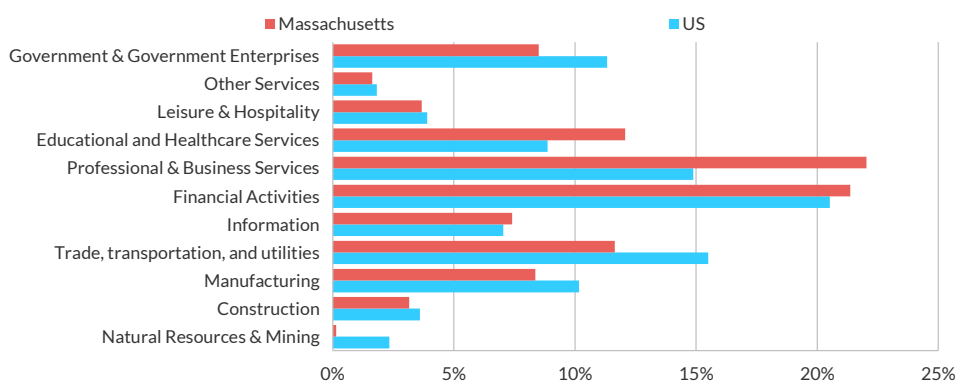


# Commonwealth of Massachusetts

The Commonwealth of Massachusetts' 'AA+' Long-Term Issuer Default Rating (IDR) reflects its considerable economic resources, adroit management of economic and revenue cyclicalities, and strong budget controls. The commonwealth carries a long-term liability burden for debt and Fitch-adjusted net pension liabilities (NPLs) that is well above the U.S. state median, albeit a still-moderate burden on resources.

## Components of Real GDP



Source: Fitch Ratings, Lumesis, U.S. Bureau of Economic Analysis

## Population Data Overview

	Massachusetts	U.S.
Total Population (2023)	7,001,399	334,914,895
1990-2000 (% Growth)	5.5	13.2
2000-2010 (% Growth)	3.1	9.7
2010-Present (% Growth)	6.9	8.5

Source: Fitch Ratings, Lumesis, U.S. Census Bureau

## Ratings

Long-Term Issuer Default Rating AA+

## Rating Outlook

Long-Term Issuer Default Rating Stable

## New Issues

- \$210,000,000 GO Bonds
- Consolidated Loan of 2024 Series G AA+
- \$315,000,000 GO Bonds
- Consolidated Loan of 2024 Series H AA+
- \$275,000,000 GO Bonds
- Consolidated Loan of 2024 Series I AA+

## Sale Date

Dec. 12, 2024, via competitive bid

## Outstanding Debt

- Commonwealth of Massachusetts GO Bonds AA+
- Massachusetts Bay Transportation Authority General Transportation System Bonds AA+
- Massachusetts Department of Transportation (Commonwealth Contract Assistance Secured) Metropolitan Highway System Revenue Refunding Bonds (Subordinated) AA+
- Massachusetts Development Finance Agency (Commonwealth Contract Assistance) Special Obligation Bonds AA+
- University of Massachusetts Building Authority (Commonwealth of Massachusetts) Senior Facilities Revenue Bonds AA+

## Applicable Criteria

U.S. Public Finance State Governments and Territories Rating Criteria (April 2024)

## Related Research

Fitch Rates Massachusetts' \$800 Million GO Bonds 'AA+'; Outlook Stable (December 2024)

## Analysts

Karen Krop  
+1 212 908-0661  
karen.krop@fitchratings.com

Douglas Offerman  
+1 212 908-0889  
douglas.offerman@fitchratings.com

## Key Rating Drivers

### Revenue Framework — 'aaa'

Tax revenues are diverse but dominated by individual income taxes, which are sensitive to economic conditions, particularly the components related to capital gains. Baseline growth prospects for tax revenues are strong and expected to match national GDP, driven by the commonwealth's underlying diverse economy, which includes a significant knowledge-based industry component.

### Expenditure Framework — 'aaa'

Consistent with most states, the natural pace of spending growth is likely 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'

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

### Operating Performance — 'aaa'

The commonwealth has superior gap-closing capacity supported by conservative budgeting, ongoing fiscal monitoring and a requirement to cut spending in response to emerging revenue gaps. Gap-closing capacity is also supported by a funding mechanism that redirects a portion of economically sensitive capital gains tax receipts into the stabilization fund, which functions as the commonwealth's rainy day fund.

