S&P Global Ratings

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Massachusetts; Appropriations; General Obligation; General Obligation Equivalent Security; Joint Criteria

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Credit Profile		
US$400.0 mil GO bnds ser 2017A due 04/01/2047		
Long Term Rating	AA+/Negative	New
US$277.595 mil GO rfdg bnds ser 2017C due 10/01/2027		
Long Term Rating	AA+/Negative	New
US$100.0 mil GO bnds (Green Bnds) ser 2017B due 04/01/2047		
Long Term Rating	AA+/Negative	New
Massachusetts GO		
Long Term Rating	AA+/Negative	Affirmed

Rationale

S&P Global Ratings has assigned its 'AA+' rating and negative outlook to the Commonwealth of Massachusetts' $400 million general obligation (GO) bonds consolidated loan of 2017 series A, $100 million GO bonds consolidated loan of 2017 series B (green bonds), and $277.595 million GO refunding bonds of 2017 series C. At the same time, S&P Global Ratings affirmed its 'AA+' rating on the commonwealth's approximately $22 billion of parity GO bonds outstanding and its 'A+' rating on the commonwealth's Boston Housing Authority housing project bonds, West Broadway Homes IV project, series 2003, supported by the commonwealth. The outlook is negative.

Factors supporting the 'AA+' GO rating include what we view as Massachusetts':

- Timely monitoring of revenues and expenditures and swift action when needed to make adjustments, with a focus on structural solutions to budget balance;
- Strong financial, debt, and budget management policies, including annualized formal debt affordability statements, and multiyear capital investment planning;
- Adequate budget stabilization fund (BSF) balance;
- High wealth and income levels; and
- Deep and diverse economy, which continues its steady recovery.

S&P Global Ratings believes the commonwealth's high debt burden and high unfunded pension and other postemployment benefit (OPEB) liabilities are offsetting considerations to the current rating. Although we believe the commonwealth has been taking steps to more actively manage these liabilities with a focus on cost control and reform in recent years, Massachusetts' total postretirement liabilities remain high and are expected to continue to be a source of budgetary pressure as growth in required contribution outpaces revenue growth. We also note that growth in the state's Medicaid spending (MassHealth) is also outpacing revenue growth and will remain a source of ongoing budgetary pressure absent the implementation of measures bring its growth more in line with revenue growth.

We understand that the proceeds from the consolidated loan of 2017 series A and B are expected to be used to fund various capital projects that are included in the commonwealth's five-year capital improvement plan (CIP). In particular, the proceeds of the series B bonds are intended to be used to fund "green" projects including clean water and drinking water, energy efficiency and conservation, open space protection and environmental remediation, and river revitalization projects. The series 2017A bonds are structured as interest-only payments until 2042 and equal term bond payments in 2042 and 2047. The series 2017B bonds are structured with interest-only payments through fiscal 2022. Principal is amortized by 50% by 2037 and the balance amortized through a term bond in 2047. The series 2017C bonds are being issued to advance-refund bonds outstanding through open market purchases with projected net present value savings of more than $14.5 million.

Massachusetts' economy has recovered steadily, outpacing national and regional trends by most measures. Real state GDP rose 3.8% in 2015, compared with 2.8% for the nation. The commonwealth's average annual unemployment rate in 2016 was 3.7% compared with 4.9% for the nation. The state unemployment rate has inched up slightly to 4.0% as of January 2017, but remains low compared with 4.8% for the nation. Employment growth following the financial crisis was strong relative to that of other states and the commonwealth regained its pre-recession employment peak in 2013, according to the Bureau of Labor Statistics. However, IHS Global Insight Inc. forecasts slightly lower state employment growth in 2017, 2018, and 2019 at 0.7%, 0.8%, and 0.7%, respectively, in those years, compared with its forecast of 1.4%, 1.4%, and 1.2% for the U.S in those years, respectively. In our view, Massachusetts' economic fundamentals and key anchors, which center on higher education, technology, and health care, should contribute to continued expansion. Income growth has also been strong relative to that of other states, with 2015 per capita personal income ranked second in the U.S. behind that of Connecticut, at 128% of the U.S. average.

We believe Massachusetts' budget has generally been structurally balanced in recent years with stable reserves, although several rounds of midyear budget adjustments were needed in the past three years to end the fiscal year in balance. A budget gap of $394 million opened up as of the end of October 2016, all of which was resolved by December except $20 million. An additional $98 million was identified in December 2016, inclusive of the previously unresolved $20 million. Management has identified a mix of recurring and nonrecurring measures to close the gap including $95 million in announced section 9c allotment reductions Year-to-date revenues as of February are $133.9 million below revised estimates. April is an important month from a tax collection standpoint and should revenues exceed expectations, could help close the revenue shortfall experienced to date. However, should taxpayers decide to defer taxable gains into next year in the expectation of a lower federal tax rate, current year revenues could be affected.. Currently, the commonwealth is projecting ending fiscal 2017 with $1.3 billion in the BSF, but could reduce that to the extent that it is not able to address the remaining shortfall through other measures.

