

Massachusetts, Commonwealth of (MA)

Fitch Affirms Massachusetts' 'AA+' IDR, Rates \$1.4B GO Bonds 'AA+; Outlook Stable

10 NOV 2020 2:33 PM

Fitch Ratings - New York - 09-Nov-2020 Fitch Ratings has assigned 'AA+' ratings to \$1.4 billion in Commonwealth of Massachusetts general obligation (GO) bonds, consisting of the following:

- \$500,000,000 GO bonds, consolidated loan of 2020, series E;
- \$417,655,000 GO refunding bonds, 2020 series D;
- \$444,090,000 GO refunding bonds, 2020 series E (federally taxable).

The par amounts for both series of refunding bonds are subject to change pending final sale.

The bonds are scheduled to be offered by negotiated sale on or about Nov. 19, 2020.

In addition, Fitch has affirmed the commonwealth's long-term Issuer Default Rating (IDR) at 'AA+' and the long-term and short-term ratings on GO and other bonds linked to the IDR of the state as detailed at the end of this release.

The Rating Outlook is Stable.

SECURITY

The GO bonds are general obligations of the commonwealth, to which its full faith and credit are pledged. A statutory state tax revenue growth limit does not exclude principal and interest on debt obligations from the limit.

ANALYTICAL CONCLUSION

The 'AA+' IDR on the commonwealth of Massachusetts reflects its considerable economic resources, adroit management of economic and revenue cyclicalities and strong budget controls. A strong reserve funding mechanism that shields the general fund from volatility, careful revenue monitoring and a requirement to cut spending or identify other balancing measures if revenues fall below planned spending are among the fiscal management tools that position the commonwealth to confront near-term public health, economic and fiscal uncertainty. The commonwealth carries a long-term liability burden for debt and net pension liabilities, adjusted to Fitch's standard 6% investment return assumption, that is well above the U.S. state median but remains a moderate burden on resources.

Economic Resource Base

The commonwealth has a broad and diverse economy. Education levels are high, and although population growth is below the U.S. average, it continues to lead the region. Economic fundamentals anchored by strength in the health care, technology and education sectors have supported GDP growth in excess of the nation's over time and leave it

well-positioned for solid future gains. Measured by per capita personal income, Massachusetts is the second-wealthiest state in the nation. Economic performance in the expansion that followed the Great Recession was strong, with solid employment growth driven by gains in the greater Boston area.

KEY RATING DRIVERS

Revenue Framework: 'aaa'

Tax revenues, while diverse, are dominated by individual income taxes, which are sensitive to economic conditions, particularly those related to capital gains. Baseline growth prospects for taxes are strong, driven by the commonwealth's underlying economic fundamentals.

Expenditure Framework: 'aaa'

Consistent with most states, the natural pace of spending growth is expected to marginally exceed expected revenue growth over time, requiring ongoing cost control. The commonwealth has ample ability to reduce spending through the economic cycle.

Long-Term Liability Burden: 'aa'

Liability levels in Massachusetts, while comparatively high for a U.S. state, are a moderate burden on resources. The commonwealth's liability position is partly the result of state funding of both capital needs and pensions that are more commonly funded at the local level, primarily for K-12 education.

Operating Performance: 'aaa'

The commonwealth has superior gap-closing capacity supported by a responsive fiscal management framework, including a requirement to cut spending in response to revenue gaps and strong reserve funding practices. Conservative budgeting, ongoing economic and revenue monitoring, and a mechanism to redirect a portion of economically sensitive capital gains tax receipts into the stabilization fund, the commonwealth's budget reserve, enhance fiscal flexibility.

RATING SENSITIVITIES

Factors that could, individually or collectively, lead to positive rating action/upgrade:

--A sustained reduction in the long-term liability burden accompanied by a reduction in carrying costs.

Factors that could, individually or collectively, lead to negative rating action/downgrade:

--Evidence of long-term economic growth trends shifting lower, signaling less robust revenue growth prospects and weakening financial resilience.

--A trend toward higher long-term liabilities that results in an elevated burden consistently above 20% of personal income.

--Challenges in effectively responding to a return to economic contraction, consistent with Fitch's coronavirus downside scenario, triggering greater than anticipated, sustained and deep revenue declines and materially eroding the commonwealth's gap-closing capacity.

