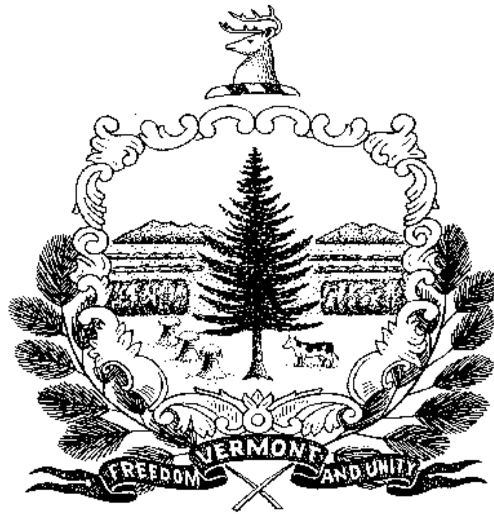
CAPITAL DEBT AFFORDABILITY ADVISORY COMMITTEE

State of



Vermont

RECOMMENDED ANNUAL NET TAX-SUPPORTED DEBT AUTHORIZATION

October 2020

Prepared by:
PUBLIC RESOURCES ADVISORY GROUP
39 Broadway, Suite 1210
New York, NY 10006
(212) 566-7800

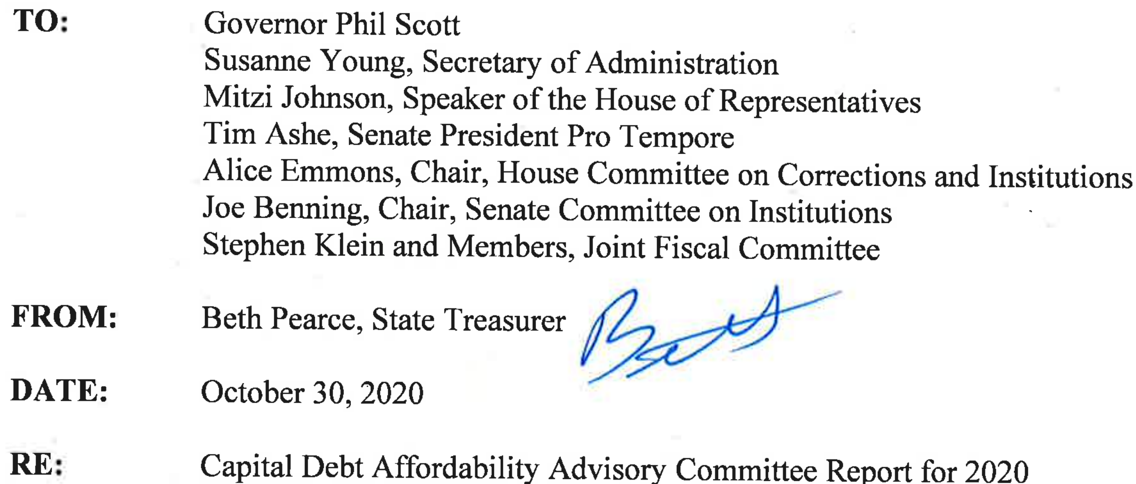
ELIZABETH A. PEARCE
STATE TREASURER

RETIREMENT DIVISION
TEL: (802) 828-2305
FAX: (802) 828-5182

UNCLAIMED PROPERTY DIVISION
TEL: (802) 828-2407

ACCOUNTING DIVISION
TEL: (802) 828-2301
FAX: (802) 828-2884

STATE OF VERMONT
OFFICE OF THE STATE TREASURER



TO: Governor Phil Scott
Susanne Young, Secretary of Administration
Mitzi Johnson, Speaker of the House of Representatives
Tim Ashe, Senate President Pro Tempore
Alice Emmons, Chair, House Committee on Corrections and Institutions
Joe Benning, Chair, Senate Committee on Institutions
Stephen Klein and Members, Joint Fiscal Committee

FROM: Beth Pearce, State Treasurer

DATE: October 30, 2020

RE: Capital Debt Affordability Advisory Committee Report for 2020

Pursuant to 32 V.S.A. §1001, I am pleased to deliver on behalf of the Capital Debt Affordability Advisory Committee ("Committee" or "CDAAC") its "Recommended Annual Net Tax-Supported Debt Authorization" Report for 2020 ("Report"). The Committee's two-year debt recommendation for fiscal years 2022 and 2023 is $123,180,000, reflecting no change from the previous biennium's recommendation of $123,180,000.

As noted in the Report, the more limited debt issuance among the triple-A rated states over the past several years, combined with the State issuing more debt than it has been retiring, has weakened the State's relative position compared to its peers. While the Committee has recommended reductions in authorizations over the past three biennia, resulting in a 23% reduction in recommended issuance, the Committee is also cognizant of the unprecedented economic repercussions from the COVID-19 pandemic. The Committee therefore decided not to change its biennial recommendation from the current level.

In 2019, the Committee recommended that CDAAC establish a working group to evaluate the best use of bond premium and the benefits of the State increasing its Pay-go funds, and report recommendations to the full CDAAC. While much of this work was interrupted by COVID, we expect to complete these tasks over the next year, including incorporating a review of the capital budget and 10-year capital program to provide suggestions regarding the funding of deferred maintenance consistent with CDAAC's past discussions and rating agency guidance.
In addition, the working group will undertake a review of metrics used to develop future recommendations for debt affordability and the resulting debt issuance.

I would like to thank the Committee for its work this year. Please contact me with any questions.

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1. OVERVIEW

Purpose

In accordance with 32 V.S.A., Chapter 13, Subchapter 8 "Management of State Debt," the Capital Debt Affordability Advisory Committee (the "Committee" or "CDAAC") is required to present to the Governor and the General Assembly each year, no later than September 30, an estimate of the maximum amount of new long-term net State tax-supported debt that Vermont may prudently authorize for the next fiscal year. In Sec. 1 of Act No. 104 of 2012, the General Assembly expressed its intent to move to a biennial capital budgeting cycle "to accelerate the construction dates of larger projects and thus create jobs for Vermonters sooner than would be possible under a one-year capital budgeting cycle." In response, starting with its 2012 Report, the Committee has formally presented a two-year debt recommendation.

Committee Duties

The Committee is directed, under VSA 32: 1001 as to the considerations upon which it shall deliberate and report in recommending affordability.

Formal Recommendation

Based upon the economic and financial projections prepared by Economic and Policy Resources, Inc. (EPR), the administration's economist, the Committee's two-year debt recommendation for fiscal years 2022 and 2023 is $123,180,000, reflecting no change from the previous biennium recommendation of $123,180,000. CDAAC's formal recommended debt authorization complies with the State's triple-A debt affordability guidelines, other than (i) the debt per capita guideline and (ii) the debt as a percentage of personal income in FY 2021 and FY 2022, as described in Section 3, "Debt Guidelines," is consistent with the current expectations of the rating agencies, and demonstrates that the State continues to manage its debt issuance program in a prudent and restrained manner.

As part of the annual review process, CDAAC conducted a comprehensive review of affordability factors and metrics. The Committee reviewed the State's annual cost of debt service as a percentage of revenues, and other debt ratios such as debt as a percentage of gross state product, debt as a percentage of personal income and debt per capita. While the Committee has primarily used this consistent set of debt metrics for a number of years, the Committee also had an initial review of metrics used by other States. That review will be continued and expanded in the following year in the working group, which was initially established to evaluate the best use of bond premium, the benefits of the State increasing its Pay-go funds and possible sources for deferred maintenance funding, as discussed below. Consistent with the criteria used by the rating agencies to evaluate U.S. states' overall credit ratings, CDAAC also reviewed debt metrics when combined with other state long-term liabilities, including pensions and other post-employment benefits. In 2020, CDAAC also analyzed a decrease of revenues and interest rate increases, to view the debt metrics and how they relate to the State's guidelines. See Section 6, "State Guidelines and Recent Events" for a detailed discussion of CDAAC's analytical approach.

As stated in past CDAAC reports, the more limited debt issuance among the State's peer triple-A rated states over the past several years and the State issuing more debt than it has been retiring has weakened the State's relative position compared to its peers. The Committee was concerned by this trend, and thus lowered the last biennium recommendation in 2018. Due to the unprecedented

economic repercussions from the COVID-19 pandemic, the CDAAC decided not to change its biennial recommendation from the current level. Given the unprecedented time, the Committee may seek to revise its recommendation in the future in order to enable the State to react to the changing circumstances in the COVID-19 environment. As such, the projected debt issuance of $144,245,000 in FY 2021 (related to previously authorized but unissued debt) and the recommended $61,590,000 per year thereafter, the State is only projected to have a marginally higher (3.0%) amount of debt outstanding at the end of the 10-year projection period in fiscal 2031 versus the amount outstanding in the current fiscal year 2021. Thus, the State's overall projected issuance during this time period is slightly in excess of its scheduled aggregate debt retirements. See "Long-Term Net Tax-Supported Debt and Debt Service Projections" on the following pages. Upon careful consideration, including, but not limited, to 32 VSA: 1001; sections (c)(6), (c)(7), (c)(8), (c)(9)(A), and (c)(9)(B), CDAAC opted to maintain the current biennium authorization.

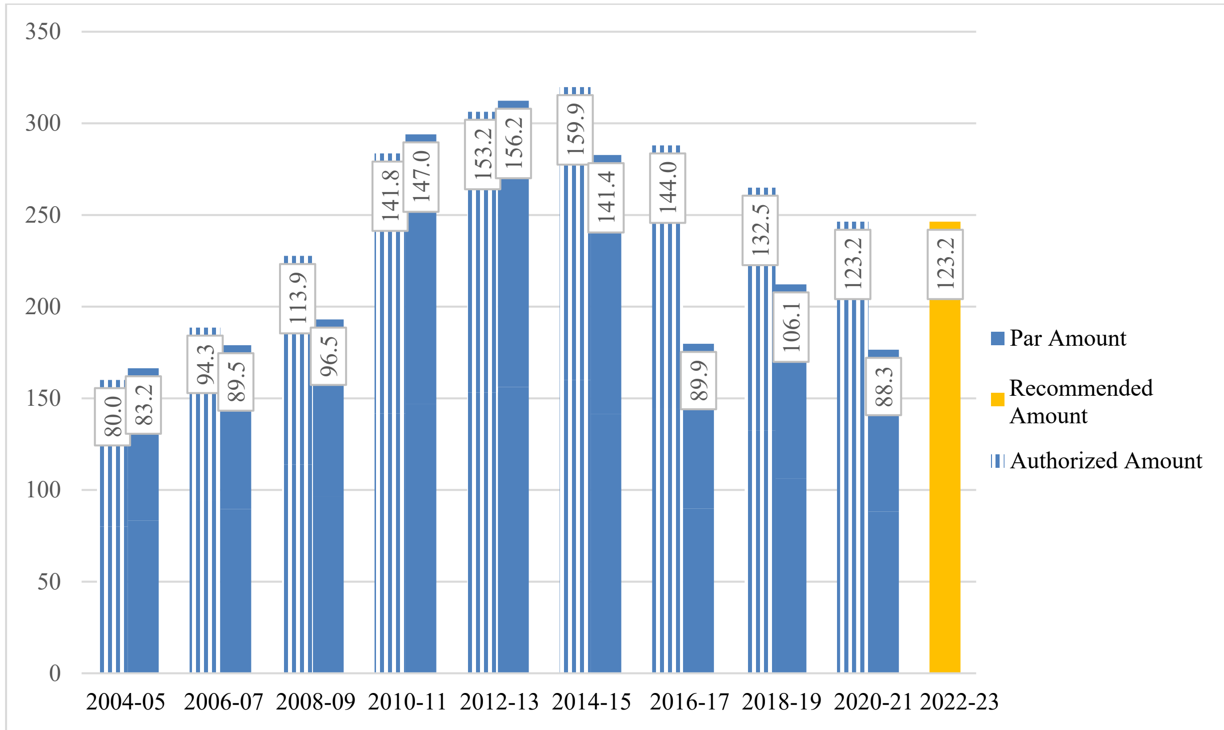
Definition of Vermont's "Long-Term Net Tax-Supported Debt"

As a matter of practice, while the CDAAC legislation refers to an authorization of "net tax-supported debt," the amount of net tax-supported debt for the State has, prior to 2019, meant only general obligation (or "G.O.") and capital leases ("Capital Leases") debt, and prior CDAAC reports assumed only G.O. debt and Capital Leases for purposes of calculating its projected net tax supported debt ratios. However, rating agencies generally consider revenue bond debt repaid from state general revenue sources as part of a state's net tax-supported debt. The Vermont Housing Finance Agency's property transfer tax bonds issued in January 2018 ("VHFA Property Transfer Bonds") are paid through a direct appropriation of State general revenues. Moody's, the only rating agency that was requested to rate the VHFA Property Transfer Bonds, includes these bonds, along with G.O. debt and Capital Leases, as part of the State's net tax supported debt. For these reasons, CDAAC began including the VHFA Property Transfer Bonds as net tax supported debt for authorization and ratio calculation purposes in 2019. As indicated in Section 6, "State Debt Guidelines and Recent Events," the rating agencies also include the State's special obligation transportation infrastructure bonds ("TIBs"), as part of net tax-supported debt; however, unlike the VHFA Property Transfer Bonds, the TIBS are not paid by a direct appropriation of State general revenues and are rather paid from assessments that are segregated revenue dedicated for capital funding and not considered a general revenue source by the State. Nevertheless, after internal analysis and discussion, the State will, beginning with this report, treat the TIBs as net tax-supported debt in its debt statement. In prior CDAAC reports, the "Dashboard Indicators" debt metrics were calculated with and without TIBs. See Section 3, "Debt Guidelines" for further information.

Debt Authorizations and Issuance Amounts

The following chart presents the amounts of G.O. debt that have been authorized and issued by the State since fiscal year 2004 on a biennial basis. As shown below, the State has experienced a significant increase in debt authorizations and issuances over the last seventeen years. For the period from 2004-2015, the biennial issuance approximately doubled; however, in recent years the State has taken steps to reduce its biennial authorization. The 2022-2023 authorization is a 17% reduction from the 2014-2015 biennial authorization amount of $159.9 million. The compound annual growth rate in debt authorizations from 2004 to 2021 has been 2.6%. Including the 2022-2023 recommended authorization amount, the compound annual growth rate in debt authorizations is 2.3%.

STATE OF VERMONT
HISTORICAL GENERAL OBLIGATION. BOND AUTHORIZATIONS AND ISSUANCE BY BIENNIUM][(1)(2)(3)]
(IN MILLIONS OF DOLLARS)



Notes:

[(1)]Annual issuances do not include refunding bonds. Authorized but unissued debt has been carried forward and employed in subsequent years' bond issuances.

[(2)]Pursuant to Section 34 of Act 104 of 2011, commencing in fiscal year 2013, premium received from the sale of bonds may be applied towards the purposes for which such bonds were authorized.

[(3)]The "Authorized" amount reflects the two-year authorized amount of the General Assembly. These amount exclude any amounts authorized that relate to the principal amount of bonds authorized in prior biennial capital bills but not issued due to the use of original issue bond premium to fund capital projects. The "Recommended" amount reflects the recommended two-year authorization amount of the Committee.

For fiscal years 2020-2021, the General Assembly authorized $123,180,000 in new general obligation bonds. In addition, there was at that time, $109,170,582.65 outstanding from prior year authorizations. In August 2019, the State issued $88,255,000 2019 Series A Bonds ("2019A Bonds") that produced $99,736,687.17 in proceeds available for capital projects within the State. The 2019A Bonds were issued at a net premium in the amount of $11,481,687.17. The 10-year projection of State debt assumes that the State issues in FY 2021 the remaining authorization of $144,245,000 ($144,248,255.48, rounded down to the nearest $5,000 denomination), representing the balance of the previous biennium authorization amount to $109,170,582.65, plus current biennium authorization of $123,180,000, less the amount funded with proceeds from the issuance of the 2019A Bonds in the amount of $99,736,687.17 plus unissued gross bond premium of $11,634,360.00 that was recently authorized by the 2020 Capital Bill Adjustment as described below..

Capital Funding and Capital Plan

For fiscal years 2020-2021, the General Assembly in the 2019 Capital Bill (H.543), as amended by the 2020 Capital Bill Adjustment (Act 139), authorized $123,180,000.00 in total capital project spending in new general obligation debt and are able to utilize an additional $11,634,360.00 in transfers and reallocations via the unissued bond premium from the 2019 A Bonds. The proceeds of the bonds will be allocated for building community grants, renovation projects and land acquisitions to the Department of Military, the ongoing commitment for Vermont's Clean Water Initiative, needed investments in State-owned buildings and facilities, and other appropriations of the State.

Vermont's Department of Building and General Services prepares an annual report on or before each January 15th to provide information on encumbrances, spending and project progress for authorized capital projects based on reporting received by the agencies that have received capital appropriations. With the passage of 32 V.S.A. § 310 and as amended in 2019, the Administration is required to prepare and revise a ten-year State capital program plan on an annual basis, submitting it for approval by the general assembly. The statute requires the plan to include a list of all recommended projects in the current fiscal year, plus the following nine fiscal years thereafter. The recommendations include an assessment, projection of capital needs, a comprehensive financial assessment, and an estimated cost of deferred infrastructure maintenance in State building and facilities. CDAAC believes that long-term capital planning coupled with projected funding sources will result in a more efficient funding process for State capital projects. The working group that CDAAC established to evaluate the best use of bond premium and the benefits of the State increasing its Pay-go funds has been tasked with reviewing the capital budget and 10-year capital program to provide suggestions regarding the funding for deferred maintenance consistent with CDAAC's past discussions and rating agency guidance as discussed below.

In 2018, CDAAC reviewed rating agencies' concerns regarding the level of state and local governments' deferred maintenance on critical infrastructure and likelihood of this becoming an increasing focus in the rating agencies' evaluation of the creditworthiness. S&P published a report in May 2018 titled *Between a Budget and a Hard Place: The Risks of Deferring Maintenance for U.S. Infrastructure* that outlined the growing level of deferred maintenance in the U.S. and the absence of a standard for measuring the amount of deferred maintenance. The report also discussed the need for state and local governments to identify and report on deferred maintenance and for governments to establish asset replacement funding solutions. In 2020, S&P published a report in January 2020 titled *Finding Balance in Today's Lower-For-Longer Economy* that summarizes the state outlooks for the future regarding pensions costs, economic challenges and Medicaid expansion and funding, among others. The topic of infrastructure spending is highlighted as a topic of national importance as federal funding could be decided before or after the 2020 general election.

2. STATE DEBT

In general, the State has borrowed money by issuing G.O. bonds, the payment of which the full faith and credit of the State are pledged. The State has also borrowed money to finance transportation capital projects by issuing TIBs, the payment of which is not secured by the full faith and credit of the State. The State has also authorized the Vermont Housing Finance Agency (VHFA) to issue bonds to finance affordable housing projects and use a portion of the State's property transfer tax to pay the bonds' debt service. The State also has established certain statewide authorities that have the power to issue revenue bonds, that are not secured by State taxes, for which the State has contingent or limited liability.

As stated above, the Committee has included the State's G.O. debt and Capital Leases as State net tax, but now also recognizes VHFA Property Transfer Bonds, as well as TIBs, as being part of net tax-supported debt.

General Obligation Bonds

The State has no constitutional or other limit on its power to issue G.O. bonds besides borrowing only for public purposes. Pursuant to various appropriation acts, the State has authorized and issued G.O. bonds for a variety of projects or purposes. Each appropriation act usually specifies projects or purposes and the amount of General Fund, Transportation Fund or Special Fund bonds to be issued, and provides that payment thereof is to be paid from the General, Transportation or Special Fund. Currently, the State has outstanding G.O. bonds payable primarily from the State's General Fund.

The State Treasurer, with the approval of the Governor, is authorized to issue and sell bonds that mature not later than twenty (20) years after the date of such bonds and such bonds must be payable in substantially equal or diminishing amounts annually. Under the General Obligation Bond Law, except with respect to refunding bonds, the first of such annual payments is to be made not later than five years after the date of the bonds. All terms of the bonds shall be determined by the State Treasurer with the approval of the Governor as he or she may deem for the best interests of the State.

VHFA Property Transfer Bonds

The VHFA Property Transfer Bonds were issued in January 2018 are payable through revenues received via a State tax upon the transfer by deed of title to property located within the State. The bonds were issued generally with a level debt service amortization structure and are scheduled to mature in November 2037. The Committee has categorized the VHFA Property Transfer Bonds as net tax-support debt commencing with the 2019 CDAAC Report (see "Definition of Vermont's Long-Term Net Tax-Supported Debt").

Special Obligation Transportation Infrastructure Bonds (TIBs)

The State issued Special Obligation Transportation Infrastructure Bonds in 2010, 2012 and 2013. The debt service of the TIBs are payable from assessments on motor vehicle gasoline and motor vehicle diesel fuel that are segregated apart from all other Transportation Fund revenue, thus the assessments are not considered a general revenue source by the State and the State is not obligated to use any other funds to cover debt service on TIBs. Nevertheless, the TIB revenue is considered tax-revenue of the State and thus the rating agencies consider TIBs as part of net tax-supported

debt. Commencing with the 2020 CDAAC Report, the Committee will recognize the TIBS as net tax-supported debt (see "Definition of Vermont's Long-Term Net Tax-Supported Debt").

Capital Leases

The State also includes capital leases in its total of net tax-supported debt. A capital lease is considered to have the economic characteristics of asset ownership, and is considered to be a purchased asset for accounting purposes. By comparison, an operating lease is treated as a rental for accounting purposes. A lease is considered to be a capital lease if any one of the following four criteria are met:

1. The life of the lease is 75% or longer than the asset's useful life;
2. The lease contains a purchase agreement for less than market value;
3. The lessee gains ownership at the end of the lease period; or
4. The present value of lease payments is greater than 90% of the asset's market value.

The total amount of Capital Leases as of June 30, 2020, with a fair market value of $9.157 million, is included as net tax-supported debt.

The Government Accounting Standards Board ("GASB") implemented "New Government Lease Accounting Standards ("GASB 87)" in which it updates its definition of a lease, effective for financial reporting periods after December 15, 2019. The 2020 CDAAC Report incorporated the State's financial reporting changes related to its leases based on GASB 87. No changes to the State's Capital Leases occurred.

Current Status

Long-Term Net Tax-Supported Debt outstanding as of June 30, 2020 was $678,602,331. The amount authorized but unissued State general obligation debt as of June 30, 2020 was $132,613,895.48, which consists of the previous biennium authorization amount of $109,170,582.65, plus the current biennium authorization of $123,180,000, less the amount funded with proceeds from the issuance of the 2019A Bonds in the amount of $99,736,687.17.

Following the enactment of the 2020 Capital Bill Adjustment (Act 139) on July 6, 2020, which included an additional bonding authorization of $11,634,360.00 related to the bond premium from the issuance of the 2019A Bonds, the current authorized and unissued amount is now $144,248,255.48.

General Obligation Credit Ratings

The State of Vermont's triple-A general obligation ratings were downgraded by Moody's Investors Service ("Moody's") to Aa1 and Fitch Ratings ("Fitch") to AA+ in October 2018 and July 2019, respectively and were affirmed in June 2020. S&P Global Ratings ("S&P") affirmed the State of Vermont's general obligation rating of AA+ in July 2019. Moody's rationale for the downgrade is as follows:

"The downgrade of the ratings incorporates an economic base that faces low growth prospects from an aging population. At the same time, the state's leverage, measured by debt and unfunded post-employment obligations relative to GDP, is high among states and especially so among the highest rated states. With slower than average growth, Vermont's long-term liabilities will weigh more heavily on its economic base and may manifest in growing cost pressures"

Fitch's basis for the downgrade is as follows:

"The downgrade of Vermont's IDR (Issuer Default Rating) and GO rating to 'AA+' from 'AAA' reflect Fitch's lowered assessment of the state's revenue framework, in particular, an expectation of slower growth prospects going forward. Fitch considers Vermont's growth prospects to be more consistent with most of its New England peers, which generally face similar economic and demographic headwinds."

TIBs Credit Ratings

In 2012, S&P upgraded the State's Special Obligation Transportation Infrastructure Bonds from "AA" to "AA+" with a stable outlook. S&P indicated that the upgrade reflected strengthened debt service coverage, and further intention by the State to maintain coverage at no less than 3x, which is viewed as a strong credit factor. In 2018 and 2020, Moody's and Fitch both affirmed their Aa2 and AA ratings, respectfully, for the TIBs.

Net Tax-Supported Debt Outstanding

The State's aggregate Long-Term Net Tax-Supported Debt principal amount of debt increased from $627.8 million, as of June 30, 2019, to $678.6 million, as of June 30, 2020, an increase of 8.1% due to the State issuing bonds in fiscal year 2020, as well as the inclusion of TIBs. The table below sets forth the sources of the change in net tax-supported debt outstanding from fiscal year 2019 to fiscal year 2020 (in thousands).

Net Tax-Supported Debt as of 6/30/19	$627,818
G.O. New Money Bonds Issued	88,255
G.O. Refunding Bonds Issued	39,525
TIBs Inclusion	23,440
Less: Retired G.O. Bonds	(47,075)
Less: Retired G.O. Refunded Bonds	(51,760)
Less: Retired Capital Lease	(261)
Less: Retired VHFA Property Transfer Bonds	(1,340)
Net Tax-Supported Debt as of 6/30/20	$678,602

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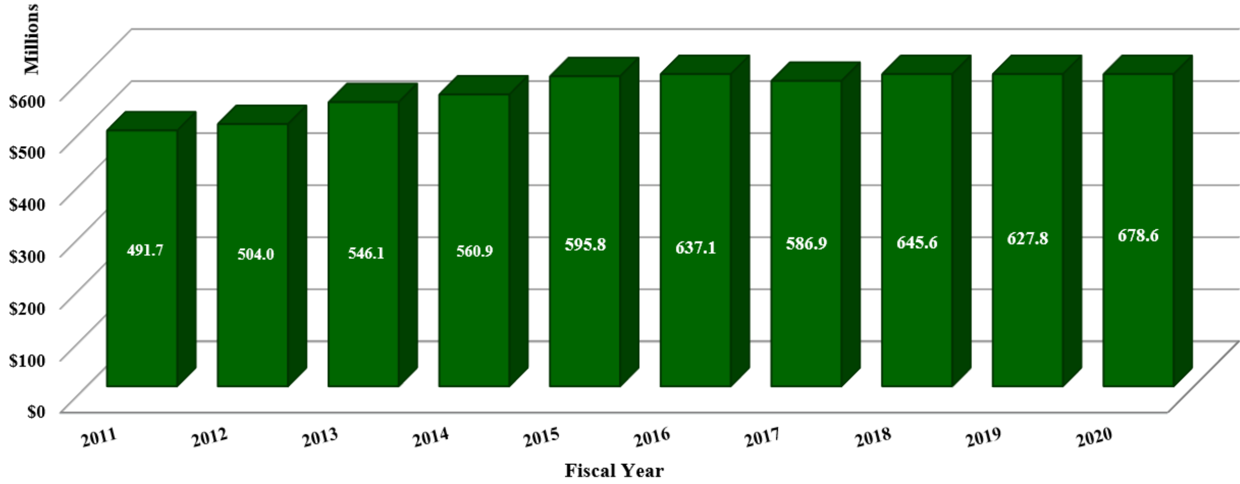
STATE OF VERMONT
Debt Statement
As of June 30, 2020 (In Thousands)

General Obligation Bonds:	
General Fund	$610,182
Transportation Fund	2,813
VHFA Property Transfer Tax Bonds:	
Property Transfer Tax Bonds, Series 2018	$33,010
Capital Leases:	
27 Federal Street, St. Albans	$9,157
Transportation Infrastructure Bonds:	
Special Obligation Transportation Infrastructure Bonds (TIBs)	$23,440
Reserve Fund Commitments[1]:	
Vermont Municipal Bond Bank	$604,030
Vermont Housing Finance Agency	155,000
Vermont Economic Development Authority	181,000
Vermont Student Assistance Corporation	50,000
Vermont Telecommunications Authority[2]	40,000
University of Vermont/State Colleges	100,000
Gross Direct and Contingent Debt	$1,808,632
Less:	
Reserve Fund Commitments	(1,130,030)
Net Tax-Supported Debt	**$678,602**

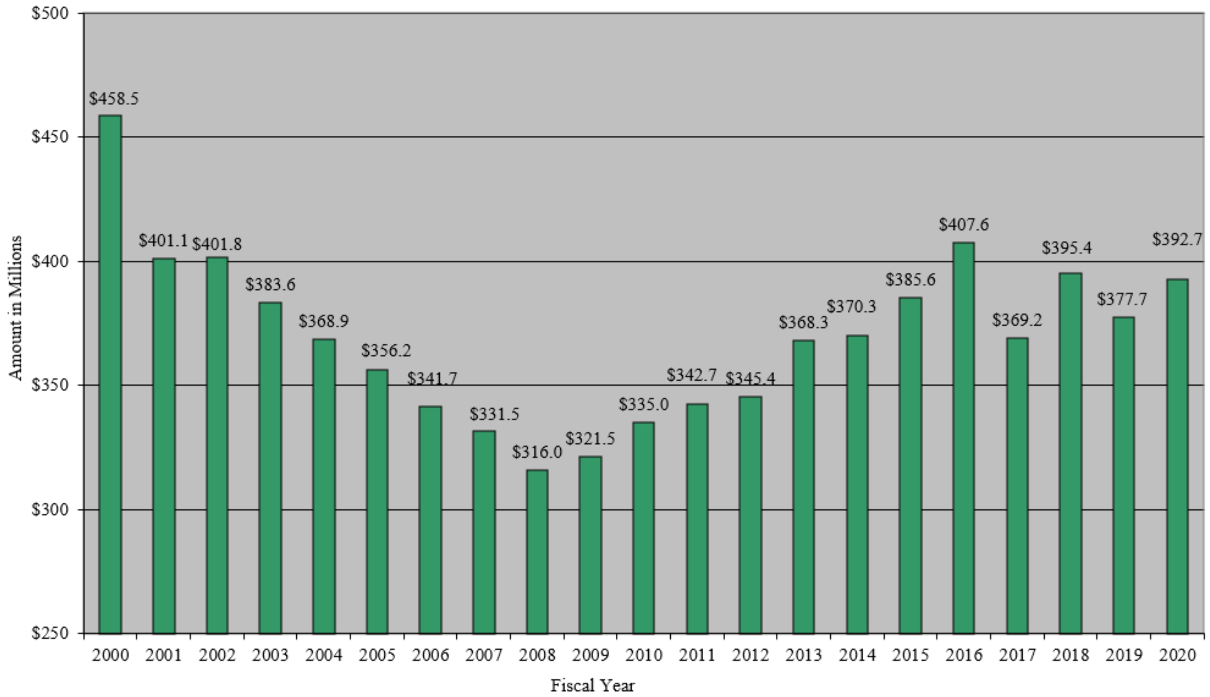
[1]Figures reflect the maximum amount permitted by statute. However, many of the issuers have not issued debt or have not issued the maximum amount of debt permitted by their respective statute. See "Moral Obligation Indebtedness" herein for additional information.

[2]The General Assembly dissolved the Vermont Telecommunications Authority in 2014, however, this amount remains available to the Vermont Telecommunications Authority by statute should it ever be reconstituted.

STATE OF VERMONT
LONG-TERM NET TAX-SUPPORTED DEBT OUTSTANDING FY 2011-2020
(in millions of dollars)



STATE OF VERMONT
GENERAL OBLIGATION DEBT OUTSTANDING, FY 2000-2020
ADJUSTED FOR INFLATION[1] (in millions of dollars)



[1]Does not include TIBs.

The table below sets forth the State's existing principal amounts outstanding and annual debt service requirements, as of June 30, 2020, without the issuance of any additional debt. Rating agencies consider Vermont's rapid debt amortization, with almost 72.5% of current principal retired by fiscal year 2031, to be a positive credit factor.

OUTSTANDING NET TAX-SUPPORTED DEBT
(in thousands of dollars)

	NET TAX-SUPPORTED DEBT											
	GO Debt				Revenue Bonds							
	General Fund		Transportation Fund		TIBs		VHFA Transfer Tax Bonds		Capital Leases		Total	
Fiscal Year	Principal Outstanding	Debt Service*	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service*
2020	610,182	76,504	2,813	560	23,440	2,498	33,010	2,499	9,157	835	678,602	82,897
2021	556,504	75,794	2,396	541	21,710	2,503	31,635	2,500	8,862	854	621,107	82,191
2022	505,697	70,906	1,978	522	19,925	2,506	30,225	2,498	8,529	873	566,354	77,304
2023	456,745	67,123	1,560	502	18,090	2,502	28,775	2,499	8,157	893	513,327	73,519
2024	410,145	62,873	1,300	327	16,205	2,503	27,280	2,501	7,741	913	462,671	69,117
2025	363,590	60,958	1,040	317	14,260	2,506	25,745	2,496	7,280	933	411,915	67,210
2026	319,040	57,118	780	306	12,265	2,497	24,155	2,502	6,770	954	363,010	63,377
2027	276,420	53,466	520	295	10,200	2,503	22,515	2,500	6,207	976	315,862	59,739
2028	236,100	49,571	260	283	8,070	2,498	20,820	2,501	5,588	998	270,838	55,852
2029	197,910	45,972	-	272	5,865	2,499	19,070	2,498	4,908	1,020	227,753	52,261
2030	161,865	42,463	-	-	3,580	2,503	17,255	2,501	4,164	1,043	186,864	48,510
2031	129,040	37,949	-	-	2,205	1,508	15,375	2,499	3,352	1,067	149,972	43,022

* Debt service has been calculated using the net coupon rates on all Build America Bonds taking into account the interest subsidy from the federal government. The entire amount of the Build America Bonds is allocated to the General Fund. Totals may not agree due to rounding.

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Long-Term Net Tax-Supported Debt and Debt Service Projections

The State's projected annual Long-Term Net Tax-Supported Debt service and debt outstanding are presented on the following pages and summarized below. The projected debt service, interest rates of 5%, and assumes the issuance $144,245,000 in FY 2021 and $61,590,000 each fiscal year from 2022-2031.

PROJECTED LONG-TERM NET TAX-SUPPORTED DEBT
DEBT SERVICE AND DEBT OUTSTANDING*
(in thousands of dollars)

Fiscal Year Ending	Long-Term Net Tax Supported Debt Debt Service	% Change	Long-Term Net Tax Supported Debt Outstanding	% Change
6/30/2020	82,897	6.50%	678,602	8.09%
6/30/2021	82,191	-0.85%	765,352	12.78%
6/30/2022	91,727	11.60%	764,979	-0.05%
6/30/2023	93,740	2.19%	763,252	-0.23%
6/30/2024	94,983	1.33%	760,816	-0.32%
6/30/2025	98,568	3.77%	755,200	-0.74%
6/30/2026	100,071	1.53%	748,355	-0.91%
6/30/2027	101,616	1.54%	740,187	-1.09%
6/30/2028	102,758	1.12%	731,063	-1.23%
6/30/2029	104,042	1.25%	720,798	-1.40%
6/30/2030	105,012	0.93%	709,649	-1.55%
6/30/2031	104,091	-0.88%	699,417	-1.44%

* Please see table titled "Historic and Projected Debt Ratios" for projected debt relative to projected Vermont revenues.

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EXISTING AND PROJECTED LONG-TERM NET TAX-SUPPORTED DEBT SERVICE ($000)													
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
	Current	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Est.
FY	D/S*	$144.245M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	D/S
		5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
2021	82,191	0	0	0	0	0	0	0	0	0	0	0	82,191
2022	77,304	14,422	0	0	0	0	0	0	0	0	0	0	91,727
2023	73,519	14,062	6,160	0	0	0	0	0	0	0	0	0	93,740
2024	69,117	13,701	6,006	6,160	0	0	0	0	0	0	0	0	94,983
2025	67,210	13,341	5,852	6,006	6,160	0	0	0	0	0	0	0	98,568
2026	63,377	12,980	5,698	5,852	6,006	6,160	0	0	0	0	0	0	100,071
2027	59,739	12,620	5,544	5,698	5,852	6,006	6,160	0	0	0	0	0	101,616
2028	55,852	12,259	5,390	5,544	5,698	5,852	6,006	6,160	0	0	0	0	102,758
2029	52,261	11,899	5,236	5,390	5,544	5,698	5,852	6,006	6,160	0	0	0	104,042
2030	48,510	11,538	5,082	5,236	5,390	5,544	5,698	5,852	6,006	6,160	0	0	105,012
2031	43,022	11,178	4,928	5,082	5,236	5,390	5,544	5,698	5,852	6,006	6,160	0	104,091

EXISTING AND PROJECTED LONG-TERM NET TAX-SUPPORTED DEBT PRINCIPAL PAYMENTS ($000)													
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
	Current	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Est.
FY	Principal*	$144.245M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	Principal
2021	57,495	0	0	0	0	0	0	0	0	0	0	0	57,495
2022	54,753	7,210	0	0	0	0	0	0	0	0	0	0	61,963
2023	53,028	7,210	3,080	0	0	0	0	0	0	0	0	0	63,318
2024	50,655	7,210	3,080	3,080	0	0	0	0	0	0	0	0	64,025
2025	50,756	7,210	3,080	3,080	3,080	0	0	0	0	0	0	0	67,206
2026	48,905	7,210	3,080	3,080	3,080	3,080	0	0	0	0	0	0	68,435
2027	47,148	7,210	3,080	3,080	3,080	3,080	3,080	0	0	0	0	0	69,758
2028	45,024	7,210	3,080	3,080	3,080	3,080	3,080	3,080	0	0	0	0	70,714
2029	43,084	7,210	3,080	3,080	3,080	3,080	3,080	3,080	3,080	0	0	0	71,854
2030	40,889	7,210	3,080	3,080	3,080	3,080	3,080	3,080	3,080	3,080	0	0	72,739
2031	36,893	7,210	3,080	3,080	3,080	3,080	3,080	3,080	3,080	3,080	3,080	0	71,823

EXISTING AND PROJECTED LONG-TERM NET TAX-SUPPORTED DEBT OUTSTANDING ($000)													
		2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	Total
	Current	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Est.
FY	Debt*	$144.245M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	Debt
2020	678,602	0	0	0	0	0	0	0	0	0	0	0	678,602
2021	621,107	144,245	0	0	0	0	0	0	0	0	0	0	765,352
2022	566,354	137,035	61,590	0	0	0	0	0	0	0	0	0	764,979
2023	513,327	129,825	58,510	61,590	0	0	0	0	0	0	0	0	763,252
2024	462,671	122,615	55,430	58,510	61,590	0	0	0	0	0	0	0	760,816
2025	411,915	115,405	52,350	55,430	58,510	61,590	0	0	0	0	0	0	755,200
2026	363,010	108,195	49,270	52,350	55,430	58,510	61,590	0	0	0	0	0	748,355
2027	315,862	100,985	46,190	49,270	52,350	55,430	58,510	61,590	0	0	0	0	740,187
2028	270,838	93,775	43,110	46,190	49,270	52,350	55,430	58,510	61,590	0	0	0	731,063
2029	227,753	86,565	40,030	43,110	46,190	49,270	52,350	55,430	58,510	61,590	0	0	720,798
2030	186,864	79,355	36,950	40,030	43,110	46,190	49,270	52,350	55,430	58,510	61,590	0	709,649
2031	149,972	72,145	33,870	36,950	40,030	43,110	46,190	49,270	52,350	55,430	58,510	61,590	699,417

*Includes State General Obligation Bonds, TIBs and VHFA Property Transfer Bonds.

Net Tax-Supported Debt Service by Fiscal Year

The State's scheduled Long-Term Net Tax-Supported Debt Service requirement ("D/S") for fiscal year 2021 is $82.2 million, 2.2% more than the $80.4 million paid in fiscal year 2020 due to the addition of the TIBs. Fiscal year 2021 D/S would have decreased 1.0% if the TIBs were not included.

STATE OF VERMONT
CHANGE IN NET TAX SUPPORTED DEBT SERVICE (FY 20 – FY 21)
(in $ thousands)

Long-Term Net Tax-Supported D/S Paid in FY 2020[1,2,3,4]	$80,399
Decrease in D/S Requirement FY 2020	(711)
D/S Increase Due to Inclusion of TIBs	2,503
Long-Term Net Tax-Supported D/S Due in FY 2021[4]	$82,191

[1] The debt service amount shown includes the interest subsidy from the federal government (calculated to be $906,547.25 during FY 2020), payable on the $37,600,000 Build America Bonds 2010 Series A-2 issue through the redemption date of September 16, 2019 and on the $40,000,000 2010 Series D-2 bond issue through the entire fiscal year. See "Sequestration and Potential Impact on Build America Bonds Subsidy" herein for a discussion of the impact of sequestration on the State's subsidy.

[2] Includes debt service on the 2019 Refunded Bonds prior to the call date.

[3] Includes debt service on the 2019A Bonds issued in the aggregate amount of $88,255,000 and the 2019B Refunding Bonds issued in the aggregate amount of $39,525,000 issued on August 15, 2019.

[4] The net debt service amount shown includes the interest subsidy from the federal government (calculated to be $539,875 during FY 2021), payable on the $38,750,000 2010 Series D-2 bond issue through the entire fiscal year. See "Sequestration and Potential Impact on Build America Bonds Subsidy" herein for a discussion of the impact of sequestration on the State's subsidy.

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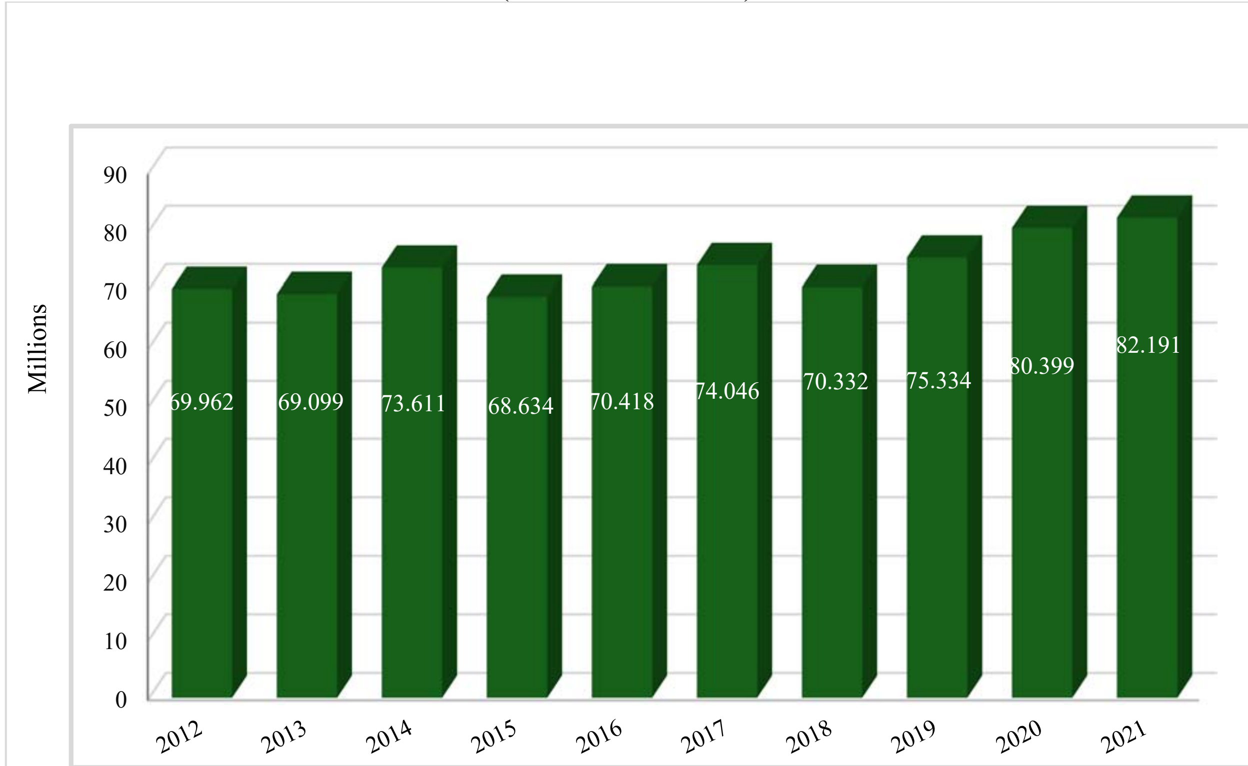
STATE OF VERMONT
HISTORICAL LONG-TERM NET TAX-SUPPORTED DEBT
DEBT SERVICE[1,2]
(millions of dollars)



[1]Consists of G.O. and Capital Leases debt prior to fiscal year 2020, consists of G.O., Capital Leases and VHFA Property Transfer Bonds commencing in fiscal year 2020 and consists of Long-Term Net Tax-Supported Debt commencing in fiscal year 2021. Fiscal year 2014 debt service includes an additional principal amortization of $3,150,000 that was structured to expend bond funded original issuance premium within 12 months of the issue date to satisfy Internal Revenue Service requirements. Going forward this has not been necessary due to the 2012 amendment to 32 V.S.A. § 954 to permit the use of bond premium for capital projects.

[2]See table titled "Historic and Projected Debt Ratios" for debt ratios relative to historic Vermont revenues and economic data.