The governor's fiscal 2018 budget, as proposed, makes progress toward eliminating Massachusetts' reliance on one-time revenues, makes a deposit into the BSF, and increases unrestricted aid to locals at the same rate as consensus tax revenue growth. For fiscal 2018, the commonwealth is projecting 3.8% growth in total revenues and 3.3% growth in spending over fiscal 2017. The revenue forecast assumes an income tax reduction to 5.05% from 5.10%, effective Jan. 1, 2018. In his budget, the governor proposes a new BSF formula that would deposit half of the expected annual excess capital gains amount during the fiscal year with the second half deposited at fiscal year-end, as opposed to the current formula that only makes a deposit at the end of the year. For fiscal 2018, the estimated deposit into the BSF is $98 million and would bring the BSF to $1.4 billion, or 3.2% of budgeted expenditures. The budget also includes $95 million in one-time revenues from the acceleration of sales tax receipts, an amount equivalent to the estimated deposit into the BSF. While we believe the revenue forecast is in line with positive economic growth in the commonwealth, we note that current revenues are falling short of estimates as of February, which could intensify should April revenues fall short of expectations or other spending pressures arise. Other budgetary pressures for fiscal 2018 and beyond include MassHealth expenses that are budgeted to grow at a faster rate than revenues and that have been one of main sources of midyear budget adjustments. Furthermore, there is substantial uncertainty as to the impact of changes in federal funding policy, in particular regarding Medicaid, and how that might impact the state's finances. The budget also include the state's pension payment based on the updated funding contribution schedule, which increased by 8.9% annually, a pace that well exceeds revenue growth. While we recognize that Massachusetts has made budgeting its fixed costs a priority, we also view the growth in these areas as placing increased pressure on the state's ability to maintain structural balance. The executive budget remains only a proposal at this point, subject to modification by the legislature. S&P Global Ratings will take a closer look at budgetary trends following enactment of the state's fiscal 2018 budget to determine the impact on the commonwealth's finances.

At fiscal year-end 2016, state general fund revenues were $482 million short of the revised 2016 budget forecast year-to-date. Management took action to address revenue shortfalls through spending restrictions, payroll caps, use of unneeded fund balances, acceleration of revenue collections (reimbursements), and other year-end closing measures including supplemental appropriations proposed by the governor on July 14, which required legislative approval. Massachusetts attributed fiscal 2016 budget shortfalls to legislative spending overrides of the governor's budget vetoes, a two-day state sales tax holiday, and lower-than-estimated business and individual income tax revenues because of increased tax refunds and lower-than-expected payments with returns and estimated payments. It also indicated that fiscal 2016 general fund expenditures are slightly exceeding budgeted appropriations, both in Medicaid and non-Medicaid areas, although higher federal cost reimbursements offset most of the increased Medicaid-related expenditures. Total budgeted expenditures and other uses exceeded total budgeted revenues and other uses by $89 million or 0.5% of expenditures. At fiscal year-end 2016, operating funds balances, including the BSF, were $1.48 billion and only 3.6% of budgeted expenditures and other uses based on state projections.

On a generally accepted accounting principles (GAAP) basis, Massachusetts ended fiscal 2016 (the most recent audited year) with an available assigned and unassigned general fund balance of $1.28 billion, plus a BSF balance of $1.29 billion. This led to a combined balance that we view as still strong at 6.6% of general fund expenditures and transfers out, but down from 7.5% in fiscal 2015.

By most measures, we believe Massachusetts' debt burden remains high compared with that of other states. At fiscal year-end 2016, we calculate GO debt of $21.7 billion and total tax-supported debt of $35.4 billion, producing total tax-backed debt per capita of $5,213, and 8.3% of personal income. Planned debt issuance remains within the parameters of the commonwealth's debt affordability policy and bond cap. A capital and debt affordability committee includes seven voting and eight nonvoting members from the legislature and is charged with formally reviewing the capital investment plan and providing an estimate of debt authorization for each year to stay within certain debt parameters. Massachusetts' current capital plan calls for $2.19 billion of capital debt issuance in fiscal 2017, similar to the amount in last year's capital plan for fiscal 2016. We calculate fiscal 2016 total tax-backed debt service at 7.3% of general governmental spending, a level we view as moderately high.