BEST/WORST CASE RATING SCENARIO

International scale credit ratings of Sovereigns, Public Finance and Infrastructure issuers have a best-case rating upgrade scenario (defined as the 99th percentile of rating transitions, measured in a positive direction) of three notches over a three-year rating horizon; and a worst-case rating downgrade scenario (defined as the 99th percentile of rating transitions, measured in a negative direction) of three notches over three years. The complete

span of best- and worst-case scenario credit ratings for all rating categories ranges from 'AAA' to 'D'. Best- and worst-case scenario credit ratings are based on historical performance. For more information about the methodology used to determine sector-specific best- and worst-case scenario credit ratings, visit [<https://www.fitchratings.com/site/re/10111579>].

CURRENT DEVELOPMENTS

Sector-Wide Coronavirus Implications

The outbreak of coronavirus and related government containment measures worldwide has created an uncertain environment for U.S. state and local governments and related entities. Fitch's ratings are forward-looking in nature, and Fitch will monitor the severity and duration of the budgetary impact on state and local governments and incorporate revised expectations for future performance and assessment of key risks. While the initial phase of economic recovery has been faster than expected, GDP in the U.S. is projected to remain below its 4Q19 level until at least 4Q21. In its baseline scenario, Fitch assumes strong GDP growth in 3Q20 followed by a slower recovery trajectory from 4Q20 onward amid persisting social distancing behavior and restrictions, high unemployment and a further pullback in private-sector investment.

Additional details, including key assumptions and implications of the baseline scenario and a downside scenario, are described in the reports titled, "Fitch Ratings Coronavirus Scenarios: Baseline and Downside Cases - Update" (<https://www.fitchratings.com/site/re/10135320>), published Sept. 8, 2020 and "Fitch Ratings Updates Coronavirus Scenarios for U.S. State and Local Tax-Supported Issuers" (<https://www.fitchratings.com/site/pr/10138226>), published on Oct. 1, 2020 on www.fitchratings.com.

Federal Aid Provides Some Support for State Budgets

Federal aid measures since the pandemic's onset are benefiting state budgets and economies, although details remain fluid and the possibility of additional federal aid is uncertain even as the public health crisis continues. The Families First Coronavirus Response Act, enacted in March 2020, included a 6.2% increase in the Federal Medical Assistance Percentage (FMAP) for Medicaid for every quarter of the national public health emergency. FMAP is the rate at which the federal government reimburses states for Medicaid spending. Through the last two quarters of fiscal 2020, Massachusetts received \$546 million in supplemental federal revenues from the FMAP enhancement. The ultimate value of the FMAP rate increase will depend primarily on the state's actual Medicaid spending and the extent of the national public health emergency, which the federal Department of Health and Human Services Secretary extended effective Oct. 23 for 90 days or the duration of the emergency. Accordingly, Massachusetts is expecting the FMAP enhancement to remain in place through the first quarter of 2021.

Under the Coronavirus Aid, Relief and Economic Security (CARES) Act, also enacted last March, the U.S. Treasury department distributed \$150 billion to state and local governments from the Coronavirus Relief Fund (CRF) using a population-based formula. The statute limits the use of the CRF to coronavirus expense reimbursement through Dec. 31, 2020 rather than to offset anticipated state tax revenue losses. Massachusetts and its eligible local governments received almost \$2.7 billion from the CRF. The state has allocated its \$2.5 billion portion for a range of pandemic response costs including medical equipment, hospital needs and targeted social services.

CARES also provides for supplemental federal aid for local school districts, passed through state departments of education with the Elementary and Secondary School Emergency Relief Fund (ESSER). The act allocates \$215 million to Massachusetts, with a minimum of approximately \$193 million designated for local school districts, all to be spent within one year of receipt for a fairly broad set of allowable uses.

Coronavirus - Massachusetts Economic Update

Economic implications of the pandemic and related public health measures have been significant for Massachusetts as in all states. Labor market impacts early in the crisis were more severe in Massachusetts than for the nation as a whole, and despite solid progress since then, Massachusetts, like much of the nation, has not yet recouped the earlier job declines. Non-farm payrolls fell 19% at the start of the pandemic (from February to April), more severe than the national decline (15%). Since April, Massachusetts' jobs recovery (46% of jobs regained through September) has been behind the national recovery (51%), and its official monthly unemployment rate of 9.5% in September was notably higher than the 7.9% national rate that month. However, when the unemployment rate is adjusted to include labor force exits, Massachusetts' 10.8% Fitch-adjusted rate was only slightly above the national Fitch-adjusted rate of 10.4%. Fitch notes that economic and employment data remain volatile, and state economic performance is likely to be closely tied to public health conditions, which remain difficult to forecast while the pandemic persists.