## Rating Sensitivities

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

- A slowing of economic growth that signals the commonwealth's revenue growth prospects will trail national economic growth.
- Rapid growth in spending demands, particularly for fixed costs such as pension liabilities, that weakens Massachusetts' expenditure flexibility and historically strong operating performance.
- An increase in long-term liabilities resulting in a liability burden that consistently exceeds 20% of personal income.

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

- Continued efforts to maintain structural balance during periods of economic growth, particularly in light of elevated carrying costs given ongoing pension funding demands and capital plans, and/or preservation of reserves at or near current levels could lead to improvement in Fitch's assessment of budget management.
- A sustained reduction in the long-term liability burden closer to or below 10% of personal income, accompanied by a reduction in carrying costs.

## Economic Resource Base

The commonwealth has a broad and wealthy economy. Education levels are high and, although population growth is below the U.S. average, it is strong for the Northeast region. The strength of the healthcare, technology and education sectors has supported GDP growth comparable with the nation's over time and leaves the commonwealth well positioned for solid future gains. Measured by per capita personal income, Massachusetts is the second wealthiest state in the nation.

## IDR Current Developments

### Massachusetts Economic Update

Massachusetts suffered a more severe job market shock than the nation as a whole early in the pandemic, with nonfarm payrolls falling 18% from February to April 2020, steeper than the national decline (15%) for that period. Although Massachusetts fully recovered lost employment, recent performance has been relatively weak and was flat to pre-pandemic employment as of October 2024, well below the national employment expansion of 4.4%. This may indicate a tight labor market, as the Massachusetts unemployment rate has been trending below the U.S. rate and was 3.9% in October, below the 4.1% U.S. rate. Similarly, the commonwealth's employment-to-population ratio (EPOP) of 63.8% as of October 2024 remains marginally below its pre-pandemic ratio of 64.0%, yet compares favorably to the national EPOP of 60.0%.

## Massachusetts Budgetary Update

Massachusetts enacted its fiscal 2025 budget at the end of July, well after the start of the fiscal year, with the legislature and governor agreeing to a one-month interim budget that enabled the commonwealth to continue operating while the details of the spending plan were finalized. The fiscal 2025 budget was based on a consensus tax revenue estimate of \$40.2 billion, not including \$1.3 billion available for distribution to transportation and education initiatives from the 4% Fair Share surtax on personal income over \$1.0 million. The enacted budget incorporates minor incremental adjustments related to a tax amnesty, tax enforcement initiatives and the elimination of tax loopholes.

The \$57.8 billion fiscal 2025 budget, including spending from federal revenues, increases spending by 3.1% and, as in fiscal 2024, dedicates increased spending to education and transportation initiatives. The budget allocates \$761.5 million of the Fair Share surtax to education initiatives, of which \$239 million will go toward higher education, incorporating \$93.5 million to expand access to free community college to all students. K-12 public education will receive \$244 million, including \$170 million to make the free school lunch program permanent and \$20 million to expand access to evidence-based reading. The \$539 million balance will be distributed for various transportation initiatives, including \$250 million to the commonwealth transportation fund to be used to leverage up to \$1.0 billion in borrowing, \$110 million for regional transit grants and \$45 million in supplemental funding for municipal roads and bridges.

In addition to increased funding from the income surtax, other notable items include a 4% increase to \$6.86 billion in chapter 70 aid to cities and towns to more fully fund the school funding formula, \$545 million to address housing and homelessness, with funds for the emergency assistance family shelter program and low income housing vouchers, \$475 million in grants for early childhood education and childcare providers, and 3% growth in unrestricted general government aid for local governments.

## Reserves Remain Well Funded

The balance of the stabilization fund, the commonwealth's budget reserve, was \$8.4 billion at fiscal YE24, roughly equal to 21% of tax revenue and 13.4% of total budgeted revenues.

The commonwealth enacted legislation that allocates a portion of stabilization fund earnings to fund capital investments through 2026, including to provide matching funds for federal discretionary grant opportunities. The legislation will limit the transfers to years in which the balance of the fund in the most recently ended fiscal year increased from the prior year and exceeds 10% of all budgeted revenues for all budgeted funds. Given the stabilization fund's current balance, transferring earnings for two fiscal years would not negatively affect the gap-closing capacity provided by the fund.

