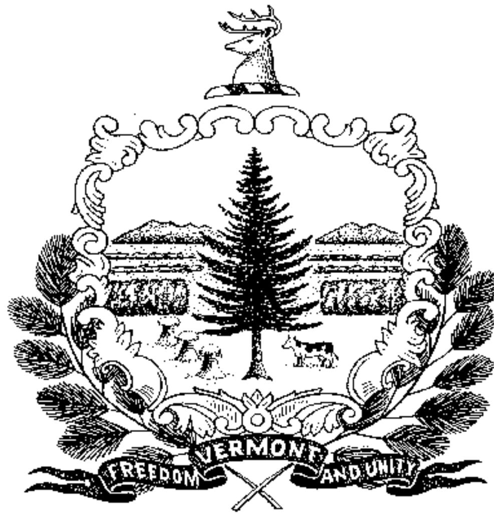
CAPITAL DEBT AFFORDABILITY ADVISORY COMMITTEE

State of



Vermont

RECOMMENDED ANNUAL NET TAX-SUPPORTED DEBT AUTHORIZATION

September 2019

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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 *Beth*

DATE: September 30, 2019

RE: Capital Debt Affordability Advisory Committee Report for 2019

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 2019 ("Report").

This is the second year of the FY 2020-2021 biennium and the Committee is reaffirming its 2-year debt recommendation of $123,180,000, as proposed by the Administration and adopted by the General Assembly in the Capital Bill.

As noted in the Report, more limited debt issuance by other states, including Triple-A rated states, has resulted in a weakening of Vermont's debt ratio comparative rankings. The Committee notes that Vermont's projected debt issuance of $61,590,000 per year exceeds scheduled debt retirements, meaning that the State's overall debt outstanding will continue to rise from 2020 through 2025 and remain in that range through 2030. The issuance amount may also cause the State to be out of compliance with its debt ratio guidelines, specifically debt per capita. As we are in the second year of a biennium, we did not make an adjustment to the current recommended authorization. We may however, see pressure to consider a reduction in the bond-issuance recommendation in the next biennium, depending on trends over the next year. The inclusion of the $37 million housing bond, while providing a jumpstart for our housing needs, also creates additional pressure on future authorization levels.

During this fiscal year we received downgrades of our bond ratings from Moody's Investors Service (from Aaa to Aa1) and Fitch Ratings (from AAA to AA+). We moved from the highest rating to the second highest rating. The State's general obligation rating from S&P remains unchanged at AA+. The demographic challenges of an aging population and its impact on workforce, future economic growth, and our long-term liabilities are at the core of the

downgrades. My office remains committed to work with all parties on initiatives to make Vermont more affordable for families and businesses and to address educational, housing, and workforce issues.

Both Moody's and Fitch cited many positives in our rating, including funding of the actuarially determined employer contribution (ADEC) for the State and Teachers' Retirement Systems, strong financial management, and increased funding of reserves. I urge the Administration and the General Assembly to continue these efforts.

While Vermont retains the highest state credit ratings in New England, my hope is that we can work together on the demographic issues and our long-term liabilities and achieve a Triple-A rating from all three rating agencies. The ratings are critical to Vermont's financial future and allow the State to access capital at low rates. Adhering to the CDAAC recommendation in our bond authorization process is a critical factor as it impacts future long-term liabilities and is a barometer of our continued commitment to strong financial management. The rating agencies pay close attention to that barometer.

The Committee also recognizes the need to address capital infrastructure needs. To that end, the Committee discussed the need to develop pay-as-you-go (PAYGO) funding policies and procedures and examine the use of bond premiums, for policy makers to consider. A working group has been formed to address these issues. It is composed of the Treasurer, Secretary of Administration, a representative of the Department of Finance and Management, a representative from JFO, and a member of CDAAC who is not a state employee. We expect to have ongoing discussions with the Institutions Committees during this review. The working group is expected to report its recommendations in the first quarter of 2020.

The CDAAC has also taken on a project to review the criteria and metrics it uses when making its recommendation of new long-term net tax-supported debt that Vermont may prudently authorize over a biennial period. The current metrics and a review of potential additional metrics will be discussed for inclusion in the next full biennium report in September 2020.

As I stated in my previous report, our nation's tax, budgeting, and fiscal policies have tremendous challenges and/or stresses going forward that will impact the State. While I am confident that Vermont will advocate for policies that will address the needs of all of our citizens, there will be budgetary and fiscal impacts. Vermont, therefore, needs to continue its policies of fiscal prudence, conservative debt management, maintaining our reserves, and proactive budget management. We look forward to working with you as we address these challenges.

Please feel free to 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

The Committee recommends that the State of Vermont maintains its current authorization of long-term net tax-supported debt for fiscal years 2020 and 2021 in an amount not to exceed $123,180,000, reflecting a reduction of 7.0% from the previous biennium recommendation of $132,460,000. CDAAC's formal recommended debt authorization complies with the State's triple-A debt affordability guidelines, other than the debt per capita guideline 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 expects for the 2020 Report, to consider the factors used in the past and determine if they are still the most appropriate metrics to evaluate the State's debt affordability. 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, other post-employment benefits and Medicaid. See Section 6, "State Debt 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 is concerned by this trend, and thus lowered the biennium recommendation in 2018. With the Committee's 7% lower recommended authorization in 2018, and based on the projected debt issuance of $132,610,000 in FY 2021 and $61,590,000 per year thereafter, the State is projected to have a marginally higher (7%) amount of debt outstanding at the end of the 10-year projection period in fiscal 2030 versus the amount outstanding in the current fiscal year 2020. Thus, the State's overall projected issuance

during this time period is slightly in excess of its scheduled aggregate debt retirements. See "General Obligation and General Fund Supported Bond Debt and Debt Service Projections" below. The Committee reviewed a separate scenario in which the debt per capita target could be achieved during the 10-year projection period, which resulted in a 22.5% reduction in the 2019 CDAAC recommendation. 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, as the 22.5% reduction was viewed as too severe of a reduction for the State.

This 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.

Additionally, the Committee has 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 Funding and Capital Plan" 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 report back to the Committee.

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

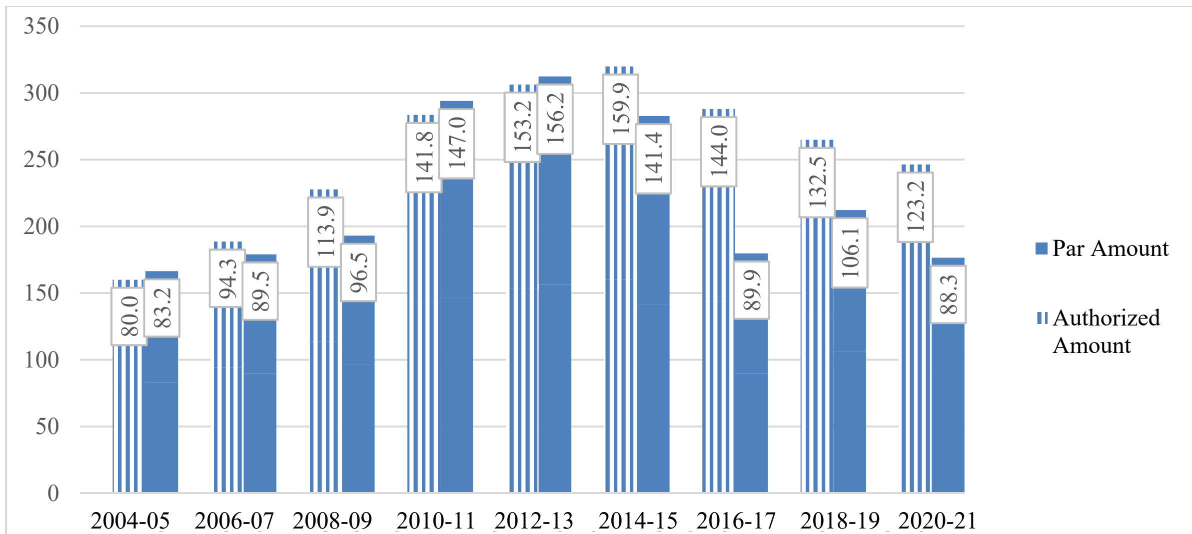
As a matter of practice, while the CDAAC legislation refers to an authorization of "net tax-supported debt," the amount of net tax-supported debt for the State has meant only general obligation (or "G.O.") and capital leases ("Capital Leases") debt, and prior CDAAC reports assumed only G.O. debt and Capital Leases for purposes of calculating its projected net tax supported debt ratios. However, rating agencies generally consider revenue bond debt paid 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 includes VHFA Property Transfer Bonds as net tax supported debt for authorization and ratio calculation purposes in this report and expects to do so in future reports. 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. For this reason the State treats the TIBs as self-supporting debt in its debt statement. While the CDAAC report includes "Dashboard Indicators" debt metrics calculated both with and without TIBs, it does not assume that such indebtedness is part of net tax-supported debt. See Section 3, "State 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 sixteen 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 2020-2021 authorization is a 23% reduction from the 2014-2015 biennial authorization amount of $159.9 million. The compound annual growth rate in debt authorizations from 2004 to 2019 has been 2.9%. Including the 2020-2021 recommended authorization amount, the compound annual growth rate in debt authorizations is 2.6%.

STATE OF VERMONT
HISTORICAL GENERAL OBLIGATION. BOND AUTHORIZATIONS AND ISSUANCE BY BIENNIUM(1)(2)(3)(4)
(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)For fiscal years 2018-19, the "Authorized" amount reflects the two-year authorized amount of the General Assembly in the 2017 Capital Bill (Act 84), as amended by the 2018 Capital Bill (Act 190). This amount excludes any amounts authorized that relate to (i) 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 and (ii) transfers and reallocations from prior years.

(4)Includes the 2019 Series A Bonds in the aggregate amount of $88,255,000 issued on August 15, 2019.

For fiscal years 2020-2021, the General Assembly has authorized $123,180,000 in new general obligation bonds. In addition, there was at that time $109,170,583.66 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 $132,610,000 ($132,613,896.49, rounded down to the nearest $5,000 denomination), representing the balance of the previous biennium authorization amount to $109,170,583.66, plus current biennium authorization of $123,180,000, plus unissued bond premium of $11,481,687.17 and less the amount funded with proceeds from the issuance of the 2019A Bonds in the amount of $99,736,687.17. The State also issued $39,525,000 2019 Series B Bonds (the "2019B Bonds," and collectively with the 2019A Bonds, the "2019 Bonds") that provided proceeds to refund the outstanding 2010 Series A-2 Bonds, 2010 Series C-1 Bonds and 2010 Series C-2 Bonds ("2019 Refunded Bonds").

Capital Funding and Capital Plan

For fiscal years 2020-2021, the General Assembly in the 2019 Capital Bill (H.543) authorized $123,180,000.00 in total capital project spending in new general obligation debt and $1,375,041 in transfers and reallocations. 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 Committee will review the annual capital budget and 10-year capital program as part of its annual meetings and considers the 2019 amendments to § 310 related to identifying and establishing funding for deferred maintenance consistent with last year's CDAAC 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. S&P also highlighted the District of Columbia as the leader in identifying and quantifying the amount of deferred

maintenance and establishing replacement funding plans. In response, CDAAC evaluated several of the District's reports, plans and other documentation in regards to this initiative.

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 qualifying transportation capital projects by issuing TIBs, the payment of which is not secured by the full faith and credit of the State. The State also has established certain statewide authorities that have the power to issue revenue bonds and to incur, under certain circumstances, indebtedness for which the State has contingent or limited liability.

General Obligation Bonds

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

Purpose

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 primary from the State's General Fund.

Structure

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 Vermont Housing Finance Agency (VHFA) issued their first issue of property transfer tax bonds in January 2018 that 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. As mentioned prior, the Committee now categorizes 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").

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, 2019, with a fair market value of $9.418 million, is included as net tax-supported debt.

The Government Accounting Standards Board ("GASB") is implementing "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 will incorporate the State's financial reporting changes related to its leases based on GASB 87.

Current Status

Long-Term Net Tax-Supported Debt outstanding as of June 30, 2019 was $627,818,025. Long-Term Net Tax-Supported Debt outstanding as of September 30, 2019 is $661,178,025. The debt outstanding as of September 30, 2019 reflects the issuance of the 2019 Bonds which closed on August 15, 2019 and regularly scheduled debt repayments in which certain State bonds matured by their terms on August 15, 2019.

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. 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."

Net Tax-Supported Debt Outstanding

The State's aggregate Long-Term Net Tax-Supported Debt principal amount of debt decreased from $645.6 million, as of June 30, 2018, to $627.8 million, as of June 30, 2019, a slight decrease of 2.8% due to the State not issuing bonds in fiscal year 2019 which was partially offset by the inclusion of the outstanding VHFA Property Transfer Bonds. The table below sets forth the sources of the change in net tax-supported debt outstanding from fiscal year 2018 to fiscal year 2019 (in thousands).

Net Tax-Supported Debt as of 6/30/18	$645,561
G.O. New Money Bonds Issued	0
VHFA Property Transfer Bonds Inclusion	34,350
Less: Retired G.O. Bonds	(51,760)
Less: Retired Capital Lease	(333)
Net Tax-Supported Debt as of 6/30/19	$627,818

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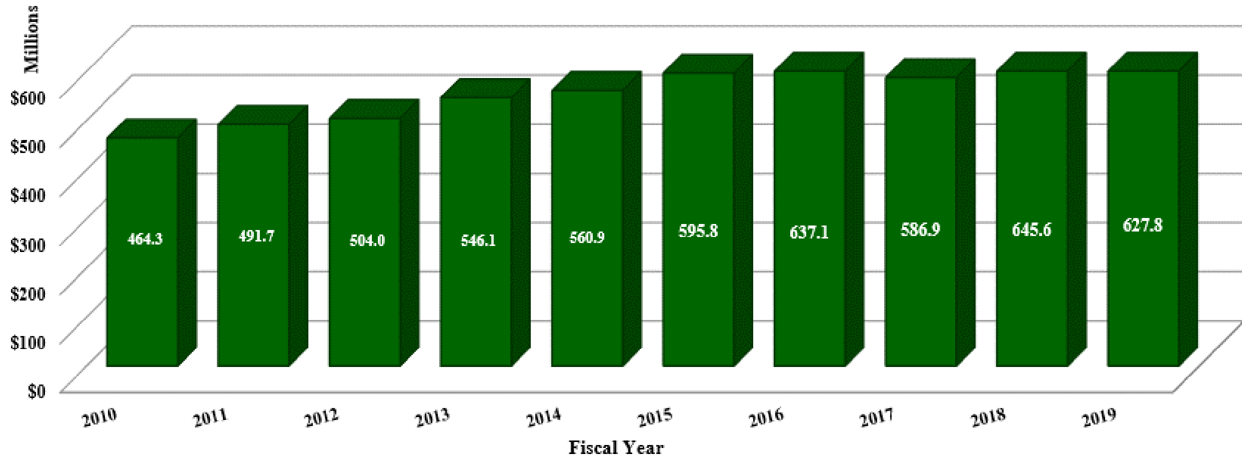
STATE OF VERMONT
Debt Statement
As of June 30, 2019 (In Thousands)

General Obligation Bonds:	
General Fund	$580,819
Transportation Fund	3,231
VHFA Property Transfer Bonds:	
Property Transfer Tax Bonds, Series 2018	$34,350
Capital Leases:	
27 Federal Street, St. Albans	$9,418
Self-Supporting Debt:	
Special Obligation Transportation Infrastructure Bonds (TIBs)	$25,115
Reserve Fund Commitments[1]:	
Vermont Municipal Bond Bank	$597,450
Vermont Housing Finance Agency	155,000
VEDA Indebtedness	175,000
Vermont Student Assistance Corporation	50,000
Vermont Telecommunications Authority[2]	40,000
Univ. of Vermont/State Colleges	100,000
Gross Direct and Contingent Debt	$1,770,383
Less:	
Self-Supporting Debt	(25,115)
Reserve Fund Commitments	(1,117,450)
Net Tax-Supported Debt	**$627,818**

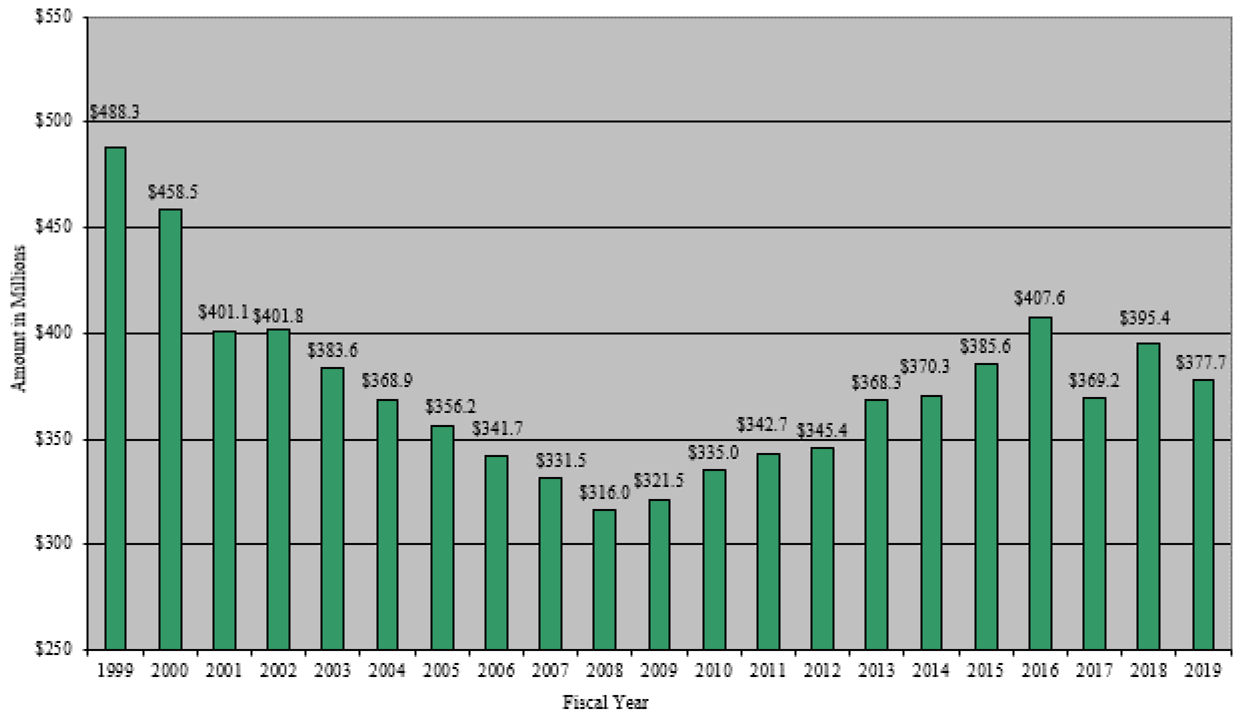
[1]Figures reflect the maximum amount permitted by statute. However, many of the issuers have not issued debt or have not issued the maximum amount of debt permitted by their respective statute. See "Moral Obligation Indebtedness" herein for additional information.

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

STATE OF VERMONT
LONG-TERM NET TAX-SUPPORTED DEBT OUTSTANDING FY 2010-2019 (in millions of dollars)



STATE OF VERMONT
GENERAL OBLIGATION DEBT OUTSTANDING, FY 1999-2019 ADJUSTED FOR INFLATION (in millions of dollars)



The table below sets forth the State's existing principal amounts outstanding and annual debt service requirements, as of June 30, 2019, without the issuance of any additional debt. Rating agencies consider Vermont's rapid debt amortization, with almost 71.6% of current principal retired by fiscal year 2030, to be a positive credit factor.

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

	GENERAL OBLIGATION BONDS (STATE DIRECT DEBT)									
	General Fund		Transportation Fund		VHFA Bonds		Capital Leases		Total	
Fiscal Year	Principal Outstanding	Debt Service*	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service	Principal Outstanding	Total Debt Service*
2019	580,819	72,783	3,231	1,630	34,350	2,502	9,418	922	627,818	77,836
2020	531,192	70,137	2,813	560	33,010	2,499	9,157	835	576,172	74,031
2021	481,499	68,234	2,396	541	31,635	2,500	8,862	854	524,392	72,129
2022	434,577	63,570	1,978	522	30,225	2,498	8,529	873	475,309	67,462
2023	389,490	60,008	1,560	502	28,775	2,499	8,157	893	427,982	63,902
2024	346,775	55,984	1,300	327	27,280	2,501	7,741	913	383,096	59,725
2025	304,110	54,292	1,040	317	25,745	2,496	7,280	933	338,175	58,037
2026	263,450	50,676	780	306	24,155	2,502	6,770	954	295,155	54,438
2027	224,755	47,250	520	295	22,515	2,500	6,207	976	253,997	51,021
2028	188,395	43,577	260	283	20,820	2,501	5,588	998	215,063	47,358
2029	154,195	40,204	-	272	19,070	2,498	4,908	1,020	178,173	43,994
2030	122,175	36,919	-	-	17,255	2,501	4,164	1,043	143,594	40,463

* 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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General Obligation and General Fund Supported Bond Debt and Debt Service Projections

The State's projected annual Long-Term Net Tax-Supported Debt debt service and debt outstanding are presented on the following pages and summarized below. The projected debt service (at estimated interest rates ranging from 5% to 6.5%) assumes the issuance $132,610,000 in FY 2021 and $61,590,000 each fiscal year from 2022-2030.

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
6/30/2019	77,836	10.93%	627,818	5.37%
6/30/2020	80,399	3.29%	655,162	4.36%
6/30/2021	79,689	-0.88%	732,007	11.73%
6/30/2022	88,903	11.56%	733,999	0.27%
6/30/2023	91,351	2.75%	734,687	0.09%
6/30/2024	93,483	2.33%	734,716	0.00%
6/30/2025	97,906	4.73%	731,625	-0.42%
6/30/2026	100,215	2.36%	727,355	-0.58%
6/30/2027	102,505	2.28%	721,832	-0.76%
6/30/2028	104,355	1.80%	715,418	-0.89%
6/30/2029	106,296	1.86%	707,938	-1.05%
6/30/2030	107,875	1.49%	699,654	-1.17%

* Please see table titled "Historic and Projected Debt Ratios" on page 30 for projected debt relative to projected Vermont revenues.

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EXISTING AND PROJECTED NET TAX-SUPPORTED G.O. DEBT SERVICE ($000)													
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
	Current	Issue[1]	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Est.
FY	D/S	$0.000M	132.610M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	D/S
		5.00%	5.50%	6.00%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	6.50%	
2020	80,399	0	0	0	0	0	0	0	0	0	0	0	80,399
2021	79,689	0	0	0	0	0	0	0	0	0	0	0	79,689
2022	74,980	0	13,924	0	0	0	0	0	0	0	0	0	88,903
2023	71,016	0	13,559	6,775	0	0	0	0	0	0	0	0	91,351
2024	66,614	0	13,194	6,591	7,083	0	0	0	0	0	0	0	93,483
2025	64,704	0	12,830	6,406	6,883	7,083	0	0	0	0	0	0	97,906
2026	60,880	0	12,465	6,221	6,683	6,883	7,083	0	0	0	0	0	100,215
2027	57,236	0	12,100	6,036	6,483	6,683	6,883	7,083	0	0	0	0	102,505
2028	53,353	0	11,736	5,851	6,283	6,483	6,683	6,883	7,083	0	0	0	104,355
2029	49,761	0	11,371	5,667	6,082	6,283	6,483	6,683	6,883	7,083	0	0	106,296
2030	46,007	0	11,006	5,482	5,882	6,082	6,283	6,483	6,683	6,883	7,083	0	107,875

EXISTING AND PROJECTED NET TAX-SUPPORTED G.O. BOND PRINCIPAL PAYMENTS ($000)													
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
	Current	Issue[1]	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Est.
FY	Principal	$0.000M	132.610M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	Principal
2020	56,061	0	0	0	0	0	0	0	0	0	0	0	56,061
2021	55,765	0	0	0	0	0	0	0	0	0	0	0	55,765
2022	52,968	0	6,630	0	0	0	0	0	0	0	0	0	59,598
2023	51,193	0	6,630	3,080	0	0	0	0	0	0	0	0	60,903
2024	48,770	0	6,630	3,080	3,080	0	0	0	0	0	0	0	61,560
2025	48,811	0	6,630	3,080	3,080	3,080	0	0	0	0	0	0	64,681
2026	46,910	0	6,630	3,080	3,080	3,080	3,080	0	0	0	0	0	65,860
2027	45,083	0	6,630	3,080	3,080	3,080	3,080	3,080	0	0	0	0	67,113
2028	42,894	0	6,630	3,080	3,080	3,080	3,080	3,080	3,080	0	0	0	68,004
2029	40,879	0	6,630	3,080	3,080	3,080	3,080	3,080	3,080	3,080	0	0	69,069
2030	38,604	0	6,630	3,080	3,080	3,080	3,080	3,080	3,080	3,080	3,080	0	69,874

EXISTING AND PROJECTED NET TAX-SUPPORTED G.O. BONDS OUTSTANDING ($000)													
		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
	Current	Issue[1]	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Est.
FY	Debt	$0.000M	132.610M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	61.590M	Debt
2019	627,818	0	0	0	0	0	0	0	0	0	0	0	627,818
2020	655,162	0	0	0	0	0	0	0	0	0	0	0	655,162
2021	599,397	0	132,610	0	0	0	0	0	0	0	0	0	732,007
2022	546,429	0	125,980	61,590	0	0	0	0	0	0	0	0	733,999
2023	495,237	0	119,350	58,510	61,590	0	0	0	0	0	0	0	734,687
2024	446,466	0	112,720	55,430	58,510	61,590	0	0	0	0	0	0	734,716
2025	397,655	0	106,090	52,350	55,430	58,510	61,590	0	0	0	0	0	731,625
2026	350,745	0	99,460	49,270	52,350	55,430	58,510	61,590	0	0	0	0	727,355
2027	305,662	0	92,830	46,190	49,270	52,350	55,430	58,510	61,590	0	0	0	721,832
2028	262,768	0	86,200	43,110	46,190	49,270	52,350	55,430	58,510	61,590	0	0	715,418
2029	221,888	0	79,570	40,030	43,110	46,190	49,270	52,350	55,430	58,510	61,590	0	707,938
2030	183,284	0	72,940	36,950	40,030	43,110	46,190	49,270	52,350	55,430	58,510	61,590	699,654

(1) The State issued the 2019A Bonds and 2019B Bonds in FY 2020 and does not expect to issue any future general obligation bonds in FY 2020.

Net Tax-Supported Debt Service by Fiscal Year

The State's scheduled Long-Term Net Tax-Supported Debt debt service requirement ("D/S") for fiscal year 2020 is $80.4 million, 6.3% more than the $75.3 million paid in fiscal year 2019 due to the addition of the VHFA Property Transfer Bonds. Fiscal year 2020 D/S would have increased only 3.4% if the VHFA Property Transfer Bonds were not included.

(in $ thousands)	
Long-Term Net Tax-Supported D/S Paid in FY 2019[1]	$75,334
Decrease in D/S Requirement FY 2019	(3,802)
D/S Decrease Due to G.O. Refunding in FY 2019/2020[2]	(628)
D/S Increase Due to G.O. Debt Issued in FY 2019/2020[3]	6,996
D/S Increase Due to Inclusion of VHFA Property Transfer Bonds	2,499
Long-Term Net Tax-Supported D/S Due in FY 2020[4]	$80,399

[1] The net debt service amount shown includes the interest subsidy from the federal government (calculated to be $1,180,392.50 during FY 2019), payable on the $87,050,000 Build America Bonds as part of the 2010 Series A-2 and D-2 bond issues. 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.
[3] Includes debt service on the 2019A Bonds issued in the aggregate amount of $88,255,000 and the 2019B 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 $906,547.25 during FY 2020), payable on the $40,800,000 Build America Bonds 2010 Series A-2 issue through the redemption date of September 16, 2019 and on the $46,250,000 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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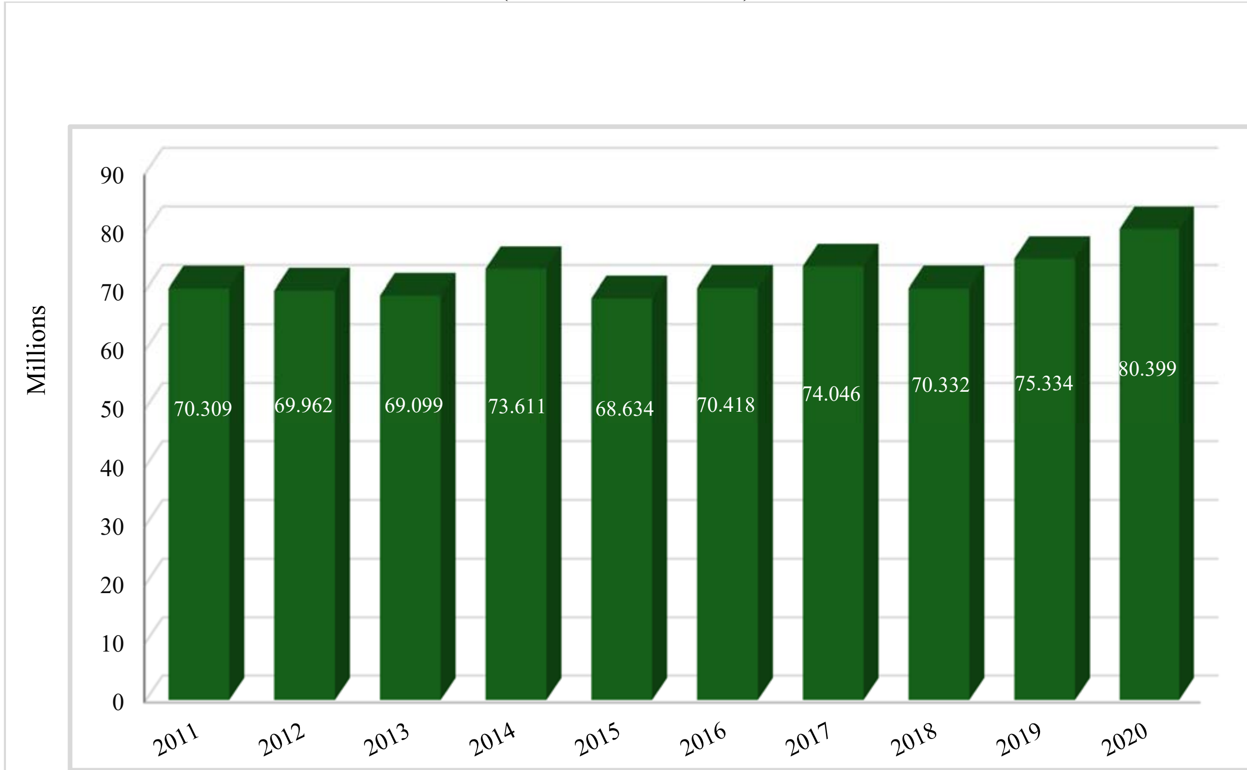
STATE OF VERMONT
HISTORICAL LONG-TERM NET TAX-SUPPORTED DEBT
DEBT SERVICE[1,2,3]

(millions of dollars)



[1]Consists of G.O. and Capital Leases debt prior to fiscal year 2020 and consists of Long-Term Net Tax-Supported Debt in fiscal year 2020. 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" on page 30 for debt ratios relative to historic Vermont revenues and economic data.