Coronavirus - Massachusetts Liquidity Updates

Fitch anticipates that Massachusetts, consistent with all states, will address any short-term liquidity pressure through the current period with no interruption in timely payments for key operating expenses, including debt service.

Massachusetts ably navigated the liquidity challenges early in the pandemic, supported by solid cash balances and the timely arrival of federal relief funds. A range of state taxpayer relief measures, most notably the deferral of individual income and other tax filings into July, from April, affected the timing of receipts. The non-withholding component of individual income taxes fell \$1.7 billion below benchmark in April, but was offset from a liquidity perspective by receipt of CRF funds. Ultimately July receipts included almost \$2.3 billion in deferred individual income taxes; these receipts were accrued back to fiscal 2020 for budgetary purposes.

The commonwealth also put in place measures to support potential cash flow needs through fiscal 2021. These included entering into a line of credit agreement with a syndicate of banks in May to provide up to \$1.75 billion, due no later than May 10, 2021, the expiration date. The commonwealth drew \$500 million on the line in June 2020, but quickly repaid the draw.

The commonwealth had \$4.4 billion in non-segregated operating cash available as of Sept. 30, 2020, its last update, and \$3.5 billion in the stabilization fund, its budget reserve. The commonwealth does not use the stabilization fund for routine liquidity. In addition, the commonwealth routinely issues revenue anticipation notes (RANs) to bridge seasonal differences between receipts and expenditures, and maintains a small CP program. No RANs or CP are outstanding at present, although the commonwealth expects to issue \$1.2 billion in RANs for fiscal 2021 needs in Dec. 2020, maturing no later than June 30, 2021. Although the governor has proposed drawing \$1.35 billion from the stabilization fund for fiscal 2021 budget balancing, this would occur after June 30, 2021 as part of its fiscal year-end closeout.

Coronavirus - Massachusetts Budgetary Update

To date Massachusetts has navigated the economic and fiscal disruptions of the pandemic without materially affecting its strong operating performance and remains well-positioned to continue doing so.

Solid economic performance leading up to the pandemic supported tax collections that were consistently ahead of forecast. As of fiscal 2019, the stabilization fund held \$3.4 billion, which grew to \$3.5 billion as of fiscal 2020, equal to 11.8% of tax revenues that year.

Revenue momentum and the presence of federal relief funds sustained fiscal 2020 operations despite the fiscal effects of the pandemic late in the year. The revenue forecast benchmark was increased as of the Jan. 2020 tax revenue consensus, and actuals exceed the higher benchmark through March, after which tax filing deferrals and public health measures limiting taxable activity affected receipts. As of the commonwealth's October 2020 forecast update, fiscal 2020 tax revenues are \$29.6 billion (including tax related settlements and judgments), \$693 million below the revised benchmark and \$120 million below fiscal 2019.

The fiscal 2020 projected fund balance remained solid, at nearly \$4.3 billion (including \$3.5 billion in the stabilization fund), higher than the \$4.1 billion expected in January 2020 in the governor's executive budget for fiscal 2020. Although budgeted operating fund tax revenues were lower than the executive budget, federal revenues were almost \$1.5 billion higher, reflecting the impact of approximately \$1.6 billion in federal relief funds. Budgeted expenditures of \$47 billion were \$2.2 billion (4.9%) higher than the prior year, which included \$1 billion in supplemental appropriations related to the coronavirus response and funded with federal aid. At the year-end closeout, the commonwealth suspended a planned deposit to the stabilization fund, but the balance remained at \$3.5 billion, equal to 11.8% of tax revenues.

For fiscal 2021 the commonwealth expects the pandemic's tax revenue effect to be much more severe. The October forecast update assumes tax receipts of \$27.6 billion, 11.4% below the level anticipated as of the January 2020 forecast. The gap is driven largely by individual income tax receipts, which are forecast to fall 8.2% from the prior year, primarily the non-withholding component.

Year to date through Oct., actual tax receipts have held up, measuring 1.3% above fiscal 2020. Individual income tax receipts are 2.2% ahead of the prior year, with solid withholding receipts offsetting weakness in the non-withholding components; sales tax receipts are 1.6% ahead.

