CAPITAL DEBT AFFORDABILITY ADVISORY COMMITTEE

State of

Vermont

RECOMMENDED ANNUAL NET TAX-SUPPORTED DEBT AUTHORIZATION

November 2022

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INTRODUCTION

Background and Purpose

The Capital Debt Affordability Advisory Committee (the "Committee" or "CDAAC") was created by Act No. 258 of 1989, and in accordance with State statute the Committee is required, on or before September 30 of each year, to submit to the Governor and the General Assembly the Committee's estimate of net State tax-supported debt that prudently may be authorized for the next fiscal year, together with a report explaining the basis for that estimate.

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 presents a two-year debt recommendation.

The full text of 32. V.S.A. Chapter 13, Subchapter 8, "Management of State Debt," which details CDAAC's statutory mandate in its entirety, is included as **Appendix A** to this Report.

Of note, this year the Committee delivered an Interim Report to satisfy the statutorily required September 30 due date with the intention to deliver the final report later in the Fall, but with sufficient time for the Administration to complete the Administration's Capital Budget Proposal. The final report was delayed this year as a result of the delayed publication of an annual report from Moody's Investor's Service containing U.S. State debt medians (included as **Appendix B**), which is the source of data for calculating the peer state debt ratios that inform the State's debt guidelines.

Recommendation

Given economic volatility and uncertainty, competing capital projects from available federal and local infrastructure funds, potential impacts of labor and materials availability and supply chain issues, as well as increasing costs and/or delaying project timelines. historically high inflation, and significantly increased borrowing costs, as further discussed herein, the Committee's two-year debt recommendation for fiscal years 2024 and 2025 is $108,000,000, a significant reduction from prior recommendations. The Committee believes this recommendation is sufficient to accomplish that work which is necessary over the coming biennium. However, given the level of volatility and uncertainty, the Committee also discussed the potential of increasing the second year of the biennial recommendation in next year's 2023 CDAAC Report.

Consistent with statutory requirements, in determining this recommendation CDAAC considered the following:

1. The amount of net State tax-supported indebtedness that, during the next fiscal year, and annually for the following nine fiscal years, will be outstanding; and has been authorized but not yet issued (see Section 1, "State Debt");
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 (see Section 1, "State Debt");
3. Projected debt service requirements during the next fiscal year, and annually for the following nine fiscal years, based upon existing outstanding debt; previously authorized but unissued debt; and projected bond authorizations (see Section 1, "State Debt");

4. The criteria that recognized bond rating agencies use to judge the quality of issues of State bonds, including existing and projected total debt service on net tax-supported debt as a percentage of combined General and Transportation Fund revenues and existing and projected total net tax-supported debt outstanding as a percentage of total State personal income (see Section 3, "Debt Guidelines" and Section 5, "Additional Credit and Affordability Considerations");
5. The principal amounts currently outstanding, and balances for the next fiscal year, and annually for the following nine fiscal years, of existing obligations of instrumentalities of the State for which the State has a contingent or limited liability; 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 to the maximum extent obtainable, all long-term debt of municipal governments in Vermont that is secured by general tax or user fee revenues (see Section 1, "State Debt");
6. The impact of capital spending upon the economic conditions and outlook for the State (see Section 2, "Economic and Financial Forecasts");
7. The cost-benefit of various levels of debt financing, types of debt, and maturity schedules (see Section 1, "State Debt");
8. Any projections of capital needs authorized or prepared by the Agency of Transportation, the Joint Fiscal Office, or other agencies or departments (see Section 5, "Additional Credit and Affordability Considerations");
9. Any other factor that is relevant to the ability of the State to meet its projected debt service requirements for the next five fiscal years; or the interest rate to be borne by, the credit rating on, or other factors affecting the marketability of State bonds (see Section 5, "Additional Credit and Affordability Considerations"); and
10. The effect of authorizations of new State debt on each of the above considerations.

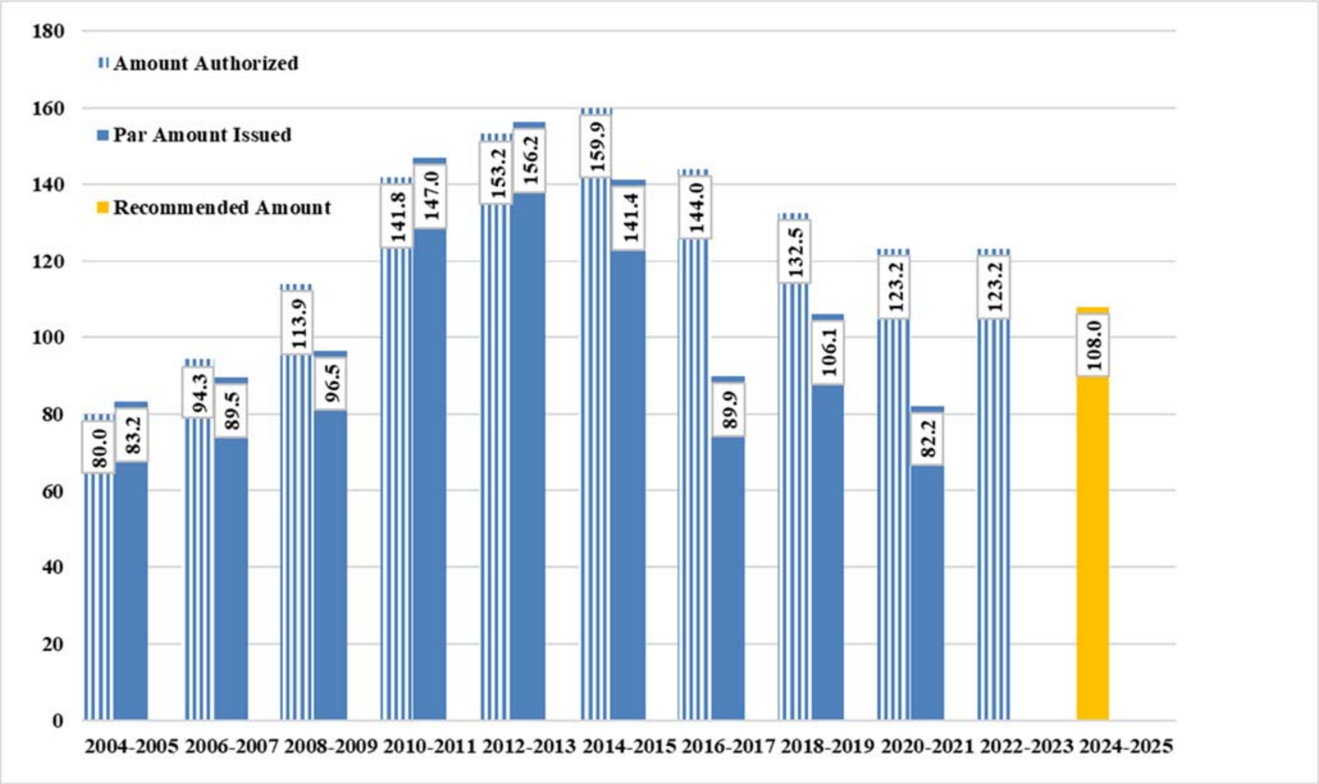
In addition to its specific statutory requirements, during its 2022 meetings the Committee discussed at length and considered several topics directly relevant to State of Vermont's debt affordability.

Trend of Reduced Debt Recommendations and Authorizations Since 2015

Except for the most recent fiscal year 2022-2023 biennium, the CDAAC has recommended reduced debt authorizations starting with the fiscal year 2016-2017 biennium. Recommended authorizations, which have been adopted by the Governor and the General Assembly have been reduced by 23% since 2012. For the fiscal year 2022-2023 biennium, CDAAC unanimously, did not recommend a decrease in the debt authorization due to the unprecedented economic repercussions from the COVID-19 pandemic, however the voting members of the Committee, with some exceptions, were supportive of continuing to annually reduce the debt authorization in future years.

The following chart presents the amounts of general obligation (G.O.) debt that have been authorized and issued by the State since fiscal year 2004 on a biennial basis. As shown, the State has experienced a significant increase in debt authorizations and issuances over the last nineteen years. For the period from 2004-2015, the nominal biennial issuance approximately doubled[1]; however, and as discussed above, in recent years the State has taken steps to reduce its biennial authorization.

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

[(4)] Recommended amount only for fiscal year 2024.

[1] On an inflation-adjusted basis measured using the Consumer Price Index for All Urban Consumers (CPI-U) and using 1996 = 100, debt authorizations increased approximately 63% during the 2004-2015 period. Importantly, the inflation-adjusted debt authorization for 2022 was essentially unchanged compared to 2004.

Significantly Higher-Than-Average Authorized but Unissued Debt

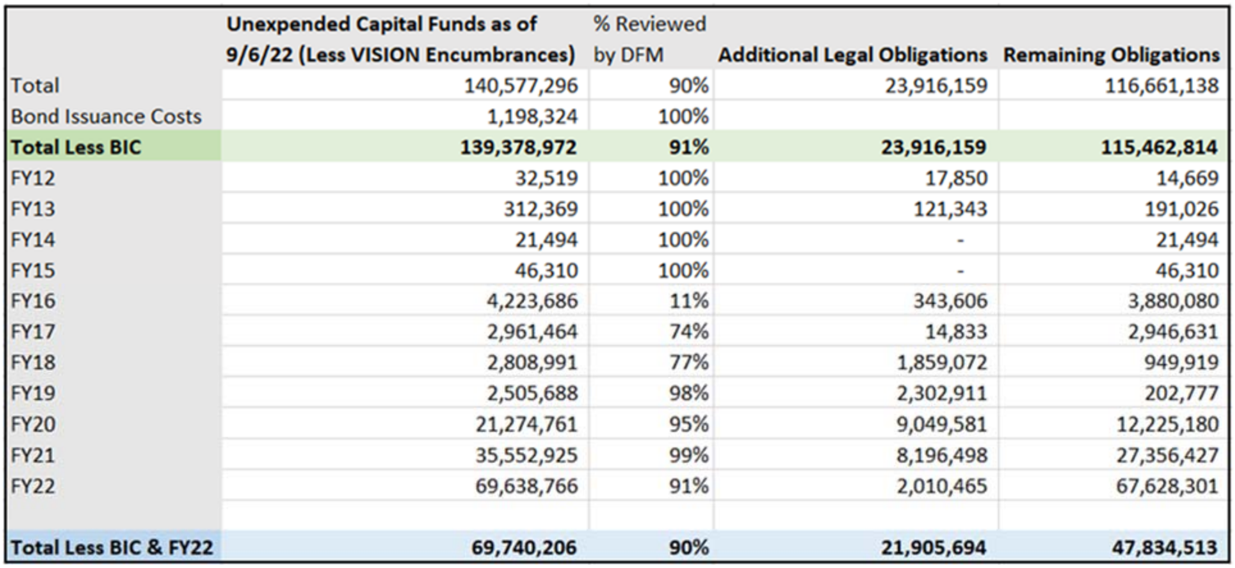
The State has approximately $185.36 million of authorized but unissued debt as follows: $123,180,000 in new G.O. bonds authorized by the General Assembly related to fiscal years 2022-2023 appropriations, plus $62,177,492.53 of previous fiscal years authorized but unissued debt, which is significantly higher than usual.

The Committee discussed factors contributing the unusually high level of authorized but unissued debt, many of which have stemmed from the COVID-19 pandemic including delays in construction activity, and inflation, supply chain issues and other factors as noted above.

The Agency of Administration provided the following summary of the approximately $140.58 million of unexpended capital funds, noting that almost half of these funds – approximately $69.64 million – were amounts authorized in fiscal year 2022. A further $21.91 million was legally obligated, and of the remaining $47.83 million, approximately half was obligated in other ways, for example, toward future phases of current projects, or through contracts and grant programs under development but not yet executed.

It is the practice of the Treasurer's Office to issue debt only after the corresponding project funding has been spent (therefore reimbursing such funds) or, based on projected cash flows, is expected to be spent in the near future.

The Agency of Administration provided the below summary of currently unexpended capital funds:



	Unexpended Capital Funds as of 9/6/22 (Less VISION Encumbrances)	% Reviewed by DFM	Additional Legal Obligations	Remaining Obligations
Total	140,577,296	90%	23,916,159	116,661,138
Bond Issuance Costs	1,198,324	100%		
Total Less BIC	**139,378,972**	**91%**	**23,916,159**	**115,462,814**
FY12	32,519	100%	17,850	14,669
FY13	312,369	100%	121,343	191,026
FY14	21,494	100%	-	21,494
FY15	46,310	100%	-	46,310
FY16	4,223,686	11%	343,606	3,880,080
FY17	2,961,464	74%	14,833	2,946,631
FY18	2,808,991	77%	1,859,072	949,919
FY19	2,505,688	98%	2,302,911	202,777
FY20	21,274,761	95%	9,049,581	12,225,180
FY21	35,552,925	99%	8,196,498	27,356,427
FY22	69,638,766	91%	2,010,465	67,628,301
Total Less BIC & FY22	**69,740,206**	**90%**	**21,905,694**	**47,834,513**

Beginning in 2013, appropriations were increased, pursuant to 32 V.S.A. § 954, which permitted the use of original issue bond premium (that is, sale proceeds received in addition to bond principal) for capital purposes. Prior to 2013, bond premium was used to pay debt service, but since 2013 the General Assembly has increased the appropriations for bonded capital projects following each bond sale. Bond premium arises when the fixed interest rates, or coupons, of individual bond maturities are higher than yields prevailing in the municipal bond market at the time of sale; since 2013, the State's bond sales typically have generated significant (i.e., millions of dollars) of bond premium. Bond premium reduces the par amount of bonds that needs to be sold, giving rise to "unissued" or "unused" principal that can then be carried forward to subsequent fiscal years. While this legislative change has resulted in higher appropriations, CDAAC continues to believe that the State benefits from using bond premium for capital projects instead of to for pay borrowed interest on the bonds.

As has been the case in previous years, CDAAC believes the State should work to return to its historical practice of annually extinguishing all or a large portion of the authorized amount of debt to avoid a rising residual amount of authorized but unissued debt that could be viewed unfavorably by the rating agencies. Also, with the increase in municipal bond yields and interest rates generally (discussed further in the Municipal Market Update below), it is likely that original issue premium will be lower for the State's upcoming bond sales, especially if these conditions persist.

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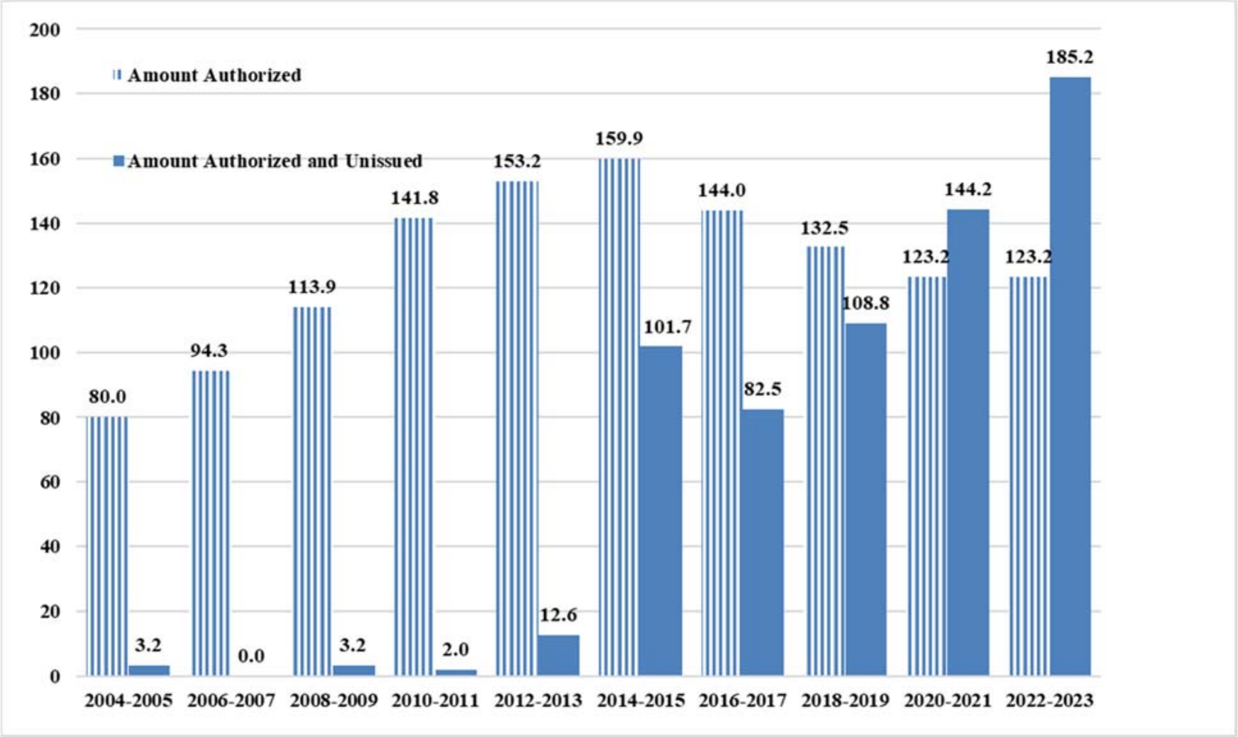
STATE OF VERMONT
HISTORICAL GENERAL OBLIGATION BOND AUTHORIZATIONS AND CUMULATIVE AUTHORIZED BUT UNISSUED AMOUNTS BY BIENNIUM [1][2][3]
(IN MILLIONS OF DOLLARS)



Notes:

[1] Authorized but unissued debt has been carried forward and employed in subsequent years' bond issuances.

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

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

New State Legislation Creating "Pay-As-You-Go" (i.e., "Pay-Go") Funding

Based in part upon the Committee's recommendation, the Treasurer and the Administration proposed and during the 2022 Legislative Session the General Assembly established a "Capital Expenditure Cash Fund" or CECF (32 V.S.A. § 1001b) to create a vehicle for pay-as-you-go ("Pay-Go") capital funding.

Although the General Assembly did not establish a regular reoccurring source of Pay-Go that the Treasurer and Administration proposed, the level of Pay-Go is meaningful. The Committee believes that (i) including Pay-Go will be seen as a credit positive for the State by the rating agencies, (ii) given the higher cost of borrowing, Pay-Go enables the State to pay for capital projects and improvements without borrowed interest expense, and (iii) establishing a reoccurring source of Pay-Go would be considered good financial management.

The Legislature also directed the Commissioner of Finance and Management, in consultation with the Joint Fiscal Office and the State Treasurer, to analyze and make recommendations on a dedicated revenue source or State fiscal capacity to fund the Capital Expenditure Cash Fund; other revenues, and an analysis of the benefits and costs of dedicating this revenue source to the Capital Expenditure Cash Fund in comparison to other identified unfunded State fiscal pressures.

Federal Financial Support for Infrastructure and Capital Projects

Both the American Rescue Plan Act (ARPA) of 2021 and the Bipartisan Infrastructure Investment and Jobs Act (IIJA) of 2021 have provided unprecedent amounts of Federal funding to the State of Vermont. To better-understand the potential implications of this funding for the State's capital needs, the Committee received briefings from the Agency of Administration and the Department of Buildings and General Services regarding amounts and proposed categories of expenditures totaling almost $1.2 billion as follows:

- Over $250 million of federal and one-time general funds in housing above historical spending;
- Over $200 million in climate change mitigation efforts;
- Over $200 million in water, sewer and stormwater infrastructure;
- Between $350 million and $450 million in broadband spending, depending on the success of competitive grants; and
- Over $100 million in economic development, with elements having a capital investment aspect.

The Committee also discussed uncertainty regarding the timing of these federally funded infrastructure improvements and State of Vermont debt financed capital projects would be effected due to supply chain issues, labor shortages and escalating construction costs. In April 2022, S&P published a report titled "Construction Cost Inflation Could Force U.S. Public Infrastructure Investment" stating that cost inflation has created a dilemma for infrastructure projects as issuers either now need to scale back their capital projects or increase funding through a combination of sources. In addition to the increased prices, labor shortages (in particular, sub-contractor shortages) and supply shortages have also created project delays. The Committee is also concerned about the possible domino effect on municipalities, schools, fire districts, business investment, and private projects that will be competing for these resources.

Credit Rating Agencies Methodology Updates Now Combined Debt with Pensions and OPEBs

In recent years Moody's, S&P and Fitch have added other "long-term liabilities," primarily pension and OPEB liabilities, as rating factors within each respective rating criteria. Specifically, Moody's and S&P have developed rating scorecards for state issuers which include an assigned specific criteria and weighting for "leverage" or "debt and liability," respectively, as one of their factors in the overall rating of a state. Also, Fitch's rating criteria has "long-term liabilities" as one of four key rating factors driving state ratings. Given the rating agencies' inclusion of and combining bonded debt with other long-term liabilities in their scorecard assessments of states, the Committee discussed adding such long-term liabilities (primarily pension and OPEB liabilities) to the State's guidelines to be more consistent with the rating agencies rating criteria. Although 32 V.S.A. Chapter 13, Subchapter 8, "Management of State Debt" makes no mention of Pensions and OPEBs, the statute does reference CDAAC considering "criteria that recognized bond rating agencies use to judge the quality of issues of State bonds." Additionally, due to the different approaches to evaluating and quantifying such liabilities by the rating agencies, the Committee decided to not adjust the guidelines at the time, but has discussed reconsidering its guidelines in the future and preferably in the next one to two years. Please see Section 4, "National Credit Rating Methodologies and Criteria" for additional information.