Other long-term liabilities are also large, in our opinion. We believe Massachusetts' share of the combined net pension liability for state employees' and teachers' retirement systems of $37.7 billion as of the Jan. 1, 2016, valuation date, or $4,451 per capita, and 7.3% of personal income, is high. The aggregate funded ratio dropped to 57.3% from 60.7% in fiscal 2015 and the three-year average declined to 62% from 63% in fiscal 2015. Massachusetts continues to fully fund its actuarial annual determined contribution based on its own methodology, which is on a lagged statutory basis; on a GAAP basis, it has not fully funded its annual required contribution (ARC) since fiscal 2011. A decline in the commonwealth's actuarial pension funded ratio as of the Jan. 1, 2016, actuarial valuation date was primarily due to lower actuarial return assumptions, which we believe show conservative management of pension liabilities.

In our opinion, Massachusetts' unfunded OPEB is also moderately high, at $16.3 billion as of Jan. 1, 2016, net of $760.4 million of actuarial assets in an OPEB trust fund, or $2,402 per capita. Massachusetts intends to make payments to the OPEB trust fund with 5% of excess capital gains tax distributed to the BSF (although this requirement was suspended in fiscal 2015), and a portion of tobacco settlement money that increases in 10% increments each year. In fiscal 2016, the incremental tobacco money increase to the OPEB trust was suspended with the commonwealth contributing 30% of tobacco settlement money, or approximately $77 million, to the OPEB trust fund, contingent on unexpended debt service appropriations.

The commonwealth's combined budgetary debt service, pension payments, and OPEB payments were about 12% of budgeted expenditures in fiscal 2016. For fiscal 2017, combined budgetary debt service, pension payments, and OPEB payments increase to 12.7% of budgeted expenditures and other uses.

Based on the analytic factors we evaluate for states, on a scale of '1.0' (strongest) to '4.0' (weakest), we have assigned a composite score of '1.9' to Massachusetts, which is consistent with an 'AA' indicative rating. Under our criteria, we can be within one notch off the indicative rating. In our view, Massachusetts still displays several characteristics, such as its strong economy and proactive budget management, which align it better with our 'AA+' rating. In addition, in our view, the shortfalls that the state is facing are currently manageable and management is making attempts to return to structural balance. Our view of the extent to which these positive characteristics outweigh the pressures arising from the state's long-term liabilities and Massachusetts' need to increase reserves to manage future liabilities could change, leading us to realign our rating with the indicative score. Our negative outlook reflects the potential for this shift.

Outlook

The negative outlook reflects our view that despite a period of economic expansion and generally positive revenue trends, Massachusetts continues to face midyear downward revenue revisions and spending pressures that have resulted in small budgetary gaps and reduced fund balances, even if the budget stabilization reserves have remained fairly stable. We recognize that management has been proactive in closing budgetary gaps, even though the mix of solutions includes some nonrecurring measures and limiting the impact on reserves. We had viewed the policy of setting aside above-trend capital gains tax during good times as a positive budget management tool that could mitigate potential future budget volatility. Conversely, management's decision to suspend these transfers shortly after adopting them, despite positive economic performance, is viewed negatively from a credit standpoint. In our view, continued structural imbalance and reduction of reserves could contribute to a downgrade over the next few months to a year if we believe that financial flexibility is impaired--especially during a period of positive economic growth--and leaves the state less equipped to deal with the next economic downturn. Although we view the commonwealth's decision to lower its pension system's rate of return assumption down to be more in line with national averages, we recognize that required contributions are rising at a rate that is well above the commonwealth's revenue growth rate Massachusetts' ability to structurally balance its budget and build its reserves is especially important in light of relatively high and rising fixed costs related to debt and retirement funding. We would view significant future underfunding of the actuarial annually determined pension contribution as a potential structural imbalance. Continued budgetary pressure resulting from pension underfunding or weak investment returns could also lead us to lower the rating over the outlook horizon.

Upside scenario

Should the commonwealth demonstrate a renewed commitment to building its reserves, absent rising long-term liability funding pressures, we could revise the outlook to stable. At this point, we don't foresee a scenario within the remaining outlook horizon, where we would raise the rating.

Governmental Framework

State finance law requires that the governor submit a balanced budget and the House and Senate each produce a balanced budget. The final general appropriation act must also be balanced. If there is a revenue shortfall, the governor is required by section 9C of Chapter 29 to reduce agency appropriations or recommend a transfer from the BSF.

Massachusetts has autonomy to raise taxes and has adjusted its tax structure. Medicaid accounts for about 35% of total spending while direct local aid accounts for about 13% of originally budgeted 2016 spending. Funding levels for major program areas have been adjusted as needed. Massachusetts voters have approved revenue growth limitations, but these have not negatively affected operations or limited flexibility, in our view. More significant measures to reduce or eliminate major tax sources have been on the ballot but not approved.