As in several other states, Massachusetts has not yet passed a full year budget for fiscal 2021, instead funding operations under successive interim budgets, the third of which expires at the end of November. Following the revenue forecast update in October 2020, the governor released a budget proposal for the remainder of the fiscal year. Proposed expenditures of \$45.5 billion are 3.8% above the preliminary fiscal 2020 figure, reflecting in part costs being reimbursed by federal funds including remaining coronavirus relief monies and increased FMAP. Fiscal 2021 is projected to end with a \$1.9 billion deficit, which would be absorbed by the fund balance, including by a \$1.35 billion draw from the stabilization fund. This would leave the remaining stabilization fund balance at \$2.2 billion (7.9% of projected tax revenues) in the event of more severe revenue weakness. Under the governor's proposal, future federal assistance or revenue overperformance would reduce the stabilization fund draw.

CREDIT PROFILE

Massachusetts has a fundamentally solid economy with strong growth prospects. Its dynamic, service-oriented economic profile is anchored by numerous institutions of higher education and healthcare that lend stability, in addition to supporting development and innovation in other sectors. Wealth levels are high, with per capita personal income at 132% of the U.S. average in 2019, second-highest among the states. Educational attainment is very high, and population growth has been stronger in Massachusetts than the region, although its population remains older than the U.S. average, consistent with other New England states.

Massachusetts' economic performance has been aligned with national trends, but the sensitivity has varied. In the Great Recession, Massachusetts performed significantly better than the national experience, in contrast to 2002-2004 when it suffered among the steepest employment drops in the country. Employment losses in the Great

Recession were slightly less severe than those of the U.S. (down 6% in Massachusetts versus 6.3% for the U.S.). Employment growth in the recently ended recovery was consistently solid. And as noted earlier, recovery to date through the pandemic-driven downturn is slightly trailing national trends.

Revenue Framework

General fund resources derive primarily from individual income, sales and corporate income taxes. The former two are particularly important, with an estimated 58% of tax revenues from individual income taxes and another 23% from sales taxes in fiscal 2020. The individual income tax is levied at flat rates based on type of income. A 5% rate has been applicable to most income categories since Jan. 1, 2020 under a statute that had gradually reduced the rate from 5.3% beginning Jan. 1, 2012. The statute also reinstates the state charitable deduction as of January 1, 2021, a change forecast to lower individual income tax receipts by \$64 million in fiscal 2021 and \$300 million in fiscal 2022. The governor's budget for fiscal 2021 proposes delaying this provision by one year in light of the pandemic.

Revenues are economically sensitive, particularly individual income tax receipts from capital gains. Consistent with the experience of many other states, individual income tax collection trends have also been affected in recent years by tax law changes, most recently those associated with the December 2017 federal Tax Cuts and Jobs Act (TCJA).

Solid economic fundamentals and a diverse revenue system are the basis for a revenue profile that is likely to approximate national economic growth over time, in Fitch's view.

The commonwealth has no significant legal limitations on its ability to raise revenues. A statutory tax revenue growth limit based on average wage and salary growth has not hindered the commonwealth's ability to manage its revenue resources. The initiative environment also has periodically been active, and certain revenues have been affected by past initiative petitions, notably property taxes. Importantly, the legislature retains the ability to make changes to statutes passed by successful initiative petitions.

Expenditure Framework

Massachusetts' expenditure profile is very broad, driven by an expansive scope of services. Medicaid and other social services are the largest single spending commitment at just over half of general fund spending. Rising needs, including those emerging from implementation of the Affordable Care Act, have pressured spending in the last decade. Education is also a significant commitment, with extensive commonwealth funding of local schools and a broad higher education network. Funding formula changes for local schools, intended to address needs in districts with higher concentrations of poverty, were passed in 2019 and are resulting in a ramp-up of commonwealth spending over several years. The commonwealth's education commitment extends to covering local teacher pension liabilities, although not the liability associated with their other post-employment benefits (OPEB). Consistent with practices in many smaller states, the commonwealth is responsible for delivering or funding many services routinely funded at local levels elsewhere.

As with most states, spending in the absence of policy actions is expected to be in line with to marginally above expected revenue growth, primarily driven by social services, particularly Medicaid. The fiscal challenge of Medicaid is common to all U.S. states, and the nature of the program as well as federal government rules limit the states' options in managing the pace of spending growth. Federal action to revise Medicaid's programmatic and financial structure has been limited given divided control in Congress. As with all federal initiatives, Medicaid remains subject to regulatory changes that could affect various aspects of the program.