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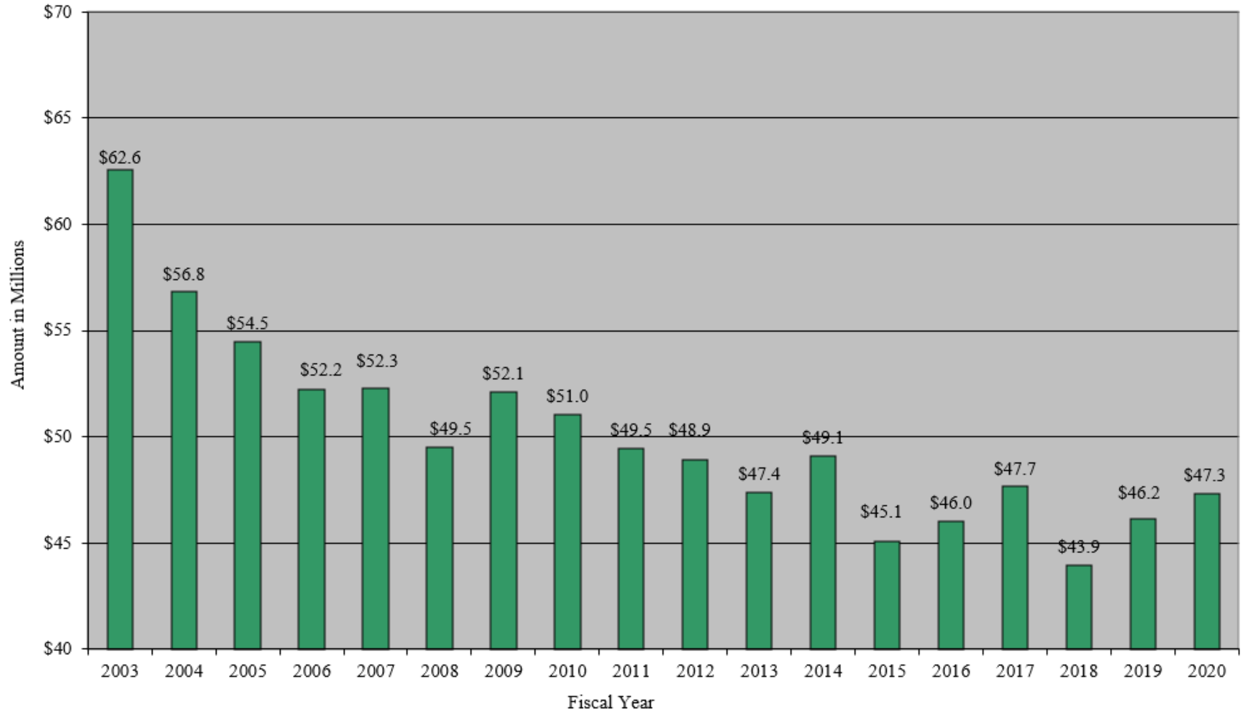
STATE OF VERMONT
GENERAL OBLIGATION DEBT SERVICE, FY 2002-2019
ADJUSTED FOR INFLATION (in millions of dollars)



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Authorized, But Unissued Debt

CDAAC believes the State should work to return to its historical practice to annually extinguish all or a large portion of the authorized amount of debt to avoid a rising residual amount of authorized but unissued debt that could be viewed unfavorably by the rating agencies.

As discussed in Section 6, "State Guidelines and Recent Events, Statutory Change Relating to Use of Bond Premium and Effect on Affordability" effective in fiscal year 2013, 32 V.S.A. § 954 was amended to permit the use of bond premium received from issuance of debt for capital purposes. The effect of this legislative change is that if future bonds are issued with a net original issuance premium, the par amount of bonds will be less than the authorized amount and the difference will become available for additional authorization as "unissued principal." CDAAC believes that the advantage of additional funding capacity associated with this legislative change far outweighs the additional unissued amounts that may result, and that the annual amount of unissued bonds will continue to be manageable.

Moral Obligation Indebtedness

Provided below is a summary of the State's moral obligation commitments as of June 30, 2020:

Reserve Fund Commitments (all figures as of June 30, 2020):

1. Vermont Municipal Bond Bank (VMBB): The VMBB was established by the State in 1970 for the purpose of aiding governmental units in the financing of their public improvements by making available a voluntary, alternate method of marketing their obligations in addition to the ordinary competitive bidding channels. By using the VMBB, small individual issues of governmental units can be combined into one larger issue that would attract more investors. The VMBB is authorized to issue bonds in order to make loans to municipalities in the State through the purchase of either general obligation or revenue bonds of the municipalities. Municipal loan repayments to the VMBB are used to make the VMBB's bond payments. On April 19, 2016, the State amended provisions with respect to the State Treasurer's ability to intercept State funding to governmental units that are in default on their payment obligations acquired or held by the VMBB all further payment to the governmental unit, until the default is cured. During the default period, the State Treasurer will make direct payment of all, or as much as necessary, of the withheld amounts to the VMBB, or at the VMBB's direction, to the trustee or paying agent for the bonds, so as to cure, or cure insofar as possible, the default as to the bond or the interest on the bond. The VMBB consists of five directors: the State Treasurer, who is a director ex-officio, and four directors appointed by the Governor with the advice and consent of the Senate for terms of two years. As of June 30, 2020, the VMBB has issued 72 series of bonds (including refundings) under its general bond resolution adopted on May 3, 1988 (the "1988 Resolution"). The principal amount of bonds outstanding as of June 30, 2020 was $ 604,030,000, and the principal amount of loans outstanding to municipal borrowers as of June 30, 2020 was $580,545,573. For bonds issued under the 1988 Resolution, the VMBB is required to maintain a reserve fund equal to the lesser of: the maximum annual debt service requirement, 125% of average annual debt service, or 10% of the proceeds of any series of bonds. If the reserve funds have less than the required amount, the VMBB chair shall notify the Governor or Governor-elect of the deficiency. The General Assembly is legally authorized, but not legally obligated, to appropriate money to maintain the reserve funds at their required levels. Since the participating municipalities have always met their obligations on their bonds the State has never needed to appropriate any

money to the reserve fund, and it is not anticipated that it will need to make an appropriation in the future. Based on the long history of the VMBB program, the rating agencies credit assessment of the underlying loans of the portfolio, the G.O. pledge of the underlying borrowers for a high percentage of the loan amounts and the State intercept provision for the payment of debt, it is not anticipated that it will be necessary for the State to appropriate money for the reserve fund. As of June 30, 2020, the VMBB has also issued two series of bonds under a new general bond resolution adopted on March 30, 2017 (the "2017 Resolution") for the Vermont State Colleges System ("VSCS") Program. The 2017 Resolution is for VSCS financings only. As of June 30, 2020, the principal amount of bonds outstanding under the 2017 Resolution was $91,845,000 . The 2017 Resolution bonds are not supported by a reserve fund. The State Treasurer, the VMBB and the Commissioner of the Vermont Department of Finance and Management entered into a State Intercept Memorandum of Agreement to establish procedures with respect to the intercept of State funds described above in regards to the VSCS outstanding bonds. The VMBB has expressed its intention to rely less on securing its future bond issues with the moral obligation pledge and put more reliance on using the State intercept funding security provisions. For additional information about the VMBB, see its most recent disclosure document, which can be found on the Electronic Municipal Market Access ("EMMA") system at https://emma.msrb.org/IssuerHomePage/Issuer?id=18CA7C36100779C7E053151ED20AEDDA&type=M

2. Vermont Housing Finance Agency: The VHFA was created by the State in 1974 for the purpose of promoting the expansion of the supply of funds available for mortgages on residential housing and to encourage an adequate supply of safe and decent housing at reasonable costs. The VHFA Board consists of nine commissioners, including ex-officio the Commissioner of the Department of Financial Regulation, the State Treasurer, the Secretary of Commerce and Community Development, the Executive Director of the Vermont Housing and Conservation Board, or their designees, and five commissioners to be appointed by the Governor with the advice and consent of the Senate for terms of four years. The VHFA is empowered to issue notes and bonds to fulfill its corporate purposes. As of June 30, 2020, the VHFA's total outstanding indebtedness was $496,126,087. The VHFA's act requires the creation of debt service reserve funds for each issue of bonds or notes based on the VHFA's resolutions and in an amount not to exceed the "maximum debt service." Of the debt that the VHFA may issue, up to $155,000,000 of principal outstanding may be backed by the moral obligation of the State, which means that the General Assembly is legally authorized, but not legally obligated, to appropriate money for any shortfalls in the debt service reserve funds for that debt. If the reserve fund requirement for this debt has less than the required amount, under the act, the chairman of the VHFA will notify the Governor or the Governor-elect, the president of the senate and the speaker of the house of the deficiency. As of June 30, 2020, the principal amount of outstanding debt covered by this moral obligation was $51,301,524. As of June 30, 2020, the debt service reserve fund requirement for this debt was $$3,772,461, and the value of the debt service reserve fund was $4,037,389. Since the VHFA's creation, it has not been necessary for the State to appropriate money to maintain this debt service reserve fund requirement. For additional information about the VHFA, see its most recent disclosure document, which can be found on the EMMA system at https://emma.msrb.org/IssuerHomePage/Issuer?id=6BF2519F3FCD38EBE053151E6E0A5CAB&type=M

3. Vermont Economic Development Authority (VEDA): VEDA has established credit facilities with two banks to fund loans to local and regional development corporations and to businesses under certain programs. VEDA's debt is a combination of commercial paper and variable and fixed-rate notes payable. The commercial paper is supported by two direct-pay letters of credit totaling $95 million from one of the banks. The direct-pay letters of credit are collateralized from various repayment sources, including a $15 million collateral reserve fund held by a trustee and a debt service reserve fund pledge from the State in an amount of $80 million. VEDA has two variable-rate and two fixed-rate notes payable from a second bank totaling $117 million. The notes are collateralized from various repayment sources, including a $9.7 million collateral reserve fund held by a trustee and a debt service reserve fund pledge from the State in an amount of $75 million. The debt service reserve pledges totaling $155 million are based on a similar structure utilized by both the Vermont Municipal Bond Bank and the Vermont Housing Finance Agency as discussed above. The amount of commercial paper outstanding under this program at June 30, 2020 was $91.0 million, which is part of the variable and fixed-rate note payable balances outstanding as of June 30, 2020 were $99 million. Act No. 79, enacted in June 2019, increased VEDA's debt capacity from $175,000,000 to $181,000,000, effective July 1, 2019. For additional information about VEDA, see its most recent disclosure document, which can be found on the EMMA system at http://emma.msrb.org.

4. Vermont Telecommunications Authority (VTA): VTA was created in 2007 to facilitate broadband and related access to Vermonters, and received authorization for $40 million of debt with the State's moral obligation pledge. The passage of Act No. 190 of 2014 created the Division for Connectivity as the successor entity to the VTA. The VTA did not issue any debt prior to ceasing operations on July 1, 2015.

5. University of Vermont and the Vermont State Colleges: Legislation was passed in 2008 to provide a moral obligation pledge from the State to the University of Vermont in the amount of $66 million and to the Vermont State Colleges in the amount of $34 million. No moral obligation pledge bonds have been issued to date. Currently, if bonds are issued, it is not expected that the State will need to appropriate money to the respective reserve funds for these purposes.

6. Vermont Student Assistance Corporation (VSAC): The State has provided $50 million of moral obligation commitment by the State to VSAC. Like VHFA, in 2009, the State authorized increased flexibility for VSAC's use of the moral obligation commitment specifically allowing for "pledged equity" contributions from the State's operating funds and increased flexibility in the use of the traditional debt service reserve structure. In 2011, VSAC issued $15 million of moral obligation supported bonds, of which $3.6 million is outstanding. It is not expected that the State will need to appropriate money to the respective reserve funds for VSAC. For additional information about VSAC, see its most recent disclosure document, which can be found on the EMMA system at http://emma.msrb.org.

Importantly, there has been a notable increase in the State's moral obligation commitments over the past ten (10) years. For the period ended June 30, 2010, the total amount of moral obligation commitment was approximately $976.5 million. Currently, the moral obligation commitment stands at a total of $1,130.03 million, with the VMBB and VEDA granted most of the difference.

However, the actual amount of moral obligation debt outstanding in the amount of $833.9 million is less than the amount authorized and the total commitment as of fiscal year 2010 ($976.5 million).

See the table below for a summary of the total reserve fund commitments and the outstanding bond amounts:

Reserve Fund Commitments:

State of Vermont
Moral Obligation Commitments and Debt Outstanding
As of July 1, 2020

Issuer Name	Amount Provided In Statute	Actual Par Amount Outstanding
Vermont Municipal Bond Bank	$604,030,000	$604,030,000
Vermont Economic Development Authority	181,000,000	175,000,000
Vermont Housing Finance Agency	155,000,000	51,301,524
Vermont Student Assistance Corporation	50,000,000	3,600,000
University of Vermont	66,000,000	0
Vermont State Colleges	34,000,000	0
Vermont Telecommunications Authority	40,000,000	0
	$1,130,030,000	$833,931,524

As the State's rating has improved, the value of its moral obligation has also grown. It is therefore apparent that there has been greater pressure on the State to raise the size of its existing moral obligation commitments and/or to assign the moral obligation pledges to State borrowers. However, without some form of containment, it is possible that an ever-increasing moral obligation debt load could erode the State's credit position.

On January 22, 2018, S&P published *Issue Credit Ratings Linked To U.S. Public Finance Obligors' Creditworthiness* which updated the moral obligation criteria. The new methodology assesses the obligor's involvement, the intended payment source and whether there are any unusual political or administrative risks in the transaction. S&P then determines the rating by notches off the respective issuer according to the evaluation of the obligor. Several national obligor's have raised their respective ratings with only one notch below their respective issuer by displaying strong relationships within the three areas. There have been no ratings changes for each respective State issuer of moral obligation bonds since the published report.

In accordance with the appropriate provisions from the enabling statute that created CDAAC, the Committee has already been authorized to consider "any other long-term debt of instrumentalities of the state not secured by the full faith and credit of the state, or for which the state legislature is permitted to replenish reserve funds." Therefore, it is appropriate for CDAAC to develop guidelines for Vermont regarding the size and use of the State's moral obligation debt.

In recent years, CDAAC has adjusted its debt affordability guidelines taking into account the comparative debt burden statistics for triple-A rated states throughout the country. Unfortunately, none of the rating agencies prepare comparative data on the respective triple-A rated states on moral obligation or contingent debt. Moreover, there is little consistency among the triple-A rated states regarding the size, nature and role of such debt. The types of contingent debt are quite varied among the states, including state guarantees of local school debt, back-up support for revenue obligations, etc. Because of the mixture of contingent debt applied by triple-A states, it would not be possible to employ guidelines that are similar to the G.O. guidelines that have been utilized by CDAAC in connection with its annual recommendation of long-term G.O. debt to be authorized by the legislature.

There had been, for several years, discussions within CDAAC regarding the establishment of guidelines for limiting the amount of moral obligation debt that the State should authorize. In an accompanying chart, the State's net tax-supported debt statement, consisting of the State's Long-Term Net Tax-Supported Debt outstanding indebtedness, is presented, as of June 30, 2020, at $678,602,331. Using 225% of Long-Term Net Tax-Supported Debt for establishing a limit of moral obligation debt, the State would have had $396,825,245 in additional moral obligation capacity. Using 200% of G.O. debt for establishing a limit of moral obligation debt, the State would have had $227,174,662 in additional capacity. Using a more conservative 195%, the State still has $193,244,545 in additional capacity.

At this point, CDAAC believes that a range of 200-225% is appropriate in determining the amount of moral obligation commitments that should be outstanding in comparison to the State's Long-Term Net Tax-Supported Debt . Since CDAAC has not recommended legislative action to codify any statutory limits on the incurrence of moral obligation debt, CDAAC will continue to monitor the developing size of moral obligation commitments and report the results.

At some point, should a major infrastructure requirement or other critical financing need arise that would be appropriately funded through a financing agency, the State may, as appropriate, consider rescinding the existing but unused moral obligation authority and have it transferred – taking into account the limited availability for the State to provide additional moral obligation capability as a result of the 200-225% administrative limits.

Ultimately, the effect of contingent liabilities and reserve fund commitments on the State's debt affordability is a function of the level of dependency for the repayment of this particular debt on the State's general operating revenues. With respect to this matter, the principle that the rating agencies follow give us relevant guidance: Until such time that the State's guarantee or contingent obligation becomes actual (through a payment or a replenishment obligation being made), then such debt or guarantee is not included in the State's net tax-supported indebtedness. To the extent that the State has not been called upon to pay for the debt components, as envisioned in Subparagraph (5) of the CDAAC legislation, then those items should not become quantifiable factors included in the affordability analysis.

Information on the principal amount and the debt service associated with the moral obligation commitments is found in the comprehensive annual financial statements for each of the entities:

Vermont Municipal Bond Bank*:
http://www.vmbb.org/about/annual-reports-audits/

Vermont Economic Development Authority:
http://www.veda.org/about-veda/annual-reports/

Vermont Housing Finance Authority
http://www.vhfa.org/partners/initiatives/vhfa-publications

Vermont Student Assistance Corporation
https://www.vsac.org/news/annual-reports

*Financials are based on a December 31 year end.

Municipal Debt

In conformance with the standards followed by the rating agencies, this evaluation does not set forth or incorporate any debt obligations of Vermont municipalities. Should any such obligations be required to be payable by the State (e.g., through assumption or support of local debt as part of a financial emergency), a corresponding and appropriate amount related to the State's contribution would then be required to be included in the analysis. At present, no such liability has occurred, and, therefore, none has been included in this review.

Analysis of Types of Debt and Structure

CDAAC annually goes through an extensive analysis to determine the "cost-benefit of various levels of debt financing." The cost-benefit is demonstrated by CDAAC's determination of the amount of debt that the State should annually authorize and still achieve compliance with CDAAC's articulated affordability guidelines. This evaluation is fundamental to CDAAC's responsibility in recommending annually the amount of net tax-supported indebtedness that should be authorized by the State.

Second, with respect to the "types of debt," Vermont and its financing agencies have utilized a great variety of debt types. At present, revenue bonds are sold by the State (TIBs), VSAC, VHFA and VEDA, among others. The State Treasurer's office has looked at a series of options for possible revenue bond issuance, but, because of Vermont's special circumstances, revenue bonds have generally not appeared to be a comprehensive answer to the State's direct infrastructure needs. Notwithstanding the fact that there have been no new revenue bond uses recently for funding Vermont infrastructure requirements, with the exception of TIBs and VHFA Property Transfer Bonds, the State will continue to explore possible opportunities in this respect that would not cause debt load or debt management difficulties for Vermont. CDAAC and the State Treasurer's Office are constantly reviewing prospects for funding of required infrastructure through approaches that will not add to the State's net tax-supported indebtedness.

The maturity schedules employed for State general obligation indebtedness are directly tied to State statute. Moreover, as indicated elsewhere herein, Vermont's current debt repayment for its G.O. bonds allows the State to recapture debt capacity at an attractive pace. Shortening the debt service payments would have the effect of placing more fixed costs in the State's annual operating budget, leaving less funds available for discretionary spending. Lengthening debt payments would increase the aggregate amount of the State's outstanding indebtedness, which would cause Vermont's debt per capita and debt as a percentage of personal income to rise, reducing the State's ability to comply with its affordability guidelines. Notwithstanding these limitations, there may be

opportunities for the State in the future to adjust the maturity of its indebtedness to achieve various debt management goals over time.

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3. DEBT GUIDELINES

For a number of years Vermont has pursued a strategy to achieve a triple-A rating from all three nationally recognized credit rating agencies. To facilitate this goal, CDAAC and the State have employed conservative debt load guidelines that are consistent with the measures that the rating agencies use to measure debt burden. The most widely-employed guidelines are:

1. Debt Per Capita;
2. Debt as a Percentage of Personal Income;
3. Debt Service as a Percentage of Revenues; and
4. Debt as a Percentage of Gross State Product.

CDAAC notes that Debt as a Percentage of Personal Income and Debt Service as a Percentage of Revenues are generally understood to be the better credit indicators of the State's ability to pay; however, certain rating agencies continue to calculate and monitor the State's Debt Per Capita and Debt as a Percentage of Gross State Product. These guidelines are described in greater detail below. CDAAC has not used Debt as a Percentage of Gross State Product as a specific guideline due to the fact that this measure has a high correlation and tracks the trend of the Debt as a Percentage of Personal Income. Since 2011, CDAAC has tracked this information and included it on the "Dashboard Indicators." This report contains current and historical information on Vermont's Debt as a Percentage of Gross State Product compared to a peer group of other triple-A states. Additionally, as described further, CDAAC utilized Debt Per Capita as a guideline. However, since it is not a direct indicator of affordability, the guideline has been reviewed and analyzed, but it is not the primary factor in determining debt authorizations over the past few years.

At present, CDAAC uses a peer group made up of all states that have at least <u>two</u> triple-A ratings from the national rating agencies (the "Peer Group"). The states within the Peer Group differ throughout the years as rating agencies upgrade or downgrade a specific state's rating. The Committee over time reviews the composition of the Peer Group. Similar to many of the U.S. States since 2014, the majority of the Peer Group reduced their debt levels. See Section 6, "State Guidelines and Recent Events" for additional information, Therefore, the majority of the debt medians for the Peer Group were reduced, as well. This year, the Peer Group's median Debt Per Capita decreased from $618 in 2019 to $586 in 2020, median Debt as a Percentage of Personal Income decreased from 1.3% in 2019 to 1.2% in 2020, median Debt as a Percentage of Gross State Product decreased from 1.2% in 2019 to 1.0% in 2020 and median Debt Service as a Percentage of Revenues decreased from 3.3% in 2019 to 3.2% in 2020. Vermont was in the majority of states within the Peer Group that reduced debt levels in 2019. As a result, Vermont's slightly reduced debt levels helped the State's relative rankings stay consistent. If the State increases large authorized debt levels in future years, it is at greater risk of continual declines in its relative ranking to its triple-A Peer Group. See "State Guidelines and Recent Events" for more information.

In addition, Moody's, S&P and Fitch review "debt" or "long-term liabilities" as a significant rating factor within each respective rating criteria's. Specifically, Moody's and S&P have developed rating scorecards for state issuers which include an assigned specific criteria and weighting for "debt and pensions" or "debt and liability," respectively, as one of their factors in the overall rating of a state. The rationale given by the rating agencies for the score card process is to provide more transparency for state ratings. Also, Fitch's rating criteria has "long-term liabilities" as one of four key rating factors driving state ratings. Please see Section 4, "National Credit Rating Methodologies and Criteria" for additional information.

Debt Per Capita

Since, 2004, the Committee has adopted a guideline for the State to equal or perform better than the 5-year average of the mean and median debt per capita of a peer group of triple-A rated states over the nine-year projection period. The 5-year average of the mean of the Peer Group is $928 and the 5-year average of the median of the Peer Group is $647. Based on data from Moody's, Vermont's 5-year average debt per capita figure is $1,052, which is above the 5-year mean and 5-year median for triple-A rated states. Please see the table titled "Debt Per Capita Comparison" for a detailed view of the Peer Group's Debt Per Capita. As described earlier, this guideline of debt per capita relative to its Peer Group has not been a limiting factor in the Committee's determination of the recommended debt authorization over the past few years.

It should be emphasized that Vermont's debt per capita relative ranking, after improving for a number of years, has slipped. According to Moody's most recent information, the State's relative position among states improved during the period 2003 through 2011 with respect to net tax-supported debt per capita, improving from 16th position in 2003 to 37th position in 2011. From 2011 through 2019 (with a ranking of 25th), the State's position slipped each year, and in 2020, the State slightly improved its ranking to the 26th position. (The State did not conduct its annual G.O. bond issuance in FY 2019). Rankings are in numerically descending order, with the state having the highest debt per capita ranked 1st and the state having the lowest debt per capita ranked 50th.

Debt as a Percent of Personal Income

The Committee also adopted a guideline for the State to equal or perform better than the 5-year mean and 5-year median of the Peer Group on the basis of debt as a percent of personal income. At present, the target is 1.9% for the median respectively (the five-year average of Moody's Mean and Moody's Median for the Peer Group is 1.9% and 1.5%, respectively). Based on data from Moody's, Vermont's net tax supported debt as a percent of personal income is 2.1%, which is worse than the 5-year mean and the 5-year median for triple-A rated states. Please see the table titled "Debt As % of Personal Income Comparison" for a detailed view of the Peer Group's Debt as a Percent of Personal Income. According to Moody's most recent information, the State's relative position among states improved during the period 2003 through 2010 with respect to net tax-supported debt as a percent of personal income, improving from 17th position in 2003 to 36th position in 2010 where it remained in 2011 and 2012. The State's relative ranking dropped slightly in the years 2013 to 2018 (with a ranking of 28th), slightly decreased in 2019 with a ranking in the 26th position and decreased once more in 2020 with a current ranking in the 29th position.

Debt Service as a Percentage of Revenues

This guideline does not create a compliance requirement for triple-A rated states. Rather, it is an absolute guideline, not a comparative one. CDAAC's adopted standard is a ratio of no greater than 6% for annual Long-Term Net Tax-Supported Debt service as a percent of the annual aggregate of General and Transportation Funds revenue, as well as the motor vehicle and diesel fuel assessments associated with the TIBs and the dedicated property transfer tax revenues associated with the VHFA Property Transfer Bonds. At present, this ratio equals approximately 4.3%, as can be seen within the table titled "Historic and Projected Debt Ratios." Looking back, Vermont's debt service as a percentage of revenues improved from the 2002-2004 period where it was over 6%, to 5.4% in 2005. Since 2005, the State's debt service as a percent of revenue has been less than 5.1% except for the recession years of 2009 and 2010, where the statistic increased to 5.5%

and 5.7%. Although CDAAC has maintained a standard of a 6.0% limit for debt service as a percent of revenues, the effect of the recession on this ratio has been taken into account. CDAAC notices the 0.4% to 0.6% increase in the ratio immediately after the start of the recession and believes that a comparable amount of cushion is appropriate for its final recommendation.

In terms of the debt service projections provided in the table titled "Historic and Projected Debt Ratios", the analysis assumes future interest rates (coupons) on pro forma general obligation bond issues at 5.0% in fiscal year 2021 through 2031.

The CDAAC statute defines operating revenues as General and Transportation Fund revenues based upon the historic general flexibility in their uses of these funds for meeting financial operations of the State. In 2012, Moody's reintroduced a Moody's Median for debt service as a percent of operating revenues ("Debt Service Ratio"), and included the State's Education Fund as part of the State's operating revenue for purposes of this calculation. Because Moody's uses a much larger revenue base in its analysis, Moody's Debt Service Ratio for Vermont, at 2.1%, is substantially lower than the CDAAC guideline, and results in Vermont's comparatively high (favorable) Moody's ranking of 37th out of the 50 states.

Act 11 (H.16), discussed further in Section 6, "State Guidelines and Recent Events, Statutory Change Relating to Revenues and Effect on Debt Service as a Percentage of Revenue," directed 100% of the State Sales & Use Tax and a portion of the Meals and Rooms Tax to go to the Education Fund directly compared to the previous practice of a General Fund transfer to the Education Fund. The 2018 CDAAC used an adjusted General Fund revenue projection for FY 2019 – FY 2029 for the Debt Service as a Percentage of Revenues calculations as if Act 11 did not occur in order to provide comparability to historic results. The 2019 CDAAC Report continued to utilize general and transportation revenues as if Act 11 did not occur. The 2020 Report contains post Act 11 General Fund Revenue, as well as the motor vehicle and diesel fuel assessments associated with the TIBs and the dedicated property transfer tax revenues associated with the VHFA Property Transfer Bonds. Please see Section 5, "Economic and Financial Forecasts."

Debt as a Percent of Gross State Product

The 2020 Moody's mean and median for debt as a percentage of gross state product for the Peer Group is 1.5% and 1.0%, respectively. Please see the table titled "Debt As % of Gross State Domestic Product Comparison" for a detailed view of the Peer Group's Debt as a Percent of Gross State Domestic Product. (Moody's calculates their 2020 statistics based on 2019 net tax supported debt as a percentage of 2018 state gross domestic product.) Based on data from Moody's, Vermont's 2019 net tax supported debt as a percentage of gross state product is 1.90%, which is higher than the median and the mean for the Peer Group states and the five-year average of the mean and the median of 1.6% and 1.3% for the Peer Group, respectively. According to Moody's most recent information, the State's relative position among states was 30th in 2014, 27th in 2015 and 2016, 25th in 2017, 28th in 2018, 23rd in 2019 and 26th in 2020.

STATE OF VERMONT
2020 STATES RATED TRIPLE-A BY TWO OR MORE RATING AGENCIES
(as of September 30, 2020)

2020 Triple-A Rated States(1)	Moody's	S&P	Fitch
Delaware	Yes	Yes	Yes
Florida(2)	Yes	Yes	Yes
Georgia	Yes	Yes	Yes
Indiana(3)	Yes	Yes	Yes
Iowa(3)	Yes	Yes	Yes
Maryland	Yes	Yes	Yes
Minnesota(4)	No	Yes	Yes
Missouri	Yes	Yes	Yes
North Carolina	Yes	Yes	Yes
South Carolina	Yes	No	Yes
South Dakota(5)	Yes	Yes	Yes
Tennessee	Yes	Yes	Yes
Texas	Yes	Yes(3)	Yes
Utah	Yes	Yes	Yes
Virginia	Yes	Yes	Yes
VERMONT(6)	No	No	No

(1) Fitch raised Florida, Iowa, Vermont, Tennessee and Texas to triple-A in 2010 as part of their Ratings Recalibration effort. Moody's raised Indiana, Iowa, New Mexico, Tennessee and Texas to triple-A in 2010 as part of their Ratings Recalibration effort. Fifteen states are currently rated triple-A by two or more of the nationally recognized rating agencies as of September 30, 2020.

(2) Moody's upgraded Florida on June 21, 2018.

(3) Indicates issuer credit rating since state does not have any G.O. debt or the rating agency does not provide a rating on the state's G.O. debt.

(4) S&P upgraded Minnesota on July 25, 2018.

(5) South Dakota was rated by S&P as a triple-A state in 2015. Fitch upgraded South Dakota to triple-A in June 2016 and Moody's gave South Dakota an initial triple-A rating in July 2016.

(6) Vermont was downgraded by Moody's to Aa1 in October 2018 and downgraded by Fitch to AA+ in July 2019.

STATE OF VERMONT
MEAN DEBT RATIOS COMPARISON

Per Capita	2016	2017	2018	2019	2020
All States	$1,431	$1,473	$1,477	$1,493	$1,506
Triple-A[1]	904	901	929	958	950
VERMONT	**1,002**	**1,068**	**987**	**1,140**	**1,061**

% of Personal Income	2016	2017	2018	2019	2020
All States	3.0%	3.0%	2.9%	2.8%	2.6%
Triple-A[1]	2.1	2.0	2.0	1.9	1.7
VERMONT	**2.1**	**2.1**	**2.0**	**2.2**	**1.9**

(1) These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the three rating agencies during the year shown. See table titled "Debt Per Capita Comparison" for complete listing of triple-A states and respective ratings and triple-A time periods.

STATE OF VERMONT
DEBT PER CAPITA COMPARISON

Peer Group States (All states with at least two triple-A rating)
5-Year Average Mean and 5-Year Average Median Excluding Vermont:
MEAN: $928 MEDIAN: $647
5-Year Average Vermont: $1,052

Triple-A Rated States[1]	Moody's Ratings[2]	S&P Ratings[2]	Fitch Ratings[2]	Moody's Debt Per Capita 2016	2017	2018	2019	2020
Delaware	Aaa/Stable	AAA/Stable	AAA/Stable	2,385	2,544	2,587	3,206	3,289
Florida	Aaa/Stable	AAA/Stable	AAA/Stable	1,038	961	889	812	780
Georgia	Aaa/Stable	AAA/Stable	AAA/Stable	1,029	992	986	996	971
Indiana	Aaa/Stable	AAA/Stable	AAA/Stable	463	310	295	270	251
Iowa	Aaa/Stable	AAA/Stable	AAA/Stable	239	228	219	207	150
Maryland	Aaa/Stable	AAA/Stable	AAA/Stable	1,928	2,122	2,164	2,343	2,323
Minnesota	Aa1/Stable	AAA/Stable	AAA/Stable	1,527*	1,480*	1,430	1,415	1,406
Missouri	Aaa/Stable	AAA/Stable	AAA/Stable	574	579	532	487	464
North Carolina	Aaa/Stable	AAA/Stable	AAA/Stable	721	659	611	531	586
South Carolina	Aaa/Stable	AA+/Stable	AAA/Stable	603	564	517	503	469
South Dakota	Aaa/Stable	AAA/Stable	AAA/Stable	652	641	694	618	493
Tennessee	Aaa/Stable	AAA/Stable	AAA/Stable	298	322	312	305	292
Texas	Aaa/Stable	AAA/Stable	AAA/Stable	383	383	410	389	379
Utah	Aaa/Stable	AAA/Stable	AAA/Stable	921	824	772	792	720
Virginia	Aaa/Stable	AAA/Negative	AAA/Stable	1,418	1,486	1,515	1,502	1,677
MEAN[3]				**904**	**901**	**929**	**958**	**950**
MEDIAN[3]				**687**	**650**	**694**	**618**	**586**
VERMONT	Aa1/Stable	AA+/Stable	AA+/Stable	**1,002**	**1,068**	**987**	**1,140**	**1,061**

(1) States that carry at least two triple A ratings.
(2) Ratings as of September 30, 2020.
(3) These calculations exclude all Vermont numbers.
* Indicates that the state was not rated triple-A thereby two or more of this rating agencies during the year shown and amount not used in calculating the mean or median for the indicated year.

STATE OF VERMONT
DEBT AS % OF PERSONAL INCOME COMPARISON

Peer Group States (All states with at least two triple-A ratings)
5-Year Average Mean and 5-Year Average Median Excluding Vermont:
MEAN: 1.9% MEDIAN: 1.5%
5-Year Average Vermont: 2.1%

Triple-A Rated States	Moody's Debt as % of 2019 Personal Income				
	2016	2017	2018	2019	2020
Delaware	5.2	5.4	5.5	6.5	6.1
Florida	2.5	2.2	2.4	1.7	1.5
Georgia	2.7	2.5	2.0	2.3	2.0
Indiana	1.2	0.8	0.7	0.6	0.5
Iowa	0.5	0.5	0.5	0.4	0.3
Maryland	3.5	3.8	3.7	3.8	3.5
Minnesota	3.2*	2.9*	2.8	2.6	2.4
Missouri	1.4	1.4	1.2	1.1	0.9
North Carolina	1.8	1.6	1.5	1.2	1.2
South Carolina	1.7	1.5	1.3	1.2	1.0
South Dakota	1.4	1.4	1.5	1.3	0.9
Tennessee	0.7	0.8	0.7	0.7	0.6
Texas	0.9	0.8	0.9	0.8	0.7
Utah	2.5	2.1	1.9	1.9	1.5
Virginia	2.9	2.9	2.9	2.7	2.8
MEAN[1]	**2.1**	**2.0**	**2.0**	**1.9**	**1.7**
MEDIAN[1]	**1.8**	**1.6**	**1.5**	**1.3**	**1.2**
VERMONT	**2.1**	**2.1**	**2.0**	**2.2**	**1.9**

(1) These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the rating agencies during the periods shown, as of July 31, 2020.

*Indicates that the state was not rated triple-A by two or more of the rating agencies during the year shown. Amount not used in calculating the mean or median for the year.

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STATE OF VERMONT
DEBT AS % OF GROSS STATE DOMESTIC PRODUCT COMPARISON

Peer Group States (All states with at least two triple-A ratings)
5-Year Average Mean and 5-Year Average Median Excluding Vermont:
MEAN: 1.6% MEDIAN: 1.3%
5-Year Average Vermont: 2.0%

Triple-A Rated States	Moody's Debt as % 2019 Gross State Domestic Product				
	2016	2017	2018	2019	2020
Delaware	3.6	3.5	3.5	4.3	4.3
Florida	2.5	2.2	2.0	1.8	1.5
Georgia	2.2	2.1	1.9	1.9	1.7
Indiana	1.0	0.6	0.6	0.5	0.5
Iowa	0.5	0.4	0.4	0.4	0.2
Maryland	3.3	3.5	3.4	3.6	3.3
Minnesota	2.6*	2.5*	2.4	2.3	2.1
Missouri	1.3	1.2	1.1	1.0	0.9
North Carolina	1.5	1.4	1.2	1.0	1.0
South Carolina	1.6	1.4	1.2	1.2	1.0
South Dakota	1.2	1.2	1.3	1.1	0.8
Tennessee	0.7	0.7	0.6	0.6	0.5
Texas	0.6	0.7	0.7	0.7	0.6
Utah	2.0	1.7	1.5	1.5	1.2
Virginia	2.6	2.6	2.6	2.5	2.6
MEAN[1]	**1.8**	**1.7**	**1.6**	**1.6**	**1.5**
MEDIAN[1]	**1.6**	**1.4**	**1.3**	**1.2**	**1.0**
VERMONT	**2.0**	**2.1**	**2.0**	**2.2**	**1.9**

(1) These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the rating agencies during the periods shown, as of September 30, 2020.

*Indicates that the state was not rated triple-A by two or more of the rating agencies during the year shown. Amount not used in calculating the mean or median for the year.

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STATE OF VERMONT
HISTORIC AND PROJECTED DEBT RATIOS

	Net Tax-Supported Debt Per Capita (in $)			Net Tax-Supported Debt as Percent of Personal Income			Net Tax-Supported Debt Service as Percent of Revenues [5]		
Fiscal Year (ending 6/30)	State of Vermont	Moody's Median	State's Rank [4]	State of Vermont	Moody's Median	State's Rank [4]	State of Vermont [5]	Moody's Median	State's Rank [4]
Actual [1]									
2008	707	889	32	2.0	2.6	33	5.0	n.a.	n.a.
2009	692	865	34	1.8	2.5	35	5.5	n.a.	n.a.
2010	709	936	36	1.8	2.5	36	5.7	4.9	n.a.
2011	747	1,066	37	1.9	2.8	36	5.1	4.9	n.a.
2012	792	1,117	34	2.0	2.8	36	4.9	4.8	n.a.
2013	811	1,074	33	1.9	2.8	35	4.6	5.1	n.a.
2014	878	1,054	30	2.0	2.6	34	4.7	4.4	n.a.
2015	954	1,012	28	2.1	2.5	31	4.2	4.2	n.a.
2016	1,002	1,027	27	2.1	2.5	30	4.2	4.1	n.a.
2017	1,068	1,006	24	2.2	2.5	27	4.3	3.8	n.a.
2018	987	987	25	2.0	2.3	28	4.0	4.0	n.a.
2019	1,140	1,068	25	2.2	2.2	26	4.1	3.8	n.a.
2020	1,061	1,071	26	1.9	2.0	29	4.3	n.a.	n.a.
Current [2]	1,084	n.a.	n.a.	1.8	n.a.	n.a.	4.3	n.a.	n.a.
Projected (FYE 6/30) [3]		State Guideline [6]			State Guideline [7]			State Guideline	
2021	1,222	664		2.1	1.9		4.9	6.0	
2022	1,220	682		2.0	1.9		5.1	6.0	
2023	1,215	701		1.9	1.9		4.9	6.0	
2024	1,210	720		1.8	1.9		4.8	6.0	
2025	1,200	739		1.7	1.9		4.8	6.0	
2026	1,187	759		1.7	1.9		4.7	6.0	
2027	1,173	780		1.6	1.9		4.7	6.0	
2028	1,157	801		1.5	1.9		4.6	6.0	
2029	1,139	822		1.4	1.9		4.5	6.0	
2030	1,121	845		1.3	1.9		4.4	6.0	
2031	1,103	867		1.3	1.9		4.3	6.0	
5-Year Average of Moody's Mean for Triple-A States		928			1.9			n.a.	
5-Year Average of Moody's Median for Triple-A States		647			1.5			n.a.	

Note: Shaded figures in the State's debt per capita projection and State's debt as percentage of personal income, in fiscal years 2021-2031 and fiscal years 2021–2022, respectively represent the period when Vermont is expected to exceed the projected, respective State Guideline consistent with the current guideline calculation methodology and the assumption that the State will issue bonds consistent with the proposed two-year authorization (footnote (3)). See Section 6, "State Guidelines and Recent Events.

(1) Actual data compiled by Moody's Investors Service, reflective of all 50 states. Moody's uses states' prior year figures to calculate the "Actual" year numbers in the table.

(2) Calculated by Public Resources Advisory Group, using outstanding Long-Term Net Tax-Supported Debt of $678.602 million as of 6/30/20 divided by Vermont's 2020 population of 624,843 as projected by EPR.

(3) Projections assume issuance of $144.245 million of G.O. debt in FY 2021 and $61.590 million in FY 2022 through FY 2031.

(4) Rankings are in numerically descending order (i.e., from high to low debt).

(5) Revenues are aggregate of State's General Fund, including changes related to Act 11 as calculated by EPR, and Transportation Fund, as well as the motor vehicle and diesel fuel assessments associated with the TIBs and the dedicated property transfer tax revenues associated with the VHFA Property Transfer Bonds. Current debt service is net of the federal interest subsidies on the Build America Bond issues, and projected debt service is based on estimated interest rates at 5% over the projected period. Calculated by Public Resources Advisory Group.

(6) State Guideline equals the 5-year average of Moody's median for the Peer Group of $647 increasing annually at 2.7%.

(7) The 5-year average of Moody's median for the Peer Group is 1.5%. Since the annual number is quite volatile, ranging from 1.5% to 2.3% over the last five years, the State Guideline is 1.9% for FY 2021 - FY 2031.

"Dashboard" Indicators

	Vermont[a]	Median Triple-A States[b]
Long-Term Net Tax-Supported Debt:	$678,602,331	$3,202,999[c]
Debt As A Percent Of Gross State Product:	1.95%	1.0%[c]
Debt Per Capita:	$1,086	$586[c]
Debt As A Percent Of Personal Income:	1.85%	1.2%[c]
Debt Service As A Percent Of Operating Revenue[d]:	4.31%	N/A
Rapidity Of Debt Retirement:	39.3% (In 5 Years)	N/A
	72.5% (In 10 Years)	N/A
	93.3% (In 15 Years)	N/A
	100.00% (In 20 Years)	N/A

(a) Debt statistics for Vermont are as of June 30, 2020. Estimates of FY 2020 Gross State Product, Population, Personal Income and Operating Revenue prepared by EPR.
(b) These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the rating agencies during the periods shown, year ended September 30, 2020.
(c) Source: Moody's Investors Service, 2020 State Debt Medians Report calculated by Public Resources Advisory Group.
(d) Aggregate of State's General Fund, including changes related to Act 11 as calculated by EPR, and Transportation Fund, as well as the motor vehicle and diesel fuel assessments associated with the TIBs and the dedicated property transfer tax revenues associated with the VHFA Property Transfer Bonds.

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4. NATIONAL CREDIT RATING METHODOLOGIES AND CRITERIA

Standard & Poor's Methodology for U.S. State Ratings

On October 17, 2016, Standard & Poor's updated the final version of its "U.S. State Ratings Methodology." This updated methodology still provides a comprehensive presentation that sets forth, in a systematic way, a quantification approach to rating states. By assigning numerical values to its various rating criteria, the agency has moved closer to the establishment of state ratings through a quantification approach. The methodology includes the important categories of review, referred to as "factors," by Standard & Poor's:

(i) Government Framework,
(ii) Financial Management,
(iii) Economy,
(iv) Budgetary Performance and Flexibility, and
(v) Debt and Liability Profile.

In addition, the sub-categories, or "metrics" within each factor are weighed. Specifically, S&P assigns a score of 1 (strongest) to 4 (weakest) for twenty-eight metrics, grouped into the five factors listed above. Each of the metrics is given equal weight within the category, and then each factor is given equal weight in an overall 1 through 4 score. The overall scores correspond to the following indicative credit levels for the highest three ratings categories:

Score	Indicative Credit Level
1.0-1.5	AAA
1.6-1.8	AA+
1.9-2.0	AA
2.1-2.2	AA-
2.3-2.5	A+
2.5-2.6	A
2.7-3.0	A-
3.1-4	BBB category

In 2011, when S&P began to utilize the quantification approach, they reported that Vermont's score was approximately 1.7, corresponding to the State's AA+ rating from S&P. The major metrics where Vermont could improve, that to varying degrees are within the State's control, were consistent with what S&P outlined when they placed the State on positive outlook in 2015 in which Vermont received a composite score of 1.7: (a) increasing formal budget-based reserves to 8%; (b) increasing pension funded ratios; and (c) planning for and accumulating assets to address other post-employment benefits.

In July 2019, S&P's most recent report, Vermont's composite scope was 1.8, which is consistent with the 2017 report and a slight drop over the 2015 and 2016 report, reflecting the State's pension liability profile. The scores for each factor are as follows:

1.6	Government Framework
1.0	Financial Management,
2.4	Economy,
1.4	Budgetary Performance and Flexibility, and
2.8	Debt and Liability Profile.

The debt and liability profile is the fifth of the five major factors in S&P's assessment of the indicative credit level. S&P notes that they review debt service expenditures and how debt payments are prioritized versus funding of other long-term liabilities and operating costs for future tax streams and other revenue sources. They evaluate three key metrics which they score individually and weight equally: debt burden, pension liabilities, and other post-employment benefits. For each metric there may be multiple indicators (as they are for the debt metric) that they score separately and then average to develop the overall score for the metric. The new updated, methodology focuses on the revised governmental pension reporting and disclosure standards.

In terms of debt, the CDAAC reports since 2011 have incorporated certain new pieces of information, such as debt as a percent of state domestic product and relative rapidity of debt retirement (See the table above "Dashboard Indicators"). Provided below is a table with S&P's most recent debt statistics and scores for Vermont.

S&P' Debt Score Card Metrics

	Low Ranking (Score of 1)	Moderate Ranking (Score of 2)	Vermont's Statistics[1]	Vermont's Score
Debt per Capita	Below $500	$500 - $2,000	1,073	2
Debt as a % of Personal Income	Below 2%	2% - 4%	2.0%	2
Debt Service as a % of Spending	Below 2%	2%- 6%	1.9%	1
Debt as a % of Gross State Product	Below 2%	2% - 4%	2.0%	2
Debt Amortization (10 year)	80% - 100%	60%-80%	71%	2

[1] As calculated and reported by S&P.

Moody's US States Rating Methodology

On April 12, 2018, Moody's Investors Services released the final version of its "US States and Territories Rating Methodology" to replace its "US States Rating Methodology," last revised in April 2013.

At a high level, the primary revisions to the methodology were the inclusion of U.S. territories in the new criteria and the proposed adjustment of the weights for three of the four factors, with the Economy factor increasing from 20% to 25%, the Debt and Pensions factor increasing from 20% to 25% and the Governance factor decreasing from 30% to 20%. The Finance factor remained the same at 30% of the total score.

Previously, the Finance factor had three components: (i) revenue diversity, volatility and growth, (ii) structural balance and reserves, and (iii) liquidity. Under the new criteria, the two sub-factors, structural balance and reserves and liquidity remain, but the revenue diversity, volatility and growth subfactor was replaced by a Fixed Cost Ratio. The Fixed Cost Ratio is calculated to be the sum of Moody's

"tread water" annual pension cost, debt service and the annual OPEB payment divided by own source revenue.

The new methodology provides an updated explanation of how Moody's assigns ratings to US states and territories. The report provides market participants with insight into the factors Moody's considers being most important to their state ratings and the understanding of the qualitative and quantitative considerations, including financial information and metrics. The report also introduces an updated state and territory methodology scorecard. The scorecard's purpose is to provide a reference tool that can be used to approximate credit profiles for US states and territories.