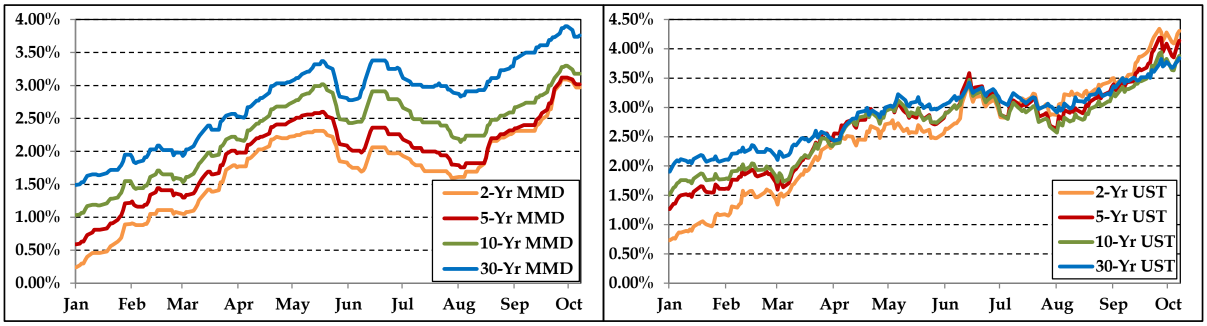
Review of Guidelines and Metrics in Other States' Debt Affordability Reports

In addition to reviewing the inclusion of long-term liabilities to the State's guidelines, the Committee also examined several comparable state debt affordability studies and their respective criteria and methods for calculating debt affordability. This review demonstrated that most comparable states utilize debt to personal income and debt service to revenues and/or expenditures as the two primary metrics for calculating debt affordability. Other financial metrics such as debt per capita, debt to revenues, debt to GSP and the rapidity of debt repayment were included but were not the primary determinants. Also, there were some comparable states that did include pensions and OPEBs within their affordability metrics. The Committee remains concerned that the pension and OPEB factors, as utilized in the rating process, are not comparable across the states. For example, the exclusive use of the adjusted net pension liability (ANPL) that reduces the discount rate to a single number for all states does not reflect the varying asset allocations and capital market assumptions that underly the discount rate. Other factors, e.g., demographics and experience of the plans, ratios of active to retired members, etc., are not included in the analysis. The use of a single factor is not consistent with the more thorough analysis of debt.

Municipal Market Update

Interest rates reached historical lows in 2020, especially for U.S. Treasuries, as investors had an appetite for safe investments during the uncertainty of the COVID-19 pandemic. This record-low interest rate environment continued in 2021. Unfortunately, and as can be seen in the charts on the following page, in 2022 interest rates have increased significantly due in part to several Federal Funds Rate increases initiated by the Federal Open Market Committee (FOMC) to combat historic inflation levels.

MUNICIPAL (LEFT) AND U.S. TREASURY (RIGHT) INTEREST RATES IN 2022



Fed Funds Rate increases are expected to continue through the rest of 2022 and into 2023. Following the September 2022 FOMC meeting, Federal Reserve Chairman Jerome Powell announced an additional 75 basis point interest rate increase for a third straight time. He signaled even more aggressive interest rate increases in the future to bring down inflation to the Fed's 2% goal and acknowledged that "Higher interest rates, slower growth and a softening labor market are all painful for the public that we serve. But they're not as painful as failing to restore price stability and having to come back and do it down the road again."

In addition to the interest rate increases in 2022, the municipal market has been extremely volatile with large MMD and Treasury rate swings on any given day with the release of economic data and news related to both economic conditions and geopolitical developments. The volatility has caused underwriters to increase yield spreads on bond sales in comparison to historical levels to garner investors' interest.

GASB 87: Implementing the New Lease Accounting Standards

During fiscal year 2022, Governmental Accounting Standards Board (GASB) Statement No. 87 requirements were implemented, changing the accounting standard for leases. Among these changes, GASB 87 requires the State to recognize all leases that exceed 12 months in length as liabilities, and expands the breadth of leases to be accounted for similar to how capital leases were treated previously. The title and concept of a "capital lease" has been eliminated, and all leases are now recognized as financings of the right to use an asset.

GASB 87 significantly increases the dollar amount of the State's leases ("Leases") included in its net tax-supported debt. As of June 30, 2022, the State has $83.57 million in leases outstanding, an increase of $74.71 million from the State's $8.86 million outstanding as of June 30, 2021, primarily driven by the change in lease accounting.

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1. STATE DEBT

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

As stated above, the Committee has included the State's G.O. debt and leases as State net tax-supported debt, and recognizes VHFA Property Transfer Bonds as being part of net tax-supported debt. The State's special obligation transportation infrastructure bonds ("TIBs") previously were recognized as net tax-supported debt, however are no longer outstanding following the defeasance in June 2022[1].

General Obligation Bonds

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

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

VHFA Property Transfer Bonds

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

[1] Additionally, Moody's Investor's Service includes certain bonds that have been issued by Vermont Economic Development Authority and Vermont Educational and Health Buildings Financing Agency on behalf of borrowers that are State-designated providers of developmental and mental health services, among other services, and has been licensed and authorized pursuant to State statutes to provide such services. The current amount of the designated provider bonds that Moody's considers as State Net Tax Supported Debt is $20 million.

Leases

The total amount of Leases as of June 30, 2022, with a fair market value of $83.57 million, is included as net tax-supported debt. As discussed earlier, the lease accounting changes following the implementation of GASB 87 significantly increased the amount outstanding of leases for the State.

Current Status

Long-Term Net Tax-Supported Debt outstanding as of June 30, 2022 was $692,791,347 which includes G.O. bonds, VHFA Property Transfer Bonds and Leases ("Long-Term Net Tax-Supported Debt"). The amount of authorized but unissued G.O. debt as of June 30, 2022 was $62,063,255.48, plus the fiscal year 2022-23 biennium authorization of $123,180,000 for a total of $185,243,255.

General Obligation Credit Ratings

The State of Vermont's triple-A G.O. ratings were downgraded by Moody's to Aa1 and Fitch Ratings ("Fitch") to AA+ in October 2018 and July 2019, respectively. S&P Global Ratings ("S&P") changed the outlook on the State's G.O. bond rating of AA+ to negative from stable in November 2020, however, revised their outlook back to stable on August 19, 2022.

Moody's rationale for the 2018 downgrade was 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 2019 downgrade was 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."

S&P's basis for the outlook change from negative to stable in 2022 was as follows"

"The stable outlook reflects our view that the state's newly passed retirement reforms offer a structural path toward easing budgetary pressures from mounting retirement liabilities as Vermont's unfunded liability burden shrinks. The outlook revision also reflects our view that the state's demographic profile, while still expected to limit long-term economic growth potential, has benefited from pandemic-related in-migration, at least in the near term, while Vermont continues to address its demographic challenges through programs related to remote work, workforce development, and housing affordability."

Moody's, Fitch and S&P affirmed the State's Aa1, AA+ and AA+ G.O. ratings in July 2022, April 2021 and August 2022, respectively.

See section 4 herein for a discussion of the "National Credit Rating Methodologies and Criteria."

Net Tax-Supported Debt Outstanding

The State's aggregate net tax-supported debt principal amount increased from $691.9 million, as of June 30, 2021 to $692.791 million as of June 30, 2022, a slight increase of 0.13%. While the State has not issued G. O. bonds since the FYE 2021 and has repaid approximately $50 million in G.O. Bonds and cash defeased an additional $21 million in TIBs, its net tax supported debt increased slightly primarily related to the change in lease accounting following the implementation of GASB 87, which increased the State's leases considered in net tax supported debt by $74 million as summarized below. The table below sets forth the sources of the change in net tax-supported debt outstanding from fiscal year 2021 to fiscal year 2022 (in thousands).

Net Tax-Supported Debt as of 6/30/21	$691,917
Plus: Leases	74,704
Less: Retired G.O. Bonds	(50,710)
Less: Defeased TIBs	(21,710)
Less: Retired VHFA Property Transfer Bonds	(1,410)
Net Tax-Supported Debt as of 6/30/22	$692,791

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STATE OF VERMONT
Debt Statement
As of June 30, 2022 (In Thousands)

General Obligation Bonds:	
General Fund	$577,022
Transportation Fund	1,978
VHFA Property Transfer Tax Bonds:	
Property Transfer Tax Bonds, Series 2018	$30,225
Leases:	
Various Leases	$83,566
Reserve Fund Commitments[1]:	
Vermont Municipal Bond Bank	$587,472
Vermont Housing Finance Agency	155,000
Vermont Economic Development Authority	181,000
Vermont Student Assistance Corporation	50,000
Vermont Telecommunications Authority[2]	40,000
University of Vermont/State Colleges	100,000
Gross Direct and Contingent Debt	$1,806,263
Less:	
Reserve Fund Commitments	(1,113,472)
Net Tax-Supported Debt	**$692,791**

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

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

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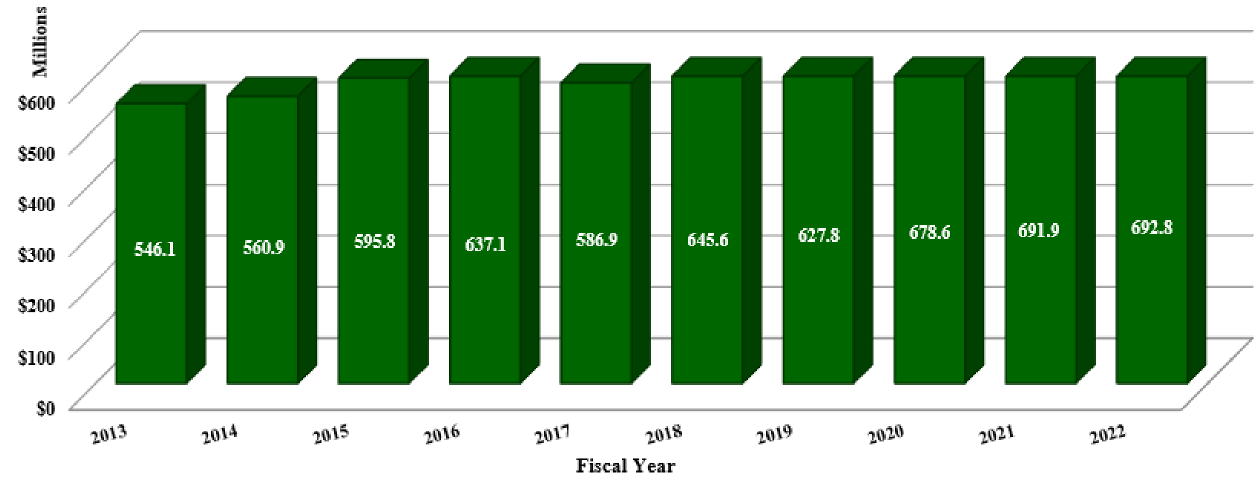
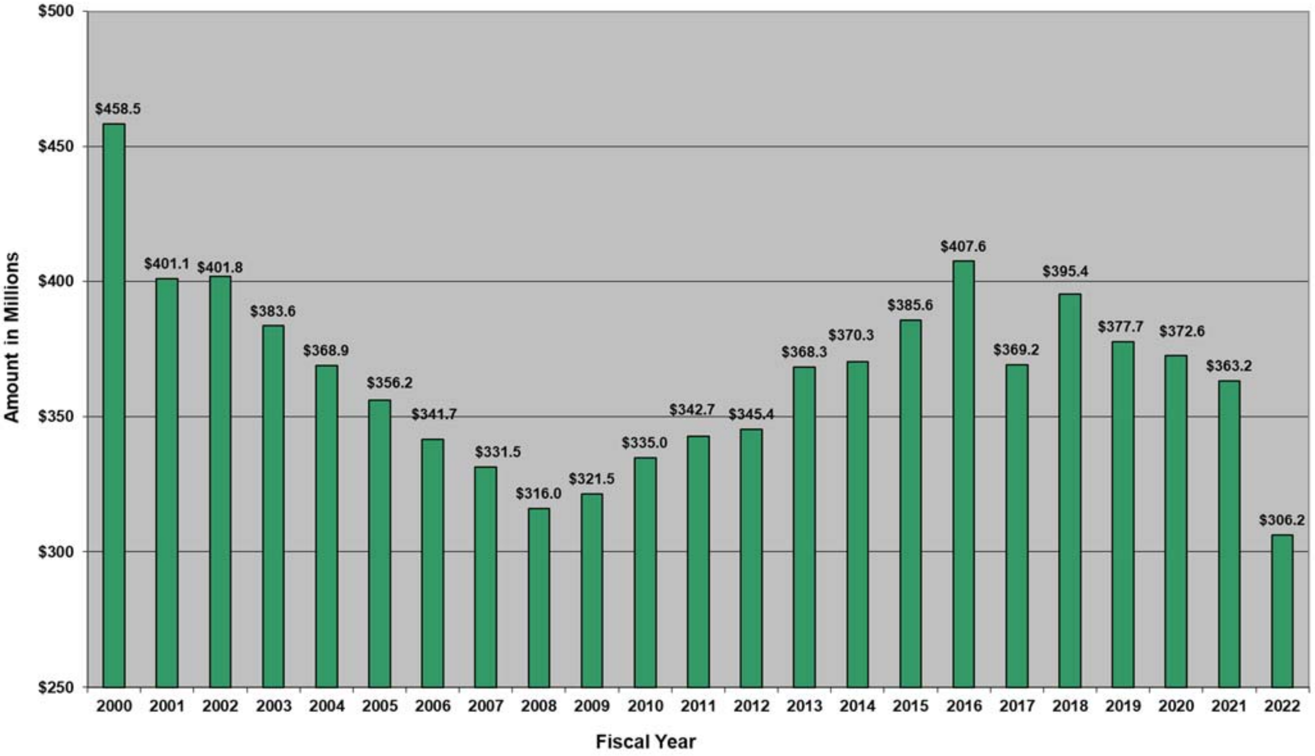
STATE OF VERMONT
LONG-TERM NET TAX-SUPPORTED DEBT OUTSTANDING FY 2013-2022
(in millions of dollars)



STATE OF VERMONT
GENERAL OBLIGATION DEBT OUTSTANDING, FY 2000-2022
ADJUSTED FOR INFLATION[1,2] (in millions of dollars)



[1] Does not include VHFA Property Transfer Bonds, TIBs and Leases.
[2] Adjusted for inflation to FY 1996.

The table below sets forth the State's existing principal amounts outstanding and annual debt service requirements, as of June 30, 2022, without the issuance of any additional debt. Rating agencies consider Vermont's rapid debt amortization, with almost 77% of current principal retired by fiscal year 2033, to be a positive credit factor.

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

	NET TAX-SUPPORTED DEBT									
	GO Debt				Revenue Bonds					
	General Fund		Transportation Fund		VHFA Transfer Tax Bonds		Leases		Total	
Fiscal Year	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service	Principal Outstanding	Debt Service
2022	577,022	72,954	1,978	522	30,225	2,498	83,566	12,741	692,791	88,714
2023	526,195	73,056	1,560	502	28,775	2,499	72,317	12,451	628,847	88,508
2024	476,770	69,375	1,300	327	27,280	2,501	61,739	11,664	567,089	83,868
2025	427,300	67,268	1,040	317	25,745	2,496	52,796	9,910	506,881	79,991
2026	379,745	63,231	780	306	24,155	2,502	45,350	8,301	450,030	74,340
2027	333,855	59,541	520	295	22,515	2,500	38,395	7,699	395,285	70,035
2028	290,150	55,444	260	283	20,820	2,501	31,420	7,604	342,650	65,832
2029	248,460	51,642	-	272	19,070	2,498	24,501	7,433	292,031	61,844
2030	208,810	47,933	-	-	17,255	2,501	17,413	7,482	243,478	57,916
2031	172,290	43,217	-	-	15,375	2,499	10,452	7,234	198,117	52,950
2032	142,040	35,644	-	-	13,420	2,501	5,816	4,799	161,276	42,944
2033	111,790	34,499	-	-	11,390	2,501	2,605	3,288	125,785	40,288

Note: This table sets forth the existing G.O. net tax-supported debt without the issuance of any additional debt.

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

The State's projected annual Long-Term Net Tax-Supported Debt service and debt outstanding are presented on the following pages and summarized below. The projected debt service assumes interest rates of 5%, the issuance of $185,355,000 in fiscal year 2023 and $54,000,000 each fiscal year from 2024-2033. While it is unlikely that the State will issue all $185.355 million of authorized but unissued debt in fiscal year 2023, absent a projection of the timing of actual issuance, this is the most conservative assumption and one the Committee has consistently used previously.

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
6/30/2022	$88,714	7.94%	$692,791	0.13%
6/30/2023	88,508	-0.23%	814,202	17.52%
6/30/2024	102,405	15.70%	797,174	-2.09%
6/30/2025	103,465	1.03%	778,996	-2.28%
6/30/2026	102,616	-0.82%	761,475	-2.25%
6/30/2027	102,977	0.35%	743,360	-2.38%
6/30/2028	103,306	0.32%	724,655	-2.52%
6/30/2029	103,714	0.39%	705,266	-2.68%
6/30/2030	104,048	0.32%	685,243	-2.84%
6/30/2031	103,208	-0.81%	665,712	-2.85%
6/30/2032	97,193	-5.83%	652,001	-2.06%
6/30/2033	98,394	1.24%	636,940	-2.31%

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

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EXISTING AND PROJECTED LONG-TERM NET TAX-SUPPORTED DEBT SERVICE ($000)

		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Current	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue
FY	D/S*	$185.355M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M
2023	88,508	0	0	0	0	0	0	0	0	0	0	0
2024	83,868	18,538	0	0	0	0	0	0	0	0	0	0
2025	79,991	18,074	5,400	0	0	0	0	0	0	0	0	0
2026	74,340	17,611	5,265	5,400	0	0	0	0	0	0	0	0
2027	70,035	17,147	5,130	5,265	5,400	0	0	0	0	0	0	0
2028	65,832	16,684	4,995	5,130	5,265	5,400	0	0	0	0	0	0
2029	61,844	16,220	4,860	4,995	5,130	5,265	5,400	0	0	0	0	0
2030	57,916	15,757	4,725	4,860	4,995	5,130	5,265	5,400	0	0	0	0
2031	52,950	15,293	4,590	4,725	4,860	4,995	5,130	5,265	5,400	0	0	0
2032	42,944	14,830	4,455	4,590	4,725	4,860	4,995	5,130	5,265	5,400	0	0
2033	40,288	14,366	4,320	4,455	4,590	4,725	4,860	4,995	5,130	5,265	5,400	0

EXISTING AND PROJECTED LONG-TERM NET TAX-SUPPORTED DEBT PRINCIPAL PAYMENTS ($000)

		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Current	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue
FY	Principal*	$185.355M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M
2023	63,944	0	0	0	0	0	0	0	0	0	0	0
2024	61,759	9,270	0	0	0	0	0	0	0	0	0	0
2025	60,207	9,270	2,700	0	0	0	0	0	0	0	0	0
2026	56,852	9,270	2,700	2,700	0	0	0	0	0	0	0	0
2027	54,745	9,270	2,700	2,700	2,700	0	0	0	0	0	0	0
2028	52,634	9,270	2,700	2,700	2,700	2,700	0	0	0	0	0	0
2029	50,619	9,270	2,700	2,700	2,700	2,700	2,700	0	0	0	0	0
2030	48,553	9,270	2,700	2,700	2,700	2,700	2,700	2,700	0	0	0	0
2031	45,361	9,270	2,700	2,700	2,700	2,700	2,700	2,700	2,700	0	0	0
2032	36,841	9,270	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	0	0
2033	35,491	9,270	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	2,700	0

EXISTING AND PROJECTED LONG-TERM NET TAX-SUPPORTED DEBT OUTSTANDING ($000)

		2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
	Current	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue	Issue
FY	Debt*	$185.355M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M	54.000M
2022	692,791	0	0	0	0	0	0	0	0	0	0	0
2023	628,847	185,355	0	0	0	0	0	0	0	0	0	0
2024	567,089	176,085	54,000	0	0	0	0	0	0	0	0	0
2025	506,881	166,815	51,300	54,000	0	0	0	0	0	0	0	0
2026	450,030	157,545	48,600	51,300	54,000	0	0	0	0	0	0	0
2027	395,285	148,275	45,900	48,600	51,300	54,000	0	0	0	0	0	0
2028	342,650	139,005	43,200	45,900	48,600	51,300	54,000	0	0	0	0	0
2029	292,031	129,735	40,500	43,200	45,900	48,600	51,300	54,000	0	0	0	0
2030	243,478	120,465	37,800	40,500	43,200	45,900	48,600	51,300	54,000	0	0	0
2031	198,117	111,195	35,100	37,800	40,500	43,200	45,900	48,600	51,300	54,000	0	0
2032	161,276	101,925	32,400	35,100	37,800	40,500	43,200	45,900	48,600	51,300	54,000	0
2033	125,785	92,655	29,700	32,400	35,100	37,800	40,500	43,200	45,900	48,600	51,300	54,000

*Includes State G.O. Bonds, VHFA Property Transfer Bonds and Leases.