The commonwealth retains ample ability to cut spending; statute allows for swift response in the event of forecast revenue underperformance, including the governor's statutory powers to unilaterally cut allotments under Section 9C of commonwealth General Law, Chapter 29.

Carrying costs for long-term liabilities, including debt service, actuarially determined pension contributions, and other post-employment benefit (OPEB) pay-go appropriations, are elevated relative to most states, at 12% of governmental expenditures in fiscal 2019. Under state finance law, revenues available for budgeting are net of statutory pension contributions and transfers for the Massachusetts Bay Transportation Authority (MBTA) and the Massachusetts School Building Authority (MSBA). Pension changes were undertaken in 2011, and the state maintains a relatively conservative statutorily closed amortization target for achieving full funding in 2040. Pension contributions have risen in part due to experience updates and shifts to more conservative actuarial assumptions. Based on a funding schedule that it updates every three years, most recently in 2020, the commonwealth forecasts contributions rising about 9.6% per year until the projected date of full prefunding, in fiscal 2036. Fitch views this trajectory of contribution increases as high, but manageable within the commonwealth's fiscal framework.

Long-Term Liability Burden

Debt and Fitch-adjusted net pension liabilities are comparatively high for a state, but represent a moderate burden on resources. On a combined basis, the burden of direct debt and the adjusted net pension liabilities for employees and teachers equaled 18.8% of personal income, well above the 5% median for U.S. states, as of Fitch's 2020 state liability report, which used 2019 data. Fitch recalculates reported net pension liabilities using a standard 6% discount rate assumption per Fitch's U.S. Public Finance Tax-Supported Rating Criteria.

As of Sept. 30, 2020, Fitch estimates the commonwealth's direct debt at a comparatively high 8.3% of personal income, including sales tax-backed obligations of the MBTA and the MSBA and annual contract assistance commitments that support the Massachusetts Department of Transportation. This figure also includes the new money component of the current GO sale. GO bonds represent the majority of outstanding debt. The commonwealth's above-average role in funding local government capital needs, relative to most other states, partially drives the debt burden. Fitch expects direct debt to remain comparatively high for a U.S. state.

As of their June 30, 2019 financial reports, pension systems covering state employees and teachers (except in the City of Boston) held fiduciary assets covering 66.3% and 53.9% of their total pension liabilities, respectively, based on the 7.25% discount rates implemented as of their 2019 valuations; the rates have been lowered twice from the 7.5% used for the 2017 valuation. Using Fitch's standard 6% return assumption, the 2019 ratios would fall to 58% and 47.3%, respectively.

The commonwealth carries a net OPEB liability for state employees, but not local teachers, measuring \$17.4 billion, based on a 3.95% discount rate and net of prefunding built in recent years from tobacco settlement monies, excess capital gains collections and other sources. The net OPEB liability measures 3.4% of personal income.

Operating Performance

Fitch believes the commonwealth retains superior capacity to address cyclical downturns and operating underperformance and has repeatedly demonstrated its commitment to maintaining a solid financial position. Mechanisms for maintaining balance include the governor's requirement to reduce allotments or identify alternative balancing measures in the event of a mid-year forecast deficiency, under Section 9C of commonwealth General Law, Chapter 29, noted above.

Additionally, since 2011 the commonwealth has operated under a mechanism to reduce the effect of volatile capital gains-related tax revenues on its budget. Capital gains-related receipts that can be included in the budget are capped annually at a level that rises by U.S. GDP, with excesses dedicated to the stabilization fund (90%) and retiree benefit obligations (10%). The threshold was \$1.26 billion in fiscal 2020 and is \$1.312 billion in fiscal 2021. A similar mechanism covers one-time judgments and settlement payments.

Updated FAST Analysis

The Fitch Analytical Stress Test (FAST) scenario analysis tool relates historical tax revenue volatility to GDP to support the assessment of operating performance under Fitch's criteria. FAST is not a forecast, but represents Fitch's estimate of possible revenue behavior in a downturn based on historical revenue performance. Actual revenue declines will vary from FAST results, which provide a relative sense of the risk exposure of a particular state compared to other states.