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

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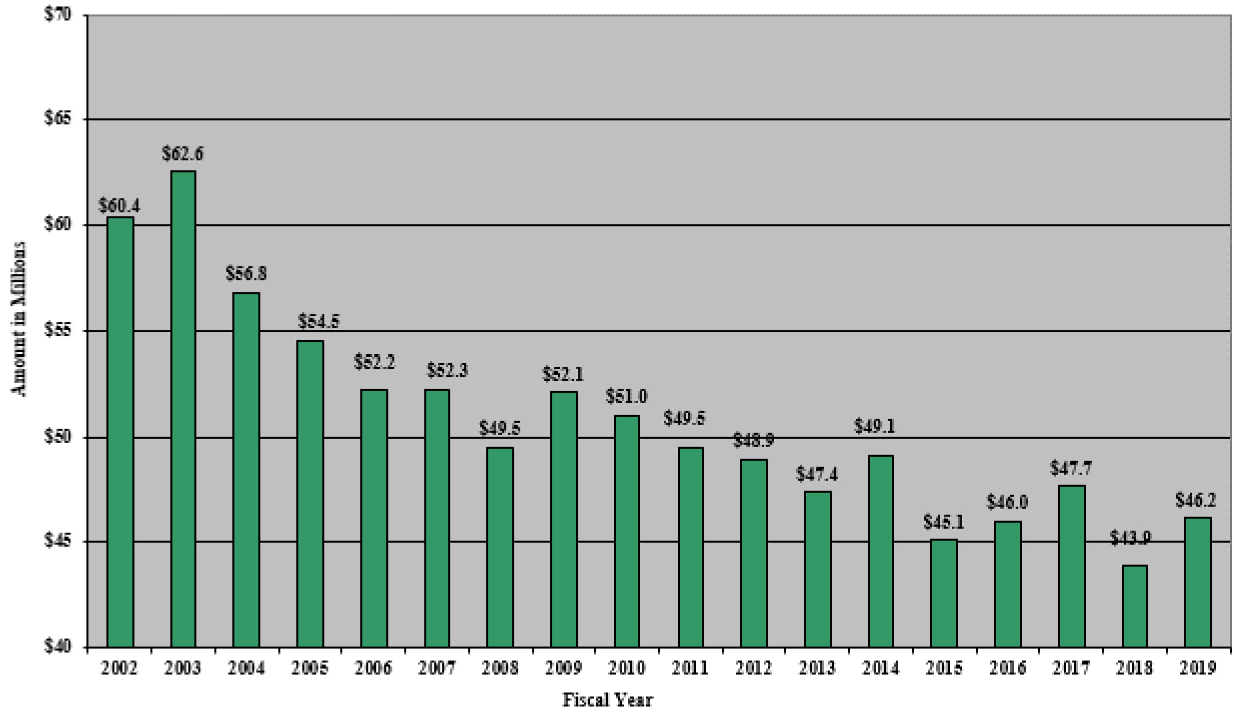
STATE OF VERMONT
GENERAL OBLIGATION DEBT SERVICE, FY 2002-2019
ADJUSTED FOR INFLATION (in millions of dollars)



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Authorized, But Unissued Debt

CDAAC believes the State's 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 has enhanced the State's credit position, as it is viewed favorably 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.

Special Obligation Transportation Infrastructure Bonds (TIBs)

The State has historically sold only G.O. bonds for its capital infrastructure purposes. Beginning in 2010, however, the State issued its first Special Obligation Transportation Infrastructure Bonds. 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.

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 the past year, Moody's and Fitch both affirmed their Aa2 and AA ratings, respectfully, for the TIBs.

Moral Obligation Indebtedness

Provided below is a summary of the State's moral obligation commitments as of June 30, 2019:

Reserve Fund Commitments (all figures as of June 30, 2019):

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, 2019, the VMBB has issued 86 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, 2019 was $597,450,000, and the principal amount of loans outstanding to municipal borrowers as of June 30, 2019 was $572,826,855. 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, 2019, the VMBB has also issued one 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, 2018, the principal amount of bonds outstanding under the 2017 Resolution was $67,660,000. The 2017 Resolution bonds are <u>not</u> 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, 2019, the VHFA's total outstanding indebtedness was $469,621,190. 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, 2019, the principal amount of outstanding debt covered by this moral obligation was $35,150,000. As of June 30, 2019, the debt service reserve fund requirement for this debt was $2,982,094, and the value of the debt service reserve fund was $3,043,999. 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 $80 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, 2019 was $92.3 million, which is part of the variable and fixed-rate note payable balances outstanding as of June 30, 2019 with $98 million outstanding. Act No. 157 (H.916), enacted in May 2018, increased VEDA's debt capacity from $155,000,000 to $175,000,000, effective July 1, 2018. 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 $5.1 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 nine (9) 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 $1,117.5 million, with the VMBB and VEDA granted most of the difference. However, the actual amount of moral obligation debt outstanding in the amount of $792.7 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:

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Reserve Fund Commitments:

State of Vermont
Moral Obligation Commitments and Debt Outstanding
As of July 1, 2019

Issuer Name	Amount Provided In Statute	Actual Par Amount Outstanding
Vermont Municipal Bond Bank	$597,450,000	$597,450,000
Vermont Economic Development Authority	175,000,000	155,000,000
Vermont Housing Finance Agency	155,000,000	35,150,000
Vermont Student Assistance Corporation	50,000,000	5,100,000
University of Vermont	66,000,000	0
Vermont State Colleges	34,000,000	0
Vermont Telecommunications Authority	40,000,000	0
	$1,117,450,000	$792,700,000

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, 2019, at $627,818,025. Using 225% of Long-Term Net Tax-Supported Debt for establishing a limit of moral obligation debt, the State would have had $295,140,556 in additional moral obligation capacity. Using 200% of G.O. debt for establishing a limit of moral obligation debt, the State would have had $138,186,050 in additional capacity. Using a more conservative 195%, the State still has $106,795,149 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 continuously 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 (i.e., G.O., at present) 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 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.

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 two 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. Recently, Minnesota was upgraded by S&P and is now included within the Peer Group. 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. However, with the addition of Minnesota to the Peer Group last year and its larger net tax-supported debt per capita compared to other states within the Peer Group, the median debt statistic for the Peer Group actually increased in regards to Debt Per Capita. This year, however, the Peer Group's median Debt Per Capita decreased from $694 in 2018 to $618 in 2019, median Debt as a Percentage of Personal Income decreased from 1.5% in 2018 to 1.3% in 2019 and median Debt as a Percentage of Gross State Product decreased from 1.3% in 2018 to 1.2% in 2019. Vermont was not in the majority of states within the Peer Group that reduced debt levels in 2018. As a result, Vermont's increased debt levels deteriorated the State's relative rankings. 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 $934 and the 5-year average of the median of the Peer Group is $701. Based on data from Moody's, Vermont's 5-year average debt per capita figure is $1,030, 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 2018 (with a ranking of 25th), the State's position slipped each year, and in 2019, the State stayed within its ranking of the 25th position. (The State did not conduct its annual G.O. bond issuance in FY 2018). 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 2.0% for the median respectively (the five-year average of Moody's Mean and Moody's Median for the Peer Group is 2.0% and 1.7%, respectively). Based on data from Moody's, Vermont's net tax supported debt as a percent of personal income is 2.2%, 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) and slightly decreased in 2019 with a current ranking in the 26th 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 debt service as a percent of the annual aggregate of General and Transportation Funds revenue. At present, this ratio equals approximately 4.0%, 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) range on pro forma bond issues from 5.0% in fiscal year 2020, increasing annually by 0.5% to a maximum rate of 6.5% in fiscal years 2023 through 2030.

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 2.0%, is substantially lower than the CDAAC guideline, and results in Vermont's comparatively high (favorable) Moody's ranking of 38th 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. This 2019 CDAAC Report continues to utilize general and transportation revenues as if Act 11 did not occur. The 2020 report is expected to contain post Act 11 General Fund Revenue, an adjustment of historical revenue for comparability and may have a revised Debt Service as a Percentage of Revenues guideline. Please see Section 5, "Economic and Financial Forecasts."

Debt as a Percent of Gross State Product

At present the 2019 Moody's mean and median for debt as a percentage of gross state product for the Peer Group is 1.6% and 1.2%, 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 2019 statistics based on 2018 net tax supported debt as a percentage of 2017 state gross domestic product.) Based on data from Moody's, Vermont's 2018 net tax supported debt as a percentage of gross state product is 2.20%, 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 1.7% and 1.4% for the Peer Group, respectively. According to Moody's most recent information, the State's relative position among states was 32nd in 2013, 30th in 2014 27th in 2015 and 2016, 25th in 2017, 28th in 2018 and 23rd in 2019.

STATE OF VERMONT
2019 STATES RATED TRIPLE-A BY TWO OR MORE RATING AGENCIES
(as of September 11, 2019)

2019 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. Seventeen states were currently rated triple-A by one or more of the nationally recognized rating agencies at the end of Fiscal 2018. Sixteen states are currently rated triple-A by two or more of the nationally recognized rating agencies.

(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.

* Alaska was rated as a triple-a state by all three national credit rating agencies. S&P downgraded Alaska in January 2016 reflected by the "state's credit quality as oil prices have continued to slide, falling below forecasts from earlier this year, causing an already large structural gulf between unrestricted general fund revenues and expenditures to widen further." Moody' downgraded Alaska in February 2016 reflected by the "heightened volatility in Alaska's revenues and the unprecedented imbalance caused by it." Fitch downgraded Alaska in June 2016 reflected by the "substantial operating deficits recorded by the state in recent fiscal years and the modest reform efforts taken to date to realign its stressed, petroleum-based revenue structure with expenditure demands." In September 2019, Alaska was downgraded again by Fitch from AA to AA-.

STATE OF VERMONT
MEAN DEBT RATIOS

Per Capita	2015	2016	2017	2018	2019
All States	$1,419	$1,431	$1,473	$1,477	$1,493
Triple-A[1]	980	904	901	929	958
VERMONT	**954**	**1,002**	**1,068**	**987**	**1,140**

% of Personal Income	2015	2016	2017	2018	2019
All States	3.1%	3.0%	3.0%	2.9%	2.8%
Triple-A[1]	2.3	2.1	2.0	2.0	1.9
VERMONT	**2.0**	**2.1**	**2.1**	**2.0**	**2.2**

(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: $934 MEDIAN: $701
5-Year Average Vermont: $1,030

Triple-A Rated States[1]	Moody's Ratings[2]	S&P Ratings[2]	Fitch Ratings[2]	Moody's Debt Per Capita 2015	2016	2017	2018	2019
Alaska	Aa3/Stable	AA/Stable	AA-/Stable	$1,489	$1,422*	$1,691*	$1,574*	*$1,466
Delaware	Aaa/Stable	AAA/Stable	AAA/Stable	2,438	2,385	2,544	2,587	3,206
Florida	Aaa/Stable	AAA/Stable	AAA/Stable	973	1,038	961	889	812
Georgia	Aaa/Stable	AAA/Stable	AAA/Stable	1,043	1,029	992	986	996
Indiana	Aaa/Stable	AAA/Stable	AAA/Stable	474	463	310	295	270
Iowa	Aaa/Stable	AAA/Stable	AAA/Stable	250	239	228	219	207
Maryland	Aaa/Stable	AAA/Stable	AAA/Stable	1,889	1,928	2,122	2,164	2,343
Minnesota	Aa1/Stable	AAA/Stable	AAA/Stable	1,538*	1,527*	1,480*	1,430	1,415
Missouri	Aaa/Stable	AAA/Stable	AAA/Stable	606	574	579	532	487
North Carolina	Aaa/Stable	AAA/Stable	AAA/Stable	739	721	659	611	531
South Carolina	Aaa/Stable	AA+/Stable	AAA/Stable	672	603	564	517	503
South Dakota	Aaa/Stable	AAA/Stable	AAA/Stable	547*	652	641	694	618
Tennessee	Aaa/Stable	AAA/Stable	AAA/Stable	327	298	322	312	305
Texas	Aaa/Stable	AAA/Stable[4]	AAA/Stable	406	383	383	410	389
Utah	Aaa/Stable	AAA/Stable	AAA/Stable	1,060	921	824	772	792
Virginia	Aaa/Stable	AAA/Negative	AAA/Stable	1,356	1,418	1,486	1,515	1,502
MEAN[3]	___________	___________	__________	**980**	**904**	**901**	**929**	**958**
MEDIAN[3]	___________	___________	__________	**856**	**687**	**650**	**694**	**618**
VERMONT	Aa1/Stable	AA+/Stable	AA+/Stable	**954**	**1,002**	**1,068**	**987**	**1,140**

(1) States that carry at least two triple A ratings.
(2) Ratings as of September 11, 2019.
(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: 2.0% MEDIAN: 1.7%
5-Year Average Vermont: 2.1%

Triple-A Rated States	Moody's Debt as % of 2017 Personal Income				
	2015	2016	2017	2018	2019
Alaska	3.0%	2.7%*	3.0%*	2.8%*	2.6%*
Delaware	5.5	5.2	5.4	5.5	6.5
Florida	2.4	2.5	2.2	2.4	1.7
Georgia	2.8	2.7	2.5	2.0	2.3
Indiana	1.2	1.2	0.8	0.7	0.6
Iowa	0.6	0.5	0.5	0.5	0.4
Maryland	3.5	3.5	3.8	3.7	3.8
Minnesota	3.2*	3.2*	2.9*	2.8	2.6
Missouri	1.5	1.4	1.4	1.2	1.1
North Carolina	1.9	1.8	1.6	1.5	1.2
South Carolina	1.9	1.7	1.5	1.3	1.2
South Dakota	1.2*	1.4	1.4	1.5	1.3
Tennessee	0.8	0.7	0.8	0.7	0.7
Texas	1.0	0.9	0.8	0.9	0.8
Utah	3.0	2.5	2.1	1.9	1.9
Virginia	2.8	2.9	2.9	2.9	2.7
MEAN[1]	**2.3**	**2.1**	**2.0**	**2.0**	**1.9**
MEDIAN[1]	**2.2**	**1.8**	**1.6**	**1.5**	**1.3**
VERMONT	**2.0**	**2.1**	**2.1**	**2.0**	**2.2**

(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 11, 2019.
*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: 1.7% MEDIAN: 1.4%
5-Year Average Vermont: 2.1%

Moody's Debt as % 2017 Gross State Domestic Product					
Triple-A Rated States	**2015**	**2016**	**2017**	**2018**	**2019**
Alaska	1.9%	1.9%*	2.4%*	2.3%*	2.1%*
Delaware	3.6	3.6	3.5	3.5	4.3
Florida	2.4	2.5	2.2	2.0	1.8
Georgia	2.3	2.2	2.1	1.9	1.9
Indiana	1.0	1.0	0.6	0.6	0.5
Iowa	0.5	0.5	0.4	0.4	0.4
Maryland	3.3	3.3	3.5	3.4	3.6
Minnesota	2.7*	2.6*	2.5*	2.4	2.3
Missouri	1.3	1.3	1.2	1.1	1.0
North Carolina	1.6	1.5	1.4	1.2	1.0
South Carolina	1.8	1.6	1.4	1.2	1.2
South Dakota	1.0*	1.2	1.2	1.3	1.1
Tennessee	0.7	0.7	0.7	0.6	0.6
Texas	0.7	0.6	0.7	0.7	0.7
Utah	2.2	2.0	1.7	1.5	1.5
Virginia	2.5	2.6	2.6	2.6	2.5
MEAN[1]	**1.8**	**1.8**	**1.7**	**1.6**	**1.6**
MEDIAN[1]	**1.8**	**1.6**	**1.4**	**1.3**	**1.2**
VERMONT	**2.0**	**2.0**	**2.1**	**2.0**	**2.2**

(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 11, 2019.

*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]									
2007	706	787	28	2.1	2.4	30	5.1	n.a.	n.a.
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	n.a.	n.a.
2011	747	1,066	37	1.9	2.8	36	5.1	n.a.	n.a.
2012	792	1,117	34	2.0	2.8	36	4.9	n.a.	n.a.
2013	811	1,074	33	1.9	2.8	35	4.6	n.a.	n.a.
2014	878	1,054	30	2.0	2.6	34	4.7	n.a.	n.a.
2015	954	1,012	28	2.1	2.5	31	4.2	n.a.	n.a.
2016	1,002	1,027	27	2.1	2.5	30	4.2	n.a.	n.a.
2017	1,068	1,006	24	2.2	2.5	27	4.3	n.a.	n.a.
2018	987	987	25	2.0	2.3	28	4.0	n.a.	n.a.
2019	1,140	1,068	25	2.2	2.2	26	4.0	n.a.	n.a.
Current [2]	1,001	n.a.	n.a.	1.8	n.a.	n.a.	4.0	n.a.	n.a.
Projected (FYE 6/30) [3]		State Guideline [6]			State Guideline [7]			State Guideline	
2020	1,043	720		1.8	2.0		4.1	6.0	
2021	1,163	739		2.0	2.0		4.1	6.0	
2022	1,164	759		2.0	2.0		4.5	6.0	
2023	1,163	780		1.9	2.0		4.5	6.0	
2024	1,161	801		1.9	2.0		4.5	6.0	
2025	1,154	823		1.8	2.0		4.6	6.0	
2026	1,145	845		1.7	2.0		4.5	6.0	
2027	1,135	868		1.7	2.0		4.5	6.0	
2028	1,123	891		1.6	2.0		4.4	6.0	
2029	1,110	915		1.5	2.0		4.3	6.0	
2030	1,096	940		1.5	2.0		4.2	6.0	
5-Year Average of Moody's Mean for Triple-A States		934			2.0			n.a.	
5-Year Average of Moody's Median for Triple-A States		701			1.7			n.a.	

Note: Shaded figures in fiscal years 2020-2030 represent the period when Vermont's debt per capita is projected to exceed the projected State Guideline consistent with the current debt per capita 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, Debt Per Capita State Guideline – Future Debt Capacity Risk."

(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 $627.818 million (including VHFA Property Transfer Bonds) as of 6/30/19 divided by Vermont's 2019 population of 627,113 as projected by EPR.

(3) Projections assume issuance of $132.610 million of G.O. debt in FY 2021 and $61.590 million in FY 2022 through FY 2030.

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

(5) Revenues are adjusted reflecting "current law" revenue forecasts, excluding changes related to Act 11 as calculated by EPR, based on a consensus between the State's administration and legislature. 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 ranging from 5% to 6.5% over the project period. Calculated by Public Resources Advisory Group.

(6) State Guideline equals the 5-year average of Moody's median for the Peer Group of $701 increasing annually at 2.7%.

(7) The 5-year average of Moody's median for the Peer Group is 1.7%. Since the annual number is quite volatile, ranging from 1.7% to 2.4% over the last five years, the State Guideline is 2.0% for FY 2020 - FY 2030.

"Dashboard" Indicators

	Vermont[a]	Median Triple-A States[d]
Long-Term Net Tax-Supported Debt:	$627,818,025	$3,101,007,000[c]
Debt As A Percent Of Gross State Product:	1.81%	1.2%[c]
Debt Per Capita:	$1,001	$618[c]
Debt As A Percent Of Personal Income:	1.82%	1.3%[c]
Debt Service As A Percent Of Operating Revenue[b]:	4.03%	N/A
Rapidity Of Debt Retirement:	39.0% (In 5 Years)	N/A
	71.6% (In 10 Years)	N/A
	93.1% (In 15 Years)	N/A
	100.00% (In 20 Years)	N/A

(a) Debt statistics for Vermont are as of June 30, 2019. Estimates of FY 2019 Gross State Product, Population, Personal Income and Operating Revenue prepared by EPR.
(b) Aggregate of State's General Fund, excluding changes related to Act 11 as calculated by EPR, and Transportation Fund.
(c) Source: Moody's Investors Service, 2019 State Debt Medians Report calculated by Public Resources Advisory Group.
(d) 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 11, 2019.

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Special Obligation Transportation Infrastructure Bonds (TIBs)

As discussed in Section 4, "National Credit Rating Methodologies and Criteria," the rating agencies have effectively indicated the TIB debt, supported by the assessments, should be considered as part of the State's general indebtedness. CDAAC has considered TIBs self-supporting revenue bonds, and not net tax-supported indebtedness of the State. For purposes of illustration, however, it is relevant to quantify the impact of TIBs inclusion in the more critical debt ratios, as shown below:

STATE OF VERMONT
DEBT RATIOS WITH AND WITHOUT CONSIDERING TIBS
As of June 30, 2019

	With TIBs(1)(2)	Without TIBs(2)
Long-Term Net Tax-Supported Debt:	$652,933,025	$627,818,025
Debt As A Percent of Gross State Product:	1.88%	1.81%
Debt Per Capita:	$1,041	$1,001
Debt As A Percent of Personal Income:	1.90%	1.82%
Debt Service as a Percent of Operating Revenue(3):	4.29%	4.03%

(1)As of June 30, 2019, the outstanding principal amount of the State's Special Obligation Transportation Infrastructure Bonds, 2010 Series A, 2012 Series A and 2013 Series A, was $8,885,000, $7,565,000 and $8,665,000, respectively.
(2)Debt statistics for Vermont are as of June 30, 2019. Estimates of FY 2019 Gross State Product, Population, Personal Income and Operating Revenue were prepared by EPR.
(3)Includes changes related to Act 11, as calculated by EPR.

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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 "Dash Board Operating Revenues"). 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 discussed in the "Special Obligation Transportation Infrastructure Bonds (TIBs)" section of the report, the credit rating agencies include TIBs in their calculation of NTSD. Based on this assumption, Moody's debt and pension sub-factor for Vermont for FY 2018 is approximately 16.6%.

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 "Adjusted Net Pension Liabilities Decline; OPEB Liabilities Vary Widely," dated September 17, 2019, Vermont's 2018 Adjusted Net Pension Liability (ANPL) and Net-Tax Supported Debt (NTSD) as a percent of state GDP was 16.6%. Vermont's 2018 fixed costs as a percentage of state revenue is 8.1%. 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 to Raise Operating Revenues Without External Approval (in Relation to Normal Cyclical Revenue Decline)	High Minimum revenue increase at least 300% of the scenario revenue decline	Substantial Maximum revenue increase at least 200% of the scenario revenue decline	Satisfactory Maximum revenue increase at least 100% of the scenario decline	Moderate Maximum revenue increase at least 50% of the scenario revenue decline	Limited 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 2020 through 2021" prepared by Economic and Policy Resources, Inc. ("EPR") dated July 29, 2019.

"With an apparently "more dovish" outlook on the monetary policy front from the Federal Reserve, with the prospect of another round of federal fiscal stimulus resulting from the most recent two-year agreement on federal spending (a possible veto notwithstanding over border wall funding), this staff recommended consensus revenue forecast update expects that the current national and State economic upturns will continue over at least the near-term timeframe. In fact, it remains possible that the current record-setting upturn will in fact potentially last through the entire forecast update period. This is likely to be the case, even though there continues to be a high degree of uncertainty in the economic outlook associated with the aging economic up-cycle (which would be typical for any aging economic upturn), the now ebbing effect of the federal fiscal stimulus tied to the December 2017 passage of the Tax Cuts and Jobs Act ("TCJA"), the apparent slowdown in the global economy (especially in Europe, China, and many parts of the developing world), and continuing high levels of policy and geopolitical uncertainty. Chief among those policy and geopolitical concerns include global trade matters (particularly with respect to U.S.-China trade), the possibility of a less than orderly "Brexit" in the in the EU, and recently escalating security issues in the Persian Gulf – particularly with respect to energy supply."

"Assuming the current U.S. economic upturn survives through the end of this month (e.g. for two more days), the current U.S. economic upturn will officially become the longest period of sustained economic recovery expansion in recorded economic history dating back to 1854. In fact, even with the fiscal stimulus from the federal TCJA winding down (potentially to be replaced by the new two-year spending agreement—although a veto over border wall funding still remains a possibility) and the U.S. economy currently growing a bit less than its potential, it remains difficult to put forth a credible, plausible case for the onset of an overall and sustained downturn in the economy anytime within the near-term (e.g. 18 to 24 months) time horizon. The nature of the dynamics associated with the currently "mature business cycle" and the on-going trade tensions between the Administration and China along (with similar trade uncertainty—including tariff threats— concerning a number of other trading partners) have combined to significantly increased the possibility that something could "go wrong," that could push the U.S. economy into a general downturn. While this risk is not great in the short-term, the risk increases the farther out into the State's five-year fiscal planning time horizon the outlook goes"

"In Vermont, the State's economy for its part, reflects a generally "steady-as-you-go" but still improving outlook, with the State's various macro indicators and benchmarks increasing at below the national average rates of change reflecting the State's demographic challenges to economic and labor market growth. Although current data show the State's population (and labor force) data showing modest turnarounds, signs of a conclusive turnaround are still pending and likely require confirmation from the 2020 census (for the population data) and at least two to three more years of labor market information (for conclusive evidence of a sustained turnaround in the labor force). The negative demographic factors impacting the

State's economy and growth potential look to be very similar to those impacting Northern New England and upstate New York rural areas over the past ten or so years."

Provided below are EPR's 2019 economic projections as compared to its 2018 economic projections. As shown, the 2019 projections show an increase in population in all years of the forecast. Furthermore, the forecast for nominal personal income display an increase for the entire forecast period. The 2019 General Fund (based on pre-Act 11 revenues) and Transportation Fund revenue projections are higher throughout the forecast period, as well. 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 slightly lower share of the State's personal income for government operations for the majority of the projection years.

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STATE OF VERMONT
POPULATION, PERSONAL INCOME AND REVENUE PROJECTIONS

2019 COMPARED TO 2018 PROJECTIONS

Population (Thousands)

Year	2018	2019	Change	% Change
2019	624.22	627.11	2.89	0.46%
2020	624.97	628.24	3.27	0.52%
2021	625.84	629.44	3.60	0.57%
2022	626.91	630.57	3.66	0.58%
2023	627.91	631.77	3.86	0.61%
2024	628.91	632.90	3.99	0.64%
2025	629.86	633.98	4.12	0.65%
2026	630.80	634.99	4.19	0.66%
2027	631.75	635.95	4.20	0.66%
2028	632.70	636.84	4.14	0.65%
2029	633.65	637.66	4.01	0.63%
2030		638.43	n.a.	n.a.

Nominal Dollar Personal Income (Millions)

Year	2018	2019	Change	% Change
2019	32,958.63	34,407.86	1,449.23	4.40%
2020	34,095.39	35,440.10	1,344.71	3.94%
2021	35,062.84	36,219.78	1,156.94	3.30%
2022	36,072.57	37,342.60	1,270.03	3.52%
2023	37,287.69	38,388.19	1,100.50	2.95%
2024	38,425.80	39,463.06	1,037.26	2.70%
2025	39,617.90	40,607.49	989.59	2.50%
2026	40,906.39	41,825.71	919.32	2.25%
2027	42,254.92	43,080.48	825.56	1.95%
2028	43,671.65	44,459.06	787.41	1.80%
2029	45,185.14	45,837.29	652.15	1.44%
2030		47,212.41	n.a.	n.a.

General Fund and Transportation Fund Reserve (Millions)

Year	2018	2019	Change	% Change
2019	1,864.92	1,930.52	65.60	3.52%
2020	1,898.65	1,935.19	36.54	1.92%
2021	1,911.72	1,949.87	38.15	2.00%
2022	1,950.80	1,983.67	32.87	1.68%
2023	2,008.66	2,032.58	23.92	1.19%
2024	2,069.26	2,084.53	15.27	0.74%
2025	2,128.87	2,148.95	20.08	0.94%
2026	2,189.93	2,217.52	27.59	1.26%
2027	2,248.45	2,290.71	42.26	1.88%
2028	2,313.48	2,373.22	59.74	2.58%
2029	2,382.55	2,457.06	74.51	3.13%
2030		2,540.51	n.a.	n.a.

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

Year	2018	2019	Change	% Change
2019	5.7%	5.6%	0.0%	-0.8%
2020	5.6%	5.5%	-0.1%	-1.9%
2021	5.5%	5.4%	-0.1%	-1.3%
2022	5.4%	5.3%	-0.1%	-1.8%
2023	5.4%	5.3%	-0.1%	-1.7%
2024	5.4%	5.3%	-0.1%	-1.9%
2025	5.4%	5.3%	-0.1%	-1.5%
2026	5.4%	5.3%	-0.1%	-1.0%
2027	5.3%	5.3%	0.0%	-0.1%
2028	5.3%	5.3%	0.0%	0.8%
2029	5.3%	5.4%	0.1%	1.7%
2030		5.4%	n.a.	n.a.

[1] Forecasted revenues are based on economic data prior to the passage of Act 11 (H.16).

The growth improvement in projected personal income from the previous year forecast will impact Vermont's debt guideline of debt as a percentage of personal income. Higher personal income numbers will decrease the State's debt as a percentage of personal income at a constant amount of debt. The State is still under its guidelines of 2.0% with the increase in forecasted personal income figures.

Provided below are the forecasts of population, personal income, and nominal gross State product. As shown in the table below, population for fiscal year 2019 and 2020 is 627.1 thousand and 628.2 thousand, respectively, initially an increase of 0.13% and 0.18%, over the previous fiscal years. Personal income for fiscal year 2019 and 2020 is $33.6 billion and $34.4 billion, respectively, an increase of 2.50% and 3.00%, over the previous fiscal year, respectively. Nominal gross State product for fiscal year 2019 and 2020 is $33.7 billion and $34.7 billion, respectively, an increase of 2.80% and 3.26, over the previous fiscal 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)
2018	626.3	33.6	33.7
2019	627.1	34.4	34.7
2020	628.2	35.4	35.8
2021	629.4	36.2	37.2
2022	630.6	37.3	38.8
2023	631.8	38.4	40.3
2024	632.9	39.5	41.8
2025	634.0	40.6	43.3
2026	635.0	41.8	44.8
2027	635.9	43.1	46.5
2028	636.8	44.5	48.2
2029	637.7	45.8	50.0
2030	638.4	47.2	51.7

(1) Administration-Legislative Consensus Long-Term Forecast (Calendar Years 2019-2030). These figures were prepared by EPR, as of August 29, 2019.

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As shown in the table below, total revenue for fiscal year 2019 is $95.2 million more than in fiscal year 2018, an increase of 5.2%. Fiscal year 2020 total revenue is forecasted to increase by $4.7 million, or 0.2%; the average annual revenue growth rate during the fiscal year period, 2020 through 2030, inclusive, is projected to be 3.51%.