## Credit Profile

### Revenue Framework

General fund resources derive primarily from individual income, sales and corporate income taxes. The first two are particularly important, with approximately 59% of fiscal 2024 tax revenues from individual income taxes and another 23% from sales taxes. The individual income tax is levied at flat rates based on income type. 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 reinstated the state charitable deduction as of Jan. 1, 2023, after delays in the fiscal 2021 and 2022 budgets.

As noted above, voters approved the Fair Share surtax, a permanent 4% surtax on personal income over \$1.0 million, in November 2022, that became effective in tax year 2023. Preliminary estimates indicate surtax revenue collections were well above the forecast \$1.0 billion at \$2.2 billion in fiscal 2024. The surtax is estimated to generate \$1.3 billion in fiscal 2025. Fair Share revenues are dedicated to education and transportation programs.

Solid economic fundamentals and a diverse revenue system are the basis for a revenue profile that is likely to approximate national GDP growth over time, although growth may be limited by the Chapter 62F tax revenue growth limit. Chapter 62F caps the amount of revenue the commonwealth may collect in any given fiscal year relative to the rate of wage and salary growth in the commonwealth. Once the limit is exceeded, the commonwealth must refund any excess revenues via income tax credits, as was the case in fiscal 2023 when the commonwealth refunded \$2.9 billion of excess fiscal 2022 tax revenues, marking the first time since 1987 that the limit was triggered.

The commonwealth has no significant legal limitations on its ability to raise revenues. The Chapter 62F tax revenue growth limit has not hindered the commonwealth's ability to manage its revenue resources. The voter initiative environment 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.

Economic Data Overview

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	10-Year CAGR
<b>Total Nonfarm Employment (% Change)</b>												
Massachusetts	1.7	2.0	2.0	1.9	1.3	1.1	1.5	-8.3	3.8	4.0	1.1	1.0
U.S.	1.6	1.9	2.1	1.8	1.6	1.6	1.3	-5.8	2.9	4.3	2.3	1.4
<b>Labor Force (% Change)</b>												
Massachusetts	0.3	1.5	0.6	0.8	3.0	2.5	0.8	-2.7	-0.3	0.3	0.2	0.6
U.S.	0.3	0.3	0.8	1.3	0.7	1.1	0.9	-1.7	0.3	1.9	1.7	0.7
<b>Unemployment Rate (% Labor Force)</b>												
Massachusetts	6.6	5.7	4.8	4.0	3.8	3.5	3.0	9.3	5.4	3.7	3.4	4.7
U.S.	7.4	6.2	5.3	4.9	4.4	3.9	3.7	8.1	5.3	3.6	3.6	5.1
<b>Personal Income (% Change)</b>												
Massachusetts	0.7	4.5	6.6	3.8	4.8	5.3	4.9	6.7	8.1	2.7	5.4	5.3
U.S.	1.1	5.1	4.7	2.7	4.9	5.1	4.8	6.8	9.2	3.1	5.9	5.2
<b>Real GDP (% Change)</b>												
Massachusetts	0.8	1.9	3.7	1.4	1.6	3.6	3.1	-1.2	6.5	2.0	1.2	2.4
U.S.	2.1	2.5	2.9	1.8	2.5	3.0	2.6	-2.2	6.1	2.5	2.9	2.4

Source: Fitch Ratings, Lumesis, U.S. Bureau of Economic Analysis, U.S. Bureau of Labor Statistics

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. 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 under the 2019 Student Opportunity Act (SOA) are intended to address needs in districts with higher concentrations of poverty.

The SOA was expected to result in a seven-year, \$1.5 billion ramp-up of formula funding beginning in fiscal 2021, but the pandemic delayed the initial increases. The commonwealth's education commitment extends to covering local teacher pension liabilities but not the liability associated with other post-employment benefits (OPEB). Consistent with practices in many smaller states, the commonwealth is responsible for delivering or funding a variety of services routinely funded at local levels elsewhere.