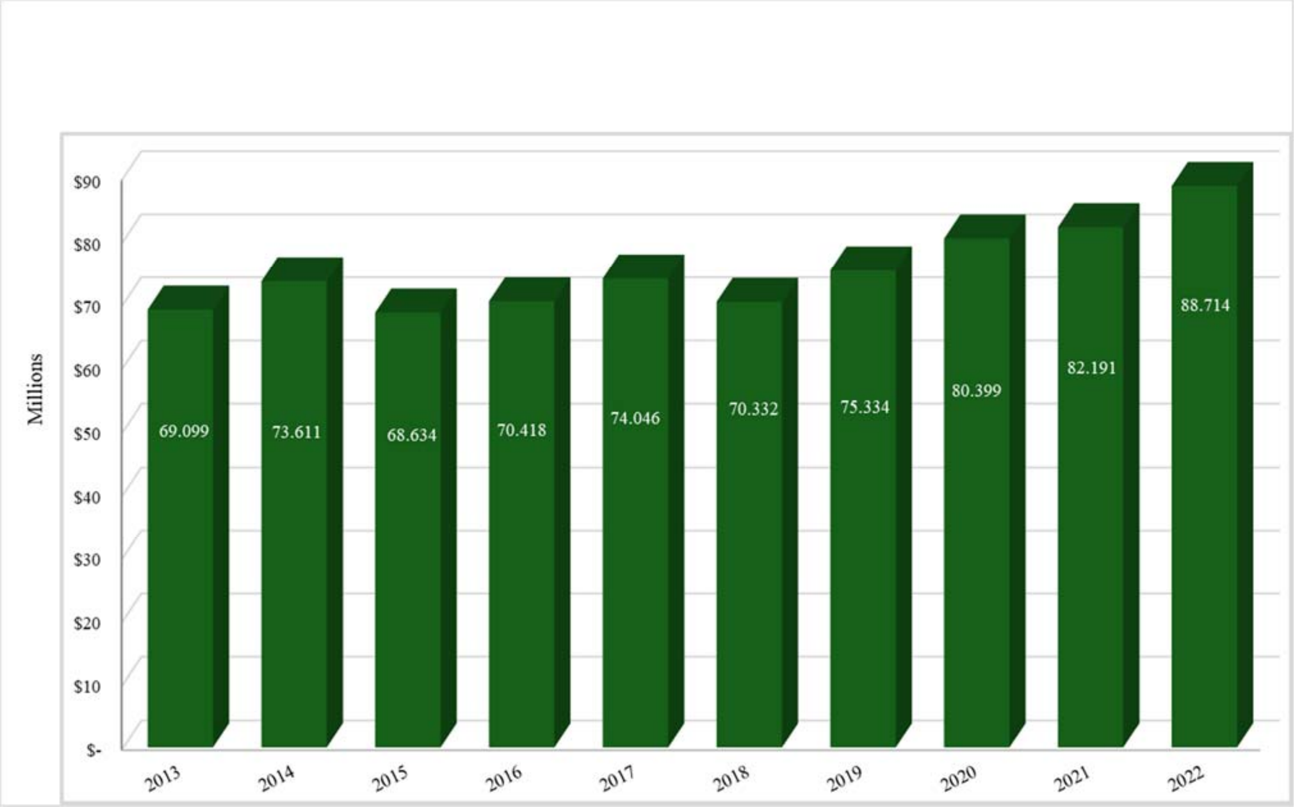
Net Tax-Supported Debt Service by Fiscal Year

The State's scheduled Long-Term Net Tax-Supported Debt Service requirement ("D/S") for fiscal year 2023 is $88.5 million, 0.23% less than the $88.7 million paid in fiscal year 2022.

STATE OF VERMONT
CHANGE IN NET TAX SUPPORTED DEBT SERVICE (FY 22 – FY 23)
(in $ thousands)

Long-Term Net Tax-Supported D/S Paid in FY 2022	$88,714
Decrease in D/S Requirement FY 2022	(206)
Long-Term Net Tax-Supported D/S Due in FY 2023	$88,508

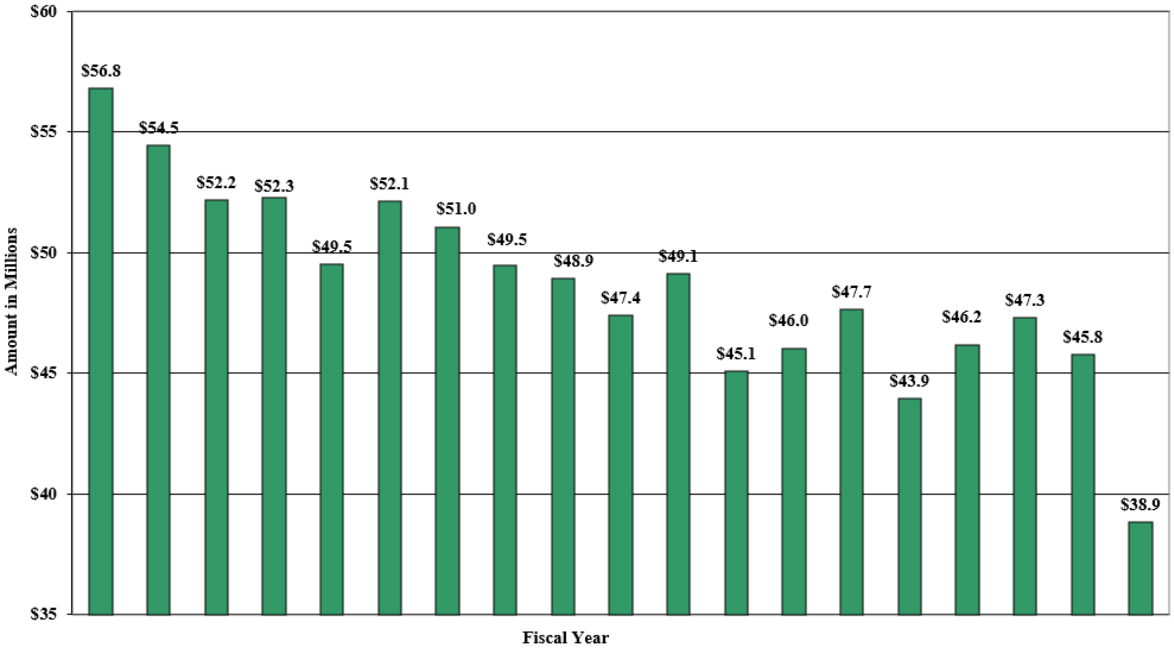
STATE OF VERMONT
HISTORICAL LONG-TERM NET TAX-SUPPORTED DEBT DEBT SERVICE [1,2]
(in millions of dollars)



[1] Fiscal year 2014 debt service includes an additional principal amortization of $3,150,000 that was structured to expend bond funded original issuance premium within 12 months of the issue date to satisfy Internal Revenue Service requirements. Going forward this has not been necessary due to the 2012 amendment to 32 V.S.A. § 954 to permit the use of bond premium for capital projects.

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

STATE OF VERMONT
GENERAL OBLIGATION DEBT SERVICE, FY 2004-2022
ADJUSTED FOR INFLATION [1,2] (in millions of dollars)



[1] Does not include VHFA Property Transfer Bonds, TIBs and Leases.
[2] Adjusted for inflation to FY 1996.

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Moral Obligation Indebtedness

Provided below is a summary of the State's moral obligation commitments as of June 30, 2022:

Reserve Fund Commitments (all figures as of June 30, 2022):

1. Vermont Municipal Bond Bank (d/b/a Vermont Bond Bank) (VBB): The VBB 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 purchasing their obligations in addition to the ordinary competitive bidding channels. By using the VBB, small individual issues of governmental units can be combined into one larger issue that attracts more investors.

   The VBB is authorized to issue bonds 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 VBB are used to make the VBB'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 VBB 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 VBB, or at the VBB'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 VBB 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, 2022, the VBB has issued 78 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, 2022 was $587,472,000, and the principal amount of loans outstanding to municipal borrowers as of June 30, 2022 was $557,911,142. For bonds issued under the 1988 Resolution, the VBB 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 VBB 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 VBB 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, 2022, the VBB has also issued two series of bonds under a new general bond resolution adopted on March 30, 2017 (the "2017 Resolution") for the Vermont State Colleges System ("VSCS") Program. The 2017 Resolution is for VSCS financings only. As of June 30, 2022, the principal amount of bonds outstanding under the 2017 Resolution was $86,480,000. The 2017 Resolution bonds are not supported by a reserve fund, but do benefit from the State intercept.

The State Treasurer, the VBB 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.

On August 11, 2022, the VBB issued the first series of bonds that included consent for changes to the General Resolution through the purchase of new bonds. Once effective upon receipt of requisite consents, the proposed modifications will create two new categories of General Resolution bonds called the Community Revenue Bonds and Enhanced Community Revenue Bonds. Bonds issued prior to the effective date of the modifications will be called the Legacy Bonds and will no longer be issued once the modifications are effective.

The Community Revenue Bonds will continue to benefit from the State intercept, but will not include a debt service reserve fund and therefore, will have no ability to access the moral obligation. The Community Revenue Bonds will be superior to the Enhanced Community Revenue Bonds that will benefit from a debt service reserve fund. The net impact of this structure may be a reduction in VBB's use of the moral obligation.

The proposed modifications will become effective when 66.67% of holders consent to the changes. Following the VBB's issuance of two series of bonds in August and September 2022, approximately 7.69% of the owners of the General Resolution Bonds consented to the proposed modifications.

For additional information about the VBB, 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, 2022, the VHFA's total outstanding indebtedness was $375,882,175. 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 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, 2022, the principal amount of outstanding debt covered by this moral obligation was $74,391,850, the debt service reserve fund requirement for this debt was $4,636,640, and the value of the debt service reserve fund was $4,956,556. 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 amount of commercial paper outstanding under this program at June 30, 2022 was $89.0 million, and 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 $12.5 million collateral reserve fund held by a trustee and a debt service reserve fund pledge from the State in an amount of $80 million. VEDA has two variable-rate and two fixed-rate notes payable from a second bank totaling $117 million. The notes are collateralized from various repayment sources, including a $9.4 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 $175 million are based on a similar structure utilized by both the Vermont Municipal Bond Bank and the Vermont Housing Finance Agency as discussed above. Act No. 79, enacted in June 2019, increased the State's moral obligation commitment for VEDA from $175 million to $181 million, effective July 1, 2019. For additional information about VEDA, see its most recent disclosure document, which can be found on the EMMA system at https://emma.msrb.org/IssueView/Details/ER379175.

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. VSAC has no moral obligation debt outstanding, and thus it is not expected that the State will need to appropriate money to the respective reserve funds for VSAC.

As shown in the following page, the State's moral obligation commitments have increased only modestly over the past ten (10) years, by approximately $89.2 million or less than 9%. The increases came from VEDA, at $60 million, VBB at $25.3 million, and VHFA at $19 million, with a $15 million reduction from VSAC.

In the absence of explicit rating agency guidelines for moral obligation debt, or comparative data from Vermont's triple-A peer group, or a consistent approach among the triple-A peer group regarding the size, nature and role of such debt, CDAAC has since 2008 employed a guideline that moral obligation commitments should not exceed a range of between 200% and 225% of the State's Long-Term Net Tax-Supported Debt. Using this guideline, the State's moral obligation capacity would be between $1.384 billion and $1.557 billion, so the State would have between $270 million and $443 million of additional moral obligation capacity.

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Reserve Fund Commitments:

State of Vermont
Moral Obligation Commitments and Debt Outstanding
As of July 1, 2022

	As of July 1, 2012		As of July 1, 2022		10-Year Change	
Issuer Name	Amount Provided In Statute	Actual Par Amount Outstanding	Amount Provided In Statute	Actual Par Amount Outstanding	Amount Provided In Statute	Actual Par Amount Outstanding
VBB	$556,189,561	$556,189,561	$587,472,000	$587,472,000	$31,282,439	$31,282,439
VEDA	115,000,000	115,000,000	181,000,000	175,000,000	66,000,000	60,000,000
VHFA	155,000,000	55,435,000	155,000,000	74,391,850	-	18,956,850
VSAC	50,000,000	15,000,000	50,000,000	-	-	(15,000,000)
UVM	66,000,000	-	66,000,000	-	-	-
VSCS	34,000,000	-	34,000,000	-	-	-
VTA	40,000,000	-	40,000,000	-	-	-
	$1,016,189,561	$741,624,561	$1,113,472,000	$836,863,850	$97,282,439	$95,239,289

*The Vermont Municipal Bond Bank's debt obligations are secured first by the general obligation or revenue pledge of the participating municipalities, and second by State intercept of payments to municipalities, before the moral obligation is utilized.

CDAAC continues to believe 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. Ultimately, the effect of contingent liabilities and reserve fund commitments on the State's debt affordability depends upon this debt's reliance on the State's general operating revenues. The rating agencies do not include contingent obligations in the State's net tax-supported indebtedness until such debt becomes actual (through a payment or a replenishment obligation being made). As such, as long as 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.vtbondbank.org/investors

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

Each year CDAAC performs 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 affordability guidelines.

Second, with respect to the "types of debt," Vermont and its financing agencies have utilized a variety of debt types: VSAC, VHFA and VEDA sell revenue bonds, and Vermont has also issued TIBs. The State Treasurer's office also has considered a variety of financing options for the State's infrastructure needs, but because of Vermont's high credit ratings G.O. Bonds have generally offered the most cost-effective financing solution.

The State G.O. indebtedness maturity schedules are directly tied to State statute. Moreover, as indicated elsewhere herein, Vermont's current debt repayment for its G.O. bonds allow 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. Likewise, the State is precluded by Federal regulations from structuring tax-exempt debt to have an average life materially longer than the useful life of the asset(s) being financed. Notwithstanding these limitations, there may be opportunities for the State in the future to adjust the maturity of its indebtedness to achieve various debt management goals over time.

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2. 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 2023 through 2024" prepared by Economic and Policy Resources, Inc. ("EPR") dated July 28, 2022.

"The pace of activity in the economy and state revenues is then expected to slow significantly during fiscal year 2024 and into fiscal year 2025, as the pressure on the portion of "federal policy foot" that is on the "brake pedal" (corresponding to monetary policy) increases and eventually overtakes the other federal policy foot (corresponding to federal fiscal policy) that has recently begun to ease up on the accelerator."

"For the most part, the public health aspects of the COVID-19 pandemic have moved towards more of a "management phase," where the virus and its variants have become more endemic, and the seriousness and life- threatening aspects of illness associated with the virus in Vermont have been reduced significantly—although serious illness related to COVID-19 remains as a potential health risk for at least some of the more vulnerable parts of the state's population and particularly for the portion Aged 85 years and up."

"The unprecedented Keynesian experiment carried out by U.S. fiscal policy to address the negative economic effects of the virus likewise remains as an on-going trial, which has now moved on into a new phase as the public health risks associated with the pandemic have likewise moved into a new, less critical stage. This "new phase" of policies associated with the above-referenced Keynesian experiment are designed to address the continuing, residual effects of the federal fiscal and monetary policy initiatives implemented mostly over the first two years of the pandemic. This new set of policies involve letting the fiscal policy measures run their course (as they naturally ebb in significance), and implementing an additional set of federal monetary policy "tightening" adjustments—with likely more forthcoming—to address the side-effects (e.g., inflation) related to the initial set of federal fiscal and monetary policies that were implemented to offset the "blunt force trauma" to the economy caused by the initial public health measures related to the virus."

"The continuation of this war in Ukraine and subsequent sanctions on Russia for the period going on six months means that the global, U.S., and State economic and financial systems now have to contend with all of the attendant geo-political, security, and the economic disruptions and risks that such a war continues to entail. These disruptions (and risks) so far have included major increases in food and energy commodity prices (leading to a record high for the average retail price of a gallon of gasoline in the U.S. of $5.01 the week of June 20, 2022 but which recently has declined by about 10%—see below), and significant disruptions (due to the resulting harsh economic sanctions imposed on Russia) to the global financial system, and perilous threats to the European economy's energy supplies— particularly for Russian-sourced natural gas."

"Recent price reports have also resulted in elevated fears that the recent escalating level of consumer prices, if unchecked, will become embedded in the economy by fanning the flames of "inflationary expectations." A sustained rise in "inflationary-expectations" can often become self-sustaining throughout the economy and can act to cause significant harm to the long-term health of the economy overall."

"Because the overall CPI reading for June exceeded May's report and reached a rate of increase that was in excess of +9.0%, the Fed once again this week raised short-term interest rates by 0.75 percentage points following its July 26-27 meeting (as this report was going to press) to a range between 2.25% and 2.5%—with additional increases virtually a "given."

“There are uncertainties regarding the timing of precisely when each increase in short-term rates actually has the desired restraining effect on economic activity (again principally on the demand side)—with the lag between the “act and impact” of each tightening move-action therefore elevates the risk of a recession. This recession risk comes in the form of the Federal Reserve potentially overdoing it, and thereby pushing the overall economy into a recession because Fed policymakers did not recognize that that the final tightening action (or final tightening actions) went too far because of its/their lagged effect on actual U.S. economic activity.”

“The economic forecast update expects the Fed will be successful in engineering “a soft-landing” overall and the U.S. and Vermont economies will therefore be able to avoid a general economic downturn that would be far more detrimental to state revenues than is expected in this staff recommended consensus forecast update. It reflects an expected economic outlook scenario where the economy has a “bend, but-don’t break” character to expected economic activity where the output in the economy slows or even declines for a brief period, but the output decline is not enough to result in significant deterioration in labor market conditions given today’s very “tight” labor market.”

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As shown in the table below, total revenue for fiscal year 2022 was $354.8 million more than in fiscal year 2021, an increase of 17.18%. The average annual revenue growth rate during the fiscal year period, 2023 through 2033, inclusive, is projected to be 2.56%. The revenue decreases in 2023 and 2024 correlate to the unwinding of the financial pandemic assistance.

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

Fiscal Year	General Fund	Transportation Fund	TIBs Fund[2]	Property Transfer Tax[3]	Total Revenue[4]	Change from Prior Year
2021	1,767.7	282.7	12.1	2.5	2,065.1	--
2022	2,129.5	287.8	0.0	2.5	2,419.9	17.18%
2023	2,061.0	300.1	0.0	2.5	2,363.6	-2.33%
2024	1,978.3	301.4	0.0	2.5	2,282.2	-3.44%
2025	2,055.5	306.3	0.0	2.5	2,364.3	3.60%
2026	2,141.2	311.4	0.0	2.5	2,455.1	3.84%
2027	2,239.7	317.7	0.0	2.5	2,560.0	4.27%
2028	2,331.6	324.0	0.0	2.5	2,658.0	3.83%
2029	2,422.5	330.5	0.0	2.5	2,755.5	3.67%
2030	2,514.6	336.6	0.0	2.5	2,853.7	3.56%
2031	2,608.2	343.2	0.0	2.5	2,953.9	3.51%
2032	2,702.4	349.2	0.0	2.5	3,054.1	3.39%
2033	2,798.6	355.7	0.0	2.5	3,156.7	3.36%

[1] Administration-Legislative Consensus Long-Term Forecast (Calendar Years 2023-2033). 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 October 13, 2022.

[24] Represents TIB's revenue forecast for fiscal year 2021 from the Administration-Legislative Consensus Long-Term Forecast (Calendar Years 2022-2032) as of September 6, 2021. TIBs revenue for fiscal years 2022 through 2033 are no longer included due to the repayment and defeasance of the TIBs in FY 2022.

[3] Represents a portion of the State's property transfer tax set-aside to pay debt service on the VHFA Property Transfer Bonds.

[4] Totals may not agree due to rounding.

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Provided below are the forecasts of population, personal income, and nominal gross State product. As shown in the table below, population for calendar year 2022 and 2023 is 647.8 thousand and 649.6 thousand, respectively, an increase of 0.34% and 0.29%, over the previous calendar years. Personal income for calendar year 2022 and 2023 is $39.4 billion and $41.6 billion, respectively, an increase of 2.20% and 5.70%, over the previous calendar year, respectively. Nominal gross State product for calendar year 2022 and 2023 is $39.7 billion and $41.8 billion, respectively, an increase of 9.63% and 5.54%, over the previous calendar year, respectively.

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

Year	Population (in thousands)	Change from Prior Year	Personal Income (in $ billions)	Change from Prior Year	Nominal GSP (in $ billions)	Change from Prior Year
2021	645.6	--	38.5	--	37.3	--
2022	647.8	0.34%	39.4	2.20%	40.9	9.73%
2023	649.6	0.29%	41.6	5.70%	43.1	5.33%
2024	651.4	0.27%	43.9	5.50%	45.0	4.49%
2025	653.0	0.24%	45.9	4.60%	47.1	4.71%
2026	654.4	0.22%	48.0	4.45%	49.4	4.90%
2027	655.8	0.21%	50.1	4.31%	51.7	4.68%
2028	657.1	0.20%	52.2	4.27%	54.1	4.58%
2029	658.3	0.19%	54.4	4.24%	56.5	4.45%
2030	659.6	0.19%	56.7	4.21%	59.0	4.44%
2031	660.8	0.18%	59.0	4.15%	61.5	4.27%
2032	662.0	0.18%	61.5	4.13%	64.2	4.25%
2033	663.1	0.17%	64.0	4.13%	66.8	4.16%

[1] Administration-Legislative Consensus Long-Term Forecast (Calendar Years 2022-2032). These figures were prepared by EPR, as of October 13, 2022.