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	1,652.3	280.7	1,933.0
2020	1,653.1	284.6	1,937.7
2021	1,664.4	288.0	1,952.4
2022	1,694.5	291.7	1,986.2
2023	1,739.8	295.2	2,035.1
2024	1,788.4	298.6	2,087.0
2025	1,848.9	302.6	2,151.5
2026	1,913.1	307.0	2,220.0
2027	1,982.2	311.0	2,293.2
2028	2,060.3	315.5	2,375.7
2029	2,139.4	320.1	2,459.6
2030	2,218.3	324.7	2,543.0

(1) Administration-Legislative Consensus Long-Term Forecast (Calendar Years 2019-2030). 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 29, 2019.

(2) Totals may not agree due to rounding.

(3) Forecasted revenues are based on economic data prior to 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 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 establish the recommended limitations on the amount of G.O. 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.

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. Thus, approximately $311 million of revenue which would have been allocated to the General Fund in FY 2019 now directly flows to the Education Fund. 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 utilize 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. As previously mentioned in Section 3, "Debt Service as a Percentage of Revenues," the 2020 CDAAC Report is expected to include post Act 11 General Fund Revenue, an adjustment of historical revenue for comparability and a revised Debt Service as a Percentage of Revenues guideline.

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 2019 report, indicated the net tax-supported debt for US States remained virtually unchanged since 2011 with an average annual growth rate of 0.6%.

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. In 2017, states issued fewer bonds to improve roads, water systems and other infrastructure project due to the fact that they waited to learn the particulars of President Trump's $1.5 trillion infrastructure plan. The approved federal fiscal year 2019 U.S. budget revealed federal infrastructure spending will increase compared to 2017 and 2018.

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.

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.

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 and 6.2% for federal fiscal year 2019. The federal fiscal year 2020 rate is 5.9%.

Through fiscal year 2019, 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 $461,244.06. Based on the federal fiscal year 2020 rate of a 5.9% reduction and the elimination of the 2010 Series A-2 subsidy with the issuance of the 2019B Bonds, the subsidy is reduced by $32,665.72 in fiscal year 2020. If the 5.9% reduction continues, the subsidy will be reduced by another $31,852.62 in fiscal 2021 with declining annual amounts through the maturity date totaling $165,561.38 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 $32,665.72 reduction in fiscal year 2020 equates to approximately 0.04% of the projected $80.399 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 17, 2019, Moody's published its annual state pension report titled "Adjusted Net Pension Liabilities Decline; OPEB Liabilities Vary Widely," which updated Moody's ANPL for fiscal year 2018 for the 50 states. The report reflects 2018 data based on 2017

liabilities and utilizes a FTSE Pension Liability Index ("FTSE PLI") of 4.14% 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 $1.56 trillion in fiscal 2018, (ii) investment returns remained favorable in fiscal 2018, which will be reflected in fiscal 2019 state financial statements, and (iii) states adopted new OPEB accounting rules in their fiscal 2018 reporting, which allows for improved pension and OPEB liability comparisons across states.

The following two tables provide Vermont's relative position among the 50 states with respect to its ANPL for 2017 and 2018 and a comparison of Vermont and Peer Group states with respect to Moody's pension ratios.

Moody's Pension Ratios	State of Vermont Rankings	
	2017[1,2]	2018[1,3]
ANPL as % of Personal Income	10	9
ANPL as % of State Gross Domestic Product	8	7
ANPL Per Capita	9	9
ANPL as % of State Government Revenues	18	18
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 *Adjusted Net Pension Liabilities Spike in Advance of Moderate Declines,* August 27, 2019.

[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 PLI of 3.87%.
[3]Based on a FTSE PLI of 4.14%.

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	11.7	7.8	6,030	92
Florida	2.2	2.2	1090	46
Georgia	5.0	4.1	2,280	91
Indiana	6.5	5.5	3,040	99
Iowa	3.1	2.5	1,513	43
Maryland	15.6	14.4	9,808	237
Minnesota	5.0	4.3	2,847	55
Missouri	4.8	4.3	2,247	99
North Carolina	2.0	1.7	907	31
South Carolina	14.0	13.2	5,972	203
South Dakota	4.2	3.6	2,117	76
Tennessee	2.0	1.8	952	32
Texas	9.4	7.5	4,626	170
Utah	3.1	2.5	1,423	46
Virginia	3.8	3.4	2,151	63
MEAN[2]	**6.2**	**5.3**	**3,134**	**92**
MEDIAN[2]	**4.8**	**4.1**	**2,247**	**76**
VERMONT[3]	14.5	14.5	7,795	128
VERMONT's 50 STATE RANK[4]	9	7	9	18

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

[1]Based on a FTSE PLI of 4.14%.

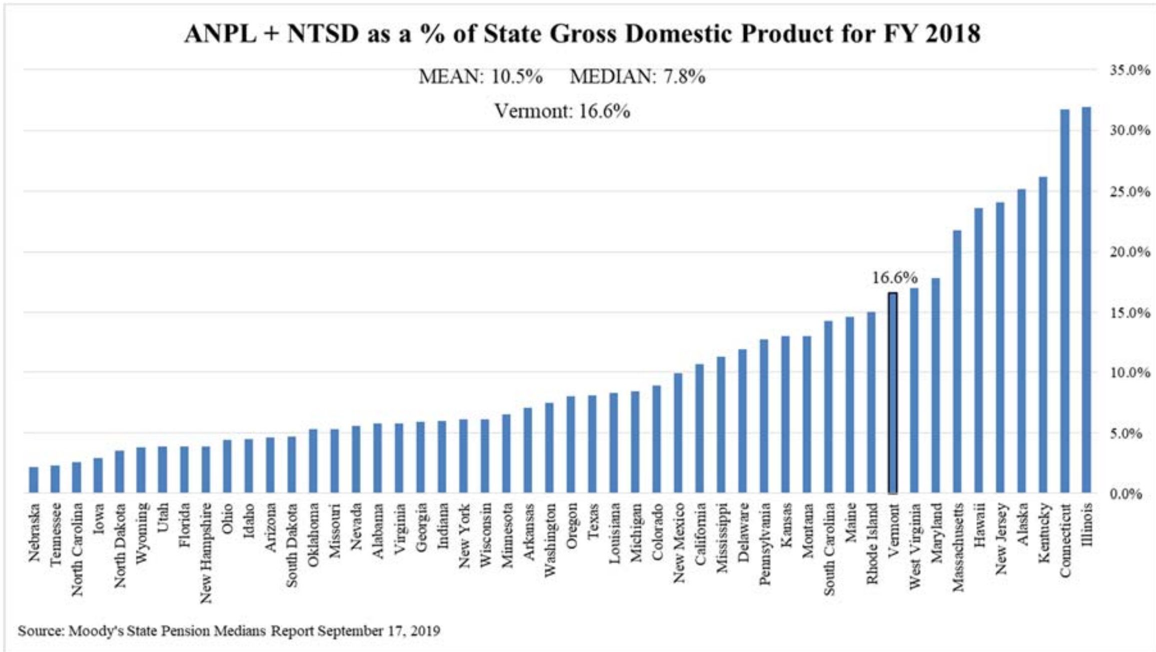
[2]Calculated by Public Resources Advisory Group. These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the rating agencies, year ended June 30th, 2018.

[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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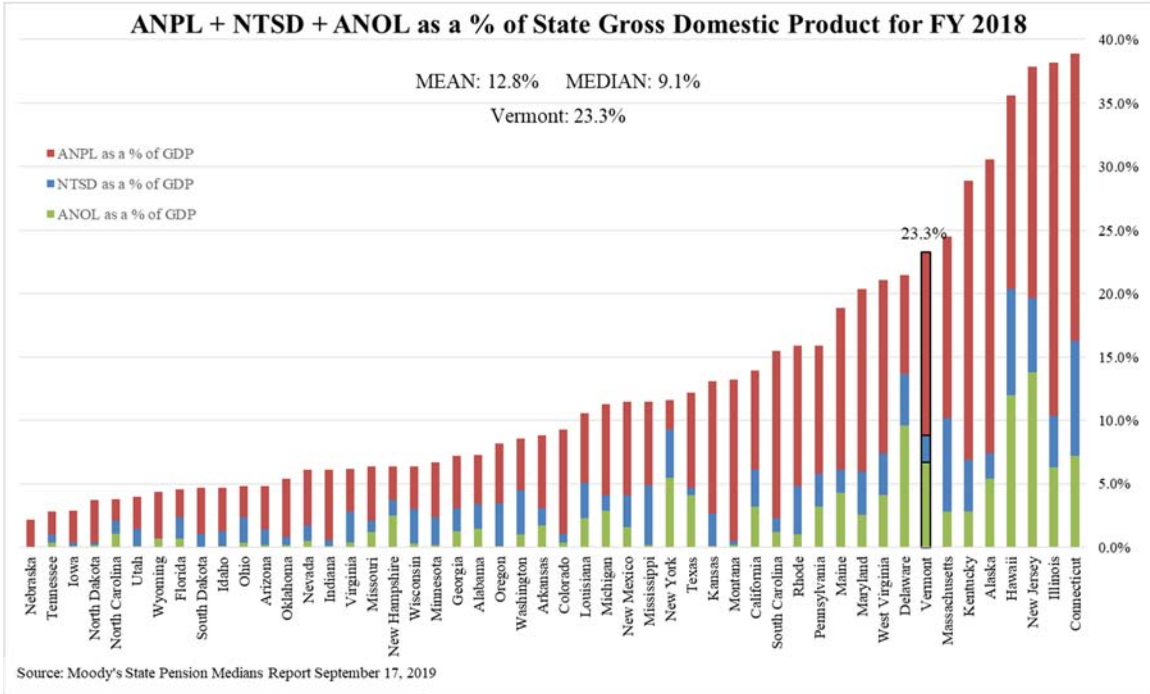
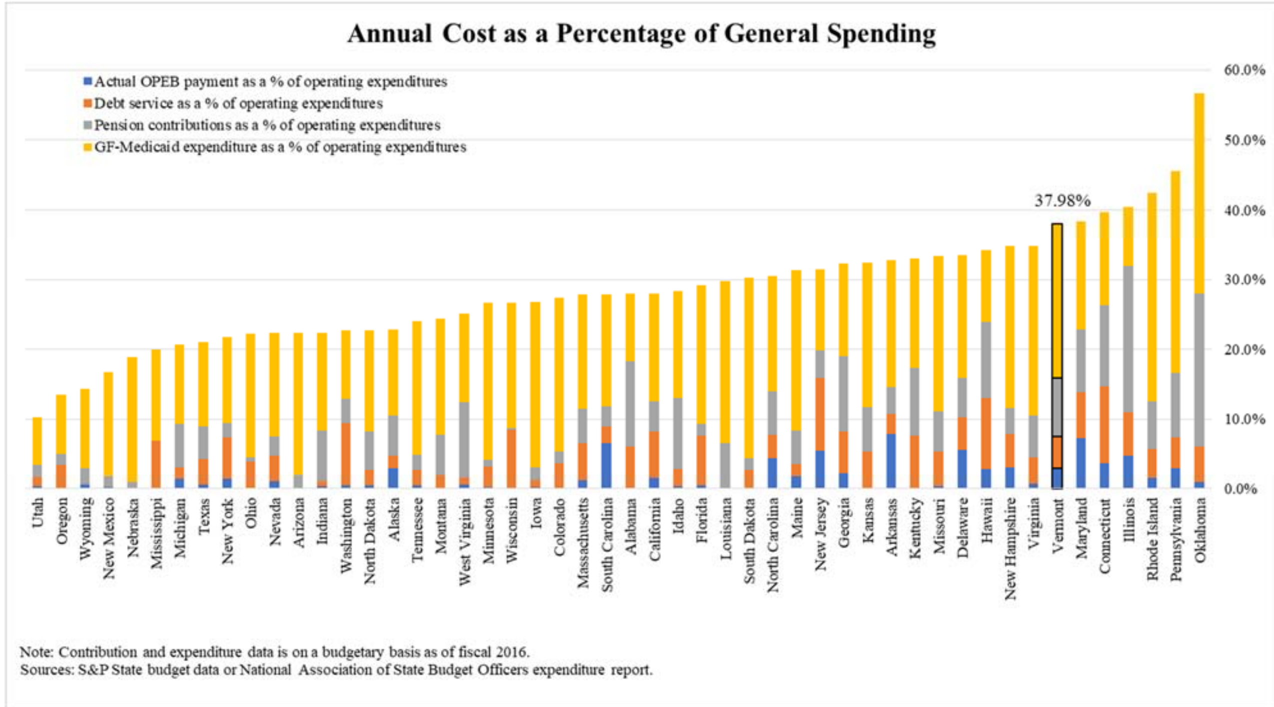


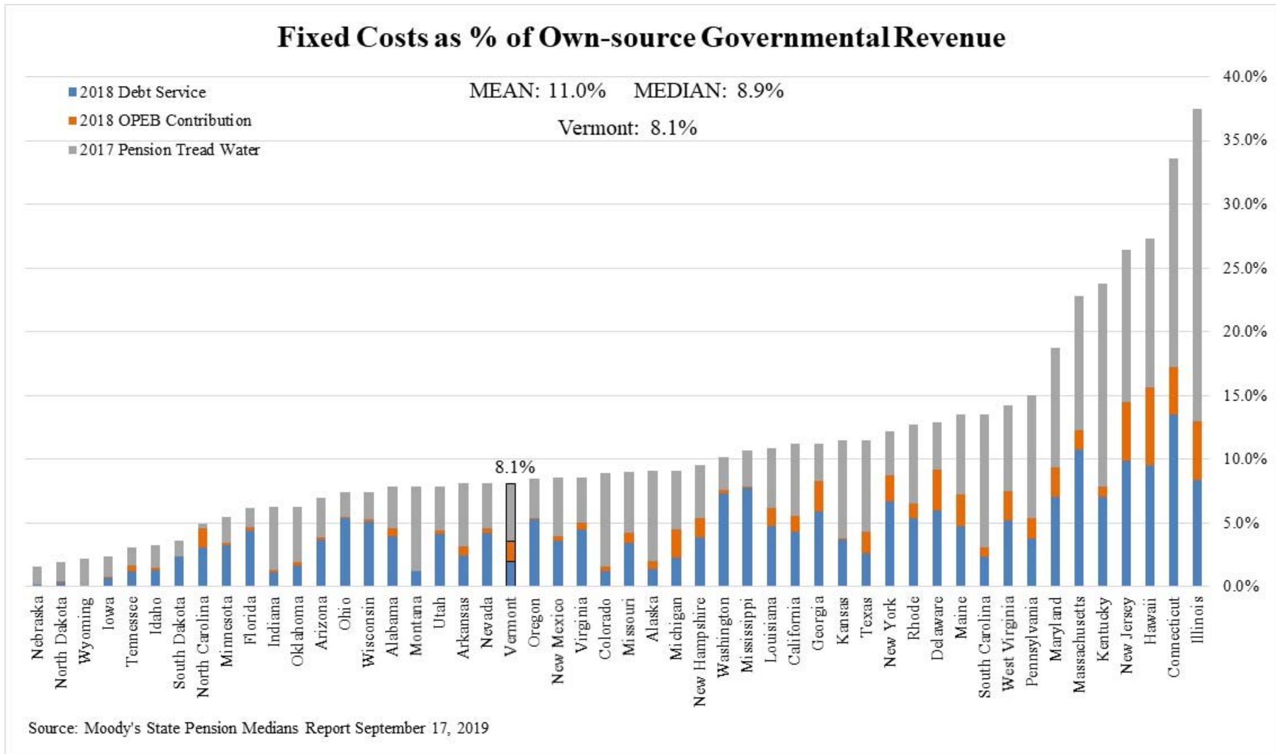
S&P's and Moody's -- Review of State and Local Budget Capacity

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 below for an overview of Vermont's position among the 50 states in regards to annual costs as a percentage of general spending when the report was released.



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 2018, 2019, and 2020 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 2019 and budgeted FY 2020 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 2019	**Fiscal Year 2020**
Appropriations:		
Total General Fund Appropriations	$1,596.47	$1,644.65
State Health Care Resources Fund	18.55	16.92
TOTAL	**$**1,615.02	**$**1,661.56
Reserves:		
Stabilization Reserve	$78.18	$79.82
27/53 Reserve	14.42	16.27
Human Services Caseload Reserve	100.09	98.24
Rainy Day Reserve	31.55	31.55
Other Reserves	0.85	0.00
TOTAL	**$225.09**	**$225.88**
Operating Reserves as a Percentage of Total General Fund Appropriations and Health Care Resources Fund:	13.94%	13.59%

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

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The chart below provides the State's FY 2018 through budgeted FY 2020 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 2018**	**Fiscal 2019**	**Fiscal 2020**
Delaware	5.6	5.4	5.3
Florida	4.5	4.4	4.6
Georgia	11.6	11.6	11.6
Indiana	9.4	8.4	8.3
Iowa	8.6	10	10.3
Maryland	5	4.9	6.2
Minnesota	9.2*	10.5	10.0
Missouri	3.3	3.3	3.1
No. Carolina	8.1	5.2	5.9
So. Carolina	6.4	6.6	6.4
So. Dakota	10,4	10.7	10.4
Tennessee	5.8	5.8	7.1
Texas	19.7	22.8	23.1
Utah	8.6	8.6	8.4
Virginia	2.2	5.8	6.8
Median[1]	6.4	6.6	7.1
VERMONT[2]	7.1	12.2	11.8

Source: "The Fiscal Survey of States 2019. A report by the National Governors Association and the National Association of State Budget Officers." Fiscal Year 2018 are "Actuals," Fiscal Year 2019 are "Estimated" and Fiscal 2020 are 'Recommended."

[1] 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 11, 2019.

[2] The State's FY 2018 percentage does not include an authorized transfer of $5.19 million in July 2017.

[3] Information for Georgia's FY 2019 and FY 2020 rainy day fund balance was not provided in the reports. Rainy day fund balance was assumed to stay constant at the FY 2018 level.

* 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.

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.

For several years, the Committee has discussed at length the need for a multi-year capital planning process to identify and prioritize Vermont's capital needs. The Committee applauds the General Assembly for implementing first a six-year, and more recently, a ten-year State capital program plan in its latest capital construction and State bonding adjustment act. 32 V.S.A. § 310 thus provides that the Governor prepare and revise a 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, as well as the nine fiscal years thereafter. These recommendations include an assessment, projection of capital need, and a comprehensive financial assessment. The Committee expects to annually review and consider future capital improvement program plans.

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) 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 current 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. 2019 State Debt Medians (Moody's Investors Service)

B. 2019 State Pension Medians (Moody's Investors Service)

C. 2019 Fitch Ratings Credit Report

D. 2019 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
3 June 2019

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State government – US

Medians - Flat debt total signals cautious borrowing, despite infrastructure needs

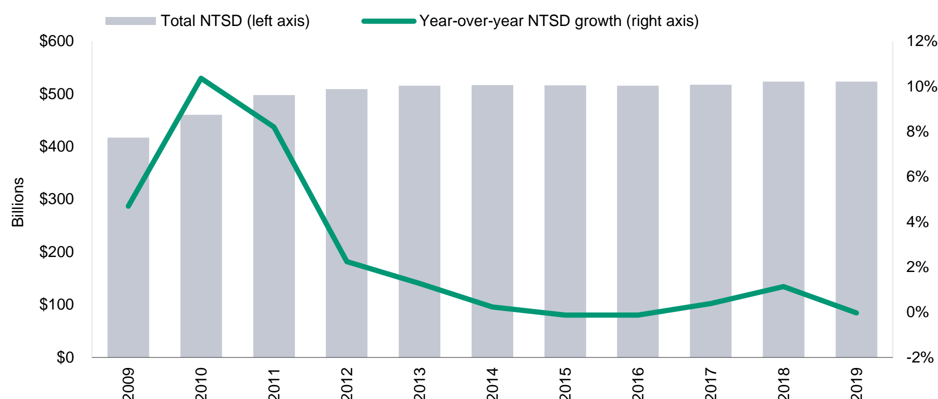
Total net tax-supported debt (NTSD) for the 50 states was virtually unchanged in 2018, as governments maintained a cautious approach to bond issuance and increased their reliance on operating revenue for transportation infrastructure. The $523 billion in NTSD [1] marked the eighth straight year with minimal change, putting average annual growth at 0.6% since 2011 (see Exhibit 1).

» **Greater use of operating revenue for infrastructure is curbing new debt issuance.** Growing cash funding of transportation infrastructure projects helps explain why a majority of states reduced their NTSD last year.

» **State infrastructure investment has grown, but still lags the economy.** Federal figures show state and local governments' investment in infrastructure has fallen as a share of GDP. Tepid investment has contributed to states' relatively static debt trends.

» **Continued low debt service ratios provide capacity to address pension burdens.** States' median debt service ratio was 4.1% in 2018, up from a revised 4.0% in the prior year, but well below the level seen in 2014.

Exhibit 1
Total net tax-supported debt for the 50 states remains essentially unchanged, extending period of minimal growth



Years refer to the publication year of our annual state debt medians reports unless otherwise stated; data for a given year's report reflect the preceding calendar or fiscal year's total.
Sources: State disclosures, Moody's Investors Service

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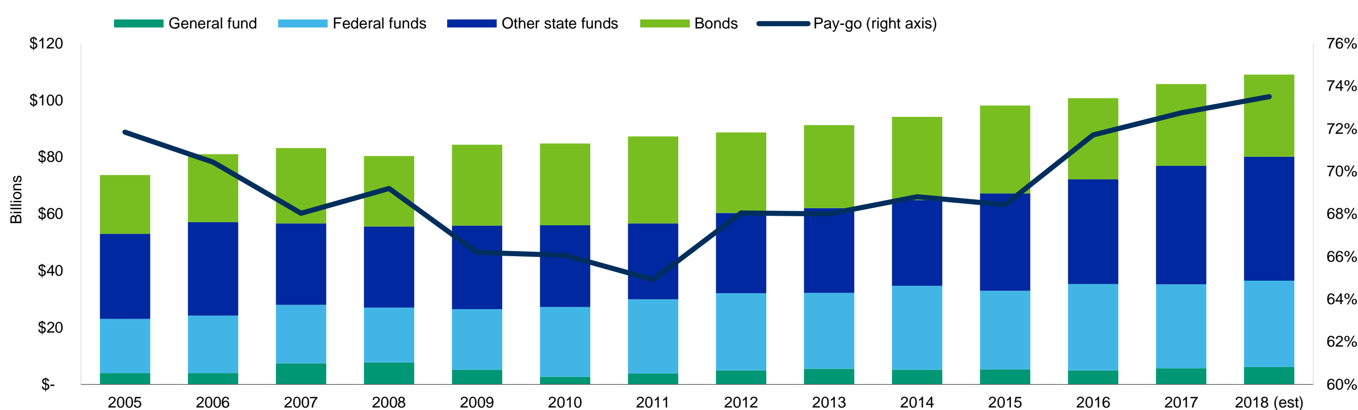
Greater use of operating revenue for transportation infrastructure is reining in debt

Thirty of the 50 states saw declines in net tax-supported debt last year amid increasing use of cash, or pay-as-you-go (pay-go) financing, for transportation upgrades rather than bonds. Thirteen states saw less than a 2% change either way in their outstanding NTSD. Looking at states in the aggregate, a trend favoring use of pay-go financing for infrastructure has been a principal factor in the comparatively flat performance of state debt burdens. Data collected by the National Association of State Budget Officers (NASBO) indicate a growing reliance on pay-go financing for states' transportation projects, which have long been the largest capital expenditure category tracked by NASBO.

Among states that experienced increases in NTSD, greater capital expenditures were common. West Viriginia (Aa2 stable) saw NTSD increase 35%, as the state financed road-widening and bridge replacement projects. New York (Aa1 stable) increased its debt for economic and transportation projects. The declining-debt group includes Illinois (Baa3 stable), which had substantial principal maturities and restrained new issuance, and Arizona (Aa2 stable), which saw an almost 10% decline in NTSD, following limited new issuance during the year.

The NASBO data show that while states' transportation capital expenditures have risen, bonds have declined as a source of funds in recent years (see Exhibit 2). Bonds accounted for an estimated 26% in 2018, down from 35% in 2011, according to NASBO.

Exhibit 2
Debt accounts for smaller share of transportation capital expenditure funding
Sources of funding by fiscal year



Pay-go includes all non-bond funding.
Source: National Association of State Budget Officers 2018 State Expenditure Report

Several factors have likely encouraged states to reduce debt issuance for capital projects, including steady tax revenue growth since the last recession, taxpayer aversion to increased debt or taxes, and perhaps a growing awareness of other governmental spending priorities. Additionally, numerous states in recent years have increased taxes on motor fuels to pay for infrastructure. States raising or adding to their motor fuel tax levies since 2017 include Alabama (Aa1 stable), Arkansas (Aa1 stable), Indiana (Aaa stable), Oklahoma (Aa2 stable), Ohio (Aa1 stable), Oregon (Aa1 stable), South Carolina (Aaa stable), Tennessee (Aaa stable), Utah (Aaa stable) and West Virginia.[2] In some cases, such as Alabama, the tax increases were at least initially intended to enhance pay-go financing rather than support debt issuance. Nevertheless, the increased tax revenues offer the prospect of expanded borrowing programs, as states seek to address deferred road and bridge projects.

State investment in infrastructure has stagnated relative to GDP, constraining growth in state debt

The public sector — encompassing states, local governments and government enterprises — has slowly increased "gross investment" (which includes building and buying infrastructure), according to federal data. However, this investment has stagnated as a

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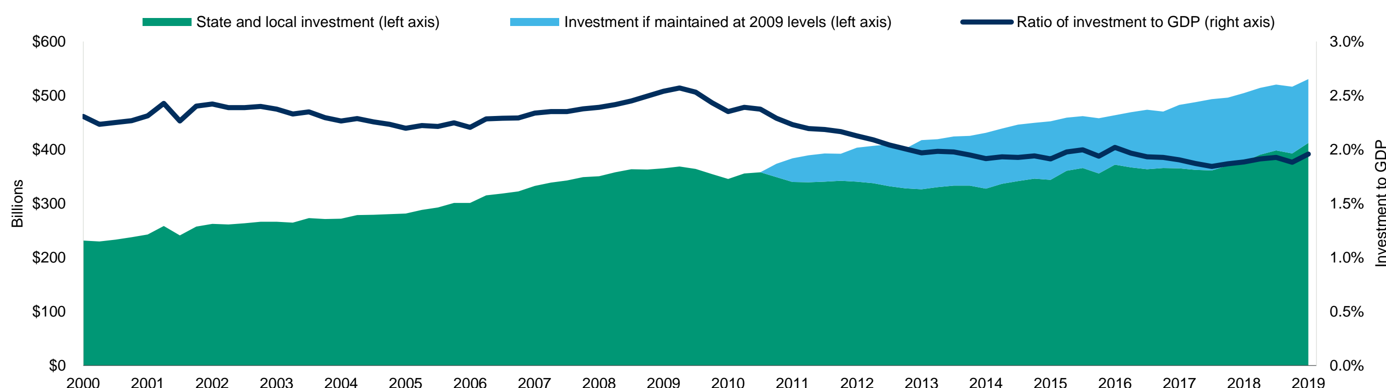
share of GDP. Gross investment to GDP peaked at 2.5% of GDP in 2009 and fell to less than 2%, where it has remained for three years, according to the US Bureau of Economic Analysis. Lagging infrastructure investment has helped limit growth in state debt.

If state and local gross investment had stayed at 2.5% of GDP between 2010 and 2018, it would have added about $800 billion of infrastructure funding in aggregate (not adjusted for inflation). This amount — shown in the blue area of Exhibit 3 — serves as one proxy for the degree to which state and local governments have held back on infrastructure investment during this period. It can also be seen as a measure of deferred investment — both in maintenance and new facilities — which will eventually necessitate greater state debt issuance.

Exhibit 3
State and local government infrastructure investment trends remain below historical levels, despite recent increase



Based on calendar-year data.
Source: Bureau of Economic Analysis GDP Quarterly Release

Continued low debt service ratios provide leeway to address pension burdens

States' debt service ratios drifted higher from revised prior-year levels in 2018, but remained low. Continued low debt service costs over time frees up resources to address pension liabilities, which are far more onerous than debt.

The median debt service ratio for states in fiscal 2018 rose to 4.1% from the prior year's revised 4.0% (see Exhibit 5). Debt service ratios are derived by dividing a state's debt service by its revenues, excluding those received from the federal government, for a given year. The median ratio for the most recent year was down from a peak of more than 4.4% in 2014. The average debt service ratio for 2018 was 4.3%, down from a revised 4.7% in fiscal 2012.

States' $523 billion of aggregate net tax-supported debt is dwarfed by the adjusted net pension liabilities (ANPLs) of the three states with the largest such burdens — Illinois, California (Aa3 positive) and Texas (Aaa stable) — which together had ANPLs of $624 billion as of fiscal 2017. The aggregate ANPL for all states combined was more than $1.6 trillion.

In some cases, states have issued bonds to generate resources for insufficiently funded pension plans. About 32% of Illinois' outstanding general obligation (GO) debt, for example, results from the $10 billion of pension obligation bonds that the state sold in 2003.

It is possible that awareness of large retirement benefit liabilities in some states has persuaded policymakers to defer or downsize plans to issue bonds for capital purposes. It is also possible that restrained debt issuance for capital needs reflects voter awareness of pension liabilities. In many states, voters must approve GO borrowings, which account for the majority of state debt (see Exhibit 6).

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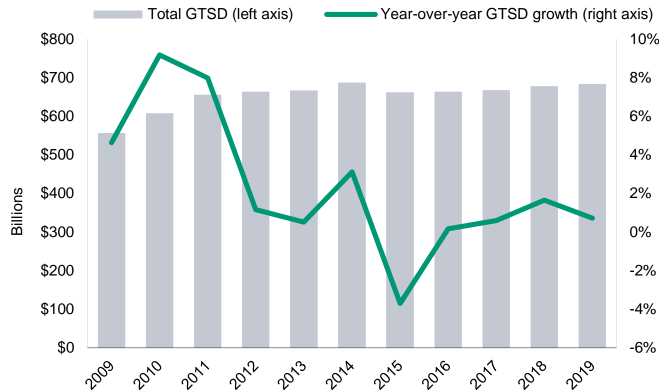
Exhibit 4

Gross tax-supported debt posts small gain



Sources: State disclosures; Moody's Investors Service

Gross debt, which encompasses net debt and bonds paid from non-state sources, shows modest growth

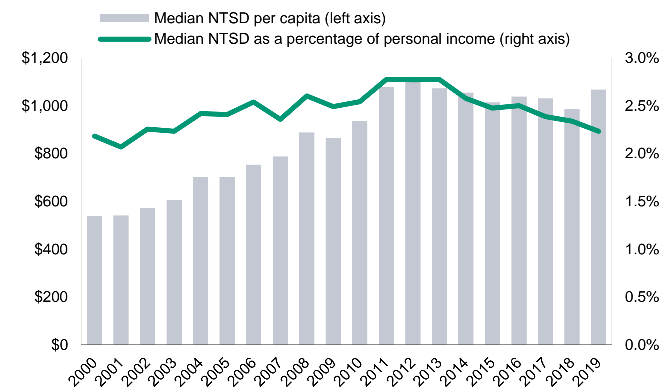
» States' gross tax-supported debt has shown more volatility than net debt burdens; the average growth rate since 2011 has actually been slightly slower (at 0.5%) than growth in net tax-supported debt.