Massachusetts has superior financial resilience that would enable it to manage through fiscal stress approximating Fitch's coronavirus baseline and downside scenarios, despite its comparatively higher exposure to revenue declines. The current coronavirus baseline scenario results in a first-year decline in Massachusetts revenues of 20%, followed by a 9% increase and cumulative result over the three-year scenario of a 7% decline. This compares with the state median decline of 14% in the first year and negative 3% over the three-year scenario. In the downside scenario, Massachusetts' first-year decline would be 21%, followed by another decline of 5% in the second year. The cumulative three-year decline of 20% under Fitch's downside scenario is below than the median 12% decline for all states reflecting the state's higher historical susceptibility to national economic downturns.

Budgetary management during periods of economic recovery consistently supports the rebuilding of financial flexibility. Conservative revenue assumptions and the reserve funding mechanisms noted above enabled the commonwealth to eventually rebuild a sizable stabilization fund balance, and the commonwealth has limited its use of nonrecurring resources. Similar to many states, the commonwealth has faced budgetary challenges at several points in the current economic expansion, including from the effect of shifting federal tax law and from unexpected demands for Medicaid. Although these factors initially weighed on progress in rebuilding the stabilization fund balance to prerecession levels, more recently the budgetary mechanisms to shift cyclical windfalls to the stabilization fund have raised its balance considerably.

Related Affirmations

Fitch affirms the ratings on the commonwealth's GO and GO-linked bonds of the commonwealth as follows:

--Approximately \$24.2 billion in GO bonds at 'AA+';

--Approximately \$179 million in Massachusetts Development Finance Agency (MDFA) special obligation bonds (commonwealth contract assistance) at 'AA+';

--Approximately \$178 million in commonwealth guaranteed bonds, issued by the University of Massachusetts Building Authority (UMBA) and the MBTA, at 'AA+';

--Approximately \$94 million in UMBA (Commonwealth Guaranteed) refunding revenue bonds, series 2011-2 at 'AA+'/'F1+';

--Approximately \$772 million in Massachusetts Department of Transportation (MassDOT) metropolitan highway system (MHS) revenue bonds (subordinate), commonwealth contract assistance secured at AA+.

The Rating Outlook on the long-term ratings is Stable.

The long-term GO bonds carry the commonwealth's full faith and credit pledge.

For the commonwealth contract assistance bonds issued by MDFA and commonwealth guaranteed bonds issued by UMBA and MBTA, the commonwealth's obligation under the contract to make payments equal to debt service is a general obligation of the commonwealth, to which its full faith and credit are pledged.

The short-term 'F1+' rating on the UMBA series 2011-2 bonds is based on the long-term 'AA+' rating of the commonwealth.

For the MassDOT MHS subordinate revenue bonds, the commonwealth's annual fixed, dedicated payments are a full faith and credit obligation of the commonwealth and are expected to cover all subordinated debt service, linking the rating to the 'AA +' rating of the commonwealth, rather than to the MHS toll revenues, which are also pledged to the bonds on a subordinated basis. Although about half of outstanding debt is variable rate and thus exposed to potential, though unlikely, risks associated with variable rate debt, Fitch expects that MassDOT would work with the commonwealth if necessary to ensure that the annual payments are sufficient for debt service.

Criteria Variation

There were no criteria variations.

In addition to the sources of information identified in Fitch's applicable criteria specified below, this action was informed by information from Lumesis.

REFERENCES FOR SUBSTANTIALLY MATERIAL SOURCE CITED AS KEY DRIVER OF RATING

The principal sources of information used in the analysis are described in the Applicable Criteria.

ESG CONSIDERATIONS

Unless otherwise disclosed in this section, the highest level of ESG credit relevance is a score of '3'. This means ESG issues are credit-neutral or have only a minimal credit impact on the entity, either due to their nature or the way in which they are being managed by the entity. For more information on Fitch's ESG Relevance Scores, visit www.fitchratings.com/esg.

RATING ACTIONS

ENTITY	RATING			PRIOR
Massachusetts, Commonwealth of (MA) [General Government]	LT IDR	AA+ ●	Affirmed	AA+ ●
Massachusetts Turnpike Authority Metropolitan Highway System (MA) /Metro Highway System Revenues - Subordinated Obligations/1 LT	LT	AA+ ●	Affirmed	AA+ ●
Massachusetts, Commonwealth of (MA) /Commonwealth Guaranteed Revenues/1 LT	LT	AA+ ●	Affirmed	AA+ ●

ENTITY	RATING			PRIOR
Massachusetts, Commonwealth of (MA) /General Obligation - Unlimited Tax - MDFA/1 LT	LT	AA+ ●	Affirmed	AA+ ●
Massachusetts, Commonwealth of (MA) /General Obligation - Unlimited Tax/1 LT	LT	AA+ ●	Affirmed	AA+ ●
Massachusetts, Commonwealth of (MA) /General Obligation - Unlimited Tax/1 ST	ST	F1+	Affirmed	F1+

FITCH RATINGS ANALYSTS

Douglas Offerman

Senior Director

Primary Rating Analyst

+1 212 908 0889

Fitch Ratings, Inc.