An initiative to raise tax rates on those earning more than $1 million by 4% of income has gathered enough signatures for the legislature to consider a referendum. In May 2016, the legislature agreed to the amendment. If at least 25% of the next legislature supports the measure, which we believe is likely, it will appear on the November 2018 statewide ballot.

The commonwealth is authorized to issue GO debt, special obligation debt, and federal grant anticipation notes. There is a statutory limit on debt outstanding and a policy limitation as stipulated by the commonwealth's debt affordability policy published annually with its capital improvement plan, which is designed to limit debt service on the state's direct debt to no more than 8% of budgeted revenues. These limitations have not impaired flexibility to manage capital and infrastructure requirements. There is no statutory priority for funding debt, but debt service payments are not subject to the warrant requirement applicable to other state spending, and we understand that the comptroller and other state officials have developed procedures to prioritize payments and debt service is given the highest priority among various payment obligations.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.5' to the commonwealth's governmental framework.

Financial Management

Financial management assessment: 'Strong'

S&P Global Ratings maintains a strong financial management assessment (FMA) score for Massachusetts. In our framework, an FMA of strong indicates that practices are strong, well embedded, and likely sustainable. Many of the commonwealth's management practices related to debt and financial management are embedded in statute.

Highlights include the following:

- Massachusetts uses internal resources and outside economic forecasting firms to develop a consensus revenue forecast. It has regularly performed monthly revenue estimates and quarterly budget reviews. Legislation approved in 2008 requires that revenue reports be submitted semimonthly to the legislature.
- A five-year CIP (administrative intent, not binding) coordinates every facet of debt issuance. The CIP includes a detailed debt affordability analysis that officials update each year.

The commonwealth has detailed and frequently reviewed investment policies managed through the office of the treasurer. Quarterly cash flow projections are prepared and submitted to the legislature.

Massachusetts has a statutorily established BSF that prescribes a mechanism for funding, as well as funding levels, although the process has sometimes changed from year to year.

There are statutory limits on debt issuance. For direct debt, there is a limit allowing the issue of up to 105% of the previous year's limit. In addition to the aforementioned statutory requirement, the governor's office adheres to an administrative bond cap (debt service capped at 8% of budgeted revenues), which sets the annual limit on debt issuance. The treasurer's office maintains debt management and swap policies that we view as comprehensive. Officials also introduced an asset-liability management policy in fiscal 2014.

Massachusetts has a statutorily established BSF that prescribes a mechanism for funding, as well as funding levels. Statute requires the deposit of 100% of consolidated net surplus in any given year into the BSF. The statute also provides that the BSF's maximum amount cannot exceed 15% of the current year's revenues. The commonwealth must use any excess for tax reduction. A change in 2010 directed capital gains tax revenues of more than $1 billion to the fund, although the state has suspended this in the past two years. Legislation from 2012 indexes the capital gains amount to growth in U.S. GDP. The statute also directs 5% of the excess to the state retiree benefits trust fund and the pension liability fund. We believe this measure has the benefit of enhancing the fund while decreasing budget reliance on this cyclical revenue source. Nevertheless, the commonwealth diverted to the general fund in fiscal years 2015 and 2016 excess capital gains tax that would otherwise have gone to the BSF. Some judgments and settlements must also be deposited to the fund, although this requirement was modified in fiscal 2015 so that only settlements and judgments exceeding the average of the total for the preceding five fiscal years would be transferred to the BSF.

The commonwealth has detailed and frequently reviewed investment policies managed through the office of the treasurer. Quarterly cash flow projections are prepared and submitted to the legislature.

Budget management framework

Once the budget is approved, the Secretary of Administration and Finance (A&F) monitors expenditures, at least quarterly, and receives regular monthly updates on revenue receipts. The A&F secretary is required to formally update revenue projections and submit them to the legislature in October. If officials expect projected revenues to be insufficient to meet appropriations, A&F certifies this and, pursuant to statute (section 9C of Chapter 29), the governor is required to reduce allotments, or submit proposals to raise additional revenues or to make appropriations from the BSF to restore balance. Budget adjustments have historically been implemented regularly and on time, and deficits are not carried forward.

Massachusetts is a voter-initiative state. Although there have been initiatives that limit the overall growth in state tax revenue and a limit on the amount of bonds outstanding and debt service appropriations, these have not substantially altered Massachusetts' ability to manage its budget or fund debt service in our opinion. While more recent ballot initiatives to reduce or eliminate major tax sources of the state were not approved, the legislature can amend an initiative, and a recent initiative rolled back inflation indexing for a gas tax. An initiative to add an extra 4.0% income tax to annual income of more than $1 million a year received enough signatures for the legislature to consider placing it on the November 2018 ballot. This year's legislature gave the initiative its initial approval in May 2016, and it will be placed on the 2018 ballot assuming 25% of the next legislature also approves it, which we believe is likely.