» Gross debt's 0.7% growth in the most recent year was slow by historical standards.

» Gross debt includes certain items excluded from net debt, such as bonds supported by non-state revenues for which the state provides no pledge of support (see page 12.)

Exhibit 5

Median debt as a share of personal income falls to a 16-year low



Sources: State disclosures; Moody's Investors Service

Low debt as a share of personal income reflects steady wage gains

» US annual personal income growth has averaged 4.1% since 2011, supported by continuing economic growth since the 2007-09 recession.

» Net tax-supported debt (NTSD), in contrast, grew at an average annual rate of 0.6% during this period.

» As a result, median NTSD fell to 2.2% of personal income in the most recent year, the lowest since 2003, when the ratio was also 2.2%

» Continued debt-to-income ratio declines would indicate expanded economic capacity to service long-term obligations, except for the fact that unfunded pension liabilities have increased rapidly during this period.

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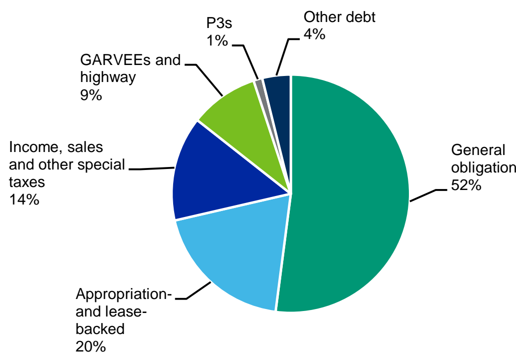
Exhibit 6

General obligation (GO) bonds account for more than half of states' net tax-supported debt



GARVEEs stands for grant anticipation revenue vehicles. P3s refers to public-private partnerships.

Sources: State disclosures, Moody's Investors Service

State debt consists mostly of GO bonds

» GO bonds, which are backed by states' full faith and credit and require voter approval for issuance in most states, account for 52% of states' NTSD, unchanged from the prior year.

» Bonds paid through state lease agreements, which generally require annual legislative appropriation for payment, account for a fifth of states' debt.

» Bonds secured by pledges of income, sales or other specific taxes increased to 14% of total NTSD, from 13% the year before.

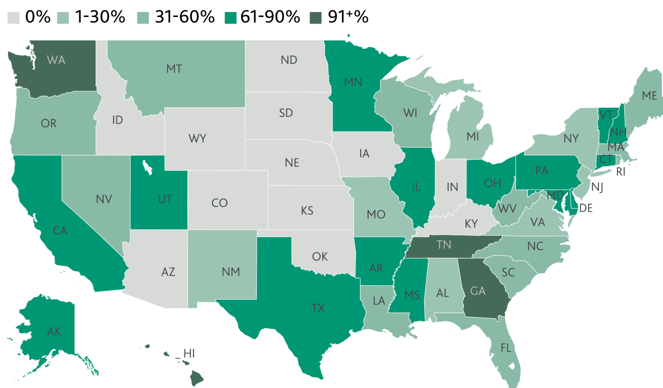
» The share of bonds backed by highway revenues (such as gasoline taxes and motor vehicle fees) and by federal highway grants was unchanged, at 9%.

Exhibit 7

Reliance on GO debt varies widely by state

GO bonds as a share of net tax-supported debt

0% 1-30% 31-60% 61-90% 91+%



Sources: State disclosures, Moody's Investors Service

Some states use GO bonds for most of their borrowing, while others do not issue them at all

» State constitutional restrictions prevent some states from issuing general obligation debt.

» Four states rely very heavily on full faith and credit borrowings, with GO debt accounting for more than 90% of their debt: Georgia (Aaa stable), Hawaii (Aa1 stable), Tennessee and Washington (Aa1 stable).

» A year ago, Vermont (Aa1 stable) was also in this group. Vermont retains a high proportion of its outstanding debt in GO form, although new issuance slightly shifted the state's profile.

» Issuance of GO bonds is typically subject to higher political hurdles, such as voter approval or super-majorities in the state legislature.

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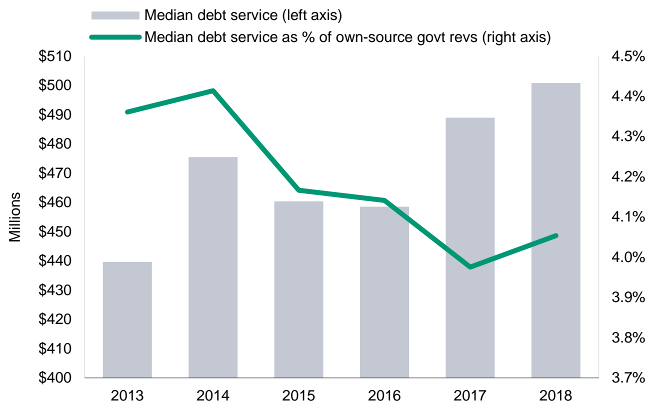
Exhibit 8

Median debt service is up, but remains low versus state revenues



Years refer to state fiscal years.
Source: Moody's Investors Service

Debt service accounts for a low share of states' revenues

- Median debt service rose 2.4%, to $500.7 million, in fiscal 2018.
- The median debt service figure is the highest since we began tracking the metric.
- However, debt service as a share of state budgets has generally declined. The median debt service ratio, at 4.1%, compares with more than 4.4% in 2014.
- For individual states, the share of budget allocated to debt service ranges from 0.1% for Wyoming to 13.5% for Connecticut (A1 stable). Debt service ratios for individual states are presented in Exhibit 13.

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Exhibit 9

Net tax-supported debt per capita and as a percentage of personal income

Net Tax-Supported Debt Per Capita			Rating	Net Tax-Supported Debt as a % of 2017 Personal Income		
1	Connecticut	$6,802	A1	1	Hawaii	10.3%
2	Massachusetts	$6,113	Aa1	2	Connecticut	9.4%
3	Hawaii	$5,453	Aa1	3	Massachusetts	9.1%
4	New Jersey	$4,154	A3	4	Delaware	6.5%
5	New York	$3,247	Aa1	5	New Jersey	6.4%
6	Delaware	$3,206	Aaa	6	Illinois	5.1%
7	Illinois	$2,752	Baa3	7	New York	5.0%
8	Washington	$2,613	Aa1	8	Mississippi	4.9%
9	Maryland	$2,343	Aaa	9	Kentucky	4.8%
10	Rhode Island	$2,216	Aa2	10	Washington	4.6%
11	California	$2,194	Aa3	11	Rhode Island	4.2%
12	Kentucky	$1,932	Aa3	12	Oregon	4.0%
13	Oregon	$1,921	Aa1	13	Maryland	3.8%
14	Mississippi	$1,782	Aa2	14	West Virginia	3.7%
15	Pennsylvania	$1,577	Aa3	15	California	3.7%
16	Wisconsin	$1,571	Aa1	16	Louisiana	3.5%
17	Louisiana	$1,523	Aa3	17	Wisconsin	3.2%
18	Kansas	$1,518	Aa2	18	Kansas	3.1%
19	Virginia	$1,502	Aaa	19	New Mexico	3.0%
20	Alaska	$1,466	Aa3	20	Pennsylvania	3.0%
21	West Virginia	$1,437	Aa2	21	Virginia	2.7%
22	Minnesota	$1,415	Aa1	22	Minnesota	2.6%
23	New Mexico	$1,192	Aa2	23	Alaska	2.6%
24	Ohio	$1,156	Aa1	24	Ohio	2.5%
25	Vermont	$1,140	Aa1	25	Georgia	2.3%
26	Georgia	$996	Aaa	26	Vermont	2.2%
27	Alabama	$877	Aa1	27	Alabama	2.2%
28	Maine	$842	Aa2	28	Utah	1.9%
29	Florida	$812	Aaa	29	Maine	1.8%
30	Utah	$792	Aaa	30	Florida	1.7%
31	New Hampshire	$765	Aa1	31	Arkansas	1.4%
32	Nevada	$630	Aa2	32	Nevada	1.4%
33	Michigan	$630	Aa1	33	Michigan	1.4%
34	South Dakota	$618	Aaa	34	Arizona	1.4%
35	Arkansas	$591	Aa1	35	New Hampshire	1.3%
36	Arizona	$559	Aa2	36	South Dakota	1.3%
37	North Carolina	$531	Aaa	37	Idaho	1.2%
38	Idaho	$506	Aa1	38	South Carolina	1.2%
39	South Carolina	$503	Aaa	39	North Carolina	1.2%
40	Missouri	$487	Aaa	40	Missouri	1.1%
41	Colorado	$484	Aa1	41	Colorado	0.9%
42	Texas	$389	Aaa	42	Texas	0.8%
43	Oklahoma	$320	Aa2	43	Oklahoma	0.7%
44	Tennessee	$305	Aaa	44	Tennessee	0.7%
45	Indiana	$270	Aaa	45	Indiana	0.6%
46	Iowa	$207	Aaa	46	Iowa	0.4%
47	Montana	$149	Aa1	47	Montana	0.3%
48	North Dakota	$131	Aa1	48	North Dakota	0.3%
49	Wyoming	$33	NGO**	49	Wyoming	0.1%
50	Nebraska	$23	Aa1	50	Nebraska	0.0%
	Mean	$1,493			Mean	2.8%
	Median	$1,068			Median	2.2%

**No general obligation debt or issuer rating.
Source: Moody's Investors Service

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Exhibit 10

State net tax-supported debt and gross tax-supported debt

#	Net Tax-Supported Debt ($ Thousands)		Rating	#	Gross Tax-Supported Debt ($ Thousands)		Ratio
1	California	$86,779,104	Aa3	1	California	$92,386,860	1.06
2	New York	$63,443,921	Aa1	2	New York	$63,776,696	1.01
3	Massachusetts	$42,193,311	Aa1	3	Massachusetts	$43,296,331	1.03
4	New Jersey	$37,008,227	A3	4	New Jersey	$42,118,927	1.14
5	Illinois	$35,061,691	Baa3	5	Illinois	$36,043,841	1.03
6	Connecticut	$24,299,690	A1	6	Washington	$34,345,468	1.74
7	Pennsylvania	$20,198,326	Aa3	7	Texas	$29,335,351	2.62
8	Washington	$19,688,868	Aa1	8	Connecticut	$29,091,046	1.20
9	Florida	$17,302,435	Aaa	9	Pennsylvania	$25,173,404	1.25
10	Maryland	$14,157,927	Aaa	10	Minnesota	$25,141,931	3.17
11	Ohio	$13,515,567	Aa1	11	Florida	$21,447,035	1.24
12	Virginia	$12,796,000	Aaa	12	Michigan	$21,304,013	3.39
13	Texas	$11,176,052	Aaa	13	Ohio	$19,100,277	1.41
14	Georgia	$10,476,548	Aaa	14	Oregon	$17,640,200	2.19
15	Wisconsin	$9,134,486	Aa1	15	Virginia	$17,233,903	1.35
16	Kentucky	$8,633,844	Aa3	16	Maryland	$14,157,927	1.00
17	Oregon	$8,050,658	Aa1	17	Wisconsin	$13,264,855	1.45
18	Minnesota	$7,937,886	Aa1	18	Kentucky	$12,378,510	1.43
19	Hawaii	$7,745,335	Aa1	19	Colorado	$11,955,133	4.34
20	Louisiana	$7,099,162	Aa3	20	Georgia	$10,476,548	1.00
21	Michigan	$6,293,482	Aa1	21	Alabama	$9,954,187	2.32
22	North Carolina	$5,513,130	Aaa	22	Louisiana	$8,326,197	1.17
23	Mississippi	$5,322,398	Aa2	23	Hawaii	$7,768,590	1.00
24	Kansas	$4,420,345	Aa2	24	Utah	$6,261,177	2.50
25	Alabama	$4,285,571	Aa1	25	Mississippi	$5,667,968	1.06
26	Arizona	$4,008,361	Aa2	26	North Carolina	$5,513,130	1.00
27	Delaware	$3,101,007	Aaa	27	Kansas	$4,420,345	1.00
28	Missouri	$2,983,433	Aaa	28	Maine	$4,379,333	3.88
29	Colorado	$2,755,133	Aa1	29	Tennessee	$4,277,806	2.07
30	West Virginia	$2,594,556	Aa2	30	Indiana	$4,216,187	2.34
31	South Carolina	$2,555,179	Aaa	31	Arizona	$4,008,361	1.00
32	Utah	$2,502,822	Aaa	32	West Virginia	$3,953,124	1.52
33	New Mexico	$2,498,350	Aa2	33	Rhode Island	$3,155,916	1.35
34	Rhode Island	$2,342,569	Aa2	34	Delaware	$3,101,007	1.00
35	Tennessee	$2,062,971	Aaa	35	Missouri	$2,983,433	1.00
36	Nevada	$1,911,954	Aa2	36	Alaska	$2,739,300	2.53
37	Indiana	$1,804,332	Aaa	37	South Carolina	$2,624,606	1.03
38	Arkansas	$1,782,522	Aa1	38	Idaho	$2,556,940	2.88
39	Oklahoma	$1,260,897	Aa2	39	New Mexico	$2,498,350	1.00
40	Maine	$1,127,326	Aa2	40	Nevada	$2,228,659	1.17
41	Alaska	$1,081,100	Aa3	41	Oklahoma	$2,208,216	1.75
42	New Hampshire	$1,037,583	Aa1	42	North Dakota	$2,017,071	20.31
43	Idaho	$887,570	Aa1	43	New Hampshire	$2,013,432	1.94
44	Vermont	$713,886	Aa1	44	Iowa	$1,983,618	3.03
45	Iowa	$654,163	Aaa	45	Arkansas	$1,782,522	1.00
46	South Dakota	$545,141	Aaa	46	Vermont	$1,515,506	2.12
47	Montana	$157,900	Aa1	47	South Dakota	$632,796	1.16
48	North Dakota	$99,326	Aa1	48	Montana	$339,764	2.15
49	Nebraska	$44,805	Aa1	49	Nebraska	$44,805	1.00
50	Wyoming	$19,151	NGO**	50	Wyoming	$19,151	1.00
	Total	$ 523,066,002			Total	$ 682,859,755	
	Mean	$10,461,320			Mean	$13,657,195	2.05
	Median	$4,146,966			Median	$5,590,549	1.30

Source: Moody's Investors Service

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Exhibit 11

Net tax-supported debt as a percentage of state gross domestic product

2017 NTSD as % of 2015 State GDP			2018 NTSD as % of 2016 State GDP			2019 NTSD as % of 2017 State GDP		
1	Connecticut	8.49%	1	Connecticut	8.93%	1	Connecticut	9.15%
2	Hawaii	7.79%	2	Hawaii	8.74%	2	Hawaii	8.70%
3	Massachusetts	7.18%	3	Massachusetts	8.03%	3	Massachusetts	7.80%
4	New Jersey	6.28%	4	New Jersey	6.63%	4	New Jersey	6.18%
5	Mississippi	4.84%	5	Mississippi	5.18%	5	Mississippi	4.84%
6	Kentucky	4.38%	6	Illinois	4.64%	6	Delaware	4.30%
7	Delaware	3.92%	7	Kentucky	4.55%	7	Kentucky	4.30%
8	Illinois	3.72%	8	Delaware	4.25%	8	Illinois	4.25%
9	Rhode Island	3.72%	9	Rhode Island	4.02%	9	New York	3.97%
10	New York	3.62%	10	Washington	4.00%	10	Rhode Island	3.95%
11	Washington	3.52%	11	New York	3.96%	11	Washington	3.77%
12	Oregon	3.16%	12	Oregon	3.88%	12	Oregon	3.56%
13	Maryland	3.04%	13	Maryland	3.41%	13	Maryland	3.55%
14	Louisiana	3.00%	14	Louisiana	3.34%	14	West Virginia	3.55%
15	Wisconsin	2.98%	15	California	3.25%	15	California	3.09%
16	California	2.93%	16	Wisconsin	3.08%	16	Louisiana	2.98%
17	Kansas	2.74%	17	Kansas	2.91%	17	Wisconsin	2.84%
18	West Virginia	2.67%	18	West Virginia	2.75%	18	Kansas	2.76%
19	New Mexico	2.64%	19	New Mexico	2.61%	19	Pennsylvania	2.68%
20	Virginia	2.34%	20	Virginia	2.60%	20	New Mexico	2.65%
21	Alaska	2.32%	21	Pennsylvania	2.38%	21	Virginia	2.51%
22	Pennsylvania	2.23%	22	Alaska	2.36%	22	Minnesota	2.25%
23	Minnesota	2.22%	23	Minnesota	2.36%	23	Vermont	2.19%
24	Vermont	1.98%	24	Alabama	2.15%	24	Ohio	2.09%
25	Alabama	1.96%	25	Ohio	2.10%	25	Alaska	2.09%
26	Florida	1.91%	26	Maine	2.02%	26	Alabama	2.02%
27	Ohio	1.87%	27	Florida	1.99%	27	Georgia	1.86%
28	Maine	1.84%	28	Vermont	1.95%	28	Maine	1.83%
29	Georgia	1.74%	29	Georgia	1.91%	29	Florida	1.77%
30	Utah	1.42%	30	Arkansas	1.60%	30	Utah	1.51%
31	Arizona	1.38%	31	Utah	1.52%	31	Arkansas	1.44%
32	Arkansas	1.37%	32	Arizona	1.43%	32	New Hampshire	1.28%
33	Michigan	1.30%	33	Michigan	1.37%	33	Michigan	1.24%
34	South Carolina	1.21%	34	New Hampshire	1.33%	34	Arizona	1.23%
35	New Hampshire	1.20%	35	Nevada	1.27%	35	Idaho	1.23%
36	North Carolina	1.18%	36	South Dakota	1.24%	36	Nevada	1.22%
37	Missouri	1.11%	37	South Carolina	1.22%	37	South Carolina	1.15%
38	Nevada	1.04%	38	North Carolina	1.21%	38	South Dakota	1.10%
39	South Dakota	1.04%	39	Idaho	1.19%	39	North Carolina	1.02%
40	Idaho	0.93%	40	Missouri	1.10%	40	Missouri	0.98%
41	Oklahoma	0.62%	41	Colorado	0.83%	41	Colorado	0.79%
42	Texas	0.60%	42	Texas	0.74%	42	Texas	0.68%
43	Tennessee	0.59%	43	Oklahoma	0.67%	43	Oklahoma	0.67%
44	Indiana	0.56%	44	Tennessee	0.63%	44	Tennessee	0.59%
45	Colorado	0.53%	45	Indiana	0.58%	45	Indiana	0.51%
46	Montana	0.44%	46	Montana	0.41%	46	Iowa	0.36%
47	Iowa	0.38%	47	Iowa	0.38%	47	Montana	0.34%
48	North Dakota	0.21%	48	North Dakota	0.20%	48	North Dakota	0.19%
49	Wyoming	0.06%	49	Wyoming	0.06%	49	Wyoming	0.05%
50	Nebraska	0.03%	50	Nebraska	0.03%	50	Nebraska	0.04%
	Mean	2.36%		Mean	2.58%		Mean	2.50%
	Median	1.93%		Median	2.06%		Median	2.06%

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

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Exhibit 12

Net tax-supported debt as a percentage of personal income

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Alabama	2.8%	2.5%	2.4%	2.6%	2.5%	2.5%	2.4%	2.3%	2.3%	2.3%	2.3%	2.2%
Alaska	2.4%	2.2%	3.2%	3.0%	3.3%	2.8%	3.2%	2.8%	2.6%	3.0%	2.8%	2.6%
Arizona	2.0%	2.5%	2.3%	2.8%	2.8%	2.5%	2.5%	2.3%	2.1%	1.8%	1.6%	1.4%
Arkansas	1.7%	1.3%	1.0%	1.1%	1.0%	1.2%	1.7%	1.9%	1.7%	1.5%	1.6%	1.4%
California	4.3%	4.4%	5.6%	6.0%	6.0%	5.8%	5.3%	5.0%	4.5%	4.0%	3.8%	3.7%
Colorado	0.8%	0.8%	1.0%	1.3%	1.3%	1.2%	1.1%	1.0%	0.9%	0.7%	0.9%	0.9%
Connecticut	7.3%	8.2%	8.7%	9.5%	9.1%	9.1%	9.2%	8.8%	9.2%	9.5%	9.4%	9.4%
Delaware	5.2%	5.4%	6.2%	6.8%	6.8%	6.2%	5.7%	6.9%	6.5%	6.5%	6.5%	6.5%
Florida	2.8%	2.9%	2.9%	3.0%	3.0%	2.8%	2.5%	2.5%	2.5%	2.2%	2.0%	1.7%
Georgia	3.0%	3.0%	3.3%	3.3%	3.1%	3.0%	2.9%	2.8%	2.6%	2.4%	2.3%	2.3%
Hawaii	9.9%	9.4%	9.9%	10.1%	9.6%	10.0%	10.6%	10.9%	9.8%	10.2%	10.3%	10.3%
Idaho	1.2%	1.6%	1.7%	1.6%	1.7%	1.6%	1.5%	1.4%	1.2%	1.1%	1.2%	1.2%
Illinois	5.2%	4.6%	4.4%	5.7%	6.0%	5.7%	5.6%	5.7%	5.1%	4.8%	5.5%	5.1%
Indiana	1.5%	1.5%	1.5%	1.4%	1.3%	1.2%	1.4%	0.8%	0.8%	0.7%	0.7%	0.6%
Iowa	0.3%	0.2%	0.2%	0.7%	0.8%	0.7%	0.6%	0.6%	0.5%	0.5%	0.5%	0.4%
Kansas	3.5%	3.2%	3.0%	3.2%	3.1%	2.8%	2.6%	2.4%	3.3%	3.3%	3.3%	3.1%
Kentucky	4.7%	4.8%	5.4%	6.1%	6.1%	5.9%	5.7%	5.4%	5.2%	5.3%	5.1%	4.8%
Louisiana	4.3%	3.3%	3.6%	3.5%	3.7%	3.7%	3.7%	3.9%	3.8%	3.8%	3.8%	3.5%
Maine	1.9%	2.2%	2.2%	2.4%	2.3%	2.1%	2.4%	2.3%	2.2%	2.0%	2.0%	1.8%
Maryland	3.0%	3.3%	3.4%	3.3%	3.6%	3.6%	3.4%	3.6%	3.6%	3.7%	3.7%	3.8%
Massachusetts	9.8%	8.9%	9.2%	9.2%	9.4%	9.3%	9.0%	9.7%	9.6%	9.4%	9.4%	9.1%
Michigan	2.2%	2.2%	2.1%	2.2%	2.2%	2.2%	2.1%	1.9%	1.7%	1.6%	1.5%	1.4%
Minnesota	2.3%	2.1%	2.4%	2.8%	2.7%	3.0%	3.0%	3.3%	3.1%	2.9%	2.7%	2.6%
Mississippi	4.8%	5.2%	5.0%	5.1%	5.6%	5.4%	5.2%	5.2%	5.2%	5.3%	5.2%	4.9%
Missouri	2.1%	2.0%	2.2%	2.2%	2.0%	1.8%	1.7%	1.6%	1.4%	1.4%	1.2%	1.1%
Montana	1.2%	1.2%	1.1%	1.1%	1.0%	0.9%	0.7%	0.6%	0.6%	0.5%	0.4%	0.3%
Nebraska	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nevada	2.0%	2.2%	2.3%	2.4%	2.2%	1.9%	1.7%	1.7%	1.5%	1.4%	1.5%	1.4%
New Hampshire	1.3%	1.3%	1.6%	1.9%	1.8%	1.9%	1.8%	1.7%	1.5%	1.4%	1.4%	1.3%
New Jersey	7.5%	7.3%	7.2%	7.8%	7.8%	7.6%	7.3%	7.5%	7.1%	7.2%	6.9%	6.4%
New Mexico	4.8%	4.6%	4.4%	5.6%	4.2%	3.8%	3.4%	3.6%	3.3%	3.3%	2.9%	3.0%
New York	6.3%	6.3%	6.5%	6.7%	6.6%	6.3%	6.0%	5.6%	5.4%	5.2%	5.1%	5.0%
North Carolina	2.8%	2.5%	2.3%	2.3%	2.3%	2.4%	2.1%	2.0%	1.8%	1.6%	1.4%	1.2%
North Dakota	1.1%	1.0%	0.8%	0.8%	0.6%	0.7%	0.5%	0.4%	0.3%	0.3%	0.3%	0.3%
Ohio	2.9%	2.8%	2.6%	2.8%	2.8%	2.8%	2.7%	2.7%	2.6%	2.4%	2.5%	2.5%
Oklahoma	1.5%	1.5%	1.6%	1.8%	1.3%	1.2%	1.0%	0.9%	0.7%	0.7%	0.7%	0.7%
Oregon	5.0%	4.6%	5.2%	5.6%	5.5%	5.2%	4.9%	4.9%	4.6%	4.2%	4.4%	4.0%
Pennsylvania	2.4%	2.5%	2.4%	2.7%	2.8%	2.8%	2.6%	2.6%	2.6%	2.7%	2.6%	3.0%
Rhode Island	4.7%	4.5%	5.2%	5.3%	4.7%	4.7%	4.5%	4.3%	3.9%	4.3%	4.3%	4.2%
South Carolina	3.3%	2.9%	2.9%	2.7%	2.5%	2.3%	2.2%	1.9%	1.6%	1.4%	1.3%	1.2%
South Dakota	0.9%	0.8%	0.4%	0.9%	0.9%	0.9%	0.9%	1.2%	1.4%	1.3%	1.4%	1.3%
Tennessee	0.7%	0.7%	0.9%	1.0%	1.0%	0.9%	0.8%	0.8%	0.7%	0.8%	0.7%	0.7%
Texas	1.4%	1.4%	1.4%	1.6%	1.5%	1.5%	1.5%	0.9%	0.8%	0.8%	0.9%	0.8%
Utah	1.9%	1.5%	3.2%	4.1%	4.4%	3.8%	3.4%	2.9%	2.4%	2.1%	1.9%	1.9%
Vermont	2.0%	1.8%	1.8%	1.9%	2.0%	1.9%	2.0%	2.1%	2.1%	2.2%	2.0%	2.2%
Virginia	1.9%	1.9%	2.1%	2.4%	2.6%	2.9%	2.7%	2.8%	2.7%	2.8%	2.9%	2.7%
Washington	5.1%	5.1%	5.3%	6.2%	6.0%	6.4%	6.4%	6.1%	5.5%	5.1%	4.9%	4.6%
West Virginia	3.9%	3.6%	3.5%	3.8%	3.6%	3.3%	3.0%	2.7%	3.2%	3.1%	2.8%	3.7%
Wisconsin	4.1%	4.0%	4.6%	4.8%	4.8%	4.7%	4.4%	4.2%	4.0%	3.7%	3.5%	3.2%
Wyoming	0.2%	0.2%	0.2%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Mean	3.2%	3.1%	3.2%	3.5%	3.4%	3.3%	3.2%	3.2%	3.0%	3.0%	2.9%	2.8%
Median	2.6%	2.5%	2.5%	2.8%	2.8%	2.8%	2.6%	2.5%	2.5%	2.4%	2.3%	2.2%

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

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Exhibit 13

State debt service ratios by fiscal year

	FY 2016			FY 2017			FY 2018	
1	Connecticut	13.3%	1	Connecticut	13.8%	1	Connecticut	13.5%
2	Massachusetts	10.4%	2	Hawaii	10.5%	2	New Jersey	9.9%
3	Hawaii	10.4%	3	Massachusetts	10.1%	3	Hawaii	9.5%
4	New Jersey	10.1%	4	New Jersey	9.4%	4	Massachusetts	9.4%
5	Illinois	8.8%	5	Illinois	9.2%	5	Illinois*	8.4%
6	New York	7.4%	6	New York	8.1%	6	Mississippi	7.8%
7	Kentucky	7.4%	7	Kentucky	7.3%	7	Kentucky	7.1%
8	Washington	7.0%	8	Maryland	7.0%	8	Maryland	7.1%
9	Maryland	6.6%	9	Mississippi	6.9%	9	New York	6.7%
10	Mississippi	6.3%	10	Washington	6.6%	10	Delaware	6.6%
11	Georgia	6.2%	11	Georgia	6.4%	11	Washington	6.3%
12	Delaware	6.1%	12	Wisconsin	5.9%	12	Georgia	5.9%
13	Utah	5.9%	13	Delaware	5.7%	13	Ohio	5.4%
14	West Virginia	5.8%	14	Ohio	5.6%	14	Rhode Island	5.4%
15	Wisconsin	5.7%	15	West Virginia	5.4%	15	Oregon	5.3%
16	Ohio	5.6%	16	Utah	5.3%	16	West Virginia	5.2%
17	Maine	5.0%	17	Oregon	5.2%	17	Wisconsin	5.1%
18	Oregon	4.9%	18	Maine	5.2%	18	Louisiana	4.8%
19	California	4.9%	19	Rhode Island	5.1%	19	Maine	4.8%
20	Virginia	4.8%	20	Louisiana	4.9%	20	Virginia	4.5%
21	Nevada	4.7%	21	Virginia	4.8%	21	New Mexico*	4.4%
22	New Mexico	4.4%	22	California	4.6%	22	Florida	4.4%
23	Rhode Island	4.4%	23	Florida	4.4%	23	California*	4.3%
24	Arizona	4.3%	24	Kansas	4.4%	24	Nevada	4.2%
25	New Hampshire	4.3%	25	New Hampshire	4.0%	25	Utah	4.1%
26	Kansas	4.0%	26	Nevada	3.9%	26	Alabama	4.0%
27	Pennsylvania	4.0%	27	Alabama	3.9%	27	New Hampshire	3.9%
28	Florida	3.9%	28	Arizona	3.9%	28	Pennsylvania	3.8%
29	Alaska	3.8%	29	New Mexico	3.9%	29	Arizona	3.7%
30	Minnesota	3.7%	30	Pennsylvania	3.6%	30	Kansas	3.7%
31	Alabama	3.7%	31	Missouri	3.5%	31	Missouri	3.4%
32	Louisiana	3.6%	32	Arkansas	3.5%	32	Minnesota	3.3%
33	Missouri	3.4%	33	Minnesota	3.4%	33	North Carolina	3.1%
34	North Carolina	3.3%	34	North Carolina	3.1%	34	Texas	2.6%
35	South Carolina	3.2%	35	South Carolina	2.7%	35	South Dakota	2.4%
36	Texas	2.7%	36	Texas	2.7%	36	South Carolina	2.4%
37	Michigan	2.5%	37	Michigan	2.5%	37	Michigan	2.3%
38	Colorado	2.5%	38	Colorado	2.2%	38	Vermont	2.0%
39	Arkansas	2.3%	39	South Dakota	2.1%	39	Arkansas	1.9%
40	South Dakota	2.2%	40	Vermont	2.1%	40	Oklahoma	1.7%
41	Vermont	2.0%	41	Oklahoma	1.9%	41	Idaho	1.3%
42	Oklahoma	1.9%	42	Idaho	1.5%	42	Alaska	1.3%
43	Idaho	1.6%	43	Alaska	1.4%	43	Tennessee	1.2%
44	Montana	1.4%	44	Montana	1.3%	44	Colorado	1.2%
45	Tennessee	1.3%	45	Tennessee	1.3%	45	Montana	1.2%
46	Indiana	1.2%	46	Indiana	1.2%	46	Indiana	1.1%
47	Iowa	0.7%	47	Iowa	0.6%	47	Iowa	0.7%
48	North Dakota	0.5%	48	North Dakota	0.4%	48	North Dakota	0.3%
49	Wyoming	0.1%	49	Nebraska	0.2%	49	Nebraska	0.2%
50	Nebraska	0.1%	50	Wyoming	0.1%	50	Wyoming	0.1%
	Mean	4.5%		Mean	4.5%		Mean	4.3%
	Median	4.1%		Median	4.0%		Median	4.1%

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

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Difference between gross tax-supported debt and net tax-supported debt

In this report, we focus on states' net tax-supported debt, which is secured by statewide taxes and other general resources and which excludes obligations that are fully supported by non-state sources, such as utility or local government revenue.