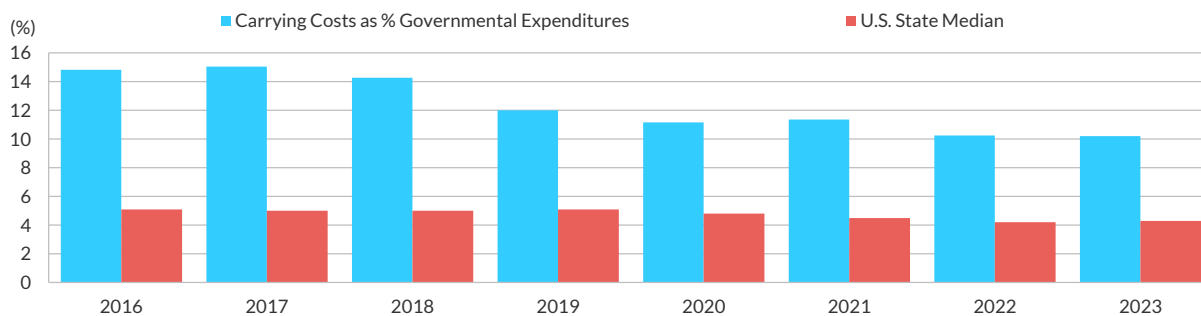
As with most states, current services spending is expected to be in line with to marginally above expected revenue growth, primarily driven by social services, particularly Medicaid. Federal action to revise Medicaid's fundamental programmatic and financial structure does not appear to be a near-term priority of the current federal administration or congressional leadership. 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.

Massachusetts' carrying costs for long-term liabilities were 10.2% in 2023, versus Fitch's U.S. states median of 4.2%. Under commonwealth 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 commonwealth 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 cautious actuarial assumptions. Based on a funding schedule that it updates every three years, most recently in January 2023, the commonwealth forecasts contributions to rise about 9.6% per year until fiscal 2028, after which the rate of increase will drop to 4% through the projected date of full prefunding. This is projected to occur in fiscal 2036, four years ahead of the target date for full funding. Fitch views this trajectory of contributions as manageable within the commonwealth's fiscal framework.

**Commonwealth of Massachusetts – Carrying Costs**



Source: Fitch Ratings, Audited Comprehensive Financial Reports

**Long-Term Liability Burden**

Debt and Fitch-adjusted NPLs are comparatively high for a state but represent a moderate burden on resources. On a combined basis, the commonwealth's burden of direct debt and adjusted NPLs equaled 15.8% of personal income, well above the 4.2% U.S. states median, as of Fitch's November 2024 report on state liabilities (published November 2024), which used 2023 state financial statements data.

As of June 30, 2023, Fitch estimates the commonwealth's direct debt at a comparatively high 7.1% of personal income, including sales tax-backed obligations of the MBTA and MSBA and annual contractual assistance commitments supporting the Massachusetts Department of Transportation (MassDOT). The comparable state median as of the November 2024 state liabilities report was 1.8%. The commonwealth's above average role in funding local government capital needs, relative to most other states, partially drives its higher debt burden.

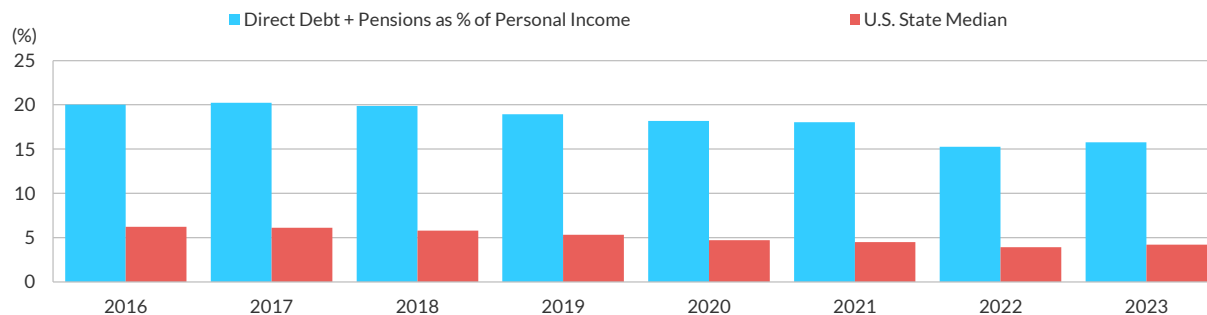
Fitch expects Massachusetts' direct debt to remain comparatively high for a U.S. state. In 2021, the prior governor signed a \$16 billion transportation bond authorization to be directed toward highways, transit, bridges and other commonwealth and local transportation needs. The authorization is flexible as to whether the debt can be issued as GO bonds or special obligation bonds. Similarly, the "MassTRAC" program, enacted in 2022, included \$6.3 billion in borrowing. Issuance under these programs is ongoing with timing dictated by the commonwealth's rolling five-year capital plan.