On the following page are EPR's 2022 economic projections as compared to its 2021 economic projections. As shown, the 2022 projections show a slight increase in population in all years of the forecast. Furthermore, the forecast for nominal personal income also display an increase for the forecast period. The 2022 revenue projections, which now include the comparison of the General Fund and Transportation Fund revenue, as well as the Property Transfer Tax revenue are higher throughout the forecast period. The high positive variance in the later years is more a function of the conservative nature of the 2021 forecast, as it was done at a time of uncertainty regarding the path of the pandemic. In correlation to the projected revenues, 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 higher share of the State's personal income for government operations for the majority of projection years, however, there were slight decreases for years 2024 through 2026.

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STATE OF VERMONT
POPULATION, PERSONAL INCOME AND REVENUE PROJECTIONS
2022 COMPARED TO 2021 PROJECTIONS

Population
(Thousands)

Year	2021	2022	Change	% Change
2022	645.72	647.76	2.03	0.32%
2023	646.76	649.64	2.88	0.45%
2024	647.73	651.39	3.66	0.57%
2025	648.63	652.95	4.32	0.67%
2026	649.67	654.39	4.72	0.73%
2027	650.65	655.76	5.12	0.79%
2028	651.56	657.08	5.52	0.85%
2029	652.40	658.32	5.92	0.91%
2030	653.19	659.58	6.39	0.98%
2031	653.97	660.76	6.79	1.04%
2032	654.75	661.95	7.20	1.10%
2033		663.08	n.a.	n.a.

Nominal Dollar Personal Income
(Millions)

Year	2021	2022	Change	% Change
2022	38,330.99	39,390.87	1,059.88	2.77%
2023	40,094.22	41,636.15	1,541.93	3.85%
2024	41,898.45	43,926.14	2,027.68	4.84%
2025	43,741.99	45,946.32	2,204.33	5.04%
2026	45,622.89	47,990.49	2,367.60	5.19%
2027	47,630.30	50,056.95	2,426.65	5.09%
2028	49,773.66	52,192.56	2,418.89	4.86%
2029	51,963.70	54,406.05	2,442.35	4.70%
2030	54,146.18	56,694.28	2,548.10	4.71%
2031	56,312.03	59,048.13	2,736.10	4.86%
2032	58,564.51	61,484.09	2,919.58	4.99%
2033		64,024.99	n.a.	n.a.

General Fund, Transportation Fund, TIBs and Property Transfer Tax Revenue[1]
(Millions)

Year	2021	2022	Change	% Change
2022	2,171.65	2,419.89	248.23	11.43%
2023	2,229.21	2,363.57	134.36	6.03%
2024	2,270.86	2,282.22	11.36	0.50%
2025	2,313.36	2,364.32	50.96	2.20%
2026	2,366.03	2,455.05	89.02	3.76%
2027	2,423.56	2,559.97	136.41	5.63%
2028	2,483.97	2,658.02	174.06	7.01%
2029	2,544.97	2,755.54	210.57	8.27%
2030	2,611.10	2,853.68	242.58	9.29%
2031	2,677.06	2,953.88	276.82	10.34%
2032	2,743.27	3,054.11	310.84	11.33%
2033		3,156.74	n.a.	n.a.

General Fund, Transportation Fund and Property Transfer Tax Revenue as a Percent of Nominal Personal Income[1]

Year	2021	2022	Change	% Change
2022	5.67%	6.14%	0.48%	8.43%
2023	5.56%	5.68%	0.12%	2.10%
2024	5.42%	5.20%	-0.22%	-4.14%
2025	5.29%	5.15%	-0.14%	-2.70%
2026	5.19%	5.12%	-0.07%	-1.36%
2027	5.09%	5.11%	0.03%	0.51%
2028	4.99%	5.09%	0.10%	2.05%
2029	4.90%	5.06%	0.17%	3.41%
2030	4.82%	5.03%	0.21%	4.38%
2031	4.75%	5.00%	0.25%	5.23%
2032	4.68%	4.97%	0.28%	6.04%
2033		4.93%	n.a.	n.a.

[1] Represents TIB's revenue forecast for fiscal year 2021 from the Administration-Legislative Consensus Long-Term Forecast (Calendar Years 2022-2032) as of September 6, 2021. TIBs revenue for fiscal years 2022 through 2033 are no longer included due to the 2022 TIBs defeasance.

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3. DEBT GUIDELINES

For a number of years Vermont has pursued a strategy to achieve a triple-A rating from all three nationally recognized credit rating agencies. To facilitate this goal, CDAAC and the State have employed conservative debt load guidelines that are consistent with the measures that the rating agencies use to measure debt burden. The most common 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 primary 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 because 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." Additionally, as described further, CDAAC utilized Debt Per Capita as a guideline; however, since it is not a strong indicator of affordability, the guideline has been reviewed and analyzed, but it is not a limiting 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. Over the past year since the publication of the 2021 CDAAC Report, Idaho was upgraded by Moody's and Fitch 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. Therefore, the majority of the debt medians for the Peer Group declined as well. However, in 2022 slightly increased debt levels so Vermont's relative position slightly improved or stayed static. This year, the Peer Group's median Debt Per Capita increased from $581 in 2021 to $684 in 2022, median Debt as a Percentage of Personal Income remains unchanged at 1.2% in 2021 and 2022 and median Debt as a Percentage of Gross State Product remains unchanged at 1.1% in 2021 and 2022. Vermont modestly increased its debt levels similar to the majority of the Peer Group from the prior year. As a result, Vermont's slightly increased debt levels helped the State's relative rankings stay consistent. If the State authorizes large increases in debt levels in future years, it is at greater risk of continual declines in its relative ranking to its triple-A Peer Group.

Debt Per Capita

The Committee considers a guideline of the State's performance versus 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 $974 and the 5-year average of the median of the Peer Group is $633. Based on data from Moody's, Vermont's 5-year average debt per capita figure is $1,095, 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 since 2012.

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, the State's relative position from 2014 through 2021 slipped from 30th to 24th, but in 2022, the State slightly improved its ranking to the 25th position. Rankings are in numerically descending order, with the state having the highest debt per capita ranked 1st and the lowest ranked 50th.

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.

CDAAC currently uses an inflator of 2.7% or 90% of an assumed 3% inflation rate, which in turn has been a reasonable assumption for long-term consumer price inflation. While this is significantly below recent levels of year-over-year consumer price inflation (at the time of this Report, 8.3% as of August 2022), the 10-year compounded CPI is still 2.6%. Should inflation remain elevated for an extended period, however, it would be reasonable to revisit the inflator in the future.

Debt as a Percent of Personal Income

The Committee also adopted a guideline for the State to equal or perform better than the 5-year mean and 5-year median of the Peer Group on the basis of debt as a percent of personal income. At present, the target is 1.8% for the median respectively (the five-year average of Moody's Mean and Moody's Median for the Peer Group is 1.8% and 1.3%, respectively). Based on data from Moody's, Vermont's net tax supported debt as a percent of personal income is 2.0%, which is slightly higher 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 information. According to Moody's, the State's relative position slipped from 34th in 2014 to 26th in 2021, where it remained in 2022.

Debt Service as a Percentage of Revenues

This guideline is an absolute number versus a mean or median relative to triple-A rated states. CDAAC's adopted standard is a ratio of no greater than 6% for annual Long-Term Net Tax-Supported Debt service as a percent of the annual aggregate of the General and Transportation Fund revenues, as well as the dedicated property transfer tax revenues associated with the VHFA Property Transfer Bonds. At present, this ratio equals approximately 3.7%, as can be seen within the table titled "Historic and Projected Debt Ratios." Vermont's debt service as a percentage of revenues has improved from 4.7% in 2014 to 3.7% in 2022. While 4.0% is well below the 6.0% target, this ratio increased quickly during the Great Recession, from 5.0% in 2008 to 5.7% in 2010, and CDAAC believes from this historical experience that a meaningful cushion against a similar future increase is appropriate for its final recommendation.

In terms of the debt service projections provided in the table titled "Historic and Projected Debt Ratios," the analysis assumes future interest rates (coupons) on pro forma G.O. bond issues at 5.0% in fiscal year 2023 through 2033.

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 1.2%, is substantially lower than the CDAAC guideline, and results in Vermont's comparatively high (favorable) Moody's ranking of 41st out of the 50 states. (In 2022, Moody's discontinued its median for Debt Service Ratio when Moody's combined its debt median report with its new pension and OPEB liability median report. See Appendix B hereto.)

The fiscal year 2019 Appropriations Act (Act 11) updated the funding allocation among the State's General Fund and Education Fund. Prior to Act 11, the State provided appropriations within the General Fund and transferred the respective allocation to the Education Fund. Following Act 11, the State allocates 100% of Sales and Use Tax and 25% of Meals and Rooms Tax directly to the Education Fund. To keep projections comparable to historical fund figures, the 2018 and 2019 CDAAC Reports utilized the revenue calculations in place prior to Act 11, i.e., as if there had been no revenue reallocation between the General Fund and Education Fund. However, the 2020 CDAAC Report included post-Act 11 General Fund Revenue, as well as the motor vehicle and diesel fuel assessments associated with the TIBs and the dedicated property transfer tax revenues associated with the VHFA Property Transfer Bonds. Because the State redeemed the TIBs earlier in 2022, this year's CDAAC Report will exclude the motor vehicle and diesel fuel assessments previously associated with the TIBs.

Debt as a Percent of Gross State Product

The 2022 Moody's mean and median for debt as a percentage of gross state product for the Peer Group is 1.6% and 1.1%, 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 2022 statistics based on 2021 net tax supported debt as a percentage of 2020 state gross domestic product.) Based on data from Moody's, Vermont's 2021 net tax supported debt as a percentage of gross state product is 2.1%, which is higher than the median and the mean for the Peer Group states and the five-year average of the mean and the median of 1.6% and 1.1% for the Peer Group, respectively. According to Moody's, the State's relative position among states has slipped from 30th in 2014 to 25th in 2021 and 2022.

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STATE OF VERMONT
2022 STATES RATED TRIPLE-A BY TWO OR MORE RATING AGENCIES
(as of September 30, 2022)

2022 Triple-A Rated States(1)	Moody's	S&P	Fitch
Delaware	Yes	Yes	Yes
Florida	Yes	Yes	Yes
Georgia	Yes	Yes	Yes
Idaho(2)	Yes	No	Yes
Indiana(3)	Yes	Yes	Yes
Iowa(3)	Yes	Yes	Yes
Maryland	Yes	Yes	Yes
Minnesota(4)	Yes	Yes	Yes
Missouri	Yes	Yes	Yes
North Carolina	Yes	Yes	Yes
South Carolina	Yes	No	Yes
South Dakota	Yes	Yes	Yes
Tennessee	Yes	Yes	Yes
Texas	Yes	Yes(3)	Yes
Utah	Yes	Yes	Yes
Virginia	Yes	Yes	Yes
VERMONT(5)	No	No	No

(1) Sixteen states are currently rated triple-A by two or more of the nationally recognized rating agencies as of September 30, 2022.

(2) Fitch upgraded Idaho on November 4, 2021 and Moody’s upgraded Idaho on February 3, 2022.

(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) Minnesota was upgraded to Aaa by Moody’s on July 29, 2022.

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

STATE OF VERMONT
MEAN DEBT RATIOS COMPARISON

Per Capita	2018	2019	2020	2021	2022
All States	$1,477	$1,493	$1,506	$1,535	$1,872
Triple-A[1]	929	958	950	962	1,070
VERMONT	**987**	**1,140**	**1,061**	**1,102**	**1,185**

% of Personal Income	2018	2019	2020	2021	2022
All States	2.9%	2.8%	2.6%	2.5%	3.0%
Triple-A[1]	2.0	1.9	1.7	1.7	1.8
VERMONT	**2.0**	**2.2**	**1.9**	**1.9**	**2.0**

(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: $974 MEDIAN: $633
5-Year Average Vermont: $1,095

				Moody's Debt Per Capita				
Triple-A Rated States[1]	**Moody's Ratings[2]**	**S&P Ratings[2]**	**Fitch Ratings[2]**	**2018**	**2019**	**2020**	**2021**	**2022**
Delaware	Aaa/Stable	AAA/Stable	AAA/Stable	2,587	3,206	3,289	3,400	4,143
Florida	Aaa/Stable	AAA/Stable	AAA/Stable	889	812	780	710	756
Georgia	Aaa/Stable	AAA/Stable	AAA/Stable	986	996	971	987	1,087
Idaho	Aaa/Stable	AA+/Stable	AAA/Stable	482*	506*	540*	490*	464
Indiana	Aaa/Stable	AAA/Stable	AAA/Stable	295	270	251	233	217
Iowa	Aaa/Stable	AAA/Stable	AAA/Stable	219	207	150	157	408
Maryland	Aaa/Stable	AAA/Stable	AAA/Stable	2,164	2,343	2,323	2,410	2,818
Minnesota	Aa1/Stable	AAA/Stable	AAA/Stable	1,430	1,415	1,406	1,400	1,462
Missouri	Aaa/Stable	AAA/Stable	AAA/Stable	532	487	464	413	398
North Carolina	Aaa/Stable	AAA/Stable	AAA/Stable	611	531	586	581	686
South Carolina	Aaa/Stable	AA+/Stable	AAA/Stable	517	503	469	415	435
South Dakota	Aaa/Stable	AAA/Stable	AAA/Stable	694	618	493	482	561
Tennessee	Aaa/Stable	AAA/Stable	AAA/Stable	312	305	292	266	285
Texas	Aaa/Stable	AAA/Stable	AAA/Stable	410	389	379	365	682
Utah	Aaa/Stable	AAA/Stable	AAA/Stable	772	792	720	866	899
Virginia	Aaa/Stable	AAA/Negative	AAA/Stable	1,515	1,502	1,677	1,746	1,823
MEAN[3]				**929**	**958**	**950**	**962**	**1,070**
MEDIAN[3]				**694**	**618**	**586**	**581**	**684**
VERMONT	Aa1/Stable	AA+/Stable	AA+/Stable	**987**	**1,140**	**1,061**	**1,102**	**1,185**

(1) States that carry at least two triple A ratings.
(2) Ratings as of September 30, 2022.
(3) These calculations exclude all Vermont numbers.
* Indicates that the state was not rated triple-A by 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.

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STATE OF VERMONT
DEBT AS % OF PERSONAL INCOME COMPARISON

Peer Group States (All states with at least two triple-A ratings)
5-Year Average Mean and 5-Year Average Median Excluding Vermont:
MEAN: 1.8% MEDIAN: 1.3%
5-Year Average Vermont: 2.0%

Triple-A Rated States	Moody's Debt as % of 2020 Personal Income				
	2018	2019	2020	2021	2022
Delaware	5.5	6.5	6.1	6.0	7.0
Florida	2.4	1.7	1.5	1.3	1.2
Georgia	2.0	2.3	2.0	1.9	2.0
Idaho	1.2*	1.2*	1.2*	1.0*	0.9
Indiana	0.7	0.6	0.5	0.5	0.4
Iowa	0.5	0.4	0.3	0.3	0.7
Maryland	3.7	3.8	3.5	3.5	4.1
Minnesota	2.8	2.6	2.4	2.3	2.2
Missouri	1.2	1.1	0.9	0.8	0.7
North Carolina	1.5	1.2	1.2	1.2	1.2
South Carolina	1.3	1.2	1.0	0.9	0.8
South Dakota	1.5	1.3	0.9	0.8	0.9
Tennessee	0.7	0.7	0.6	0.5	0.5
Texas	0.9	0.8	0.7	0.7	1.1
Utah	1.9	1.9	1.5	1.7	1.6
Virginia	2.9	2.7	2.8	2.8	2.8
MEAN[1]	**2.0**	**1.9**	**1.7**	**1.7**	**1.8**
MEDIAN[1]	**1.5**	**1.3**	**1.2**	**1.2**	**1.2**
VERMONT	**2.0**	**2.2**	**1.9**	**1.9**	**2.0**

(1) These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the rating agencies during the periods shown, as of September 30, 2022.

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

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

Peer Group States (All states with at least two triple-A ratings)
5-Year Average Mean and 5-Year Average Median Excluding Vermont:
MEAN: 1.6% MEDIAN: 1.1%
5-Year Average Vermont: 2.0%

Triple-A Rated States	Moody's Debt as % 2020 Gross State Domestic Product 2018	2019	2020	2021	2022
Delaware	3.5	4.3	4.3	4.4	5.1
Florida	2.0	1.8	1.5	1.4	1.3
Georgia	1.9	1.9	1.7	1.7	1.7
Idaho	1.2*	1.2*	1.2*	1.1*	0.9
Indiana	0.6	0.5	0.5	0.4	0.4
Iowa	0.4	0.4	0.2	0.3	0.6
Maryland	3.4	3.6	3.3	3.5	4.0
Minnesota	2.4	2.3	2.1	2.1	2.0
Missouri	1.1	1.0	0.9	0.8	0.7
North Carolina	1.2	1.0	1.0	1.1	1.1
South Carolina	1.2	1.2	1.0	0.9	0.8
South Dakota	1.3	1.1	0.8	0.8	0.8
Tennessee	0.6	0.6	0.5	0.5	0.5
Texas	0.7	0.7	0.6	0.6	1.0
Utah	1.5	1.5	1.2	1.4	1.4
Virginia	2.6	2.5	2.6	2.7	2.7
MEAN[1]	**1.6**	**1.6**	**1.5**	**1.5**	**1.6**
MEDIAN[1]	**1.3**	**1.2**	**1.0**	**1.1**	**1.1**
VERMONT	**2.0**	**2.2**	**1.9**	**2.1**	**2.1**

(1) These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the rating agencies during the periods shown, as of September 30, 2022.

*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]									
2011	747	1,066	37	1.9	2.8	36	5.1	4.9	n.a.
2012	792	1,117	34	2.0	2.8	36	4.9	4.9	n.a.
2013	811	1,074	33	1.9	2.8	35	4.6	4.9	n.a.
2014	878	1,054	30	2.0	2.6	34	4.7	5.1	n.a.
2015	954	1,012	28	2.1	2.5	31	4.2	5.3	n.a.
2016	1,002	1,027	27	2.1	2.5	30	4.2	4.3	n.a.
2017	1,068	1,006	24	2.2	2.5	27	4.3	4.1	n.a.
2018	987	987	25	2.0	2.3	28	4.0	4.2	n.a.
2019	1,140	1,068	25	2.2	2.2	26	4.1	4.1	n.a.
2020	1,061	1,071	26	1.9	2.0	29	4.3	3.8	n.a.
2021	1,102	1,039	24	1.9	1.9	27	4.0	3.9	n.a.
2022	1,185	1,179	25	2.0	2.1	26	3.7	2.1	n.a.
Current [2]	1,070	n.a.	n.a.	1.8	n.a.	n.a.	3.7	n.a.	n.a.
Projected (FYE 6/30) [3]		State Guideline [6]			State Guideline [7]			State Guideline	
2023	1,253	650		2.0	1.8		3.7	6.0	
2024	1,224	668		1.8	1.8		4.5	6.0	
2025	1,193	686		1.7	1.8		4.4	6.0	
2026	1,164	704		1.6	1.8		4.2	6.0	
2027	1,134	723		1.5	1.8		4.0	6.0	
2028	1,103	743		1.4	1.8		3.9	6.0	
2029	1,071	763		1.3	1.8		3.8	6.0	
2030	1,039	783		1.2	1.8		3.6	6.0	
2031	1,007	805		1.1	1.8		3.5	6.0	
2032	985	826		1.1	1.8		3.2	6.0	
2033	961	849		1.0	1.8		3.1	6.0	
5-Year Average of Moody's Mean for Triple-A States		974			1.8			n.a.	
5-Year Average of Moody's Median for Triple-A States		633			1.3			n.a.	

Note: Shaded figures in the State's debt per capita projection and State's debt as percentage of personal income, in fiscal years 2023-2033 and fiscal year 2023, respectively represent the period when Vermont is expected to exceed the projected, respective State Guideline consistent with the current guideline calculation methodology and the assumption that the State will issue bonds consistent with the proposed two-year authorization (footnote (3)).

(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, Inc. using outstanding Long-Term Net Tax-Supported Debt of $692.791 million as of 6/30/22 divided by Vermont's 2022 population of 647,758 as projected by EPR.

(3) Projections assume issuance of $185.355 million of G.O. debt in FY 2023 and $54.000 million in FY 2024 through FY 2033.

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

(5) Revenues are aggregate of State's General Fund, including changes related to Act 11 as calculated by EPR, and Transportation Fund, as well as the dedicated property transfer tax revenues associated with the VHFA Property Transfer Bonds. Projected debt service is based on estimated interest rates at 5% over the projected period. Calculated by Public Resources Advisory Group, Inc.

(6) State Guideline equals the 5-year average of Moody's median for the Peer Group of $633 increasing annually at 2.7%.

(7) The 5-year average of Moody's median for the Peer Group is 1.3%. Since the annual number is quite volatile, ranging from 1.3% to 1.9% over the last five years, the State Guideline is 1.8% for FY 2023 - FY 2033.