The commonwealth provides a relatively high level of service, in our opinion. Adjustments have been made to programs but reductions to areas such as education have been limited.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.0' to Massachusetts' financial management framework.

Economy

Massachusetts' labor market fared relatively well in 2016. Unemployment rates have declined at a steady pace due to positive employment trends. The average annual unemployment rate for 2016 was 3.7%, which was below the 5.3% rate for the nation, while the state unemployment rate as of September 2016 had fallen to 3.6%, compared with 4.9% for the nation. The U.S. Census Bureau population estimate for Massachusetts in 2015 is 6.8 million, a 0.7% increase from 2014, and a 6.1% increase over the past 10 years, compared with 8.8% for the nation. Population growth has outpaced the region since 2007 but continues to lag the nation and we expect this trend to continue. The commonwealth's age dependency ratio of nonworking age population to working age population at 55.7% in 2015 was better than that of the nation (60.7%).

Massachusetts has always had high income levels. Per capita personal income increased to $61,032 in 2015, or 128% of the national level--a ratio the commonwealth has held consistently for the past seven years. We expect that income will remain well ahead of that of other states based on the nature of the jobs being created and the pace of expansion. IHS Global Insight projects state gross product to rise 1.5% in 2016, 2.2% in 2017 and 2018, and 1.9% in 2019, at rates slightly under, but comparable with its forecast for the U.S. In 2015, gross state product per capita was 128% of that of the nation.

The economy has diversified and education and health services now make up the primary employment sectors, accounting for 21.8% of total non-farm employment in 2015 according to the Bureau of Labor Statistics, compared with 15.5% for the nation. This is followed by trade and transport (16.3% versus 19.0% nationally) and professional business services (15.3% versus 13.8%). Cyclical sectors, such as manufacturing and construction, represent only 7.2% and 4.0% of employment, respectively. The increasing role of services in the economy reflects growth in research laboratories, computer software, management consulting, other business services, and health care. Higher education anchors, a high level of federal research funding, and venture capital give the commonwealth a leading edge in emerging industries, such as biotechnology, software, communications equipment, and surgical instruments. In addition, its defense-related industries continue to perform well. Massachusetts ranks eighth out of the 50 states by value of federal defense and research contract awards. It is unclear how proposed increased spending at the federal level would affect the state's economy.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.7' to Massachusetts' economy.

Budgetary Performance

The state has established a formal BSF under statutory law that receives excess capital gains taxes over a threshold amount, indexed for inflation. A threshold of $1 billion was in effect for fiscal years 2011, 2012, and 2013. Since then, the threshold is subject to annual adjustment to reflect the average annual rate of growth in U.S. GDP over the preceding five years. Under statutory law, tax revenues collected from capital gains income during a fiscal year that exceed the threshold are required to be transferred to the BSF, with 5% of the amount so deposited then transferred to the State Retiree Benefits Trust Fund (for OPEB) and an additional 5% transferred to the commonwealth's pension liability fund. However, in fiscal years 2015 and 2016, capital gains taxes that would have otherwise flowed to the BSF paid general fund budget expenditures. The enacted 2016 budget assumes the fiscal 2016 capital gains collections threshold (suspended in that fiscal year) to be approximately $1.09 billion, with the excess diverted to the general fund instead of the BSF to be approximately $300 million. Although the governor's fiscal 2017 budget proposal included partially resuming a $206 million deposit of capital gains to the BSF, this was still $150 million short of the original statutory formula for deposit of excess capital gains tax. Furthermore, based on revisions to the commonwealth's revenue estimates, Massachusetts does not anticipate making a transfer of excess capital gains unless these exceed current revenue estimates. It estimates the BSF will increase by roughly $11 million to $1.303 billion at the end of fiscal 2017 based on investment earnings, assuming no use of the BSF, to close out fiscal 2017; this is down from estimates of $1.528 billion in the governor's proposed budget.

The fiscal 2017 budget was approved by the governor on July 8, 2016. The enacted budget is based on a revenue estimate that was lowered by $636 million to $26.23 billion (from $26.86 billion) to account for weaker tax collections in fiscal 2016. At $26.23 billion, revenues in fiscal 2017 are expected to grow by a more modest 3.8% from estimated actual collections in fiscal 2016. Total revenues available, including federal reimbursements, beginning fund balances, and interfund transfers total $40.8 billion. Total budgeted expenditures and other uses are $40.9 billion and exceed available revenues by approximately $88 million. In our view, the budget is nearly balanced with some limited use of one-time revenues. Despite Massachusetts being in the eighth year of economic recovery and experiencing positive revenue trends, in our view, budget worries remain regarding growth in MassHealth spending and the slow build-up of the BSF during a period of positive revenue growth, and despite policies that were intended to more aggressively build up reserves to help the commonwealth manage through revenue downturns.