Nevertheless, we also quantify states' gross debt, which includes net tax-supported debt as well as certain obligations we view as fully supported by revenues separate from the state's taxes and other general resources. The gross category therefore can include state-issued (or state authority-issued) bonds that are independently supported by legal settlements, with no state backup, as well as contingent liabilities that entail a state's commitment to cover debt service under certain conditions.

Exhibit 14

Comparison

Generally included in NTSD	Generally excluded from NTSD but included in gross tax-supported debt
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 revenues
Appropriation-backed bonds	Moral obligation debt with an established history of being paid from sources other than taxes or general revenues
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 Department of Motor Vehicles (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

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Endnotes

1 Inputs for prior years reflect slight revisions, as 2018 amounts for Arizona, Delaware, Indiana, Michigan, Minnesota, New Hampshire, New York, Pennsylvania and Rhode Island were revised from previously reported totals. Because of these changes, the total net tax-supported debt reported a year ago was revised to $523.23 billion from $522.45 billion.

2 Source: Institute on Taxation and Economic Policy.

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APPENDIX B

MOODY'S
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17 September 2019

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State government – US

Medians - Adjusted net pension liabilities decline; OPEB liabilities vary widely

Adjusted net pension liabilities (ANPL) declined in states' fiscal 2018 reporting due to healthy investment returns in fiscal 2017. States typically report their pension funding positions with a one-year lag. Favorable investment returns again in 2018 will lead to another modest decline in fiscal 2019 reporting of pension liabilities. Fiscal 2018 was the first year states reported other post-employment benefit (OPEB) liabilities under new accounting rules, which allow improved comparisons between pension and OPEB liabilities. Adjusted net OPEB liabilities range widely for the 50 states.

» **Total state ANPL was $1.56 trillion in fiscal 2018, decreasing 3.6% from fiscal 2017 and representing 7.7% of US GDP and 132.4% of state revenue.** Healthy investment returns in fiscal 2017, the reference year for most states' fiscal 2018 pension reporting, and higher interest rates contributed to lower unfunded liabilities. The median ratio of ANPL to state GDP decreased to 5.5% in fiscal 2018 from 6.2% the prior year.

» **Investment returns remained favorable in fiscal 2018, which will be reported in fiscal 2019 financial statements.** The average pension plan investment return was 8.8% in fiscal 2018, above target for many state pension plans. Favorable investment results, along with a rise in interest rates, will reduce liabilities in fiscal 2019 financial statements. However, lower returns and declining interest rates in fiscal 2019 will lead to growing liabilities again in fiscal 2020 reporting.

» **Allocating all teacher pension liabilities to states would significantly increase the pension burden for some states.** We typically allocate K-12 public school teacher pension liabilities based on a state's reported share of the total liability. Some states are directly responsible for 100% of teacher pensions, while other states do not directly contribute to teacher pension systems. However, all states support public schools and growing school pension burdens will require more state support.

» **Adjusted net OPEB liabilities (ANOL) vary widely across states.** States adopted new OPEB accounting rules in their fiscal 2018 reporting, which allows for improved pension and OPEB liability comparisons across states. Unfunded OPEB liabilities can represent a large source of balance sheet leverage for some states and a very small obligation for others.

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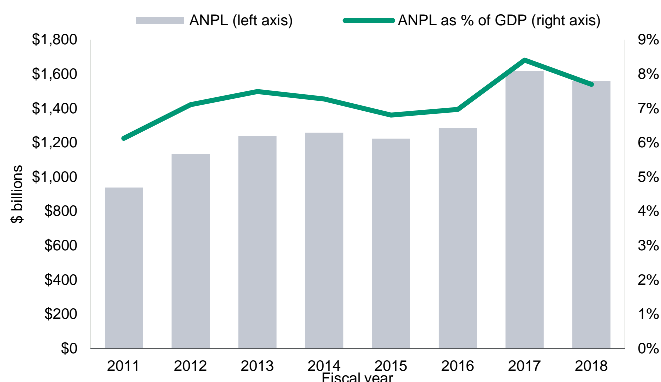
Exhibit 1

Total state ANPL declines to $1.56 trillion and 7.7% of US GDP in fiscal 2018

Most data reported in fiscal 2018 reflects 2017 liabilities



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 227 plans) without a lag.
Sources: Moody's Investors Service, US Bureau of Economic Analysis, state audited financial reports, pension plan valuation reports

Total state ANPL fell in fiscal 2018 reporting

» Based on states' fiscal 2018 reporting, aggregate adjusted net pension liabilities (ANPL) totaled $1.56 trillion, or 132.4% of state own-source revenue, down from $1.62 trillion and 147.4%, respectively, in fiscal 2017.

» Aggregate ANPL declined to 7.7% of GDP in fiscal 2018 from 8.4% in fiscal 2017, as the nominal unfunded liabilities declined by 3.6%.

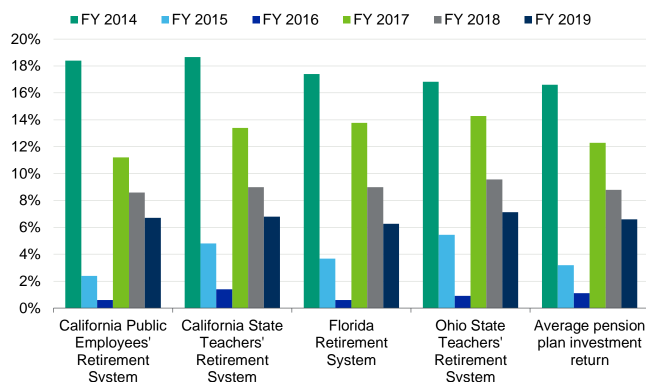
» The largest percentage decreases in ANPL occurred in South Dakota (Aaa stable), Oklahoma (Aa2 stable) and New Mexico (Aa2 stable), which all declined by more than 15%.

» ANPL grew by 33% in Colorado (Aa1 stable), largely due to state funding changes to its Public Employees' Retirement Association (PERA). Although a larger portion of PERA liabilities are being allocated to the state, increased state support for school pensions as well as other changes will reduce overall PERA liabilities.[1]

Exhibit 2

Investment returns fall two years 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.
Sources: Retirement systems, Moody's Investors Service

Investment returns fall below pension plan targets in fiscal 2019

» Stronger investment returns in fiscal 2017 and 2018 (years ended June 30) partly reversed the negative impact of low returns in fiscal 2015 and 2016. Because pension reporting is on a lag in state financial statements, the benefit began to show in states' fiscal 2018 reporting.

» However, the average pension plan investment return fell to 6.6% in fiscal 2019 from 8.8% the prior year.[2] Many pension plans in fiscal 2019 did not meet targeted returns. The fiscal 2019 average return of 6.6% is 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% in June 2018.[3]

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.

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Exhibit 3

Illinois' pension burden continues to be the highest among states while North Carolina's remains the lowest

State	Rating	Moody's adjusted net pension liability (ANPL): FY 2018 ANPL (billions)	Moody's adjusted net pension liability (ANPL): FY 2018 ANPL as % of own-source revenue	FY 2017 contributions as % of tread water	FY 2017 tread water shortfall as % of own-source revenue
Illinois	Baa3	$240.8	505.1%	66.6%	9.1%
Kentucky	Aa3	$45.9	308.7%	76.3%	3.3%
Connecticut	A1	$62.1	285.8%	78.9%	3.4%
New Jersey	A3	$113.8	274.9%	39.0%	7.3%
Maryland	Aaa	$59.3	236.5%	87.6%	1.2%
Massachusetts	Aa1	$81.2	227.5%	68.9%	2.9%
South Carolina	Aaa	$30.4	203.4%	75.1%	1.8%
Colorado	Aa1	$30.1	196.1%	57.4%	2.7%
Montana	Aa1	$6.2	184.7%	97.2%	0.2%
Pennsylvania	Aa3	$79.8	172.4%	87.9%	1.1%
Texas	Aaa	$132.8	170.4%	59.6%	2.8%
Maine	Aa2	$8.3	168.3%	92.0%	0.5%
Hawaii	Aa1	$14.0	165.3%	68.8%	2.5%
Kansas	Aa2	$17.3	164.0%	79.6%	1.4%
West Virginia	Aa2	$10.6	156.3%	125.1%	(1.7%)
Alaska	Aa3	$12.5	153.9%	81.9%	1.1%
Rhode Island	Aa2	$6.8	147.7%	103.1%	(0.2%)
Vermont	Aa1	$4.9	127.8%	87.9%	0.5%
Nevada	Aa2	$7.3	124.6%	76.4%	0.8%
California	Aa3	$230.8	120.3%	84.6%	0.8%
Michigan	Aa1	$38.0	108.8%	121.6%	(0.9%)
Indiana	Aaa	$20.3	99.3%	110.7%	(0.5%)
Missouri	Aaa	$13.8	98.7%	83.3%	0.8%
Louisiana	Aa3	$13.8	93.7%	100.7%	(0.0%)
Delaware	Aaa	$5.8	92.0%	87.6%	0.5%
Georgia	Aaa	$24.0	90.9%	107.8%	(0.3%)
Mississippi	Aa2	$7.6	85.6%	64.4%	1.2%
Oklahoma	Aa2	$9.3	81.2%	189.9%	(3.5%)
Washington	Aaa	$22.8	79.4%	116.4%	(0.4%)
South Dakota	Aaa	$1.9	75.9%	125.3%	(0.4%)
Arkansas	Aa1	$7.3	75.2%	63.0%	1.4%
New Mexico	Aa2	$7.4	69.9%	55.6%	1.4%
Oregon	Aa1	$11.1	69.5%	40.9%	1.9%
Arizona	Aa2	$11.9	68.7%	77.2%	0.6%
Alabama	Aa1	$8.6	66.4%	76.6%	0.6%
Virginia	Aaa	$18.3	63.1%	86.3%	0.4%
New Hampshire	Aa1	$2.2	58.6%	87.6%	0.3%
Wisconsin	Aa1	$11.3	55.8%	99.8%	0.0%
Minnesota	Aa1	$16.0	55.3%	53.3%	0.8%
Wyoming	NGO	$1.5	53.2%	111.7%	(0.2%)
Ohio	Aa1	$16.4	50.1%	76.6%	0.4%
Idaho	Aa1	$2.6	46.7%	112.0%	(0.2%)
Utah	Aaa	$4.5	46.4%	129.6%	(0.7%)
Florida	Aaa	$23.2	45.6%	76.7%	0.3%
Nebraska	Aa1	$2.7	44.7%	126.3%	(0.4%)
Iowa	Aaa	$4.8	43.0%	91.7%	0.1%
New York	Aa1	$39.2	40.2%	108.9%	(0.2%)
North Dakota	Aa1	$1.8	32.6%	70.2%	0.4%
Tennessee	Aaa	$6.4	32.3%	116.6%	(0.2%)
North Carolina	Aaa	$9.4	31.4%	124.2%	(0.3%)
Median		**$12.2**	**91.5%**	**86.9%**	**0.5%**

NGO stands for no general obligation rating.

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

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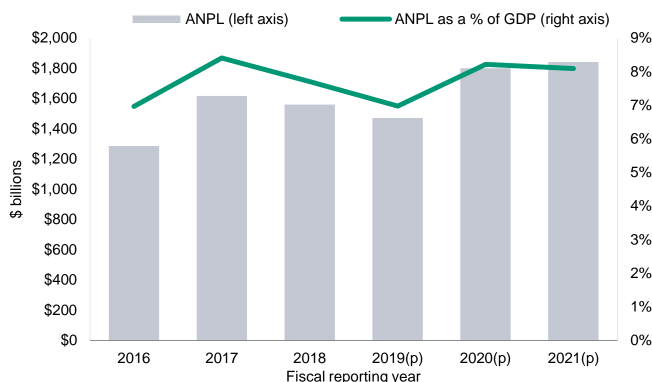
Exhibit 4

Total state ANPL will jump in fiscal 2020 following lower investment returns and discount rates in fiscal 2019



Fiscal reporting years with a (p) indicate projected figures based on Moody's US public pension forecast, which assumes constant FTSE PLI and 7.0% returns.
Moody's forecasts nominal US GDP growth of 4.23% in 2019 and 3.84% in 2020. For fiscal 2021, we assumed nominal US GDP growth equal to the 2020 forecasted growth rate of 3.84%.
Sources: Moody's Investors Service, US Bureau of Economic Analysis

Total state ANPL will jump in fiscal 2020 following lower investment returns and discount rates in fiscal 2019

» Based on investment results and discount rates in fiscal 2018, we project aggregate state ANPL will decline to $1.47 trillion when pension liabilities are reported by states (on a lagged basis) in fiscal 2019, a 5.6% decline from fiscal 2018. We project state ANPL as a percent of US GDP to decline to 7.0% in 2019 reporting.

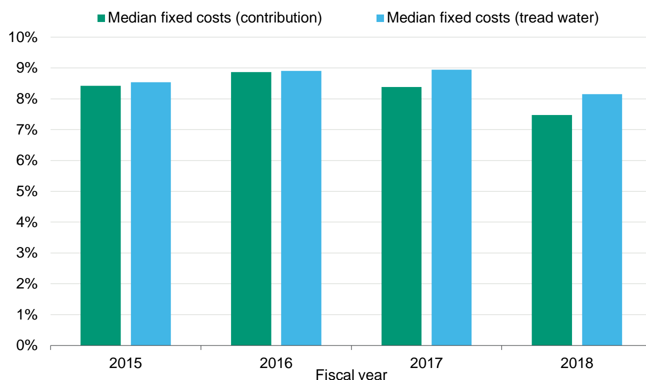
» The aggregate state ANPL will then increase in fiscal 2020 reporting by over 20% to roughly $1.8 trillion, approximately 8.2% of US GDP, reflecting lower investment returns in fiscal 2019 and a decrease in the June 30 discount rate.

» Assuming the low interest rate environment continues and returns average 7.0%, total state ANPL will remain fairly flat in fiscal 2021.

Exhibit 5

Revenue growth leads to lower fixed costs

50-state median fixed costs on a contribution and tread water basis as % of own-source governmental revenue



Fiscal 2018 median fixed costs (tread water) is pro forma based on the 43 states with complete tread water data for the year.
Sources: Moody's Investors Service, state and pension plan financial statements

Budgetary capacity to service fixed costs on the upswing due to ongoing revenue growth

» US Census Bureau data indicate that in the first three quarters of fiscal 2019 (July 2018 - March 2019), total state tax revenue was up 2.8% compared to the same period in fiscal 2018. This period does not include April income tax collections; many states experienced strong revenue growth in the fourth quarter of fiscal 2019 due to income tax windfalls resulting from federal tax changes enacted in December 2017.

» Fiscal 2018 fixed costs as a percent of own-source revenue on a tread water basis declined for 33 states. Fixed costs will continue to moderate for many states in fiscal 2019 reporting given strong revenue growth for the year.

» Fixed costs still weigh on many states, especially Illinois (Baa3 stable) and Connecticut (A1 stable), where fiscal 2018 fixed costs on a tread water basis exceeded 30% of own-source revenue.[4]

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

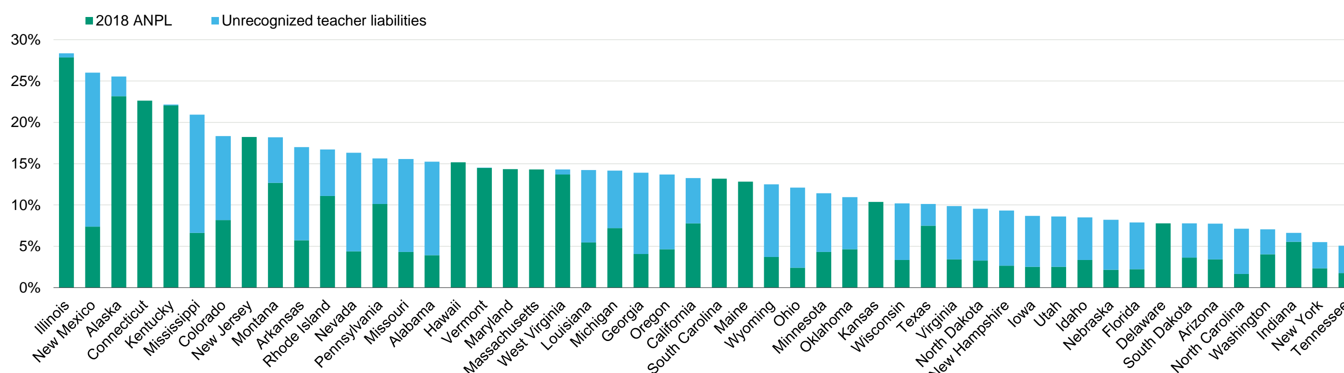
Given all states provide significant aid to school districts, including unrecognized teacher liabilities as part of a state's overall pension burden provides an alternate way to compare burdens across states. Exhibit 6 includes currently unrecognized portions of teacher liabilities as part of each state's 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 that is related to school districts was estimated based on the percentage of total plan members that come from public schools.[5] For Wisconsin (Aa1 stable), the percentage was based on the share of total covered payroll related to school districts.

Exhibit 6

Teacher liabilities significantly increase pension burdens for some states

Fiscal 2018 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, 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 while other states do not. 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 19.6% of total state expenditures in fiscal 2018.
- 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 total ANPL increases to a significant 26.0% of state GDP from 7.4% 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, including Illinois, Connecticut, Kentucky (Aa3 stable) and New Jersey (A3 stable), still have the highest pension burdens among states even when including the full teacher liability for all states.

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Exhibit 7

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

Fiscal 2018 pension asset shock indicator compared to pension assets as a % of own-source revenue

See Appendix on page 9 for explanation of adjustments made to own-source governmental revenues for certain states.

Source: Moody's Investors Service

States' risk of pension investment losses rose in fiscal 2018, though remains relatively low compared to the largest local governments

- 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 to governments using our pension asset shock indicator or PASI (see definition on page 8).
- The fiscal 2018 50-state median PASI rose to 1.1% from 0.4% the prior year. However, the overall risk of pension investment losses to the state sector remains relatively low compared to the fiscal 2017 median PASI for the 50 largest local governments at 6%.
- The fiscal 2018 PASI was higher than 6% for only seven states and was less than 1% for nearly half of states.
- While Maine (Aa2 stable) continues to have the highest ratio of pension assets to revenues in fiscal 2018 at over 200%, Texas (Aaa stable), Maryland (Aaa stable), Montana (Aa1 stable) and West Virginia (Aa2 stable) all had higher PASIs due to higher estimated portfolio volatility. We estimate volatility based on a portfolio's assumed rate of investment return.

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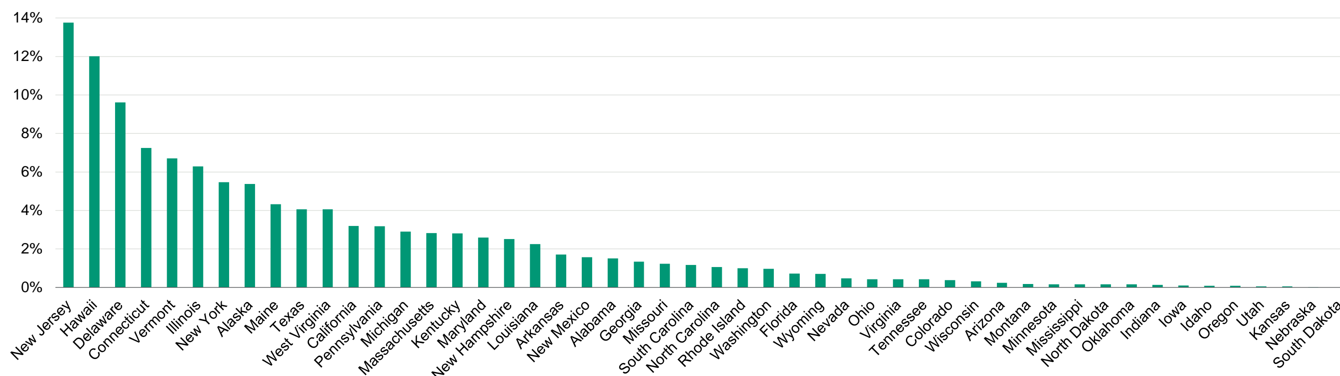
Exhibit 8

Adjusted net OPEB liabilities vary widely across states

Fiscal 2018 ANOL as a % of state GDP



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 exhibit reflects the state's reported fiscal 2018 unfunded actuarial accrued liability as a percent of GDP.

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 2018 50-state median adjusted net OPEB liability (ANOL) as a percent of state GDP was 1.1%.
- » New Jersey has the largest OPEB burden with its fiscal 2018 ANOL representing 13.8% of state GDP. Many states that have high pension burdens, such as New Jersey, Hawaii (Aa1 stable), 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 metric forms contribution benchmark

The tread water payment is the amount that would cover interest on beginning-of-year net pension liability (NPL), plus employer service cost accruals during the year. If all plan assumptions are met, including investment returns and demographic changes, a contribution equal to the tread water benchmark 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 2018 financial statements based on a fiscal 2017 measurement date. Only 11 pension plans were reported based on a 2018 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 metric 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 (2018 in this report) is incomplete.

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

To gauge the risk of material pension asset losses relative to the size of government revenues, we created the pension asset shock indicator or PASI. This estimates the probability of a pension investment loss equaling 25% of a government's revenues. The indicator is a function of the size of pension assets relative to government revenues 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.

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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 2018.

» 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 2018, the tread water metric for 2018 was calculated excluding the missing plan's tread water payment. This was the case for Delaware (Aaa stable), Indiana (Aaa stable), and Massachusetts (Aa1 stable).

» Alaska's (Aa3 negative) 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 revenues incorporate a five-year rolling average of permanent fund investment and interest earnings, rather than single-year earnings.

» Additional adjustments to own-source governmental revenues have been made for Delaware, Massachusetts and Washington (Aaa stable) to reflect inclusion or exclusion of certain funds from governmental revenues.

» For California (Aa3 positive), the state's 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.

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Exhibit 9

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	9/30/2017	7.75%	3,654,472	3.83%	6.5%
Alaska	Aa3	4	6/30/2017	8.00%	4,649,357	3.87%	64.0%
Arizona	Aa2*	4	6/30/2017	8.00%	5,632,222	3.87%	21.9%
Arkansas	Aa1	5	6/30/2017	7.15%	2,898,495	3.87%	65.7%
California	Aa3	9	6/30/2017	7.10%	89,558,165	3.87%	37.2%
Colorado	Aa1*	3	12/31/2017	4.72%	23,306,003	3.60%	95.4%
Connecticut	A1	3	6/30/2017	6.90%	34,566,488	3.87%	98.8%
Delaware	Aaa	7	6/30/2017	7.00%	1,785,671	3.87%	90.2%
Florida	Aaa	3	6/30/2017	7.10%	7,483,189	3.87%	17.6%
Georgia	Aaa	8	6/30/2017	7.50%	7,291,528	3.87%	90.3%
Hawaii	Aa1	1	6/30/2017	7.00%	6,711,776	3.87%	51.8%
Idaho	Aa1*	2	6/30/2017	7.10%	423,853	3.87%	25.8%
Illinois	Baa3	5	6/30/2017	7.00%	134,404,145	3.87%	96.8%
Indiana	Aaa*	8	6/30/2017	6.75%	13,361,274	3.87%	100.0%
Iowa	Aaa*	4	6/30/2017	7.00%	1,307,876	3.87%	17.0%
Kansas	Aa2*	3	6/30/2017	7.75%	6,839,092	3.87%	100.0%
Kentucky	Aa3	6	6/30/2017	4.49%	38,640,763	3.87%	95.5%
Louisiana	Aa3	7	6/30/2017	7.70%	6,408,281	3.87%	80.1%
Maine	Aa2	3	6/30/2017	6.88%	2,586,151	3.87%	100.0%
Maryland	Aaa	2	6/30/2017	7.50%	21,363,539	3.87%	94.3%
Massachusetts	Aa1	3	6/30/2017	7.50%	37,440,953	3.87%	100.0%
Michigan	Aa1	6	9/30/2018	7.05%	18,233,988	4.17%	39.9%
Minnesota	Aa1	8	6/30/2017	5.42%	9,851,916	3.87%	74.2%
Mississippi	Aa2	3	6/30/2017	7.75%	3,088,439	3.87%	17.6%
Missouri	Aaa	3	6/30/2017	7.50%	6,338,843	3.87%	82.2%
Montana	Aa1	9	6/30/2017	7.65%	2,036,283	3.87%	54.1%
Nebraska	Aa1*	6	6/30/2017	7.50%	321,410	3.87%	17.3%
Nevada	Aa2	3	6/30/2017	7.50%	2,251,533	3.87%	16.8%
New Hampshire	Aa1	2	6/30/2017	7.25%	1,012,881	3.87%	19.8%
New Jersey	A3	7	6/30/2017	4.25%	101,842,771	3.87%	100.0%
New Mexico	Aa2	5	6/30/2017	7.25%	2,900,097	3.87%	52.5%
New York	Aa1	2	3/31/2017	7.00%	6,324,298	4.12%	45.8%
North Carolina	Aaa	6	6/30/2017	7.20%	1,924,580	3.87%	21.7%
North Dakota	Aa1*	4	6/30/2017	6.44%	829,226	3.87%	51.9%
Ohio	Aa1	4	12/31/2017	7.50%	3,727,951	3.60%	20.9%
Oklahoma	Aa2*	6	7/1/2017	7.50%	2,299,914	3.87%	26.6%
Oregon	Aa1	1	6/30/2017	7.50%	2,793,212	3.87%	20.7%
Pennsylvania	Aa3	2	6/30/2017	7.25%	40,573,366	3.87%	53.3%
Rhode Island	Aa2	7	6/30/2017	7.00%	3,625,278	3.87%	43.1%
South Carolina	Aaa	5	6/30/2017	7.25%	14,034,122	3.87%	57.8%
South Dakota	Aaa*	2	6/30/2017	6.50%	(3,384)	3.87%	21.6%
Tennessee	Aaa	2	6/30/2017	7.25%	1,234,227	3.87%	69.8%
Texas	Aaa	6	8/31/2017	8.00%	44,973,819	3.77%	67.4%
Utah	Aaa	8	12/31/2017	6.95%	780,748	3.60%	23.5%
Vermont	Aa1	2	6/30/2017	7.50%	2,151,069	3.87%	100.0%
Virginia	Aaa	4	6/30/2017	7.00%	6,868,676	3.87%	100.0%
Washington	Aaa	10	6/30/2017	7.50%	2,047,944	3.87%	50.2%
West Virginia	Aa2	5	6/30/2017	7.50%	3,571,641	3.87%	94.1%
Wisconsin	Aa1	1	12/31/2017	7.20%	(826,114)	3.60%	27.8%
Wyoming	NGO	5	12/31/2017	7.00%	462,599	3.60%	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 10