“Dashboard” Indicators

	Vermont[a]	Median Triple-A States[b]
Long-Term Net Tax-Supported Debt:	$692,791,347	$3,579,190[c]
Debt As A Percent Of Gross State Product:	1.69%	1.1%[c]
Debt Per Capita:	$1,070	$684[c]
Debt As A Percent Of Personal Income:	1.76%	1.2%[c]
Debt Service As A Percent Of Operating Revenue[d]:	3.67%	N/A
Rapidity Of Debt Retirement:	42.9% (In 5 Years)	N/A
	76.7% (In 10 Years)	N/A
	95.1% (In 15 Years)	N/A
	100.00% (In 20 Years)	N/A

(a) Debt statistics for Vermont are as of June 30, 2022. Estimates of FY 2022 Gross State Product, Population, Personal Income and Operating Revenue prepared by EPR.

(b) These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the rating agencies during the periods shown, year ended September 30, 2022.

(c) Source: Moody’s Investors Service, 2022 State Debt, Pension and OPEB Medians Report calculated by Public Resources Advisory Group, Inc.

(d) Aggregate of State’s General Fund, including changes related to Act 11 as calculated by EPR, and Transportation Fund, as well as the dedicated property transfer tax revenues associated with the VHFA Property Transfer Bonds.

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4. NATIONAL CREDIT RATING METHODOLOGIES AND CRITERIA

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

On October 17, 2016, Standard & Poor's updated the final version of its "U.S. State Ratings Methodology." 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 August 2022, S&P's most recent report, Vermont's composite score was 1.9, which is a slight drop from the 2019 report, driven by changes in the State's debt and 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
2.7	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.

Provided on the following page 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	1,023	2
Debt as a % of Personal Income	Below 2%	2% - 4%	1.7%	1
Debt Service as a % of Spending	Below 2%	2%- 6%	2.1%	2
Debt as a % of Gross State Product	Below 2%	2% - 4%	1.8%	1
Debt Amortization (10 year)	80% - 100%	60%-80%	74%	2

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

In regards to pension liabilities, S&P assesses two indicators: (i) three-year average of the pension funded ratio and (ii) pension funding discipline. As described within their methodology, S&P analysis covers changes in assets and liabilities, funded ratios, funding discipline, and unfunded pension liability. S&P considers a state's commitment to funding annual contributions that address the long-term pension liability is a key credit consideration." The scoring of the three-year average of the pension funded ratio is detailed below.

Three-Year Average of Pension Funded Ratio	Indicator	Score
90% or above	Strong	1
80% - 90%	Good	2
60% - 80%	Relatively Low	3
60% or below	Weak	4

*Shaded grey indicates the State's three-year pension funded ratio in accordance with S&P's methodology based on S&P's rating report of the State dated August 19, 2022.

Based on the State's most recent rating report in August 2022, the State's three-year average of the pension funded ratio was 61.1%, which considered relatively low and results in a score of 3.

S&P's review of a state's pension funding discipline includes an assessment of a state's funding policy, specifically reviewing whether it has an actuarial basis, and whether annual contributions usually meet or exceed the actuarially determined levels. S&P also reviews whether total annual plan contributions typically cover certain costs that drive the annual changes in the unfunded pension liability across plans, as well as an estimated annual amortization component of the unfunded liability. S&P also considers management factors and actuarial inputs to inform their assessment of a state's funding discipline.

S&P noted within Vermont's most recent rating report in August 2022, that "Vermont's unfunded pension liabilities as of fiscal 2021 remain significant compared with those of state peers while Vermont's contributions, despite meeting or exceeding actuarially determined funding levels, continue to fall below our calculation of the minimum funding progress needed to reduce the unfunded liability. However, we expect the retirement reform package passed in Vermont's 2022 legislative session will create a structural pathway to begin reducing the state's pension burden."

The last component of the debt and liability profile is a review of other post-employment benefits risks. For this assessment, S&P focuses on the relative level of unfunded OPEB liability compared to other states and the legal and practical flexibility that a state has to adjust these liabilities and the overall strategy to manage the costs of these benefits given the impact to future contribution rates and budgetary requirements.

In S&P's most recent rating report from August 2022, it noted that "While we believe Vermont's OPEB liabilities are significant, we expect the state's recent commitment to begin pre-funding OPEBs will substantially reduce unfunded liabilities over time. Notably, in fiscal 2021, Vermont's unfunded retiree health care liabilities were the fifth highest in the nation compared with personal income, sixth highest in the nation on a per capita basis, and larger than the state's unfunded pension liabilities. We expect Vermont's upcoming transition to pre-funding from pay-as-you-go financing will reduce the state's unfunded OPEB liabilities."

Moody's US States Rating Methodology

On March 22, 2022, Moody's Investors Services released the final version of its "US States and Territories Methodology" to replace its "US States and Territories Rating Methodology," last revised in April 2018.

The new scorecard has the following factors which are independently assessed and assigned scores as follows:

Previously, the Economy factor had two sub-factors: (i) per capita income relative to US average and (ii) nominal gross domestic product. Under the new criteria, the two new sub-factors changed to (i) Resident Income – which adjusts per capita income for regional differences in cost of living (Regional Price Parity (RPP)) compared to US per capita income and (ii) economic growth- which analyzes growth in GDP compared to the US over a five-year period, instead of relative size of GDP (Difference Between Five-Year Compound Annual Growth in Real GDP and Five-Year CAGR for Real US GDP). The economy factor also increased in weighting by 5% to 30%.

Changes to the Financial Performance Factor (previously referred to as Finance factor) include reducing the weighting for this factor to 20% from 30%, but that is primarily because they are moving the fixed cost ratio subfactor to the Leverage Factor and increasing that weighting by a corresponding 10%. Under this factor, they continue to assess fund balance, liquidity and structural balance but they have one blended score rather than individual weighted scores for each subfactor in the prior criteria. However, in the new methodology they have provided greater detail on fund balance targets as a % of revenues for specific rating categories. Also Fund balance now includes all Committed, Assigned and Unassigned Fund Balance of all Governmental Funds and also includes certain restricted and internal service balances.

For the Institutional Framework/Governance factor the weighting in the updated methodology is the same but Moody's expanded the details on items they consider under this factor.

Changes to the Leverage factor (previously referred to as Debt and Pensions) were made to each sub-factor: (i) long-term liabilities ratio and (ii) fixed-costs ratio.

The long-term liability ratio was adjusted to include adjusted net OPEB liability and other long-term liabilities reported on audited financial statements. The denominator for this ratio is now own source revenue rather than GDP and weighting for this subfactor was reduced by 5% from 25% to 20%.

(Debt + Adjusted Net Pension Liability + Adjusted Net OPEB Liability + Other Long-term Liabilities)/
Own-Source Revenue

The fixed cost ratio is now calculated by combining the State's Moody's calculated pension tread water contribution, OPEB actual contributions and implied debt service as a % of a State's own source revenue.

(Pension Tread Water + Actual OPEB Contribution + Implied Debt Service)/
Own-Source Revenue

Moody's intends to calculate an implied debt service for each state rather than actual debt service in order to provide a more comparable measure of annual debt service across states by removing structuring implications from varying approaches to debt amortization and recognizing refunding savings. The calculated implied debt service is based on the 10-year rolling average of high-grade municipal bond index and an assumed level payment assuming a 20-year period. The scoring by rating category is less restrictive for higher rating levels and more restrictive for lower rating levels.

In addition, the new methodology decreased the number of notching factors from six to one with adjustments that can be made in half-notch or whole-notch increments. Notching adjustments may be made for very limited and concentrated economies.

The report also introduces an updated state and territory methodology scorecard that includes "key factors" and "sub-factors," as referred to by Moody's and if applicable, to produce a preliminary scorecard-indicated outcome. The preliminary outcome may be adjusted up or down in half-notch increments, based on now one notching adjustment.

One July 21, 2022 Moody's rated the State under its new methodology and affirmed the State's Aa1 rating and published the State's Aa2 scorecard outcome based on the new methodology. Below is a summary of the State's scorecard changes following the application of the new methodology:

- Economy (30%) - The State's Economy Factor scoring increased primarily because of the increased weighting of 5% for the economy portion of the scorecard.
- Financial Performance (20%) - The Financial Performance factor scoring is a qualitative score. Based on the State's strong fund balance and improved structural balance, this scoring improved to a Aaa from the Aa assessment for Finances in the prior methodology.
- Institutional Framework/Governance 20%) - The State remained in the highest category (Aaa) for Institutional Framework/Governance.
- Leverage (30%) - Vermont's Long Term Liability Ratio declined from Aa to A given that Moody's has included OPEBs in calculation. Moody's fixed cost ratio remained the same at Aa. However, the weighted scoring of both leverage factors slightly improved due to changes to the weighting and scoring distribution.

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Sub-Factor	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
(Debt + Moody's-adjusted Net Pension Liability + Adjusted Net OPEB Liabilities + Other Long-term Liabilities)/ Own-Source Revenue	20%	Less than 100%	100%-200%	200%-350%	350%-500%	500%-700%	700%-900%	900%-1,100%	Greater than 1,100%
Adjusted Fixed Costs / Own-Source Revenue	10%	Less than 10%	10%-15%	15%-20%	20%-25%	25%-35%	35%-45%	45%-55%	Greater than 55%

*Shaded grey indicates the State's respective sub-factor designation in accordance with Moody's updated methodology based on Moody's rating report of the State dated July 21, 2022.

- Notching - The State's positive 0.5 notch for financial stability was removed based on the updated methodology not including positive notching factors.

As demonstrated in the below scorecard, Vermont's Aa1 actual rating did not change but the State's indicative scorecard rating changed from its prior Aa1 indicative outcome to Aa2.

Rating Factors	Factor Weighting	Rating Sub-Factors	Sub-Factor Weighting	State Measure	State Score
Economy	30%	Resident Income (PCI Adjusted for RPP / US PCI)	12.5%	97.7%	Aa
		Economic Growth (5-Year CAGR real GDP – 5-Year CAGR US real GDP)	12.5%	-1.7%	A
Governance	20%		20%	Aaa	
Financial Performance	20%		20%	Aaa	Aaa
Leverage	30%	Long-term Liabilities Ratio (Debt + Moody's-adjusted Net Pension Liability + Moody's adjusted Net OPEB Liability + Other Long-term Liabilities)/Own-Source Revenue	20%	251.0%	A
		Fixed-Costs Ratio (Adjusted Fixed Costs / Own-Source Revenue)	10%	10.4%	Aa
Total	**100%**	**Total**	**100%**		
Notching Factors		Very Limited or Concentrated Economy	**2 to 0**		0
Scorecard-Indicated Outcome					**Aa2**
Assigned Rating					**Aa1**

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Moody's has published a new combined debt, pension and OPEB Medians report in 2022 titled "Debt, pension and OPEB liabilities all up in fiscal 2021," dated September 7, 2022. Vermont's 2020 fixed costs as a percentage of state revenue is 9.1%. Thus, Moody's most recent fixed cost for Vermont is in the "Aaa" category. See "Moody's Adjustment to Pension Data and Adjusted State Pension Liability Medians" herein for additional information regarding Vermont's relative standing to other triple-A states regarding pensions.

Moody's most recent rating report for Vermont, dated July 21, 2022, acknowledges that "Vermont's post-employment liability burden, measured by the combination of our adjusted net pension liability and adjusted net OPEB liability, is the principal component of its leverage. Vermont's pension and OPEB burdens incorporate all liabilities associated with statewide school districts because the state accounts for all primary and secondary education financial activities in its own financial statements. Despite this broad inclusion of liabilities, Vermont's overall long-term liability burden remains much lower than those of the most highly leveraged states."

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. The criteria has been updated a number of times since, most recently on May 26, 2021 but the general framework as outlined below has remain consistent.

Notable aspects of the criteria included 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.

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.

Fitch considers the credit impact of OPEBs in evaluating a government's expenditure framework and operating performance but does not include this liability as part of an issuer's long-term liability burden except in limited cases. Fitch does not view OPEB liabilities akin to debt and net pension.

Please see the guidance table on the following page that outlines general expectations for a given rating category.

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Revenue Framework	**aaa**	**aa**	**a**	**bbb**	**bb**
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
Asymmetric Rating Driver Considerations	The requirement for periodic re-authorization of existing revenue streams is a negative consideration.				
Expenditure Framework	**aaa**	**aa**	**a**	**bbb**	**bb**
Natural Pace of Spending Growth Relative to Expected Revenue Growth (Based on Current Spending Profile)	Slower to equal	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
Asymmetric Rating Driver Considerations	Significant potential funding pressures, including outstanding or pending litigation, internal service fund liabilities and contingent obligations, can be a negative consideration in the expenditure framework assessment.				
Long-Tern Liability Burden	**aaa**	**aa**	**a**	**bbb**	**bb**
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

Asymmetric Rating Driver Considerations	The liability burden assessment can 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	**aaa**	**aa**	**a**	**bbb**	**bb**
Financial Resilience Through Downturns (Based on Interpretation of Scenario Analysis)	Superior 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.
Asymmetric Rating Driver 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.				
Asymmetric Additional Risk Considerations	In addition to the key rating driver assessments discussed above, the final rating assigned also considers certain additional risk factors that may affect the rating conclusion. These additional risk factors work asymmetrically, where only below-standard features are factored into the final rating levels. For U.S. state and local governments, these risk factors are management and economic characteristics that are significantly outside the U.S. norm.				

*Shaded grey indicates the State's respective sub-factor designation in accordance with Fitch's updated methodology based on Fitch's rating report of the State dated April 23, 2021.

Fitch reviews scenarios that considers 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 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, and the AA+ rating was affirmed most recently in April 2021. In the April 2021 report, Fitch scored the State as follows based on the four key rating factors:

Revenue Framework: 'aa'
Expenditure Framework: 'aaa'
Long-term Liability Burden: 'aa'
Operating Performance: 'aaa'

Under long-term liability burden Fitch notes that "Vermont's long-term liabilities burden is above the median for U.S. states but remains moderate. Positively, the state's leadership team maintains close oversight and management of debt issuance, and engages in ongoing efforts to adjust policies to improve retirement liabilities sustainability over time."

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5. ADDITIONAL CREDIT AND AFFORDABILITY CONSIDERATIONS

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

As previously discussed in Section 4, "National Credit Rating Methodologies and Criteria," in recent years Moody's, S&P and Fitch have added other "long-term liabilities" primarily pension and OPEB liabilities as rating factors within each respective rating criteria.

On September 7, 2022, Moody's published its annual state liability report titled "Debt, pension and OPEB liabilities all up in fiscal 2021," which now reports each states' debt, adjusted net pension liability, adjusted net OPEB liability and other long-term liabilities as a % of own-source revenue, among other liability information and comparative ratios.

Moody's pension data reflected on the upcoming pages reflects 2021 data based on 2020 liabilities and utilizes a FTSE Pension Liability Index of 4.48% as a discount rate to value liabilities in standard adjustments.

The following two tables provide Vermont's relative position among the 50 states with respect to its ANPL for fiscal 2020 and fiscal 2021 and a comparison of Vermont and Peer Group states with respect to Moody's pension ratios.

	State of Vermont Rankings	
Moody's Pension Ratios	**2020[1,2]**	**2021[1,3]**
ANPL as % of Personal Income	8	8
ANPL as % of State Gross Domestic Product	7	7
ANPL Per Capita	9	8
ANPL as % of Own-Source Revenue	14	12
Debt + ANPL + ANOL + Other Long-term Liabilities as a % of Own-Source Revenue	N/A	13

Sources: Moody's *Pension and OPEB Liabilities Up Ahead of Decline in 2022,* September 30, 2021.

Moody's *Debt, Pension and OPEB Liabilities All Up in Fiscal 2021,* September 7, 2022.

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

[2] Based on a FTSE Pension Liability Index of 2.84%.

[3] Based on a FTSE Pension Liability Index of 4.48%.

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

Triple-A Rated States	Moody's Adjusted Net Pension Liability (ANPL)[1]			
	As % of PI	As % of State GDP	Per Capita ($)	As % of Revenues
Delaware	12.1	10.3	8,317	108
Florida	2.4	2.6	1,447	55
Georgia	2.4	2.1	1,348	47
Idaho	3.3	3.4	1,689	41
Indiana	5.4	4.9	3,021	84
Iowa	2.8	2.3	1,604	42
Maryland	15.8	15.4	10,918	218
Minnesota	3.9	3.5	2,542	44
Missouri	4.9	4.6	2,713	105
North Carolina	2.6	2.3	1,414	41
South Carolina	13.8	13.8	7,201	197
South Dakota	2.8	2.6	1,788	53
Tennessee	2.4	2.2	1,342	39
Texas	10.0	8.9	5,954	189
Utah	3.1	2.6	1,703	42
Virginia	2.7	2.6	1,760	42
MEAN[2]	**5.7**	**5.3**	**3,423**	**84**
MEDIAN[2]	**3.2**	**3.0**	**1,774**	**50**
VERMONT[3]	20	21.3	11,939	175
VERMONT's 50 STATE RANK[4]	8	7	8	12

Source: Moody's *Debt, Pension and OPEB Liabilities All Up in Fiscal 2021,* September 7, 2022.

[1] Based on a FTSE PLI of 4.48%.

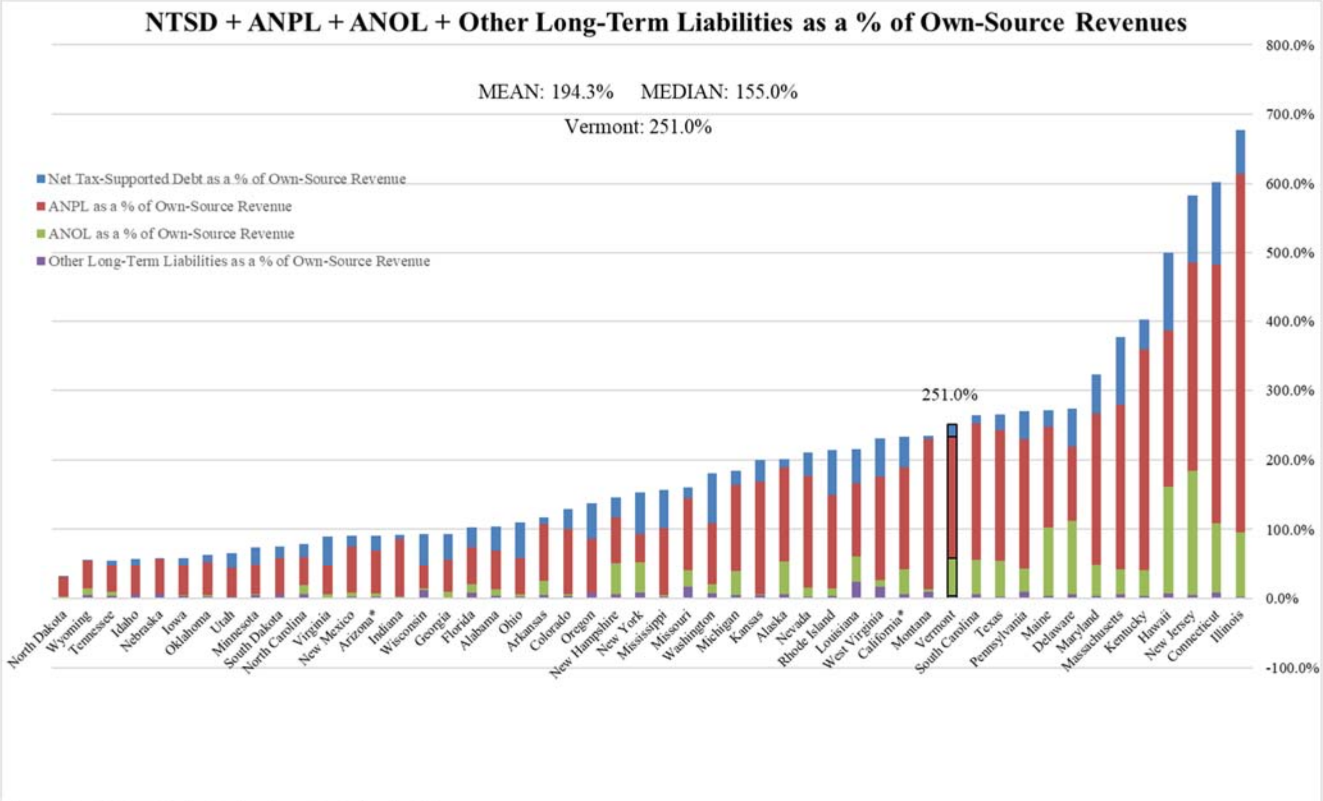
[2] Calculated by Public Resources Advisory Group, Inc. These calculations exclude all Vermont numbers and include only states rated triple-A by two or more of the rating agencies, year ended June 30th, 2020.

[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,” the updated methodology now includes a “Leverage” factor with a weight of 30% and now includes adjusted OPEB liabilities and other long-term liabilities along with debt and pensions. As can be seen in the table below, Vermont is currently ranked 13th out of the 50 states in regards to the new long-term liabilities ratio (higher ranked numbers are superior). Please see below for a chart comparing Moody’s new long-term liabilities ratio compared to the other 49 states.