Hearst Tower 300 W. 57th Street

New York, NY 10019

Kevin Dolan

Director

Secondary Rating Analyst

+1 212 908 0538

Eric Kim

Senior Director

Committee Chairperson

+1 212 908 0241

Media relations

Sandro Scenga

New York

+1 212 908 0278

sandro.scenga@thefitchgroup.com

Additional information is available on www.fitchratings.com

Applicable Criteria

U.S. Public Finance Tax-Supported Rating Criteria (pub.27-Mar-2020)(includes rating assumption sensitivity)

Applicable Models

FAST States & Locals - Fitch Analytical Stress Test Model, v2.4.0 (1 (<https://www.fitchratings.com/site/re/970025>))

DISCLAIMER

ALL FITCH CREDIT RATINGS ARE SUBJECT TO CERTAIN LIMITATIONS AND DISCLAIMERS. PLEASE READ THESE LIMITATIONS AND DISCLAIMERS BY FOLLOWING THIS LINK:

[HTTPS://WWW.FITCHRATINGS.COM/UNDERSTANDINGCREDITRATINGS](https://www.fitchratings.com/understandingcreditratings)

([HTTPS://WWW.FITCHRATINGS.COM/UNDERSTANDINGCREDITRATINGS](https://www.fitchratings.com/understandingcreditratings)). IN ADDITION, THE FOLLOWING [HTTPS://WWW.FITCHRATINGS.COM/RATING-DEFINITIONS-DOCUMENT](https://www.fitchratings.com/rating-definitions-document) (<https://www.fitchratings.com/rating-definitions-document>) DETAILS FITCH'S RATING DEFINITIONS FOR EACH RATING SCALE AND RATING CATEGORIES, INCLUDING DEFINITIONS RELATING TO DEFAULT. PUBLISHED RATINGS, CRITERIA, AND METHODOLOGIES ARE AVAILABLE FROM THIS SITE AT ALL TIMES. FITCH'S CODE OF CONDUCT, CONFIDENTIALITY, CONFLICTS OF INTEREST, AFFILIATE FIREWALL, COMPLIANCE, AND OTHER RELEVANT POLICIES AND PROCEDURES ARE ALSO AVAILABLE FROM THE CODE OF CONDUCT SECTION OF THIS SITE. DIRECTORS AND SHAREHOLDERS RELEVANT INTERESTS ARE AVAILABLE AT [HTTPS://WWW.FITCHRATINGS.COM/SITE/REGULATORY](https://www.fitchratings.com/site/regulatory) (<https://www.fitchratings.com/site/regulatory>). FITCH MAY HAVE PROVIDED ANOTHER PERMISSIBLE SERVICE TO THE RATED ENTITY OR ITS RELATED THIRD PARTIES. DETAILS OF THIS SERVICE FOR RATINGS FOR WHICH THE LEAD ANALYST IS BASED IN AN EU-REGISTERED ENTITY CAN BE FOUND ON THE ENTITY SUMMARY PAGE FOR THIS ISSUER ON THE FITCH RATINGS WEBSITE.

COPYRIGHT

Copyright © 2020 by Fitch Ratings, Inc., Fitch Ratings Ltd. and its subsidiaries. 33 Whitehall Street, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Fax: (212) 480-4435. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved. In issuing and maintaining its ratings and in making other reports (including forecast information), Fitch relies on factual information it receives from issuers and underwriters and from other sources Fitch believes to be credible. Fitch conducts a reasonable investigation of the factual information relied upon by it in accordance with its ratings methodology, and obtains reasonable verification of that information from independent sources, to the extent such sources are available for a given security or in a given jurisdiction. The manner of Fitch's factual investigation and the scope of the third-party verification it obtains will vary depending on the nature of the rated security and its issuer, the requirements and practices in the jurisdiction in which the rated security is offered and sold and/or the issuer is located, the availability and nature of relevant public information, access to the management of the issuer and its advisers, the availability of pre-existing third-party verifications such as audit reports, agreed-upon procedures letters, appraisals, actuarial reports, engineering reports, legal opinions and other reports provided by third parties, the availability of independent and competent third-party verification sources with respect to the particular security or in the particular jurisdiction of the issuer, and a variety of other factors. Users of Fitch's ratings and reports should understand that neither an enhanced factual investigation nor any third-party verification can ensure that all of the information Fitch relies on in connection with a rating or a report will be accurate and complete. Ultimately, the issuer and its advisers are responsible for the accuracy of the information they provide to Fitch and to the market in offering documents and other reports. In issuing its ratings and its reports, Fitch must rely on the work of experts, including independent auditors with respect to financial statements and attorneys with respect to legal and tax matters. Further, ratings and forecasts of financial and other information are inherently forward-looking and embody assumptions and predictions about future events that by their nature cannot be verified as facts. As a result, despite any verification of current