The BSF reached a peak of $2.335 billion at fiscal year-end 2007, before being drawn down to $670 million at fiscal year-end 2010 during the Great Recession. The commonwealth subsequently began using excess capital gains tax to build up the fund again to $1.65 billion at fiscal year-end 2012. The BSF stood at $1.25 billion at fiscal year-end 2015, or 3.2% of operating expenditures, following a $124 million deposit after the end of the fiscal year from surplus operating revenues into the BSF, offset by budgeted fiscal 2015 BSF draws, for a net increase of $4 million in the BSF. Total operating reserves at fiscal year-end 2015, including the BSF, were $1.57 billion, or 4.0% of expenditures and other uses, which declined slightly to $1.482 billion at fiscal year-end 2016, or 3.6% of expenditures and other uses. We believe the commonwealth is somewhat exposed to cyclical swings in capital gains tax revenue, which Massachusetts projects will constitute about 5% of fiscal 2017 tax revenues. However, we also believe the commonwealth has a good history of making timely midyear budget adjustments when needed. Before the proposed fiscal 2016 budget adjustments of about $311 million, Massachusetts calculated one-time budget items in the budget at $629 million, or only 1.5% of projected expenditures, indicating what we view as near-structural balance, despite the projected small drawdown in overall reserves. Overall reserves declined by $89 million in fiscal 2016 due to expenditures exceeding revenues; however, the BSF reserve increased by $39 million due to transfers related to growth in abandoned property tax revenues.

We view Massachusetts' liquidity as strong, with the help of annual cash flow note borrowing. The commonwealth does not engage in interfund borrowing. It currently projects to end fiscal 2017 with a general fund cash balance of $2.5 billion, and estimates its month-end cash low point in fiscal 2017 will have been February 2017, with a $1.5 billion general fund cash balance. In fiscal 2017, the commonwealth issued $1.5 billion in revenue anticipation notes, maturing in April, May, and June 2017. Cash flow notes must be repaid by the end of the fiscal year. Fiscal 2016 ended with a non-segregated general fund cash position of $2.4 billion. For fiscal 2017, the commonwealth currently projects ending fiscal 2017 with $2.57 billion in non-segregated cash.

We view Massachusetts' revenue sources as diverse. Income tax was 57% of operating funds tax revenues in fiscal 2016 on a budgetary basis, and sales tax was 24%.

We believe the commonwealth's revenue forecasting is good. Massachusetts prepares quarterly revenue updates and uses a consensus revenue forecast for budgeting purposes. We believe that state budgeting has historically been done with an eye toward long-term structural balance. However, we believe that Massachusetts is a high service state, with expenditures that may be difficult at times to reduce. In particular, Medicaid plus health and human services spending accounts for 50% of the fiscal 2017 total budget expenditures, while operating funds' debt service accounts for about 6%. Pension funding costs from operating funds in fiscal 2017 are estimated at $2.2 billion, or 5.2%, while OPEB costs for current retirees are about another 1%. For fiscal 2018, the pension contribution is scheduled to increase by 8.9% to $2.394 billion, or 5.5% of the total budget. Tax-supported debt service is 5.6% of budgeted expenditures, and OPEB 1.1%.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '1.7' to Massachusetts' budgetary performance.

Debt And Liabilities

We calculate total GO bond proceeds outstanding at fiscal year-end 2016, the most recent audited year, at $20.8 billion, and total tax-supported debt at $34.5 billion, including debt issued by state authorities and supported by the statewide sales tax, as well as debt of state agencies supported by annual state contract assistance payments. The commonwealth reports it had $22 billion of GO debt outstanding as of Jan. 1, 2017. By most measures, Massachusetts' debt burden remains high compared with that of other states. The variable-rate portfolio is 17% of total GO debt, and the commonwealth actively manages this under formal debt policies. About $1.6 billion, or 8% of state GO debt, consists of unhedged variable-rate bonds, with the remainder of the variable-rate debt's interest rates synthetically fixed through interest rate swaps. Massachusetts has a multiyear asset liability management program that could increase its exposure to unhedged variable-rate debt. However, there are no major plans in the near future to significantly expand its unhedged portfolio. In the past several years, the overall portfolio of variable-rate debt has diversified, and put risk has fallen significantly, in our opinion. The commonwealth also has about $914 million of direct placement debt, whose structure we do not believe creates an unusual risk to the state. Tax-backed debt per capita is high, in our view, at what we calculate as $5,213 at fiscal year-end 2016 and 8.3% of personal income. We also calculate combined total tax-backed debt service to operating expenditures as high at 7.3% on a GAAP basis.