The commonwealth issued special obligation revenue bonds in July 2022 to pay off federal unemployment insurance trust fund loans. The special obligation bonds are repaid by assessments on employers, with no nexus to the commonwealth's fiscal operations. Fitch does not incorporate these bonds into its calculations of Massachusetts' long-term liabilities.

Pension liabilities for the commonwealth are also a higher burden than in most other states. In fiscal 2023, the Fitch-adjusted NPL was 8.7% versus a 2.5% state median as of the November 2024 state liabilities report. Pension systems covering state employees and teachers (except in the city of Boston) had respective funded ratios of 70.7% and 58.5% as of June 30, 2023, based on 7% discount rates. These are down from 77.5% and 62.0%, respectively, as of June 30, 2021, when the discount rate was 7.15%.

The commonwealth carries a net OPEB liability for state employees, but not local teachers, of \$16.5 billion, based on a 4.3% discount rate and net of prefunding built in recent years from tobacco settlement moneys, excess capital gains collections and other sources. The net OPEB liability is 2.4% of personal income.

**Commonwealth of Massachusetts – Long-Term Liability Burden**



Source: Fitch Ratings, Audited Comprehensive Financial Reports, U.S. Bureau of Economic Analysis

## Operating Performance

The Fitch Analytical Stress Test (FAST) model relates historical tax revenue volatility to GDP to support the assessment of operating performance under Fitch's criteria. FAST is not a forecast but it 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. Despite its comparatively higher exposure to revenue declines shown by FAST, Massachusetts has superior financial resilience that would enable it to manage through fiscal stress.

Fitch believes the commonwealth retains superior capacity to address cyclical downturns 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 midyear forecast deficiency, under Section 9C of commonwealth General Law, Chapter 29 (as noted above). The governor used this power to reduce spending by \$375 million in fiscal 2024.

Additionally, since 2011, the commonwealth has operated under a mechanism to reduce the effects 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 growth, with excesses dedicated to the stabilization fund (90%) and retiree benefit obligations (10%). For fiscal 2024, this mechanism resulted in a \$30 million transfer to the stabilization fund stemming from the commonwealth's decision to use most excess capital gains to support spending. Absent this change, the commonwealth would have deposited an additional \$560 million to the fund.

As noted above, the commonwealth enacted legislation to transfer earnings in the stabilization fund to a fund for capital improvements for two fiscal years, through fiscal 2026. Fiscal 2024 investment earnings totaling \$321 million were accordingly transferred to the Commonwealth Federal Matching and Debt Reduction Fund. Given the high balance in the stabilization fund, at just over 20% of tax revenues as of fiscal 2024, Fitch does not expect the use of earnings in the fund for capital purposes to affect the commonwealth's ability to respond to a downturn.

Budgetary management during periods of economic recovery consistently supports the rebuilding of financial flexibility. A relatively slow fiscal recovery as the commonwealth emerged from the Global Financial Crisis limited its ability to quickly restore fiscal resilience. The commonwealth faced budgetary challenges at several points during the economic expansion that ended with the pandemic, including from the effect of shifting federal tax law and from unexpected demands for Medicaid.

Despite these initial post-recession drags on fiscal progress, conservative revenue assumptions and the reserve funding mechanisms noted above enabled the commonwealth to rebuild a sizable stabilization fund balance. The commonwealth has limited its use of nonrecurring resources. Budgetary mechanisms to shift cyclical windfalls to the stabilization fund raised its balance considerably in the period immediately preceding the pandemic, a trend that accelerated during the post-pandemic expansion.

## Peer Analysis

Massachusetts's peer group includes North Carolina (AAA), Virginia (AAA), Michigan (AA+) and Colorado (not rated), comprising the third decile according to state GDP. Massachusetts has benefited from strong long-term economic growth that supports expectations for healthy revenue growth, although it has higher long-term liabilities than its peers. As with other highly rated states, Massachusetts's operating performance is very strong, with the commonwealth's mechanisms for maintaining budgetary balance supporting its ability to manage through the economic cycle.

