities because it is an energy-efficient mode of transportation that will see increased ridership and tax support as governmental policies and public preference shift from carbon inefficient travel. Despite this, MBTA's E issuer profile score is moderately-negative (**E-3**) primarily due to exposure to physical climate risks, and the ways in which these risks can disrupt the Massachusetts economy and generate significant mitigation or clean-up costs. Favorably, the commonwealth of Massachusetts recognizes that it has above-average climate risks, and is leading climate change preparedness, resiliency and mitigation efforts for itself and its local governments. Additionally, all departments within MBTA are oriented around climate resiliency and sustainability. Like most transit systems, MBTA's exposure to environmental shocks is also partially moderated by the availability of private insurance and federal disaster recovery assistance. MBTA has an infrastructure exposure to climate risk, but perhaps more importantly, it has an economic exposure given its high reliance on the dedicated statewide



sales tax to fund operations and capital programs. According to Moody's ESG solutions, almost all of the commonwealth's projected population over the next twenty years, and 95% of state GDP are exposed to hurricanes, and about half of the state's GDP is vulnerable to flooding. The vast majority of the commonwealth's economic activity is concentrated along its coastline, particularly in the city of Boston, which drives up the commonwealth's vulnerability to these physical climate risks. The commonwealth, the city of Boston and the MBTA are all actively addressing climate risks, including both event risks and gradual environmental changes. However, this has required significant capital investment, including capital projects to prevent certain underground stations from chronic flooding problems when high tides and elevated rainfall occur. MBTA has also invested heavily in mitigated damage and service disruption from extreme snow and ice conditions. Beyond infrastructure investment, the authority is actively working towards full carbon neutrality and responsible resource management, which includes a plan to convert its entire bus fleet to electric by 2050, in addition to active water consumption reduction or reclamation, and several policies and practices which dictate environmental reviews and coordination with local jurisdictions to protect the natural environment. The commonwealth is also providing assistance. The state is conducting vulnerability preparedness planning with its municipalities and last year the governor introduced legislation to fund investment in resiliency infrastructure with \$100 million in new, annual revenue from a deed excise tax. The city of Boston has pledged \$30 million in funding to combat rising waters.

### Social

MBTA's social issuer profile score is moderately negative (**S-3**), the same as its peers in the US mass transit sector generally. The US mass transit sector is moderately exposed to social risk given its labor intensive and customer-oriented operations. The transit sector serves a wide range of customers with diverse service needs, and relies on customer satisfaction to maintain ridership levels (i.e. utilization) and support fare increases, or, political support to increase tax subsidies for capital or other needs of the system. Changes in customer satisfaction can be monitored through on-time performance metrics, and is susceptible to public perception regarding the effectiveness and adequacy of operating performance. Deterioration in public opinion can lead directly to operating revenue declines that increase the need for politically sensitive fare increases. In addition, transit systems that directly employ large labor forces that are represented by strong collective bargaining units, have less flexibility to control cost growth. Systems that contract out most of their operating services have low human capital risk. The transit sector will benefit from social opportunities as a responsible producer of energy efficient services and low-cost transportation, however this does not offset the potential risks mentioned above. Given MBTA's substantial reliance on dedicated statewide sales taxes, it's social risks are largely tied to the commonwealth's, which impact the Massachusetts economy as a whole. While Massachusetts benefits from a highly educated workforce, high income levels, and labor force participation significantly higher than the nation, it is likely to continue its trend of lagging population growth, both due to an aging population as well as affordable housing challenges. The median age in the commonwealth is now 39.6 years, exceeding the national median age of 38.2 years. The state's percentage of working age residents is 39%, approximating the rate of the US, but this portion of the population has been shrinking. The number of prime working age residents, or people 25 to 54 years old, declined by 0.8% between 2000 and 2020. This is a contrast to the US 1.1% growth rate of working age residents over the same period.

### Governance

The transit sector benefits from governance opportunities through supportive organizational structures that promote strong operating environments and generous funding for operations and capital projects. MBTA operates within a very strong governance structure, reflected in its positive governance issuer profile score (**G-1**). MBTA benefits from strong support from the Commonwealth of Massachusetts, both financial and operational, that has resulted in key credit metric improvements in recent years. Through the very strong legal structure the state has dedicated 1% of Massachusetts' sales tax to MBTA, with a guaranteed floor below which pledged sales taxes cannot decline; this provides substantial revenue to MBTA that is separate from its operating performance. The dedicated sales tax is constitutionally protected and cannot be impaired by future legislation. After severe weather led to systemwide failures in the winter of 2015, illustrating the state's strong oversight of MBTA, the governor established a Fiscal and Management Control Board (FMCB). The five-member FMCB was delegated authority over the system through June 2021 and following many positive operational, financial and other governance reforms, has been replaced by a board of directors appointed by the governor.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moody's.com. In order to view the latest scores, please click [here](#) to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

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