The current five-year CIP projects debt service is to remain below the commonwealth's calculation of 8% of budgeted revenues through fiscal 2021. A state debt and capital affordability committee conducts an annual debt affordability study. The committee includes seven voting members and eight nonvoting members from the legislature and is charged with formally reviewing the CIP and providing an estimate of debt authorization for the year. The current CIP for fiscal 2017 calls for $2.19 billion of bonding, about level compared with that of recent years, as part of a fiscal 2017 total capital budget of $4.1 billion. Our debt calculation includes special tax bonds supported by statewide tax sources in the ratios we use to assess total tax-supported debt.

Massachusetts continues to gradually lower its investment return assumption, which we view as positive, but which translates into further declines in its combined funded ratio and increased funding needs. An actuarial valuation of the commonwealth's total pension obligation suggests a combined pension funded ratio of 56% funded as of Jan. 1, 2016, from 61% in January 2015 based on market value of assets. The total actuarial funded ratio (using actuarial value of assets) declined to 56.7% from 59.0% in 2015. The funded ratio remains far below the actuarial 78.6%-funded ratio in 2008, before the Great Recession. Based on Massachusetts' actuarial calculation (not Governmental Accounting Standards Board [GASB]), the commonwealth's primary government unfunded pension liability was $37.9 billion for the combined state employees, teachers, and Boston teachers' pension funds, and up from $33.4 billion, as of Jan. 1, 2015. We calculate this is $5,548 per capita, and 8.9% of personal income, which we consider high. For our analysis, we calculate the three-year average funded level at 62% (2014-2016) using GASB 68 reporting. Massachusetts attributes the relatively low funded ratio to recognition of previous-year investment losses and lowering the investment return assumption to 7.50% in 2016 from 7.75%, which we view as more conservative, optional transfer of Optional

Retirement Program members into Massachusetts State Employee Retirement System, and the adoption of an employee retirement incentive program,. Weaker-than-assumed market performance and changes to the systems' assumed rate of return, while bringing it more in line with the average for other plans across the nation, have resulted in increased contributions if the state is expected to remain on track to fully amortize its liabilities by 2040. The new assumed rate of return of 7.5% remains is below the Pension Retirement Investment Trust's (PRIT) 9.2% five-year and the 5.1% 10-year average returns.

Massachusetts' ARC calculation assumes amortization of the commonwealth's unfunded actuarial liability on a 4% annual increasing basis to reach full amortization of its unfunded liability by fiscal 2040. However, from a funding standpoint, Massachusetts has continued to calculate its contribution by setting funding targets based on percentage increases to contributions rather than adjusting for increases necessary to keep level amortization of the liability. This translates into a slightly more back-loaded amortization of the liability. Furthermore, the commonwealth continues to establish its contribution levels on a three-year lagged budgetary basis. Although actuarial valuations are conducted each year, this policy of only adjusting funding every three years provides greater budgetary predictability at the expense of more timely funding adjustments in recognition of known assumption changes, such as revised assumed rate of return and demographic assumptions. The state recently updated its contribution projections with the annual increase in contribution rising to 8.9% from 7% annually through 2036. Based on the state's projections, despite these increased contributions, the funded ratios on an actuarial basis remains at 57%. In fiscal 2016, the commonwealth contributed 77% of ARC to its two main employees' retirement system, down from 81% in fiscal years 2014, but up from 75% in 2015. For fiscal 2017, it has budgeted to fund $2.2 billion, or 72%, of the $3.06 billion ARC. As part of our revised criteria, we look to the ratio of active-to-inactive members to determine how mature the system is and how it compares with the national average. For Massachusetts State Retirement Board and Massachusetts Teachers' Retirement System, the ratio of actives to retirees is 1.6 and 1.4, respectively, and in line with the 1.5 national average. Experience studies are only conducted every six years as per statute, which we view as a weakness. Although the commonwealth updates portions of the studies more frequently, this is not done on a set schedule, but rather as needed.

Massachusetts had a $16.3 billion unfunded actuarial accrued OPEB liability as of Jan. 1, 2016, which we consider sizable, at $4,451 per capita, but down from $16.3 billion recorded in 2012, as various reform measures were phased in and OPEB trust fund deposits have been made. The commonwealth has dedicated tobacco settlement revenues toward its OPEB trust fund to provide a permanent funding source, which we consider a credit positive, although trust fund deposits were made from other sources recently. The portion of tobacco settlement money dedicated to the OPEB trust fund is scheduled to increase in 10% increments each year, until it reaches 100%, although in fiscal 2016 the incremental increase was suspended. In fiscal 2016, the commonwealth contributed 30% of tobacco settlement money, or approximately $77 million, to the OPEB trust fund. For fiscal 2017, the enacted budget suspended the 10% increase and instead funded the transfer at 10% of tobacco settlement money or $25.7 million, a substantial decline from prior-year requirements. The governor has proposed an amendment that would bring the fiscal 2017 contribution back to 30% or $76 million; however, the legislature has not yet acted on this proposal. The trust had assets of $760.4 million as of Jan. 1, 2016.