The methodology includes "key factors" and "sub-factors," as referred to by Moody's, to produce a preliminary scorecard-indicated outcome. The preliminary outcome may be adjusted up or down in half-notch increments, based on six notching adjustments. The combination of the 10 factors, as seen below, results in the scorecard-indicated outcome:

Rating Factors	Factor Weighting	Rating Sub-Factors	Sub-Factor Weighting
Economy	25%	Per Capita Income Relative to US Average	12.5%
		Nominal Gross Domestic Product	12.5%
Governance	20%	Governance/Constitutional Framework	20%
Finances	30%	Structural Balance	10%
		Fixed Costs/State Own-Source Revenue	10%
		Liquidity and Fund Balance	10%
Debt and Pensions	25%	(Moody's-adjusted Net Pension Liability + Net Tax-Supported Debt)/State GDP	25%
Total	**100%**	**Total**	**100%**

Preliminary Score (Before Notching Factors)	
Notching Factors	
Growth Trend	(notching adjustment)
Economic or Revenue Concentration or Volatility	(notching adjustment)
Pension or OPEB Characteristics Not Reflected in Current Metrics	(notching adjustment)
Willingness to Assume Responsibility for Distressed Local Governments	(notching adjustment)
Impaired Market Access	(notching adjustment)
Financial Stability	(notching adjustment)
Scorecard-Indicated Outcome	

For the debt and pensions sub-factor, Moody's previously calculated two ratios with a 10% weighting factor for each rations:

- Net Tax-Supported Debt / Total Governmental Fund Revenues, and
- 3-Year Average of the Adjusted Net Pension Liability / Total Governmental Fund Revenues

In the new methodology, for the debt and pensions sub-factor, Moody's now calculates a combined ratio for debt and pensions with a 25% weighting factor:

$$\frac{\text{(Adjusted Net Pension Liability + Net Tax-Supported Debt)}}{\text{State Gross Domestic Product}}$$

Adjusted Net Pension Liability (ANPL) is the difference between the fair market value of a pension plan's assets and its adjusted liabilities. Moody's adjusts the reported pension liabilities of U.S states to improve comparability and transparency based on a market-determined discount rate and the market value of assets.

Net Tax-Supported Debt (NTSD) is debt paid from statewide taxes and other general resources, net of obligations fully and reliably supported by pledged sources other than state taxes or operating resources, such as utility or local government revenue.

State Gross Domestic Product (State GDP) is used as a proxy for a state's capacity to carry liabilities, because the economy drives current and future tax revenue.

The table below summarizes how Moody's assesses this ratio for the scorecard.

Sub-Factor	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
(Moody's-adjusted Net Pension Liability + Net Tax-Supported Debt)/State GDP	25%	Less than 10%	10%-20%	20%-30%	30%-40%	40%-50%	50%-75%	75%-100%	Greater than 100%

As mentioned prior, Moody's also has added the Fixed Cost Ratio in the Finances rating factor. The Fixed Cost Ratio is calculated to be the sum of Moody's tread water annual pension cost, debt service and the annual OPEB payment divided by own source revenue. A strong argument can be made that the Fixed Cost Ratio adds to the weight of the debt and pensions factor since those costs are associated with a state's liabilities. Under the prior rating methodology, the debt and pensions factor made up 20% of the total rating score. Under the new criteria, the stated Debt and Pensions factor increases to 25%. Adding in the "weight" of the new Fixed Cost Ratio, which is 10% of the overall scorecard rating, results in the total debt and pension weight increasing from 20% to 35%.

Measurement	Sub-factor Weight	Aaa	Aa	A	Baa	Ba
Fixed Costs / State Own-Source Revenue	10%	Less than 5%	5%-12%	12%-20%	20%-25%	25%-35%

Based on the Moody's Median report titled "Pension and OPEB liabilities fell in fiscal 2019 ahead of jump in 2020," dated September 8, 2020, Vermont's 2019 fixed costs as a percentage of state revenue is 8.2%. Thus, Moody's most recent fixed cost for Vermont is in the "Aa" category. See "Moody's Adjustment to Pension Data and Adjusted State Pension Liability Medians" herein for additional information regarding Vermont's relative standing to other triple-A states regarding pensions.

Fitch Rating Criteria for US State and Local Governments

On April 18, 2016, Fitch Ratings published an updated "U.S. Tax-Supported Rating Criteria" that outlines criteria applied by Fitch for ratings of U.S. state and local governments.

Notable aspects of the new criteria include published assessments of four key rating factors that drive rating analysis in the context of the economic base. The four key rating factors driving state and local government ratings include:

--Revenues;
--Expenditures;
--Long-term liabilities; and
--Operating performance.

Most recently, on May 31, 2017, Fitch updated their criteria based on analysis of defined benefit pension liabilities. Specifically, Fitch lowered the discount rate adjustment to 6% from 7%, which is used to establish comparable liability figures. The adjustment was refined based on information within GASB 67 and 68 reporting. Please see the guidance table on the following page that outlines general expectations for a given rating category.

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	aaa	aa	a	bbb	bb
Revenue Framework					
Growth Prospects for Revenues Without Revenue-Raising Measures	Strong Growth in line with or above the level of U.S. economic performance	Solid Growth below U.S. economic performance but above the level of inflation	Slow Growth in line with the level of inflation	Stagnant Growth below the level of inflation or flat performance	Negative Declining revenue trajectory
Independent Legal Ability	High	Substantial	Satisfactory	Moderate	Limited
to Raise Operating Revenues Without External Approval (in Relation to Normal Cyclical Revenue Decline)	Minimum revenue increase at least 300% of the scenario revenue decline	Maximum revenue increase at least 200% of the scenario revenue decline	Maximum revenue increase at least 100% of the scenario decline	Maximum revenue increase at least 50% of the scenario revenue decline	Maximum revenue increase less than 50% of the scenario revenue decline
Additional Considerations	In cases where an entity relies heavily on third-party funding (e.g. from a higher level of government) in support of core functions that likely would continue at the same level even without the external support, an evaluation of the associated risk informs the assessment. Third-party support can be a positive consideration in the overall framework assessment in cases where Fitch believes that support can be relied upon, for example state support of school districts. The requirement for periodic re-authorization of existing revenue streams is a negative consideration. In addition, in rare cases, there may be other factors, such as an unusually concentrated or volatile revenue base, that have a negative effect on the assessment.				
Expenditure Framework					
Natural Pace of Spending Growth Relative to Expected Revenue Growth (Based on Current Spending Profile)	Slower to equal	In line with to marginally above	Above	Well above	Very high
Flexibility of Main Expenditure Items (Ability to Cut Spending Throughout the Economic Cycle)	Ample	Solid	Adequate; legal or practical limits to budget management may result in manageable cuts to core services at times of economic downturn	Limited; cuts likely to meaningfully, but not critically, reduce core services at times of economic downturn	Constrained; adequate delivery of core services may be compromised at times of economic downturn
	Carrying cost metric less than 10%	Carrying cost metric less than 20%	Carrying cost metric less than 25%	Carrying cost metric less than 30%	Carrying cost metric 30% or greater
Additional Considerations	The analysis of an issuer's expenditure framework also considers potential funding pressures, including outstanding or pending litigation, internal service fund liabilities and contingent obligations				

Long-Tern Liability Burden	Low	Moderate	Elevated but still in the moderate range	High	Very High
Combined Burden of Debt and Unfunded Pension Liabilities in Relation to Resource Base	Liabilities less than 10% of personal income	Liabilities less than 20% of personal income	Liabilities less than 40% of personal income	Liabilities less than 60% of personal income	Liabilities 60% or more of personal income
Additional Considerations	The liability burden assessment could be negatively affected by high levels of derivatives exposure, short-term debt, variable-rate debt or bullet maturity debt or an exceptionally large OPEB liability without the ability or willingness to make changes to benefits. An exceptionally large accounts payable backlog can also negatively affect the long-term liability burden assessment.				
Operating Performance					
Financial Resilience Through Downturns (Based on Interpretation of Scenario Analysis)	Exceptionally strong gap-closing capacity; expected to manage through economic downturns while maintaining a high level of fundamental financial flexibility.	Very strong gap-closing capacity; expected to manage through economic downturns while maintaining an adequate level of fundamental financial flexibility.	Strong gap-closing capacity; financial operations would be more challenged in a downturn than is the case for higher rating levels but expected to recover financial flexibility.	Adequate gap-closing capacity; financial operations could become stressed in a downturn, but expected to recover financial flexibility	Limited gap-closing capacity; financial operations could become distressed in a downturn and might not recover.
Budget Management at Times of Economic Recovery	Rapid rebuilding of financial flexibility when needed, with no material deferral of required spending/ nonrecurring support of operations.	Consistent efforts in support of financial flexibility, with limited to no material deferral of required spending/nonrecurring support of operations.	Some deferral of required spending/ nonrecurring support of operations.	Significant deferral of required spending/ nonrecurring support of operations.	Deferral of required spending/ nonrecurring support of operations that risks becoming untenable given tools available to the issuer.
Additional Considerations	The operating performance assessment could be negatively affected by liquidity or market access concerns (in general, liquidity becomes a concern if the government-wide days cash on hand metric has or is expected to fall below 60 days); the risk of an outside party (e.g. another level of government) having a negative impact on operations; evidence of an exceptional degree of taxpayer dissatisfaction, particularly in environments with easy access to the voter-initiative process; or management weaknesses not captured above.				

As part of its revised criteria, Fitch can create scenarios that consider how a government's revenues may be affected in a cyclical downturn and the options available to address the resulting budget gap. Also under the revised criteria, Fitch provides more in-depth opinions on reserve adequacy related to individual issuers' inherent budget flexibility and revenue volatility.

In 2017, Vermont was rated under the new criteria and there was no change to the State's AAA rating at that time as the result of the new criteria. However, subsequently, the State was downgraded to AA+ by Fitch in July 2019 as previously discussed.

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5. ECONOMIC AND FINANCIAL FORECASTS

This section of the report includes excerpts from the "Consensus Revenue Forecast Update for the General Fund, Transportation Fund, and Education Fund; Fiscal Years 2021 through 2022" prepared by Economic and Policy Resources, Inc. ("EPR") dated August 12, 2020.

"The magnitude of the negative impacts in national and State labor markets have been unrivaled in scale and scope dating back to the Great Depression, and the on-going, unprecedented level of uncertainty in the near-term economic outlook exceeds that associated with the mortgage and financial crisis-induced "Great Recession" of a little over a decade ago."

"In the most recent week, there were a total of 1.2 million Americans who filed for first-time unemployment benefits in the week ending August 1st. That was the 20th consecutive week that initial jobless benefits claims exceeded the 1.0 million level-but was the lowest since March. Before the COVID-19 pandemic hit the U.S. in March, the previous record for initial jobless benefits claims had been 695,000—as was registered back in 1982 during the painful 1981-82 U.S. economic downturn."

"If, as it now seems likely, the bottom of the recession was in fact during the month of April (barring a significant revision of the labor market's payroll jobs change data), the U.S. and Vermont economies have each added back significant numbers of the jobs lost due to the COVID-induced downturn even if there are still significant numbers of jobs that were lost (or put into suspended animation) during the apparent three month February through April downturn. While it is true that much of the initial re-hiring during the nascent period of recovery in national and Vermont labor markets to-date have occurred among those sectors where workers were laid off or furloughed as the COVID-19 pandemic spread through the economy, it does appear that labor markets, both national and State, are indeed healing faster than initial post-pandemic expectations. However, while the worst of the worst may in fact be over, we still appear to be finding our way "out of the economic woods."

"Whether or not that initial recovery momentum will be maintained over the near-term time horizon—which will be important to limiting the permanent damage to the economic base of the country and Vermont—will depend on continued progress being made on the significant public health issues that remain associated with containing the still unfolding, national COVID-19 pandemic."

On the following page are EPR's 2020 economic projections as compared to its 2019 economic projections. As shown, the 2020 projections show an increase in population in all years of the forecast. Furthermore, the forecast for nominal personal income display a slight decrease in fiscal 2021 and an increase for the remaining forecast period. The 2020 General Fund (based on current law following Act 11) and Transportation Fund revenue projections are lower throughout the forecast period, due to the revenue projections post Act 11. Furthermore, the columns that compare revenues as a percentage of nominal personal income suggests that the State's general and transportation fund are expected to collect a lower share of the State's personal income for government operations for the projection years.

STATE OF VERMONT
POPULATION, PERSONAL INCOME AND REVENUE PROJECTIONS
2020 COMPARED TO 2019 PROJECTIONS

Population (Thousands)

Year	2019	2020	Change	% Change
2020	628.24	624.84	-3.40	-0.54%
2021	629.44	626.10	-3.34	-0.53%
2022	630.57	627.26	-3.31	-0.52%
2023	631.77	628.07	-3.69	-0.58%
2024	632.90	628.83	-4.08	-0.64%
2025	633.98	629.58	-4.40	-0.69%
2026	634.99	630.40	-4.59	-0.72%
2027	635.95	631.22	-4.73	-0.74%
2028	636.84	631.98	-4.86	-0.76%
2029	637.66	632.67	-4.99	-0.78%
2030	638.43	633.31	-5.12	-0.80%
2031		633.94	n.a.	n.a.

Nominal Dollar Personal Income (Millions)

Year	2019	2020	Change	% Change
2020	35,440.10	36,760.40	1,320.30	3.73%
2021	36,219.78	36,356.03	136.25	0.38%
2022	37,342.60	37,919.34	576.75	1.54%
2023	38,388.19	39,777.39	1,389.20	3.62%
2024	39,463.06	41,567.37	2,104.31	5.33%
2025	40,607.49	43,188.50	2,581.01	6.36%
2026	41,825.71	44,916.04	3,090.33	7.39%
2027	43,080.48	46,802.51	3,722.03	8.64%
2028	44,459.06	48,815.02	4,355.96	9.80%
2029	45,837.29	50,816.44	4,979.15	10.86%
2030	47,212.41	52,798.28	5,585.87	11.83%
2031		54,804.61	n.a.	n.a.

General Fund and Transportation Fund Revenue (Millions)[(1)]

Year	2019	2020	Change	% Change
2020	1,935.19	1,922.47	-12.73	-0.66%
2021	1,949.87	1,672.44	-277.43	-14.23%
2022	1,983.67	1,783.70	-199.96	-10.08%
2023	2,032.58	1,906.79	-125.78	-6.19%
2024	2,084.53	1,975.87	-108.66	-5.21%
2025	2,148.95	2,029.57	-119.38	-5.56%
2026	2,217.52	2,086.89	-130.63	-5.89%
2027	2,290.71	2,145.83	-144.88	-6.32%
2028	2,373.22	2,209.59	-163.62	-6.89%
2029	2,457.06	2,274.05	-183.01	-7.45%
2030	2,540.51	2,339.79	-200.72	-7.90%
2031		2,405.48	n.a.	n.a.

(1) Fiscal year 2019 Forecast revenues are based on economic data prior to the passage of Act 11 (H.16), whereas fiscal year 2020 Forecast revenues are based on current law.

General Fund and Transportation Fund Revenue as a Percent of Nominal Personal Income[(1)]

Year	2019	2020	Change	% Change
2020	5.5%	5.2%	-0.2%	-4.2%
2021	5.4%	4.6%	-0.8%	-14.5%
2022	5.3%	4.7%	-0.6%	-11.4%
2023	5.3%	4.8%	-0.5%	-9.5%
2024	5.3%	4.8%	-0.5%	-10.0%
2025	5.3%	4.7%	-0.6%	-11.2%
2026	5.3%	4.6%	-0.7%	-12.4%
2027	5.3%	4.6%	-0.7%	-13.8%
2028	5.3%	4.5%	-0.8%	-15.2%
2029	5.4%	4.5%	-0.9%	-16.5%
2030	5.4%	4.4%	-0.9%	-17.6%
2031		4.4%	n.a.	n.a.

(1) Fiscal year 2019 Forecast revenues are based on economic data prior to the passage of Act 11 (H.16), whereas fiscal year 2020 Forecast revenues are based on current law.

The State's personal income projections comparison over the previous two year signal a significant long-term change. However, EPR reports that the upward revision was created by a pretty significant revision of the historical numbers by Moody's Analytics, as well as the impact of COVID-19. EPR believes that this year's personal income projections are more reasonable due to a revision forecast and a revision in historical data. The revised boost in personal income projections will decrease the State's debt as a percentage of personal income at a constant amount of debt. The State is project to be at or below its affordability guideline for debt as a percentage of personal income of 1.9% for fiscal years 2023 through 2031.

Provided below are the forecasts of population, personal income, and nominal gross State product. As shown in the table below, population for calendar year 2020 and 2021 is 624.8 thousand and 626.1 thousand, respectively, initially an increase of 0.14% and 0.20%, over the previous calendar years. Personal income for calendar year 2020 and 2021 is $36.8 billion and $36.4 billion, respectively, an increase of 4.00% and then a decrease of 1.10%, over the previous calendar year, respectively. Nominal gross State product for calendar year 2020 and 2021 is $33.3 billion and $34.2 billion, respectively, a decrease of 4.13% and then an increase of 2.65%, over the previous calendar year, respectively.

STATE OF VERMONT
PRIOR YEAR, CURRENT AND PROJECTED ECONOMIC DATA[(1)]

Year	Population (in thousands)	Personal Income (in $ billions)	Nominal GSP (in $ billions)
2019	624.0	35.3	34.8
2020	624.8	36.8	33.3
2021	626.1	36.4	34.2
2022	627.3	37.9	36.6
2023	628.1	39.8	38.9
2024	628.8	41.6	40.7
2025	629.6	43.2	42.3
2026	630.4	44.9	43.8
2027	631.2	46.8	45.4
2028	632.0	48.8	47.1
2029	632.7	50.8	48.9
2030	633.3	52.8	50.7
2031	633.9	54.8	52.5

(1) Administration-Legislative Consensus Long-Term Forecast (Calendar Years 2020-2031). These figures were prepared by EPR, as of August 28, 2020.

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As shown in the table below, total revenue for fiscal year 2020 is $29.1 million more than in fiscal year 2019, an increase of 1.5%. Due to COVID-19, fiscal year 2021 total revenue is forecasted to decrease by $250.0 million, or 13.0%; the average annual revenue growth rate during the fiscal year period, 2022 through 2031, inclusive and absent of fiscal year 2021 due to COVID-19, is projected to be 4.3%.

STATE OF VERMONT
PRIOR YEAR, CURRENT AND PROJECTED STATE REVENUE[1]
(in millions of dollars)

Fiscal Year	General Fund	Transportation Fund	Total Revenue[2][3]
2019	1,612.4	280.9	1,893.4
2020	1,658.4	264.1	1,922.5
2021	1,413.9	258.6	1,672.4
2022	1,508.0	275.7	1,783.7
2023	1,619.3	287.5	1,906.8
2024	1,682.2	293.7	1,975.9
2025	1,732.2	297.3	2,029.6
2026	1,784.2	302.7	2,086.9
2027	1,839.5	306.3	2,145.8
2028	1,898.4	311.2	2,209.6
2029	1,957.2	316.8	2,274.0
2030	2,017.9	321.9	2,339.8
2031	2,078.4	327.0	2,405.5

(1) Administration-Legislative Consensus Long-Term Forecast (Calendar Years 2021-2031). These figures were prepared by EPR. Amounts shown are "current law" revenue forecasts, based on a consensus between the State's administration and legislature. As of August 28, 2020.

(2) Totals may not agree due to rounding.

(3) Forecasted revenues are based on economic data following the passage of Act 11 (H.16).

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6. STATE GUIDELINES AND RECENT EVENTS

In order to recommend to the Governor and the General Assembly a maximum amount of net tax-supported indebtedness that the State may prudently issue for the ensuing fiscal year, CDAAC has adjusted its State guidelines and the method of calculating its State guidelines over time based on factors such as (i) changes in the rating agencies' criteria, (ii) changes in Vermont's ratings, (iii) changes to Vermont's Peer Group, (iv) substantial increases and decreases in the amount of debt issued due to market disruptions and tax law changes and (v) Vermont's relative debt position.

Examples of changes in rating criteria include Moody's dropping its State medians for "net tax supported debt as a percentage of effective full valuation" and "net tax supported debt service as a percentage of operating revenues" in 1996, reintroducing its "net tax supported debt service as a percentage of operating revenues" in 2012, Moody's and Fitch's recalibration of ratings in 2010, and the 2012 comparative research analysis that has combined State debt and pension liabilities as a method of evaluating states' financial position. The recalibration of ratings by Moody's and Fitch in 2010 and S&P rating changes over the past five years have also affected Vermont's Peer Group. Between 2002 and 2008, the number of states with two triple-A ratings remained fairly constant between eight and eleven states, compared to the current 16 states having at least two triple-A ratings.

While CDAAC has continued to make adjustments to the State guidelines and the way it calculates State guidelines, it has been consistent in its overall approach of projecting future State debt issuances and measuring the effect against prudent State guidelines based on Peer Group analysis. The Committee does not believe that adjustments in the credit markets or other recent events, such as the COVID-19 pandemic, should alter its process; however, the Committee realizes that it and the State will need to keep the changing debt finance environment and other current circumstances in mind as the State develops its capital funding and debt management program.

Debt Per Capita State Guideline – Adjustments to Debt Per Capita State Guideline

The debt per capita statistics, among the various debt guidelines, is used to consider the amount of net tax supported debt that the State should authorize annually. The debt per capita State guideline calculation is based on a starting point, which since 2006 has consisted of the median of the 5-year Peer Group average of the debt per capita median of peer group (triple-A) states, and an annual inflation factor, in order to achieve a realistic perspective on the future direction of debt per capita median for the Peer Group states. As recently as 2007, CDAAC used an inflator of 2.7% or 90% of an assumed 3% inflation rate. In 2009, this approach was changed and the decision was made to adopt an inflator based on a percentage of the averaging of the annual increases in the median debt per capita of the Peer States in an attempt to best predict increases in future Peer State debt levels. At the time this changed occurred, it was noted that this approach should not be considered fixed because of possible changes to the Peer Group, among others, over time and that CDAAC should continue to monitor the best approach to calculating the inflator. With the recent changes to the Peer Group states and significant decrease in the Peer Group debt per capita resulting in an overall negative growth, or inflator, we have evidenced a deficiency in this approach and CDAAC in 2016 decided to revert back to its previous approach to calculating the inflator based on the 2.7% (90% of 3% assumed inflation). CDAAC will

continue to monitor this approach as well as the approach to determining the starting point for its debt per capita guideline.

Net Original Premium Review

The previous year, the Committee reviewed the process by which the State increases the funding of capital projects based on the amount of net original issue bond premium generated from bond issues. The Committee reviewed the practices of other states related to (i) the use of bond premium and (ii) how and if bond premium affects states' capacity or affordability. For bonds issued for new capital projects, states surveyed either use bond premium to reduce the size of the bond issue, deposit the bond premium into a special capital account without reducing the bond issuance size, and/or use bond premium to pay interest on the bonds being issued. In terms of how bond premium affects capacity/affordability, several examples were provided and varied among states. Some states de-authorize bonding authority in amount equal to the associated bond premium, while certain states net premium does not affect capacity/affordability due to affordability metrics and other states recognize the lower bond issue size in state's future affordability reports.

Pay-Go Review

The Committee has also been focusing on reviewing the benefits of the State increasing its pay-as-you-go capital funding. CDAAC has noted the rating agencies' concerns regarding the level of state and local governments' deferred maintenance and deferred capital infrastructure replacement. (See "Capital Planning Program and the Impact of Capital Spending Upon the Economic Conditions of the State" below.) The Committee believes that using additional pay-as-you-go ("Pay-go") funds would be beneficial for funding infrastructure including capital projects with shorter useful lives, such as technology projects, etc. The Committee noted the benefit of additional Pay-go funds – increase of Pay-go funds means more sources for capital projects, as well as reducing interest cost and total borrowing amounts over-time. The Committee decided to form a working group to further evaluate the best use of bond premium and the benefits of the State increasing its Pay-go funds and possible sources for deferred maintenance funding and report back to the Committee.

Statutory Change Relating to Revenues and Effect on Debt Service as a Percentage of Revenue

Fiscal 2019 Appropriations Act, Act 11 (H.16) or the BIG BILL updates the funding allocation among the State's General Fund and Education Fund. Before the passage of Act 11, the State provided appropriations within the General Fund and transferred the respective allocation to the Education Fund. However, with the implementation of Act 11, the State now allocates 100% of Sales and Use Tax and 25% of Meals and Rooms Tax directly to the Education Fund.

As discussed previously in this report, debt service as a percent of revenues is utilized as one of the ratios establishing the state guidelines for future issuance. In years prior to Act 11, revenues were calculated with an aggregate revenue number consisting of the General Fund and Transportation Fund prior to any Education Fund transfers. After the passage of Act 11, the General Fund revenue is reduced. In order to keep the related debt service as a percent of revenues projections comparable to historical fund figures, the 2018 and 2019

CDAAC Reports utilized the revenue calculations that were previously in place prior to Act 11, i.e., as if there had been no revenue reallocation between the General Fund and Education Fund. However, as previously mentioned in Section 3, "Debt Service as a Percentage of Revenues," the 2020 CDAAC Report includes post Act 11 General Fund Revenue, as well as the motor vehicle and diesel fuel assessments associated with the TIBs and the dedicated property transfer tax revenues associated with the VHFA Property Transfer Bonds.

Statutory Change Relating to Use of Bond Premium and Effect on Affordability

Effective in fiscal year 2013, 32 V.S.A. § 954 was amended to permit the use of bond premium received from issuance of debt for capital purposes. Previously bond premium was used to pay debt service. In fiscal year 2013, the net bond premium became available to pay capital appropriations, effectively reducing the par amount of bonds issued such that the par amount of bond plus the net original issue premium equals the capital appropriations amount.

The effect of this legislative change on the CDAAC numbers is as follows: if future bonds are issued with a net original issuance premium, the par amount of bonds will be less than estimated by the CDAAC report; however, the higher the original issue premium, the higher the average interest rate on the lower amount of debt. Due to the lower nominal interest rates in the market and the institutional investors' preference for higher coupon debt, the State expects to sell bonds with some original issue premium and reduce the size of its bond sales. To the extent that occurs, the State could authorize future additional capital appropriations in an amount equal to or less than the premium generated and still be in compliance with the CDAAC bond issuance recommendation.

Recent Decreasing State Debt Levels, Future State Infrastructure Spending Increasing

According to the Moody's State Debt Medians 2015 report published June 24, 2015, total net tax-supported debt for US States declined in 2014. This was the first drop in state debt levels in the 28 years Moody's has been compiling the data. According to the 2015 report "The decrease comes as states continue to be reluctant to take on new debt with tight operating budgets, a slow economic recovery, and uncertainty over federal fiscal policy and health care funding." The Moody's State Debt Medians 2020 report, indicated the net tax-supported debt for US States declined by 0.8%, falling to just above 2014 levels.

It was reported in February 2016 via the Center on Budget and Policy Priorities that state and local spending on infrastructure hit a 30-year low. Debt levels were expected to rise in 2017 despite three recent years with decreased and static state debt levels. Roads and bridges have continued to deteriorate due to federal investments dropping in half and the states' varying budget commitment to infrastructure. Nevertheless, it seems as if infrastructure spending is finally on the rise due to record low interest rates. However, according to the American Society of Civil Engineer, the nation's infrastructure has still been neglected and needs improvement.

Unlike many of its peer states in recent years, Vermont has continued to invest in its infrastructure, such as investing in the Waterbury office complex. The State has recognized the necessity of road and bridge improvements. Furthermore, these issues exemplify the

cause in which the State's debt per capita has risen slightly in comparison to those states within the Peer Group.

Most recently, the COVID-19 pandemic has created uncertainty in regards to capital spending. In some circumstances, states may issue (or already have issued) additional debt to replace pay-go spending for capital projects. Conversely, some states may suspend certain capital projects until the COVID-19 pandemic subsides, and thus, not issue as much debt. There will not be a finite conclusion on states debt issuance as the COVID-19 pandemic changes on a daily basis with no determined timeline of the end of the pandemic, as well as the ramifications following the end of COVID-19.

The Recent Landscape of Municipal Bonds

The Tax Cuts and Jobs Act, passed in November 2017 and signed by President Trump in December 2017, took effect on January 1, 2018. The municipal market was severely impacted as it eliminated advance refundings and issuer's ability to refinance older and higher cost of debt prior to the call date. Advance refunding bond issuance totaled $91 billion in 2017, which accounted for 22.2 percent of supply, according to Thomson Reuters. Private activity bonds were analyzed for elimination, but ultimately were preserved.

The Tax Cuts and Jobs Act is continuing to impact the municipal industry in other ways, as well. For instance, a reduction in the corporate tax rate has deterred the attractiveness of municipal bonds over corporate bonds for banks and insurance companies. Also, restrictions on state and local tax deductions could cause financial gaps for municipalities and thus create instances in which there is an increase of taxes for local residents. As time has passed since the Tax Cuts and Jobs Act was enacted, the municipal market has performed well due to a cooperative Federal Reserve, as well as strong demand caused by a cap on state and local tax deductions and moderate supply caused by the prohibition on advance refundings.

The municipal market in late March and April 2020 experienced the effect of the COVID-19 pandemic. The 10-year AAA MMD yields increased by as much as 200 basis points during that time with historical single day movements of 50 basis points. Nevertheless, actions taken by Congress and the Federal Reserve have helped stabilize the municipal market from early 2020 as there have been a steady flow of funds and investor demand. Interest rates have reached historical lows, especially for U.S. Treasuries, as investors have an appetite for safe investments during the uncertainty of the COVID-19 pandemic.

Sequestration and Potential Impact on Build America Bonds Subsidy

On September 14, 2012, the Office of Management and Budget ("OMB") released its Report Pursuant to the Sequestration Transparency Act of 2012, which detailed, among its $1.2 trillion of enumerated reductions to the federal budget, an ongoing cut of 5.1% (which resulting in an 8.7% cut in federal fiscal 2013 due to the fact that only 7 months remained in that year ending September 30) to the interest payment subsidy associated with the Build America Bonds (BABs) program. In February 2014, Congress voted to extend sequestration of BABs subsidies through 2024. The Internal Revenue Service has annually published guidance reducing subsidy payments as follows: 7.2% for federal fiscal year 2014, 7.3% for federal fiscal year 2015, 6.8% for federal fiscal year 2016, 6.9% for federal fiscal year 2017, 6.6% for federal fiscal year 2018, 6.2% for federal fiscal year 2019 an 5.9% for federal fiscal year 2020. The federal fiscal year 2021 rate is 5.7%.

Through fiscal year 2020, sequestration has reduced the subsidy payments that Vermont received for its 2010 Series A-2 and 2010 Series D-2 taxable G.O. Bonds by a total of $493,909.78. Based on the federal fiscal year 2021 rate of a 5.7% reduction and the elimination of the 2010 Series A-2 subsidy with the issuance of the 2019B Bonds, the subsidy is reduced by $30,772.88 in fiscal year 2021. If the 5.7% reduction continues, the subsidy will be reduced by another $29,102.06 in FY 2022 with declining annual amounts through the maturity date totaling $159,949.13 overall. While this sequestration impact is a very unfortunate development, it does not materially alter Vermont's projected debt service as a percentage of revenue ratios; specifically, a $30,772.88 reduction in fiscal year 2021 equates to approximately 0.04% of the projected $82.191 million of debt service payments due that year.

Moody's Adjustment to Pension Data and Adjusted State Pension Liability Medians

On July 12, 2012, Moody's published a Request for Comments regarding proposed adjustments to pension data. On April 17, 2013, the adopted adjustments were published. The adjustments are intended to enhance transparency and comparability. On June 27, 2013 Moody's published "Adjusted Pension Liability Medians for US States." This inaugural report presents adjusted pension data for the 50 individual states for fiscal year 2011, based on Moody's recently published methodology for analyzing state and local government pension liabilities. The report ranks states based on ratios measuring the size of their adjusted net pension liabilities (ANPL) relative to several measures of economic capacity: state revenues, GDP and personal income.

As discussed above, Moody's considers debt and pension liabilities together and has incorporated this decision into its US States and Territories Rating Methodology. The "Debt and Pensions" factor reflects both bonded tax supported debt and adjusted net pension liabilities which equals 25% the total score (previously 10% each). Additionally, under the new methodology, Moody's also has added the Fixed Cost Ratio in the "Finances" rating factor. The Fixed Cost Ratio is calculated to be the sum of Moody's tread water annual pension cost, debt service and the annual OPEB payment divided by own source revenue. which is 10% of the overall scorecard rating, results in the total long-term lability weight increasing from 20% to 35%

On September 8, 2020, Moody's published its annual state pension report titled "Pension and OPEB Liabilities Fell in Fiscal 2019 Ahead of Jump in 2020," which updated Moody's ANPL for fiscal year 2019 for the 50 states. The report reflects 2019 data based on 2018 liabilities and utilizes a FTSE Pension Liability Index of 3.51% as a discount rate to value liabilities in standard adjustments. The 2018 report began state rankings based on the new debt and pension ratio contained in Moody's "US States and Territories Rating Methodology" dated April 12, 2018, specifically, state ANPL + NTSD as a % of state GDP. Moody's notes that (i) total state ANPL reached $1.48 trillion in fiscal 2019, (ii) investment returns were lower in fiscal 2019, which will be reflected in fiscal 2020 state financial statements, and (iii) total adjusted net OPEB liabilities were $527 billion in fiscal 2019, which represented a 10.6% decrease from the prior fiscal year.

The following two tables provide Vermont's relative position among the 50 states with respect to its ANPL for 2018 and 2019 and a comparison of Vermont and Peer Group states with respect to Moody's pension ratios.

Moody's Pension Ratios	State of Vermont Rankings 2018[1,2]	State of Vermont Rankings 2019[1,3]
ANPL as % of Personal Income	9	9
ANPL as % of State Gross Domestic Product	7	7
ANPL Per Capita	9	9
ANPL as % of State Government Revenues	18	19
ANPL + NTSD as a % of State Gross Domestic Product	10	10

Sources: Moody's *Adjusted Net Pension Liabilities Decline; OPEB Liabilities Vary Widely,* September 17, 2019.

Moody's *Pension and OPEB Liabilities Fell in Fiscal 2019 Ahead of Jump in 2020,* September 8, 2020.

[1]Rankings are in numerically descending order, with the state having the highest Moody's Adjusted Net Pension Liability statistic ranked 1st and the state having the lowest Adjusted Net Pension Liability statistic ranked 50th.
[2]Based on a FTSE Pension Liability Index of 4.14%.
[3]Based on a FTSE Pension Liability Index of 3.51%.

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STATE OF VERMONT AND PEER GROUP STATES' MOODY'S PENSION LIABILITIES METRICS*

Triple-A Rated States	Moody's Adjusted Net Pension Liability (ANPL)[1]			
	As % of PI	As % of State GDP	Per Capita ($)	As % of Revenues
Delaware	10.1	7.1	5,526	80
Florida	2.0	2.0	1,026	41
Georgia	4.3	3.6	2,083	80
Indiana	5.4	4.7	2,641	80
Iowa	2.7	2.3	1,444	39
Maryland	13.5	12.5	8,903	198
Minnesota	3.6	3.2	2,177	42
Missouri	4.3	3.9	2,115	91
North Carolina	1.8	1.6	880	29
South Carolina	12.0	11.3	5,473	175
South Dakota	3.6	3.2	1,944	68
Tennessee	1.8	1.6	873	29
Texas	8.6	7.0	4,550	161
Utah	2.7	2.2	1,287	40
Virginia	3.3	3.0	1,981	56
MEAN[2]	**5.3**	**4.6**	**2,860**	**81**
MEDIAN[2]	**3.6**	**3.2**	**2,083**	**68**
VERMONT[3]	12.9	13.1	7,319	117
VERMONT's 50 STATE RANK[4]	9	7	9	19

Source: Moody's *Pension and OPEB Liabilities Fell in Fiscal 2019 Ahead of Jump in 2020,* September 8, 2020.

[1]Based on a FTSE PLI of 3.51%.

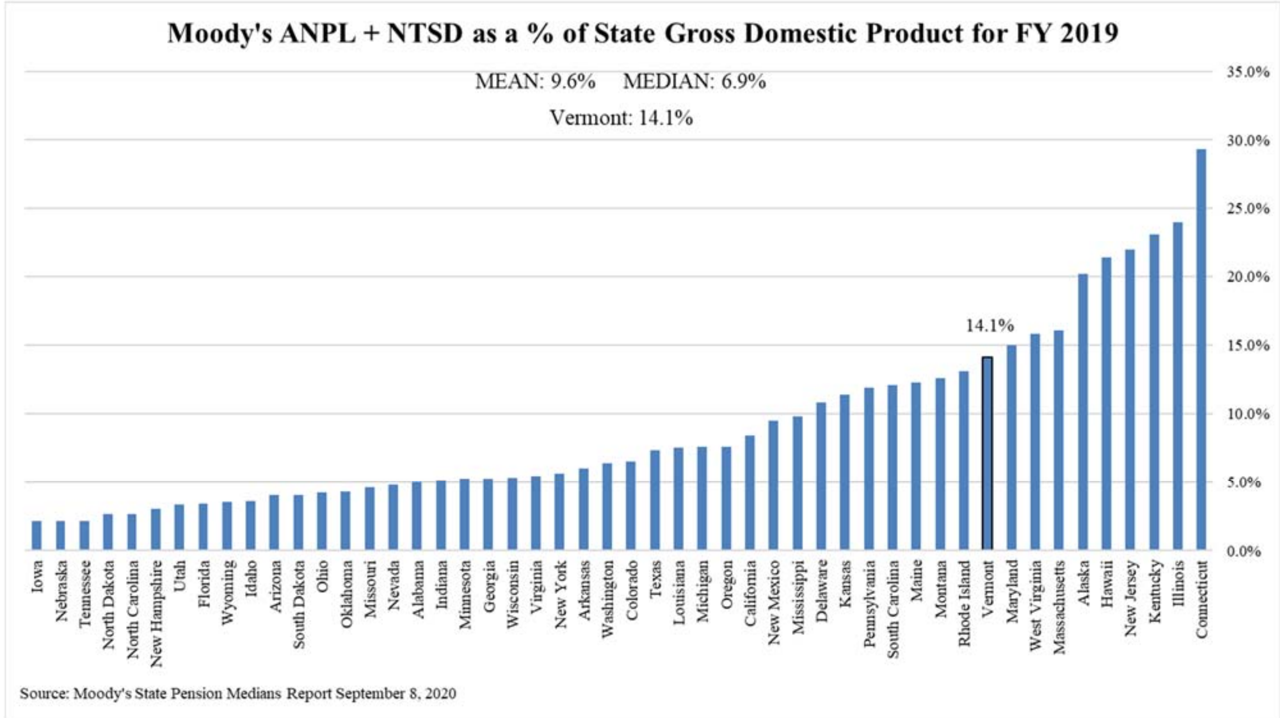
[2]Calculated by Public Resources Advisory Group. These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the rating agencies, year ended June 30th, 2019.

[3]Vermont numbers include the combined defined benefits plans of the Vermont State Employees' Retirement System and the Vermont State Teachers' Retirement System.

[4]Rankings are in numerically descending order, with the state having the highest Moody's Adjusted Net Pension Liability statistic ranked 1st and the state having the lowest Adjusted Net Pension Liability statistic ranked 50th.

*Sources does not take into account differing retirement benefits among states.

As discussed in Section 4, "Moody's US States Rating Methodology," Moody's updated the "Debt and Pension" factor with a combined ratio for debt and pensions with a 25% weighting factor. As can be seen in the table below, Vermont is currently ranked 10th out of the 50 states in regards to the new ratio (higher ranked numbers are superior). Please see below for a chart comparing Moody's new Debt and Pension ratio (ANPL+NTSD as a percentage of Gross State Product) compared to the other 49 states.



Moody's began including adjusted net OPEB liabilities ("ANOL") statistics within their 2019 pension report as states have adopted new OPEB accounting rules in their fiscal 2018 reporting. Vermont is currently ranked 8th out of the 50 states with the addition of ANOL added to ANPL and NTSD as a percentage of Gross State Product (note: higher ranked numbers are superior so Vermont's ranking is negatively impacted with the addition of ANOL to the equation). Please see the following page for a chart comparing Moody's new ANOL data in addition to ANPL and NTSD as a percentage of Gross State Product) compared to the other 49 states.

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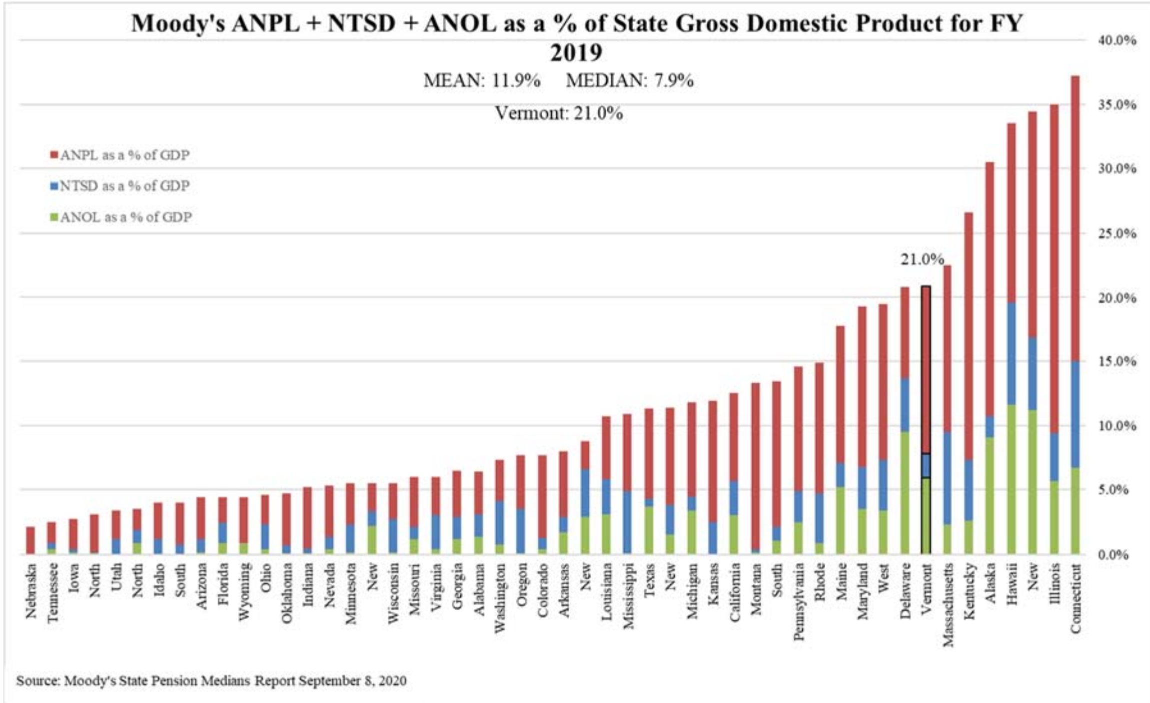
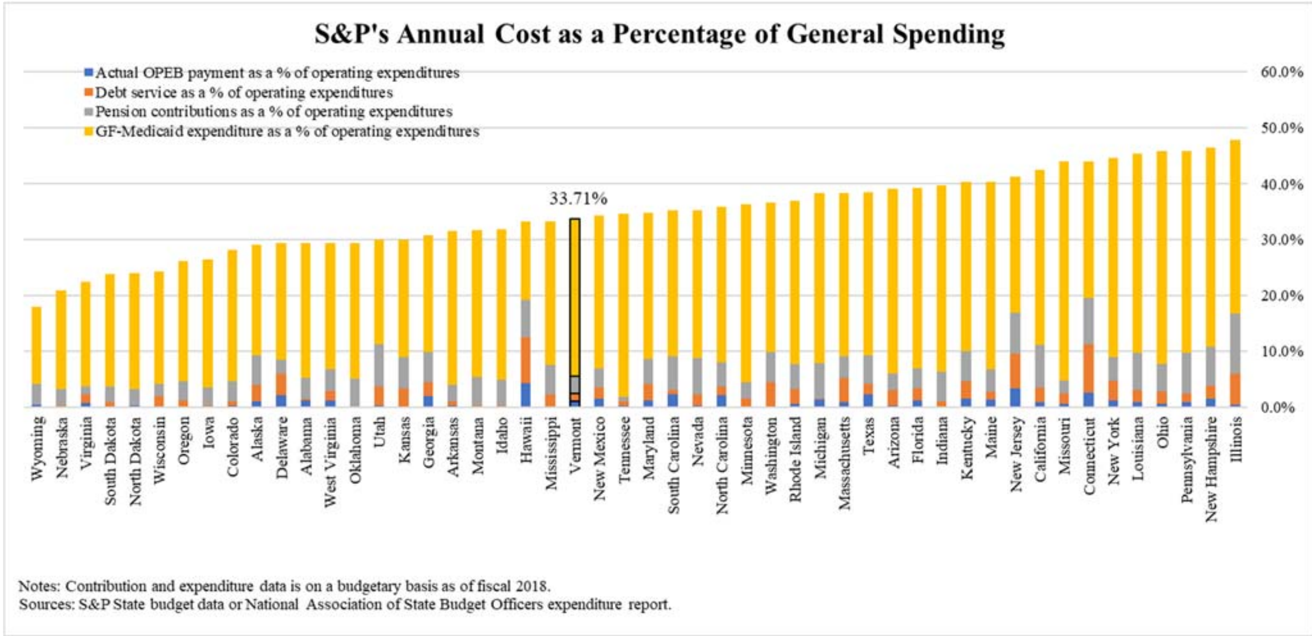


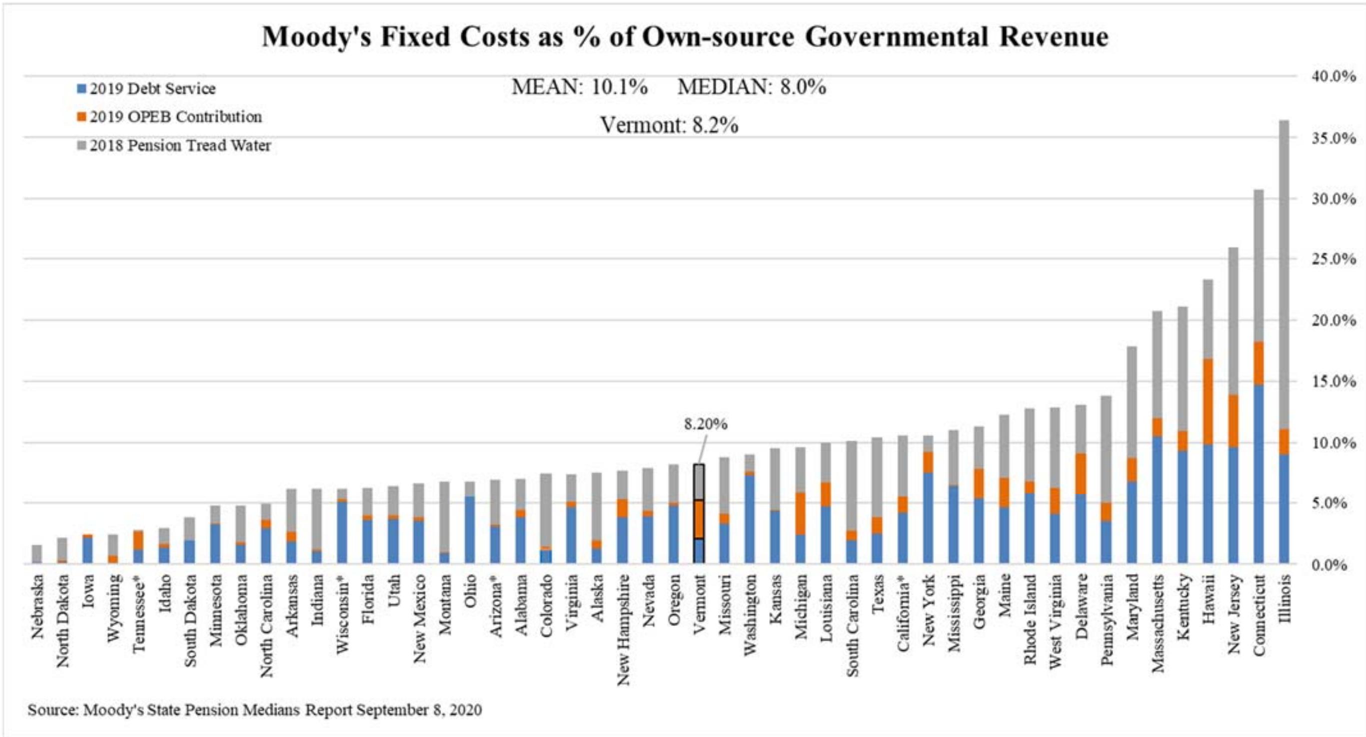
S&P's and Moody's -- Review of State and Local Budget Capacity

S&P and Moody's have identified their concerns with state and local governments' long-term debt liabilities as it relates to percentage of fixed cost to total operating budget capacity. With many states expecting the costs for pensions, debt and OPEBs expected to rise, the agencies are concerned that other funding priorities will be squeezed and for some states this could create reduced financial flexibility. Vermont is constrained by their pension, OPEB and Medicaid expenses compared to other states. The State should understand and prioritize the significance of the credit agencies' persistent assessment of their respective fixed costs. In order to combat Vermont's relative low rankings, it is recommended than the State preserve budgetary and financial capacity in considerations for future debt issuances.