NTSD + ANPL + ANOL + Other Long-Term Liabilities as a % of Own-Source Revenues

Source: Moody's State Pension Medians Report September 30, 2021

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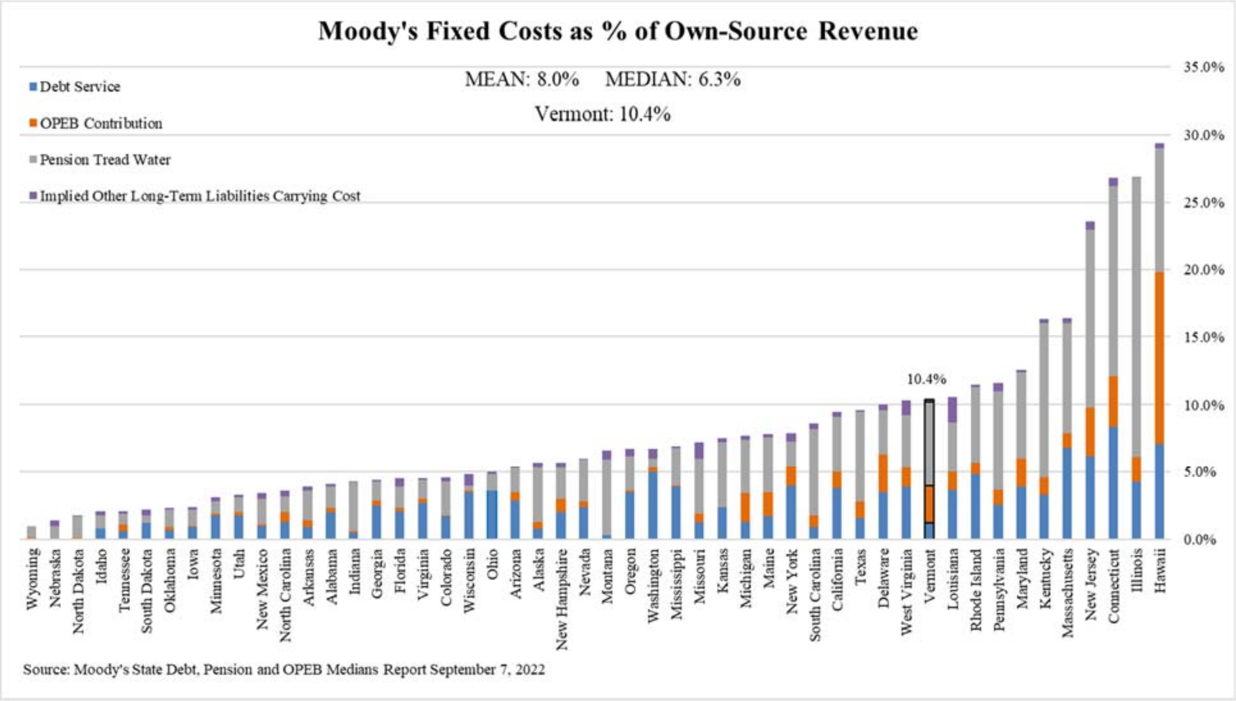
Moody's -- Review of State and Local Budget Capacity

Moody's have raised 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.

Moody's Fixed Cost Ratio, which was also previously discussed, is a ratio now within the "Leverage" factor that compares implied debt service, OPEB contributions and pension tread water costs to state own-source revenue. 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.


Moody's Fixed Costs as % of Own-Source Revenue

Source: Moody's State Debt, Pension and OPEB Medians Report September 7, 2022

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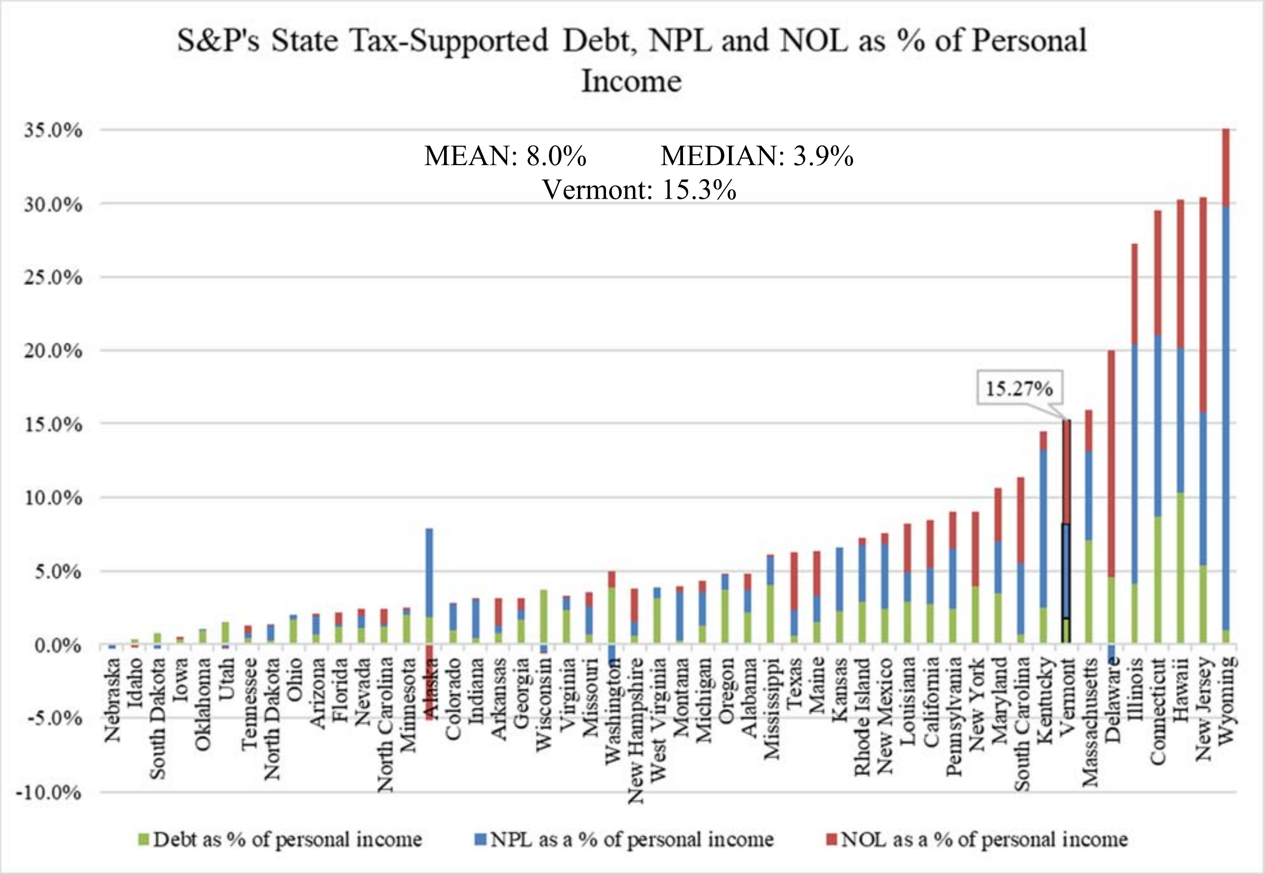
S&P State Liability Information

Recently, S&P published a report titled "Market Swings Could Signal Contribution Volatility For U.S. State Pensions and OPEBs" on August 3, 2022. The report suggested that that many states retirement plans achieved significant investment returns in fiscal 2021, however, S&P anticipates that the gains will be erased in fiscal 2022 with the extreme market volatility in fiscal 2022. In addition, the rating agency believes that the market volatility "will spur contribution volatility in future years for some state budgets given complex funding formulars that incorporate plan investment performance." The chart below represents each state's ratio of direct debt, pension liabilities and OPEB liabilities to personal income. Vermont is currently ranked 8th out of the 50 states (note: higher ranked states have less debt, pension liabilities and OPEB liabilities).



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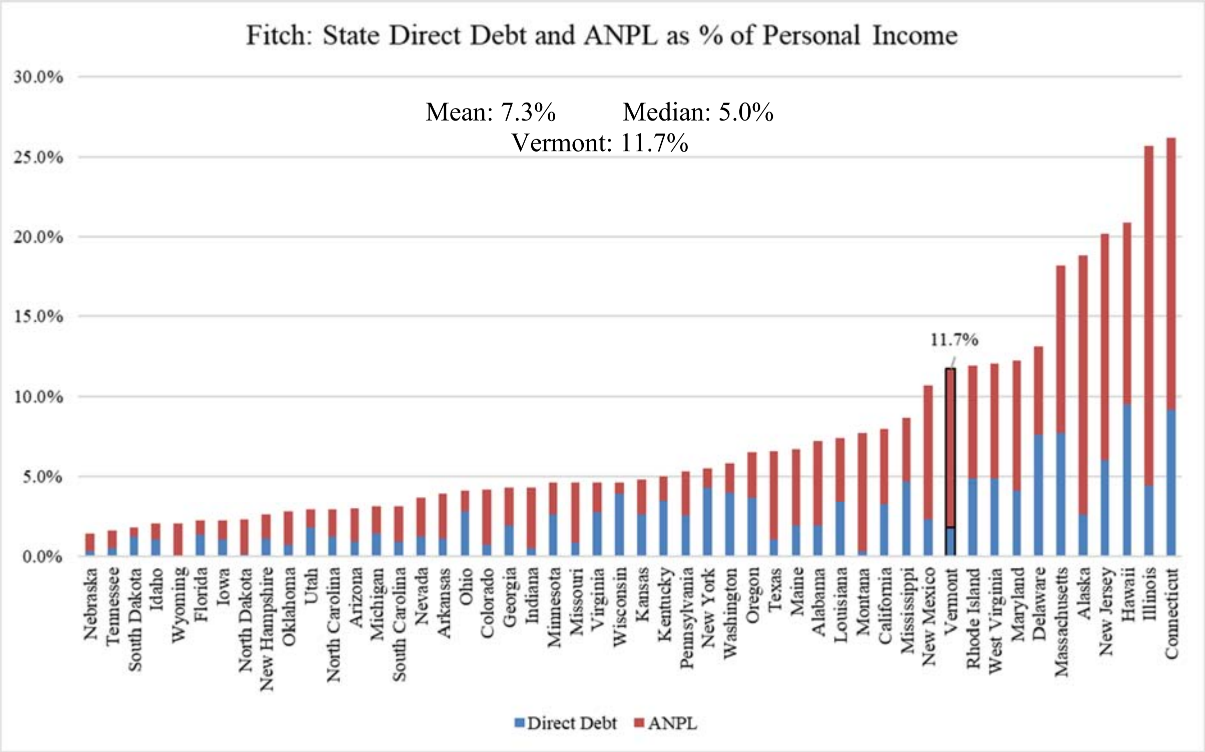
Fitch Annual State Liability Report

Fitch annually publishes a state liability report. In November 2021, Fitch released their report titled "State Liability Burdens Shrink in Fiscal 2020." Fitch recognized the continued decline in state liabilities with surging state personal income. In the chart below, Fitch presents each state's ratio of direct debt and net pension liabilities to personal income. Vermont is currently ranked 12th out of the 50 states (note: higher ranked states have less debt and pension liabilities).



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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. Well-funded rainy-day funds were particularly important for states during the onset of the COVID-19 pandemic to maintain adequate liquidity in order to deliver essential services. 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. Now Moody's considers the level of states fund balance (funds that are classified as unassigned, assigned or committed in the total governmental funds section of a state's or territory's audited financial statements) as one factor in its assessment of a state's Financial Performance score (see Section 4, "National Credit Rating Methodologies and Criteria"). In its updated US States Rating Methodology, Moody's provides expectations for fund balance levels by credit rating category, specifying that triple-A rated state's fund balance should approximate or exceed 15% of revenues and double-A rated state's levels should approximate or exceed 10% of revenues. With respect to the State's rainy day fund balances, in the State's most recent Standard and Poor's report published in August 2022, S&P notes that "strong financial and budget management policies have contributed to consistently good reserve and liquidity levels." The report does note the first-time use of the 27/53 reserve in fiscal 2022. The table below shows the fiscal year 2021, 2022, and 2023 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 2022 and budgeted FY 2023 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 2022	**Fiscal Year 2023**
Appropriations:		
Total General Fund Appropriations	$2,333.38	$2,032.44
State Health Care Resources Fund	17.08	17.08
TOTAL	**$2,350.46**	**$2,049.52**
Reserves:		
Stabilization Reserve	$87.12	$103.06
27/53 Reserve	0.01	3.03
Human Services Caseload Reserve	97.73	97.73
Rainy Day Reserve	80.37	80.37
Other Reserve	0.70	0.70
TOTAL	**$265.93**	**$284.89**
Operating Reserves as a Percentage of Total General Fund Appropriations and Health Care Resources Fund:	11.3%	13.9%

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

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The chart below provides the State's FY2021 actual, FY 2022 estimated and proposed Governor's budgeted FY2023 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** **2021**	**Fiscal** **2022**	**Fiscal** **2023**
Delaware	5.6	5.5	4.6
Florida	4.6	6.3	8.1
Georgia[1]	15.7	15.7	15.7
Idaho	19.0	20.9	24.1
Indiana	7.3	9.0	8.7
Iowa	10.3	10.1	11
Maryland	3.3	5.5	13.9
Minnesota	11.7	12.1	9.2
Missouri	6.2	7.3	5.7
No. Carolina	8.3	12.0	15.8
So. Carolina	6.5	6.6	6.7
So. Dakota	20.3	11.7	11.4
Tennessee	10.0	8.8	7.7
Texas	20.2	15.6	21.5
Utah	10.4	10.0	9.8
Virginia[2]	6.6	9.1	9.1
Median[3]	9.2	9.6	9.5
VERMONT	24.7	19.6	21.6

Source: "The Fiscal Survey of States, Spring 2022. A report by the National Governors Association and the National Association of State Budget Officers." Fiscal Year 2021 are "Actuals," Fiscal Year 2022 are "Estimated" and Fiscal 2023 are 'Recommended."

[1] Information for Georgia's FY 2022 and FY 2023 rainy day fund balance was not provided in the reports. Rainy day fund balance was assumed to stay constant at the FY 2021 level.

[2] Information for Virginia's FY 2023 rainy day fund balance was not provided in the reports. Rainy day fund balance was assumed to stay constant at the FY 2022 level.

[3] Calculated by Public Resources Advisory Group, Inc. These calculations exclude all Vermont numbers and include only states rated triple-A by any two of the three rating agencies, as of September 30, 2022.

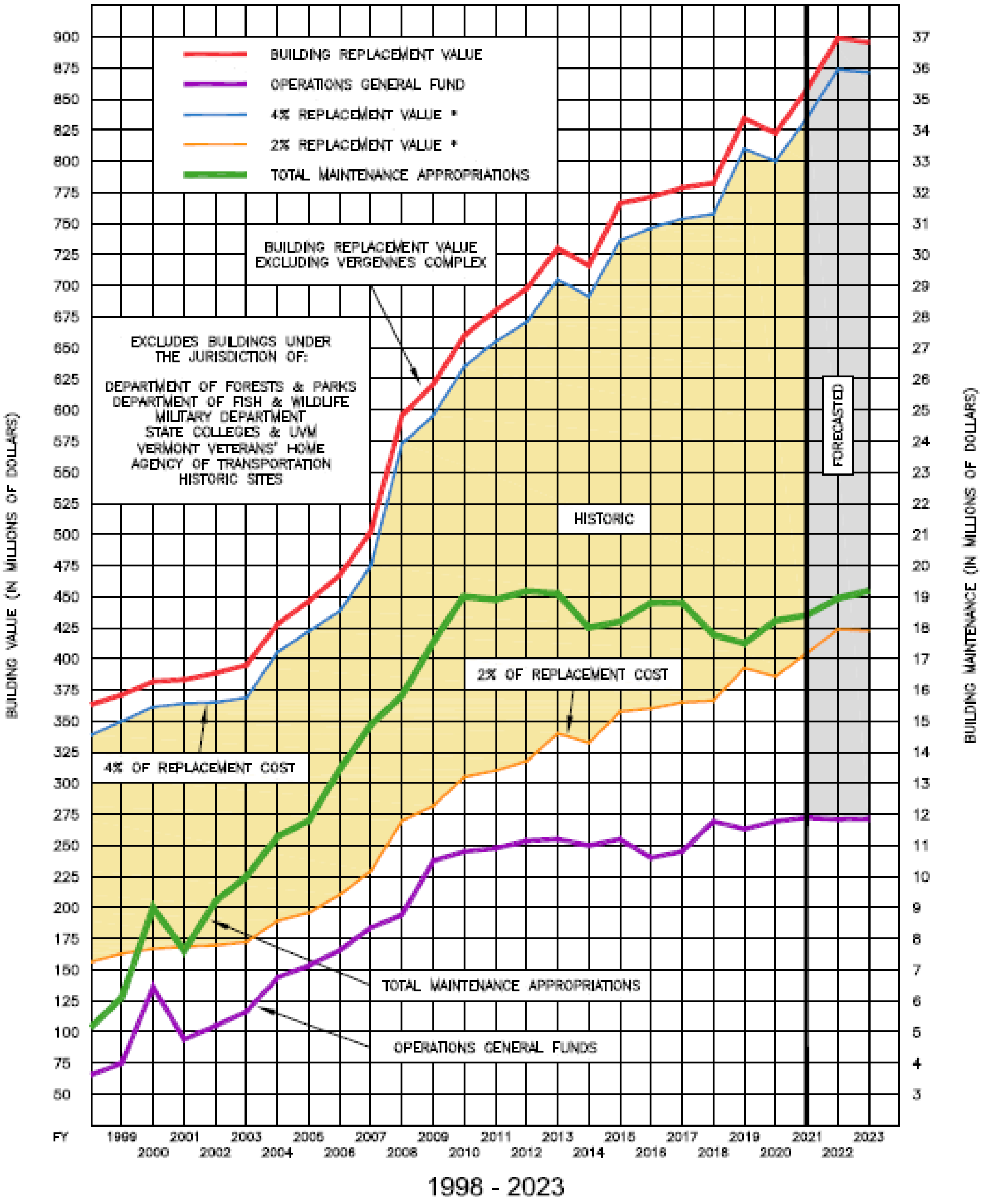
Capital Planning Program

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.

Moody's began publishing the Capital Asset Depreciation Ratio (Accumulated Depreciation divided by Gross Depreciable Assets) as part its annual medians in 2020. The higher the ratio, the more a state may have a pressing debt issuance need for infrastructure investment. The current peer state median is 48% versus Vermont's ratio of 47%.

With the passage of 32 V.S.A. § 310 and as amended in 2019, the Administration prepared a ten-year State capital program plan. The statute requires the plan to include a list of all recommended projects in the current fiscal year, plus the following nine fiscal years thereafter and an assessment, projection of capital needs, a comprehensive financial assessment, and an estimated cost of deferred infrastructure maintenance in State building and facilities. The working group that CDAAC established to evaluate the best use of bond premium and the benefits of the State increasing its Pay-go funds has been tasked with reviewing the capital budget and 10-year capital program to provide suggestions for funding deferred maintenance. In 2021, the working group reviewed the Governor's Fiscal Year 2022-23 Proposed Capital Budget (the "Proposed CIP") which outlined a 10-year capital project list aggregating to $772.08 million. The Proposed CIP document references the American Public Works Association's position that annual maintenance spending should be between 2% to 4% of building replacement value in order to adequately maintain infrastructure. The Proposed CIP also includes an analysis of the State's historical operating budget for maintenance and major maintenance spending, as well as, projected State maintenance spending for the 2022-23 biennium versus building replacement value. The State's annual maintenance spending has been relatively stable since 2009 and in recent years has been trending slightly above 2% of the State's building replacement value which is on the low end of the spectrum of what is needed to maintain the State's infrastructure. The State's operating budget for maintenance is $11.826 million for FY 2022 which covers salaries and routine maintenance and the Proposed CIP requests $7.098 million for FY 2022 and $7.347 million for FY 2023 for statewide major maintenance and also includes a like amount in each of the remaining planning years in the 10-year program. The biennial amount proposed by the Governor was included by the Legislature in the authorized 2021 Capital Bill (Act 50). The chart and table included within the Proposed CIP regarding this respective historical and projected maintenance appropriations can be viewed on the following page.

BUILDINGS AND GENERAL SERVICES
BUILDINGS MAINTENANCE APPROPRIATIONS - FY22 / FY23



* TOTAL MAINTENANCE APPROPRIATIONS SHOULD BE BETWEEN 2% – 4% OF THE TOTAL BUILDING REPLACEMENT VALUE (SHADED AREA) IN ORDER TO PROPERLY MAINTAIN THE INFRASTRUCTURE ACCORDING TO THE AMERICAN PUBLIC WORKS ASSOCIATION. (SEE PUBLICATION: SPECIAL REPORT 3 60 – COMMITTING TO THE COST OF OWNERSHIP.)

** OPERATIONS = 40% X FEE FOR SPACE COST (TOTAL)

*** CONSIDERS LOSSES AT WATERBURY STATE COMPLEX

FISCAL YEAR (FY)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
MAJOR MAINTENANCE (x100)	8,000	7,900	7,000	7,000	8,210	8,000	6,000	6,000	6,500	6,500	7,098	7,347
OPERATION GNRL. FUND (x100)	11,160	11,200	10,983	11,203	10,601	10,800	11,746	11,513	11,741	11,878	11,826	11,849
TOTAL MAINT. APPRO. (x100)	19,160	19,100	17,983	18,203	18,811	18,800	17,746	17,513	18,241	18,378	18,924	19,196
BLDG. REPLACE VALUE (x100)	695,500	730,000	715,885***	765,855	770,850	778,500	782,998	834,540	823,268	858,686	899,171	895,789

REVISED: JANUARY 2021

In order to ensure the State is sufficiently maintaining its infrastructure, the Committee recognizes that the process set forth in 32 V.S.A. § 310 must also incorporate a comprehensive review of current capital stock, its condition, and future replacement needs. Currently, the Agency of Transportation (AOT), is in the process of deploying the Vermont Asset Management System (VAMIS) a State-wide asset management system which will be the system of record for horizontal assets (roads, bridges, etc.). The Department of Buildings and General Services (BGS), the agency responsible for State buildings, is currently implementing a Workplace Integrated Management System (WIMS). The WIMS system will serve as the system of record for all building assets, also known as 'vertical assets,' for the State of Vermont. Together, the systems will assist the State in 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.