On a scale from '1.0' (strongest) to '4.0' (weakest), S&P Global Ratings assigned a score of '3.5' to Massachusetts' debt and liability profile.

Ratings Detail (As Of March 23, 2017)		
Massachusetts GO bnds consolidated loan ser 2016I due 12/01/2035		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts GO bnds consolidated loan ser 2016J due 12/01/2046		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts GO VRDBs - C		
Long Term Rating	AA+/A-1+/Negative	Affirmed
Massachusetts GO VRDBs 2000A		
Long Term Rating	AA+/A-1/Negative	Affirmed
Massachusetts GO VRDBs 2000B		
Long Term Rating	AA+/A-1/Negative	Affirmed
Massachusetts GO VRDBs 2006A		
Long Term Rating	AA+/A-1+/Negative	Affirmed
Massachusetts GO (wrap of insured) (ASSURED GTY & AMBAC) (SEC MKT)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts GO (wrap of insured) (FGIC & BHAC) (SEC MKT)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts GO (AGM) (SEC MKT)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts GO (BAM) (SECMKT)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts GO (BAM) (SECMKT)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts GO (BAM) (SEC MKT)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts GO (FGIC)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts GO (MBIA) (Assured Gty)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts GO		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts GO		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts GO		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts GO		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts GO		
Long Term Rating	AA+/Negative	Affirmed

Ratings Detail (As Of March 23, 2017) (cont.)		
Massachusetts GO		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts GO		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts GO		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Boston Hsg Auth, Massachusetts		
Massachusetts		
Boston Hsg Auth (Massachusetts) APPROP		
Long Term Rating	A+/Negative	Affirmed
Massachusetts Bay Transp Auth, Massachusetts		
Massachusetts		
Massachusetts Bay Transp Auth (Massachusetts) var rate gen transp sys bnds 2000A-1 & A-2 ser dtd 03/09/2000 RMKTD dtd 09/30/2011 due 03/01/2030		
Long Term Rating	AA+/A-2/Negative	Affirmed
Massachusetts Bay Transp Auth (Massachusetts) GO		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts Bay Transp Auth (Massachusetts) GOEQUIV		
Long Term Rating	AA+/A-1/Negative	Affirmed
Massachusetts Bay Transp Auth (Massachusetts) GO (AGM)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts Bay Transp Auth transp sys bnds (Massachusetts)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts Bay Transp Auth (Massachusetts)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts Dept of Transp, Massachusetts		
Massachusetts		
Massachusetts Dept of Transp (Massachusetts) GO		
Long Term Rating	AA+/A-1/Negative	Affirmed
Unenhanced Rating	NR(SPUR)	
Massachusetts Dept of Transp (Massachusetts) GO		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts Dept of Transp (Massachusetts) GO VRDO 2010A-1		
Long Term Rating	AA+/A-1+/Negative	Affirmed
Massachusetts Dept of Transp (Massachusetts) GO VRDO 2010A-2 A-7		
Long Term Rating	AA+/A-1	Affirmed
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts Dept of Transp (Massachusetts) GO VRDO 2010B		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts Dept of Transp (Massachusetts) JOINTCRIT		
Long Term Rating	AA+/A-1	Affirmed

Ratings Detail (As Of March 23, 2017) (cont.)		
Unenhanced Rating	AA+(SPUR)/Negative	Affirmed
Massachusetts Dept of Transp (Massachusetts) Metropolitan hwy sys rfdg bnds (Massachusetts) ser 2016A dtd 12/20/2016 due 01/01/2035		
Long Term Rating	AA+/Negative	Affirmed
Massachusetts Dept of Transp (Massachusetts) VRDBs 2010A-7		
Long Term Rating	AA+/A-1+/Negative	Affirmed
Massachusetts Development Finance Agency, Massachusetts		
Massachusetts		
Massachusetts Dev Fin Agy (Massachusetts) GO		
Long Term Rating	AA+/Negative	Affirmed
Univ of Massachusetts Bldg Auth, Massachusetts		
Massachusetts		
University of Massachusetts Bldg Auth (Massachusetts) GO		
Long Term Rating	AA+/A-2/Negative	Affirmed
Univ of Massachusetts Bldg Auth (Massachusetts) GOEQUIV		
Long Term Rating	AA+/A-1+/Negative	Affirmed

Many issues are enhanced by bond insurance.