facts, ratings and forecasts can be affected by future events or conditions that were not anticipated at the time a rating or forecast was issued or affirmed.

The information in this report is provided “as is” without any representation or warranty of any kind, and Fitch does not represent or warrant that the report or any of its contents will meet any of the requirements of a recipient of the report. A Fitch rating is an opinion as to the creditworthiness of a security. This opinion and reports made by Fitch are based on established criteria and methodologies that Fitch is continuously evaluating and updating. Therefore, ratings and reports are the collective work product of Fitch and no individual, or group of individuals, is solely responsible for a rating or a report. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. All Fitch reports have shared authorship. Individuals identified in a Fitch report were involved in, but are not solely responsible for, the opinions stated therein. The individuals are named for contact purposes only. A report providing a Fitch rating is neither a prospectus nor a substitute for the information assembled, verified and presented to investors by the issuer and its agents in connection with the sale of the securities. Ratings may be changed or withdrawn at any time for any reason in the sole discretion of Fitch. Fitch does not provide investment advice of any sort. Ratings are not a recommendation to buy, sell, or hold any security. Ratings do not comment on the adequacy of market price, the suitability of any security for a particular investor, or the tax-exempt nature or taxability of payments made in respect to any security. Fitch receives fees from issuers, insurers, guarantors, other obligors, and underwriters for rating securities. Such fees generally vary from US\$1,000 to US\$750,000 (or the applicable currency equivalent) per issue. In certain cases, Fitch will rate all or a number of issues issued by a particular issuer, or insured or guaranteed by a particular insurer or guarantor, for a single annual fee. Such fees are expected to vary from US\$10,000 to US\$1,500,000 (or the applicable currency equivalent). The assignment, publication, or dissemination of a rating by Fitch shall not constitute a consent by Fitch to use its name as an expert in connection with any registration statement filed under the United States securities laws, the Financial Services and Markets Act of 2000 of the United Kingdom, or the securities laws of any particular jurisdiction. Due to the relative efficiency of electronic publishing and distribution, Fitch research may be available to electronic subscribers up to three days earlier than to print subscribers.

For Australia, New Zealand, Taiwan and South Korea only: Fitch Australia Pty Ltd holds an Australian financial services license (AFS license no. 337123) which authorizes it to provide credit ratings to wholesale clients only. Credit ratings information published by Fitch is not intended to be used by persons who are retail clients within the meaning of the Corporations Act 2001

Fitch Ratings, Inc. is registered with the U.S. Securities and Exchange Commission as a Nationally Recognized Statistical Rating Organization (the “NRSRO”). While certain of the NRSRO’s credit rating subsidiaries are listed on Item 3 of Form NRSRO and as such are authorized to issue credit ratings on behalf of the NRSRO (see <https://www.fitchratings.com/site/regulatory> (<https://www.fitchratings.com/site/regulatory>)), other credit rating subsidiaries are not listed on Form NRSRO (the “non-NRSROs”) and therefore credit ratings issued by those subsidiaries are not issued on behalf of the NRSRO. However, non-NRSRO personnel may participate in determining credit ratings issued by or on behalf of the NRSRO.

ENDORSEMENT POLICY

Fitch’s approach to ratings endorsement so that ratings produced outside the EU may be used by regulated entities within the EU for regulatory purposes, pursuant to the terms of the EU Regulation with respect to credit rating agencies, can be found on the EU Regulatory Disclosures page. The endorsement status of all International ratings is provided within the entity summary page for each rated entity and in the transaction detail pages for all structured finance transactions on the Fitch website. These disclosures are updated on a daily basis.