As examined in Section 1, "Capital Funding and Capital Plan," CDAAC reviewed a S&P report in May 2018 titled *Between a Budget and a Hard Place: The Risks of Deferring Maintenance for U.S. Infrastructure* that outlined the growing level of deferred maintenance in the U.S. and the absence of a standard for measuring the amount of deferred maintenance. One portion of the report highlighted increasing amounts of expenses, specifically Medicaid, OPEB, debt service and pension contributions. S&P reports concern related to states ability to fund needed capital infrastructure. Please see the following page for an overview of Vermont's position among the 50 states in regards to annual costs as a percentage of general spending that was updated with the release of the report titled *Finding Balance in Today's Lower-For-Longer Economy* in January 2020.



Moody's Fixed Cost Ratio, which was also previously discussed, is an added ratio with the Finances factor that reviews debt service, OPEB and pension tread water costs to state own source revenue. Moody's reports concern related to states limited operating budget flexibility as many state pensions and OPEB costs are expected to rise faster than revenue growth in the future. Please see below for a chart comparing Moody's new Fixed Cost Ratio among the 50 states in order to review the State's current position among other states.



Reserve or Rainy-Day Fund Balances

The rating agencies are also putting greater emphasis on the importance of having robust general fund reserve fund balances, commonly referred to as rainy day funds. Historically, a rainy day fund target of 5% of general fund expenditures was considered conservative and a credit positive by the rating agencies, but more recently the rating agencies have indicated that higher reserve funds are more consistent with triple-A ratings. In fact, Moody's US States Rating Methodology cited "Available Balances greater than 10%, with Requirements to Rebuild Rainy Day Fund if drawn upon" for their sub-factor Finances Measurement of "Available Balances as % of Operating Revenue (5-year average)." Additionally, the State's most recent Standard and Poor's report published in July 2019, S&P notes that "Vermont's reserve profile has grown following consistent deposits in recent year" and the reserve balance "represent a good 5.7% of expenditures." The table below shows the fiscal year 2019, 2020, and 2021 rainy day fund balances of the other triple-A states.

As mentioned in Section 4, "National Credit Rating Methodologies and Criteria," released in April 2016, Fitch has a different approach to evaluating reserve or rainy day balances. Rather than having a set target % of general fund expenditures, it determines reserve adequacy taking into consideration revenue volatility and budget flexibility.

Vermont has several reserve funds in order to reduce the effects of variations in revenues and are considered "available reserve funds." These are statutorily defined in 32 V.S.A.§§ 308-308e. The General Fund Stabilization Fund Reserve and Transportation Fund Stabilization Fund Reserve are determined on a self-building 5% budgetary basis and administered by the Commissioner of Finance and Management. The General Fund Balance Reserve is known as the "Rainy Day Reserve." Any remaining and undesignated General Fund amount is determined by the Emergency Board annually at its July meeting for deposit into this fund up to an additional 5% level. The use of this fund is restricted to 50% for unforeseen or emergency needs.

In fiscal year 2017, the State recognized the pressures placed on the budget by periodic 53rd week Medicaid vendor payments and 27th payroll payments. The State created new reserves to build over time the amount to fully fund these payments when needed. See the table on the following page for a summary of the State's FY 2020 and budgeted FY 2021 operating reserves as a percentage of General Fund Appropriations and Health Care Resources Fund reserves.

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State of Vermont Summary of Operating Reserves		
	Fiscal Year 2020	**Fiscal Year 2021**
Appropriations:		
Total General Fund Appropriations	$1,607.31	$1,669.50
State Health Care Resources Fund	22.60	17.08
TOTAL	$1,629.91	$1,686.58
Reserves:		
Stabilization Reserve	$79.82	$80.37
27/53 Reserve	18.45	20.30
Human Services Caseload Reserve	98.24	98.24
Rainy Day Reserve	31.55	31.55
TOTAL	$228.06	$230.46
Operating Reserves as a Percentage of Total General Fund Appropriations and Health Care Resources Fund:	13.99%	13.66%

Note: $'s in millions. Totals may not agree due to rounding.

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The chart below provides the State's FY 2019 through budgeted FY 2021 operating reserves as a percentage of general government expenditures compared to the Peer Group.

Rainy Day Fund Balances As a Percentage of General Government Expenditures			
Triple-A Rated States	**Fiscal 2019**	**Fiscal 2020**	**Fiscal 2021**
Delaware	5.5	5.4	5.2
Florida	4.5	4.6	4.7
Georgia[1]	11.0	11.0	11.0
Indiana	8.8	8.6	8.4
Iowa	10.1	10.3	10.2
Maryland	4.9	6.0	6.2
Minnesota	10.5	11.3	10.9
Missouri	6.8	6.4	6.1
No. Carolina	5.3	4.8	5.3
So. Carolina	6.5	6.6	6.7
So. Dakota	10.4	10.0	10.0
Tennessee	6.1	7.0	6.8
Texas	21.1	16.6	13.5
Utah	9.2	10.0	9.5
Virginia	3.7	6.0	7.0
Median[2]	6.7	7.0	7.0
VERMONT	14.0	13.8	13.7

Source: "The Fiscal Survey of States 2020. A report by the National Governors Association and the National Association of State Budget Officers." Fiscal Year 2019 are "Actuals," Fiscal Year 2020 are "Estimated" and Fiscal 2021 are 'Recommended."

[1] Information for Georgia's FY 2020 and FY 2021 rainy day fund balance was not provided in the reports. Rainy day fund balance was assumed to stay constant at the FY 2019 level.

[2] Calculated by Public Resources Advisory Group. These calculations exclude all Vermont numbers and include only states rated triple-A by any two of the three rating agencies, as of September 30, 2020.

Capital Planning Program and the Impact of Capital Spending Upon the Economic Conditions of the State

All three rating agencies include the condition of Vermont's economy as a significant factor in their respective ratings. Capital improvements – whether financed through the use of debt, funded through direct appropriation or federal funds, or advanced through public private collaboration - have a significant impact on the State's economy. Further, the link between investment in infrastructure and economic development is widely accepted. As noted in a March 2012 report prepared by the United States Department of Treasury with the Council of Economic Advisors, titled *A New Economic Analysis of Infrastructure Investment*, states that "well-designed infrastructure investments can raise economic growth, productivity, and land values, while also providing significant positive spillovers to areas such as economic development, energy efficiency, public health, and manufacturing." These points notwithstanding, the report also states that not every infrastructure project is worth the investment. Metrics are needed to ensure that economic growth through infrastructure investment is done in an affordable and sustainable manner.

With the passage of 32 V.S.A. § 310 and as amended in 2019, the Administration prepared a ten-year State capital program plan. The statute requires the plan to include a list of all recommended projects in the current fiscal year, plus the following nine fiscal years thereafter and an assessment, projection of capital needs, a comprehensive financial assessment, and an estimated cost of deferred infrastructure maintenance in State building and facilities. The working group that CDAAC established to evaluate the best use of bond premium and the benefits of the State increasing its Pay-go funds has been tasked with reviewing the capital budget and 10-year capital program to provide suggestions for funding deferred maintenance.

The Committee also recognizes that the process set forth in 32 V.S.A. § 310 must also incorporate a comprehensive review of our current capital stock, its condition, and future replacement needs. Currently, the State, led by the Agency of Transportation (AOT), is in the process of procuring a State-wide asset management system. AOT is working with the Department of Buildings and General Services (BGS), the agency responsible for State buildings and other agencies that manage capital assets of the State, to develop a system that will assist the State to identifying each asset, quantifying the amount of deferred maintenance and establishing replacement funding plans, establish priority funding requirements and ultimately manage the assets more efficiently.

The State's asset management system initiative builds on significant efforts have been made in this area in the past. In 2009, the General Assembly charged the Treasurer and AOT to prepare a report containing a long-term needs assessment for repair, maintenance, and rehabilitation of bridges and culverts in the state with funding options for such long-term needs. This ultimately led to the creation of the Special Obligation Transportation Infrastructure Bond Program and the substantial leveraging of federal matching funds. While this increased funding corresponded with transportation infrastructure funding from other sources – namely ARRA and federal highway funds after Tropical Storm Irene – the condition of the State's transportation infrastructure has improved dramatically since 2007. In particular, the percentage of federal, State and municipal bridges deemed "structurally

deficient" decreased by half - from approximately 20% to approximately 10% - from 2007 through 2012.

The 2019 Capital Bill (Act 42), as amended by the 2020 Capital Bill Adjustment (Act 139) appropriates proceeds of bonds for water quality projects. Projects include plans to implement phosphorus control upgrades at municipal wastewater treatment plants. Other projects include stormwater management, agricultural mitigation and remediation and natural resources (rivers, wetlands, floodplains restoration and forestry) projects that are necessary to comply with the Vermont Clean Water Act (Act 64 of 2015). The State has identified a variety of revenue sources to dedicate to the effort, including municipal, state, private and federal money. Since that enactment, the addition of two new state dedicated revenue sources in 2020, 6% of the Room and Meals Tax and unclaimed beverage container deposits (escheats), will result in less reliance on the Capital Bill for gap funding. The amended capital bill appropriated $12.1 million in fiscal year 2020 and $13.9 million in fiscal year 2021 to clean water initiatives, down from $21.9 million in fiscal year 2018 and $23.5 million in fiscal year 2019. The State may also use dedicated revenue bonds to bridge the timing of the capital needs and available revenues.

As part of its discussions in 2014 and again in 2015, the Committee reviewed information prepared by the Auditor of Accounts' Office showing Vermont's rankings on a series of measures both of economic health and quality of life compared to other triple-A rated states. Vermont scores quite well in most categories, and with respect to the economic data, this is reflected in Vermont's favorable rankings relative to other triple-A rated states based upon several rating agencies' assessments, with Standard & Poor's in particular stating that "Vermont's quality of life and well-educated workforce provide economic development opportunities."

There is always a concern at the rating agencies when a state meaningfully enlarges its debt program to ameliorate periodic economic downturns. The rating agencies will often advise that long-term annual costs, in the form of higher debt service and frequently higher administrative and operating expenses, can accompany such an increased debt program. The Committee believes it is of critical importance to strike the correct balance between infrastructure investment and economic growth on the one hand, and maintaining affordable and sustainable levels of debt authorizations and capital spending on the other.

Implementation of Financial Reporting Webpage

In September of 2014, the Treasurer's Office launched the State of Vermont's Financial Reporting Web Page. This page organizes, in one location, ten items that the National Association of State Auditors, Comptrollers and Treasurers (NASACT) recommend that state government's provide for interim disclosure. NASACT represents the elected or appointed government officials tasked with the management of state finances.

These ten items are: tax revenues, budget updates, cash flow, debt outstanding, economic forecasts, pension and other post-employment benefits (OPEBs), interest rate swaps and bank liquidity, investments, debt management policies, and filings made to the Electronic Municipal Market Access (EMMA) system. The page may be accessed at:

https://www.vermonttreasurer.gov/content/cash/disclaimer

At the time of publication, NASACT indicated that Vermont's web page was the first statewide reporting site incorporating all ten of NASACT's recommendations, and at NASACT's 100th Anniversary Conference, Vermont's State Treasurer received the President's Award for exceptional efforts in government financial management and accountability, in part for her leadership in developing the disclosure web site. Delaware, Georgia, Maryland, Massachusetts, Tennessee, Utah and Wisconsin have followed suit and provided a respective website with NASACT's recommendations.

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7. ACKNOWLEDGEMENTS

We would like to express our gratitude to the State Treasurer's Office, the Department of Finance and Management, EPR, and various officers and staff members of the State, whose assistance has been invaluable in completing this report. Certain computations and projections were made based on population, personal income, and revenue projections provided by EPR. The numbers presented herein have not been audited and are, therefore, subject to change, possibly in a substantial manner.

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8. APPENDICES

A. 2020 State Debt Medians (Moody's Investors Service)

B. 2020 State Pension Medians (Moody's Investors Service)

C. 2020 Fitch Ratings Credit Report

D. 2020 Moody's Investors Service Credit Report

E. 2019 Standard & Poor's Credit Report

F. Full Text of 32 V.S.A. §1001, Capital Debt Affordability Advisory Committee

APPENDIX A

MOODY'S
INVESTORS SERVICE

SECTOR PROFILE
12 May 2020

Analyst Contacts

Joshua Grundleger +1.212.553.1791
Analyst
joshua.grundleger@moodys.com

Chandra Ghosal +1.212.553.1095
VP-Senior Analyst/Manager
chandra.ghosal@moodys.com

Emily Raimes +1.212.553.7203
VP-Sr Credit Officer/Manager
emily.raimes@moodys.com

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

Timothy Blake, CFA +1.212.553.4524
MD-Public Finance
timothy.blake@moodys.com

» Contacts continued on last page

CLIENT SERVICES

Americas 1-212-553-1653

Asia Pacific 852-3551-3077

Japan 81-3-5408-4100

EMEA 44-20-7772-5454

State government – US

Medians - State debt declined in 2019, but likely to grow in coming years

Total net tax-supported debt (NTSD) for the 50 states declined modestly in 2019, falling to just above 2014 levels. Last year's growth in state economies and populations yielded declines in most debt metrics, lessening many states' debt burdens. These improvements help position states to respond to the financial effects of the coronavirus. While some issuances were canceled or postponed in the early stages of the pandemic, increased issuance is likely over the next year, owing to debt restructuring and deficit financing. Additionally, states that relied on pay-go financing of infrastructure projects in recent years will likely return to debt financing, as excess revenue diminishes.

» **Total NTSD declined by 0.8% in 2019.** NTSD fell or grew modestly in most states, with significant growth occurring in just a few states.

» **Debt ratios continued multiyear improvements in many states.** Growth in state GDP, population, personal incomes and state revenue yielded declining debt ratios in 2019. Median NTSD to state GDP fell to 1.9%, the lowest level since 2006.

» **General obligation (GO) debt remained the most prevalent type of debt.** More than 50% of outstanding state debt was GO debt in 2019. All but 12 states have outstanding GO debt.

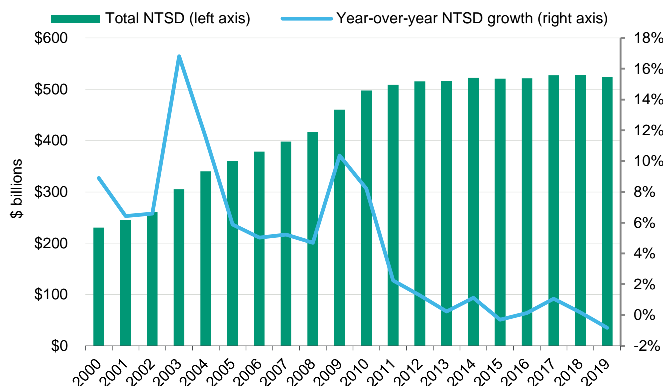
» **Median debt service costs fell for the sixth straight year, to 3.8%.** Lower interest rates and recent refundings drove down costs.

» **States that have a larger capital asset depreciation ratio[1] may have a greater need for new infrastructure spending and thus debt financing.** The capital asset depreciation ratio provides more insight into debt needs for states with a larger percentage of assets subject to depreciation relative to total assets.

Exhibit 1

State debt declined, but will likely increase in coming years

NTSD stands for net tax-supported debt



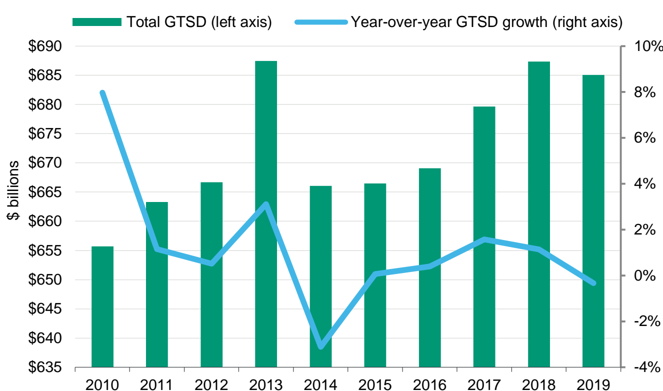
Some historical figures have been updated and may not match prior published reports.
Source: Moody's Investors Service

Net tax-supported debt declined in 2019, continuing a nearly decade-long trend of low growth or declines

- » Total NTSD declined by 0.8% in 2019 to $523.5 billion from $527.9 billion.
- » NTSD declined for two-thirds of states. Of the 17 states where debt grew, nine saw growth above 5%, with Virginia (Aaa stable) having the largest debt outstanding among this group.
- » New York (Aa1 negative) was the only state to add more than $1 billion of NTSD. California (Aa2 stable) and Illinois (Baa3 negative) had declines of more than $1.5 billion.
- » Over the next few years, NTSD growth is likely to accelerate as states manage the coronavirus-induced fiscal difficulties.

Exhibit 2

Gross tax-supported debt (GTSD) declined, but at a slower rate than net tax-supported debt



Some historical figures have been updated and may not match prior published reports.
Source: Moody's Investors Service

Gross tax-supported debt declined less than NTSD

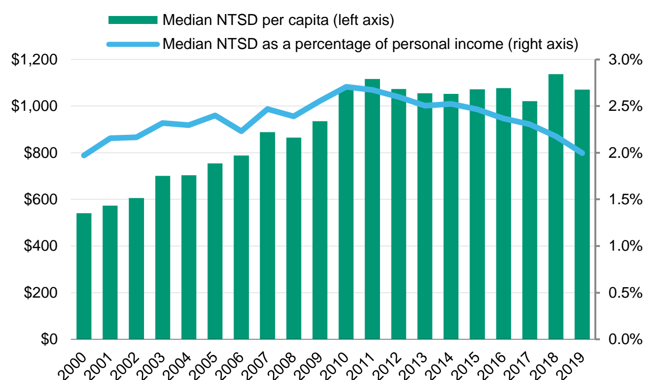
- » Gross tax-supported debt (GTSD) declined by 0.3% to $685.0 billion as states continue to employ self-supporting and contingent debt programs.
- » Minnesota (Aa1 stable) had considerable growth of GTSD owing to an increase in guarantees and moral obligations. Notable declines of GTSD of $2.2 billion (7.9%) and $1.5 billion (6.8%) occurred in Texas (Aaa stable) and Florida (Aaa stable).

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moodys.com for the most updated credit rating action information and rating history.

Exhibit 3

Population and personal income growth contributed to shrinking debt ratios

NTSD stands for net tax-supported debt



Some historical debt figures have been updated and may not match prior published reports.
Source: Moody's Investors Service

Debt ratios continued multiyear improvement trend

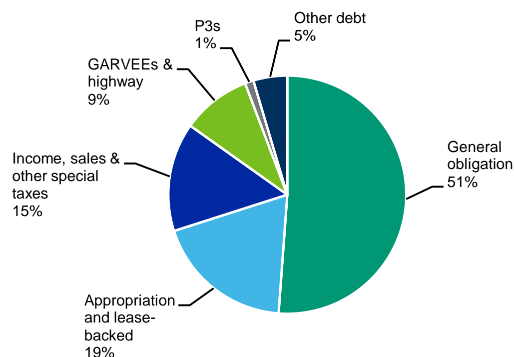
» Median NTSD per capita declined 5.8% to $1,071 in 2019, while the range of NTSD per capita remained wide — from $19 in Nebraska (Aa1 stable) to $6,637 in Connecticut (A1 stable).

» Median NTSD as a share of personal income declined to 2.0%. All but 11 states had an improvement in this metric, with only West Virginia (Aa2 stable) showing a significant increase.

» Given continued economic growth, median NTSD to state GDP fell for the fourth consecutive year to 1.9% — the lowest level since 2006.

Exhibit 4

GO debt constituted more than half of outstanding net tax-supported debt in 2019
(%, 2019)



GARVEE stands for grant anticipation revenue vehicle bonds. Highway refers to highway revenue bonds. P3s stands for public-private partnerships.
Source: Moody's Investors Service

General obligation debt continued to account for most state NTSD

» General obligation debt constituted more than half (51.2%) of all outstanding NTSD in 2019.

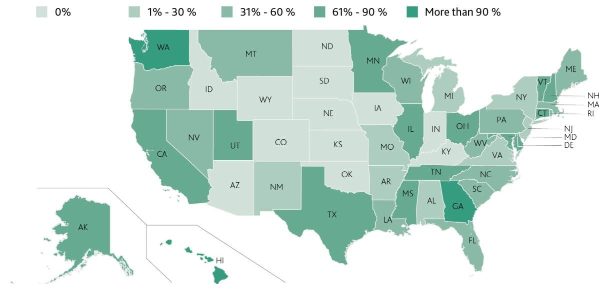
» Appropriation and lease-backed debt, at 18.9%, again accounted for the second largest share of outstanding state debt. Like GO debt, roughly 80% of states have appropriation and lease-backed debt outstanding.

» Special tax debt accounted for 14.8% of NTSD, although fewer than half of the states relied on it. Just two states — New York (65.5%) and Massachusetts (Aa1 stable) at 15.1% — accounted for 81% of all special tax debt, with another seven states accounting for 16.6%.

» Many states (36) relied on highway revenue or GARVEE debt, which together constituted 9.4% of total NTSD.

Exhibit 5

Most states had general obligation (GO) debt in 2019
(GO debt as % of NTSD)



Source: Moody's Investors Service

Use of GO debt varies by state

» Nearly 80% of states rely on GO debt; however, the extent of use varies considerably by state, depending on constitutional restrictions and political considerations.

» Twelve states — from low-debt North Dakota (Aa1 stable) to high-debt Kentucky (Aa3 stable) — do not issue GO debt. In three states — Georgia (Aaa stable), Washington (Aaa stable) and Hawaii (Aa1 negative) — more than 90% of outstanding NTSD is GO debt.

» States that do not issue GO debt tend to rely on lease appropriation debt — led by Oklahoma (Aa2 stable) and Indiana (Aaa stable), for which lease debt constitutes 95.0% and 76.4% of NTSD, respectively.

Exhibit 6

Most states have capital asset depreciation ratios below 55%
Accumulated depreciation as a % of gross depreciable assets in 2019

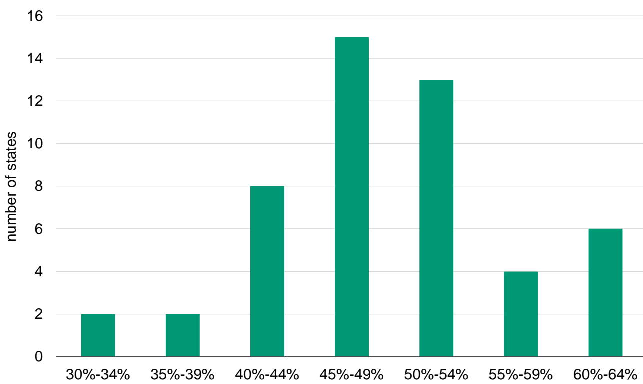


Exhibit only includes assets subject to depreciation. Non-depreciable assets are excluded.
Sources: State comprehensive annual financial reports and Moody's Investors Service

A high capital asset depreciation ratio[2] may indicate a near-term need for additional debt

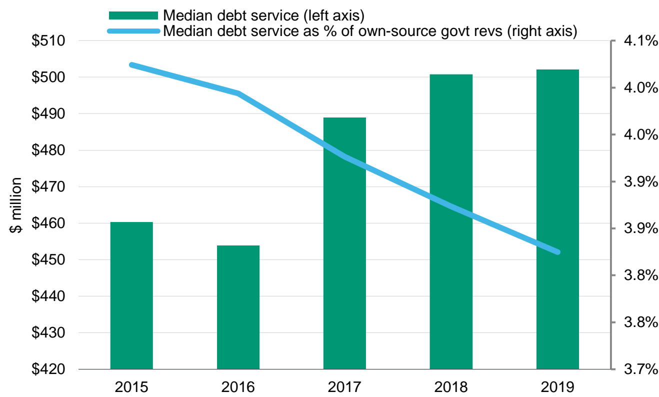
» In 40 states less than 55% of gross depreciable capital assets have been depreciated. The 10 states with higher depreciation ratios may need to issue debt in the near term to replace aging assets or face asset deterioration that could increase operating costs.

» Eighteen states do not depreciate the bulk of their capital assets, instead using the "modified approach" to account for infrastructure assets; bonding needs in these states may be driven by other factors.[3]

» Most states have been using operating revenue to support infrastructure investment, giving them capacity to issue debt for this purpose when operating budgets tighten.

Exhibit 7

Median debt service costs continue to decline



Some historical figures have been updated and may not match prior published reports. Own-source revenue is reported total governmental revenue less funds received from federal sources. Additional adjustments have been made to own-source revenue for Delaware, Massachusetts and Washington to reflect inclusion or exclusion of certain funds.

Source: Moody's Investors Service

Debt service costs relative to revenue continue to decline

- Median debt service payments rose slightly to $502 million, while the median debt service ratio (debt service as a share of own-source revenue) declined to 3.8%.
- The debt service ratio remained highest in Connecticut (14.7%) and Massachusetts (10.5%).
- Mississippi (Aa2 stable) had the largest improvement in debt service ratio — declining to 6.4% from 7.8%, while Iowa's (Aaa stable) 1.5 percentage point increase was the largest.

Appendix: Key metrics for US state debt medians

Exhibit 8

Net tax-supported debt per capita and as % of personal income (2019)

	Net tax-supported debt per capita		Rating		Net tax-supported debt as a % of personal income	
1	Connecticut	$6,637	A1	1	Hawaii	9.6%
2	Massachusetts	$6,258	Aa1	2	Connecticut	8.4%
3	Hawaii	$5,528	Aa1	3	Massachusetts	8.3%
4	New Jersey	$4,125	A3	4	Delaware	6.1%
5	New York	$3,314	Aa1	5	New Jersey	5.8%
6	Delaware	$3,289	Aaa	6	Kentucky	5.2%
7	Illinois	$2,635	Baa3	7	Mississippi	4.8%
8	Washington	$2,579	Aaa	8	New York	4.6%
9	Maryland	$2,323	Aaa	9	Illinois	4.5%
10	Rhode Island	$2,308	Aa2	10	Rhode Island	4.1%
11	Kentucky	$2,278	Aa3	11	West Virginia	4.0%
12	California	$2,147	Aa2	12	Washington	4.0%
13	Oregon	$2,018	Aa1	13	Oregon	3.8%
14	Mississippi	$1,901	Aa2	14	Maryland	3.5%
15	West Virginia	$1,700	Aa2	15	California	3.2%
16	Virginia	$1,677	Aaa	16	Louisiana	3.2%
17	Louisiana	$1,545	Aa3	17	Wisconsin	2.8%
18	Pennsylvania	$1,519	Aa3	18	Kansas	2.8%
19	Wisconsin	$1,514	Aa1	19	Virginia	2.8%
20	Kansas	$1,491	Aa2	20	Pennsylvania	2.6%
21	Minnesota	$1,406	Aa1	21	New Mexico	2.5%
22	Alaska	$1,229	Aa3	22	Arkansas	2.4%
23	Ohio	$1,158	Aa1	23	Minnesota	2.4%
24	New Mexico	$1,117	Aa2	24	Ohio	2.3%
25	Arkansas	$1,081	Aa1	25	Georgia	2.0%
26	Vermont	$1,061	Aa1	26	Alaska	2.0%
27	Georgia	$971	Aaa	27	Maine	1.9%
28	Maine	$958	Aa2	28	Alabama	1.9%
29	Alabama	$822	Aa1	29	Vermont	1.9%
30	Florida	$780	Aaa	30	Florida	1.5%
31	Utah	$720	Aaa	31	Utah	1.5%
32	New Hampshire	$709	Aa1	32	North Carolina	1.2%
33	Colorado	$603	Aa1	33	Idaho	1.2%
34	Michigan	$593	Aa1	34	Michigan	1.2%
35	Nevada	$592	Aa1	35	Nevada	1.2%
36	North Carolina	$586	Aaa	36	New Hampshire	1.1%
37	Idaho	$540	Aa1	37	Arizona	1.1%
38	Arizona	$508	Aa1	38	South Carolina	1.0%
39	South Dakota	$493	Aaa	39	Colorado	1.0%
40	South Carolina	$469	Aaa	40	Missouri	0.9%
41	Missouri	$464	Aaa	41	South Dakota	0.9%
42	Texas	$379	Aaa	42	Texas	0.7%
43	Oklahoma	$337	Aa2	43	Oklahoma	0.7%
44	Tennessee	$292	Aaa	44	Tennessee	0.6%
45	Indiana	$251	Aaa	45	Indiana	0.5%
46	Iowa	$150	Aaa	46	Iowa	0.3%
47	Montana	$106	Aa1	47	Montana	0.2%
48	North Dakota	$64	Aa1	48	North Dakota	0.1%
49	Wyoming	$28	NGO*	49	Wyoming	0.0%
50	Nebraska	$19	Aa1	50	Nebraska	0.0%
	Mean	$1,506			Mean	2.6%
	Median	$1,071			Median	2.0%

*No general obligation debt or issuer rating.

Sources: Moody's Investors Service, US Census Bureau and US Bureau of Economic Analysis

Exhibit 9

State net tax-supported debt and gross tax-supported debt (2019)

	Net tax-supported debt ($ thousands)		Rating		Gross tax-supported debt ($ thousands)		Gross to net ratio
1	California	$84,850,860	Aa2	1	California	$90,521,537	1.07
2	New York	$64,468,263	Aa1	2	New York	$64,776,678	1.00
3	Massachusetts	$43,136,088	Aa1	3	Massachusetts	$43,666,693	1.01
4	New Jersey	$36,640,956	A3	4	New Jersey	$41,476,756	1.13
5	Illinois	$33,389,269	Baa3	5	Washington	$35,703,934	1.82
6	Connecticut	$23,664,466	A1	6	Illinois	$34,592,069	1.04
7	Washington	$19,639,634	Aaa	7	Connecticut	$28,769,936	1.22
8	Pennsylvania	$19,449,476	Aa3	8	Minnesota	$26,432,567	3.33
9	Florida	$16,750,823	Aaa	9	Texas	$25,576,270	2.33
10	Virginia	$14,310,583	Aaa	10	Pennsylvania	$23,873,245	1.23
11	Maryland	$14,044,517	Aaa	11	Michigan	$20,343,735	3.44
12	Ohio	$13,541,134	Aa1	12	Florida	$19,982,398	1.19
13	Texas	$10,994,229	Aaa	13	Ohio	$19,168,026	1.42
14	Georgia	$10,310,529	Aaa	14	Virginia	$18,791,090	1.31
15	Kentucky	$10,175,381	Aa3	15	Oregon	$18,091,335	2.13
16	Wisconsin	$8,815,554	Aa1	16	Kentucky	$14,333,002	1.41
17	Oregon	$8,512,887	Aa1	17	Maryland	$14,044,517	1.00
18	Minnesota	$7,932,022	Aa1	18	Colorado	$13,472,826	3.88
19	Hawaii	$7,827,018	Aa1	19	Wisconsin	$13,238,957	1.50
20	Louisiana	$7,183,553	Aa3	20	Georgia	$10,310,529	1.00
21	North Carolina	$6,140,848	Aaa	21	Alabama	$9,564,191	2.37
22	Michigan	$5,918,950	Aa1	22	Utah	$8,270,421	3.58
23	Mississippi	$5,658,952	Aa2	23	Louisiana	$8,242,098	1.15
24	Kansas	$4,344,866	Aa2	24	Hawaii	$7,848,045	1.00
25	Alabama	$4,030,776	Aa1	25	North Carolina	$6,140,848	1.00
26	Arizona	$3,698,286	Aa1	26	Mississippi	$5,954,667	1.05
27	Colorado	$3,472,826	Aa1	27	Maine	$4,615,045	3.58
28	Arkansas	$3,263,055	Aa1	28	West Virginia	$4,544,122	1.49
29	Delaware	$3,202,999	Aaa	29	Kansas	$4,344,866	1.00
30	West Virginia	$3,047,370	Aa2	30	Tennessee	$4,067,620	2.04
31	Missouri	$2,850,105	Aaa	31	Indiana	$3,963,476	2.35
32	Rhode Island	$2,445,273	Aa2	32	North Dakota	$3,763,062	76.86
33	South Carolina	$2,412,597	Aaa	33	Arizona	$3,698,286	1.00
34	New Mexico	$2,342,230	Aa2	34	Arkansas	$3,303,615	1.01
35	Utah	$2,307,166	Aaa	35	Delaware	$3,202,999	1.00
36	Tennessee	$1,992,370	Aaa	36	Rhode Island	$3,076,996	1.26
37	Nevada	$1,824,324	Aa1	37	Missouri	$2,850,105	1.00
38	Indiana	$1,687,842	Aaa	38	Alaska	$2,632,500	2.93
39	Oklahoma	$1,332,715	Aa2	39	Idaho	$2,563,086	2.66
40	Maine	$1,287,945	Aa2	40	South Carolina	$2,470,128	1.02
41	Idaho	$964,509	Aa1	41	New Mexico	$2,342,230	1.00
42	New Hampshire	$963,953	Aa1	42	Nevada	$2,183,077	1.20
43	Alaska	$899,200	Aa3	43	Oklahoma	$2,182,304	1.64
44	Vermont	$661,983	Aa1	44	New Hampshire	$1,942,108	2.01
45	Iowa	$474,175	Aaa	45	Iowa	$1,792,175	3.78
46	South Dakota	$435,837	Aaa	46	Vermont	$1,454,683	2.20
47	Montana	$113,753	Aa1	47	South Dakota	$512,592	1.18
48	North Dakota	$48,963	Aa1	48	Montana	$299,317	2.63
49	Nebraska	$37,575	Aa1	49	Nebraska	$37,575	1.00
50	Wyoming	$16,291	NGO*	50	Wyoming	$16,291	1.00
	Total	$ 523,514,977			Total	$ 685,044,629	
	Mean	$10,470,300			Mean	$13,700,893	3.21
	Median	$3,864,531			Median	$6,047,758	1.24

*No general obligation debt or issuer rating.

Sources: Moody's Investors Service

Exhibit 10

Net tax-supported debt as % of state gross domestic product

	2017 NTSD as % of state GDP			2018 NTSD as % of state GDP			2019 NTSD as % of state GDP	
1	Connecticut	8.75%	1	Connecticut	8.81%	1	Connecticut	8.28%
2	Hawaii	8.39%	2	Hawaii	8.26%	2	Hawaii	8.05%
3	Massachusetts	7.85%	3	Massachusetts	7.53%	3	Massachusetts	7.24%
4	New Jersey	6.48%	4	New Jersey	5.95%	4	New Jersey	5.68%
5	Kentucky	5.18%	5	Kentucky	5.17%	5	Mississippi	4.76%
6	Mississippi	5.02%	6	Mississippi	4.63%	6	Kentucky	4.74%
7	Illinois	4.52%	7	Delaware	4.22%	7	Delaware	4.25%
8	Delaware	4.22%	8	Illinois	4.05%	8	West Virginia	3.90%
9	Rhode Island	3.96%	9	Rhode Island	3.87%	9	Rhode Island	3.85%
10	New York	3.81%	10	New York	3.80%	10	New York	3.72%
11	Washington	3.76%	11	Washington	3.48%	11	Illinois	3.72%
12	Oregon	3.69%	12	Maryland	3.43%	12	Oregon	3.38%
13	Maryland	3.32%	13	Oregon	3.36%	13	Maryland	3.28%
14	Louisiana	3.19%	14	West Virginia	3.35%	14	Washington	3.28%
15	California	3.07%	15	California	2.89%	15	Louisiana	2.72%
16	Wisconsin	2.99%	16	Louisiana	2.76%	16	California	2.70%
17	Arkansas	2.96%	17	Wisconsin	2.72%	17	Virginia	2.58%
18	Kansas	2.81%	18	Arkansas	2.64%	18	Wisconsin	2.54%
19	West Virginia	2.62%	19	Kansas	2.63%	19	Kansas	2.51%
20	Virginia	2.53%	20	Pennsylvania	2.58%	20	Arkansas	2.45%
21	New Mexico	2.52%	21	Virginia	2.52%	21	Pennsylvania	2.39%
22	Pennsylvania	2.32%	22	New Mexico	2.49%	22	New Mexico	2.25%
23	Minnesota	2.27%	23	Vermont	2.15%	23	Minnesota	2.08%
24	Alabama	2.08%	24	Minnesota	2.15%	24	Ohio	1.94%
25	Ohio	2.02%	25	Ohio	2.00%	25	Maine	1.91%
26	Alaska	2.00%	26	Alabama	1.93%	26	Vermont	1.90%
27	Maine	1.94%	27	Georgia	1.77%	27	Alabama	1.75%
28	Vermont	1.91%	28	Alaska	1.77%	28	Georgia	1.67%
29	Florida	1.89%	29	Maine	1.74%	29	Alaska	1.62%
30	Georgia	1.82%	30	Florida	1.66%	30	Florida	1.53%
31	Utah	1.43%	31	Utah	1.40%	31	Utah	1.22%
32	Arizona	1.36%	32	New Hampshire	1.23%	32	Idaho	1.19%
33	Michigan	1.33%	33	Michigan	1.19%	33	Michigan	1.09%
34	New Hampshire	1.29%	34	Idaho	1.15%	34	New Hampshire	1.09%
35	Nevada	1.20%	35	Arizona	1.15%	35	North Carolina	1.04%
36	North Carolina	1.17%	36	Nevada	1.13%	36	Nevada	1.03%
37	South Carolina	1.16%	37	South Carolina	1.09%	37	Arizona	1.01%
38	Idaho	1.14%	38	North Carolina	0.98%	38	South Carolina	0.98%
39	Missouri	1.07%	39	Missouri	0.94%	39	Colorado	0.89%
40	South Dakota	0.96%	40	South Dakota	0.81%	40	Missouri	0.86%
41	Colorado	0.78%	41	Colorado	0.74%	41	South Dakota	0.82%
42	Texas	0.70%	42	Oklahoma	0.62%	42	Oklahoma	0.65%
43	Oklahoma	0.63%	43	Texas	0.62%	43	Texas	0.58%
44	Tennessee	0.61%	44	Tennessee	0.57%	44	Tennessee	0.52%
45	Indiana	0.56%	45	Indiana	0.49%	45	Indiana	0.45%
46	Montana	0.39%	46	Iowa	0.34%	46	Iowa	0.24%
47	Iowa	0.38%	47	Montana	0.31%	47	Montana	0.22%
48	North Dakota	0.19%	48	North Dakota	0.18%	48	North Dakota	0.09%
49	Wyoming	0.06%	49	Wyoming	0.05%	49	Wyoming	0.04%
50	Nebraska	0.03%	50	Nebraska	0.04%	50	Nebraska	0.03%
	Mean	2.51%		Mean	2.41%		Mean	2.34%
	Median	2.01%		Median	1.97%		Median	1.91%

Some historical debt figures have been updated and may not match prior published reports.
Sources: Moody's Investors Service and US Bureau of Economic Analysis

Exhibit 12

Debt service ratio

		FY 2017			FY 2018			FY 2019
1	Connecticut	13.8%	1	Connecticut	13.5%	1	Connecticut	14.7%
2	Hawaii	10.5%	2	New Jersey	9.9%	2	Massachusetts	10.5%
3	Massachusetts	10.1%	3	Massachusetts	9.6%	3	Illinois[1]	9.9%
4	Kentucky	9.9%	4	Hawaii	9.5%	4	Hawaii	9.8%
5	New Jersey	9.4%	5	Kentucky	9.3%	5	New Jersey	9.6%
6	Illinois	9.2%	6	Illinois	8.4%	6	Kentucky	9.3%
7	New York	8.1%	7	Mississippi	7.8%	7	New York	7.5%
8	Maryland	7.0%	8	Maryland	7.1%	8	Washington	7.3%
9	Mississippi	6.9%	9	New York	6.7%	9	Maryland	6.8%
10	Washington	6.6%	10	Delaware	6.6%	10	Mississippi	6.4%
11	Georgia	6.4%	11	Washington	6.3%	11	Rhode Island	5.8%
12	Wisconsin	5.9%	12	Georgia	5.9%	12	Delaware	5.7%
13	Delaware	5.7%	13	Ohio	5.4%	13	Ohio	5.5%
14	Ohio	5.6%	14	Rhode Island	5.4%	14	Georgia	5.4%
15	Utah	5.3%	15	Oregon	5.3%	15	Wisconsin	5.1%
16	Oregon	5.2%	16	Wisconsin	5.1%	16	Oregon	4.8%
17	Maine	5.1%	17	Louisiana	4.8%	17	New Mexico[1]	4.8%
18	Rhode Island	5.1%	18	Maine	4.8%	18	Louisiana	4.7%
19	Louisiana	4.9%	19	Virginia	4.5%	19	Maine	4.6%
20	Virginia	4.8%	20	New Mexico	4.4%	20	Virginia	4.6%
21	California	4.6%	21	Florida	4.4%	21	Kansas	4.3%
22	Florida	4.4%	22	California	4.3%	22	California[1]	4.2%
23	Kansas	4.4%	23	Nevada	4.2%	23	West Virginia	4.1%
24	New Hampshire	4.0%	24	Utah	4.1%	24	Nevada	3.9%
25	Nevada	3.9%	25	Alabama	4.0%	25	Alabama	3.8%
26	Alabama	3.9%	26	New Hampshire	3.9%	26	New Hampshire	3.8%
27	Arizona	3.9%	27	Pennsylvania	3.8%	27	Utah	3.7%
28	New Mexico	3.9%	28	Arizona	3.7%	28	Florida	3.6%
29	Pennsylvania	3.6%	29	Kansas	3.7%	29	Pennsylvania	3.5%
30	Missouri	3.5%	30	Missouri	3.4%	30	Missouri	3.3%
31	Arkansas	3.5%	31	Minnesota	3.3%	31	Minnesota	3.2%
32	West Virginia	3.5%	32	West Virginia	3.3%	32	Arizona	3.1%
33	Minnesota	3.4%	33	North Carolina	3.1%	33	North Carolina	2.9%
34	North Carolina	3.1%	34	Texas	2.6%	34	Texas	2.5%
35	South Carolina	2.7%	35	South Dakota	2.4%	35	Michigan	2.4%
36	Texas	2.7%	36	South Carolina	2.4%	36	Iowa	2.2%
37	Michigan	2.5%	37	Michigan	2.3%	37	Vermont	2.1%
38	Colorado	2.2%	38	Vermont	2.0%	38	South Carolina	2.0%
39	South Dakota	2.1%	39	Arkansas	1.9%	39	South Dakota	2.0%
40	Vermont	2.1%	40	Oklahoma	1.7%	40	Arkansas	1.9%
41	Oklahoma	1.9%	41	Idaho	1.3%	41	Oklahoma	1.6%
42	Idaho	1.5%	42	Alaska	1.3%	42	Idaho	1.4%
43	Alaska	1.4%	43	Tennessee	1.2%	43	Alaska	1.3%
44	Montana	1.3%	44	Colorado	1.2%	44	Colorado	1.2%
45	Tennessee	1.3%	45	Montana	1.2%	45	Tennessee	1.2%
46	Indiana	1.2%	46	Indiana	1.1%	46	Indiana	1.1%
47	Iowa	0.6%	47	Iowa	0.7%	47	Montana	0.9%
48	North Dakota	0.4%	48	North Dakota	0.3%	48	North Dakota	0.2%
49	Nebraska	0.2%	49	Nebraska	0.2%	49	Nebraska	0.2%
50	Wyoming	0.1%	50	Wyoming	0.1%	50	Wyoming	0.1%
	Mean	4.5%		Mean	4.3%		Mean	4.3%
	Median	3.9%		Median	4.0%		Median	3.8%

[1] Figures use fiscal 2018 own-source revenue; fiscal 2019 audited financial statements not available at time of publication. Own-source revenue is reported total governmental revenue less funds received from federal sources. Additional adjustments have been made to own-source revenue for Delaware, Massachusetts and Washington to reflect inclusion or exclusion of certain funds.