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

FY 2018 rank	State	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Illinois	195,243,173	191,646,293	200,628,979	250,135,970	240,759,774
2	California	166,013,266	171,500,601	175,995,732	234,042,082	230,803,077
3	Texas	123,860,417	123,858,729	108,618,781	140,253,456	132,760,832
4	New Jersey	85,092,227	90,206,661	94,969,351	115,964,089	113,845,643
5	Massachusetts	61,059,039	53,989,121	65,193,204	80,449,143	81,227,853
6	Pennsylvania	69,317,602	63,133,969	69,552,310	80,549,468	79,779,435
7	Connecticut	53,119,206	52,942,059	53,742,607	71,223,221	62,059,644
8	Maryland	47,401,327	45,790,041	46,208,447	67,240,080	59,264,776
9	Kentucky	41,321,044	35,807,730	37,424,333	46,968,436	45,916,658
10	New York	37,170,889	27,760,007	42,913,661	43,640,389	39,166,292
11	Michigan	30,347,222	33,311,230	36,819,521	37,142,225	37,993,798
12	South Carolina	22,559,343	22,597,243	22,880,188	28,872,871	30,364,902
13	Colorado	22,570,025	19,647,727	19,782,553	22,642,431	30,107,806
14	Georgia	17,301,277	19,119,624	19,630,715	26,391,116	23,986,014
15	Florida	17,966,698	16,643,646	17,948,972	25,395,230	23,218,268
16	Washington	21,979,663	22,271,273	23,362,109	23,975,681	22,809,640
17	Indiana	20,373,336	16,831,561	18,578,385	21,256,728	20,346,062
18	Virginia	15,686,896	15,584,225	15,991,114	20,140,861	18,318,199
19	Kansas	14,844,955	14,701,823	16,152,108	17,607,414	17,341,499
20	Ohio	14,325,313	13,623,862	13,638,720	15,680,805	16,365,511
21	Minnesota	10,452,883	10,979,553	12,017,442	18,252,678	15,973,832
22	Hawaii	9,882,469	8,199,864	8,391,291	14,351,491	13,950,603
23	Louisiana	11,601,321	11,702,315	12,174,157	15,079,099	13,788,473
24	Missouri	8,437,016	10,377,254	10,889,865	14,269,258	13,764,307
25	Alaska	14,288,227	13,536,256	10,869,964	11,983,989	12,516,054
26	Arizona	10,943,519	9,347,944	10,326,759	11,688,286	11,903,465
27	Wisconsin	4,914,940	4,164,449	9,078,685	9,750,686	11,318,107
28	Oregon	6,657,991	4,782,189	7,150,395	11,954,071	11,127,973
29	West Virginia	8,870,025	9,011,541	9,140,297	12,082,693	10,602,503
30	North Carolina	6,036,243	5,867,503	6,497,937	10,391,839	9,421,407
31	Oklahoma	7,454,022	7,469,424	8,129,899	11,325,615	9,282,282
32	Alabama	6,530,298	7,616,339	7,970,431	9,281,406	8,642,954
33	Maine	8,058,673	6,372,262	6,661,914	8,977,858	8,256,121
34	Mississippi	6,140,167	6,139,549	6,604,115	8,198,597	7,573,864
35	New Mexico	6,394,482	5,906,607	6,376,808	8,884,611	7,353,640
36	Arkansas	7,055,786	5,532,181	5,935,199	8,085,386	7,318,307
37	Nevada	4,520,860	6,001,059	6,117,991	7,902,307	7,292,773
38	Rhode Island	5,156,655	5,120,129	5,671,589	6,741,527	6,780,891
39	Tennessee	7,399,535	4,725,732	5,091,049	6,905,551	6,446,554
40	Montana	4,744,422	4,751,010	4,866,079	6,090,280	6,212,965
41	Delaware	4,161,933	3,859,643	3,406,059	6,373,422	5,831,614
42	Vermont	3,715,067	3,689,889	4,034,179	5,123,076	4,882,266
43	Iowa	4,060,387	3,737,767	4,099,809	5,319,983	4,776,209
44	Utah	3,942,304	4,312,097	4,003,770	4,187,458	4,497,709
45	Nebraska	726,351	2,121,372	2,219,456	2,870,530	2,650,498
46	Idaho	1,629,926	1,671,901	1,843,160	2,768,296	2,580,465
47	New Hampshire	1,651,051	1,686,124	1,784,268	2,370,644	2,247,106
48	South Dakota	1,726,318	1,581,368	1,694,309	2,777,714	1,867,818
49	North Dakota	1,265,340	1,255,244	1,264,586	1,831,005	1,792,617
50	Wyoming	1,411,649	1,300,956	1,341,246	1,438,478	1,466,636
	TOTAL	1,257,382,776	1,223,786,947	1,285,684,496	1,616,829,533	1,558,555,783
	MEAN	25,147,656	24,475,739	25,713,690	32,336,591	31,171,116
	MEDIAN	9,376,247	9,179,742	9,733,528	12,033,341	12,209,760

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

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Exhibit 11

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

FY 2018 rank	State	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Illinois	431%	434%	487%	601%	505%
2	Kentucky	311%	261%	265%	325%	309%
3	Connecticut	298%	289%	285%	360%	286%
4	New Jersey	224%	227%	249%	290%	275%
5	Maryland	217%	200%	194%	281%	237%
6	Massachusetts	206%	172%	202%	247%	227%
7	South Carolina	178%	177%	173%	207%	203%
8	Colorado	174%	143%	140%	159%	196%
9	Montana	148%	147%	153%	195%	185%
10	Pennsylvania	189%	154%	171%	185%	172%
11	Texas	177%	189%	162%	196%	170%
12	Maine	189%	141%	145%	189%	168%
13	Hawaii	153%	118%	115%	189%	165%
14	Kansas	171%	168%	182%	193%	164%
15	West Virginia	134%	134%	142%	185%	156%
16	Alaska	121%	182%	208%	168%	154%
17	Rhode Island	129%	121%	131%	154%	148%
18	Vermont	111%	106%	113%	141%	128%
19	Nevada	99%	122%	112%	136%	125%
20	California	113%	106%	107%	136%	120%
21	Michigan	104%	107%	115%	113%	109%
22	Indiana	113%	91%	99%	110%	99%
23	Missouri	69%	80%	82%	104%	99%
24	Louisiana	89%	92%	94%	107%	94%
25	Delaware	80%	68%	59%	106%	92%
26	Georgia	83%	86%	82%	104%	91%
27	Mississippi	72%	70%	74%	95%	86%
28	Oklahoma	69%	69%	80%	107%	81%
29	Washington	103%	98%	96%	91%	79%
30	South Dakota	80%	75%	77%	116%	76%
31	Arkansas	79%	59%	63%	85%	75%
32	New Mexico	74%	65%	79%	87%	70%
33	Oregon	57%	38%	48%	82%	70%
34	Arizona	75%	61%	66%	71%	69%
35	Alabama	57%	65%	65%	74%	66%
36	Virginia	65%	62%	62%	75%	63%
37	New Hampshire	51%	50%	49%	66%	59%
38	Wisconsin	27%	22%	47%	50%	56%
39	Minnesota	43%	43%	46%	68%	55%
40	Wyoming	33%	43%	50%	45%	53%
41	Ohio	48%	43%	43%	49%	50%
42	Idaho	31%	31%	40%	54%	47%
43	Utah	51%	53%	49%	47%	46%
44	Florida	41%	36%	38%	52%	46%
45	Nebraska	13%	37%	38%	50%	45%
46	Iowa	43%	37%	39%	49%	43%
47	New York	44%	30%	47%	48%	40%
48	North Dakota	17%	20%	31%	39%	33%
49	Tennessee	46%	27%	28%	36%	32%
50	North Carolina	23%	22%	23%	36%	31%
	TOTAL	125%	117%	122%	147%	132%
	MEAN	111%	105%	111%	135%	121%
	MEDIAN	82%	83%	82%	107%	91%

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

Sources: Moody's Investors Service, state financial statements

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Exhibit 12

Moody's ANPL per capita ($)

FY 2018 rank	State	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Illinois	15,148	14,897	15,641	19,563	18,896
2	Connecticut	14,777	14,757	15,017	19,929	17,371
3	Alaska	19,405	18,353	14,659	16,199	16,972
4	New Jersey	9,597	10,169	10,701	13,046	12,779
5	Massachusetts	9,028	7,944	9,551	11,722	11,768
6	Kentucky	9,360	8,090	8,432	10,546	10,276
7	Hawaii	6,985	5,764	5,876	10,077	9,821
8	Maryland	7,956	7,649	7,695	11,160	9,808
9	Vermont	5,942	5,902	6,469	8,203	7,795
10	Rhode Island	4,883	4,848	5,365	6,381	6,413
11	Pennsylvania	5,420	4,938	5,441	6,298	6,229
12	Maine	6,056	4,797	5,004	6,725	6,169
13	Delaware	4,463	4,100	3,588	6,659	6,030
14	South Carolina	4,677	4,619	4,615	5,750	5,972
15	Kansas	5,117	5,053	5,548	6,049	5,956
16	West Virginia	4,796	4,892	4,992	6,650	5,871
17	Montana	4,643	4,610	4,675	5,783	5,849
18	California	4,298	4,403	4,489	5,940	5,835
19	Colorado	4,218	3,604	3,570	4,032	5,286
20	Texas	4,591	4,506	3,888	4,952	4,626
21	Michigan	3,056	3,354	3,700	3,723	3,801
22	New Mexico	3,059	2,826	3,047	4,244	3,509
23	Indiana	3,090	2,547	2,801	3,192	3,040
24	Washington	3,117	3,109	3,203	3,229	3,027
25	Louisiana	2,498	2,509	2,602	3,228	2,959
26	Minnesota	1,917	2,003	2,176	3,278	2,847
27	Oregon	1,680	1,191	1,748	2,883	2,655
28	Wyoming	2,423	2,221	2,296	2,485	2,539
29	Mississippi	2,053	2,054	2,210	2,742	2,536
30	Arkansas	2,378	1,857	1,985	2,692	2,428
31	Nevada	1,604	2,092	2,095	2,659	2,403
32	North Dakota	1,716	1,665	1,676	2,425	2,358
33	Oklahoma	1,922	1,910	2,070	2,880	2,354
34	Georgia	1,718	1,878	1,905	2,534	2,280
35	Missouri	1,393	1,709	1,789	2,336	2,247
36	Virginia	1,887	1,863	1,901	2,379	2,151
37	South Dakota	2,033	1,852	1,964	3,181	2,117
38	New York	1,891	1,412	2,185	2,228	2,004
39	Wisconsin	854	723	1,573	1,683	1,947
40	Alabama	1,349	1,569	1,638	1,904	1,768
41	Arizona	1,625	1,368	1,487	1,658	1,660
42	New Hampshire	1,238	1,262	1,329	1,756	1,657
43	Iowa	1,306	1,197	1,309	1,692	1,513
44	Idaho	999	1,012	1,095	1,611	1,471
45	Utah	1,342	1,446	1,316	1,349	1,423
46	Ohio	1,235	1,173	1,172	1,344	1,400
47	Nebraska	386	1,122	1,165	1,497	1,374
48	Florida	905	823	870	1,211	1,090
49	Tennessee	1,131	717	766	1,029	952
50	North Carolina	608	585	640	1,012	907
	TOTAL	3,957	3,824	3,988	4,983	4,774
	MEAN	4,075	3,899	4,019	5,115	4,883
	MEDIAN	2,461	2,365	2,449	3,210	2,903

Sources: Moody's Investors Service, US Census Bureau

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Exhibit 13

Moody's ANPL as a % of personal income

FY 2018 rank	State	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Illinois	30.6%	28.8%	29.8%	36.0%	33.2%
2	Alaska	34.9%	32.0%	26.2%	28.3%	28.4%
3	Kentucky	25.0%	20.8%	21.4%	26.0%	24.6%
4	Connecticut	22.1%	21.5%	21.5%	27.6%	23.3%
5	New Jersey	16.4%	16.6%	17.1%	20.0%	18.9%
6	Hawaii	14.8%	11.7%	11.6%	19.0%	18.0%
7	Massachusetts	15.1%	12.5%	14.7%	17.3%	16.8%
8	Maryland	14.6%	13.4%	13.1%	18.3%	15.6%
9	Vermont	12.5%	12.0%	12.8%	15.7%	14.5%
10	West Virginia	13.3%	13.3%	13.5%	17.3%	14.5%
11	South Carolina	12.5%	11.7%	11.4%	13.8%	14.0%
12	Maine	14.5%	11.0%	11.2%	14.5%	12.8%
13	Montana	11.1%	10.6%	10.6%	12.8%	12.4%
14	Kansas	11.0%	10.7%	11.7%	12.4%	11.9%
15	Rhode Island	10.1%	9.7%	10.6%	12.1%	11.8%
16	Delaware	9.7%	8.6%	7.4%	13.3%	11.7%
17	Pennsylvania	11.2%	9.8%	10.6%	11.8%	11.3%
18	Texas	9.9%	9.7%	8.4%	10.5%	9.4%
19	California	8.2%	7.9%	7.8%	9.9%	9.3%
20	Colorado	8.3%	6.9%	6.8%	7.4%	9.3%
21	New Mexico	8.2%	7.4%	7.9%	10.7%	8.5%
22	Michigan	7.4%	7.7%	8.3%	8.1%	8.0%
23	Mississippi	5.9%	5.9%	6.2%	7.5%	6.7%
24	Indiana	7.6%	6.0%	6.4%	7.1%	6.5%
25	Louisiana	5.9%	5.8%	6.1%	7.4%	6.5%
26	Arkansas	6.3%	4.8%	5.0%	6.6%	5.7%
27	Oregon	4.0%	2.6%	3.8%	6.0%	5.3%
28	Oklahoma	4.2%	4.3%	4.9%	6.5%	5.1%
29	Minnesota	3.8%	3.9%	4.1%	6.0%	5.0%
30	Georgia	4.3%	4.5%	4.5%	5.7%	5.0%
31	Nevada	3.9%	4.7%	4.7%	5.7%	5.0%
32	Washington	6.1%	5.8%	5.8%	5.6%	5.0%
33	Missouri	3.4%	4.0%	4.1%	5.2%	4.8%
34	North Dakota	3.1%	3.1%	3.2%	4.6%	4.3%
35	Wyoming	4.3%	3.9%	4.1%	4.3%	4.2%
36	South Dakota	4.3%	3.8%	4.1%	6.5%	4.2%
37	Alabama	3.6%	4.1%	4.2%	4.7%	4.2%
38	Wisconsin	1.9%	1.6%	3.3%	3.4%	3.8%
39	Arizona	4.3%	3.5%	3.7%	3.9%	3.8%
40	Virginia	3.7%	3.5%	3.6%	4.3%	3.8%
41	Idaho	2.6%	2.5%	2.7%	3.9%	3.4%
42	Utah	3.5%	3.5%	3.1%	3.1%	3.1%
43	Iowa	2.9%	2.6%	2.8%	3.6%	3.1%
44	New York	3.3%	2.4%	3.6%	3.4%	2.9%
45	Ohio	2.9%	2.6%	2.6%	2.9%	2.9%
46	New Hampshire	2.3%	2.3%	2.3%	3.0%	2.7%
47	Nebraska	0.8%	2.2%	2.3%	2.9%	2.6%
48	Florida	2.1%	1.8%	1.9%	2.5%	2.2%
49	Tennessee	2.8%	1.7%	1.7%	2.3%	2.0%
50	North Carolina	1.5%	1.4%	1.5%	2.3%	2.0%
	TOTAL	8.4%	7.8%	8.0%	9.6%	8.9%
	MEAN	8.5%	7.9%	8.0%	9.9%	9.1%
	MEDIAN	6.0%	5.8%	5.9%	6.8%	6.1%

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

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Exhibit 14

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

FY 2018 rank	State	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Illinois	25.5%	24.2%	24.9%	30.3%	27.8%
2	Alaska	25.7%	26.7%	22.0%	23.2%	23.2%
3	Connecticut	21.3%	20.4%	20.4%	26.8%	22.6%
4	Kentucky	22.1%	18.6%	19.2%	23.4%	22.0%
5	New Jersey	15.6%	15.8%	16.3%	19.3%	18.2%
6	Hawaii	12.7%	9.9%	9.8%	16.1%	15.2%
7	Vermont	12.5%	12.0%	12.8%	15.7%	14.5%
8	Maryland	13.4%	12.5%	12.0%	16.9%	14.4%
9	Massachusetts	12.9%	10.7%	12.5%	14.9%	14.3%
10	West Virginia	12.3%	12.8%	13.1%	16.5%	13.7%
11	South Carolina	11.8%	11.1%	10.8%	13.0%	13.2%
12	Maine	14.4%	11.1%	11.2%	14.5%	12.8%
13	Montana	10.7%	10.3%	10.7%	12.9%	12.7%
14	Rhode Island	9.4%	9.0%	9.8%	11.4%	11.1%
15	Kansas	10.0%	9.7%	10.4%	11.0%	10.4%
16	Pennsylvania	10.0%	8.9%	9.6%	10.7%	10.1%
17	Colorado	7.4%	6.2%	6.0%	6.5%	8.2%
18	Delaware	6.2%	5.4%	4.8%	8.8%	7.8%
19	California	6.9%	6.7%	6.6%	8.3%	7.8%
20	Texas	7.9%	7.9%	6.9%	8.5%	7.5%
21	New Mexico	6.9%	6.5%	7.0%	9.4%	7.4%
22	Michigan	6.8%	7.0%	7.5%	7.3%	7.2%
23	Mississippi	5.9%	5.8%	6.2%	7.5%	6.6%
24	Arkansas	6.0%	4.7%	4.9%	6.5%	5.7%
25	Indiana	6.3%	5.1%	5.5%	6.1%	5.5%
26	Louisiana	4.9%	5.0%	5.3%	6.3%	5.5%
27	Oregon	3.5%	2.4%	3.3%	5.3%	4.7%
28	Oklahoma	3.8%	4.0%	4.6%	6.0%	4.6%
29	Nevada	3.3%	4.2%	4.1%	5.0%	4.4%
30	Minnesota	3.3%	3.3%	3.5%	5.2%	4.3%
31	Missouri	3.0%	3.5%	3.7%	4.7%	4.3%
32	Georgia	3.6%	3.7%	3.6%	4.7%	4.1%
33	Washington	5.0%	4.7%	4.7%	4.6%	4.1%
34	Alabama	3.4%	3.8%	3.9%	4.4%	3.9%
35	Wyoming	3.6%	3.4%	3.7%	3.8%	3.7%
36	South Dakota	3.7%	3.3%	3.5%	5.6%	3.6%
37	Arizona	3.8%	3.1%	3.3%	3.6%	3.4%
38	Virginia	3.4%	3.2%	3.2%	3.9%	3.4%
39	Wisconsin	1.7%	1.4%	2.9%	3.0%	3.4%
40	Idaho	2.6%	2.5%	2.7%	3.8%	3.4%
41	North Dakota	2.2%	2.3%	2.5%	3.5%	3.3%
42	New Hampshire	2.3%	2.2%	2.3%	2.9%	2.7%
43	Utah	2.8%	2.9%	2.5%	2.5%	2.5%
44	Iowa	2.4%	2.1%	2.3%	2.9%	2.5%
45	Ohio	2.4%	2.2%	2.2%	2.4%	2.4%
46	New York	2.6%	1.9%	2.8%	2.7%	2.3%
47	Florida	2.1%	1.9%	1.9%	2.6%	2.2%
48	Nebraska	0.7%	1.8%	1.9%	2.4%	2.2%
49	Tennessee	2.4%	1.5%	1.5%	2.0%	1.8%
50	North Carolina	1.3%	1.2%	1.3%	1.9%	1.7%
	TOTAL	7.3%	6.8%	7.0%	8.4%	7.7%
	MEAN	7.5%	7.0%	7.2%	8.8%	8.1%
	MEDIAN	5.4%	4.9%	4.9%	6.2%	5.5%

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

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Exhibit 15

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

FY 2018 rank	State	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
1	Illinois	30.0%	28.3%	28.9%	34.8%	31.9%
2	Connecticut	29.5%	28.9%	29.3%	35.7%	31.7%
3	Kentucky	26.7%	23.2%	23.9%	27.8%	26.2%
4	Alaska	27.7%	28.8%	24.5%	25.4%	25.2%
5	New Jersey	22.3%	22.4%	23.1%	25.8%	24.1%
6	Hawaii	21.5%	17.8%	18.1%	24.5%	23.6%
7	Massachusetts	20.8%	18.5%	20.4%	22.6%	21.8%
8	Maryland	16.6%	15.6%	15.3%	20.2%	17.8%
9	West Virginia	14.8%	15.9%	16.1%	19.2%	17.0%
10	Vermont	14.5%	14.1%	14.9%	17.6%	16.6%
11	Rhode Island	13.3%	12.5%	13.8%	15.3%	15.0%
12	Maine	16.6%	13.2%	13.2%	16.5%	14.6%
13	South Carolina	13.4%	12.5%	12.1%	14.2%	14.3%
14	Kansas	12.2%	12.6%	13.3%	13.8%	13.0%
15	Montana	11.2%	10.8%	11.2%	13.3%	13.0%
16	Pennsylvania	12.2%	11.1%	12.0%	13.0%	12.7%
17	Delaware	10.4%	9.4%	9.0%	13.0%	11.9%
18	Mississippi	11.0%	10.9%	11.3%	12.5%	11.3%
19	California	10.8%	10.3%	9.9%	11.4%	10.7%
20	New Mexico	9.7%	9.3%	9.9%	12.0%	9.9%
21	Colorado	8.2%	6.9%	6.6%	7.3%	8.9%
22	Michigan	8.4%	8.5%	8.9%	8.7%	8.4%
23	Louisiana	7.9%	8.2%	8.7%	9.5%	8.3%
24	Texas	8.6%	8.6%	7.6%	9.2%	8.1%
25	Oregon	7.5%	6.1%	6.8%	9.0%	8.0%
26	Washington	9.6%	8.9%	8.8%	8.4%	7.5%
27	Arkansas	7.7%	6.2%	6.4%	8.1%	7.1%
28	Minnesota	5.9%	5.9%	6.0%	7.4%	6.5%
29	New York	6.9%	6.0%	6.7%	6.6%	6.1%
30	Wisconsin	5.2%	4.7%	6.1%	6.0%	6.1%
31	Indiana	6.9%	5.8%	6.1%	6.6%	6.0%
32	Georgia	5.7%	5.8%	5.5%	6.5%	5.9%
33	Alabama	5.4%	5.8%	6.0%	6.5%	5.8%
34	Virginia	5.8%	5.6%	5.8%	6.5%	5.8%
35	Nevada	4.7%	5.3%	5.2%	6.2%	5.6%
36	Oklahoma	4.5%	4.7%	5.3%	6.7%	5.3%
37	Missouri	4.3%	4.7%	4.9%	5.8%	5.3%
38	South Dakota	4.7%	4.4%	4.6%	6.8%	4.7%
39	Arizona	5.8%	4.9%	4.9%	4.9%	4.6%
40	Idaho	3.8%	3.7%	3.7%	5.0%	4.5%
41	Ohio	4.6%	4.3%	4.2%	4.4%	4.4%
42	Utah	5.0%	4.7%	4.1%	4.0%	3.9%
43	Florida	4.5%	4.2%	4.0%	4.5%	3.9%
44	New Hampshire	3.8%	3.6%	3.6%	4.2%	3.9%
45	Wyoming	3.7%	3.5%	3.8%	3.9%	3.8%
46	North Dakota	2.4%	2.5%	2.7%	3.7%	3.5%
47	Iowa	2.8%	2.5%	2.7%	3.3%	2.9%
48	North Carolina	2.8%	2.6%	2.5%	3.1%	2.6%
49	Tennessee	3.1%	2.1%	2.2%	2.6%	2.3%
50	Nebraska	0.7%	1.9%	1.9%	2.5%	2.2%
	TOTAL	10.3%	9.7%	9.8%	11.1%	10.3%
	MEAN	10.1%	9.6%	9.7%	11.3%	10.5%
	MEDIAN	7.8%	6.6%	6.8%	8.2%	7.8%

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 16
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%	679	1.6%	1.5%
Alaska	412,035	2,905,826	35.7%	3,940	6.6%	5.4%
Arizona	846,763	806,003	4.7%	112	0.3%	0.2%
Arkansas	2,299,942	2,179,113	22.4%	723	1.7%	1.7%
California	92,591,583	94,710,386	49.4%	2,394	3.8%	3.2%
Colorado	1,201,025	1,416,926	9.2%	249	0.4%	0.4%
Connecticut	20,590,998	19,874,486	91.5%	5,563	7.5%	7.2%
Delaware	7,623,319	7,205,546	113.7%	7,450	14.5%	9.6%
Florida	7,999,457	7,494,875	14.7%	352	0.7%	0.7%
Georgia	7,803,472	7,856,248	29.8%	747	1.6%	1.3%
Hawaii	6,666,282	11,047,324	130.9%	7,777	14.3%	12.0%
Idaho	48,178	69,382	1.3%	40	0.1%	0.1%
Illinois	56,961,397	54,407,761	114.1%	4,270	7.5%	6.3%
Indiana	503,290	467,565	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%	30	0.1%	0.1%
Kentucky	3,547,159	5,833,923	39.2%	1,306	3.1%	2.8%
Louisiana	6,430,045	5,678,926	38.6%	1,219	2.7%	2.3%
Maine	2,306,008	2,777,944	56.6%	2,076	4.3%	4.3%
Maryland	11,404,568	10,721,930	42.8%	1,774	2.8%	2.6%
Massachusetts	16,681,450	15,962,274	44.7%	2,313	3.3%	2.8%
Michigan	10,202,754	15,319,585	43.9%	1,533	3.2%	2.9%
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%	634	1.4%	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%	256	0.5%	0.5%
New Hampshire	2,197,863	2,129,061	55.5%	1,570	2.6%	2.5%
New Jersey	90,487,141	85,957,592	207.6%	9,649	14.3%	13.8%
New Mexico	1,516,150	1,560,441	14.8%	745	1.8%	1.6%
New York	91,768,000	91,768,000	94.3%	4,696	6.8%	5.5%
North Carolina	6,381,057	6,024,611	20.1%	580	1.3%	1.1%
North Dakota	42,367	84,413	1.5%	111	0.2%	0.2%
Ohio	2,721,609	2,882,134	8.8%	247	0.5%	0.4%
Oklahoma	166,263	307,886	2.7%	78	0.2%	0.2%
Oregon	133,637	191,001	1.2%	46	0.1%	0.1%
Pennsylvania	26,490,435	25,113,744	54.3%	1,961	3.5%	3.2%
Rhode Island	511,756	611,780	13.3%	579	1.1%	1.0%
South Carolina	2,837,667	2,690,592	18.0%	529	1.2%	1.2%
South Dakota	-	-	0.0%	-	0.0%	0.0%
Tennessee	1,565,203	1,524,202	7.6%	225	0.5%	0.4%
Texas	75,940,032	72,197,269	92.7%	2,515	5.1%	4.1%
Utah	101,616	99,299	1.0%	31	0.1%	0.1%
Vermont	2,369,425	2,259,718	59.2%	3,608	6.7%	6.7%
Virginia	1,360,174	2,230,932	7.7%	262	0.5%	0.4%
Washington	5,825,822	5,478,091	19.1%	727	1.2%	1.0%
West Virginia	1,940,146	3,148,197	46.4%	1,743	4.3%	4.1%
Wisconsin	1,089,700	1,066,094	5.3%	183	0.4%	0.3%
Wyoming	294,517	276,860	10.1%	479	0.8%	0.7%
TOTAL	580,697,578	583,484,852	49.6%	1,787	3.3%	2.9%
MEAN	11,613,952	11,669,697	34.1%	1,528	2.7%	2.4%
MEDIAN	2,248,902	2,475,155	18.5%	607	1.3%	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 17

Fiscal 2018 NTSD, ANPL and ANOL as a percent of state GDP

FY 2018 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	9.1%	22.6%	7.2%	38.9%
2	Illinois	4.1%	27.8%	6.3%	38.2%
3	New Jersey	5.9%	18.2%	13.8%	37.9%
4	Hawaii	8.4%	15.2%	12.0%	35.6%
5	Alaska	2.0%	23.2%	5.4%	30.6%
6	Kentucky	4.1%	22.0%	2.8%	29.0%
7	Massachusetts	7.4%	14.3%	2.8%	24.6%
8	Vermont	2.1%	14.5%	6.7%	23.3%
9	Delaware	4.1%	7.8%	9.6%	21.5%
10	West Virginia	3.3%	13.7%	4.1%	21.1%
11	Maryland	3.4%	14.4%	2.6%	20.4%
12	Maine	1.8%	12.8%	4.3%	18.9%
13	Rhode Island	3.8%	11.1%	1.0%	16.0%
14	Pennsylvania	2.6%	10.1%	3.2%	15.9%
15	South Carolina	1.1%	13.2%	1.2%	15.5%
16	California	2.9%	7.8%	3.2%	13.9%
17	Montana	0.3%	12.7%	0.2%	13.2%
18	Kansas	2.6%	10.4%	0.1%	13.1%
19	Texas	0.6%	7.5%	4.1%	12.2%
20	New York	3.8%	2.3%	5.5%	11.6%
21	New Mexico	2.5%	7.4%	1.6%	11.5%
22	Mississippi	4.7%	6.6%	0.2%	11.5%
23	Michigan	1.2%	7.2%	2.9%	11.3%
24	Louisiana	2.8%	5.5%	2.3%	10.5%
25	Colorado	0.7%	8.2%	0.4%	9.3%
26	Arkansas	1.4%	5.7%	1.7%	8.8%
27	Washington	3.5%	4.1%	1.0%	8.5%
28	Oregon	3.4%	4.7%	0.1%	8.1%
29	Alabama	1.9%	3.9%	1.5%	7.3%
30	Georgia	1.8%	4.1%	1.3%	7.2%
31	Minnesota	2.2%	4.3%	0.2%	6.7%
32	Missouri	0.9%	4.3%	1.2%	6.5%
33	New Hampshire	1.2%	2.7%	2.5%	6.4%
34	Wisconsin	2.7%	3.4%	0.3%	6.4%
35	Virginia	2.4%	3.4%	0.4%	6.2%
36	Indiana	0.5%	5.5%	0.1%	6.2%
37	Nevada	1.2%	4.4%	0.5%	6.0%
38	Oklahoma	0.6%	4.6%	0.2%	5.4%
39	Ohio	2.0%	2.4%	0.4%	4.8%
40	Arizona	1.2%	3.4%	0.2%	4.8%
41	South Dakota	1.1%	3.6%	0.0%	4.7%
42	Florida	1.7%	2.2%	0.7%	4.6%
43	Idaho	1.2%	3.4%	0.1%	4.6%
44	Wyoming	0.0%	3.7%	0.7%	4.5%
45	Utah	1.4%	2.5%	0.1%	4.0%
46	North Carolina	1.0%	1.7%	1.1%	3.7%
47	North Dakota	0.2%	3.3%	0.2%	3.6%
48	Iowa	0.3%	2.5%	0.1%	3.0%
49	Tennessee	0.6%	1.8%	0.4%	2.7%
50	Nebraska	0.0%	2.2%	0.0%	2.2%
	TOTAL	2.6%	7.7%	2.9%	13.2%
	MEAN	2.4%	8.1%	2.4%	12.8%
	MEDIAN	2.0%	5.5%	1.1%	9.1%

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 2017 state pension contribution and tread water metrics