## Additional Security Details

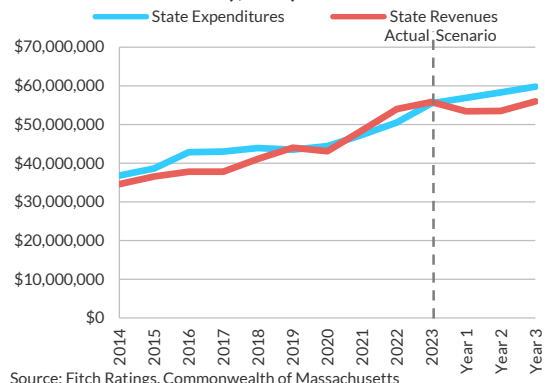
Fitch has affirmed the ratings on the commonwealth's GO and GO-linked bonds as follows:

- GO bonds at 'AA+'.
- MDFA special obligation bonds (commonwealth contract assistance) at 'AA+'.
- Commonwealth-guaranteed bonds, issued by the MBTA and the University of Massachusetts Building Authority, at 'AA+'.
- MassDOT metropolitan highway system (MHS) revenue bonds (subordinate), commonwealth contract assistance secured, at 'AA+'.

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

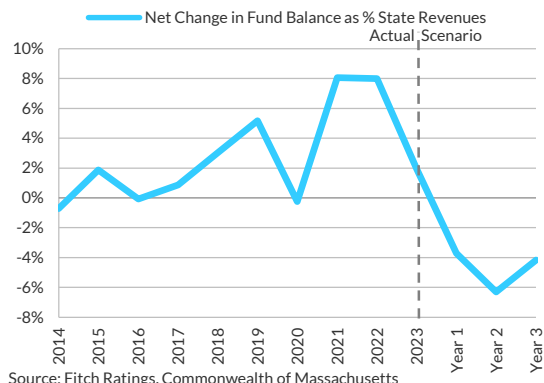
For the MassDOT MHS subordinate revenue bonds, the commonwealth's annual fixed, dedicated payments are a full faith and credit obligation of the commonwealth and are expected to cover all subordinated debt service, linking the rating to the commonwealth's 'AA+' rating rather than to MHS toll revenues, which are also pledged to the bonds on a subordinated basis. A large share of outstanding debt is variable rate and, thus, exposed to risks associated with interest rate volatility. However, Fitch expects that MassDOT will work with the commonwealth to ensure annual payments are sufficient to cover debt service if interest rate risks increase.

**State Revenues and Expenditures in an Unaddressed Stress (\$'000)**



Source: Fitch Ratings, Commonwealth of Massachusetts

**Net Change in Fund Balance as % of State Revenues in an Unaddressed Stress**



Source: Fitch Ratings, Commonwealth of Massachusetts



Scenario Parameters:	Year 1	Year 2	Year 3
GDP Assumption (% Change)	(1.0%)	0.5%	2.0%
Expenditure Assumption (% Change)	2.5%	2.5%	2.5%
Revenue Output (% Change)	(4.3%)	0.2%	4.6%
Minimum Y1 Stress: -1% Case Used: Moderate			