Source: Moody's Investors Service

Exhibit 13

Capital assets and capital asset depreciation ratio (2019)

	Capital assets subject to depreciation				Capital assets not subject to depreciation		
State	Gross capital assets ($ million)	Gross capital assets (% of GDP)	Accumulated depreciation ($ million)	Capital asset depreciation ratio (%) [1]	Gross capital assets ($ million)	Gross capital assets (% GDP)	Share of capital assets not subject to depreciation
Indiana[3][4]	3,374	0.9%	-2,161	64%	16,046	4.3%	82.6%
Nebraska[3][4]	1,301	1.0%	-817	63%	8,710	6.9%	87.0%
New Mexico[2]	22,205	22.1%	-13,761	62%	1,400	1.4%	5.9%
Louisiana[4]	33,077	12.5%	-20,447	62%	4,013	1.5%	10.8%
Hawaii[4]	21,672	22.3%	-13,236	61%	5,796	6.0%	21.1%
Connecticut	34,909	12.2%	-20,984	60%	7,908	2.8%	18.5%
Alaska	21,034	38.0%	-12,004	57%	3,296	5.9%	13.5%
Ohio[3]	17,058	2.4%	-9,660	57%	26,532	3.8%	60.9%
Maryland[4]	45,596	10.6%	-25,550	56%	11,477	2.7%	20.1%
Wisconsin[3][4]	14,487	4.2%	-8,116	56%	24,050	6.9%	62.4%
Wyoming[3][4]	1,428	3.6%	-751	53%	569	1.4%	28.5%
Oklahoma	38,788	18.8%	-20,315	52%	3,500	1.7%	8.3%
Georgia	62,973	10.2%	-32,852	52%	9,638	1.6%	13.3%
West Virginia	22,448	28.7%	-11,679	52%	2,961	3.8%	11.7%
Maine[3][4]	1,482	2.2%	-770	52%	3,642	5.4%	71.1%
New Hampshire	8,877	10.0%	-4,562	51%	1,026	1.2%	10.4%
Pennsylvania	78,275	9.6%	-39,982	51%	10,779	1.3%	12.1%
Iowa	29,484	15.1%	-15,008	51%	2,030	1.0%	6.4%
New York[3][4]	41,983	2.4%	-21,353	51%	87,226	5.0%	67.5%
Arkansas	27,669	20.8%	-13,969	50%	3,412	2.6%	11.0%
Missouri	66,856	20.1%	-33,679	50%	5,742	1.7%	7.9%
Massachusetts[4]	20,890	3.5%	-10,465	50%	2,291	0.4%	9.9%
North Dakota	9,975	17.5%	-4,985	50%	2,018	3.5%	16.8%
Rhode Island	10,576	16.6%	-5,228	49%	1,589	2.5%	13.1%
Arizona[3][4]	13,935	3.8%	-6,839	49%	23,940	6.5%	63.2%
Illinois	59,563	6.6%	-29,196	49%	6,806	0.8%	10.3%
Michigan[3]	14,404	2.7%	-7,038	49%	21,590	4.0%	60.0%
Florida[3]	41,242	3.8%	-19,825	48%	97,078	8.9%	70.2%
Minnesota[3]	22,816	6.0%	-10,960	48%	17,179	4.5%	43.0%
Washington[3][4]	29,699	5.0%	-14,260	48%	29,758	5.0%	50.0%
Idaho[3]	5,656	7.0%	-2,669	47%	5,704	7.1%	50.2%
Nevada[3]	6,593	3.7%	-3,089	47%	9,670	5.4%	59.5%
Kansas[3]	8,667	5.0%	-4,037	47%	13,700	7.9%	61.3%
Alabama[3]	19,494	8.4%	-9,066	47%	22,054	9.5%	53.1%
New Jersey[4]	38,135	5.9%	-17,589	46%	8,411	1.3%	18.1%
California[2][3]	104,508	3.5%	-48,121	46%	121,797	4.1%	53.8%
Kentucky[3]	12,034	5.6%	-5,419	45%	25,726	12.0%	68.1%
Vermont[4]	4,102	11.8%	-1,836	45%	822	2.4%	16.7%
Utah[3]	17,091	9.1%	-7,595	44%	19,500	10.3%	53.3%
Tennessee[3]	13,566	3.6%	-5,917	44%	29,352	7.7%	68.4%
Delaware[3][4]	5,706	7.6%	-2,483	44%	5,477	7.3%	49.0%
Colorado[4]	31,759	8.1%	-13,317	42%	4,075	1.0%	11.4%
Oregon	25,272	10.0%	-10,464	41%	3,733	1.5%	12.9%
South Carolina	34,991	14.2%	-14,486	41%	8,792	3.6%	20.1%
South Dakota	7,547	14.2%	-3,115	41%	1,275	2.4%	14.4%
Montana	8,627	16.5%	-3,519	41%	2,321	4.4%	21.2%
Virginia	72,056	13.0%	-28,239	39%	12,156	2.2%	14.4%
Mississippi	22,616	19.0%	-8,369	37%	7,573	6.4%	25.1%
Texas	166,244	8.8%	-56,628	34%	42,020	2.2%	20.2%
North Carolina	72,490	12.3%	-24,289	34%	25,674	4.4%	26.2%

[1] The capital asset depreciation ratio measures the ratio of accumulated depreciation to gross depreciable assets.

[2] Audits for California and New Mexico for fiscal 2019 were not available as of publication. Data is for 2018 for these states.

[3] These states use a modified approach, under GASB 34, for reporting certain capital assets, which allows the state to expense certain maintenance and preservation costs and not report depreciation on the respective assets.

[4] Capital assets for certain component units are excluded for these states owing to state financial reporting.

Source: Moody's Investors Service

Basis for state debt data

Our 2020 state debt medians report is based on our analysis of calendar year 2019 debt issuance and fiscal year 2019 debt service.

In considering debt burden, our focus is largely on net tax-supported debt (NTSD), which we characterize as debt secured by statewide taxes and other general resources, net of obligations that are self-supporting from pledged sources other than state taxes or operating resources — such as utility or local government revenue. We also examine gross debt, which captures debt supported by revenue other than state taxes and general resources. This includes self-supporting general obligation (GO) debt, special assessment bonds and contingent debt liabilities that may not have direct tax support but represent commitments to make debt service payments under certain conditions (e.g., state guarantees and bonds backed by state moral obligation pledges that have never been tapped).

The debt and debt service ratios of some states are relatively high because they issue debt for purposes that in other states would be financed at the local level, such as for schools or mass transit. Some states' debt service ratios rank higher than their NTSD ratios because of conservative debt management practices, such as rapid debt amortization. Conversely, some states' debt service ratios rank relatively lower because of the use of capital appreciation bonds or long maturity schedules.

Exhibit 14

Comparison of NTSD and gross tax-supported debt (GTSD)

Generally included in NTSD	Generally Excluded from NTSD/ Included in GSTD
General obligation debt paid from statewide taxes and fees	Self-supporting general obligation debt with an established history of being paid from sources other than taxes or general revenue
Appropriation backed bonds	Moral obligation debt with an established history of being paid from sources other than taxes or general revenue
Lease revenue bonds	Tobacco securitization bonds, with no state backup
Special tax bonds secured by statewide taxes and fees	Unemployment insurance obligation bonds
Highway bonds, secured by gas taxes and DMV fees	Debt guaranteed, but not paid, by the state
GARVEE bonds	Special assessment bonds
Lottery bonds	
Moral obligation debt paid from statewide taxes and fees	
Capital leases	
P3s with state concession obligation	
Pension obligation bonds	

Source: Moody's Investors Service

These ratios have been calculated based on our definition of net tax-supported debt, debt service and own-source governmental revenue, and in most cases will differ from a state's own published calculations of debt limits or debt affordability. There is no correlation between our ratios and a state's compliance with its internal policies.

Endnotes

1 The capital asset depreciation ratio measures the ratio of accumulated depreciation to gross depreciable assets.

2 The capital asset depreciation ratio measures the ratio of accumulated depreciation to gross depreciable assets.

3 Three additional states used the modified approach but still depreciate more than 50% of their capital assets.

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Contributors

Robert Canfield +1.212.553.3801
Associate Analyst
robert.canfield@moodys.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

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APPENDIX B

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INVESTORS SERVICE

SECTOR PROFILE
8 September 2020

Contacts

Pisei Chea +1.212.553.0344
AVP-Analyst
pisei.chea@moodys.com

Thomas Aaron +1.312.706.9967
VP-Sr Credit Officer
thomas.aaron@moodys.com

Timothy Blake, CFA +1.212.553.4524
MD-Public Finance
timothy.blake@moodys.com

Emily Raimes +1.212.553.7203
VP-Sr Credit Officer/Manager
emily.raimes@moodys.com

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

Tenzing T Lama +1.212.553.4873
Associate Analyst
tenzing.lama@moodys.com

Anik Hoque +1.212.553.7763
Associate Analyst
anik.hoque@moodys.com

State Government – US

Medians - Pension and OPEB liabilities fell in fiscal 2019 ahead of jump in 2020

Adjusted net pension liabilities (ANPL) declined in states' fiscal 2019 reporting because of favorable investment returns in fiscal 2018. States typically report their pension funding positions with a one-year lag. Lower investment returns and discount rates in 2019 and 2020 will cause a jump in pension liabilities in states' fiscal 2020 and 2021 reporting. Other post-employment benefit (OPEB, primarily retiree healthcare) liabilities remained small compared with pension liabilities for most states in fiscal 2019. States with high pension liabilities tend to also have above-average OPEB liabilities. Economic and revenue disruptions caused by the coronavirus will worsen pension and OPEB affordability ratios over the next year.

» **Total state ANPL was $1.48 trillion in fiscal 2019, decreasing 5.1% from fiscal 2018 and representing 7.0% of US GDP and 121% of state revenue.** Favorable investment returns in fiscal 2018, the reference year for most states' fiscal 2019 pension reporting, and higher interest rates contributed to lower unfunded liabilities. The median ratio of ANPL to state GDP decreased to 4.8% in fiscal 2019 from 5.5% the year before.

» **Fiscal 2020 reporting of net pension liabilities will increase based on lower investment returns and interest rates in 2019.** The fiscal 2019 average return of 6.6% was below the average target return of 7.2%. The FTSE Pension Liability Index (FTSE PLI), which we use as a discount rate to value liabilities in our standard adjustments, decreased to 3.51% as of June 30, 2019 from 4.14% on June 30, 2018. We estimate aggregate state ANPL will increase to $1.76 trillion in fiscal 2020 reporting, an increase of 19% from fiscal 2019. Additional investment underperformance and lower discount rates for fiscal 2020 will drive another ANPL jump in the following reporting year.

» **Over half of states contributed above our tread water indicator, or the cost to prevent reported unfunded pension liabilities from growing, in fiscal 2019.** The median total fixed costs, including debt service, pension and OPEB contributions, was 7.9% of own-source revenue. Using our tread water indicator rather than actual pension contributions, the median total fixed costs was slightly lower at 7.8%. Illinois (Baa3 negative), Connecticut (A1 stable) and New Jersey (A3 negative) had the highest fixed costs among states in fiscal 2019, all above 25% of own-source revenue on a tread water basis.

» **Total state adjusted net OPEB liabilities (ANOL) were $527 billion in fiscal 2019, decreasing by $62 billion or 10.6% from fiscal 2018.** Unfunded OPEB liabilities represented a large source of balance sheet leverage for some states and a very small obligation for others. The median ratio of ANOL to state GDP in fiscal 2019 was 1.0%.

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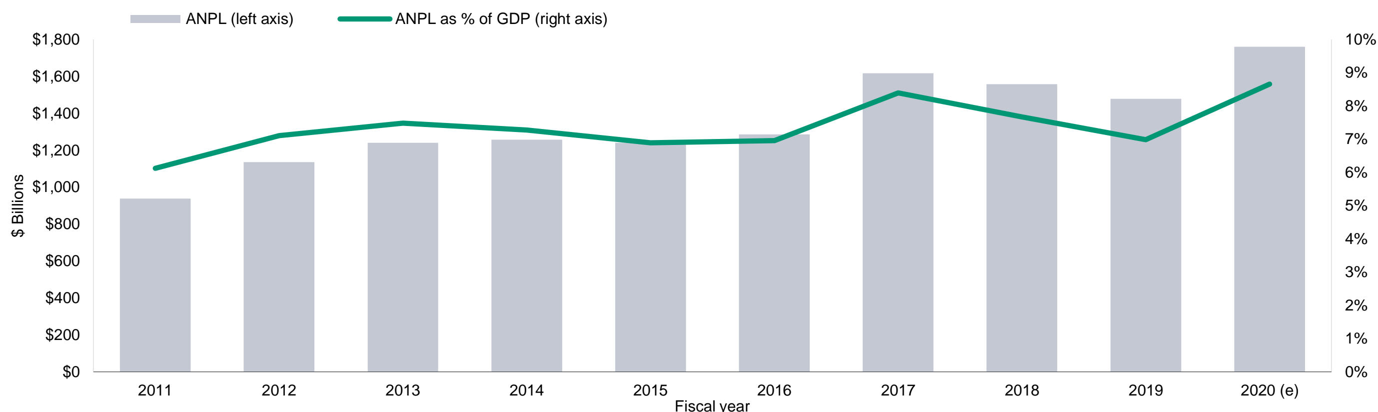
Adjusted net pension liabilities

Exhibit 1

Total state pension liabilities declined in fiscal 2019 ahead of rebound in 2020



With the adoption of GASB 68, most state pension data is reported with a six to 12 month lag. Only a small number of states report plan liabilities (11 of 229 plans) without a lag.
Fiscal 2020 ANPL was estimated based on data from fiscal 2019 pension plan financial statements.
Moody's forecasts a nominal US GDP decline of 5.1% to $20.3 trillion in 2020.
Sources: Moody's Investors Service, US Bureau of Economic Analysis, state audited financial reports and pension plan valuation reports

Total state ANPL declined in fiscal 2019 ahead of rebound in 2020

- In states' fiscal 2019 reporting, aggregate adjusted net pension liabilities (ANPL) totaled $1.48 trillion, or 121% of total state own-source revenue,[1] down from $1.56 trillion and 132%, respectively, in fiscal 2018.
- Aggregate ANPL declined to 7.0% of US GDP in fiscal 2019 from 7.7% in fiscal 2018, as the nominal aggregate ANPL declined by 5.1%.
- ANPL declined for 46 states in fiscal 2019. The largest percentage decreases occurred in Minnesota (Aa1 stable), Colorado (Aa1 stable) and Washington (Aaa stable), which all declined by more than 15%. The declines in Minnesota and Colorado were mostly driven by changes in benefits for certain plans.
- Based on lower investment returns and discount rates in fiscal 2019, we estimate aggregate state ANPL increased to $1.76 trillion, which will be reported by states on a lagged basis in their fiscal 2020 reporting. The fiscal 2020 aggregate state ANPL increased by an estimated 19% from fiscal 2019. We estimate state ANPL as a percent of US GDP increased to 8.7%.[2]
- ANPL increased for all 50 states in fiscal 2020 based on our estimates. Wisconsin (Aa1 stable), Alabama (Aa1 stable) and Texas (Aaa stable) had the largest percentage increases in ANPL, all at over 35%. These states all have pension measurement dates that are later than June 30, 2019; therefore, their estimated fiscal 2020 ANPLs incorporate lower discount rates.

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Exhibit 2

Illinois' fiscal 2019 combined pension and OPEB burden was the highest among states, with Tennessee the lowest

State	Rating	Fiscal 2019 Moody's adjusted net pension and OPEB liabilities and fixed costs: ANPL (billions)	ANOL (billions)	ANPL + ANOL as % of GDP	Total fixed costs as % of own-source revenue (tread water basis)	Tread water shortfall as % of own-source revenue
Illinois	Baa3	$229.9	$51.3	31.3%	32.9%	5.6%
Connecticut	A1	$63.3	$19.1	28.8%	29.8%	(1.2%)
Alaska	Aa3	$11.0	$5.0	28.8%	6.5%	(0.1%)
New Jersey	A3	$112.5	$72.5	28.7%	25.2%	4.0%
Hawaii	Aa2	$13.6	$11.3	25.5%	24.7%	2.6%
Kentucky	Aa3	$41.3	$5.5	21.8%	23.1%	(0.4%)
Vermont	Aa1	$4.6	$2.1	19.1%	9.8%	(0.1%)
Delaware	Aaa	$5.4	$7.2	16.6%	12.5%	(0.5%)
Maryland	Aaa	$53.5	$15.0	16.0%	16.4%	0.4%
Maine	Aa2	$7.2	$3.5	15.9%	11.7%	(1.0%)
West Virginia	Aa2	$9.5	$2.6	15.6%	10.5%	(3.3%)
Massachusetts	Aa1	$77.2	$13.7	15.3%	20.5%	2.0%
Montana	Aa1	$6.7	$0.1	13.1%	6.6%	0.3%
South Carolina	Aaa	$28.0	$2.7	12.5%	9.4%	1.1%
Pennsylvania	Aa3	$79.0	$20.4	12.2%	13.7%	(0.1%)
Rhode Island	Aa2	$6.5	$0.6	11.1%	12.9%	(0.2%)
Michigan	Aa1	$39.7	$18.3	10.7%	10.6%	(0.8%)
Texas	Aaa	$131.4	$69.5	10.6%	11.1%	2.7%
California*	Aa2	$214.5	$94.7	10.0%	10.5%	(0.8%)
Kansas	Aa2	$16.3	$0.1	9.4%	9.7%	(2.6%)
New Mexico	Aa2	$7.9	$1.6	9.1%	6.5%	1.0%
Louisiana	Aa3	$12.8	$8.1	7.9%	10.3%	(1.1%)
Colorado	Aa1	$25.2	$1.4	6.8%	8.0%	1.7%
Arkansas	Aa1	$6.8	$2.2	6.8%	5.1%	0.1%
Mississippi	Aa2	$7.1	$0.2	6.1%	9.3%	0.7%
New York	Aa1	$38.8	$50.3	5.1%	10.8%	(0.3%)
Missouri	Aaa	$12.9	$4.0	5.1%	8.6%	0.4%
Indiana	Aaa	$17.8	$0.2	4.8%	5.5%	(1.7%)
Georgia	Aaa	$22.0	$7.4	4.8%	10.8%	(1.2%)
Alabama	Aa1	$7.6	$3.2	4.7%	6.5%	0.1%
Wyoming	NGO	$1.4	$0.4	4.4%	2.5%	(0.0%)
New Hampshire	Aa1	$2.0	$1.9	4.4%	7.3%	(0.2%)
Nevada	Aa1	$7.0	$0.8	4.4%	7.5%	0.6%
Oregon	Aa1	$10.6	$0.2	4.3%	7.6%	0.9%
Oklahoma	Aa2	$8.2	$0.3	4.1%	4.0%	(4.6%)
Washington	Aaa	$19.2	$4.8	4.0%	8.7%	(1.9%)
Virginia	Aaa	$16.7	$2.2	3.4%	7.4%	0.0%
Arizona*	Aa1	$11.6	$0.8	3.4%	6.0%	0.6%
Minnesota	Aa1	$12.3	$0.6	3.4%	4.4%	0.1%
South Dakota	Aaa	$1.7	$0.0	3.2%	3.5%	(0.3%)
North Dakota	Aa1	$1.7	$0.1	3.1%	2.0%	1.0%
Wisconsin*	Aa1	$9.9	$0.8	3.1%	6.2%	(0.5%)
Florida	Aaa	$22.0	$10.0	2.9%	5.5%	0.3%
Idaho	Aa1	$2.2	$0.0	2.8%	3.1%	(0.3%)
Ohio	Aa1	$16.2	$2.8	2.7%	7.1%	0.3%
Iowa	Aaa	$4.6	$0.4	2.6%	3.8%	(0.1%)
North Carolina	Aaa	$9.1	$5.2	2.4%	4.8%	(0.4%)
Utah	Aaa	$4.1	$0.1	2.2%	5.7%	(0.8%)
Nebraska	Aa1	$2.6	$0.0	2.1%	1.3%	(0.6%)
Tennessee*	Aaa	$5.9	$1.4	1.9%	3.7%	(0.4%)
Median		**$11.3**	**$2.4**	**5.6%**	**7.8%**	**(0.1%)**

ANPL stands for adjusted net pension liability. ANOL stands for adjusted net OPEB liability. NGO stands for no general obligation rating. GDP refers to state GDP.

*Total fixed costs (tread water basis) and tread water shortfall for these states reflect fiscal 2018 pension tread water figures because of insufficient information to calculate pension tread water indicator for fiscal 2019. See page 8 for a definition of the tread water indicator. California's ANOL reflects fiscal 2018 figures also because of insufficient information for fiscal 2019.

Sources: Moody's Investors Service, state and pension plan financial statements

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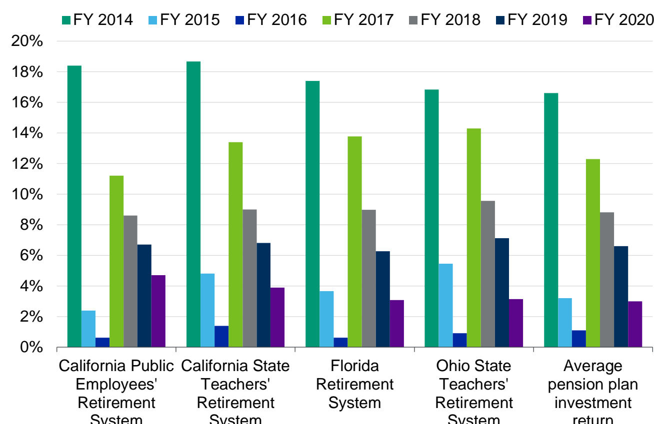
Pension plan investment returns

Exhibit 3

Investment returns fell for the third year in a row

Investment returns by June 30 fiscal year-end for select pension plans



The average pension plan investment return is based on a 56-plan representative sample for fiscal years 2014 to 2019. The fiscal 2020 average is estimated.

Sources: Retirement systems and Moody's Investors Service

Investment returns fell below pension plan targets in fiscal 2019 and 2020

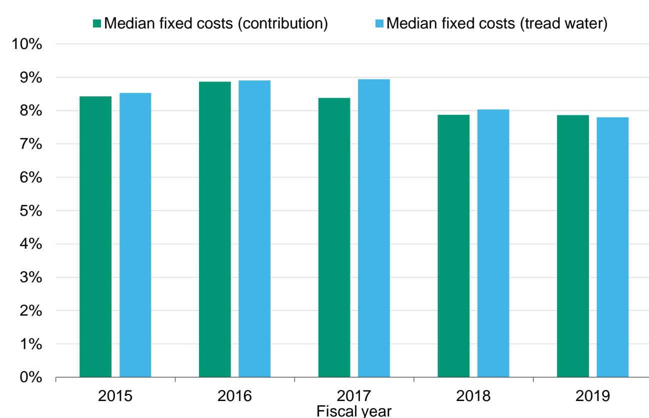
- Favorable investment returns in fiscal 2018 drove the decline of pension liabilities in states' fiscal 2019 reporting.
- Investment returns decreased for the third year in a row in fiscal 2020 and fell below pension plan targets in both fiscal 2019 and 2020.
- The average pension plan investment return[3] was 6.6% in fiscal 2019, below the average target return of 7.2%.
- Most pension plans will have investment returns between 2% to 4% in fiscal 2020. Wilshire Associates and Milliman both estimate investment returns ranging from 3% to 4%.
- The FTSE Pension Liability Index (FTSE PLI), which we use as a discount rate to value liabilities in our standard adjustments, decreased to 3.51% as of June 30, 2019 from 4.14% in June 2018. It declined again to 2.70% as of June 30, 2020.[4]

Total fixed costs

Exhibit 4

Fixed costs held steady in fiscal 2019

50-state median fixed costs (debt, pension and OPEB obligations) on a contribution and tread water basis as % of own-source revenue



Fiscal 2019 median fixed costs (tread water) is pro forma based on the 41 states with complete tread water data for the year. See page 8 for a definition of the tread water indicator.

Sources: Moody's Investors Service, state and pension plan financial statements

Over half of states contributed above the tread water indicator in fiscal 2019

- Fiscal 2019 fixed costs (debt, pension and OPEB obligations) as a percent of own-source revenue on a tread water basis declined for 32 states. Revenue losses caused by coronavirus-driven economic disruptions will worsen affordability ratios in fiscal 2020.
- Fixed costs still weigh heavily on many states, especially Illinois, Connecticut and New Jersey, where fiscal 2019 fixed costs on a tread water basis exceeded 25% of own-source revenue.[5]
- Nebraska (Aa1 stable), North Dakota (Aa1 stable) and Wyoming have the lowest fixed costs on a tread water basis at less than 3% of own-source revenue.

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Inclusion of unrecognized teacher liabilities provides alternate way to compare pension burdens

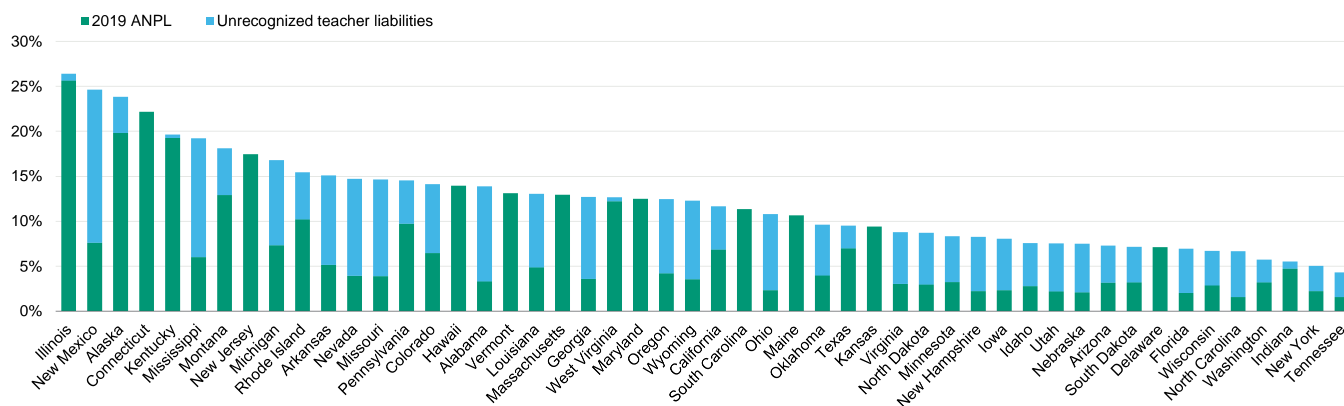
Given all states provide significant aid to school districts, including unrecognized teacher liabilities as part of a state's overall pension burden provides an alternate way to compare burdens across states. Exhibit 5 includes currently unrecognized portions of teacher liabilities as part of each state's total pension liability. For states that already report a 100% share of teacher liabilities in their financial statements, no additional teacher liability was added to their current pension burden. For states that have a separate teacher pension system and currently report a proportionate share of the liability, the reported share was subtracted from the state's liability, and then the full amount of the teacher liability was added back to the state's liability to determine the state's full pension burden.

Some states do not have a separate teacher retirement system. Instead, teachers participate in the state's employees' retirement system. To determine the currently unrecognized teacher liability for these states, the share of the employees' retirement system liability related to school districts was estimated based on the percentage of total plan members that come from public schools.[6] For Wisconsin, the percentage was based on the share of total covered payroll related to school districts.

Exhibit 5

Teacher liabilities significantly increase pension burdens for some states

Fiscal 2019 ANPL including currently unrecognized teacher liabilities as a percent of state GDP



ANPL stands for adjusted net pension liability.

Sources: Moody's Investors Service, state and pension plan financial statements and US Bureau of Economic Analysis

Teacher liabilities significantly increase pension burdens for some states

» Some states make direct on-behalf payments to teacher pension systems. However, K-12 public education is one of the key priorities of states, and all states provide significant aid to school districts. According to the National Association of State Budget Officers, elementary and secondary education accounted for 19.5% of total state expenditures in fiscal 2019.

» Currently, we allocate pension liabilities based on states' reported shares, including for teacher retirement systems. About a dozen states already account for the full teacher liability, or nearly the full liability, in their pension burdens. Other states account for only a portion or none at all.

» New Mexico's (Aa2 stable) fiscal 2019 ANPL increases to a significant 24.6% of state GDP from 7.6% when including currently unrecognized teacher liabilities.

» States that have high pension burdens because they already include most or all of teacher pension liabilities in their pension burdens still have the highest pension burdens among states even when including the full teacher liability for all states.

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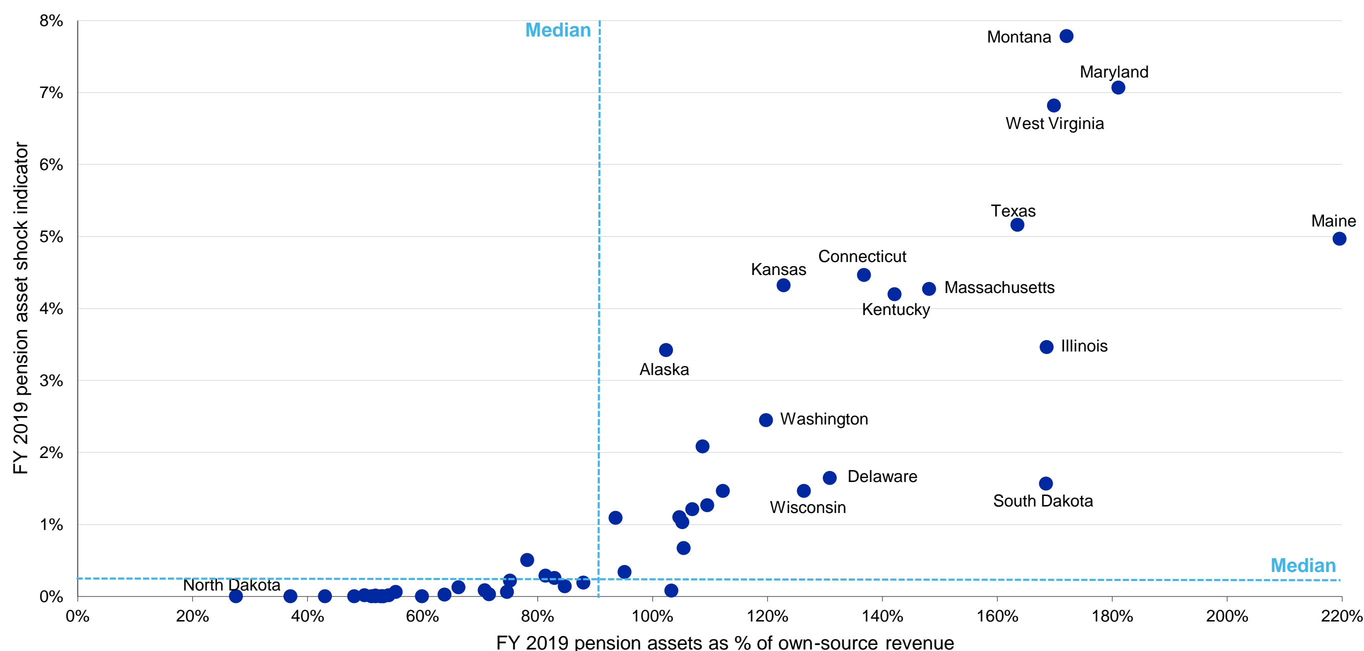
Pension assets

Exhibit 6
States with larger relative size of pension assets are more sensitive to investment losses



See Appendix on page 9 for explanation of adjustments made to own-source governmental revenue for certain states.
Source: Moody's Investors Service

States' risk of pension investment losses declined in fiscal 2019

» Pension assets are often concentrated in volatile investments and are large relative to budgets for some states, presenting risk that investment shocks will saddle state budgets with significant new costs to make up for lost pension funds.

» We gauge the risk of pension investment losses using our pension asset shock indicator or PASI (see definition on page 8).

» The fiscal 2019 50-state median PASI declined to 0.3% from 1.1% the prior year. Our 2019 risk-return map tends to have lower volatility for a given return compared with our 2018 risk-return map, which contributed to lower PASIs for all states.

» The overall risk of pension investment losses to the state sector remains relatively low compared to the fiscal 2018 median PASI for the 50 largest local governments, which was 8%.

» The fiscal 2019 PASI was higher than 5% for only five states and was less than 1% for more than half of states.

» While Maine (Aa2 stable) continues to have the highest ratio of pension assets to revenue in fiscal 2019 at over 200%, Montana (Aa1 stable), Maryland (Aaa stable), West Virginia (Aa2 stable) and Texas (Aaa stable) all had higher PASIs because of higher estimated portfolio volatility. We estimate volatility based on a portfolio's assumed rate of investment return.

» Texas' PASI rank dropped to fourth highest among states in fiscal 2019 from the highest the year before because the state lowered the assumed rates of return on their pension systems, which in turn lowered our volatility estimate.

» Several states including New Jersey, Rhode Island (Aa2 stable), Colorado and Missouri (Aaa stable) have large pension systems with less than 10 years of asset/benefit coverage and negative non-investment cash flow (NICF) worse than -4% of assets (see Exhibit 20 in the Appendix).

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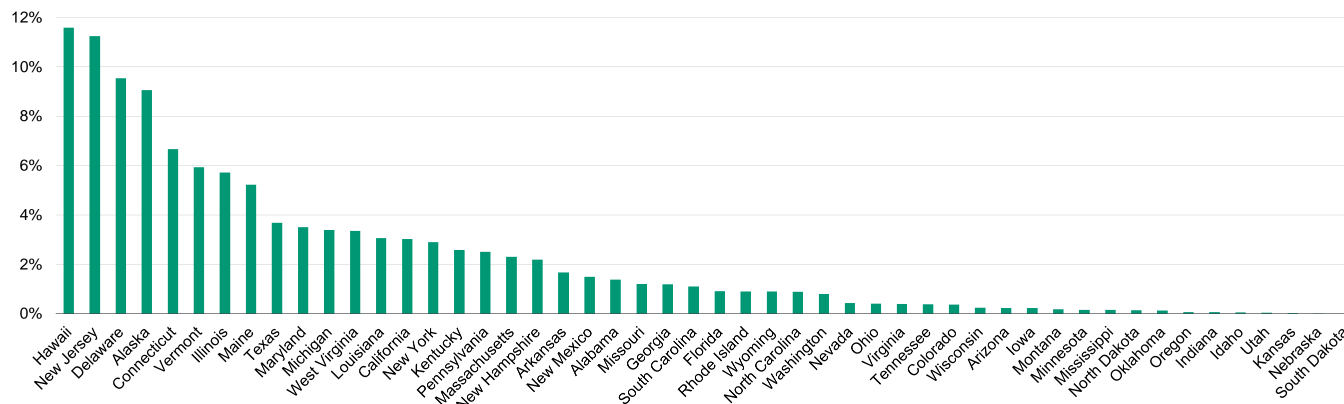
Adjusted net OPEB liabilities

Exhibit 7

Adjusted net OPEB liabilities vary widely across states

Fiscal 2019 ANOL as a % of state GDP



ANOL stands for adjusted net OPEB liability.
California's ANOL reflects fiscal 2018 figures because of insufficient information for fiscal 2019.
Source: Moody's Investors Service

Adjusted net OPEB liabilities vary widely across states

» Unfunded OPEB liabilities represent a large source of balance sheet leverage for some states and a very small obligation for others.

» The fiscal 2019 50-state median adjusted net OPEB liability (ANOL) as a percent of state GDP was 1.0%.

» Hawaii (Aa2 stable) had the largest OPEB burden with its fiscal 2019 ANOL representing 11.6% of state GDP. Many states that have high pension burdens, such as New Jersey, Hawaii, Connecticut, Vermont (Aa1 stable) and Illinois, also have the highest OPEB burdens.

» South Dakota (Aaa stable) has no OPEB liability given that retiree health benefits are fully paid by plan members. Likewise, a number of other states have essentially no OPEB liability because they only provide retirees with the option to purchase health and other insurance under the states' group rates.

» OPEB liabilities are typically lower than pension liabilities for states. States also generally have more legal flexibility to change OPEB benefits versus pension benefits. However, significant changes to OPEB benefits may be politically difficult.

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Explanation of analytical adjustments, measurement date alignment and key pension and OPEB metrics

GASB 67 and 68 enable analytical refinements for pensions

GASB 67 and 68 introduced significant changes in reporting of pension liabilities beginning in fiscal reporting year 2015, which increased transparency. Governments now disclose their proportionate share of cost-sharing liabilities, which we previously estimated using pro rata shares of plan contributions. The rules also require reporting the sensitivity of plan net pension liabilities to 100-basis-point changes in the discount rate, enabling us to more precisely estimate plan-specific liability adjustments. Governments and/or their plans now also report "service cost," also referred to as "normal cost" for actuarial funding. Other changes include the requirement that some poorly funded plans report liabilities based on a blended discount rate, and placement of the net pension liability on government-wide and business-type activities balance sheets.

GASB 74 and 75 enable analytical refinements for OPEB

GASB 74 and 75 provide disclosure for OPEB liabilities similar to the disclosure for pension liabilities beginning in fiscal reporting year 2018. Governments now disclose their proportionate share of the cost-sharing liabilities and the sensitivity of plan net OPEB liabilities to 100-basis-point changes in the discount rate, as is required for pensions.

Tread water indicator forms contribution benchmark

The tread water indicator is the amount that would cover interest on beginning-of-year net pension liability (NPL), plus employer service cost accruals during the year, based on reported assumptions. If all plan assumptions are met, including investment returns and demographic changes, a contribution equal to the tread water indicator would result in a year-end NPL equal to its beginning-of-year value.

Pension and OPEB measurement dates often misaligned with government reporting years

GASB 68 and 75 allow governments to report net pension and OPEB liabilities measured up to one year prior to their own fiscal year-end. Our balance sheet adjustments reflect liabilities as of the measurement date(s) reported in the government's financial statements. Nearly every state reported liabilities and assets in their 2019 financial statements based on a fiscal 2018 measurement date. Only 11 pension plans were reported based on a 2019 measurement date, most of which were single-employer plans.

Measurement date misalignment with government fiscal years complicates income statement metrics. Pension and OPEB contributions are reported based on the government fiscal year. However, the elements of the tread water indicator may not be. For cost-sharing plans, our tread water indicator matches the government fiscal year with the plan fiscal year. In some circumstances, the plan fiscal year-end does not align with the government's. For single-employer and agent plans, reported service cost and interest may lag by up to 12 months. As a result, tread water data for the government reporting year (2019 in this report) is incomplete.

Pension asset shock indicator (PASI) measures risks from asset volatility

The pension asset shock indicator estimates the probability of a pension investment loss amounting to 25% or more of a government's revenue. The indicator is a function of the size of pension assets relative to government revenue and estimated annual volatility of the asset portfolio. We use standard capital market assumptions to estimate the volatility for each pension plan based on its assumed investment rate of return. Higher assumed rates of return increase the probability of losses.

Negative non-investment cash flow, investment volatility hinders pension asset accumulation

Non-investment cash flow is the contributions from governments and employees to a pension system in a given year, less benefits and expenses. Many US public pension systems are maturing as their proportion of retirees to active members rises, meaning that their annual benefit outflows often exceed contributions — a situation known as negative non-investment cash flow (NICF). This cash flow dynamic exacerbates the risk of investment allocations that are weighted heavily toward classes with high return expectations but also high volatility risk. Should investment losses occur, NICF will worsen in comparison to system assets, making it more difficult for systems to accumulate assets and improve funding without higher government contributions.

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Appendix

Pension and OPEB tables and comparative measures

The following tables summarize our calculations of key pension and OPEB metrics and rank the states accordingly. Pension and OPEB burdens are one of many factors we use to determine state credit quality. Our analysis of pension and OPEB risk also considers measures of the strength of annual funding contributions.

The following adjustments have been made to the data:

- In certain cases, state shares prior to fiscal 2015 have been adjusted to match fiscal 2015 shares reported under GASB 67 and 68.
- The tread water calculation was made only for those states whose pension plan financials were available for 2019.
- In cases where a pension plan amounted to less than 5% of a state's total adjusted net pension liability, but the pension plan's financials were not available for fiscal 2019, the tread water metric for 2019 was calculated excluding the missing plan's tread water indicator. This was the case for Alaska (Aa3 negative), Delaware (Aaa stable), Nebraska, Nevada (Aa1 negative), and Texas.
- Alaska's one-time extraordinary contribution of $2.7 billion in fiscal 2015 was backed out of the state's pension contribution that year to provide a more consistent time series trend. Additionally, Alaska's own-source governmental revenue incorporates a five-year rolling average of permanent fund investment and interest earnings, rather than single-year earnings.
- Additional adjustments to own-source governmental revenue have been made for Delaware, Massachusetts (Aa1 stable) and Washington to reflect inclusion or exclusion of certain funds from governmental revenue.
- For California (Aa2 stable), the state's fiscal 2019 CAFR was not available at the time of publication of this report. The state's fiscal 2019 ANPL was determined based on fiscal 2018 pension plan actuarial reports. Fiscal 2019 ANOL, pension tread water and own-source revenue figures reflect fiscal 2018 data because of insufficient information to calculate these metrics for fiscal 2019. California's fiscal 2018 CAFR provides all information required to calculate the ANOL with the exception of the discount rate sensitivity. We have applied the duration of the largest plan in which the state participates (the Retiree Health Benefits Program - Unfunded Plan) to calculate the change in the net OPEB liability as a result of a 1% decrease in the discount rate. In addition, the plan information reported by the state consists of 53 OPEB plans, most of which apply blended and single discount rates within specified ranges. Given the various discount rates across these plans, we have applied the largest of all of the discount rates provided (7.28%).
- For Colorado, the state's allocation of the School Division Trust Fund in fiscal 2018 was estimated to reflect the state's direct funding of school pensions for the first time in fiscal 2019.
- States' fiscal 2020 estimated ANPL was based on information from fiscal 2019 pension plan financial statements. We based the estimates on states' proportionate share of cost-sharing liabilities reported in their fiscal 2019 CAFRs. If the fiscal 2019 pension plan financial statements were not available, we used fiscal 2018 plan information and the FTSE PLI discount rate for the 2019 measurement date to calculate the ANPL.