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.

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6. 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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7. APPENDICES

A. Full Text of 32 V.S.A. Chapter 13, Subchapter 8, "Management of State Debt"

B. 2022 State Debt, Pension and OPEB Medians (Moody's Investors Service)

C. 2021 Fitch Ratings Credit Report

D. 2022 Moody's Investors Service Credit Report

E. 2022 Standard & Poor's Credit Report

APPENDIX A

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.)

APPENDIX B

MOODY'S
INVESTORS SERVICE

SECTOR PROFILE
7 September 2022

Send Your Feedback

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States – US

Debt, pension and OPEB liabilities all up in fiscal 2021

Pension obligations remained the largest liability for most states by far and increased significantly in fiscal 2021, according to our data on state long-term liabilities. Total net tax-supported debt (NTSD), the second-largest liability for most states, also rose in fiscal 2021, but at a much slower pace. States' ability to service debt, pension, OPEB and other long-term obligations improved in fiscal 2021 as revenue increased following the pandemic lockdowns.

» **Total net tax-supported debt (NTSD) rose to $620 billion in fiscal 2021, representing 43.8% of aggregate own-source revenue.**[1] Total NTSD increased by 3.5% in fiscal 2021. The median ratio of NTSD to personal income was 2.1%.

» **Total adjusted net pension liabilities (ANPL) across states' governmental activities rose 21% to $1.97 trillion, representing 139.3% of aggregate own-source revenue.**Lower interest rates in 2020, the measurement date driving most states' fiscal 2021 pension reporting, contributed to the increase. The median ratio of ANPL to own-source revenue was 92%. Fiscal 2022 ANPLs will decrease because of extraordinary investment returns in 2021.

» **Total adjusted net OPEB liabilities (ANOL) increased to $516.1 billion, representing 36.4% of own-source revenue.** Unfunded other post-employment benefits (OPEB) liabilities are typically smaller than NTSD and ANPL. The median ratio of ANOL to own-source revenue was 11.9% in fiscal 2021.

» **Other long-term liabilities are typically small.** These liabilities include claims and judgments, compensated absences and environmental remediation.

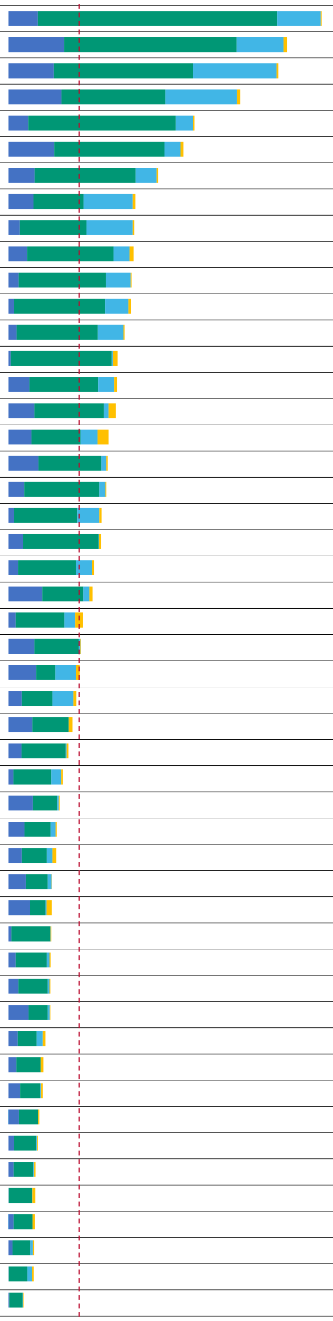
» **States' capacity to service fixed costs improved in fiscal 2021 as revenue surged.** The median ratio of total fixed costs[2] to own-source revenue fell to 6.3% in fiscal 2021.

We have modestly shifted our approach to calculating states' long-term liabilities and fixed costs to align with audited financial statements and our updated US States and Territories Methodology. The changes, reflected beginning in fiscal 2020 in this report, provide more consistency when comparing liabilities across states. This annual report on total state long-term liabilities replaces our previous separate reports on state debt and state pensions and OPEB.

Exhibit 1

Illinois' fiscal 2021 total long-term liabilities relative to state revenue were the highest among states, with North Dakota the lowest

		Fiscal 2021 total long-term liabilities				
State	Issuer Rating	NTSD (billions)	ANPL (billions)	ANOL (billions)	Other long-term liabilities (billions)	NTSD + ANPL + ANOL + other long-term liabilities as % of own-source revenue
Illinois	Baa1	$37.5	$307.0	$56.0	$1.1	676.7%
Connecticut	Aa3	$28.9	$90.2	$24.5	$1.9	602.1%
New Jersey	A2	$50.1	$153.8	$92.3	$2.1	583.2%
Hawaii	Aa2	$9.9	$19.6	$13.5	$0.6	500.3%
Kentucky	Aa3	$7.4	$55.3	$6.4	$0.6	401.9%
Massachusetts	Aa1	$47.7	$115.5	$17.0	$2.9	377.6%
Maryland	Aaa	$17.4	$67.3	$14.1	$0.9	323.1%
Delaware	Aaa	$4.2	$8.3	$8.2	$0.4	274.0%
Maine	Aa2	$1.5	$9.0	$6.2	$0.2	271.2%
Pennsylvania	Aa3	$20.9	$98.5	$18.0	$4.6	270.0%
Texas	Aaa	$20.1	$175.8	$50.1	$1.5	265.6%
South Carolina	Aaa	$2.3	$37.4	$9.6	$1.1	264.5%
Vermont	Aa1	$0.8	$7.7	$2.4	$0.1	251.0%
Montana	Aa1	$0.2	$9.0	$0.1	$0.4	235.4%
California*	Aa2	$96.4	$315.9	$74.8	$12.8	234.4%
West Virginia	Aa2	$4.8	$13.2	$0.9	$1.4	232.0%
Louisiana	Aa2	$8.0	$17.2	$5.9	$3.9	216.0%
Rhode Island	Aa2	$3.4	$7.2	$0.5	$0.2	214.3%
Nevada	Aa1	$2.2	$10.3	$0.8	$0.1	211.0%
Alaska	Aa3	$1.3	$14.6	$5.1	$0.6	201.2%
Kansas	Aa2	$4.1	$22.0	$0.1	$0.6	199.8%
Michigan	Aa1	$8.4	$50.5	$14.2	$1.8	185.0%
Washington	Aaa	$25.0	$30.7	$4.7	$2.4	181.6%
Missouri	Aaa	$2.5	$16.7	$3.7	$2.7	160.5%
Mississippi	Aa2	$5.8	$10.1	$0.3	$0.2	156.5%
New York	Aa1	$76.8	$53.1	$57.2	$10.3	153.6%
New Hampshire	Aa1	$1.2	$2.9	$2.0	$0.3	146.1%
Oregon	Aa1	$11.0	$16.8	$0.1	$1.6	137.8%
Colorado	Aa1	$5.1	$17.2	$0.4	$0.7	129.0%
Arkansas	Aa1	$1.2	$9.5	$2.5	$0.5	117.7%
Ohio	Aa1	$20.2	$20.2	$1.3	$0.9	110.7%
Alabama	Aa1	$5.9	$9.7	$1.8	$0.5	104.0%
Florida	Aaa	$16.5	$31.5	$6.9	$4.8	103.1%
Georgia	Aaa	$11.7	$14.6	$2.5	$0.4	93.7%
Wisconsin	Aa1	$10.8	$7.9	$0.6	$2.7	93.6%
Indiana	Aaa	$1.5	$20.6	$0.2	$0.3	91.9%
New Mexico	Aa2	$2.7	$11.8	$1.0	$0.4	90.7%
Arizona*	Aa1	$4.1	$12.4	$0.8	$0.4	90.6%
Virginia	Aaa	$15.8	$15.2	$1.7	$0.4	90.1%
North Carolina	Aaa	$7.2	$14.9	$4.9	$2.0	79.3%
South Dakota	Aaa	$0.5	$1.6	$0.0	$0.2	75.1%
Minnesota	Aaa	$8.3	$14.5	$0.6	$1.3	74.1%
Utah	Aaa	$3.0	$5.7	$0.0	$0.3	66.0%
Oklahoma	Aa2	$1.6	$6.7	$0.2	$0.3	63.2%
Iowa	Aaa	$1.3	$5.1	$0.2	$0.4	57.9%
Nebraska	Aa1	$0.0	$4.1	$0.0	$0.5	57.7%
Idaho	Aaa	$0.9	$3.2	$0.0	$0.4	56.8%
Tennessee	Aaa	$2.0	$9.4	$1.4	$0.6	55.3%
Wyoming	NR	$0.0	$1.9	$0.5	$0.2	54.6%
North Dakota	Aa1	$0.1	$2.1	$0.1	$0.1	32.2%
Median		**$5.0**	**$14.6**	**$1.9**	**$0.6**	**155.0%**

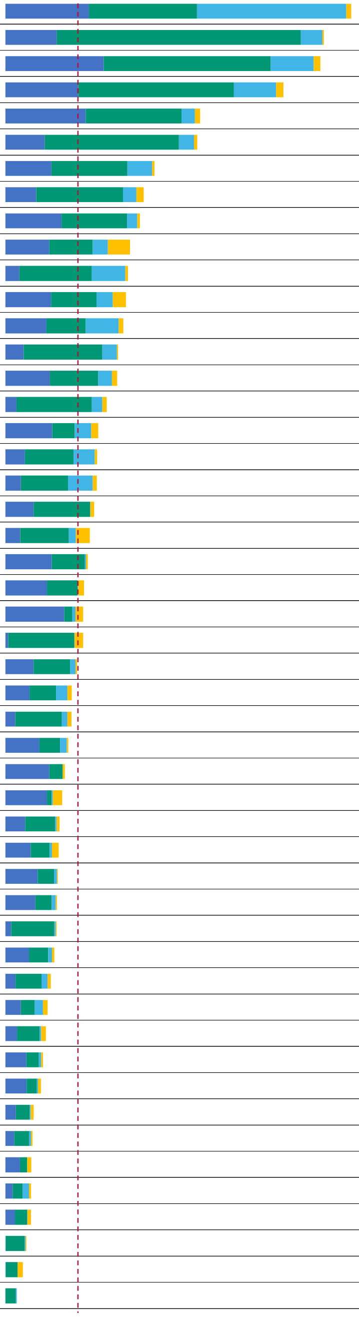


NTSD stands for net tax-supported debt. ANPL stands for adjusted net pension liability. ANOL stands for adjusted net OPEB liability. NR stands for no rating.
*NTSD, ANPL, ANOL and other long-term liabilities reflect fiscal 2020 figures because fiscal 2021 audited financial statements were not available as of the publication of this report.
Sources: State and pension plan audited financial statements and Moody's Investors Service

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

Exhibit 2

Hawaii's fiscal 2021 total fixed costs relative to state revenue were the highest among states, with Wyoming the lowest



		Fiscal 2021 total fixed costs				
State	Issuer Rating	Implied debt service (millions)	Pension tread water payment (millions)	OPEB contribution (millions)	Other long-term liabilities carrying cost (millions)	Implied debt service + pension tread water payment + OPEB contribution + other long-term liabilities carrying cost as % of own-source revenue
Hawaii	Aa2	$618.2	$798.6	$1,102.8	$37.0	29.4%
Illinois	Baa1	$2,578.6	$12,301.8	$1,083.5	$75.6	27.0%
Connecticut	Aa3	$2,018.2	$3,419.5	$886.0	$135.3	26.7%
New Jersey	A2	$3,158.6	$6,761.9	$1,838.5	$309.8	23.6%
Massachusetts	Aa1	$3,306.5	$3,930.8	$556.7	$217.0	16.5%
Kentucky	Aa3	$579.8	$1,971.2	$225.4	$47.8	16.3%
Maryland	Aaa	$1,207.8	$1,982.5	$652.2	$60.2	12.6%
Pennsylvania	Aa3	$1,383.0	$3,865.4	$600.8	$317.9	11.7%
Rhode Island	Aa2	$251.3	$294.1	$45.2	$12.0	11.4%
Louisiana	Aa2	$604.0	$594.9	$210.9	$301.0	10.6%
Vermont	Aa1	$52.0	$270.7	$125.0	$9.6	10.4%
West Virginia	Aa2	$337.4	$336.2	$121.6	$97.0	10.2%
Delaware	Aaa	$268.3	$257.6	$215.5	$29.9	10.0%
Texas	Aaa	$1,460.3	$6,214.5	$1,131.7	$105.3	9.6%
California*	Aa2	$8,079.1	$8,730.0	$2,486.3	$942.6	9.5%
South Carolina	Aaa	$177.1	$1,215.2	$172.4	$69.1	8.6%
New York	Aa1	$5,097.7	$2,449.7	$1,800.0	$764.8	7.9%
Maine	Aa2	$103.7	$256.6	$112.8	$12.8	7.8%
Michigan	Aa1	$528.6	$1,625.5	$850.7	$135.2	7.7%
Kansas	Aa2	$320.1	$642.8	$4.3	$42.1	7.5%
Missouri	Aaa	$199.8	$657.4	$98.5	$185.5	7.2%
Mississippi	Aa2	$413.2	$294.8	$12.3	$14.8	7.0%
Oregon	Aa1	$754.0	$555.8	$11.4	$105.0	6.7%
Washington	Aaa	$1,726.7	$236.8	$91.9	$226.1	6.6%
Montana	Aa1	$10.6	$230.0	$1.1	$28.9	6.6%
Nevada	Aa1	$151.8	$197.7	$27.4	$8.7	6.1%
New Hampshire	Aa1	$88.4	$97.2	$41.6	$15.7	5.6%
Alaska	Aa3	$89.2	$424.3	$50.5	$38.3	5.6%
Arizona*	Aa1	$562.2	$346.1	$107.5	$26.4	5.3%
Ohio	Aa1	$1,436.4	$442.7	$0.0	$63.0	5.0%
Wisconsin	Aa1	$828.4	$92.5	$25.6	$183.7	4.8%
Colorado	Aa1	$304.6	$456.7	$20.4	$46.0	4.6%
Florida	Aaa	$1,240.1	$930.4	$115.1	$331.8	4.5%
Virginia	Aaa	$1,002.8	$507.5	$97.4	$26.0	4.5%
Georgia	Aaa	$789.1	$429.5	$112.8	$27.4	4.4%
Indiana	Aaa	$122.9	$890.6	$32.3	$16.3	4.3%
Alabama	Aa1	$341.2	$281.8	$54.5	$31.7	4.1%
Arkansas	Aa1	$99.2	$255.8	$58.6	$31.2	3.8%
North Carolina	Aaa	$482.2	$434.4	$250.4	$147.8	3.6%
New Mexico	Aa2	$173.3	$338.1	$23.0	$71.5	3.4%
Utah	Aaa	$242.5	$144.1	$27.6	$20.9	3.2%
Minnesota	Aaa	$599.0	$293.1	$29.8	$86.7	3.0%
Iowa	Aaa	$106.6	$142.4	$12.0	$27.2	2.4%
Oklahoma	Aa2	$101.7	$174.3	$24.6	$18.0	2.3%
South Dakota	Aaa	$37.5	$18.6	$0.0	$10.7	2.2%
Tennessee	Aaa	$149.3	$201.5	$132.2	$43.4	2.2%
Idaho	Aaa	$63.7	$81.9	$1.1	$23.5	2.2%
North Dakota	Aa1	$2.5	$116.5	$4.9	$4.4	1.8%
Nebraska	Aa1	$2.3	$81.4	$1.2	$34.8	1.5%
Wyoming	NR	$0.0	$41.1	$4.1	$0.0	1.0%
Median		**$339.3**	**$385.2**	**$94.7**	**$42.8**	**6.3%**

Pension tread water payment definition on page 13. NR stands for no rating.

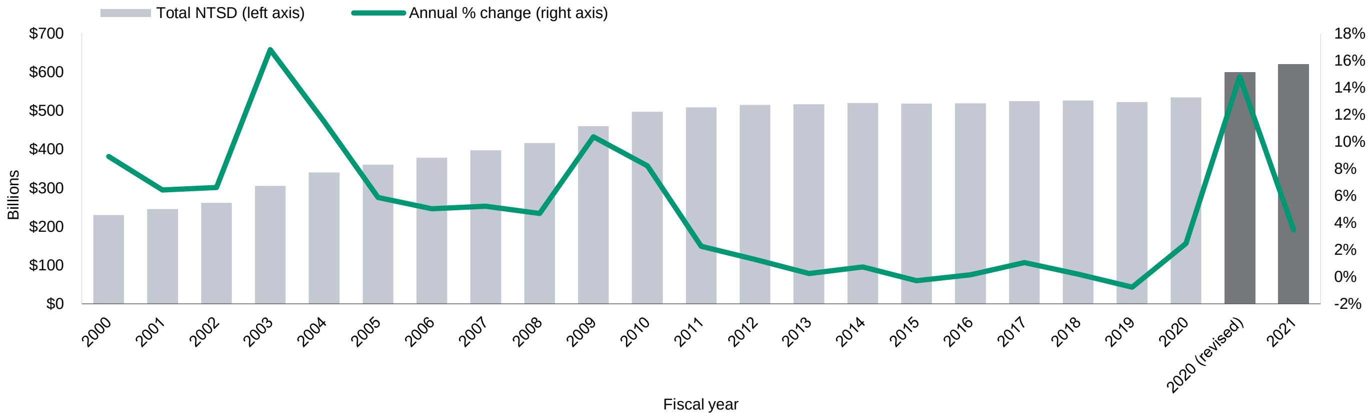
*Fixed costs reflect fiscal 2020 figures because fiscal 2021 audited financial statements were not available as of the publication of this report.

Sources: State and pension plan audited financial statements and Moody's Investors Service

Net tax-supported debt

Exhibit 3

Total state net tax-supported debt (NTSD) increased in fiscal 2021



Fiscal 2020 data has been revised using our new method of calculating states' long-term liabilities, which provides more consistency when comparing liabilities across states; fiscal 2021 data calculated using that method.
Sources: State audited financial statements and Moody's Investors Service

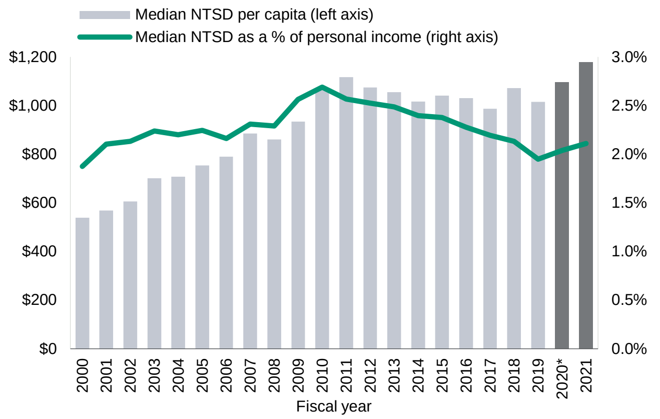
Debt outstanding rose in fiscal 2021

- Total state NTSD grew by 3.5% in fiscal 2021 to $620 billion.
- Total NTSD in fiscal 2020 was $600 billion using our revised data collection process that better aligns with states' audited financial statements. Beginning with the fiscal 2020 revised data, NTSD outstanding going forward will align with each state's fiscal year-end and typically includes all debt reported in a state's governmental activities. In some cases, debt not part of a state's governmental activities will be included as part of the state's NTSD where it is supported by general state tax revenue.
- Our revised calculation of NTSD for fiscal 2020 is nearly 15% greater than previously calculated in part because we now include unamortized bond premiums/discounts and accreted interest in each state's NTSD. Unamortized bond premiums and accreted interest represent long-term liabilities that must be repaid by states.
- North Dakota (Aa1 stable) had the largest percentage increase in NTSD in fiscal 2021, growing by over 250%, but the nominal growth was less than $100 million.
- Alabama (Aa1 stable) borrowed $1 billion for educational infrastructure as its total NTSD grew by 24% in fiscal 2021.
- Hawaii (Aa2 positive), Illinois (Baa1 stable), Massachusetts (Aa1 stable), New Jersey (A2 stable), New York (Aa1 stable), Pennsylvania (Aa3 stable) and Virginia (Aaa stable) also added over $1 billion in debt in fiscal 2021, with percentage increases ranging from 3% in Massachusetts to 15% in Hawaii.
- NTSD declined in 19 states in fiscal 2021. At the end of fiscal 2021, Wyoming (not rated) had the least amount of debt outstanding of all states at only $11.4 million.