Revenues, Expenditures, and Net Change in Fund Balance	Actuals										Scenario Output		
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Year 1	Year 2	Year 3
<b>Expenditures</b>													
Total Expenditures	49,991,552	52,682,343	58,074,116	58,593,231	60,282,684	59,793,532	62,894,582	70,260,439	77,782,083	83,292,552	85,374,866	87,509,237	89,696,968
% Change in Total Expenditures	5.3%	5.4%	10.2%	0.9%	2.9%	(0.8%)	5.2%	11.7%	10.7%	7.1%	2.5%	2.5%	2.5%
State Expenditures	36,844,857	38,637,313	42,841,471	43,026,144	43,951,926	43,465,609	44,419,215	47,307,218	50,568,343	55,499,708	56,887,201	58,309,381	59,767,115
% Change in State Expenditures	6.4%	4.9%	10.9%	0.4%	2.2%	(1.1%)	2.2%	6.5%	6.9%	9.8%	2.5%	2.5%	2.5%
<b>Revenues</b>													
Total Revenues	47,709,563	50,609,586	52,992,247	53,391,286	57,453,971	60,335,457	61,555,694	71,381,169	81,193,210	83,577,587	81,897,827	82,697,588	85,880,240
% Change in Total Revenues	4.6%	6.1%	4.7%	0.8%	7.6%	5.0%	2.0%	16.0%	13.7%	2.9%	(2.0%)	1.0%	3.8%
Federal Revenues	13,146,695	14,045,030	15,232,645	15,567,087	16,330,758	16,327,923	18,475,367	22,953,221	27,213,740	27,792,844	28,487,665	29,199,857	29,929,853
% Change in Federal Revenues	2.2%	6.8%	8.5%	2.2%	4.9%	(0.0%)	13.2%	24.2%	18.6%	2.1%	2.5%	2.5%	2.5%
State Revenues	34,562,868	36,564,556	37,759,602	37,824,199	41,123,213	44,007,534	43,080,327	48,427,948	53,979,470	55,784,743	53,410,162	53,497,731	55,950,386
% Change in State Revenues	5.5%	5.8%	3.3%	0.2%	8.7%	7.0%	(2.1%)	12.4%	11.5%	3.3%	(4.3%)	0.2%	4.6%
<b>Excess of Revenues Over Expenditures</b>	(2,281,989)	(2,072,757)	(5,081,869)	(5,201,945)	(2,828,713)	541,925	(1,338,888)	1,120,730	3,411,127	285,035	(3,477,038)	(4,811,650)	(3,816,729)
<b>Total Other Financing Sources</b>	2,031,472	2,758,542	5,049,955	5,525,510	4,070,041	1,730,966	1,230,517	2,783,775	904,653	800,656	1,490,113	1,441,943	1,484,228
<b>Net Change in Fund Balance</b>	(250,517)	685,785	(31,914)	323,565	1,241,328	2,272,891	(108,371)	3,904,505	4,315,780	1,085,691	(1,986,925)	(3,369,707)	(2,332,501)
% Total Expenditures	(0.5%)	1.3%	(0.1%)	0.6%	2.1%	3.8%	(0.2%)	5.6%	5.5%	1.3%	(2.3%)	(3.9%)	(2.6%)
% State Expenditures	(0.7%)	1.8%	(0.1%)	0.8%	2.8%	5.2%	(0.2%)	8.3%	8.5%	2.0%	(3.5%)	(5.8%)	(3.9%)
% Total Revenues	(0.5%)	1.4%	(0.1%)	0.6%	2.2%	3.8%	(0.2%)	5.5%	5.3%	1.3%	(2.4%)	(4.1%)	(2.7%)
% State Revenues	(0.7%)	1.9%	(0.1%)	0.9%	3.0%	5.2%	(0.3%)	8.1%	8.0%	1.9%	(3.7%)	(6.3%)	(4.2%)

Notes: Scenario analysis represents an unaddressed stress on issuer finances. Fitch's scenario analysis assumes the GDP and expenditure growth sequence shown in the 'Scenario Parameters' section. For further details, see Fitch's U.S. Tax-Supported Rating Criteria. Source: Fitch Ratings, Commonwealth of Massachusetts



## SOLICITATION &amp; PARTICIPATION STATUS

For information on the solicitation status of the ratings included within this report, please refer to the solicitation status shown in the relevant entity's summary page of the Fitch Ratings website.

For information on the participation status in the rating process of an issuer listed in this report, please refer to the most recent rating action commentary for the relevant issuer, available on the Fitch Ratings website.

## DISCLAIMER &amp; DISCLOSURES

All Fitch Ratings (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>. In addition, the following <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>. Fitch may have provided another permissible or ancillary service to the rated entity or its related third parties. Details of permissible or ancillary service(s) for which the lead analyst is based in an ESMA- or FCA-registered Fitch Ratings company (or branch of such a company) can be found on the entity summary page for this issuer on the Fitch Ratings website.

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. Fitch Ratings makes routine, commonly-accepted adjustments to reported financial data in accordance with the relevant criteria and/or industry standards to provide financial metric consistency for entities in the same sector or asset class.

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>), 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.

Copyright © 2024 by Fitch Ratings, Inc., Fitch Ratings Ltd. and its subsidiaries. 33 Whitehall Street, NY, NY 10004. Telephone: 1-800-753-4824, (212) 908-0500. Reproduction or retransmission in whole or in part is prohibited except by permission. All rights reserved.