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Exhibit 8
Selected characteristics of state pension plans

State	Rating	# of pension plans	Measurement date for largest plan	Reported discount rate for largest plan	Aggregate reported net pension liability ($000) **	Moody's adjusted discount rate for largest plan	State share for largest plan
Alabama	Aa1	3	9/30/2018	7.70%	3,450,850	4.17%	100.0%
Alaska	Aa3	4	6/30/2018	8.00%	4,205,511	4.14%	60.9%
Arizona	Aa1*	4	6/30/2018	7.50%	4,946,036	4.14%	21.9%
Arkansas	Aa1	5	6/30/2018	7.15%	2,238,513	4.14%	65.8%
California	Aa2	9	6/30/2018	7.00%	88,356,751	4.14%	100.0%
Colorado	Aa1*	4	12/31/2018	7.25%	13,531,165	4.22%	96.0%
Connecticut	A1	3	6/30/2018	6.90%	34,820,959	4.14%	98.8%
Delaware	Aaa	7	6/30/2018	7.00%	1,597,994	4.14%	89.7%
Florida	Aaa	3	6/30/2018	7.00%	7,709,642	4.14%	17.7%
Georgia	Aaa	8	6/30/2018	7.30%	7,361,402	4.14%	90.6%
Hawaii	Aa2	1	6/30/2018	7.00%	6,837,450	4.14%	56.1%
Idaho	Aa1*	2	6/30/2018	7.05%	384,845	4.14%	24.8%
Illinois	Baa3	5	6/30/2018	7.00%	136,627,254	4.14%	96.3%
Indiana	Aaa*	8	6/30/2018	6.75%	12,020,427	4.14%	100.0%
Iowa	Aaa*	4	6/30/2018	7.00%	1,244,035	4.14%	16.6%
Kansas	Aa2*	3	6/30/2018	7.75%	6,632,284	4.14%	100.0%
Kentucky	Aa3	6	6/30/2018	7.50%	24,664,199	4.14%	97.1%
Louisiana	Aa3	7	6/30/2018	7.65%	6,182,012	4.14%	80.2%
Maine	Aa2	3	6/30/2018	6.75%	2,328,426	4.14%	97.4%
Maryland	Aaa	2	6/30/2018	7.40%	20,606,429	4.14%	93.8%
Massachusetts	Aa1	3	6/30/2018	7.35%	38,865,653	4.14%	100.0%
Michigan	Aa1	6	9/30/2019	6.08%	19,991,740	3.13%	38.7%
Minnesota	Aa1	9	6/30/2018	7.50%	3,040,544	4.14%	74.5%
Mississippi	Aa2	3	6/30/2018	7.75%	3,037,391	4.14%	17.2%
Missouri	Aaa	3	6/30/2018	7.25%	6,731,826	4.14%	82.8%
Montana	Aa1	9	6/30/2018	7.65%	2,377,360	4.14%	64.5%
Nebraska	Aa1*	6	6/30/2018	7.50%	482,801	4.14%	17.4%
Nevada	Aa1	3	6/30/2018	7.50%	2,261,233	4.14%	16.5%
New Hampshire	Aa1	2	6/30/2018	7.25%	930,984	4.14%	18.4%
New Jersey	A3	7	6/30/2018	4.86%	95,657,889	4.14%	100.0%
New Mexico	Aa2	5	6/30/2018	7.25%	3,392,440	4.14%	52.7%
New York	Aa1	2	3/31/2018	7.00%	3,056,141	3.96%	45.4%
North Carolina	Aaa	6	6/30/2018	7.00%	2,379,826	4.14%	21.8%
North Dakota	Aa1*	4	6/30/2018	6.32%	860,032	4.14%	50.4%
Ohio	Aa1	4	12/31/2018	7.20%	6,530,639	4.22%	20.9%
Oklahoma	Aa2*	6	7/1/2018	7.50%	1,804,101	4.14%	26.5%
Oregon	Aa1	1	6/30/2018	7.20%	3,193,464	4.14%	21.1%
Pennsylvania	Aa3	2	6/30/2018	7.25%	43,809,328	4.14%	55.4%
Rhode Island	Aa2	7	6/30/2018	7.00%	3,619,593	4.14%	42.7%
South Carolina	Aaa	5	6/30/2018	7.25%	13,947,034	4.14%	57.6%
South Dakota	Aaa*	2	6/30/2018	6.50%	(847)	4.14%	21.1%
Tennessee	Aaa	2	6/30/2018	7.25%	1,099,610	4.14%	69.8%
Texas	Aaa	6	8/31/2018	6.91%	58,757,564	4.07%	67.4%
Utah	Aaa	8	12/31/2018	6.95%	1,170,261	4.22%	23.0%
Vermont	Aa1	2	6/30/2018	7.50%	2,264,101	4.14%	100.0%
Virginia	Aaa	4	6/30/2018	7.00%	6,382,981	4.14%	100.0%
Washington	Aaa	10	6/30/2018	7.40%	477,872	4.14%	50.4%
West Virginia	Aa2	5	6/30/2018	7.50%	3,110,815	4.14%	94.9%
Wisconsin	Aa1	1	12/31/2018	7.00%	985,538	4.22%	27.7%
Wyoming	NGO	5	12/31/2018	7.00%	644,088	4.22%	18.7%

*State issuer ratings
**Represents state's share only for every plan
NGO stands for no general obligation rating.
Sources: Moody's Investors Service, state financial statements

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Exhibit 9

Moody's state adjusted net pension liability (ANPL) rankings ($000)

FY 2019 rank	State	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020 (estimate)
1	Illinois	191,646,293	200,628,979	250,135,970	240,759,774	229,886,900	260,986,363
2	California	171,500,601	175,995,732	234,042,082	230,803,077	214,491,523	249,709,409
3	Texas	123,858,729	108,618,781	140,253,456	132,760,832	131,402,045	181,603,926
4	New Jersey	90,206,661	94,969,351	115,964,089	113,845,643	112,546,910	132,682,279
5	Pennsylvania	63,133,969	69,552,310	80,549,468	79,779,435	78,996,495	86,753,848
6	Massachusetts	53,989,121	65,193,204	80,449,143	81,227,853	77,151,349	101,156,578
7	Connecticut	52,942,059	53,742,607	71,223,221	62,059,644	63,348,693	73,926,513
8	Maryland	45,790,041	46,208,447	67,240,080	59,264,776	53,509,910	60,903,453
9	Kentucky	35,807,730	37,424,333	46,968,436	45,916,658	41,328,094	47,620,920
10	Michigan	33,311,230	36,819,521	37,142,225	37,993,798	39,654,044	46,813,416
11	New York	43,505,658	42,913,661	43,640,389	39,166,292	38,812,223	46,504,973
12	South Carolina	22,597,243	22,880,188	28,872,871	30,364,902	27,954,094	30,924,853
13	Colorado	19,647,727	19,782,553	22,642,431	30,107,806	25,168,742	27,924,675
14	Georgia	19,119,624	19,630,715	26,391,116	23,986,014	21,986,315	27,059,574
15	Florida	16,643,646	17,948,972	25,395,230	23,218,268	21,972,968	26,255,530
16	Washington	22,271,273	23,362,109	23,975,681	22,809,640	19,184,264	24,062,513
17	Indiana	16,831,561	18,578,385	21,256,728	20,346,062	17,771,050	19,089,992
18	Virginia	15,584,225	15,991,114	20,140,861	18,318,199	16,679,109	20,238,462
19	Kansas	14,701,823	16,152,108	17,607,414	17,341,499	16,308,038	19,105,438
20	Ohio	13,623,862	13,638,720	15,680,805	16,365,511	16,229,714	18,254,556
21	Hawaii	8,199,864	8,391,291	14,351,491	13,950,603	13,558,845	16,506,695
22	Missouri	10,377,254	10,889,865	14,269,258	13,764,307	12,938,750	14,703,803
23	Louisiana	11,702,315	12,174,157	15,079,099	13,788,473	12,812,243	15,073,916
24	Minnesota	10,979,553	12,017,442	18,252,678	15,973,832	12,273,462	14,896,420
25	Arizona	9,347,944	10,326,759	11,688,286	11,903,465	11,552,068	13,493,544
26	Alaska	13,536,256	10,869,964	11,983,989	12,516,054	10,964,439	11,738,212
27	Oregon	4,782,189	7,150,395	11,954,071	11,127,973	10,618,750	13,167,398
28	Wisconsin	4,164,449	9,078,685	9,750,686	11,318,107	9,874,769	14,191,576
29	West Virginia	9,011,541	9,140,297	12,082,693	10,602,503	9,541,291	10,860,619
30	North Carolina	5,867,503	6,497,937	10,391,839	9,421,407	9,145,550	11,303,429
31	Oklahoma	7,469,424	8,129,899	11,325,615	9,282,282	8,158,141	10,222,719
32	New Mexico	5,906,607	6,376,808	8,884,611	7,353,640	7,890,987	10,166,852
33	Alabama	7,616,339	7,970,431	9,281,406	8,642,954	7,638,354	10,999,674
34	Maine	6,372,262	6,661,914	8,977,858	8,256,121	7,192,450	7,361,467
35	Mississippi	6,139,549	6,604,115	8,198,597	7,573,864	7,124,379	8,482,860
36	Nevada	6,001,059	6,117,991	7,902,307	7,292,773	6,989,253	8,339,378
37	Arkansas	5,532,181	5,935,199	8,085,386	7,318,307	6,821,936	8,314,912
38	Montana	4,751,010	4,866,079	6,090,280	6,212,965	6,741,063	7,785,402
39	Rhode Island	5,120,129	5,671,589	6,741,527	6,780,891	6,491,384	6,953,802
40	Tennessee	4,725,732	5,091,049	6,905,551	6,446,554	5,944,833	7,166,734
41	Delaware	3,859,643	3,406,059	6,373,422	5,831,614	5,361,945	6,787,557
42	Vermont	3,689,889	4,034,179	5,123,076	4,882,266	4,563,037	5,735,062
43	Iowa	3,737,767	4,099,809	5,319,983	4,776,209	4,552,905	5,062,873
44	Utah	4,312,097	4,003,770	4,187,458	4,497,709	4,119,495	4,868,132
45	Nebraska	2,121,372	2,219,456	2,870,530	2,650,498	2,636,775	3,401,956
46	Idaho	1,671,901	1,843,160	2,768,296	2,580,465	2,237,549	2,739,556
47	New Hampshire	1,686,124	1,784,268	2,370,644	2,247,106	1,984,320	2,285,630
48	South Dakota	1,581,368	1,694,309	2,777,714	1,867,818	1,713,172	2,253,960
49	North Dakota	1,255,244	1,264,586	1,831,005	1,792,617	1,681,686	2,063,147
50	Wyoming	1,300,956	1,341,246	1,438,478	1,466,636	1,403,893	1,627,279
	TOTAL	1,239,532,597	1,285,684,496	1,616,829,533	1,558,555,695	1,478,910,201	1,760,131,836
	MEAN	24,790,652	25,713,690	32,336,591	31,171,114	29,578,204	35,202,637
	MEDIAN	9,179,742	9,733,528	12,033,341	12,209,760	11,258,253	13,842,560

Some historical ANPL figures have been updated and may not match prior published reports.
Source: Moody's Investors Service

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Exhibit 10

Moody's ANPL as a % of own-source governmental revenue

FY 2019 rank	State	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
1	Illinois	434%	487%	601%	505%	445%
2	Connecticut	289%	285%	360%	286%	284%
3	Kentucky	261%	265%	325%	309%	265%
4	New Jersey	227%	249%	290%	275%	255%
5	Massachusetts	172%	202%	247%	227%	201%
6	Maryland	200%	194%	281%	237%	198%
7	Montana	147%	153%	195%	185%	179%
8	South Carolina	177%	173%	207%	203%	175%
9	Pennsylvania	154%	171%	185%	172%	166%
10	Texas	189%	162%	196%	170%	161%
11	Colorado	143%	140%	159%	196%	153%
12	Hawaii	118%	115%	189%	165%	151%
13	Kansas	168%	182%	193%	164%	148%
14	Maine	141%	145%	189%	168%	138%
15	Rhode Island	121%	131%	154%	148%	135%
16	West Virginia	134%	142%	185%	156%	126%
17	Alaska	182%	208%	168%	154%	122%
18	Michigan	107%	115%	113%	109%	120%
19	Vermont	106%	113%	141%	128%	117%
20	California	106%	107%	136%	120%	112%
21	Nevada	122%	112%	136%	125%	111%
22	Missouri	80%	82%	104%	99%	91%
23	Louisiana	92%	94%	107%	94%	84%
24	Indiana	91%	99%	110%	99%	80%
25	Delaware	68%	59%	106%	92%	80%
26	Georgia	86%	82%	104%	91%	80%
27	Mississippi	70%	74%	95%	86%	77%
28	South Dakota	75%	77%	116%	76%	68%
29	New Mexico	65%	79%	87%	70%	68%
30	Arkansas	59%	63%	85%	75%	66%
31	Washington	98%	96%	91%	79%	66%
32	Oklahoma	69%	80%	107%	81%	63%
33	Arizona	61%	66%	71%	69%	61%
34	Oregon	38%	48%	82%	70%	60%
35	Virginia	62%	62%	75%	63%	56%
36	Alabama	65%	65%	74%	66%	55%
37	New Hampshire	50%	49%	66%	59%	51%
38	Ohio	43%	43%	49%	50%	47%
39	Wisconsin	22%	47%	50%	56%	46%
40	Wyoming	43%	50%	45%	53%	46%
41	Minnesota	43%	46%	68%	55%	42%
42	Florida	36%	38%	52%	46%	41%
43	Idaho	31%	40%	54%	47%	40%
44	Nebraska	37%	38%	50%	45%	40%
45	Utah	53%	49%	47%	46%	40%
46	New York	47%	47%	48%	40%	39%
47	Iowa	37%	39%	49%	43%	39%
48	North Carolina	22%	23%	36%	31%	29%
49	Tennessee	27%	28%	36%	32%	29%
50	North Dakota	20%	31%	39%	33%	27%
	TOTAL	118%	122%	147%	132%	121%
	MEAN	106%	111%	135%	121%	107%
	MEDIAN	83%	82%	107%	91%	80%

Certain states' own-source governmental revenue has been adjusted. See page 9 for more information.

Sources: Moody's Investors Service, state financial statements

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Exhibit 11

Moody's ANPL per capita ($)

FY 2019 rank	State	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
1	Illinois	14,937	15,685	19,616	18,964	18,181
2	Connecticut	14,789	15,051	19,973	17,410	17,803
3	Alaska	18,919	15,099	16,679	17,488	15,397
4	New Jersey	10,183	10,717	13,065	12,825	12,684
5	Massachusetts	7,952	9,561	11,736	11,810	11,202
6	Hawaii	5,969	6,081	10,417	10,144	9,893
7	Kentucky	8,124	8,464	10,589	10,331	9,285
8	Maryland	7,689	7,744	11,230	9,876	8,903
9	Vermont	5,907	6,475	8,213	7,827	7,319
10	Montana	4,627	4,692	5,806	5,877	6,328
11	Pennsylvania	4,940	5,444	6,302	6,235	6,174
12	Rhode Island	4,868	5,388	6,409	6,434	6,153
13	Kansas	5,096	5,589	6,099	6,003	5,642
14	Delaware	4,116	3,603	6,685	6,062	5,526
15	South Carolina	4,658	4,652	5,795	6,022	5,473
16	California	4,424	4,512	5,971	5,872	5,450
17	Maine	4,802	5,010	6,733	6,172	5,356
18	West Virginia	4,895	4,995	6,653	5,879	5,327
19	Texas	4,528	3,907	4,977	4,656	4,550
20	Colorado	3,628	3,593	4,061	5,324	4,398
21	Michigan	3,355	3,702	3,726	3,807	3,972
22	New Mexico	2,843	3,066	4,271	3,534	3,784
23	Louisiana	2,518	2,612	3,241	2,969	2,766
24	Indiana	2,548	2,801	3,194	3,040	2,641
25	Washington	3,133	3,227	3,253	3,053	2,537
26	Oregon	1,192	1,749	2,887	2,663	2,519
27	Wyoming	2,233	2,308	2,498	2,553	2,439
28	Mississippi	2,065	2,220	2,756	2,553	2,405
29	Nevada	2,101	2,105	2,671	2,418	2,277
30	Arkansas	1,861	1,989	2,699	2,436	2,265
31	North Dakota	1,681	1,692	2,449	2,387	2,228
32	Minnesota	2,004	2,177	3,280	2,850	2,177
33	Missouri	1,713	1,794	2,343	2,255	2,115
34	Georgia	1,890	1,917	2,550	2,296	2,083
35	Oklahoma	1,920	2,080	2,895	2,367	2,072
36	New York	2,216	2,189	2,231	2,008	1,998
37	Virginia	1,889	1,928	2,412	2,184	1,981
38	South Dakota	1,858	1,971	3,195	2,134	1,944
39	Wisconsin	723	1,574	1,685	1,950	1,697
40	Arizona	1,372	1,492	1,664	1,668	1,591
41	Alabama	1,574	1,643	1,909	1,773	1,562
42	New Hampshire	1,263	1,331	1,759	1,662	1,461
43	Iowa	1,198	1,310	1,694	1,518	1,444
44	Ohio	1,174	1,173	1,346	1,403	1,389
45	Nebraska	1,126	1,169	1,503	1,381	1,368
46	Utah	1,449	1,318	1,352	1,428	1,287
47	Idaho	1,015	1,098	1,615	1,477	1,255
48	Florida	826	874	1,215	1,096	1,026
49	North Carolina	591	647	1,022	916	880
50	Tennessee	719	768	1,032	955	873
	TOTAL	3,889	4,005	5,004	4,798	4,532
	MEAN	3,942	4,044	5,147	4,919	4,622
	MEDIAN	2,376	2,460	3,218	2,910	2,528

Sources: Moody's Investors Service, US Census Bureau

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Exhibit 12

Moody's ANPL as a % of personal income

FY 2019 rank	State	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
1	Illinois	28.9%	29.9%	36.3%	33.2%	30.8%
2	Alaska	31.9%	26.2%	28.5%	28.6%	24.1%
3	Connecticut	21.6%	21.5%	27.6%	22.7%	22.5%
4	Kentucky	20.7%	21.3%	25.7%	24.2%	21.0%
5	New Jersey	16.6%	17.1%	20.1%	18.7%	17.9%
6	Hawaii	11.7%	11.5%	19.0%	17.7%	16.7%
7	Massachusetts	12.5%	14.6%	17.2%	16.4%	14.9%
8	Maryland	13.4%	13.0%	18.4%	15.5%	13.5%
9	Vermont	11.9%	12.7%	15.8%	14.4%	12.9%
10	Montana	10.6%	10.7%	12.8%	12.3%	12.9%
11	West Virginia	13.3%	13.5%	17.2%	14.4%	12.6%
12	South Carolina	11.7%	11.4%	13.7%	13.7%	12.0%
13	Rhode Island	9.7%	10.6%	12.2%	11.7%	10.8%
14	Maine	11.0%	11.2%	14.4%	12.6%	10.5%
15	Pennsylvania	9.8%	10.5%	11.9%	11.1%	10.5%
16	Kansas	10.7%	11.7%	12.4%	11.6%	10.5%
17	Delaware	8.5%	7.4%	13.2%	11.5%	10.1%
18	Texas	9.7%	8.5%	10.3%	9.2%	8.6%
19	New Mexico	7.4%	7.8%	10.7%	8.4%	8.6%
20	California	7.9%	7.8%	9.9%	9.2%	8.1%
21	Michigan	7.7%	8.2%	8.0%	7.8%	7.9%
22	Colorado	6.9%	6.8%	7.3%	9.0%	7.1%
23	Mississippi	5.9%	6.2%	7.5%	6.7%	6.1%
24	Louisiana	5.8%	6.1%	7.3%	6.4%	5.7%
25	Indiana	6.0%	6.4%	7.1%	6.4%	5.4%
26	Arkansas	4.7%	4.9%	6.5%	5.6%	5.0%
27	Oregon	2.6%	3.8%	6.0%	5.2%	4.8%
28	Nevada	4.7%	4.7%	5.7%	4.9%	4.5%
29	Oklahoma	4.3%	4.9%	6.6%	5.1%	4.3%
30	Georgia	4.5%	4.5%	5.7%	4.9%	4.3%
31	Missouri	4.0%	4.0%	5.1%	4.7%	4.3%
32	Washington	5.8%	5.7%	5.5%	4.9%	3.9%
33	North Dakota	3.1%	3.2%	4.6%	4.3%	3.8%
34	Wyoming	3.9%	4.2%	4.4%	4.2%	3.8%
35	Minnesota	3.8%	4.1%	6.0%	4.9%	3.6%
36	South Dakota	3.8%	4.0%	6.4%	4.1%	3.6%
37	Alabama	4.1%	4.2%	4.7%	4.2%	3.6%
38	Arizona	3.4%	3.7%	3.9%	3.7%	3.4%
39	Virginia	3.5%	3.5%	4.3%	3.7%	3.3%
40	Wisconsin	1.5%	3.3%	3.4%	3.8%	3.2%
41	New York	3.7%	3.6%	3.4%	2.9%	2.8%
42	Ohio	2.6%	2.6%	2.9%	2.9%	2.7%
43	Idaho	2.5%	2.7%	3.8%	3.4%	2.7%
44	Iowa	2.6%	2.8%	3.6%	3.0%	2.7%
45	Utah	3.5%	3.1%	3.1%	3.1%	2.7%
46	Nebraska	2.2%	2.3%	3.0%	2.6%	2.5%
47	New Hampshire	2.3%	2.4%	3.0%	2.7%	2.3%
48	Florida	1.8%	1.9%	2.5%	2.2%	2.0%
49	North Carolina	1.4%	1.5%	2.3%	2.0%	1.8%
50	Tennessee	1.7%	1.8%	2.3%	2.0%	1.8%
	TOTAL	7.9%	8.0%	9.6%	8.8%	8.0%
	MEAN	7.9%	8.0%	9.9%	9.0%	8.1%
	MEDIAN	5.8%	5.9%	6.8%	6.0%	5.2%

Sources: Moody's Investors Service, US Bureau of Economic Analysis

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Exhibit 13

Moody's ANPL as a % of state gross domestic product

FY 2019 rank	State	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
1	Illinois	24.2%	24.9%	30.3%	27.8%	25.6%
2	Connecticut	20.4%	20.4%	26.5%	22.5%	22.2%
3	Alaska	26.7%	22.0%	23.1%	22.9%	19.8%
4	Kentucky	18.7%	19.2%	23.4%	22.1%	19.3%
5	New Jersey	15.8%	16.3%	19.5%	18.3%	17.5%
6	Hawaii	9.9%	9.8%	16.0%	14.9%	13.9%
7	Vermont	12.0%	12.7%	15.9%	14.7%	13.1%
8	Massachusetts	10.7%	12.6%	14.9%	14.3%	13.0%
9	Montana	10.3%	10.7%	12.8%	12.3%	12.9%
10	Maryland	12.5%	12.0%	17.1%	14.4%	12.5%
11	West Virginia	12.8%	13.1%	16.5%	13.7%	12.2%
12	South Carolina	11.1%	10.7%	12.9%	13.0%	11.3%
13	Maine	11.1%	11.1%	14.5%	12.7%	10.7%
14	Rhode Island	9.0%	9.8%	11.5%	11.2%	10.2%
15	Pennsylvania	8.9%	9.6%	10.8%	10.2%	9.7%
16	Kansas	9.6%	10.3%	10.9%	10.3%	9.4%
17	New Mexico	6.5%	7.0%	9.4%	7.3%	7.6%
18	Michigan	7.0%	7.5%	7.3%	7.2%	7.3%
19	Delaware	5.4%	4.9%	9.0%	7.9%	7.1%
20	Texas	7.9%	6.9%	8.4%	7.4%	7.0%
21	California	6.7%	6.6%	8.3%	7.7%	6.8%
22	Colorado	6.2%	6.0%	6.5%	8.1%	6.4%
23	Mississippi	5.8%	6.2%	7.4%	6.6%	6.0%
24	Arkansas	4.7%	4.9%	6.6%	5.7%	5.1%
25	Louisiana	5.0%	5.4%	6.3%	5.4%	4.9%
26	Indiana	5.1%	5.5%	6.1%	5.5%	4.7%
27	Oregon	2.4%	3.3%	5.3%	4.6%	4.2%
28	Oklahoma	4.0%	4.5%	6.0%	4.6%	4.0%
29	Nevada	4.2%	4.0%	5.0%	4.3%	3.9%
30	Missouri	3.5%	3.7%	4.7%	4.3%	3.9%
31	Georgia	3.7%	3.6%	4.7%	4.1%	3.6%
32	Wyoming	3.4%	3.8%	3.8%	3.7%	3.5%
33	Alabama	3.8%	3.9%	4.4%	3.9%	3.3%
34	Minnesota	3.3%	3.5%	5.2%	4.3%	3.2%
35	South Dakota	3.3%	3.5%	5.6%	3.6%	3.2%
36	Washington	4.7%	4.8%	4.6%	4.0%	3.2%
37	Arizona	3.1%	3.3%	3.6%	3.4%	3.2%
38	Virginia	3.2%	3.2%	4.0%	3.4%	3.0%
39	North Dakota	2.3%	2.5%	3.5%	3.2%	2.9%
40	Wisconsin	1.4%	2.9%	3.0%	3.4%	2.8%
41	Idaho	2.5%	2.7%	3.8%	3.3%	2.8%
42	Iowa	2.1%	2.3%	2.9%	2.5%	2.3%
43	Ohio	2.2%	2.2%	2.4%	2.4%	2.3%
44	New York	2.9%	2.8%	2.7%	2.3%	2.2%
45	New Hampshire	2.2%	2.3%	2.9%	2.7%	2.2%
46	Utah	2.9%	2.5%	2.5%	2.5%	2.2%
47	Nebraska	1.8%	1.9%	2.4%	2.1%	2.1%
48	Florida	1.9%	1.9%	2.6%	2.2%	2.0%
49	Tennessee	1.5%	1.5%	2.0%	1.8%	1.6%
50	North Carolina	1.2%	1.3%	1.9%	1.7%	1.6%
	TOTAL	6.9%	7.0%	8.4%	7.7%	7.0%
	MEAN	7.0%	7.2%	8.8%	8.1%	7.3%
	MEDIAN	4.9%	4.9%	6.2%	5.5%	4.8%

Sources: Moody's Investors Service, US Bureau of Economic Analysis

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Exhibit 14

Moody's ANPL + NTSD as a % of state gross domestic product

FY 2019 rank	State	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
1	Connecticut	28.9%	29.2%	35.3%	31.5%	30.5%
2	Illinois	28.3%	28.9%	34.8%	31.9%	29.3%
3	Kentucky	23.2%	23.8%	27.8%	26.2%	24.0%
4	New Jersey	22.3%	23.0%	26.0%	24.3%	23.1%
5	Hawaii	17.8%	18.1%	24.4%	23.1%	22.0%
6	Alaska	28.8%	24.6%	25.4%	24.8%	21.4%
7	Massachusetts	18.5%	20.4%	22.6%	21.7%	20.2%
8	West Virginia	15.9%	16.1%	19.1%	17.0%	16.1%
9	Maryland	15.6%	15.3%	20.4%	17.8%	15.8%
10	Vermont	14.0%	14.8%	17.8%	16.8%	15.0%
11	Rhode Island	12.5%	13.8%	15.5%	15.1%	14.1%
12	Montana	10.8%	11.2%	13.2%	12.7%	13.1%
13	Maine	13.2%	13.1%	16.4%	14.5%	12.6%
14	South Carolina	12.5%	12.1%	14.1%	14.1%	12.3%
15	Pennsylvania	11.1%	12.0%	13.1%	12.8%	12.1%
16	Kansas	12.6%	13.2%	13.7%	12.9%	11.9%
17	Delaware	9.4%	9.1%	13.2%	12.2%	11.4%
18	Mississippi	10.9%	11.3%	12.5%	11.2%	10.8%
19	New Mexico	9.3%	9.9%	11.9%	9.8%	9.8%
20	California	10.3%	9.9%	11.4%	10.6%	9.5%
21	Michigan	8.5%	8.9%	8.7%	8.4%	8.4%
22	Oregon	6.1%	6.8%	9.0%	8.0%	7.6%
23	Louisiana	8.2%	8.7%	9.5%	8.1%	7.6%
24	Texas	8.6%	7.6%	9.1%	8.0%	7.5%
25	Colorado	6.9%	6.6%	7.2%	8.8%	7.3%
26	Washington	8.9%	8.8%	8.3%	7.5%	6.5%
27	Arkansas	6.2%	6.4%	8.1%	7.1%	6.4%
28	New York	7.0%	6.7%	6.5%	6.1%	6.0%
29	Virginia	5.6%	5.8%	6.5%	5.8%	5.6%
30	Wisconsin	4.7%	6.1%	6.0%	6.1%	5.4%
31	Minnesota	5.9%	6.0%	7.5%	6.5%	5.3%
32	Georgia	5.8%	5.5%	6.5%	5.8%	5.2%
33	Indiana	5.7%	6.1%	6.6%	6.0%	5.2%
34	Alabama	5.8%	6.0%	6.5%	5.8%	5.1%
35	Nevada	5.3%	5.2%	6.2%	5.4%	5.0%
36	Missouri	4.7%	4.8%	5.7%	5.3%	4.8%
37	Oklahoma	4.7%	5.2%	6.6%	5.2%	4.6%
38	Ohio	4.3%	4.2%	4.5%	4.4%	4.3%
39	Arizona	4.9%	4.9%	4.9%	4.6%	4.2%
40	South Dakota	4.4%	4.6%	6.8%	4.6%	4.0%
41	Idaho	3.7%	3.7%	4.9%	4.5%	4.0%
42	Wyoming	3.5%	3.8%	3.9%	3.8%	3.6%
43	Florida	4.2%	4.0%	4.5%	3.9%	3.5%
44	Utah	4.7%	4.1%	3.9%	3.9%	3.4%
45	New Hampshire	3.6%	3.6%	4.2%	3.9%	3.3%
46	North Dakota	2.5%	2.7%	3.7%	3.4%	3.0%
47	North Carolina	2.6%	2.5%	3.1%	2.6%	2.6%
48	Iowa	2.5%	2.7%	3.3%	2.9%	2.6%
49	Nebraska	1.9%	1.9%	2.4%	2.2%	2.1%
50	Tennessee	2.1%	2.2%	2.6%	2.3%	2.1%
	TOTAL	9.8%	9.8%	11.1%	10.2%	9.5%
	MEAN	9.6%	9.7%	11.3%	10.4%	9.6%
	MEDIAN	7.0%	6.8%	8.2%	7.7%	6.9%

ANPL stands for adjusted net pension liability. NTSD stands for net tax-supported debt.
Sources: Moody's Investors Service, US Bureau of Economic Analysis

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Exhibit 15

Fiscal 2018 state OPEB metrics

State	Reported net OPEB liability ($000)	ANOL ($000)	ANOL as a % of own-source revenues	ANOL per capita ($)	ANOL as a % of personal income	ANOL as a % of state gross domestic product
Alabama	3,397,401	3,320,858	25.5%	681	1.6%	1.5%
Alaska	412,035	2,905,826	35.7%	4,060	6.6%	5.3%
Arizona	846,763	806,003	4.7%	113	0.3%	0.2%
Arkansas	2,299,942	2,179,113	22.4%	725	1.7%	1.7%
California	92,591,583	94,710,386	49.4%	2,410	3.8%	3.2%
Colorado	1,201,025	1,416,421	9.2%	250	0.4%	0.4%
Connecticut	20,590,998	19,874,486	91.5%	5,575	7.3%	7.2%
Delaware	7,623,319	7,205,432	113.7%	7,490	14.2%	9.8%
Florida	7,999,457	7,494,875	14.7%	354	0.7%	0.7%
Georgia	7,803,472	7,853,114	29.8%	752	1.6%	1.3%
Hawaii	6,666,282	11,047,324	130.9%	8,033	14.0%	11.8%
Idaho	132,855	145,804	2.6%	83	0.2%	0.2%
Illinois	56,961,397	54,407,761	114.1%	4,286	7.5%	6.3%
Indiana	503,290	467,549	2.3%	70	0.1%	0.1%
Iowa	185,552	182,471	1.6%	58	0.1%	0.1%
Kansas	89,187	88,259	0.8%	31	0.1%	0.1%
Kentucky	3,547,159	5,832,026	39.2%	1,312	3.1%	2.8%
Louisiana	6,430,045	5,678,926	38.6%	1,223	2.6%	2.2%
Maine	2,306,008	2,777,944	56.6%	2,077	4.2%	4.3%
Maryland	11,404,568	10,721,930	42.8%	1,787	2.8%	2.6%
Massachusetts	16,681,450	15,962,274	44.7%	2,321	3.2%	2.8%
Michigan	13,419,246	20,677,994	59.2%	2,072	4.3%	3.9%
Minnesota	621,237	609,007	2.1%	109	0.2%	0.2%
Mississippi	188,888	187,402	2.1%	63	0.2%	0.2%
Missouri	3,455,148	3,884,473	27.8%	637	1.3%	1.2%
Montana	85,897	84,642	2.5%	80	0.2%	0.2%
Nebraska	14,486	14,216	0.2%	7	0.0%	0.0%
Nevada	799,477	775,584	13.3%	257	0.5%	0.5%
New Hampshire	2,197,863	2,129,061	55.5%	1,575	2.6%	2.5%
New Jersey	90,487,141	85,957,592	207.6%	9,684	14.1%	13.8%
New Mexico	1,516,150	1,560,441	14.8%	750	1.8%	1.6%
New York	91,768,000	91,768,000	94.3%	4,705	6.8%	5.5%
North Carolina	6,381,057	6,020,036	20.1%	585	1.3%	1.1%
North Dakota	42,367	84,413	1.5%	112	0.2%	0.2%
Ohio	2,721,609	2,882,134	8.8%	247	0.5%	0.4%
Oklahoma	166,263	307,744	2.7%	78	0.2%	0.2%
Oregon	133,637	190,920	1.2%	46	0.1%	0.1%
Pennsylvania	26,490,435	25,096,973	54.2%	1,962	3.5%	3.2%
Rhode Island	511,756	611,780	13.3%	581	1.1%	1.0%
South Carolina	2,837,667	2,688,693	18.0%	533	1.2%	1.1%
South Dakota	-	-	0.0%	-	0.0%	0.0%
Tennessee	1,565,203	1,523,914	7.6%	226	0.5%	0.4%
Texas	75,940,032	72,197,269	92.7%	2,532	5.0%	4.0%
Utah	101,616	99,330	1.0%	32	0.1%	0.1%
Vermont	2,369,425	2,259,718	59.2%	3,623	6.7%	6.8%
Virginia	1,359,688	2,230,279	7.7%	266	0.5%	0.4%
Washington	5,825,822	5,478,091	19.1%	733	1.2%	1.0%
West Virginia	1,940,146	3,146,348	46.4%	1,745	4.3%	4.1%
Wisconsin	1,089,700	1,066,094	5.3%	184	0.4%	0.3%
Wyoming	294,517	276,860	10.1%	482	0.8%	0.7%
TOTAL	583,998,262	588,887,786	50.0%	1,813	3.3%	2.9%
MEAN	11,679,965	11,777,756	34.4%	1,552	2.7%	2.4%
MEDIAN	2,248,902	2,474,205	18.5%	611	1.2%	1.1%

ANOL stands for adjusted net OPEB liability.

The State of New York's 2018 fiscal year started before new OPEB accounting rules were effective; therefore, the table reflects metrics based on the state's reported fiscal 2018 unfunded actuarial accrued liability.

Source: Moody's Investors Service, US Bureau of Economic Analysis

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Exhibit 16

Fiscal 2019 state OPEB metrics

State	Reported net OPEB liability ($000)	ANOL ($000)	ANOL as a % of own-source revenues	ANOL per capita ($)	ANOL as a % of personal income	ANOL as a % of state gross domestic product
Alabama	3,147,904	3,199,836	23.1%	654	1.5%	1.4%
Alaska	795,787	5,016,281	56.0%	7,044	11.0%	9.1%
Arizona	875,525	838,132	4.4%	115	0.2%	0.2%
Arkansas	2,260,270	2,220,640	21.6%	737	1.6%	1.7%
California*	92,591,583	94,710,386	49.4%	2,406	3.6%	3.0%
Colorado	1,298,322	1,436,898	8.7%	251	0.4%	0.4%
Connecticut	19,747,233	19,052,752	85.3%	5,354	6.8%	6.7%
Delaware	7,558,335	7,189,167	107.6%	7,409	13.6%	9.5%
Florida	10,551,552	9,979,137	18.5%	466	0.9%	0.9%
Georgia	6,658,960	7,361,990	26.8%	698	1.4%	1.2%
Hawaii	6,969,257	11,277,973	125.9%	8,229	13.9%	11.6%
Idaho	15,031	36,691	0.7%	21	0.0%	0.0%
Illinois	56,136,207	51,310,482	99.2%	4,058	6.9%	5.7%
Indiana	259,852	243,199	1.1%	36	0.1%	0.1%
Iowa	447,355	443,456	3.8%	141	0.3%	0.2%
Kansas	51,559	51,035	0.5%	18	0.0%	0.0%
Kentucky	3,420,530	5,548,645	35.5%	1,247	2.8%	2.6%
Louisiana	9,578,309	8,069,087	53.1%	1,742	3.6%	3.1%
Maine	2,299,722	3,525,741	67.8%	2,626	5.1%	5.2%
Maryland	15,018,851	15,002,426	55.5%	2,496	3.8%	3.5%
Massachusetts	14,242,083	13,749,400	35.8%	1,996	2.7%	2.3%
Michigan	12,020,884	18,327,435	55.7%	1,836	3.6%	3.4%
Minnesota	612,799	601,669	2.0%	107	0.2%	0.2%
Mississippi	181,836	177,189	1.9%	60	0.2%	0.1%
Missouri	3,469,765	4,006,705	28.0%	655	1.3%	1.2%
Montana	95,045	94,172	2.5%	88	0.2%	0.2%
Nebraska	13,937	13,670	0.2%	7	0.0%	0.0%
Nevada	793,040	772,485	12.2%	252	0.5%	0.4%
New Hampshire	2,002,389	1,934,809	49.4%	1,424	2.2%	2.2%
New Jersey	75,926,040	72,508,871	164.3%	8,172	11.5%	11.2%
New Mexico	1,473,126	1,553,540	13.3%	745	1.7%	1.5%
New York	50,886,000	50,267,453	50.8%	2,587	3.6%	2.9%
North Carolina	5,463,548	5,212,656	16.5%	502	1.0%	0.9%
North Dakota	41,407	81,021	1.3%	107	0.2%	0.1%
Ohio	3,056,642	2,844,608	8.2%	244	0.5%	0.4%
Oklahoma	139,536	265,410	2.0%	67	0.1%	0.1%
Oregon	120,556	166,607	0.9%	40	0.1%	0.1%
Pennsylvania	21,243,754	20,382,987	42.8%	1,593	2.7%	2.5%
Rhode Island	496,212	573,088	11.9%	543	1.0%	0.9%
South Carolina	2,965,252	2,712,266	16.9%	531	1.2%	1.1%
South Dakota	-	-	0.0%	-	0.0%	0.0%
Tennessee	1,508,038	1,442,023	7.0%	212	0.4%	0.4%
Texas	72,274,565	69,480,664	85.2%	2,406	4.6%	3.7%
Utah	70,088	65,602	0.6%	20	0.0%	0.0%
Vermont	2,151,213	2,063,696	53.0%	3,310	5.8%	5.9%
Virginia	1,378,457	2,184,375	7.3%	259	0.4%	0.4%
Washington	5,079,882	4,817,302	16.5%	637	1.0%	0.8%
West Virginia	1,644,412	2,625,830	34.6%	1,466	3.5%	3.4%
Wisconsin	860,200	849,309	3.9%	146	0.3%	0.2%
Wyoming	378,052	357,012	11.6%	620	1.0%	0.9%
TOTAL	520,270,902	526,645,808	42.9%	1,614	2.8%	2.5%
MEAN	10,405,418	10,532,916	31.6%	1,528	2.6%	2.3%
MEDIAN	2,076,801	2,423,235	16.7%	629	1.1%	1.0%

*California's ANOL reflects fiscal 2018 figures because of insufficient information for fiscal 2019.
ANOL stands for adjusted net OPEB liability.
Source: Moody's Investors Service, US Bureau of Economic Analysis

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Exhibit 17

Fiscal 2019 NTSD, ANPL and ANOL as a percent of state GDP

FY 2019 rank	State	NTSD as a % of GDP	ANPL as a % of GDP	ANOL as a % of GDP	NTSD + ANPL + ANOL as a % of GDP
1	Connecticut	8.3%	22.2%	6.7%	37.1%
2	Illinois	3.7%	25.6%	5.7%	35.1%
3	New Jersey	5.7%	17.5%	11.2%	34.4%
4	Hawaii	8.0%	13.9%	11.6%	33.6%
5	Alaska	1.6%	19.8%	9.1%	30.5%
6	Kentucky	4.7%	19.3%	2.6%	26.6%
7	Massachusetts	7.2%	13.0%	2.3%	22.5%
8	Vermont	1.9%	13.1%	5.9%	21.0%
9	Delaware	4.2%	7.1%	9.5%	20.9%
10	West Virginia	3.9%	12.2%	3.4%	19.5%
11	Maryland	3.3%	12.5%	3.5%	19.3%
12	Maine	1.9%	10.7%	5.2%	17.8%
13	Rhode Island	3.8%	10.2%	0.9%	15.0%
14	Pennsylvania	2.4%	9.7%	2.5%	14.6%
15	South Carolina	1.0%	11.3%	1.1%	13.4%
16	Montana	0.2%	12.9%	0.2%	13.3%
17	California	2.7%	6.8%	3.0%	12.6%
18	Kansas	2.5%	9.4%	0.0%	12.0%
19	Michigan	1.1%	7.3%	3.4%	11.8%
20	New Mexico	2.3%	7.6%	1.5%	11.3%
21	Texas	0.6%	7.0%	3.7%	11.2%
22	Mississippi	4.8%	6.0%	0.1%	10.9%
23	Louisiana	2.7%	4.9%	3.1%	10.6%
24	New York	3.7%	2.2%	2.9%	8.9%
25	Arkansas	1.2%	5.1%	1.7%	8.0%
26	Colorado	0.9%	6.4%	0.4%	7.7%
27	Oregon	3.4%	4.2%	0.1%	7.7%
28	Washington	3.3%	3.2%	0.8%	7.3%
29	Alabama	1.7%	3.3%	1.4%	6.4%
30	Georgia	1.7%	3.6%	1.2%	6.4%
31	Virginia	2.6%	3.0%	0.4%	6.0%
32	Missouri	0.9%	3.9%	1.2%	6.0%
33	Wisconsin	2.5%	2.8%	0.2%	5.6%
34	New Hampshire	1.1%	2.2%	2.2%	5.5%
35	Minnesota	2.1%	3.2%	0.2%	5.5%
36	Nevada	1.0%	3.9%	0.4%	5.4%
37	Indiana	0.4%	4.7%	0.1%	5.2%
38	Oklahoma	0.6%	4.0%	0.1%	4.7%
39	Ohio	1.9%	2.3%	0.4%	4.7%
40	Wyoming	0.0%	3.5%	0.9%	4.5%
41	Florida	1.5%	2.0%	0.9%	4.5%
42	Arizona	1.0%	3.2%	0.2%	4.4%
43	South Dakota	0.8%	3.2%	0.0%	4.0%
44	Idaho	1.2%	2.8%	0.0%	4.0%
45	North Carolina	1.0%	1.6%	0.9%	3.5%
46	Utah	1.2%	2.2%	0.0%	3.4%
47	North Dakota	0.1%	2.9%	0.1%	3.2%
48	Iowa	0.2%	2.3%	0.2%	2.8%
49	Tennessee	0.5%	1.6%	0.4%	2.5%
50	Nebraska	0.0%	2.1%	0.0%	2.1%
	TOTAL	2.5%	7.0%	2.5%	11.9%
	MEAN	2.3%	7.3%	2.3%	11.9%
	MEDIAN	1.8%	4.8%	1.0%	7.9%

*California's ANOL reflects fiscal 2018 figures because of insufficient information for fiscal 2019.
NTSD stands for net tax-supported debt. ANPL stands for adjusted net pension liability. ANOL stands for adjusted net OPEB liability.
Source: Moody's Investors Service, US Bureau of Economic Analysis

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Exhibit 18

Fiscal 2019 state pension contribution and tread water metrics

State	FY 19 contributions as a % of own-source revenues	FY 19 tread water as a % of own-source revenues	FY 19 contributions as a % of tread water	FY 19 tread water shortfall as a % of own-source revenues
Alabama	2.0%	2.1%	94.3%	0.1%
Alaska	4.6%	4.5%	102.5%	(0.1%)
Arizona*	2.2%	2.8%	80.0%	0.6%
Arkansas	2.5%	2.6%	95.0%	0.1%
California*	5.8%	5.0%	117.0%	(0.8%)
Colorado	4.8%	6.5%	74.5%	1.7%
Connecticut	12.9%	11.7%	110.1%	(1.2%)
Delaware	3.9%	3.4%	114.3%	(0.5%)
Florida	1.2%	1.5%	77.7%	0.3%
Georgia	4.1%	3.0%	139.6%	(1.2%)
Hawaii	5.4%	8.0%	67.2%	2.6%
Idaho	1.8%	1.5%	123.2%	(0.3%)
Illinois	16.1%	21.7%	74.1%	5.6%
Indiana	5.9%	4.2%	139.3%	(1.7%)
Iowa	1.4%	1.4%	105.2%	(0.1%)
Kansas	8.0%	5.4%	148.4%	(2.6%)
Kentucky	12.6%	12.2%	103.2%	(0.4%)
Louisiana	4.6%	3.6%	129.4%	(1.1%)
Maine	5.5%	4.5%	122.3%	(1.0%)
Maryland	7.3%	7.7%	94.5%	0.4%
Massachusetts	6.6%	8.5%	77.0%	2.0%
Michigan	5.4%	4.6%	116.7%	(0.8%)
Minnesota	1.0%	1.1%	92.9%	0.1%
Mississippi	2.1%	2.8%	74.1%	0.7%
Missouri	4.0%	4.5%	90.0%	0.4%
Montana	5.3%	5.5%	95.4%	0.3%
Nebraska	1.7%	1.1%	150.6%	(0.6%)
Nevada	2.6%	3.2%	82.0%	0.6%
New Hampshire	2.3%	2.0%	112.2%	(0.2%)
New Jersey	7.3%	11.3%	64.8%	4.0%
New Mexico	1.7%	2.7%	62.1%	1.0%
New York	2.0%	1.7%	117.2%	(0.3%)
North Carolina	1.6%	1.2%	133.9%	(0.4%)
North Dakota	0.7%	1.6%	41.6%	1.0%
Ohio	1.3%	1.6%	79.3%	0.3%
Oklahoma	6.7%	2.2%	311.8%	(4.6%)
Oregon	1.8%	2.7%	66.4%	0.9%
Pennsylvania	8.8%	8.7%	101.6%	(0.1%)
Rhode Island	6.2%	6.1%	102.8%	(0.2%)
South Carolina	5.7%	6.7%	83.8%	1.1%
South Dakota	1.8%	1.5%	118.7%	(0.3%)
Tennessee*	1.5%	1.1%	140.3%	(0.4%)
Texas	4.6%	7.3%	62.4%	2.7%
Utah	2.6%	1.8%	148.0%	(0.8%)
Vermont	4.7%	4.7%	101.8%	(0.1%)
Virginia	2.3%	2.3%	99.4%	0.0%
Washington	2.9%	1.0%	290.7%	(1.9%)
West Virginia	7.5%	4.2%	177.6%	(3.3%)
Wisconsin*	1.3%	0.9%	152.1%	(0.5%)
Wyoming	1.8%	1.7%	101.1%	(0.0%)
TOTAL	4.9%	5.2%	94.1%	0.3%
MEAN	4.4%	4.4%	111.2%	0.0%
MEDIAN	4.0%	3.1%	102.1%	(0.1%)

*Tread water figures reflect fiscal 2018 tread water indicator because of insufficient information to calculate pension tread water indicator for fiscal 2019.
Certain states' fiscal 2019 pension tread water calculations exclude tread water payments of missing plans. See page 9 for more information.
Sources: Moody's Investors Service, state financial statements

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Exhibit 19

Fixed costs as % of own-source governmental revenue

State	FY 2019 debt service	FY 2019 OPEB contribution	FY 2019 pension contribution	FY 2019 pension tread water	FY 2019 fixed costs (contribution)	FY 2019 fixed costs (tread water)	FY 2018 fixed costs (contribution)	FY 2018 fixed costs (tread water)
Alabama	3.8%	0.6%	2.0%	2.1%	6.4%	6.5%	6.7%	7.0%
Alaska	1.3%	0.7%	4.6%	4.5%	6.6%	6.5%	6.3%	7.5%
Arizona*	3.1%	0.1%	2.2%	2.8%	5.5%	6.0%	6.0%	6.9%
Arkansas	1.9%	0.7%	2.5%	2.6%	5.0%	5.1%	5.6%	6.2%
California*	4.2%	1.3%	5.8%	5.0%	11.4%	10.5%	10.0%	10.6%
Colorado	1.2%	0.3%	4.8%	6.5%	6.3%	8.0%	6.0%	7.4%
Connecticut	14.7%	3.5%	12.9%	11.7%	31.0%	29.8%	29.7%	30.7%
Delaware	5.7%	3.4%	3.9%	3.4%	13.0%	12.5%	12.8%	13.1%
Florida	3.6%	0.4%	1.2%	1.5%	5.2%	5.5%	5.9%	6.3%
Georgia	5.4%	2.4%	4.1%	3.0%	12.0%	10.8%	12.2%	11.3%
Hawaii	9.8%	7.0%	5.4%	8.0%	22.1%	24.7%	21.3%	23.3%
Idaho	1.4%	0.3%	1.8%	1.5%	3.5%	3.1%	3.2%	2.9%
Illinois	9.0%	2.1%	16.1%	21.7%	27.3%	32.9%	29.1%	36.4%
Indiana	1.1%	0.1%	5.9%	4.2%	7.1%	5.5%	6.7%	6.2%
Iowa	2.2%	0.2%	1.4%	1.4%	3.9%	3.8%	2.2%	2.4%
Kansas	4.3%	0.1%	8.0%	5.4%	12.3%	9.7%	9.9%	9.5%
Kentucky	9.3%	1.6%	12.6%	12.2%	23.5%	23.1%	18.2%	21.1%
Louisiana	4.7%	2.0%	4.6%	3.6%	11.3%	10.3%	10.8%	10.0%
Maine	4.6%	2.5%	5.5%	4.5%	12.7%	11.7%	13.0%	12.3%
Maryland	6.8%	1.9%	7.3%	7.7%	15.9%	16.4%	17.0%	17.8%
Massachusetts	10.5%	1.5%	6.6%	8.5%	18.6%	20.5%	18.9%	20.7%
Michigan	2.4%	3.5%	5.4%	4.6%	11.3%	10.6%	10.8%	9.6%
Minnesota	3.2%	0.1%	1.0%	1.1%	4.3%	4.4%	4.4%	4.8%
Mississippi	6.4%	0.1%	2.1%	2.8%	8.6%	9.3%	10.1%	11.0%
Missouri	3.3%	0.8%	4.0%	4.5%	8.2%	8.6%	8.2%	8.8%
Montana	0.9%	0.1%	5.3%	5.5%	6.3%	6.6%	7.0%	6.8%
Nebraska	0.2%	0.0%	1.7%	1.1%	1.9%	1.3%	2.0%	1.6%
Nevada	3.9%	0.4%	2.6%	3.2%	6.9%	7.5%	7.3%	7.9%
New Hampshire	3.8%	1.5%	2.3%	2.0%	7.6%	7.3%	7.6%	7.7%
New Jersey	9.6%	4.3%	7.3%	11.3%	21.3%	25.2%	20.4%	26.0%
New Mexico	3.5%	0.3%	1.7%	2.7%	5.5%	6.5%	5.7%	6.6%
New York	7.5%	1.7%	2.0%	1.7%	11.1%	10.8%	10.8%	10.6%
North Carolina	2.9%	0.7%	1.6%	1.2%	5.2%	4.8%	5.3%	4.9%
North Dakota	0.2%	0.1%	0.7%	1.6%	1.0%	2.0%	1.2%	2.2%
Ohio	5.5%	0.0%	1.3%	1.6%	6.8%	7.1%	6.8%	6.8%
Oklahoma	1.6%	0.2%	6.7%	2.2%	8.5%	4.0%	8.3%	4.8%
Oregon	4.8%	0.2%	1.8%	2.7%	6.7%	7.6%	7.3%	8.2%
Pennsylvania	3.5%	1.5%	8.8%	8.7%	13.8%	13.7%	13.9%	13.8%
Rhode Island	5.8%	1.0%	6.2%	6.1%	13.1%	12.9%	12.6%	12.8%
South Carolina	2.0%	0.7%	5.7%	6.7%	8.4%	9.4%	8.1%	10.1%
South Dakota	2.0%	0.0%	1.8%	1.5%	3.8%	3.5%	4.2%	3.8%
Tennessee*	1.2%	1.4%	1.5%	1.1%	4.1%	3.7%	3.3%	2.8%
Texas	2.5%	1.3%	4.6%	7.3%	8.4%	11.1%	8.2%	10.4%
Utah	3.7%	0.3%	2.6%	1.8%	6.6%	5.7%	7.1%	6.4%
Vermont	2.1%	3.1%	4.7%	4.7%	9.9%	9.8%	8.3%	8.2%
Virginia	4.6%	0.5%	2.3%	2.3%	7.4%	7.4%	7.3%	7.4%
Washington	7.3%	0.3%	2.9%	1.0%	10.6%	8.7%	10.4%	9.0%
West Virginia	4.1%	2.2%	7.5%	4.2%	13.7%	10.5%	16.4%	12.9%
Wisconsin*	5.1%	0.2%	1.3%	0.9%	6.6%	6.2%	6.7%	6.2%
Wyoming	0.1%	0.6%	1.8%	1.7%	2.5%	2.5%	1.9%	2.4%
TOTAL	5.0%	1.3%	4.9%	5.2%	11.2%	11.5%	10.9%	11.7%
MEAN	4.2%	1.2%	4.4%	4.4%	9.8%	9.8%	9.7%	10.1%
MEDIAN	3.8%	0.7%	4.0%	3.1%	7.9%	7.8%	7.9%	8.0%