State	FY 17 contributions as a % of own-source revenues	FY 17 tread water as a % of own-source revenues	FY 17 contributions as a % of tread water	FY 17 tread water shortfall as a % of own-source revenues
Alabama	2.1%	2.7%	76.6%	0.6%
Alaska	5.0%	6.1%	81.9%	1.1%
Arizona	2.2%	2.8%	77.2%	0.6%
Arkansas	2.5%	3.9%	63.0%	1.4%
California	4.4%	5.2%	84.6%	0.8%
Colorado	3.7%	6.4%	57.4%	2.7%
Connecticut	12.9%	16.4%	78.9%	3.4%
Delaware	3.5%	4.0%	87.6%	0.5%
Florida	1.1%	1.5%	76.7%	0.3%
Georgia	3.7%	3.5%	107.8%	(0.3%)
Hawaii	5.6%	8.2%	68.8%	2.5%
Idaho	1.9%	1.7%	112.0%	(0.2%)
Illinois	18.1%	27.3%	66.6%	9.1%
Indiana	5.5%	5.0%	110.7%	(0.5%)
Iowa	1.4%	1.6%	91.7%	0.1%
Kansas	5.6%	7.0%	79.6%	1.4%
Kentucky	10.6%	13.9%	76.3%	3.3%
Louisiana	4.5%	4.5%	100.7%	(0.0%)
Maine	5.5%	5.9%	92.0%	0.5%
Maryland	8.2%	9.4%	87.6%	1.2%
Massachusetts	6.4%	9.4%	68.9%	2.9%
Michigan	5.1%	4.2%	121.6%	(0.9%)
Minnesota	0.9%	1.8%	53.3%	0.8%
Mississippi	2.2%	3.5%	64.4%	1.2%
Missouri	3.8%	4.5%	83.3%	0.8%
Montana	6.0%	6.2%	97.2%	0.2%
Nebraska	1.8%	1.4%	126.3%	(0.4%)
Nevada	2.7%	3.5%	76.4%	0.8%
New Hampshire	2.2%	2.5%	87.6%	0.3%
New Jersey	4.7%	12.0%	39.0%	7.3%
New Mexico	1.7%	3.1%	55.6%	1.4%
New York	2.4%	2.2%	108.9%	(0.2%)
North Carolina	1.3%	1.0%	124.2%	(0.3%)
North Dakota	0.9%	1.3%	70.2%	0.4%
Ohio	1.2%	1.6%	76.6%	0.4%
Oklahoma	7.5%	3.9%	189.9%	(3.5%)
Oregon	1.3%	3.1%	40.9%	1.9%
Pennsylvania	8.1%	9.3%	87.9%	1.1%
Rhode Island	6.5%	6.3%	103.1%	(0.2%)
South Carolina	5.4%	7.2%	75.1%	1.8%
South Dakota	1.9%	1.5%	125.3%	(0.4%)
Tennessee	1.4%	1.2%	116.6%	(0.2%)
Texas	4.1%	6.9%	59.6%	2.8%
Utah	2.9%	2.2%	129.6%	(0.7%)
Vermont	3.9%	4.5%	87.9%	0.5%
Virginia	2.5%	2.9%	86.3%	0.4%
Washington	2.5%	2.2%	116.4%	(0.4%)
West Virginia	8.5%	6.8%	125.1%	(1.7%)
Wisconsin	1.3%	1.3%	99.8%	0.0%
Wyoming	1.8%	1.6%	111.7%	(0.2%)
TOTAL	4.5%	5.8%	77.6%	1.3%
MEAN	4.2%	5.1%	89.7%	0.9%
MEDIAN	3.6%	3.9%	86.9%	0.5%

Sources: Moody's Investors Service, state financial statements

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Exhibit 19

Fixed costs as % of own-source governmental revenue

State	FY 2018 debt service	FY 2018 OPEB contribution	FY 2018 pension contribution	FY 2018 pension tread water	FY 2018 fixed costs (contribution)	FY 2018 fixed costs (tread water)	FY 2017 fixed costs (contribution)	FY 2017 fixed costs (tread water)
Alabama	4.0%	0.6%	2.0%	NA	6.7%	NA	7.2%	7.9%
Alaska	1.4%	0.6%	4.2%	5.4%	6.3%	7.5%	8.0%	9.1%
Arizona	3.7%	0.2%	2.2%	NA	6.0%	NA	6.3%	7.0%
Arkansas	2.5%	0.7%	2.5%	3.1%	5.6%	6.2%	6.7%	8.1%
California	4.3%	1.3%	4.4%	NA	10.0%	NA	10.4%	11.2%
Colorado	1.2%	0.4%	4.4%	5.9%	6.0%	7.4%	6.2%	8.9%
Connecticut	13.5%	3.7%	12.5%	13.5%	29.7%	30.7%	30.2%	33.6%
Delaware	6.0%	3.2%	3.9%	3.9%	13.1%	13.0%	12.4%	12.9%
Florida	4.4%	0.3%	1.2%	1.5%	5.9%	6.3%	5.8%	6.2%
Georgia	5.9%	2.4%	3.9%	3.1%	12.2%	11.3%	11.5%	11.2%
Hawaii	9.5%	6.1%	5.6%	NA	21.3%	NA	24.8%	27.3%
Idaho	1.3%	0.2%	1.7%	1.5%	3.3%	3.1%	3.5%	3.3%
Illinois	8.4%	4.6%	16.2%	23.5%	29.1%	36.4%	28.4%	37.5%
Indiana	1.1%	0.2%	5.4%	4.9%	6.7%	6.1%	6.8%	6.3%
Iowa	0.7%	0.1%	1.4%	1.5%	2.2%	2.4%	2.3%	2.4%
Kansas	3.7%	0.1%	6.1%	5.8%	9.9%	9.5%	10.1%	11.5%
Kentucky	7.1%	0.8%	10.3%	13.1%	18.2%	21.1%	20.5%	23.8%
Louisiana	4.8%	1.4%	4.6%	3.9%	10.8%	10.0%	10.9%	10.9%
Maine	4.8%	2.4%	5.8%	5.2%	13.0%	12.3%	13.0%	13.5%
Maryland	7.1%	2.3%	7.7%	8.4%	17.0%	17.8%	17.5%	18.7%
Massachusetts	10.8%	1.5%	6.6%	8.4%	18.9%	20.7%	19.9%	22.8%
Michigan	2.3%	2.2%	5.3%	4.1%	9.9%	8.7%	10.0%	9.1%
Minnesota	3.3%	0.1%	0.9%	1.3%	4.4%	4.8%	4.6%	5.5%
Mississippi	7.8%	0.1%	2.1%	3.0%	10.1%	11.0%	9.5%	10.7%
Missouri	3.4%	0.8%	4.0%	4.6%	8.2%	8.8%	8.2%	9.0%
Montana	1.2%	0.0%	5.8%	5.6%	7.0%	6.8%	7.7%	7.9%
Nebraska	0.2%	0.0%	1.8%	NA	2.0%	NA	2.0%	1.6%
Nevada	4.2%	0.4%	2.7%	3.5%	7.3%	8.1%	7.3%	8.1%
New Hampshire	3.9%	1.5%	2.2%	2.3%	7.6%	7.7%	9.2%	9.5%
New Jersey	9.9%	4.6%	5.9%	11.5%	20.4%	26.0%	19.1%	26.4%
New Mexico	3.6%	0.4%	1.7%	2.6%	5.7%	6.6%	7.2%	8.6%
New York	6.7%	2.0%	2.1%	1.9%	10.8%	10.6%	12.4%	12.2%
North Carolina	3.1%	1.5%	1.4%	1.0%	6.0%	5.6%	5.2%	4.9%
North Dakota	0.3%	0.1%	0.8%	1.8%	1.2%	2.2%	1.5%	1.9%
Ohio	5.4%	0.1%	1.2%	1.3%	6.8%	6.8%	7.0%	7.4%
Oklahoma	1.7%	0.2%	4.1%	2.8%	6.0%	4.8%	9.8%	6.3%
Oregon	5.3%	0.1%	1.8%	2.7%	7.3%	8.2%	6.7%	8.5%
Pennsylvania	3.8%	1.6%	8.5%	8.4%	13.9%	13.8%	13.8%	15.0%
Rhode Island	5.4%	1.1%	6.1%	6.3%	12.6%	12.8%	12.9%	12.7%
South Carolina	2.4%	0.7%	5.1%	7.1%	8.1%	10.1%	11.7%	13.5%
South Dakota	2.4%	0.0%	1.8%	1.5%	4.2%	3.8%	4.0%	3.6%
Tennessee	1.2%	0.5%	1.6%	NA	3.3%	NA	3.3%	3.1%
Texas	2.6%	1.7%	3.8%	6.0%	8.2%	10.4%	8.8%	11.5%
Utah	4.1%	0.3%	2.7%	2.0%	7.1%	6.4%	8.6%	7.9%
Vermont	2.0%	1.6%	4.6%	4.5%	8.2%	8.2%	7.6%	8.1%
Virginia	4.5%	0.5%	2.3%	2.4%	7.3%	7.4%	8.2%	8.6%
Washington	7.3%	0.3%	2.8%	1.3%	10.4%	9.0%	10.6%	10.2%
West Virginia	5.2%	2.3%	8.9%	5.4%	16.4%	12.9%	16.0%	14.2%
Wisconsin	5.1%	0.2%	1.4%	NA	6.7%	NA	7.4%	7.4%
Wyoming	0.1%	0.0%	1.2%	1.6%	1.3%	1.8%	2.4%	2.2%
TOTAL	5.0%	1.5%	4.5%	4.3%	10.9%	10.7%	11.3%	12.6%
MEAN	4.3%	1.2%	4.2%	4.9%	9.6%	10.3%	10.1%	11.0%
MEDIAN	4.0%	0.6%	3.9%	3.9%	7.5%	8.2%	8.4%	8.9%

NA denotes states where pension plan financials were not available for fiscal 2018.

Certain states' 2018 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 2018 state pension assets as a % of own-source governmental revenue and pension asset shock indicator

FY 2018 rank	State	FY 2018 pension assets ($000)	FY 2018 pension assets as a % of own-source revenue	FY 2018 pension asset shock indicator
1	Texas	127,033,435	163.1%	10.8%
2	Maryland	46,499,373	185.6%	10.2%
3	Montana	5,608,410	166.8%	9.7%
4	West Virginia	12,133,697	178.9%	9.7%
5	Maine	10,970,855	223.7%	7.9%
6	Massachusetts	53,728,692	150.5%	7.1%
7	Illinois	83,782,997	175.8%	6.6%
8	Connecticut	29,187,168	134.4%	5.9%
9	Kansas	12,821,762	121.2%	5.8%
10	Alaska	8,934,952	109.9%	5.6%
11	Wisconsin	29,312,800	144.4%	5.0%
12	Kentucky	20,889,927	140.4%	4.1%
13	South Dakota	4,342,125	176.6%	3.6%
14	Washington	32,087,105	111.7%	3.5%
15	Nevada	6,466,134	110.5%	3.4%
16	Colorado	17,965,255	117.0%	2.9%
17	Oklahoma	13,532,469	118.4%	2.9%
18	Delaware	8,263,467	130.4%	2.8%
19	Pennsylvania	52,574,253	113.6%	2.6%
20	South Carolina	16,320,137	109.3%	2.3%
21	Georgia	27,645,966	104.8%	2.2%
22	Vermont	3,457,259	90.5%	1.6%
23	Michigan	33,670,143	96.5%	1.4%
24	Oregon	13,734,670	85.8%	1.3%
25	California	183,832,919	95.8%	1.1%
26	Arkansas	7,825,791	80.4%	1.0%
27	Louisiana	11,192,431	76.1%	0.9%
28	Hawaii	8,137,286	96.4%	0.9%
29	New Jersey	33,434,572	80.7%	0.8%
30	Nebraska	4,242,066	71.5%	0.5%
31	Rhode Island	3,969,172	86.5%	0.5%
32	New York	81,607,533	83.8%	0.4%
33	New Mexico	7,993,699	76.0%	0.4%
34	Missouri	8,837,292	63.4%	0.3%
35	Mississippi	5,035,413	56.9%	0.2%
36	Idaho	4,031,072	73.0%	0.2%
37	Arizona	9,269,027	53.5%	0.2%
38	Alabama	7,164,541	55.0%	0.2%
39	Ohio	19,212,183	58.8%	0.1%
40	Virginia	20,449,090	70.5%	0.1%
41	Utah	6,468,525	66.7%	0.1%
42	Minnesota	14,225,374	49.2%	0.0%
43	Wyoming	1,611,200	58.5%	0.0%
44	North Carolina	15,953,322	53.2%	0.0%
45	Tennessee	10,044,724	50.4%	0.0%
46	Iowa	6,075,327	54.7%	0.0%
47	Florida	27,121,834	53.3%	0.0%
48	New Hampshire	1,694,743	44.2%	0.0%
49	Indiana	9,697,274	47.3%	0.0%
50	North Dakota	1,583,564	28.8%	0.0%
	TOTAL	1,181,673,023	100.4%	NA
	MEAN	23,633,460	98.9%	2.5%
	MEDIAN	11,663,064	88.5%	1.1%

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

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	6.5%
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	64.0%
	Alaska Teachers' Retirement System	58.6%
Arizona	Arizona Corrections Officer Retirement Plan	100.0%
	Arizona Public Safety Personnel Retirement System	100.0%
	Arizona Elected Officials' Retirement Plan - State	32.6%
	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	65.7%
	Arkansas Teacher Retirement System	3.8%
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	98.8%
	California Public Employees' Retirement System-Highway Patrol	100.0%
	California Public Employees' Retirement System-Industrial	100.0%
	California Public Employees' Retirement System-MIS	76.1%
	California Public Employees' Retirement System-SFT	100.0%
	California State Teachers' Retirement System	37.2%
Colorado	Judicial Division Trust Fund	94.0%
	School Division Trust Fund	12.4%
	State Division Trust Fund	95.4%
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'	90.2%
Florida	Florida National Guard Supplemental Retirement Benefit Plan	100.0%
	Florida Retirement System	17.6%
	Retiree Health Insurance Subsidy Pension Plan	14.5%
Georgia	Peace Officers' Annuity and Benefit Fund	100.0%
	Employees' Retirement System of Georgia	90.3%
	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	17.3%
	Employees Retirement System of Georgia - Component Units	1.5%
	Teachers Retirement System of Georgia - Component Units	0.6%
Hawaii	Employees' Retirement System of the State of Hawaii	51.8%
Idaho	Judges' Retirement Fund	100.0%
	Public Employee Retirement System of Idaho	25.8%
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	96.8%

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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	17.0%
	Iowa Public Employees Retirement System - Component Units	0.4%
Kansas	Kansas Police and Firemen's Retirement System	10.3%
	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)	97.7%
	Kentucky Employees Retirement System (Non-Hazardous)	74.0%
	Teachers' Retirement System of the State of Kentucky	95.5%
Louisiana	Louisiana State Police Retirement System	100.0%
	District Attorneys' Retirement System of Louisiana	46.2%
	Louisiana Clerks of Court Retirement and Relief Fund	8.6%
	Louisiana State Employees' Retirement System	80.1%
	Registrar of Voters Employees' Retirement System	73.3%
	State of Louisiana School Employees' Retirement System	0.3%
	Teachers' Retirement System of Louisiana	4.3%
Maine	Legislative Retirement Program	100.0%
	The Judicial Retirement	100.0%
	MPERS State Employee and Teacher Plan	100.0%
Maryland	State of Maryland- Maryland Transit Administration Pension Plan	100.0%
	Maryland State Retirement and Pension System	94.3%
Massachusetts	Boston Retirement System (State Only)	100.0%
	State Employees' Retirement System	94.5%
	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	39.9%
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	1.8%
	St. Paul Teachers' Retirement Fund	28.2%
	State Employees Retirement Fund	74.2%
	Teachers Retirement Association of Minnesota	11.4%
Mississippi	Mississippi Highway Safety Patrol Retirement System Plan	100.0%
	Mississippi Supplemental Legislative Retirement Plan	100.0%
	Public Employees' Retirement System of Mississippi	17.6%
Missouri	Judicial Plan	100.0%
	Missouri Department of Transportation and Highway Patrol Employees' Retirement System	100.0%
	Missouri State Employees' Plan (MSEP)	82.2%

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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	70.1%
	Montana Teachers' Retirement System	41.0%
	Municipal Police Officers' Retirement System	67.1%
	Public Employees' Retirement System-Defined Benefit Retirement Plan	54.1%
	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	17.3%
Nevada	Legislators' Retirement System of Nevada	100.0%
	Nevada Judicial Retirement System	90.9%
	Public Employees' Retirement System of Nevada	16.8%
New Hampshire	New Hampshire Judicial Retirement Plan	100.0%
	New Hampshire Retirement System	19.8%
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	52.5%
New York	New York State and Local Employees' Retirement System	45.8%
	New York State and Local Police and Fire Retirement System	21.1%
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	100.0%
	Teachers' and State Employees'	21.7%
	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	51.9%
	North Dakota Teachers Fund for Retirement	0.7%
Ohio	State Highway Patrol Retirement System	100.0%
	Ohio Public Employees Retirement System - Combined Benefit Plan	19.1%
	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	49.3%
	Oklahoma Public Employees Retirement System	78.5%
	Teachers' Retirement System of Oklahoma	26.6%
Oregon	Oregon Public Employees Retirement System	20.7%
Pennsylvania	Commonwealth of Pennsylvania State Employees' Retirement System	82.5%
	Pennsylvania Public School Employees' Retirement System	53.3%

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Exhibit 24

Allocation of pension plan liabilities by state (continued)

State	Plan	Allocation
Rhode Island	Judicial Non-Contributory Retirement Plan	100.0%
	Judicial Retirement Benefits Trust	100.0%
	RI Judicial Retirement Fund	100.0%
	State Police Non Contributory Retirement Plan	100.0%
	State Police Retirement Benefits Trust	100.0%
	Employees' Retirement System of Rhode Island - State Employees	89.2%
	Employees' Retirement System of Rhode Island - Teachers	43.1%
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	29.0%
	South Carolina Retirement System	57.8%
South Dakota	South Dakota Retirement System	21.6%
	South Dakota Retirement System - Component Units	15.7%
Tennessee	Closed State and Higher Education Employee Pension Plan	69.8%
	State and Higher Education Employee Pension Plan	72.1%
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	32.7%
Utah	Public Employees Contributory Retirement System - State and School	31.0%
	Public Employees Non-Contributory Retirement System - State and School	23.5%
	Public Safety Retirement System - State	97.5%
	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	18.4%
	Tier 2 Public Safety and Firefighter Contributory Retirement System	25.3%
Vermont	Vermont State Retirement System	98.3%
	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	41.9%
	Public Employees' Retirement System Plan 2/3	50.2%
	Public Safety Employees' Retirement System Plan 2	49.1%
	Teachers' Retirement System Plan 1	1.0%
	Teachers' Retirement System Plan 2/3	1.0%
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	66.9%
	Teachers' Retirement System	94.1%
Wisconsin	Wisconsin Retirement System	27.8%
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	39.0%
	Public Employees Pension Plan	18.7%
	Wyoming Law Enforcement	22.6%

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

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Methodology

» Adjustments to US State and Local Government Reported Pension Data: Proposed Methodology Update, July 10, 2019

» US States and Territories, April 12, 2018

Endnotes

1 The increase in Colorado's ANPL in fiscal 2018 is also related to the state's pension plans having a 12/31 measurement date. For the 12/31/2017 measurement date, the FTSE PLI, which we use as a discount rate for pension plans, was 3.60% compared to 4.14% the prior year. The discount rate decline was also a contributor to the state's ANPL increase.

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

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

4 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.

5 The Arizona State Retirement System 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 ten participating employers, excluding the state.

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APPENDIX C

State of Vermont

New Issue Report

Ratings

Long Term Issuer Default Rating[a]	AA+

New Issues

$84,000,000 General Obligation Bonds (Competitive), Series 2019A	AA+
$41,000,000 General Obligation Refunding Vermont Citizen Bonds (Negotiated), Series 2019B	AA+

Outstanding Debt

General Obligation Bonds[b]	AA+

[a]Downgraded from 'AAA' on July 10, 2019.
[b]Downgraded from 'AAA' on July 10, 2019.

Rating Outlook

Stable

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New Issue Summary

Sale Date: Week of July 22, 2019.

Series: $84 million State of Vermont General Obligation (GO) Bonds (Competitive), Series 2019A, and $41 million GO Refunding Bonds, Series 2019B (Vermont Citizen Bonds) (Negotiated).

Purpose: To fund various capital projects and refund certain outstanding GO bonds.

Security: General obligations of the state of Vermont backed by its full faith and credit.

Analytical Conclusion

The downgrade of Vermont's Issuer Default Rating (IDR) and GO rating to 'AA+' from 'AAA' reflects Fitch Ratings' lowered assessment of the state's revenue framework; in particular, it reflects an expectation of slower growth prospects. 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.

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

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) was less severe than the national 6.3% decline. But the state's jobs recovery has trailed the national trend.

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 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.

Rating History (IDR/GO)

Rating	Action	Outlook/ Watch	Date
AA+	Downgraded	Stable	7/10/19
AAA	Revised	Stable	4/05/10
AA+	Affirmed	Stable	4/13/06
AA+	Upgraded	—	10/25/99
AA	Assigned	—	8/18/92

Related Research

Fitch Downgrades Vermont's IDR to 'AA+'; Rates $125MM GOS 'AA+'; Outlook Stable (July 2019)

U.S. States and the Growth Implications of an Aging Population (October 2018)

A Visualization of Demographic Strength & Stability Trends (July 2018)

Related Criteria

U.S. Public Finance Tax-Supported Rating Criteria (April 2018)

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 liability burden is moderate and above the median for U.S. states.

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

Fiscal Management: Vermont's IDR is sensitive to the state's demonstrated commitment to improving its fiscal resilience and carefully managing its long-term liability burden, particularly in the context of modest revenue growth expectations.

Economic Growth: The IDR is also sensitive to changes in the state's fundamental economic growth trajectory. 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.

Credit Profile

Vermont's population has been largely unchanged since the turn of the century, falling off the national trend of slow and steady growth. From 2012 until 2017, the state had actually been in a slight decline. But over the past two years, population and labor force declines leveled off. While the state's unemployment rate is the lowest in New England and amongst the lowest nationally, labor force weakness has been the primary factor contributing to this. Vermont's government remains focused on addressing its demographic challenges with multiple policy efforts to enhance the state's attractiveness for new residents and businesses, including a grant program for remote workers relocating to Vermont. These efforts, along with economic improvement in the state, may have played a role in fostering the recent stabilization.

However, given Vermont's small population of 626,299 as of July 2018 (second lowest amongst the states), even minor shifts in migration trends could again lead to population and workforce declines. Fitch considers the state's economic growth trajectory modest and in the middle relative to its New England peers.

Revenue Framework

The state's revenues used for direct state operations consist primarily of personal and corporate income taxes, sales and use taxes, and a meals and rooms tax meant to export a share of the tax burden to visiting tourists. Vermont also levies a state property tax for education — an unusual feature for state governments — that is the largest source of total state revenues. Since Vermont essentially passes through property tax collections to local school districts, Fitch discounts the importance of this stream in the revenue framework assessment. There are no legal limitations on the state's ability to raise revenues.

Fitch anticipates limited growth in Vermont's revenues, relatively in line with inflation, given the state's modest economic growth prospects. Vermont's historical total tax revenue growth,

adjusted for policy changes, has been slightly negative on a real basis over the past decade, which includes an extended multi-year decline during the Great Recession. Recent Fitch analyses of states' economic trends and likely trajectories (“A Visualization of Demographic Strength and Stability Trends,” dated July 2018, and “U.S. States and the Growth Implications of an Aging Population,” dated October 2018) illustrate some of the state's ongoing and anticipated constraints on economic and revenue growth.

Vermont has no legal limitations on its ability to raise revenues through base broadenings, rate increases, or the assessment of new taxes or fees.

Expenditure Framework

Education is Vermont’s largest expenditure from own-source revenues, driven by its unique funding system, with the state covering the full cost for locally administered K-12 schools primarily through the property tax, as well as the sales and use tax. Health and human services, primarily due to Medicaid, is the second-largest expenditure area.

Spending growth, absent policy actions, will likely be slightly ahead of revenue growth, driven primarily by Medicaid, requiring regular budget measures to ensure ongoing balance. The fiscal challenge of Medicaid is common to all U.S. states, and the nature of the program as well as federal government rules limit the states' options in managing the pace of spending growth. Federal action to revise Medicaid's programmatic and financial structure appears less likely in the near term given divided control in Congress.

Vermont has been particularly aggressive in addressing the long-term national trend of steadily rising healthcare costs (including Medicaid), with the most recent effort being a shift toward outcome-based care under an “all-payer” system, rather than the traditional fee-for-service model. Under terms of agreements with the federal government for the all-payer system, Vermont is transitioning Medicare and Medicaid to an outcome-based accountable care organization model, with the goal of getting participation from private insurers and providers as well over the program's initial five-year period. The state began an initial all-payer pilot program with Medicaid patients in January 2017.

Medicaid Spending Leveling Out

Healthcare spending in recent years has leveled off, with the state reporting that actual expenditures for the Agency for Human Services (AHS, responsible for Medicaid in the state), and acute care spending specifically, have been seeing either declines or essentially no growth since fiscal 2016. The state also reports that Medicaid enrollment declined sharply in this period (by 21% between fiscal years 2016 and 2019), a trend seen by many other states as well given the ongoing economic expansion and a key factor in slower Medicaid spending growth. Between fiscal years 2003 and 2016, AHS spending increased at nearly 6% annually. Vermont's change in spending trajectory has been particularly sharp, even relative to other states seeing enrollment declines, which may reflect benefits of the policy efforts such as the all-payer model.

Education Funding Changes

For education, state spending growth pressure is somewhat offset by the funding structure as school districts' homestead property tax rates (collected by localities on behalf of the state) increase when voter-approved school district budgets increase. Revenue growth does not fully mitigate spending increases though, exposing the state to a level of ongoing expenditure growth which had been reflected in the steadily growing annual state general fund appropriation to the education fund.

In 2018, the legislature revised funding mechanisms and replaced the general fund appropriations with full dedication of the state's sales and use tax and a portion of the meals and rooms tax to the education fund, and away from the general fund, beginning in fiscal 2019.

Lake Champlain Cleanup Costs

Following a June 2016 agreement between the EPA and the state to address pollution issues in Lake Champlain, Vermont's legislature enacted legislation (S.96) this year in an effort to address a federal requirement to establish an ongoing source of funding for cleanup efforts. S. 96 dedicates 6% of the meals and room tax (MRT) collections to a clean water fund, which, in combination with other allocated revenues, the state estimates will have $50 million available in fiscal 2020. The EPA is reviewing the legislation and will make a final determination on whether it addresses the requirement.

The MRT allocation to the clean water fund modestly reduces the share for the general fund; in fiscal 2020 the shift will cost $7.5 million and will grow to an estimated $10 million to $11 million in fiscal 2021. These amounts are very small relative to estimated general fund tax revenues that exceed $1.2 billion in both years, but they will require offsetting growth from existing general fund revenues, enactment of new revenue sources, or matching expenditure cuts. For fiscal 2020, the state anticipates recent upticks in general fund revenue performance discussed further below will cover the $7.5 million allocation.

Vermont's fixed carrying cost burden is low and Fitch anticipates it will remain stable given the state's commitment to at least full actuarial contributions to its pension systems and careful management of debt issuance. The state has regularly contributed in excess of actuarially determined amounts for pensions in an effort to manage and reduce the net pension liabilities. Overall, the state retains ample flexibility to adjust main expenditure items.

Long-Term Liability Burden

On a combined basis, Vermont's debt and net pension liabilities as of Fitch's “2018 State Pension Update," dated November 2018, totaled 11.9% of 2017 personal income, compared with a statewide median of 6.0%. Based on the most recently available data, Fitch calculates a long-term liability burden of 11.5%. This ratio includes special obligation transportation infrastructure bonds (TIBs) supported by a dedicated share of Vermont's gasoline and diesel taxes. Vermont considers the TIBs as self-supporting from the dedicated tax revenues as part of its legal and policy calculations for tax-supported debt.

Debt levels remain modest at just 2% and are closely monitored through the state's Capital Debt Affordability Advisory Committee (CDAAC). The governor and legislature consistently stay within CDAAC's recommendations for annual bond issuance.

Net pension liabilities are more significant, with Fitch-adjusted net pension liabilities representing approximately 10% of personal income. The pension liability calculations include essentially 100% of the liability in the Vermont State Retirement System and the State Teachers' Retirement System, for which the state makes the full actuarial contribution. Market losses during the last two recessions contributed to recent growth in net liabilities for both systems.

Since the Great Recession, the state has negotiated with employee groups and implemented multiple changes to benefits, contributions, and actuarial methods to improve pension sustainability over time. Given recent shifts to somewhat more conservative actuarial assumptions, including a decrease in the investment return assumption from 7.95% to 7.5%, Fitch anticipates Vermont's long-term liability burden will remain consistent with a 'aa' assessment over the long term.

OPEB liabilities are also significant, with the reported 2018 net OPEB liability equal to approximately 7% of the state's personal income. The state has taken some modest steps toward pre-funding OPEB liabilities and has also made some progress in reducing liabilities through collective bargaining with unions, both of which are positives. The state has also benefitted from recent favorable health care claims experience.

Operating Performance

Vermont's exceptionally strong gap-closing capacity derives from institutional and statutory mechanisms and a demonstrated ability to prudently manage through economic downturns. For details, see Scenario Analysis, page 7.

The state's budgeting practices tend to be conservative in forecasting and proactive through the fiscal year, with most fiscal years ending with at least a modest general fund budget surplus despite the lack of a statutory or constitutional balanced budget requirement. Through the economic expansion, Vermont has maintained its primary budget reserves. Recently, the state has taken steps to build in additional fiscal capacity through additional reserves, including the general fund balance reserve (established in 2012 to replace the revenue shortfall reserve), a human services caseload reserve (established in 2017 and primarily for Medicaid), and a 27/53 reserve (established in 2016 to address years with a 27th biweekly payroll or a 53rd week of Medicaid disbursements).

Current Developments

Based on the January 2019 emergency board forecast and mid-year budget adjustments under the 2019 Budget Adjustment Act (BAA), Vermont projects a sizable increase to general fund reserves for the year that just ended on June 30. Under this current law scenario, the state estimates total general fund reserves will increase to approximately $209 million, or 13% of total general fund uses as of June 30, 2019. Education fund reserves are on track to remain stable while combined general and education fund reserves are projected to total roughly $278 million, or 9% of total general and education fund uses.

These projected general fund reserve gains largely reflect transfers of funds from the Global Commitment Waiver fund, totaling nearly $80 million at the end of fiscal 2018, to the general fund in fiscal 2019. The funds will be reserved in the general fund's human services caseload reserve and 27/53 reserve, both related to Medicaid, which the global commitment waiver fund was also intended to support. Excluding those specific reserves, the current law forecast indicates the broader general fund budget stabilization and general fund balance reserves will remain relatively stable at $94 million, or 6% of total general fund uses as of June 30, 2019.

Robust revenue performance in the second half of fiscal 2019 has improved the revenue outlook and the administration now estimates a roughly $50 million general fund surplus will result in a $15 million contribution to the general fund balance reserve, leading to a combined budget stabilization and balance reserve total of $109 million, or 7% of total general fund uses.

General fund revenue for fiscal 2019 is tracking ahead of the January 2019 estimate by approximately $50 million, or 4%, through May, and 6% up over the prior year. These estimates adjust both years for the full allocation of the sales and use tax (SUT) to the education fund as of fiscal 2019. Personal income tax (PIT) and corporate income tax (CIT) have been particularly strong, up $43 million and $11 million, respectively, from forecast, and 5% and 43%, respectively, from the prior year. PIT also increased sharply in fiscal 2018 by 10% over 2017.

In developing its revenue forecasts, the emergency board noted that, as in many other states, effects of the December 2017 federal tax changes (commonly referred to as the Tax Cuts and Jobs Act, or TCJA) heavily influenced PIT and CIT collections in 2018 and 2019. The next emergency board forecast due by the end of July will assess what portion of the 2019 PIT and CIT increases are sustainable and recurring. While economic performance in the state remains positive, Fitch anticipates the bulk of the above-forecast PIT and CIT revenue performance in fiscal 2019 was one-time or otherwise short-lived. SUT collections, now captured solely in the education fund, are up just under 4% for the year through May, essentially in line with the January 2019 forecast, implying economic growth has been largely within expectations.