*Tread water figures reflect fiscal 2018 tread water indicator because of insufficient information to calculate pension tread water indicator for fiscal 2019.
Certain states' fiscal 2019 pension tread water calculations exclude tread water payments of missing plans. See page 9 for more information.
Source: Moody's Investors Service, state financial statements

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Exhibit 20

Fiscal 2019 state pension assets

FY 2019 rank	State	Pension assets ($000)	Pension assets as a % of own-source revenue	Pension asset shock indicator	Assets / benefits for largest plan	NICF for largest plan
1	Montana	6,484,885	172.0%	7.8%	13.4	-3.3%
2	Maryland	48,926,384	181.0%	7.1%	13.4	-2.2%
3	West Virginia	12,899,911	169.8%	6.8%	9.4	-3.4%
4	Texas	133,350,878	163.4%	5.2%	13.4	-2.7%
5	Maine	11,408,541	219.5%	5.0%	13.9	-3.0%
6	Connecticut	30,555,227	136.7%	4.5%	6.5	0.3%
7	Kansas	13,487,453	122.8%	4.3%	11.2	-1.3%
8	Massachusetts	56,790,804	148.1%	4.3%	9.0	-2.8%
9	Kentucky	22,185,910	142.1%	4.2%	9.5	-3.4%
10	Illinois	87,172,491	168.6%	3.5%	7.8	-2.5%
11	Alaska	9,168,341	102.3%	3.4%	11.1	-3.8%
12	Washington	34,883,492	119.7%	2.4%	33.9	0.6%
13	Nevada	6,863,103	108.7%	2.1%	16.7	-1.4%
14	Delaware	8,739,860	130.8%	1.6%	13.6	-3.6%
15	South Dakota	4,235,847	168.5%	1.6%	20.7	-2.8%
16	Pennsylvania	53,492,084	112.2%	1.5%	8.6	-2.1%
17	Wisconsin	27,172,684	126.3%	1.5%	17.8	-3.6%
18	Oklahoma	14,276,144	109.5%	1.3%	14.9	-3.3%
19	Colorado	17,603,129	106.9%	1.2%	9.3	-4.6%
20	South Carolina	16,752,117	104.6%	1.1%	8.8	-2.5%
21	Vermont	3,641,001	93.5%	1.1%	9.7	-2.0%
22	Georgia	28,941,849	105.2%	1.0%	15.6	-2.2%
23	California	202,201,170	105.4%	0.7%	13.6	-1.5%
24	Louisiana	11,877,189	78.2%	0.5%	8.8	-3.7%
25	Hawaii	8,520,704	95.1%	0.3%	11.6	-2.0%
26	Arkansas	8,365,527	81.3%	0.3%	15.1	-2.5%
27	Oregon	14,647,117	82.9%	0.3%	14.4	-4.5%
28	New Jersey	33,194,378	75.2%	0.2%	5.0	-7.3%
29	New York	87,035,333	88.0%	0.2%	16.6	-3.6%
30	Rhode Island	4,067,491	84.7%	0.1%	7.3	-4.6%
31	Nebraska	4,318,138	66.2%	0.1%	19.4	-1.6%
32	New Mexico	8,250,540	70.8%	0.1%	12.3	-4.1%
33	Michigan	34,007,250	103.3%	0.1%	9.9	-3.9%
34	Mississippi	5,148,463	55.3%	0.1%	9.8	-4.5%
35	Idaho	4,127,437	74.7%	0.1%	17.5	-2.0%
36	Virginia	21,332,876	71.5%	0.0%	13.6	-3.4%
37	Missouri	9,119,859	63.8%	0.0%	9.2	-5.4%
38	Minnesota	15,985,360	54.1%	0.0%	15.9	-3.4%
39	Alabama	6,915,251	49.9%	0.0%	10.5	-3.8%
40	Arizona	9,815,151	51.8%	0.0%	11.5	-2.7%
41	Utah	6,220,360	59.9%	0.0%	15.5	-3.1%
42	Tennessee	10,558,051	51.1%	0.0%	16.1	-3.3%
43	Ohio	17,968,725	51.8%	0.0%	13.5	-3.6%
44	Iowa	6,225,362	53.1%	0.0%	15.2	-2.8%
45	Florida	28,628,521	52.9%	0.0%	15.0	-4.3%
46	North Carolina	16,606,526	52.7%	0.0%	15.1	-2.7%
47	Wyoming	1,473,499	48.1%	0.0%	12.8	-3.8%
48	New Hampshire	1,682,884	43.0%	0.0%	11.3	-1.7%
49	North Dakota	1,688,004	27.5%	0.0%	15.5	-1.1%
50	Indiana	8,174,578	37.0%	0.0%	7.6	0.4%
	TOTAL	1,237,187,879	100.9%	NA	NA	NA
	MEAN	24,743,758	96.8%	1.5%	13.0	-2.9%
	MEDIAN	12,388,550	90.7%	0.3%	13.4	-3.1%

Certain states' own-source governmental revenue has been adjusted. See page 9 for more information.
NICF stands for non-investment cash flow.
Sources: Moody's Investors Service, state financial statements

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Exhibit 21

Allocation of pension plan liabilities by state

State	Plan	Allocation
Alabama	Alabama Employees Retirement System	100.0%
	Alabama Judicial Retirement Fund	100.0%
	Teachers' Retirement System of Alabama	4.6%
Alaska	Alaska National Guard and Alaska Naval Militia Retirement System	100.0%
	Alaska Judicial Retirement System	100.0%
	Alaska Public Employees' Retirement System Defined Benefit Retirement Pension	60.9%
	Alaska Teachers' Retirement System	60.1%
Arizona	Arizona Corrections Officer Retirement Plan	100.0%
	Arizona Public Safety Personnel Retirement System	100.0%
	Arizona Elected Officials' Retirement Plan - State	33.1%
	Arizona State Retirement System	21.9%
Arkansas	Arkansas Judicial Retirement System Defined Benefit Plan	100.0%
	Arkansas State Highway Employees Retirement System	100.0%
	Arkansas State Police Retirement System Defined Benefit Plan	100.0%
	Arkansas Public Employees Retirement System	65.8%
	Arkansas Teacher Retirement System	3.6%
California	California Judges' Retirement Fund	100.0%
	California Judges' Retirement Fund II	100.0%
	California Legislators' Retirement Fund	100.0%
	California Public Employees' Retirement System - Peace Officers and Firefighters Plan	98.9%
	California Public Employees' Retirement System-Highway Patrol	100.0%
	California Public Employees' Retirement System-Industrial	100.0%
	California Public Employees' Retirement System-MIS	78.5%
	California Public Employees' Retirement System-SFT	100.0%
	California State Teachers' Retirement System	36.4%
Colorado	DPS Division Trust Fund	34.1%
	Judicial Division Trust Fund	94.9%
	School Division Trust Fund	12.0%
	State Division Trust Fund	96.0%
Connecticut	Connecticut Judicial Retirement System	100.0%
	Connecticut State Employees' Retirement System	98.8%
	Connecticut Teachers' Retirement System	100.0%
Delaware	Closed State Police Pension Plan	100.0%
	Delaware Transit Corporation Contributory Plan	100.0%
	Delaware Transit Corporation Pension Plan	100.0%
	Judiciary Pension Plans (Closed and Revised)	100.0%
	New State Police Pension Plan	100.0%
	Special Fund	100.0%
	State Employees'	89.7%
Florida	Florida National Guard Supplemental Retirement Benefit Plan	100.0%
	Florida Retirement System	17.7%
	Retiree Health Insurance Subsidy Pension Plan	14.6%
Georgia	Peace Officers' Annuity and Benefit Fund	100.0%
	Employees' Retirement System of Georgia	90.6%
	Georgia Firefighters' Pension Fund	100.0%
	Georgia Judicial Retirement System	100.0%
	Georgia Public School Employees' Retirement System	100.0%
	Teachers Retirement System of Georgia	17.2%
	Employees Retirement System of Georgia - Component Units	1.4%
	Teachers Retirement System of Georgia - Component Units	0.6%
Hawaii	Employees' Retirement System of the State of Hawaii	56.1%
Idaho	Judges' Retirement Fund	100.0%
	Public Employee Retirement System of Idaho	24.8%
Illinois	Illinois General Assembly Retirement System	100.0%
	Illinois Judges' Retirement System	100.0%
	Illinois State Employees' Retirement System	100.0%
	State Universities Retirement System of Illinois	100.0%
	Teachers' Retirement System of the State of Illinois	96.3%

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Exhibit 22

Allocation of pension plan liabilities by state (continued)

State	Plan	Allocation
Indiana	Indiana Judges' Retirement System	100.0%
	Legislators' Retirement System	100.0%
	Prosecuting Attorneys' Retirement Fund	100.0%
	State Police Retirement Fund	100.0%
	The State Excise Police, Gaming Agent, Gaming Control Officer, and Conservation Officers' Retirement Plan	100.0%
	Indiana State Teachers' Retirement Fund	0.4%
	Pre-1996 Teachers Retirement	100.0%
	Public Employees' Retirement Fund of Indiana	25.6%
Iowa	Iowa Judicial Retirement System	100.0%
	Peace Officers' Retirement, Accident and Disability System	100.0%
	Iowa Public Employees' Retirement System - Aggregate	16.6%
	Iowa Public Employees Retirement System - Component Units	0.4%
Kansas	Kansas Police and Firemen's Retirement System	9.1%
	Kansas Public Employees Retirement System - School and State	100.0%
	Retirement System for Judges	100.0%
Kentucky	Judicial Retirement Plan	100.0%
	Legislators' Retirement Plan	100.0%
	State Police Retirement System	100.0%
	Kentucky Employees Retirement System (Hazardous)	97.5%
	Kentucky Employees Retirement System (Non-Hazardous)	74.5%
	Teachers' Retirement System of the State of Kentucky	97.1%
Louisiana	Louisiana State Police Retirement System	100.0%
	District Attorneys' Retirement System of Louisiana	45.9%
	Louisiana Clerks of Court Retirement and Relief Fund	8.3%
	Louisiana State Employees' Retirement System	80.2%
	Registrar of Voters Employees' Retirement System	74.5%
	State of Louisiana School Employees' Retirement System	0.4%
	Teachers' Retirement System of Louisiana	4.0%
Maine	Legislative Retirement Program	100.0%
	The Judicial Retirement	100.0%
	MPERS State Employee and Teacher Plan	97.4%
Maryland	State of Maryland- Maryland Transit Administration Pension Plan	100.0%
	Maryland State Retirement and Pension System	93.8%
Massachusetts	Boston Retirement System (State Only)	100.0%
	State Employees' Retirement System	94.6%
	State Teachers Contributory Retirement System	100.0%
Michigan	Michigan Military Retirement System	100.0%
	Michigan State Employees' Retirement System	100.0%
	Michigan State Police Retirement System	100.0%
	Michigan Legislative Retirement System	100.0%
	Judges' Retirement System	100.0%
	Michigan Public School Employees' Retirement System	38.7%
Minnesota	Judges Retirement Fund	100.0%
	Legislators Retirement Fund	100.0%
	State Patrol Retirement Fund	100.0%
	Correctional Employees Retirement Fund	99.9%
	General Employees Retirement Fund	3.6%
	Public Employees Police and Fire Fund	5.3%
	St. Paul Teachers' Retirement Fund	27.6%
	State Employees Retirement Fund	74.5%
	Teachers Retirement Association of Minnesota	11.0%
Mississippi	Mississippi Highway Safety Patrol Retirement System Plan	100.0%
	Mississippi Supplemental Legislative Retirement Plan	100.0%
	Public Employees' Retirement System of Mississippi	17.2%
Missouri	Judicial Plan	100.0%
	Missouri Department of Transportation and Highway Patrol Employees' Retirement System	100.0%
	Missouri State Employees' Plan (MSEP)	82.8%

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Exhibit 23

Allocation of pension plan liabilities by state (continued)

State	Plan	Allocation
Montana	Montana Highway Patrol Officers Retirement System	100.0%
	Montana Judges Retirement System	100.0%
	State of Montana Game Wardens & Peace Officers Retirement System-Primary Government	100.0%
	Firefighters' Unified Retirement System	70.3%
	Montana Teachers' Retirement System	40.3%
	Municipal Police Officers' Retirement System	67.1%
	Public Employees' Retirement System-Defined Benefit Retirement Plan	64.5%
	Sheriffs Retirement System	4.9%
	Volunteer Firefighters' Compensation Act	100.0%
Nebraska	Judges Retirement System	100.0%
	Omaha School Employees' Retirement System	11.1%
	Service Annuity Plan	100.0%
	State Employees' Retirement	100.0%
	State Patrol Retirement System	100.0%
	Nebraska School Employees' Retirement System	17.4%
Nevada	Legislators' Retirement System of Nevada	100.0%
	Nevada Judicial Retirement System	90.2%
	Public Employees' Retirement System of Nevada	16.5%
New Hampshire	New Hampshire Judicial Retirement Plan	100.0%
	New Hampshire Retirement System	18.4%
New Jersey	Public Employees' Retirement System -State Only	100.0%
	Police and Firemen's Retirement System - State Only	100.0%
	New Jersey Consolidated Police and Firemen's Pension Fund	100.0%
	New Jersey State Police Retirement System	100.0%
	New Jersey Judicial Retirement System	100.0%
	New Jersey Prison Officers' Pension Fund	100.0%
	Teachers' Pension and Annuity Fund of New Jersey	100.0%
New Mexico	New Mexico Judicial Retirement Fund	100.0%
	Magistrate Retirement Fund	100.0%
	Volunteer Firefighters Retirement Fund	100.0%
	Educational Employees' Retirement Plan	0.3%
	Public Employees Retirement Fund	52.7%
New York	New York State and Local Employees' Retirement System	45.4%
	New York State and Local Police and Fire Retirement System	20.8%
North Carolina	Consolidated Judicial Retirement System	100.0%
	Legislative Retirement System	100.0%
	North Carolina National Guard Pension Fund	100.0%
	Firefighters and Rescue Squad Workers Pension Fund	0.0%
	Teachers' and State Employees'	21.8%
	Teachers and State Employees - Other	0.2%
North Dakota	Retirement Plan For The Employees of Job Service North Dakota	100.0%
	The North Dakota Highway Patrolmen's Retirement System	100.0%
	North Dakota Public Employees Retirement System - Main System	50.4%
	North Dakota Teachers Fund for Retirement	0.7%
Ohio	State Highway Patrol Retirement System	100.0%
	Ohio Public Employees Retirement System - Combined Benefit Plan	19.6%
	Ohio Public Employees Retirement System - Traditional Plan	20.9%
	State Teachers Retirement System of Ohio	0.4%
Oklahoma	Oklahoma Law Enforcement Retirement System	100.0%
	Uniform Retirement System for Justices and Judges	100.0%
	Wildlife Conservation Retirement Plan	100.0%
	Oklahoma Police Pension and Retirement Plan	48.4%
	Oklahoma Public Employees Retirement System	78.1%
	Teachers' Retirement System of Oklahoma	26.5%
Oregon	Oregon Public Employees Retirement System	21.1%
Pennsylvania	Commonwealth of Pennsylvania State Employees' Retirement System	82.6%
	Pennsylvania Public School Employees' Retirement System	55.4%

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Exhibit 24

Allocation of pension plan liabilities by state (continued)

Rhode Island	Judicial Non-Contributory Retirement Plan	100.0%
	Judicial Retirement Benefits Trust	100.0%
	RI Judicial Retirement Fund Trust	100.0%
	State Police Retirement Fund Trust	100.0%
	State Police Retirement Benefits Trust	100.0%
	Employees' Retirement System of Rhode Island - State Employees	89.5%
	Employees' Retirement System of Rhode Island - Teachers	42.7%
South Carolina	General Assembly Retirement System	100.0%
	Judges and Solicitors Retirement System	100.0%
	National Guard Supplemental Retirement Plan	100.0%
	South Carolina Police Officers Retirement System	29.2%
	South Carolina Retirement System	57.6%
South Dakota	South Dakota Retirement System	21.1%
	South Dakota Retirement System - Component Units	15.3%
Tennessee	Closed State and Higher Education Employee Pension Plan	69.8%
	State and Higher Education Employee Pension Plan	71.0%
Texas	Texas Employees Retirement System of Texas Plan	100.0%
	Texas Law Enforcement and Custodial Officer Supplemental Retirement Plan	100.0%
	Texas Judicial Retirement System of Texas Plan One	100.0%
	Texas Judicial Retirement System of Texas, Plan Two	100.0%
	Teacher Retirement System of Texas	67.4%
	Texas Emergency Services Retirement System	27.8%
Utah	Public Employees Contributory Retirement System - State and School	28.9%
	Public Employees Non-Contributory Retirement System - State and School	23.0%
	Public Safety Retirement System - State	97.6%
	The Judges Retirement System	100.0%
	The Utah Governors and Legislators Retirement Plan	100.0%
	Firefighters Retirement System	3.8%
	Tier 2 Public Employees Contributory Retirement System	18.2%
	Tier 2 Public Safety and Firefighter Contributory Retirement System	24.1%
Vermont	Vermont State Retirement System	98.2%
	State Teachers' Retirement System	100.0%
Virginia	Virginia Judicial Retirement System	100.0%
	State Police Officers' Retirement System	100.0%
	Virginia Law Officers' Retirement System	100.0%
	Virginia Retirement System - State	100.0%
Washington	Judges' Retirement Fund	100.0%
	Judicial Retirement System	100.0%
	State Patrol Retirement System Plan 1/2	100.0%
	Law Enforcement Officers' and Fire Fighters' Retirement System Plan 1	87.1%
	Law Enforcement Officers' and Fire Fighters' Retirement System Plan 2	40.2%
	Public Employees' Retirement System Plan 1	42.0%
	Public Employees' Retirement System Plan 2/3	50.4%
	Public Safety Employees' Retirement System Plan 2	50.5%
	Teachers' Retirement System Plan 1	1.1%
	Teachers' Retirement System Plan 2/3	1.1%
West Virginia	West Virginia Judges' Retirement System Plan	100.0%
	West Virginia Police Retirement System Plan	100.0%
	West Virginia State Police Death, Disability, and Retirement System Plan	100.0%
	Public Employee' Retirement System	66.4%
	Teachers' Retirement System	94.9%
Wisconsin	Wisconsin Retirement System	27.7%
Wyoming	Air Guard Firefighter Pension Plan	100.0%
	Judicial Pension Plan	100.0%
	Highway Patrol, Game and Fish Warden, Division of Criminal Investigators and Capital Police	40.1%
	Public Employees Pension Plan	18.7%
	Wyoming Law Enforcement	18.5%

Sources: Moody's Investors Service, state financial statements and actuarial reports

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Moody's related publications

Sector Research

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- » State and local government - US: Tension rises between pension funding and budgets strained by coronavirus shock, July 10, 2020
- » State Government - US: Coronavirus will weigh on fiscal 2021 state tax revenue despite bump in employment, July 8, 2020
- » State government - US: Medians - State debt declined in 2019, but likely to grow in coming years, May 12, 2020
- » State and local government - US: Low interest rates do not insulate governments from pension bond risks, April 24, 2020
- » State government - US: Revenue recovery from coronavirus hit will lag GDP revival, prolonging budget woes, April 24, 2020
- » State and local government - US: 2020 pension investment losses poised to inflict material credit damage, March 24, 2020
- » Local government - US: Pensions remain the dominant liability for most of the largest local governments, December 19, 2019
- » State government - US: Growing school pension burdens will require more state support, April 9, 2019
- » State and local government - US: New OPEB accounting sheds light on credit impact of retiree healthcare liabilities, October 17, 2018

Outlook

- » State government - US: State outlook revised to negative as coronavirus impact deepens, May 1, 2020

Methodology

- » Adjustments to Pension and OPEB Data Reported by GASB Issuers, Including US States and Local Governments, October 7, 2019
- » US States and Territories, April 12, 2018

Endnotes

1 Own-source revenue is the total governmental revenue, less funds received from federal sources plus net transfers in, as reported in audited financial statements.

2 We forecast a nominal US GDP decline of 5.1% to $20.3 trillion in 2020.

3 The average pension plan investment return is based on a 56-plan representative sample.

4 The FTSE Pension Liability Index is published monthly by the Society of Actuaries and was formerly called the Citi Pension Liability Index (CPLI).

5 Our tread water indicator is calculated as the sum of employer service cost for the fiscal year and interest on the reported net pension liability at the start of the fiscal year. A pension plan that receives contributions equal to tread water will end the year with an unchanged net pension liability from the beginning of the year, if plan assumptions hold exactly.

6 The Arizona State Retirement System comprehensive annual financial report (CAFR) does not provide a breakdown of all plan members. To approximate the percentage of plan members related to school districts, we used the share of school district employees from the top 10 participating employers, excluding the state.

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APPENDIX C

RATING ACTION COMMENTARY

Fitch Affirms Vermont's IDR and GO Bonds at 'AA+'; Outlook Stable

Fri 26 Jun, 2020 - 1:34 PM ET

Fitch Ratings - New York - 26 Jun 2020: Fitch Ratings has affirmed the following ratings for the state of Vermont:

--Issuer Default Rating (IDR) at 'AA+';

--Outstanding general obligation (GO) bonds at 'AA+';

--Outstanding Vermont Municipal Bond Bank (VMBB) bonds issued under the 1988 general resolution rated by Fitch at 'AA-'.

The Rating Outlook is Stable.

SECURITY

The GO bonds are general obligations of the state of Vermont backed by the state's full faith and credit.

The Vermont Municipal Bond Bank's 1988 General Resolution bonds rated by Fitch benefit from enhancement provided by Vermont's moral obligation pledge.

ANALYTICAL CONCLUSION

The 'AA+' IDR and GO rating reflect conservative financial management, including prompt action to address projected budget gaps as they emerge and maintenance of sound reserves, both of which position the state well to absorb budgetary implications of the coronavirus pandemic. The moderate long-term liability burden, measured as a percentage of personal income, is above the median for U.S. states but should remain relatively stable given Vermont's close oversight and management of debt issuance and policy changes to improve pension sustainability over time.

The 'AA-' rating on the Vermont Municipal Bond Bank's 1988 General Resolution bonds is due to the linkage with the state's IDR. The rating reflects the enhancement provided by Vermont's moral obligation pledge. The two-notch distinction is warranted by the broad state purposes served by the bonds and the state's involvement in the program as evidenced by the makeup of the board of directors (including the state treasurer and gubernatorial appointees) and a related state aid intercept provision.

ECONOMIC RESOURCE BASE

Vermont's small and modestly growing economy has a larger-than-average reliance on health and educational services, manufacturing, and tourism and remains exposed to several key large employers. During the Great Recession, Vermont's peak-to-trough monthly employment loss of 4.8% (seasonally adjusted levels) was less severe than the national 6.3% decline. But the state's jobs decline in the current coronavirus-driven downturn has been materially weaker than the rest of the nation with a 22.9% peak-to-trough decline versus 14.5% for the nation. The state's initial rebound in on-farm payrolls off that trough has outpaced national gains, though overall levels remain depressed across the U.S.

Vermont's population is older than most states, and growth has been relatively limited. The state's labor force has been flat to declining over the past decade, in contrast to slow growth at the national level. As with several other New England states, high educational attainment levels

provide some potential for economic gains, but Vermont has not fully benefited from that potential to date.

KEY RATING DRIVERS

Revenue Framework: 'aa'

Fitch anticipates Vermont's revenues used for state operations will grow at a modest pace, consistent with our long-term expectations for the state's economy. Property taxes represent the largest component of state revenues and have grown at a robust rate, but these revenues do not drive the state's overall revenue framework. Property tax revenues are essentially passed through to school districts and are adjusted annually based on multiple factors including decisions of voters in those school districts. The state has complete legal control over its revenues.

Expenditure Framework: 'aaa'

The state maintains ample expenditure flexibility with a low burden of carrying costs for liabilities and the broad expense-cutting ability common to most U.S. states. Vermont has been particularly focused on addressing healthcare spending, including Medicaid, which is a key expense driver.

Long-Term Liability Burden: 'aa'

Vermont's long-term liabilities burden is above the median for U.S. states but remains moderate.

Operating Performance: 'aaa'

Fitch anticipates Vermont will utilize its broad gap-closing capacity to manage through economic downturns while maintaining a high level of fundamental financial flexibility. The state has taken steps during the expansion to expand its flexibility and position itself well for the next downturn.

RATING SENSITIVITIES

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

Material and sustained improvement in the state's demographic profile, such as through consistent population and labor force gains, could support stronger revenue growth prospects and a more robust revenue framework assessment.

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

--A severe economic contraction extending well into the second half of the year or beyond, consistent with Fitch's coronavirus downside scenario, which triggers greater than anticipated, sustained and deep revenue declines and materially erodes the state's gap-closing capacity.

--Once economic recovery begins, an unanticipated and sustained deviation from Vermont's demonstrated commitment to improving its fiscal resilience and carefully managing its long-term liability burden, particularly in the context of modest long-term revenue growth expectations.

BEST/WORST CASE RATING SCENARIO

International scale credit ratings of Public Finance 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 coronavirus outbreak creates an uncertain global environment for U.S. state and local governments and related entities in the near term. As severe limitations on economic activity have only affected states in recent months, state governments' fiscal and economic data have yet to fully reflect the implications. Material changes in revenues and expenditures are occurring across the country and likely to worsen in the near term. Fitch's ratings are forward looking, and Fitch will monitor developments in state and local governments as a result of the virus outbreak as it relates to severity and duration and incorporate revised expectations for future performance and assessment of key risks.

In its baseline scenario, Fitch assumes sharp economic contractions hit major economies in the first half of 2020 at a speed and depth that is unprecedented since World War II. Recovery begins from the third quarter of 2020 onward as the health crisis subsides after a short but severe global recession. GDP remains below its fourth quarter 2019 level until mid-2022. Additional details, including key assumptions and implications of the baseline scenario and a downside scenario, are described in the April 2020 report 'Fitch Ratings Coronavirus Scenarios: Baseline and Downside Cases - Update' and 'Fitch Ratings Updates Coronavirus Scenarios for U.S. State and Local Tax-Supported Issuers' on www.fitchratings.com.

Federal Aid Provides Some Support for State Budgets

Federal aid measures enacted in recent months will benefit state budgets, although details remain fluid. The Families First Coronavirus Response included a 6.2 percentage point (pp) 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. Vermont anticipates receiving $38 million in the first half of 2020 from the enhanced FMAP. The ultimate value of the FMAP rate increase will depend primarily on the state's actual Medicaid spending.

Under the Coronavirus Aid, Relief and Economic Security (CARES) Act enacted on March 27, the U.S. Treasury department distributed $150 billion to state and local governments using a population-based formula. The statute limits the use of funds to coronavirus expense reimbursement rather than to offset anticipated state tax revenue losses. Vermont received the statutory minimum of $1.25 billion. The legislature and governor have put forward various proposals to utilize the funding including support for higher education and healthcare institutions, expanded broadband capacity and businesses affected by the coronavirus. The state also anticipates reserving between $200 million - $250 million for revenue replacement in case Congress revises the statutory limitations on the funding, as some recent federal legislation has proposed.

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 $31 million to Vermont, with a minimum of approximately $28 million designated for local school districts, all to be spent within one year of receipt for a fairly broad set of allowable uses.

Coronavirus - Vermont Liquidity Update

Fitch anticipates Vermont will address short-term liquidity pressure with no interruption in timely payments for key operating expenses, including debt service. The state does not intend to access the Federal Reserve's $500 billion Municipal Liquidity Facility.

Vermont extended its due date for personal and corporate income tax (PIT and CIT) payments by 90 days, to July 15, aligning with the federal government's extension. The state currently estimates the extension could shift receipt of approximately $130 million in income tax collections to July 15, which Vermont will accrue back into fiscal 2020 for accounting and reporting purposes. Other tax deferrals increase the total shift to almost $140 million. Fitch estimates these deferrals at about 9% of the state's most recent (June 8) fiscal 2020 forecast for general fund revenues of $1.5 billion. Lower tax collections attributable to the economic downturn will also reduce liquidity. In its June 8 forecast, the state estimates a $60 million YOY decline in general fund revenues in fiscal 2020, or approximately 4%, attributable to economic weakening. The shortfall versus the January 2020 consensus forecast (the last pre-pandemic estimate) is $41 million or 3%.

Vermont retains ample resources to address the potential cash flow gap of nearly $200 million (estimated shift plus economic decline). As of May 31, 2020, the state held just under $300 million in unrestricted cash balances, which includes $224 million of dedicated general fund operating reserves, $14 million in the transportation fund reserve and $37 million in the education fund reserve. The state also has the $1.25 billion in CARES Act funding noted earlier. While the state is developing specific plans for allocating this funding, only a small portion has actually been spent to date and therefore remains a potential source of short-term liquidity, particularly to bridge the delayed PIT and CIT payments.

Coronavirus - Vermont Budgetary Update

Vermont is well positioned to utilize its superior gap-closing capacity to manage through the current downturn, despite initial economic data implying substantial job losses exceeding that of other states. Following a steep decline in April of more than 20% from the prior month, Vermont's non-farm payrolls jumped up more than 6% in May. This compares to a national decline of just under 14% in April and a more modest nearly 2% increase in May. Payrolls for Vermont, and the nation, remain well below pre-pandemic levels reflecting the deep and sustained economic dislocation. High-frequency economic data indicates similar trends. Tracktherecovery.org reports consumer spending in Vermont declined nearly 38% in early April from January 2020 levels, compared to a 31% to 32% trough for the U.S. As of mid-June Vermont's consumer spending is down 6% versus 9% for the U.S.

In the June 8 revenue forecast, Vermont estimated a less than 3% ($41 million) fiscal 2020 decline in the general fund versus the January 2020 forecast and a 4% decline in its combined primary operating funds of $106 million. Primary operating funds include the general, education and transportation fund, net of the statewide property tax and transportation infrastructure bond revenues allocated for dedicated tax bond debt service. Versus the prior year, the revenue shortfall is $87 million across the primary operating funds, also 4%. The state's estimate of PIT and CIT revenues deferred until the July 15 deadline mitigates the projected revenue loss but also creates some uncertainty as those levels are unknown until collected.

To address the revenue gap for fiscal 2020, the state recently enacted a fiscal 2020 budget adjustment act that primarily uses a combination of the enhanced FMAP ($35 million), additional fund transfers ($8 million) and previously unallocated balances ($8 million in the education fund). The state also made immediate spending reductions including a hiring freeze effective in April, travel restrictions for state employees and holding off on new programs and expansion of existing programs.

For fiscal 2021, the revenue forecast is considerably more negative and uncertain, and the state is taking reasonable measures to position itself to address the resulting fiscal challenges. The June 8 forecast anticipates an 11% YOY general fund revenue decline ($176 million), and a nearly 9% decline across primary operating funds ($203 million). The state legislature and governor are negotiating a short-term budget covering the first quarter of fiscal 2021 (through September 30) to allow the state government to continue operating while providing additional time to assess economic and revenue conditions before adopting a full-year spending plan. The budget essentially holds funding flat with most agencies authorized to spend up to 25% of their fiscal 2020 funding levels. Debt service and retirement costs are fully funded for the year. Vermont's legislature will reconvene in August and anticipates receiving an updated consensus revenue forecast reflecting new economic and fiscal data, including final collections of income taxes deferred to the new July 15 deadline.

The state retains $224 million in general fund dedicated operating reserves and $274 million across all primary operating funds, covering 11% of projected fiscal 2020 revenues across all primary operating funds. Neither the fiscal 2020 budget adjustment act nor the anticipated interim fiscal 2021 budget utilize the dedicated operating reserves. The state may utilize a portion of the transportation funding reserve (currently $14 million) to balance fiscal 2020 for that fund on a cash basis. During the Great Recession, and again in a more recent shortfall, the governor, legislature, and other key stakeholders including employee unions, worked quickly to develop spending rescission plans to address emerging deficits. The state's recent trend has been to focus on expenditure cuts, such as negotiated wage reductions or programmatic cuts, rather than revenue increases, and Fitch anticipates that trend will continue. Vermont projects that the spending restrictions implemented several months ago and noted above will lead agencies to end fiscal 2020 with unspent appropriations that can be carried forward into fiscal 2021 to help mitigate overall tax revenue losses.

May 2020 revenue collections reported by the state are generally consistent with the June 8 forecast, after accounting for the state's estimate of the effects of delaying income tax payment deadlines. General fund collections of $1.5 billion were down 8% YOY ($117 million). Across all three primary operating funds, total revenues were down 6% YOY ($124 million).

Updated FAST Scenario Analysis for Vermont

The Fitch Analytical Stress Test (FAST) scenario analysis model, which relates historical tax revenue volatility to GDP to support the assessment of operating performance under Fitch's criteria, has now been adjusted to reflect GDP parameters consistent with Fitch's global coronavirus forecast assumptions. FAST is not a forecast, but it represents Fitch's estimate of possible revenue behavior in a downturn based on historical revenue performance. Hence, actual revenue declines will vary from FAST results. FAST does provide a relative sense of the risk exposure of a particular state compared to other states.

Vermont has robust financial resilience that should allow it to absorb the budgetary effects of Fitch's coronavirus baseline scenario and ultimately rebuild that resilience through the eventual recovery period. The state appears to be less vulnerable to cyclical revenue declines tied to economic downturns than most other states. The current coronavirus baseline scenario results in a 9% first-year decline in Vermont's revenues, followed by a 7% increase in year two and a cumulative 1.5% increase over the three-year scenario. This compares to the states' median decline of 16.6% in the first year and negative 5.8% over the three-year scenario.

A more severe recession of the depth and duration of Fitch's downside scenario would pose more of a challenge to the state's financial resilience but one Vermont still appears positioned to absorb without materially affecting its long-term ability to restore and then maintain robust financial resilience. Under this scenario Vermont's first-year decline would be 18%, followed by a rebound of 9% in the second year. The

cumulative three-year decline of 7% is stronger than the median 21.5% decline for all states reflecting the state's lower revenue sensitivity to national economic downturns.

CREDIT PROFILE

For additional information on the state's general credit, please see Fitch's press release " Fitch Downgrades Vermont's IDR to 'AA+'; Rates $125MM GOS 'AA+'; Outlook Stable" dated July 10, 2019 and available at 'www.fitchratings.com.

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

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RATING ACTIONS

ENTITY/DEBT	RATING			PRIOR
Vermont, State of (VT) [General Government]	LT IDR	AA+ Rating Outlook Stable	Affirmed	AA+ Rating Outlook Stable
• Vermont Municipal Bond Bank (VT) /Revolving Fund Revenues - 1988 General Resolution/1 LT	LT	AA- Rating Outlook Stable	Affirmed	AA- Rating Outlook Stable
• Vermont,	LT	AA+ Rating Outlook Stable	Affirmed	AA+ Rating

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FITCH RATINGS ANALYSTS

Eric Kim
Senior Director
Primary Rating Analyst
+1 212 908 0241
Fitch Ratings, Inc. Hearst Tower 300 W. 57th Street New York 10019

Marcy Block
Senior Director
Secondary Rating Analyst
+1 212 908 0239

Douglas Offerman
Senior Director

Committee Chairperson
+1 212 908 0889

MEDIA CONTACTS

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) (including rating assumption sensitivity)

APPLICABLE MODELS

Numbers in parentheses accompanying applicable model(s) contain hyperlinks to criteria providing description of model(s).

FAST States & Locals - Fitch Analytical Stress Test Model, v2.4.0 (1)

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Dodd-Frank Rating Information Disclosure Form

Solicitation Status

Endorsement Policy

ENDORSEMENT STATUS

Vermont Municipal Bond Bank (VT)	EU Endorsed
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US Public Finance | North America | United States

APPENDIX D

MOODY'S
INVESTORS SERVICE

CREDIT OPINION
11 June 2020

Contacts

Matthew Butler +1.212.553.7108
VP-Senior Analyst
matthew.butler@moodys.com

Marcia Van Wagner +1.212.553.2952
VP-Sr Credit Officer
marcia.vanwagner@moodys.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
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Vermont (State of)

Update to credit analysis

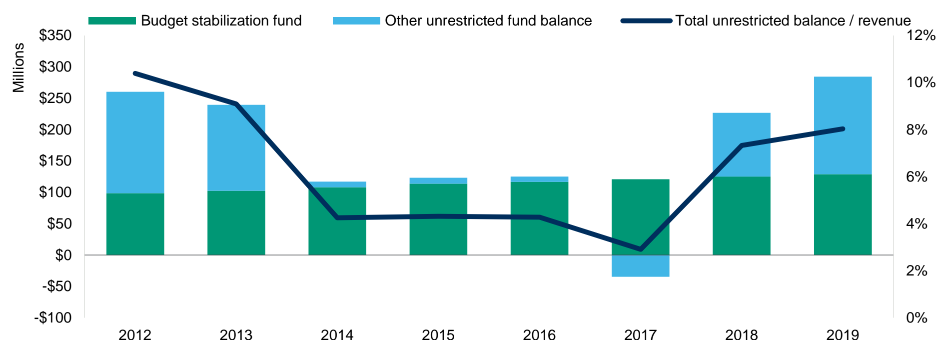
Summary

The State of Vermont (Aa1 stable) has enhanced its financial position over the past couple years, putting it in a good place to address the fiscal challenges brought about by the coronavirus outbreak. The state projects a notable loss in revenue for fiscal 2020, driven largely by the shift in the state's income tax filing deadline to July 15 from April 15. To plug the near-term gap caused by the shift in revenue collection, Vermont may tap into its budget reserves or borrow from its federal coronavirus relief aid. The state would replenish its reserves or repay any short-term borrowing once delayed income taxes are received in July. The state projects further revenue loss in fiscal 2021, but headed into this situation with very strong liquidity.

Vermont has the smallest US state economy and has the second smallest population, but resident income is above average and educational attainment is high. Over the long term, an aging population may be a drag on future growth and Vermont's performance on multiple economic measures has lagged that of the US for years.

With slower than average growth, Vermont's long-term liabilities will weigh more heavily on its economic base. Vermont's leverage, measured by combined debt and unfunded post-employment obligations relative to GDP, is high among US states. Still, we do not anticipate a major negative shift in the state's fixed cost burden in the coming years and, overall, we expect the state's credit standing to remain strong. As a US state, Vermont has broad flexibility to adjust its finances in response to operating challenges.

Exhibit 1
Budget stabilization reserves and other fund balance across Vermont's three primary operating funds



Balances and revenue reported in the state's general, transportation and education funds
Source: Vermont's comprehensive annual financial reports and Moody's Investors Service

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We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety. We do not see any material immediate credit risks for Vermont. However, the situation surrounding coronavirus is rapidly evolving and the longer term impact will depend on both the severity and duration of the crisis. If our view of the credit quality of Vermont changes, we will update our opinion at that time.

Credit strengths

» Although Vermont's economy is the smallest of all US states, resident income is above average, educational attainment is high, and unemployment is low

» Financial operations and budget reserves are sound and stable, and liquidity is very healthy

Credit challenges

» The state's economic performance lags that of the US and many state peers, and an aging population may be a drag on future growth

» Relative to state GDP, Vermont's leverage (combined debt and unfunded post-employment liabilities) is higher than most states

Rating outlook

The stable outlook reflects the expectation that Vermont's economic fundamentals, financial position and fiscal management will remain strong and support the current rating.

Factors that could lead to an upgrade

» Improved demographic and economic trends that more closely track those of the nation and other highly rated states

» Moderated leverage, especially unfunded pensions and retiree health care liabilities, relative to state GDP

Factors that could lead to a downgrade

» Substantial growth in debt or unfunded post-employment liabilities

» A slowdown in economic expansion or revenue growth

» A departure from strong fiscal management practices

Key indicators

Exhibit 2

Vermont (State of)	2015	2016	2017	2018	2019	50-State Median (2018)
Operating Fund Revenues (000s)	2,858,148	2,927,613	2,963,227	3,093,639	3,542,301	11,520,082
Available Balances as % of Operating Fund Revenues	4.3%	4.3%	2.9%	7.3%	8.0%	7.8%
Nominal GDP (billions)	30.7	31.7	32.2	33.3	34.8	234.5
Nominal GDP Growth	4.5%	3.3%	1.6%	3.4%	4.5%	4.6%
Total Non-Farm Employment Growth	0.9%	0.3%	0.6%	0.2%	0.1%	1.1%
Fixed Costs as % of Own-Source Revenue	6.6%	7.6%	8.1%	8.2%	8.4%	8.2%
Adjusted Net Pension Liabilities (000s)	3,689,889	4,034,179	5,123,076	4,882,266	4,563,037	12,209,760
Net Tax-Supported Debt (000s)	627,192	666,935	615,759	716,626	661,983	4,146,966
(Adjusted Net Pension Liability + Net Tax-Supported Debt) / GDP	14.0%	14.8%	17.8%	16.8%	15.0%	7.8%

Source: Vermont's audited financial statements, the US Bureau of Economic Analysis and Moody's Investors Service

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Profile

The State of Vermont is located in the northeast United States. Its population of just under 627,000 is the second lowest in the country. It has the smallest economy among US states, measured by a 2019 gross domestic product of about $35 billion.

Detailed credit considerations

Economy

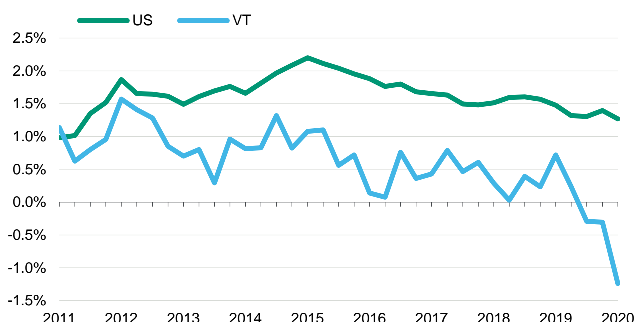
Since the second week of March, there have been about 65,000 new claims for unemployment insurance in the State of Vermont. This is 20% of the state's February 2020 nonfarm employment, a ratio that places Vermont in line with the average value for the nation (20%) on this measure. Vermont came under a governor-issued “stay-at-home” order on March 24. As in most states, this order is a big driver of the significant jump in unemployment insurance claims. The governor's order has been extended through June, though the state is beginning to relax certain restrictions.

The long-term economic impact of the coronavirus outbreak on Vermont is uncertain, as it is for the other forty-nine states. Vermont's underlying economic profile is healthy. Per capita and median household income in Vermont are slightly higher than those of the entire US, and rank 19th and 20th, respectively, among the 50 US states. Educational attainment in the state is high, with Vermont ranking 8th among states in the share of residents having earned a bachelor's degree or higher, according to the US Census Bureau.

At the same time, tourism and hospitality play important roles in the state's economy and those sectors could face persistent challenges returning to their prior levels of output even after the state's economy becomes more open. Further, weak demographic trends in Vermont have been a driver of economic performance that lagged the US for a good part of the last decade (see Exhibits 3-6) and could hamper the state's recovery and long-term growth.