In addition to the anticipated $15 million contribution to the general fund balance reserve, the state anticipates allocating approximately $9.4 million of the estimated fiscal 2019 surplus as carry-forward resources for fiscal 2020 and $25 million to the state employees OPEB trust fund. In fiscal 2019, the state used a portion of the surplus revenue to help fully retire an interfund loan to the teachers OPEB trust fund ahead of schedule and set the state up for pre-funding in future years.

Fiscal 2020 Budget Overview

Vermont enacted its fiscal 2020 budget in mid-June when the Governor signed H. 542 into law. The tone of budget negotiations differed considerably from last year. Last June, a dispute over the governor's push to use surplus revenues to keep state property tax rates flat versus legislators' push for competing priorities including paydown of teachers' pension system liabilities led to two gubernatorial vetoes, and just a day before the start of the new fiscal year, the governor allowed the legislature's budget to become effective without signing or vetoing it.

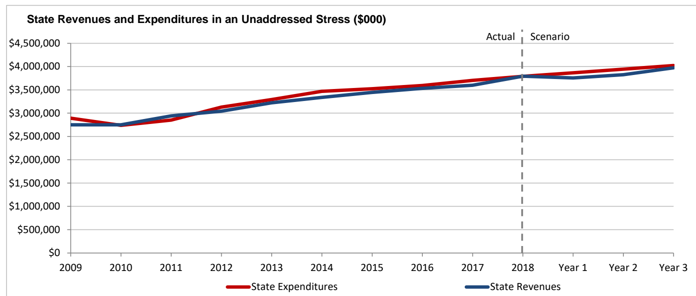
For fiscal 2020, the budget uses a portion of undesignated education fund reserves to limit state property tax rate increases while maintaining a modest $5 million cushion beyond the $38 million education fund budget stabilization reserve. The education fund-enacted budget also reflects a bill passed by the legislature to expand SUT provisions to online marketplace facilitators, building off last year's U.S. Supreme Court Wayfair decision, to generate an estimated $13.4 million in new revenue. The current estimate calls for robust nearly 7% growth in the SUT in fiscal 2020 based on the new law.

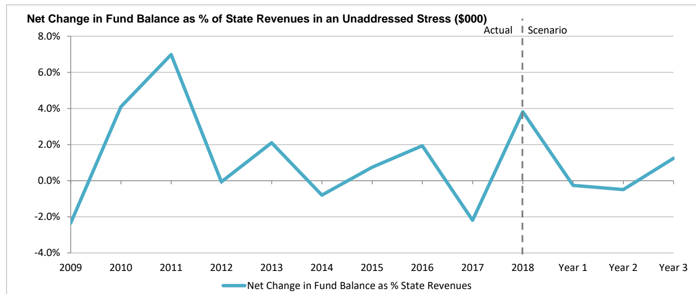
In the general fund, the enacted budget includes only modest tax code changes, including a medical expense deduction for the PIT ($2 million loss to the general fund) and a new limit on the capital gains exclusion ($2 million gain). As noted, to address Lake Champlain cleanup efforts, the budget also dedicates a modest portion of the meals and rooms tax (MRT, roughly $8 million) to the clean water fund, away from the general fund. The MRT diversion requires retaining a portion of the anticipated revenue surplus in fiscal 2019 into fiscal 2020 to backfill the re-allocated tax revenue. The dedicated portion of the MRT will grow to $10 million–$11 million annually in future years, according to the administration.

The enacted budget also permanently shifts recognition of nearly $300 million in state health care resources fund (SHCRF) revenues to the general fund. The change, first implemented in the fiscal 2019 BAA, is essentially an accounting change.

Vermont, State of (VT)

Scenario Analysis





Analyst Interpretation of Scenario Results:

Vermont's revenue sensitivity calculated using the Fitch Analytical Stress Tool (FAST) of negative 0.2% is among the lowest for states. The 50-states median year one revenue decline in a moderate economic downturn is 3.3%. Fitch considers Vermont's metric to be somewhat understated because of the school funding and property tax system. The state records property tax collections as its own revenues and essentially passes them through to local school districts with only indirect effect on Vermont's fundamental fiscal flexibility. Primary operating revenues for state functions are historically more volatile than property taxes, and typical of other state governments, as indicated by the fiscal stress experienced during the last recession. Between fiscal 2008 and 2010, Vermont's general fund tax revenues declined 14%.

Scenario Parameters:	Year 1	Year 2	Year 3
GDP Assumption (% Change)	(1.0%)	0.5%	2.0%
Expenditure Assumption (% Change)	2.0%	2.0%	2.0%
Revenue Output (% Change)	(1.0%)	1.8%	3.9%

Revenues, Expenditures, and Net Change in Fund Balance	Actuals										Scenario Output		
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Year 1	Year 2	Year 3
Expenditures													
Total Expenditures	4,318,873	4,666,695	4,860,504	5,017,124	5,157,410	5,408,365	5,611,911	5,614,127	5,695,460	5,787,926	5,903,685	6,021,759	6,142,194
% Change in Total Expenditures	4.1%	8.1%	4.2%	3.2%	2.8%	4.9%	3.8%	0.0%	1.4%	1.6%	2.0%	2.0%	2.0%
State Expenditures	2,892,526	2,739,842	2,852,399	3,129,968	3,291,870	3,470,157	3,524,751	3,592,491	3,703,795	3,791,118	3,866,941	3,944,279	4,023,165
% Change in State Expenditures	2.2%	(5.3%)	4.1%	9.7%	5.2%	5.4%	1.6%	1.9%	3.1%	2.4%	2.0%	2.0%	2.0%
Revenues													
Total Revenues	4,175,754	4,677,762	4,949,512	4,929,587	5,088,868	5,276,849	5,532,771	5,554,187	5,589,659	5,790,446	5,792,446	5,902,285	6,091,473
% Change in Total Revenues	2.8%	12.0%	5.8%	(0.4%)	3.2%	3.7%	4.8%	0.4%	0.6%	3.6%	0.0%	1.9%	3.2%
Federal Revenues	1,426,347	1,926,853	2,008,105	1,887,156	1,865,540	1,938,208	2,087,160	2,021,636	1,991,665	1,996,808	2,036,744	2,077,479	2,119,029
% Change in Federal Revenues	8.2%	35.1%	4.2%	(6.0%)	(1.1%)	3.9%	7.7%	(3.1%)	(1.5%)	0.3%	2.0%	2.0%	2.0%
State Revenues	2,749,407	2,750,909	2,941,407	3,042,431	3,223,328	3,338,641	3,445,611	3,532,550	3,597,994	3,793,638	3,755,701	3,824,806	3,972,444
% Change in State Revenues	0.2%	0.1%	6.9%	3.4%	5.9%	3.6%	3.2%	2.5%	1.9%	5.4%	(1.0%)	1.8%	3.9%
Excess of Revenues Over Expenditures	(143,119)	11,067	89,008	(87,537)	(68,542)	(131,516)	(79,140)	(59,941)	(105,801)	2,519	(111,239)	(119,473)	(50,721)
Total Other Financing Sources	78,438	101,450	116,561	85,505	136,216	104,926	104,723	128,397	26,941	142,304	101,458	100,765	99,973
Net Change in Fund Balance	(64,681)	112,517	205,569	(2,032)	67,674	(26,590)	25,583	68,456	(78,859)	144,823	(9,781)	(18,709)	49,252
% Total Expenditures	(1.5%)	2.4%	4.2%	(0.0%)	1.3%	(0.5%)	0.5%	1.2%	(1.4%)	2.5%	(0.2%)	(0.3%)	0.8%
% State Expenditures	(2.2%)	4.1%	7.2%	(0.1%)	2.1%	(0.8%)	0.7%	1.9%	(2.1%)	3.8%	(0.3%)	(0.5%)	1.2%
% Total Revenues	(1.5%)	2.4%	4.2%	(0.0%)	1.3%	(0.5%)	0.5%	1.2%	(1.4%)	2.5%	(0.2%)	(0.3%)	0.8%
% State Revenues	(2.4%)	4.1%	7.0%	(0.1%)	2.1%	(0.8%)	0.7%	1.9%	(2.2%)	3.8%	(0.3%)	(0.5%)	1.2%

Notes: Scenario analysis represents an unaddressed stress on issuer finances. Fitch's downturn scenario assumes a -1.0% GDP decline in the first year, followed by 0.5% and 2.0% GDP growth in Years 2 and 3, respectively. Expenditures are assumed to grow at a 2.0% rate of inflation. For further details, please see Fitch's US Tax-Supported Rating Criteria.

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APPENDIX D

MOODY'S
INVESTORS SERVICE

CREDIT OPINION
12 July 2019

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Vermont (State of)

Update to credit analysis

Summary

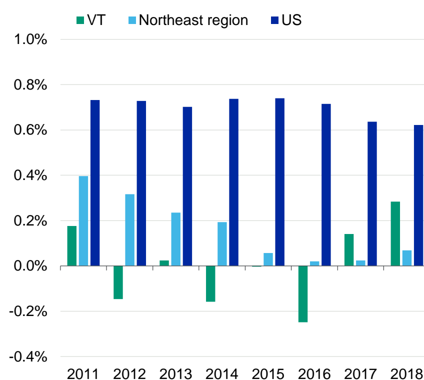
The State of Vermont (Aa1 stable) has a healthy economic profile, stable finances and strong fiscal management. It is the smallest US state economy and has the second smallest population, but unemployment is low, resident income is above average and educational attainment is high. At the same time, Vermont's performance on multiple economic measures lags that of the US and its state peers, and an aging population may remain a modest drag on future growth. Further, the state's leverage, measured by combined debt and unfunded post-employment obligations relative to GDP, is high among US states.

With slower than average growth, Vermont's long-term liabilities will weigh more heavily on its economic base. Overall, however, 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. Further, Vermont's ample liquidity, operational stability and prudent management will remain credit factors that mitigate economic and leverage challenges relative to highly rated states.

Exhibit 1

Population growth in Vermont improved over the last two years, but still lags the US

Annual growth in total population

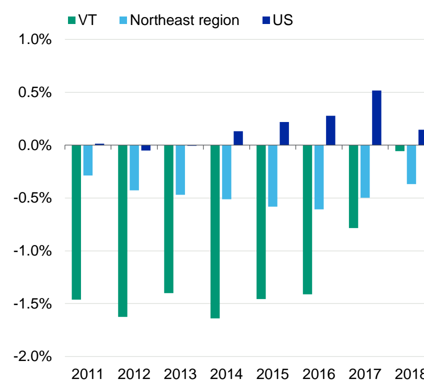


Source: Moody's Analytics

Exhibit 2

The trend in prime working age population is also improving, but remains negative for now

Annual growth in prime working age population



Source: Moody's Analytics

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

» Liquidity is healthy and stable

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 pensions) 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 3

Vermont (State of)	2014	2015	2016	2017	2018	50-State Median (2017)
Operating Fund Revenues (000s)	$2,748,223	$2,858,148	$2,927,613	$2,963,227	$3,093,639	$10,869,281
Available Balances as % of Operating Fund Revenues	4.3%	4.3%	4.3%	2.9%	7.3%	4.6%
Nominal GDP (billions)	$29.7	$30.7	$31.6	$32.6	$33.7	$224.0
Nominal GDP Growth	2.1%	3.3%	3.0%	3.1%	3.4%	3.9%
Total Non-Farm Employment Growth	0.9%	0.8%	0.3%	0.6%	0.1%	1.1%
Fixed Costs as % of Own-Source Revenue	6.8%	6.6%	7.6%	8.1%	8.2%	8.9%
Adjusted Net Pension Liabilities (000s)	$3,715,067	$3,689,889	$4,034,179	$5,123,076	$4,882,266	$12,033,341
Net Tax-Supported Debt (000s)	$597,520	$627,192	$666,935	$615,759	$713,886	$4,412,204
(Adjusted Net Pension Liability + Net Tax-Supported Debt) / GDP	14.5%	14.1%	14.9%	17.6%	16.6%	8.2%

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

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 2018 gross domestic product of $33.7 billion.

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.

Detailed credit considerations

Economy

Vermont's economic profile is solid, but the state lags its peers along several metrics and demographic weaknesses will keep Vermont a below average performer on factors such as job and income growth.

The state derives stability from its high income and educated base. 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.

Despite these positive factors, Vermont will face more challenges than other states attracting the investments needed to generate new jobs and rising incomes. Job creation in Vermont lagged that of the entire US and the northeast region for the better part of the last decade (Exhibit 4). Employment growth in 2018 was particularly slow. This is largely a consequence of the state's slowly growing and aging population.

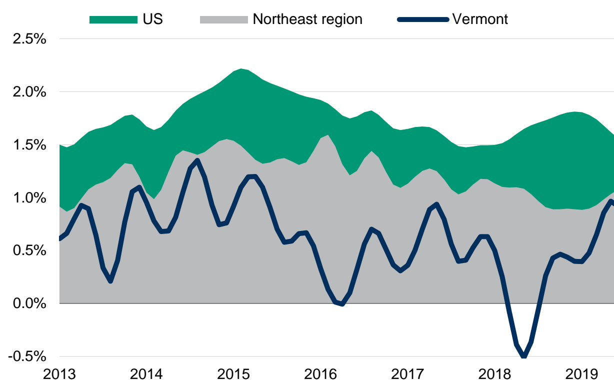
As Exhibits 1 and 2 above illustrate, Vermont has one of the slowest growing populations in the US and one of the most rapid declines in prime working age population (residents aged 25-54). Since 2000, the state's prime working age population fell just over 16%. Over the same period, the prime working age population in the US grew nearly 5%.

The healthcare sector will remain a key economic driver given rising demand for services from the state's older residents. But, even with an expanding healthcare sector, personal income across Vermont is rising more slowly than it is in the US and the state's northeast neighbors (Exhibit 5).

Exhibit 4

Vermont's employment growth persistently trails that of the US and the state's regional neighbors

Year-over-year growth in monthly nonfarm employment

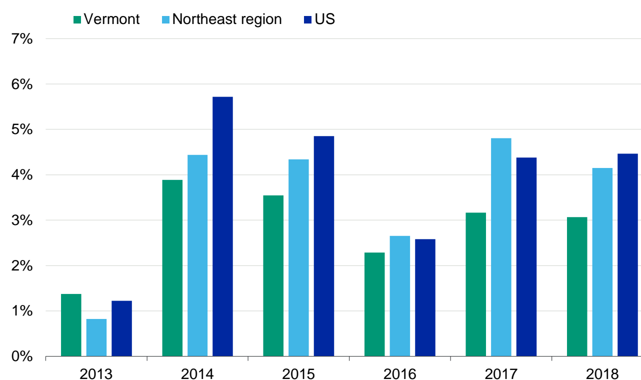


Source: Moody's Analytics

Exhibit 5

Vermont also falls behind the US and its neighbors in personal income growth

Annual growth in personal income



Source: Moody's Analytics

Other big drivers of Vermont's economy are tourism and hospitality. These sectors have benefited from strong consumer spending over the past several years, as indicated by average annual growth in meals and room taxes of about 5%. But, growth in this sector will not generate large gains in income given the lower wage nature of the jobs. These industries, which include many seasonal activities such as skiing in wintertime, could also face long-term challenges from changing weather patterns. Otherwise, Vermont's environmental risks, like those of US states in general, are modest compared to other sectors. 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.

Finances

Vermont's financial position remains healthy amid steady revenue growth and maintenance of reserves. At the close of fiscal 2018, the budget stabilization reserves in Vermont's major funds of operation - 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 budget stabilization reserves at 5% of the prior year's spending.

The state reports that fiscal 2019 (year-end June 30) revenue across the same three funds was up about 5% compared to the prior year. The biggest gain was in corporate income taxes, which were up 43%. Despite this tremendous growth, the impact on total revenue is slight given that corporate taxes typically make up only 6% of general fund revenue and only 3% of combined general, education and transportation fund revenue.

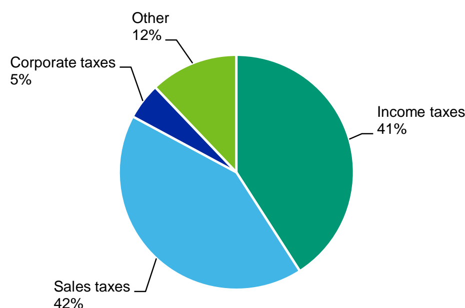
Personal income taxes were up 4.8% and sales taxes were up 3.6%. Together, these two taxes make up over 80% of Vermont's operating revenue, when excluding property taxes (Exhibit 6). The state accounts for school district property taxes in its financial statements because the taxes are pooled in the 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.

Vermont's GAAP-basis fund balance also improved in fiscal 2018 (Exhibit 7). Total fund balance across its major funds of operation grew to $300 million. Available fund balance - the sum of unassigned, committed and assigned balances - across these same funds rose to $227 million and just over 7% of these funds' combined nonfederal revenue. The available fund balance includes Vermont's budget-basis stabilization reserves. The 2018 fund balance also includes an outstanding loan receivable from the state's OPEB trust that declined very modestly in fiscal 2018 to $28 million from $29 million in fiscal 2017. Though it had planned to repay the loan by 2023, the state amended its fiscal 2019 budget to completely pay off the loan in the recently completed fiscal year.

Exhibit 6

Income tax and sales taxes make up more than 80% of Vermont's own-source operating revenue

Composition of operating revenue

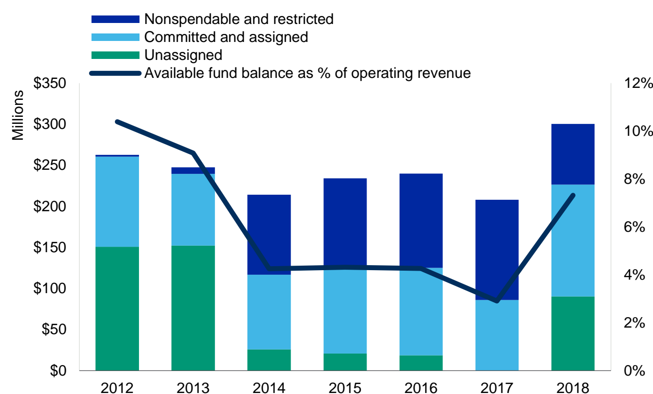


Sources are shown as percentages of combined general, transportation and education fund revenue less property taxes and federal funds.
Source: Vermont's fiscal 2019 budget

Exhibit 7

Vermont's fund balance remains healthy as a share of revenue

Composition of fund balance by fiscal year



Available fund balance is the sum of unassigned, committed and assigned fund balances.
Source: Vermont's audited financial statements

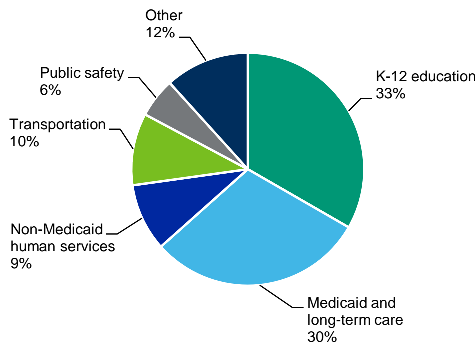
Vermont also holds balances outside its three core operating funds, the largest of which is its human services caseload reserve. The fiscal 2019 budget transferred the balance of the state's Global Commitment Fund into the human services caseload reserve. This boosted assets in the reserve from $22 million in fiscal 2018 to over $100 million in fiscal 2019. The Global Commitment Fund will continue to be used for Medicaid-eligible human services activities. Adding the caseload reserve to the state's fiscal 2018 available fund balance puts that balance just over 10% of revenue, which is closely aligned with average monthly cash classified as unrestricted by the state treasurer (see discussion below on liquidity).

As in most states, education and healthcare dominate Vermont's spending (Exhibit 8). As of 2017, 28% of Vermont residents were covered by Medicaid, which was the third highest share among the 50 states and far above the state median of 19%. The share of state spending on Medicaid has remained stable as a share of Vermont's own-source revenue (Exhibit 9), but, at 25%, it also is higher than the 50-state median of 17%. Federal funds cover most Medicaid spending, so a change in federal funding of Medicaid could present the state with difficult spending and policy decisions.

Exhibit 8

As in most states, education and health services dominate Vermont's state spending

Composition of total state spending

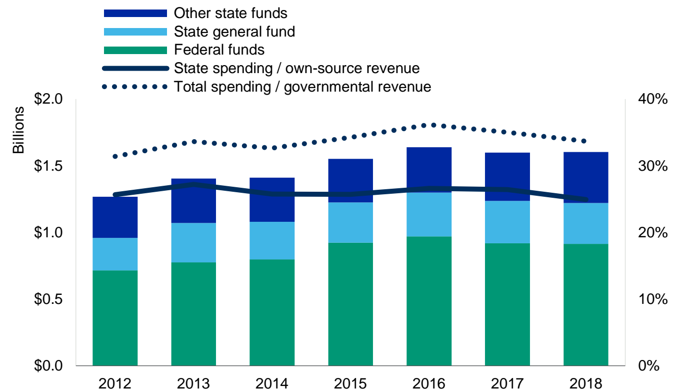


Source: State of Vermont

Exhibit 9

Vermont's Medicaid spending is stable but high relative to state revenue

Medicaid spending by funding source and relative to revenue



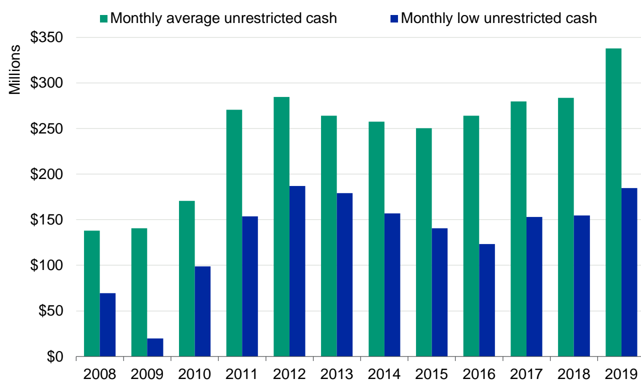
Source: National Association of State Budget Officers, Vermont's audited financial statements, and Moody's Investors Service

LIQUIDITY

Vermont rapidly rebuilt its cash reserves after the 2007-09 recession and has kept liquidity at a strong level (Exhibit 10). Monthly average unrestricted cash held by the state treasurer hovered around 9%-10% of combined general, education and transportation fund revenue over the past several years (Exhibit 11).

Exhibit 10

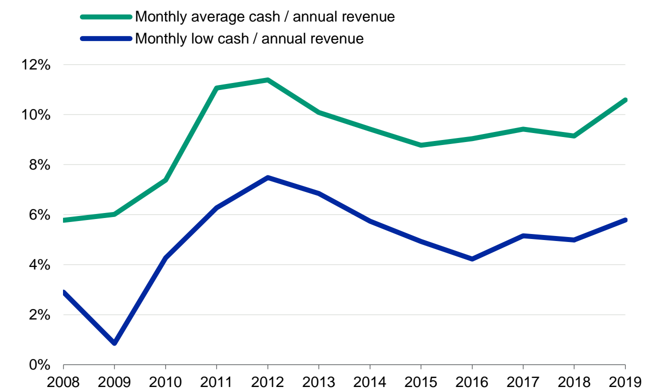
Available liquidity has remained stable since improving after the last recession



Source: State of Vermont

Exhibit 11

Available liquidity remains healthy as a share of state revenue



Source: State of Vermont

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 (Exhibit 12). However, as a share of state nominal GDP, Vermont's fiscal 2017 adjusted net pension liability (ANPL) was the 8th highest of the 50 states. As of fiscal 2017, Vermont ranked 10th in combined ANPL and NTSD as a percentage of GDP. 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.

Vermont's pension ratios improved a bit in fiscal 2018 and we estimate further improvement in fiscal 2019. This likely mirrors the trajectory in other states given stronger investment returns, in general, achieved by most states during their most recent fiscal year. On a comparative basis, Vermont's standing among the states may not change much with fiscal 2018 and fiscal 2019 data.

Still, Vermont's debt and pension burden is much lower than those of the most highly leveraged states. 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.

Exhibit 12

Vermont's debt burden is in line with state medians, but its pension burden is much higher

Net tax supported debt (NTSD) and adjusted net pension liability (ANPL)

NTSD...	as % of personal income	as % of GDP	per capita	as % of own-source revenue
Vermont (2018)	2.1%	2.1%	$1,140	19%
State median (2018)	2.2%	2.1%	$1,068	29%

ANPL...	as % of personal income	as % of GDP	per capita	as % of own-source revenue
Vermont (2018)	14.6%	14.6%	$7,850	129%
State median (2017)	6.9%	6.1%	$3,207	107%

Source: Moody's Investors Service

Exhibit 13

Vermont's debt statement ($million)

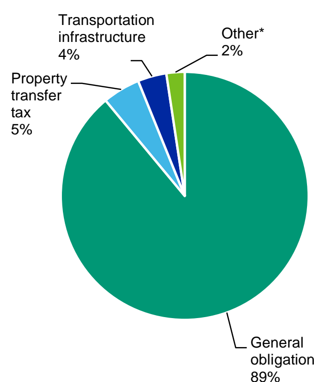
As of June 30, 2018

General obligation bonds	$636
Property transfer tax bonds	$35
Transportation infrastructure bonds	$27
Other*	$17
Total net tax-supported debt	**$714**
Moral obligations	
Vermont Municipal Bond Bank	$577
Vermont Econ. Dev. Auth.	$155
Vermont Housing Finance Auth.	$40
Vermont Student Assistance Corp.	$7
Total moral obligations	**$778**
Gross tax-supported debt	**$1,492**

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

Exhibit 14

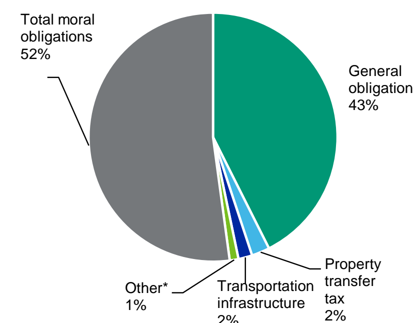
The majority of net tax-supported debt consists of general obligation bonds



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

Exhibit 15

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.

PENSIONS AND OPEB

Across both of its retirement plans (the Vermont State Retirement System and State Teachers' Retirement System), Vermont's pension contribution of $174 million in fiscal 2018 consumed just under 5% of own-source revenue. This contribution was just higher than the $173 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. In the couple years prior to fiscal 2018, Vermont's contributions fell below the “tread water” level, but the gap was a modest 0.5% of own-source revenue.

Vermont's unfunded pension liability, as measured by our ANPL, is the principal component of its leverage (Exhibit 16) and Exhibit 17 shows how Vermont's combined debt and pension burden, as a percentage of GDP, compares to the annual state median back to 2012.

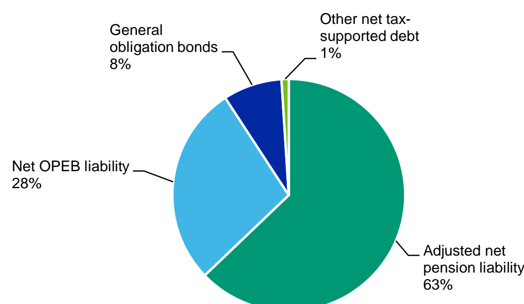
Despite remaining above the annual state median, Vermont's combined debt and pension burden is not on a rapidly growing path. And, as discussed above, the state's contribution practices are sound.

Available financial statements of VSERS and VSTRS indicate the state's ANPL declined moderately in the plans' fiscal 2018 to $4.6 billion from $4.9 billion. This will be reported in the state's fiscal 2019 financial statements.[1] Still, high leverage will remain a principal credit challenge of the state and a source of potentially rising expenditures.

Exhibit 16

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

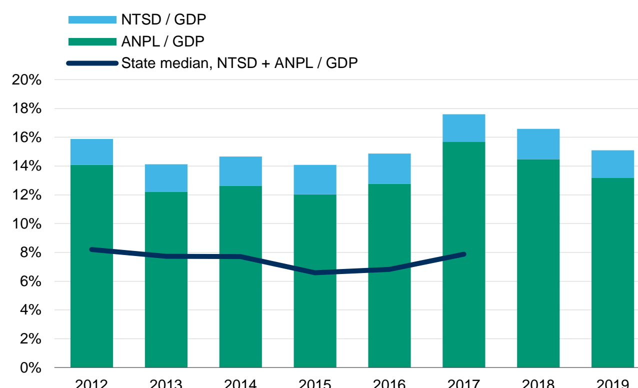
Composition of leverage, excluding non-tax supported debt



Source: State of Vermont and Moody's Investors Service

Exhibit 17

As a share of GDP, Vermont's debt and unfunded pensions are largely stable



2019 ratios assume growth in state GDP equal to the average growth rate of the past five years. Sufficient information is not yet available for all states to compute medians for 2018 and 2019.

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

The state's current funding policy, established in statute, is to fully amortize the unfunded liabilities of VSERS and VSTRS by 2038. In the past year, the state lowered the discount rate of both plans to 7.5% from 7.95%. To accommodate the lower investment return assumption and stay within the statutory funding target, the state plans to increase its contributions to VSERS in fiscal 2020 to 13.8% of payroll from 11.6% of payroll. The state will also increase contributions to VSTRS and those payments will approximate 19% of payroll compared to about 16% of payroll in the last year.

Vermont reports a net OPEB liability of $2.4 billion under newly adopted GASB statement 74 in its fiscal 2018 financial statements. The net OPEB liability is another 7% 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 $63 million in OPEB payments in fiscal 2018, which is incorporated in our calculation of the state's fixed cost burden (see Exhibit 3 above). Pursuant to a recently approved budget adjustment act, Vermont will transfer 50% of annual general fund surpluses to its VSERS OPEB plan.

Governance

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.

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 18

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]	99.8%	Aa
b) Nominal Gross Domestic Product ($ billions) [1]	$33.7	A
Factor 2: Finances (30%)		
a) Structural Balance	Aa	Aa
b) Fixed Costs / State Own-Source Revenue [2]	8.2%	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]	16.6%	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 pensions 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

Endnotes

1 The state's pension reporting lags the financial reporting of VSERS and VSTRS by one year. The total pension liability and plan fiduciary statement included in the available fiscal 2018 audited financial statements of VSERS and VSTRS will be incorporated in the state's fiscal 2019 audited financial statements. We use the VSERS and VSTRS fiscal 2018 reports to calculate the state's fiscal 2019 ANPL.

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APPENDIX E

S&P Global Ratings

RatingsDirect®

Vermont; General Obligation; Multifamily Whole Loan

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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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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.

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

(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.)