Exhibit 3

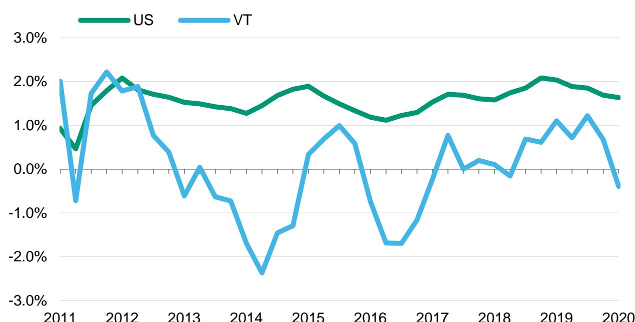
Year-over-year change in quarterly nonfarm employment



Source: Moody's Analytics

Exhibit 4

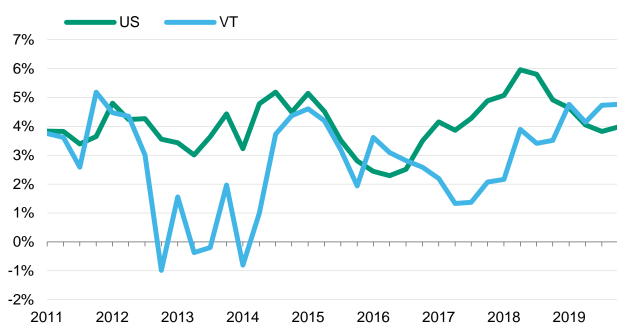
Year-over-year change in quarterly high wage jobs



Source: Moody's Analytics

Exhibit 5

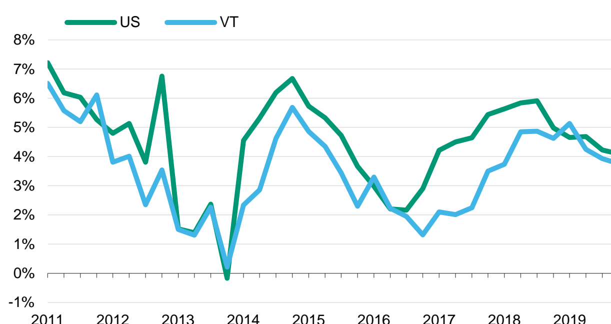
Year-over-year change in quarterly nominal GDP



Source: US Bureau of Economic Analysis

Exhibit 6

Year-over-year change in quarterly personal income



Source: US Bureau of Economic Analysis

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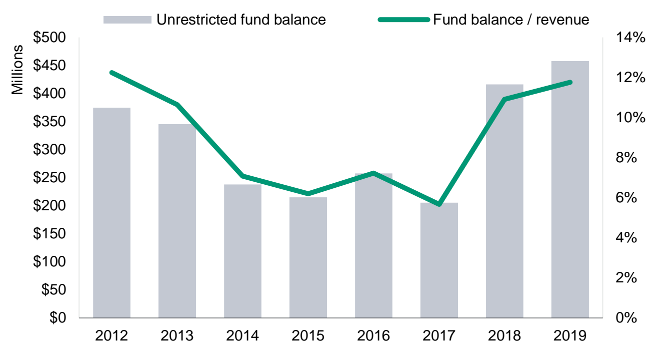
Finances

Prior to the coronavirus outbreak, Vermont's financial position was healthy amid steady revenue growth and maintenance of reserves. Exhibit 1 above shows the unrestricted fund balance, including designated budget reserves, of the state's three primary operating funds. At the close of fiscal 2019, the budget stabilization reserves in these three major funds - general, education and transportation funds - were $77 million, $35 million and $13.5 million, respectively. In the aggregate, budget stabilization reserves were up $4 million relative to the prior year. The state maintains its formal budget stabilization reserves at 5% of the prior year's spending.

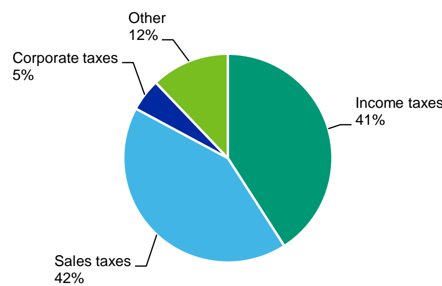
Vermont also holds unrestricted fund balance in other governmental funds and, across all governmental activities, fund balance remains strong as a share of the state's own-source revenue.

Exhibit 7
Fund balance across all governmental funds



Unrestricted fund balance is the sum of reported unassigned, assigned and committed balances across all governmental funds. Revenue is governmental funds own-source revenue.
Source: Vermont's comprehensive annual financial reports and Moody's Investors Service

Exhibit 8
Composition of revenue in Vermont's three primary operating funds



Sources are shown as percentages of combined general, transportation and education fund revenue less property taxes and federal funds.
Source: State of Vermont

Vermont relies most heavily on personal income and sales taxes (see Exhibit 8), which will fall below prior expectations for the forthcoming fiscal 2021 given the recent economic disruption. The state also accounts for school district property taxes in its financial statements because the taxes are pooled in the state's education fund. However, the property taxes are restricted for education and levied, per statute, as an education tax. The state cannot use the property taxes to cover state spending other than education.

The state's most recent financial forecast assumes fiscal 2020 revenue across its three primary operating funds will be nearly 6% below January projections. A large portion of this is driven by an expected shift in income taxes. On a cash basis, this means the state may dip into its budgetary reserves by the close of fiscal 2020 with expectations to replenish reserves in July once income taxes are received. On an accrual basis, however, the state anticipates it will ultimately close fiscal 2020 without using its budget stabilization reserves.

The legislature has passed a 3-month budget for fiscal 2021 that provides state agencies spending authority through September 2020. The budget has not yet been enacted. The appropriations act would, however, provide full year funding of debt service and pension contributions. The state expects revisiting its spending plan in late summer once it has further information on how revenue is performing.

LIQUIDITY

Across government activities, Vermont's cash is healthy. Vermont rapidly rebuilt its cash reserves after the 2007-09 recession and has kept liquidity at a strong level. Exhibit 9 below shows the monthly average of unrestricted cash held for core operations by fiscal year as reported by the state treasurer. Exhibit 10 shows year-end cash and investments held across all governmental funds as reported in the state's comprehensive annual financial reports.

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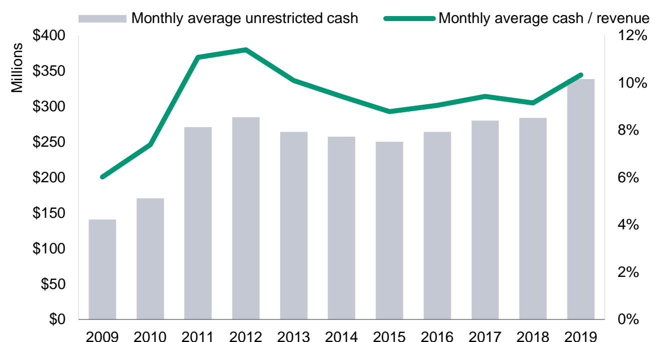
Exhibit 9

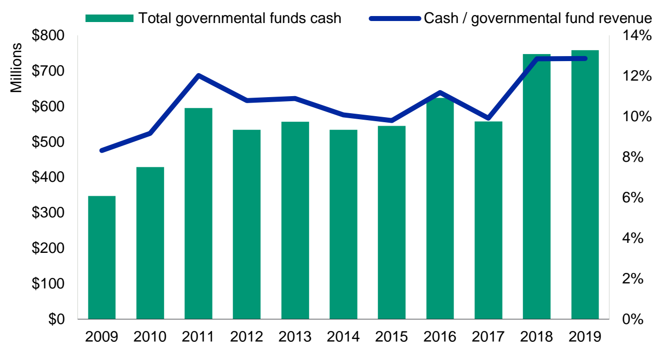
Unrestricted cash across Vermont's three primary operating funds



Source: State of Vermont and Moody's Investors Service

Exhibit 10

Cash and investments across total governmental funds



Source: Vermont's comprehensive annual financial reports and Moody's Investors Service

Debt and pensions

Vermont's debt burden will remain moderate, but it carries a heavy post-employment liability burden and slower economic expansion could weaken the state's leverage ratios over time.

Vermont's net tax supported debt (NTSD) ratios are very close to state medians. However, as a share of state nominal GDP, Vermont's adjusted net pension liability (ANPL) is consistently among the ten highest of the 50 states. The ANPL is our measure of a state or local government's pension burden that uses a market-based interest rate to value accrued liabilities.

Exhibit 11

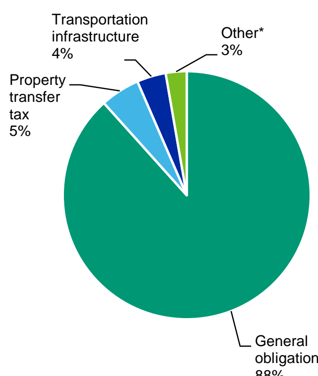
Vermont's debt statement ($million)
As of June 30, 2019

General obligation bonds	$584
Property transfer tax bonds	$34
Transportation infrastructure bonds	$25
Other*	$18
Total net tax-supported debt	**$662**
Moral obligations	
Vermont Municipal Bond Bank	$597
Vermont Econ. Dev. Auth.	$155
Vermont Housing Finance Auth.	$35
Vermont Student Assistance Corp.	$5
Total moral obligations	**$793**
Gross tax-supported debt	**$1,455**

* Other net tax-supported debt consists of bonds secured by contractual payments to disability service providers.
Source: State of Vermont

Exhibit 12

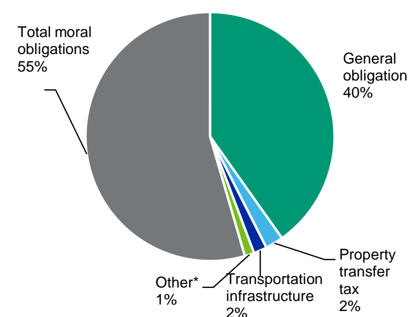
The majority of net tax-supported debt consists of general obligation bonds



* Other net tax-supported debt consists of bonds secured by contractual payments to disability service providers.
Source: State of Vermont

Exhibit 13

Moral obligations are a big component of Vermont's gross tax-supported debt



* Other net tax-supported debt consists of bonds secured by contractual payments to disability service providers.
Source: State of Vermont

DEBT STRUCTURE

All of Vermont's debt is fixed rate.

DEBT-RELATED DERIVATIVES

Vermont is not party to any debt-related derivatives.

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PENSIONS AND OPEB

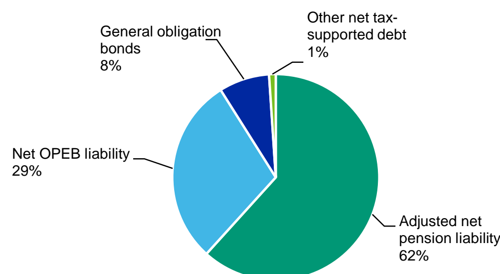
Vermont's unfunded pension liability, as measured by our ANPL, is the principal component of its leverage (Exhibit 14) and Exhibit 15 shows how Vermont's combined debt and pension burden, as a percentage of GDP, compares to the annual state median back to 2012. Despite remaining above the annual state median, Vermont's combined debt and pension burden is not on a rapidly growing path. And, as discussed above, the state's contribution practices are sound. The state's current funding policy, established in statute, is to fully amortize the unfunded liabilities of VSERS and VSTRS by 2038.

Vermont's pension ratios improved in both fiscal 2018 and 2019, following the trajectory in other states given strong investment returns. Available financial statements of the state's two pension plans indicate the state's ANPL increased in the plans' most recently completed fiscal year. This ANPL will be reported in the state's fiscal 2020 financial statements. The growth in the ANPL is largely due to a reduction in the market-based interest rate we use to discount accrued pension liabilities and the decline in the discount rate will have a similar effect on other governments' ANPLs.

Exhibit 14

Unfunded post-employment benefits liabilities (pensions and OPEB) dominate Vermont's leverage

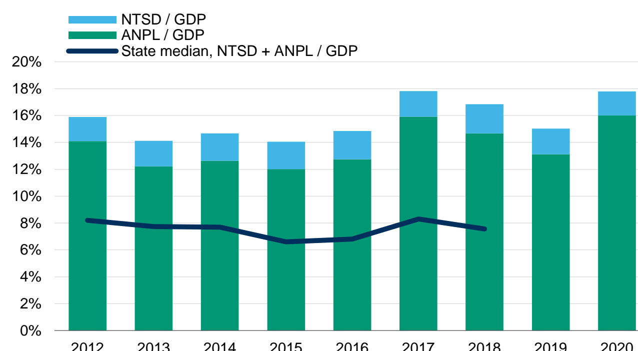
Composition of leverage, excluding non-tax supported debt



Source: State of Vermont and Moody's Investors Service

Exhibit 15

Net tax-supported debt and adjusted net pension liabilities relative to state GDP



2020 ratios assume growth in state GDP equal to the average growth rate of the past three years. Sufficient information is not yet available for all states to compute medians for 2019 and 2020.

Source: Vermont's audited financial statements, reports of VSERS and VSTRS, and Moody's Investors Service

Vermont's debt and pension burden is still much lower than those of the most highly leveraged states. And, importantly, Vermont's pension burden incorporates all liabilities associated with statewide school districts because the state accounts for all primary and secondary education financial activities in its own financial statements. This is a big driver of Vermont's high pension burden relative to other states.

Across both of its retirement plans (the Vermont State Retirement System and State Teachers' Retirement System), Vermont's pension contribution of $185 million in fiscal 2019 consumed just under 5% of own-source revenue. This contribution was just higher than the $182 million we calculate as the state's aggregate pension “tread water” indicator. The “tread water” indicator, which we calculate based on pension plan disclosures, measures the annual employer contribution necessary to forestall growth in plan reported net pension liabilities, assuming other plan actuarial assumptions hold and after accounting for employee contributions. It is a measure of a government's capacity and willingness to control growth in unfunded liabilities.

Vermont reports a net OPEB liability of $2.2 billion under newly adopted GASB statement 74 in its fiscal 2019 financial statements. The net OPEB liability is another 6.5% of GDP, which is high among states. As with pensions, Vermont's net OPEB liability includes 100% of state teacher retiree health care liabilities. The state made $65 million in OPEB payments in fiscal 2019, which is incorporated in our calculation of the state's fixed cost burden (see Exhibit 2 above). Pursuant to a recently approved budget adjustment act, Vermont will transfer 50% of annual general fund surpluses to its VSERS OPEB plan.

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ESG considerations

Environmental considerations

As a US state with a wealthy and diverse economy, the flexibility to raise revenue, and support from the federal government, Vermont will continue to demonstrate high resilience to environmental risks. In general, US states face low credit risk stemming from environmental events, the most likely to occur being natural disasters. Even among US states, Vermont's environmental risks are low. With no coastal exposure, Vermont counties are primarily exposed to extreme rainfall risk, according to data from Moody's affiliate Four Twenty Seven. Increased rainfall could result in more frequent local or regional flooding. We expect the state and most of its local governments have the resources and capacity to address flood events. Heavy storms have caused extensive flooding throughout the state, but the state is able to apply its own resources as well as funding from the federal government to address damages. The state is working to build up the flood resiliency of its floodplains and river corridors.

Social considerations

Key social considerations for US states include demographics, health services and housing. Vermont has one of the slowest growing populations in the US and the most rapid decline in prime working age population (residents aged 25-54). Since 2000, the state's prime working age population fell just over 16% and it has fallen nearly 10% since 2010. These are the highest rates of decline over these two periods among the 50 states and the District of Columbia (Aaa stable). Since 2010, the prime working age population in the US grew nearly 5%.

Support for health services by the federal government, mainly through Medicaid grants, represents a vulnerability for states and Vermont is no exception. Vermont is more vulnerable to a change in federal policy or funding than other states given that about 25% of its population is enrolled in Medicaid. This is far higher than the 17% of people enrolled across the US. Statewide, housing affordability has not fallen as much in Vermont as it has in many parts of the US. Though slow population growth could be a drag on future economic growth, it could keep housing affordable in most parts of the state.

Governance considerations

Governance is a material consideration for the sector and all of the state's ratings. Vermont's governance is strong. The state updates its consensus revenue forecast twice per year, in January and July. The January update covers the remainder of the current fiscal year as well as the two upcoming fiscal years. The July update then revises the forecast for the newly begun fiscal year and the immediately following fiscal year. The two forecast updates are required by statute. During economic downturns, such as the 2007-09 recession, the state has updated its revenue forecast more frequently to aid responses to weakened revenue performance.

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Rating methodology and scorecard factors

The US States and Territories Rating Methodology includes a scorecard, which summarizes the 10 rating factors generally most important to state and territory credit profiles. Because the scorecard is a summary, and may not include every consideration in the credit analysis for a specific issuer, a scorecard-indicated outcome may or may not map closely to the actual rating assigned.

Exhibit 16

US state and territories rating methodology scorecard

Vermont (State of)

Rating Factors	Measure	Score
Factor 1: Economy (25%)		
a) Per Capita Income Relative to US Average [1]	100.0%	Aaa
b) Nominal Gross Domestic Product ($ billions) [1]	$34.8	A
Factor 2: Finances (30%)		
a) Structural Balance	Aa	Aa
b) Fixed Costs / State Own-Source Revenue [2]	8.4%	Aa
c) Liquidity and Fund Balance	Aa	Aa
Factor 3: Governance (20%)		
a) Governance / Constitutional Framework	Aaa	Aaa
Factor 4: Debt and Pensions (25%)		
a) (Moody's ANPL + Net Tax-Supported Debt) / State GDP [2] [3]	15.0%	Aa
Factors 5 - 10: Notching Factors [4]		
Adjustments Up: Financial Stability	0.5	
Adjustments Down: None	0	
Rating:		
a) Scorecard-Indicated Outcome		Aa1
b) Actual Rating Assigned		Aa1

[1] Economy measures are based on data from the most recent year available.
[2] Fixed costs and debt and pensions measures are based on data from the most recent debt and pension medians report published by Moody's.
[3] ANPL stands for adjusted net pension liability.
[4] Notching factors 5-10 are specifically defined in the US States and Territories Rating Methodology.
Source: US Bureau of Economic Analysis, Vermont's audited financial statements and Moody's Investors Service

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APPENDIX E

S&P Global
Ratings

RatingsDirect®

Vermont; General Obligation; Multifamily Whole Loan

Primary Credit Analyst:
Jillian Legnos, Hartford (1) 617-530-8243; jillian.legnos@spglobal.com

Secondary Contact:
Sussan S Corson, New York (1) 212-438-2014; sussan.corson@spglobal.com

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Credit Profile		
US$84.0 mil GO bnds ser 2019A due 02/15/2039		
Long Term Rating	AA+/Stable	New
US$41.0 mil GO bnds (Vermont Citizen bnds) ser 2019B due 02/15/2039		
Long Term Rating	AA+/Stable	New
Vermont Hsg Fin Agy MFWHLLNS		
Long Term Rating	A+/Stable	Affirmed
Vermont GO bnds		
Long Term Rating	AA+/Stable	Affirmed

Rationale

S&P Global Ratings has assigned its 'AA+' long-term rating to the State of Vermont's 2019 series A general obligation (GO) bonds and 2019 series B GO refunding bonds (Vermont Citizens Bonds). At the same time, S&P Global Ratings affirmed its 'AA+' rating on the state's GO debt outstanding and it's 'A+' rating on the state's moral obligation bonds. The outlook on all ratings is stable.

The ratings reflect our opinion of the state's:

- Strong financial and budget management policies that have contributed to consistent reserve and liquidity levels;
- Employment composition reflective of the U.S. economy that is characterized by average income levels and low unemployment rates, although economic growth has been slow in recent years and demographic challenges persist;
- Well-defined debt affordability and capital-planning processes, in our view, that have limited leverage and contributed to a modest tax-supported debt burden with rapid amortization of tax-supported debt; and
- Significant pension and other postemployment benefits (OPEB), which remain sizable relative to those of state peers despite some recent reform efforts.

We believe Vermont's credit profile benefits from a history of proactive budget management and well-embedded strong financial policies and practices. The state's process for identifying and remediating budget shortfalls early in the fiscal year allows for flexibility of resolution, in our view. In addition to demonstrating budgetary strength, Vermont has reduced its authorizations for debt in recent years, which we expect will noticeably lower its debt burden. We believe these strengths will remain crucial to credit quality given mounting credit pressures stemming from the state's slowing economy and retirement liabilities. Relatively weak demographic trends will persist, in our view, and continue to dampen the state's economic growth potential, but the state is actively addressing these challenges. Vermont's unfunded retirement liabilities are significant, in our view, and continue to increase despite excess contributions in recent years. The state has demonstrated an ability to pass and implement retirement reforms that we believe better

positions it compared with many states that cannot do so. However, continued slow economic growth could make it more difficult to address these liabilities as contribution requirements escalate.

The state's enacted general fund budget for fiscal 2020 totals $1.64 billion, representing a moderate 3.0% increase over the previous year's enacted budget, in our view. The general fund budget increases funding for clean water ($50 million), childcare ($6 million) and higher education ($3 million), while meeting funding recommendations for pension and OPEB liabilities. On the revenue side, the budget includes several minor tax increases that result in a net general fund increase of $2.14 million (0.1% of enacted general fund revenues). Changes include adjustments to the capital gains exclusion ($2.21 million) and adjustments to the meals-and-room tax for online travel agencies ($2.78 million) that are partially offset by the creation of a new medical-expense deduction within the personal income tax ($2.08 million), and adjustments to the land-gains tax ($0.78 million). The enacted budget includes stabilization reserves in the general fund, transportation fund, and education fund that are fully funded at their maximum statutory levels of 5% of the previous year's budgetary appropriations.

Several key changes were made to existing state revenue and expenditure distributions effective in fiscal year 2019, as passed in Act 11 in 2018. The most significant changes were the shift of the entirety of the sales-and-use tax and 25% of the meals-and-rooms tax from the general fund to the education fund. At the same time, the act eliminated a lump-sum annual transfer of general fund dollars to the education fund. Officials report the law was intended to remove the need for this interfund transfer. In our opinion, this shift puts additional spotlight on the education fund as one of the state's core operating funds.

Preliminary unaudited results for fiscal 2019 are not yet available, but officials report that general fund revenues are above target by 4.4% and education fund revenue are below target by 0.7% as of June 30, 2019. As of May 2019, fiscal year-to-date revenue were up 4.3% in the general fund as the result of higher-than-forecasted personal income receipts. Education fund revenue declined 0.6% due mostly to underperformance in the sales-and-use tax.

Vermont's reserve profile has grown following consistent deposits in recent years. The general fund budget stabilization reserve and general fund balance reserve totaled $77.00 million and $12.49 million, respectively, at the close of fiscal 2019, and represent a good 5.7% of expenditures, in our view. This is nearly 18% higher than levels recorded in fiscal 2015. The education fund had $34.64 million in its budget stabilization reserve at the close of fiscal 2018. Adding this amount to the general fund reserves brings the state's main operating reserves to $124.13 million or 3.9% of annual expenditures in the general and education funds. Officials expect this percentage to rise to well over 4.0% after allocating fiscal 2019 surplus.

The state has additional reserve accounts that are restricted as to use including $12.5 million in the 27/53 reserve (to meet liabilities during years with a 27th biweekly payroll and a 53rd week of Medicaid payments) and $22 million in the human services caseload reserve (for caseload-related needs of several human services agencies), as of June 30, 2018. Management notes the balance of the human services caseload reserve will grow to more than $100 million in fiscal 2019 following a net-transfer of $79.9 million from the global commitment fund that will first transfer to the general fund and then be reserved in the human services caseload reserve and in the 27/53 reserve.

We anticipate that the relatively weak demographic trends in recent years will persist as Vermont's economy continues

to expand at a slower pace than the nation. Following three years of decline from 2014-2016, Vermont recorded population growth of 0.14% in 2017, and 0.28% in 2018, according to the U.S. Census Bureau. The state reports population growth is due to international migration, as U.S. residents migrate outside of Vermont's borders. Foreign in-migration has proved steady the past two years, as domestic migration decreased to nearly net-neutral in 2018. IHS Markit projects that weak in-migration trends as well as an aging workforce will limit Vermont's ability to attract and retain businesses. Vermont has strategized its workforce development initiatives in order to address its demographic issues. We believe that while the state is taking proactive steps, the effectiveness will not be clear in the near term.

Per capita personal incomes in Vermont have declined relative to the U.S. for the first time since 2008, decreasing to 99.8% of the U.S. in 2018. IHS expects the state's real income levels to remain below the U.S. through 2024. The state reports there has been upward pressure on wages given the state's extremely low unemployment rate of 2.1%--the lowest in the nation as of May 2019.

A comprehensive capital-and-debt-affordability process governs Vermont's tax-supported debt issuance. Officials report the state has decreased its appetite for debt issuance and we believe decreasing authorizations for debt in recent years support this claim. Specifically, authorization for $123.2 million of debt in the fiscal 2020-2021 biennium is 23% less than the authorization for $159.9 million of debt in the fiscal 2014-2015 biennium. Overall, we view Vermont's current debt burden as moderate. We calculate fiscal year-end 2018 tax-backed debt per capita at only $1,073, while debt amortization is rapid, with nearly 71% of tax-backed debt maturing within 10 years.

The governor signed a Budget Adjustment Act for fiscal 2019 that directed additional funds to the state's pension and OPEB plans. Specifically, $22.2 million was provided to extinguish an interfund loan to the Retired Teachers Health and Medical Benefit Fund, and an additional $3.3 million above the actuarially determined contribution (ADC) was contributed to the Vermont State Teachers Retirement Fund. The bill also calls for 50% of general fund surpluses going forward to be transferred to the Vermont State Employees Retirement System OPEB plan.

Vermont's pension profile is weak, in our view, with what we consider a relatively low three-year-average funded ratio of 62% across the two pension plans for which the state has a reported liability. Furthermore, we consider the funding discipline of Vermont's pension plans to be average. State contributions to Vermont's pension plans are based on ADC, but contribution levels lag actuarial valuation by two years. Vermont has historically funded its pension liabilities at ADC levels, and has recently contributed above the ADC. Despite these excess contributions, unfunded pension liabilities have grown. We calculate that total annual plan contributions in fiscal years 2016-2018 did not cover a level equal to service cost and interest cost plus some amortization of the unfunded liability, which we believe could weaken the state's pension liability profile over time.

In our opinion, OPEB liabilities also remain high with an unfunded liability of $2.17 billion or $3,469 per capita according to our calculations. On a per capita basis, Vermont's unfunded OPEB liability is nearly as large as its unfunded pension liability. The state created an irrevocable trust for the Vermont State Employees' Retirement System (VSRS) OPEB plan in fiscal 2007, however, there is limited asset accumulation in the fund. The state has paid down a loan for VSTRS (of which $28.3 million remained at the close of fiscal 2018) and will now generate dollars for prefunding going forward--starting with an expected end of fiscal year 2020 fund balance of $2.4 million. Before fiscal 2014, health care expenses related to the State Teachers Retirement System (STRS) were not explicitly budgeted or

funded, but were treated as an amortized actuarial loss. In fiscal 2014, the legislature created the Retired Teachers' Health and Medical Benefits Fund to separate health care expenses from the pension fund.

Based on the analytical factors we evaluate for states, on a scale of '1.0' (strongest) to '4.0' (weakest), we have assigned a '1.8' composite score to Vermont, which reflects an indicative rating of 'AA+'.

Outlook

The stable outlook reflects our view that Vermont's strong framework for budgetary and financial management will support its credit profile in the near term as it faces challenges related to its economy and retirement liabilities. In addition, decreasing debt levels and constrained health care costs stemming from fee-for-value based policies are expected to provide the state some budgetary relief. We anticipate that slower-than-average economic growth and weak demographic trends will continue and pressure the state's budget during our two-year outlook horizon. Vermont's unfunded pension and OPEB liabilities remain high relative to state peers and have grown despite excess contributions and reforms.

We could lower the rating if we believe the state's economic measures were no longer commensurate with the rating level or reserves deteriorate in an effort to resolve budgetary stress. The state's large unfunded pension and OPEB liability could also pressure the rating. A higher rating could result from sustainable improvement to the state's economic metrics (e.g. incomes, gross state product [GSP] growth) or pension and OPEB profile. However, this is unlikely to occur during our outlook horizon.

Government Framework

Vermont does not have a constitutional or statutory requirement to enact or maintain a balanced budget, but it has consistently maintained sound finances. In our view, the state has significant flexibility to increase the rate and base of its major tax revenues, which include income taxes, sales taxes, and a statewide property tax that funds the state's support of local education. We view Vermont's revenue sources as diverse. The state does not allow voter initiatives. It maintains the ability to adjust disbursements in order to maintain sufficient liquidity. Debt service can be paid without a budget, but there is no other legal priority for debt.

The state's tax structure is broad, and its revenue sources are diverse across several operating funds. The general fund relies primarily on unrestricted revenues from personal and corporate income, sales-and-use, and meal taxes.

The education fund relies primarily on a statewide property tax. The education stabilization reserve ended the year at the statutory maximum of 5% of expenditures. The transportation fund relies primarily on federal-match grant revenues, a motor vehicle license fee, and a motor fuel tax.

On a scale of '1.0' (strongest) to '4.0' (weakest), we have assigned a '1.6' to Vermont's government framework.

Financial Management Assessment: Strong

S&P Global Ratings considers Vermont's financial management practices strong under its Financial Management Assessment methodology, indicating financial practices are strong, well embedded, and likely sustainable.

Much of Vermont's debt and financial management practices are embedded in state statute. These, along with internally developed policies, guide the state's long-term budget and capital planning, debt management, and investing practices. The state has a well-established consensus revenue-estimating process. According to statute, the joint fiscal office and administration provides its respective revenue estimates for the general, transportation, and federal funds for the current and next succeeding fiscal years to the Vermont Emergency Board.

Vermont law also requires a long-term capital plan. The governor submits a capital budget annually to the General Assembly based on debt management provisions outlined by the state's capital debt affordability advisory committee. The committee's estimate is nonbinding, but the state legislature has never authorized new long-term GO debt in excess of the committee's estimated amount. The state has formal debt management policies, including a statutory debt affordability analysis developed by the capital debt affordability advisory committee that Vermont integrates into the operating budget development process and updates at least annually. Vermont has not entered into any interest-rate swaps and, therefore, does not have an adopted swap-management policy. Statutory restrictions and adopted administrative policies govern investment management, and the office of the state treasurer monitors compliance.

Budget management framework

The state has multiple tools to assist financial management. Vermont monitors revenues and publishes results monthly; and the emergency board meets at least twice annually--in July and January--to evaluate the revenue forecast and make adjustments, if necessary. The state forecasts also include Medicaid revenue and spending. These consensus forecasting meetings can be convened more frequently, and were held quarterly during fiscal years 2008-2010 due to the recession and the potential effect on revenue and expenditures. The emergency board includes the governor and the legislative chairs of the house and senate fiscal appropriations committees. The forecasting process includes traditional economic and revenue forecasting, which Vermont performs with the assistance of outside economists, for the current and next succeeding fiscal years, as well as a less-detailed forecast for the next eight years.

The governor has statutory authorization to adjust the budget within certain revenue and expenditure change limits when the Vermont Legislature is not in session. Vermont maintains stabilization reserve funds at statutory levels to reduce their effect on annual revenue variations. In 1993, the state created separate budget stabilization reserves within the general and transportation funds. The amount in each of these reserves is not to exceed 5% of previous-year appropriations. In fiscal 1999, the state created an education fund budget stabilization reserve, which is to fund 5.0% of expenditures. Vermont statute requires annual funding of such reserves. The governor included a proposal in the fiscal 2013 executive budget to increase the general fund stabilization fund to 5.25% from 5.00%, but instead, the legislature added a general fund balance reserve fund with a separate cap of 5.00% of expenditures.

On a four-point scale, with '1' being the strongest score, we have assigned a '1' to Vermont's financial management.

Economy

According to our report, "Summer Should Be Smooth Sailing For U.S. State And Local Governments, But There Could Be Waves Ahead" (published April 30, 2019, on RatingsDirect), we expect the New England regional economy's real GDP growth will continue to slow over the next several years, generally lagging national levels. We expect Vermont to trail national growth along with Connecticut, Maine, and Rhode Island. In our view, New England will be somewhat insulated from trade policy, as many of the region's top exports are for secondary goods that can pass additional costs to the end consumer.

Vermont's quality of life and well-educated workforce provide economic development opportunities, however, it ranks low among the states in its business-tax-and-regulatory environment, and its slow workforce expansion could stifle future economic growth prospects. Vermont's population has increased more slowly than the nation as a whole; from 2014-2018, the state's population remained flat compared with the nation's 0.7% growth. Furthermore, the state's aging population--34.2% over 55 and 18.7% over 65, compared with 28.5% and 15.6%, respectively, for the nation, will continue to be a drag on the state's growth potential in our view.

We anticipate that the relatively weak demographic trends in recent years will persist as Vermont's economy expands slower than the nation. Vermont reports it has strategized its workforce-development initiatives in order to address its demographic issues. Broadly, the state has coordinated efforts with the U.S. Department of Labor, kindergarten through grade 12 (K-12) education, and higher education. Specific initiatives include work-opportunity tax credits and a program to attract remote workers. We believe that while the state is taking proactive steps, the effectiveness will not be clear in the near term.

Vermont's economy is driven by tourism, higher education, electronics, consumer-goods manufacturing, and agriculture. Exports are an important part of the state's economy, with a substantial portion going to Canada according to IHS Markit. Exports in 2018 primarily consisted of computer and electronic products (65.3%), followed by machinery (5.2%). In 2018, Vermont's exports totaled more than $2.9 billion, of which 43.5% was with Canada.

Vermont's employment diversity by sector is generally in line with the nation's, in our view, and has not demonstrated more cyclicality than when the U.S. Global Foundries completed its acquisition of IBM--the third-largest private-sector employer in the state, which accounts for a large portion of the state's manufacturing employment and exports. Global Foundries employs about 2,500 at its Essex Junction plant, which manufactures semiconductors for consumer electronic products, including chips for cell phones and other devices. According to IHS, a large portion of the state's manufacturing exports includes computers and electronics products from the facility. The Vermont Yankee nuclear power plant ceased production at the end of 2014 and it will be demolished by 2030.

Vermont was the second state in New England to complete its labor market recovery from the most recent recession, following Massachusetts. Health care employment, in particular, will be a growth driver, however, IHS forecasts very slow total employment growth of 0.7% in 2019, and an average annual growth rate of 0.5% from 2019-2022, which is well below forecast national employment growth rates.

State income levels are average, in our opinion. State per capita income of $53,598 in 2018 was 99.8% of that of the

U.S. GDP per capita of $53,849 in 2018 and has historically remained at about this level.

On a four-point scale, with '1' being the strongest, we have revised our score on Vermont's economy to '2.4' from '2.1'.

Budgetary Performance

Audited results indicate the state ended fiscal 2018 with combined general fund and education fund revenue of $2.82 billion, creating an operating gain of $272.0 million, which was offset by $191.0 million of net transfers out to other funds. Vermont ended fiscal 2018 with the budget stabilization reserves in the general fund, transportation fund, and education fund fully funded at their maximum statutory levels of 5% of the previous year's budgetary appropriations, along with some additional reserves in the general fund. These three funds' stabilization reserves remained funded at their statutory maximums through the most recent recession.

S&P Global Ratings considers the state's combined general fund and education fund revenue to be diverse, with statewide education taxes, personal income taxes and sales taxes constituting 37.6%, 29.4%, and 14.1% of fiscal 2018 revenue collections, respectively.

Vermont maintains separate budget stabilization funds in its general, transportation, and education funds that are available to offset undesignated fund deficits. The statutory maximum for the three stabilization reserves is 5% of the previous-year budgetary appropriations. The three stabilization funds have been at their statutory maximums since fiscal 2007. Vermont pools the cash reserves for these major funds, which result in sufficient liquidity for operations during the fiscal year. Officials indicate that the state has not externally borrowed for liquidity since fiscal 2004.

We have assigned a '1.4' to Vermont's budgetary performance.

Debt And Liability Profile

Debt

Vermont's total tax-supported debt is moderate, in our opinion, at $1,073 per capita or 2.0% of personal income. Compared with general governmental expenditures and GSP, the fiscal 2018 tax-supported debt service was low, in our view, at about 1.9% and 2.0%, respectively. Vermont's debt portfolio consists of only fixed-rate debt, without any exposure to interest-rate swaps. The state also does not have any direct placement debt. We consider the debt amortization to be rapid, with officials retiring nearly 71% of tax-supported debt over the next 10 years.

The state has a debt affordability committee that annually recommends a maximum amount of debt issuance for the next two fiscal years, and while the committee's recommendations are not binding, Vermont has consistently adhered to them. The authorization for fiscal years 2020 and 2021 totals $123.2 million, which is down 7.0% from the previous biennium recommendation of $132.5 million. Debt service can be paid without a budget, but there is no other priority for the payment of debt before other general state expenditures.

State pension liability

Vermont maintains three statutory defined benefit pension plans. The VSRS is a single-employer plan with about 8,530 active members. The STRS and Vermont Municipal Employees' Retirement System (MERS) are multiple-employer,

cost-sharing plans with approximately 9,892 and 7,452 active members, respectively. The state appropriates funding for the first two systems; the municipal system is supported entirely by municipal employers and employees.

The state's unfunded pension liability represents Vermont's proportionate share of the VSRS and STRS plans. We consider Vermont's three-year-average, pension-funded ratio across the pension plans to be relatively low at 62%. The state's pension-funded ratio as of June 30, 2018, is also considered relatively low at 62%, which is nearly unchanged from 62% in fiscal 2017 and slightly lower than 62.1% in fiscal 2016.

Vermont's proportionate share of the plans' net pension liability reflects what we view as a high $3,616 per capita and moderate 6.8% of personal income.

Vermont lowered its long-term investment return assumptions for the VSRS and STRS plans in July 2017 to 7.50% from 7.95%. Through 2014, actuarial valuations used a "select and ultimate" method for developing interest-rate assumptions where return assumptions varied by period ranging from 6.25% in year one to 9.0% in years 17 and later. The lower assumed discount rate is expected to increase required employer contribution rates in future fiscal years.

State contributions for VSRS and STRS are actuarially based and funding has been at least 100% of the ADC historically, which we view positively. Vermont budgets for pension contributions based on percentage rates of each member's annual earnable compensation and the actuarial valuations two years prior. It budgets for the STRS ADC appropriation at the beginning of the year. The VSRS ADC accrues as a percent of salary expenses throughout the year, and the state adjusts subsequent appropriations to reconcile year-to-year variations in actual payroll to meet the projected ADC. Each plan's actuary recommends a contribution amount and each plan's retirement board reviews the actuary's recommendations annually before submitting their recommendation to the governor and both houses of the legislature for inclusion in Vermont's annual budget. The legislature is not required to follow the recommendations of the actuaries or the governor.

Since fiscal 2012, actual annual contributions to the systems have exceeded the respective ADCs, which state officials attribute to conservative budgeting. For VSRS, actual contributions of $64.6 million in fiscal 2018 represented 124% of the pension ADC. For STRS, actual contributions (from employers and nonemployers) of $114.6 million in fiscal 2018 represented 129.6% of the ADC. We note that aggregate annual plan contributions across the two plans were under amounts necessary for the plans to cover a portion of the amortization in unfunded liability as well as certain cost drivers of the annual change in the liability, according to our calculations, which we believe could weaken the strength of the state's pension liability profile over time.

Overall, we believe that management factors and actuarial inputs do not significantly encumber or improve our view of the state's overall pension funding discipline. VSRS and STRS assume a closed amortization schedule of which 22 years remain as of fiscal 2018. However, the plans use the level percentage of pay method, which assumes rising future payroll and results in escalating absolute pension contributions over time. Projected salary increases range from 3.75%-9.46% for VSTRS and from 3.5%-7.04% for VSRS. The VSRS plan reported a return of 6.73% in 2018, and the STRS plan reported a return of 6.99% in the fiscal 2018 comprehensive annual financial report. Neither plan projects an asset-depletion date under the most recently available Governmental Accounting Standards Board reporting as of June 30, 2018. We believe this report's underlying assumptions are realistic. The state has recently updated its

mortality assumptions. The STRS plan's ratio of active members to beneficiaries equals 1.07, which is significantly below the median national ratio of 1.50. The VSRS plan's ratio is slightly higher at 1.22. We believe the plans incorporate experience trends and industry standards in their experience studies conducted at least every five years.

Other postemployment benefits

Vermont offers postemployment medical insurance, dental insurance, and life insurance benefits to retirees of the multiemployer STRS and the single-employer VSRS. While the state's unfunded OPEB liability is high, in our view, at $3,469 per capita, the state has made plan adjustments to manage the liability.

The VSTRS plan enrolled its retirees in a Medicare Part D Employer Group Waiver Plan (EGWP) from a retiree drug-subsidy program as of Jan. 1, 2014, partially to achieve cost savings. As of June 30, 2014, however, the VSTRS OPEB unfunded actuarial accrued liability (UAAL) increased 7.6% to almost $767 million, reflecting demographic experience and other refinements of estimated savings related to the EGWP implementation. The unfunded liability rose again in fiscal 2015 to $1.003 billion or by 31% primarily due to updates to the methodology used in setting cost assumptions based on revisions to actuarial standards. The plan's cost-setting assumptions were updated again in fiscal 2016 using actual claims information for the plan's population and resulted in a decrease of the plan's UAAL by $325.2 million or 32.4% as of June 30, 2016. The net OPEB liability increased to $932.3 million in fiscal 2017 and $954.3 million in fiscal 2018. State contributions under pay-as-you go financing were $29.8 million in fiscal 2018. Before fiscal 2015, health care expenses for the plan's retirees were paid through a subfund of the defined benefit pension trust fund and no state contribution was explicitly budgeted or funded.

Vermont's VSRS plan enrolled in Medicare's EGWP a year after STRS and was effective as of Jan. 1, 2015. The state has also established an OPEB trust fund for the VSRS, but as of June 30, 2018, it contained only $21.8 million of assets, for a 1.8% actuarial asset funded ratio. The plan has a net OPEB liability of $1.2 billion as of June 30, 2018, which is nearly 17% lower compared with 2017 partially due to per capita claims experience and plan changes. Vermont paid almost $33 million under pay-as-you-go funding in fiscal 2018.

The separate multiemployer Vermont Municipal Employees Health Benefit Fund for local government is administered by the state, but has no liability to the state, and is not included in our OPEB calculations.

On a four-point scale, with '1.0' being the strongest, we have assigned a '2.8' to Vermont's debt and liability profile.

Ratings Detail (As Of July 11, 2019)		
Vermont GO		
Long Term Rating	AA+/Stable	Affirmed
Vermont GO		
Long Term Rating	AA+/Stable	Affirmed
Vermont GO		
Long Term Rating	AA+/Stable	Affirmed
Vermont GO bnds		
Long Term Rating	AA+/Stable	Affirmed

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APPENDIX H

Title 32 : Taxation And Finance

Chapter 013 : Debts And Claims

Subchapter 008 : Management Of State Debt

(Cite as: 32 V.S.A. § 1001)

- **§ 1001. Capital Debt Affordability Advisory Committee**

(a) Committee established. A Capital Debt Affordability Advisory Committee is hereby created with the duties and composition provided by this section.

(b) Committee duties.

(1) The Committee shall review annually the size and affordability of the net State tax-supported indebtedness and submit to the Governor and to the General Assembly an estimate of the maximum amount of new long-term net State tax-supported debt that prudently may be authorized for the next fiscal year. The estimate of the Committee shall be advisory and in no way bind the Governor or the General Assembly.

(2) The Committee shall conduct ongoing reviews of the amount and condition of bonds, notes, and other obligations of instrumentalities of the State for which the State has a contingent or limited liability or for which the State Legislature is permitted to replenish reserve funds, and, when deemed appropriate, recommend limits on the occurrence of such additional obligations to the Governor and to the General Assembly.

(3) The Committee shall conduct ongoing reviews of the amount and condition of the Transportation Infrastructure Bond Fund established in 19 V.S.A. § 11f and of bonds and notes issued against the fund for which the state has a contingent or limited liability.

(c) Committee estimate of a prudent amount of net State tax-supported debt; affordability considerations. On or before September 30 of each year, the Committee shall submit to the Governor and the General Assembly the Committee's estimate of net State tax-supported debt which prudently may be authorized for the next fiscal year, together with a report explaining the basis for the estimate. The provisions of 2 V.S.A. § 20(d) (expiration of required reports) shall not apply to the report to be made under this subsection. In developing its annual estimate, and in preparing its annual report, the Committee shall consider:

(1) The amount of net State tax-supported indebtedness that, during the next fiscal year, and annually for the following nine fiscal years:

(A) will be outstanding; and

(B) has been authorized but not yet issued.

(2) A projected schedule of affordable net State tax-supported bond authorizations, for the next fiscal year and annually for the following nine fiscal years. The assessment of the affordability of the projected authorizations shall be based on all of the remaining considerations specified in this section.

(3) Projected debt service requirements during the next fiscal year, and annually for the following nine fiscal years, based upon:

(A) existing outstanding debt;

(B) previously authorized but unissued debt; and

(C) projected bond authorizations.

(4) The criteria that recognized bond rating agencies use to judge the quality of issues of State bonds, including:

(A) existing and projected total debt service on net tax-supported debt as a percentage of combined General and Transportation Fund revenues, excluding surpluses in these revenues which may occur in an individual fiscal year; and

(B) existing and projected total net tax-supported debt outstanding as a percentage of total state personal income.

(5) The principal amounts currently outstanding, and balances for the next fiscal year, and annually for the following nine fiscal years, of existing:

(A) obligations of instrumentalities of the State for which the State has a contingent or limited liability;

(B) any other long-term debt of instrumentalities of the State not secured by the full faith and credit of the State, or for which the State Legislature is permitted to replenish reserve funds; and

(C) to the maximum extent obtainable, all long-term debt of municipal governments in Vermont which is secured by general tax or user fee revenues.

(6) The impact of capital spending upon the economic conditions and outlook for the State.

(7) The cost-benefit of various levels of debt financing, types of debt, and maturity schedules.

(8) Any projections of capital needs authorized or prepared by the Agency of Transportation, the Joint Fiscal Office, or other agencies or departments.

(9) Any other factor that is relevant to:

(A) the ability of the State to meet its projected debt service requirements for the next five fiscal years; or

(B) the interest rate to be borne by, the credit rating on, or other factors affecting the marketability of State bonds.

(10) The effect of authorizations of new State debt on each of the considerations of this section.

(d) Committee composition.

(1) Committee membership shall consist of:

(A) As ex officio members:

(i) the State Treasurer;

(ii) the Secretary of Administration; and

(iii) a representative of the Vermont Municipal Bond Bank chosen by the directors of the Bank.

(B) Two individuals with experience in accounting or finance, who are not officials or employees of State government appointed by the Governor for six-year terms.

(C) The Auditor of Accounts who shall be a nonvoting ex officio member.

(D) One person who is not an official or employee of State government with experience in accounting or finance appointed by the State Treasurer for a six-year term.

<u>(E) The Legislative Economist or other designee of the Joint Fiscal Office, who shall be a nonvoting ex officio member.</u>

(2) The State Treasurer shall be the Chair of the Committee.

(e) Other attendants of committee meetings. Staff of the Legislative Council and the Joint Fiscal Committee shall be invited to attend Committee meetings for the purpose of fostering a mutual understanding between the Executive and Legislative Branches on the appropriate statistics to be used in committee reviews, debt affordability considerations, and recommendations.

(f) Information. All public entities whose liabilities are to be considered by the Committee shall annually provide the State Treasurer with the information the Committee deems necessary for it to carry out the requirements of this subchapter. (Added 1989, No. 258 (Adj. Sess.), § 1; amended 2007, No. 121 (Adj. Sess.), § 28; 2007, No. 200 (Adj. Sess.), § 25, eff. June 9, 2008; 2009, No. 50, § 31; 2013, No. 142 (Adj. Sess.), § 65.)