Capacity to pay debt

Exhibit 4

NTSD per capita and as a % of personal income grew in fiscal 2021



NTSD stands for net tax-supported debt.
*2020 data has been revised using our new method of calculating states' long-term liabilities, which provides more consistency when comparing liabilities across states; 2021 data calculated using that method.
Sources: State audited financial statements and Moody's Investors Service

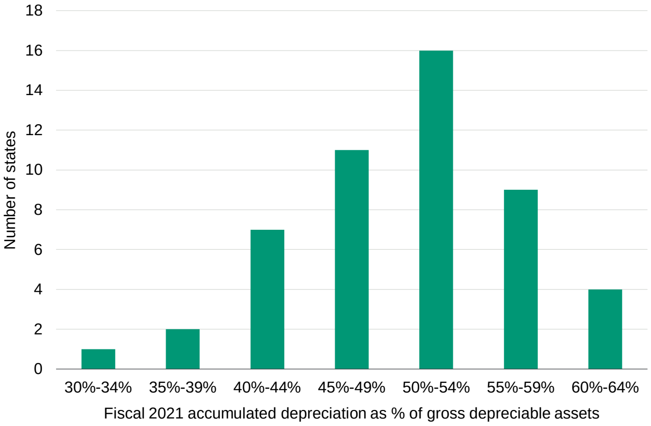
Debt per capita and as % of personal income grew in fiscal 2021

- The median NTSD per capita rose to $1,179 in fiscal 2021 from $1,096 in fiscal 2020.
- States' NTSD per capita ranged from just $19 in Nebraska (Aa1 stable), a state that has issued debt only sparingly, to $8,014 in Connecticut (Aa3 stable), a wealthy state.
- The median NTSD as a percent of personal income was 2.1% in fiscal 2021, up slightly from fiscal 2020.
- Hawaii has the highest NTSD as a percent of personal income (11.4%) and GDP (11.0%) among states.
- Connecticut has the highest NTSD as a percent of own-source revenue at 119.6%.
- Four states have minimal debt outstanding, with less than 5% of NTSD as a percent of own-source revenue: Montana (Aa1 stable), North Dakota, Nebraska and Wyoming.

Future issuance needs

Exhibit 5

States with high capital asset depreciation ratios have a more pressing need to issue debt in the near term for infrastructure investment



Only assets subject to depreciation are incorporated into the capital asset depreciation ratio.
Sources: State audited financial statements and Moody's Investors Service

Some states may face more urgent needs to issue bonds for capital investment

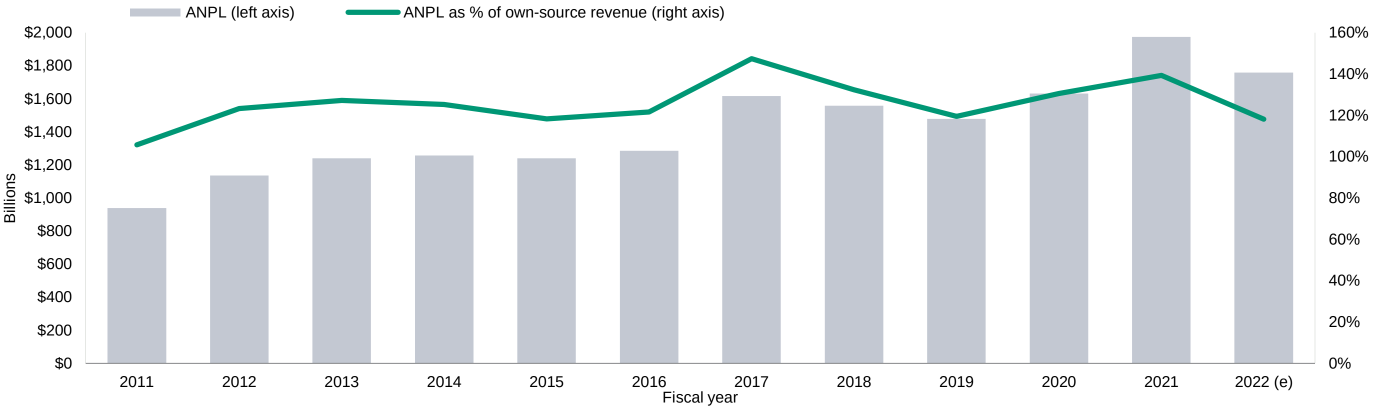
- Less than 55% of gross depreciable capital assets have been depreciated in 37 states. The 13 states with higher depreciation ratios may need to issue debt in the near term to replace aging assets or face increased operating costs.
- The capital asset depreciation ratio compares accumulated depreciation to gross depreciable assets. This ratio provides more insight into debt needs for states with larger percentages of assets subject to depreciation relative to total assets.
- Most states have used operating revenue to support infrastructure investment in recent years, providing capacity to issue debt for infrastructure in future.

Adjusted net pension liabilities

Exhibit 6

Total state pension liabilities will decrease in fiscal 2022 reporting given extraordinary investment returns

Adjusted net pension liabilities (ANPL), fiscal 2022 is an estimate



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 (12 of 227 plans) without a lag. Fiscal 2022 ANPL is estimated based on data from fiscal 2021 pension plan financial statements and assumes a 5% increase in aggregate own-source revenue. Fiscal 2021 estimates are used for California and Arizona when determining the full 2022 estimate.

Sources: State audited financial reports, pension plan valuation reports and Moody's Investors Service

Total state ANPL will decrease in fiscal 2022 ahead of another decline in fiscal 2023

» Total ANPL across states' governmental activities increased to $1.97 trillion in fiscal 2021, representing 8.7% of US GDP and 139.3% of aggregate state own-source revenue. Below-target investment returns in 2020, the measurement date driving most states' fiscal 2021 pension reporting, and falling interest rates contributed to the rise in total state ANPL in fiscal 2021.

» ANPLs to be reported in fiscal 2022 will decrease because of extraordinary investment returns in 2021, the measurement date for most states' fiscal 2022 reporting. We estimate aggregate state ANPL will decrease to $1.76 trillion, down 11% from fiscal 2021.[3]

» New York (Aa1 stable), Washington (Aaa stable) and Oklahoma (Aa2 stable) look to have the largest ANPL decreases in fiscal 2022, all at over 30%.

» Aggregate ANPLs to be reported in fiscal 2023 will also decline because of a significant increase in our liability discount rate. The FTSE Pension Liability Index (FTSE PLI), which we use as a discount rate to value liabilities in our standard adjustments, increased to 4.48% on June 30, 2022 from 2.84% on June 30, 2021. The increase in the discount rate will more than offset the double-digit investment losses in fiscal 2022 that will lead to a rise in GASB net pension liabilities (NPLs) in states' fiscal 2023 reporting.

Inclusion of unrecognized teacher liabilities substantially increases some state pension burdens

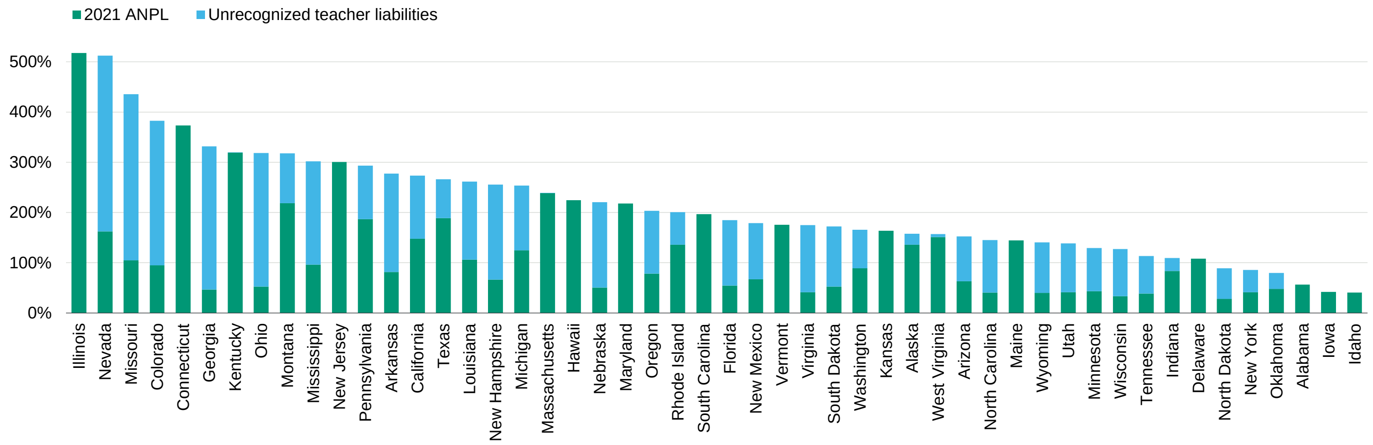
Since all states provide significant aid to school districts, the inclusion of unrecognized teacher liabilities as part of a state's overall pension burden provides an alternate way to compare potential burdens across states. Exhibit 7 includes currently unrecognized portions of teacher liabilities as part of each state's ANPL. For states that already report a 100% share of teacher liabilities in their financial statements, no additional teacher liability was added to current pension burdens. For states that have a separate teacher pension system and currently report a proportionate share of the liability, the balance of the teacher liability was added to the state's ANPL 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 unrecognized teacher liability for these states, if not reported, the share of the employees' retirement system liability related to school districts was estimated based on the percentage of total plan members or the share of total covered payroll related to public schools.[4]

Exhibit 7

Pension burdens increase significantly for some states when adding all teacher liabilities

Fiscal 2021 adjusted net pension liability (ANPL) including currently unrecognized teacher liabilities as a % of state own-source revenue



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

Including teacher liabilities provides an alternate way to compare state pension burdens

» Nevada's (Aa1 stable) fiscal 2021 ANPL increases to 514% of own-source revenue from 162% when including currently unrecognized teacher liabilities. Missouri's (Aaa stable) burden increases to 436% from 105%.

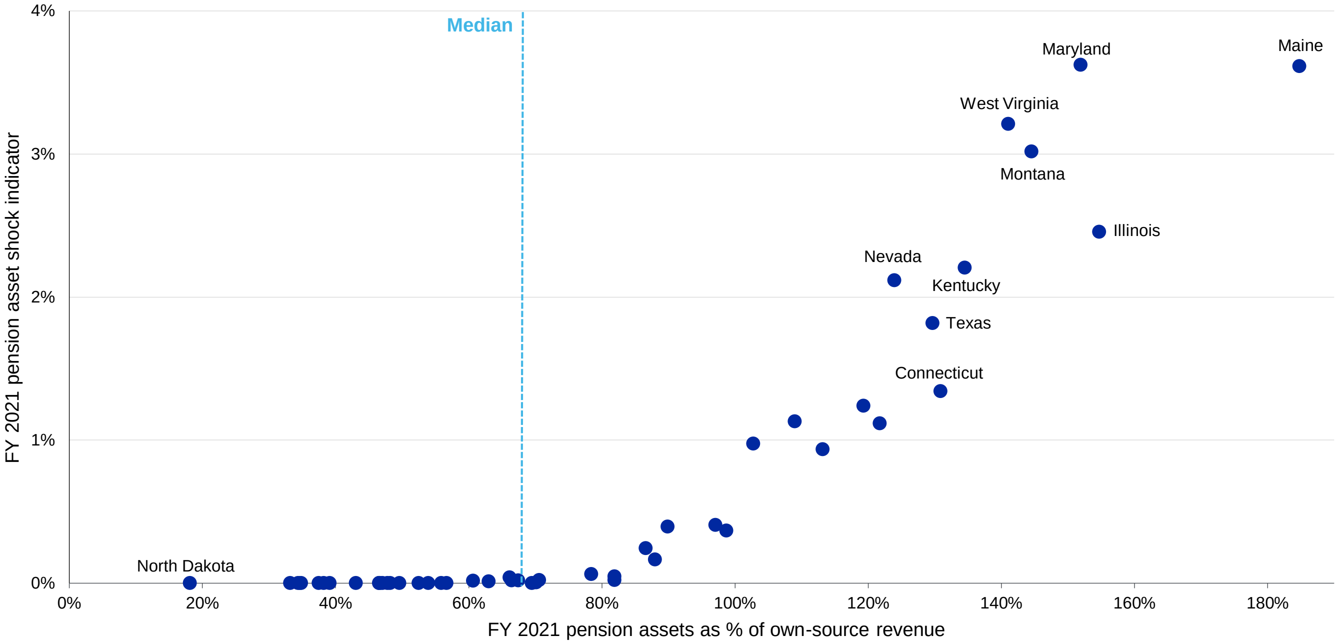
» Some states make direct on-behalf payments to teacher pension systems, but K-12 public education is a key priority for states and all provide significant aid to school districts. According to the National Association of State Budget Officers, elementary and secondary education accounted for 18% of total state expenditures in fiscal 2021.

» In most cases, 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.

Pension assets

Exhibit 8

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



See page 13 for a definition of pension asset shock indicator.
Source: Moody's Investors Service

States have relatively low risk of large pension investment losses relative to budget

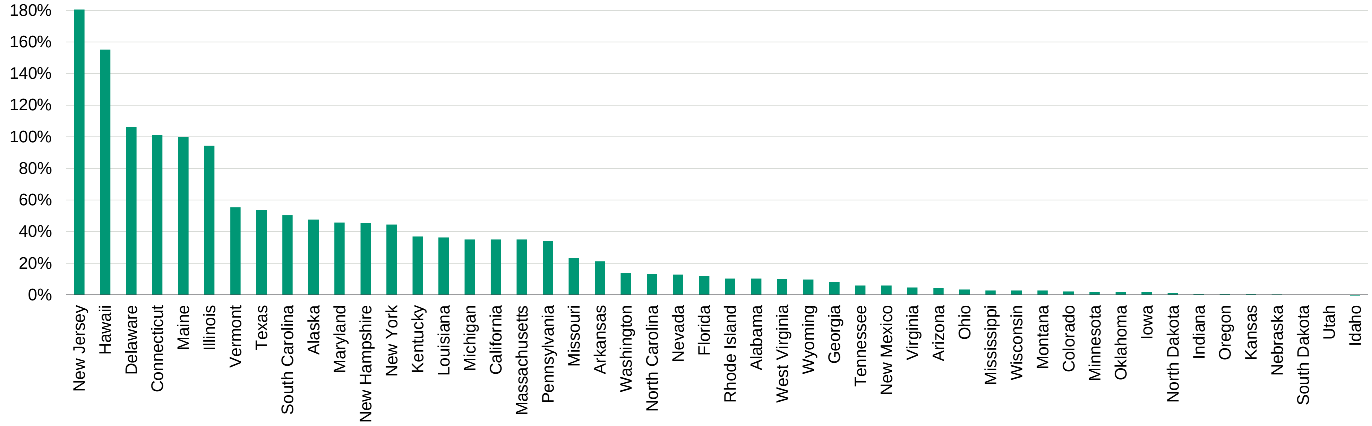
- Pension assets are often concentrated in volatile investments and are large relative to budgets for some states, posing a risk that investment shocks will saddle budgets with significant new costs to make up for lost pension funds.
- We gauge the risk of pension investment losses using our pension asset shock indicator (PASI), which estimates the probability of a pension investment loss amounting to 25% or more of a government's own-source revenue.
- The overall risk of pension investment losses amounting to a large share of budgets for the state sector remains very low compared to the local government sector. No state had a fiscal 2021 PASI over 4% while some local governments have PASIs above 20%.
- The fiscal 2021 PASI was higher than 3% for only three states and less than 1% for most.
- Maine (Aa2 stable) had the highest ratio of pension assets to revenue in fiscal 2021 at almost 185% and also the highest PASI at 3.6%. Maryland (Aaa stable) also had a PASI of 3.6% in fiscal 2021.
- Eighteen states have large pension systems with less than 10 years of asset/benefit coverage.[5] Of these states, Missouri and Georgia (Aaa stable) have negative non-investment cash flow (NICF) worse than -5% of assets (see Exhibit 16 in Appendix II).
- Four states had positive NICF for their largest plans in fiscal 2021, including Indiana (Aaa stable) at 11.4%.

Adjusted net OPEB liabilities

Exhibit 9

Adjusted net OPEB liabilities (ANOL) vary widely across states

Fiscal 2021 ANOL as a % of own-source revenue



Arizona and California's ANOL reflect fiscal 2020 figures because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

Source: Moody's Investors Service

States with high pension burdens also tend to have elevated OPEB burdens

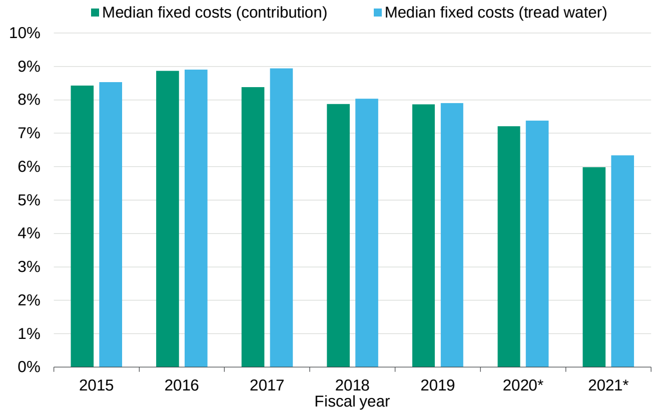
- Unfunded OPEB liabilities represent a large source of balance-sheet leverage for some states and a very small obligation for others.
- The fiscal 2021 50-state median adjusted net OPEB liability (ANOL) as a percent of own-source revenue was 11.9%, much smaller than the 50-state median ANPL as a percent of own-source revenue of 92.0%.
- New Jersey had the largest OPEB burden with its fiscal 2021 ANOL representing 180.5% of own-source revenue.
- Many states with high pension burdens, such as Hawaii, Connecticut and Illinois, also have high OPEB burdens.
- New York (Aa1 stable) is the only state with unfunded OPEB liabilities larger than its unfunded pension liability. New York's fiscal 2021 ANOL was 44.5% of own-source revenue compared with ANPL at 41.3%.
- South Dakota (Aaa stable) has ended retiree healthcare benefits and has no OPEB liability. A number of other states have very low OPEB liabilities because they only provide retirees with the option to purchase health and other insurance under the states' group rates, resulting in immaterial implicit rate subsidies for the most part.
- OPEB liabilities are typically much lower than pension liabilities for states, in part because states generally have more legal flexibility to change OPEB benefits than pensions. However, significant changes to OPEB benefits may be politically difficult.

Total fixed costs

Exhibit 10

Fixed costs continued to decline in fiscal 2021

Median fixed costs (debt, pension, OPEB and other long-term liabilities) as % of own-source revenue on a contribution and tread water basis



*Beginning in fiscal 2020, fixed costs were calculated based on our updated method described in the US States and Territories Methodology.
Tread water definition on page 13.
Sources: State and pension plan financial statements and Moody's Investors Service

Half of states contributed above the tread water indicator in fiscal 2021

- Hawaii, Illinois and Connecticut have the highest fixed costs among states, with fiscal 2021 fixed costs on a tread water basis exceeding 25% of own-source revenue.
- Median fixed costs relative to revenue declined in fiscal 2021 because of strong revenue performance across states as economies rebounded from pandemic lows.
- Nebraska, North Dakota and Wyoming have the lowest fixed costs on a tread water basis at less than 2% of own-source revenue.
- Fiscal 2022 tread water indicators (see page 13 for definition) will fall materially because of lower net pension liabilities resulting from high investment returns in fiscal 2021. However, tread water indicators will rise again in fiscal 2023 because of fiscal 2022 investment losses.

Appendix I: Debt

Basis for state debt data

When considering debt burdens, our focus is on net tax-supported debt (NTSD), which we characterize as debt secured by statewide taxes and other governmental revenue, net of obligations that are paid with revenue other than taxes and other governmental revenue, and that is accounted for in non-governmental activities (such as utility or higher education funds). NTSD typically includes public-private partnership (P3 or PPP) agreements that include contractual obligations of the government to make scheduled payments, and P3 debt is valued based on the higher of the liability in the government's financial statement or the size of the government's termination payment obligation. Our calculation of NTSD includes unamortized bond premiums/discounts and accreted interest because they represent long-term liabilities that must be repaid by states.

The debt ratios of some states are relatively high because they issue debt for purposes that in other states would be financed at the local level, such as for schools or mass transit.

These ratios are calculated based on our definition of NTSD, implied debt service (see Exhibit 22) and own-source revenue and, in most cases, will differ from a state's own published calculations of debt limits or debt affordability. There is no correlation between our ratios and a state's compliance with its internal policies.

Exhibit 11

Fiscal 2021 state net tax-supported debt (NTSD) metrics

Ranking based on fiscal 2021 NTSD as % of own-source revenue

FY 2021 rank	State	FY 2020 NTSD ($ thousands)	FY 2021 NTSD ($ thousands)	FY 2021 NTSD as % of own-source revenue	FY 2021 NTSD per capita	FY 2021 NTSD as % of personal income	FY 2021 NTSD as % of state GDP
1	Connecticut	$28,182,286	$28,894,722	119.6%	$8,014	9.8%	9.7%
2	Hawaii	$8,632,337	$9,932,624	114.0%	$6,890	11.4%	11.0%
3	Massachusetts	$46,172,568	$47,667,335	98.4%	$6,825	8.3%	7.5%
4	New Jersey	$46,335,039	$50,131,913	98.0%	$5,410	7.2%	7.5%
5	Washington	$24,111,262	$25,045,399	72.4%	$3,236	4.5%	3.8%
6	Rhode Island	$3,509,009	$3,402,892	64.5%	$3,106	5.0%	5.2%
7	Illinois	$36,007,973	$37,487,860	63.2%	$2,958	4.4%	4.0%
8	New York	$71,184,815	$76,775,955	59.8%	$3,871	5.1%	4.1%
9	Maryland	$16,865,373	$17,371,753	56.3%	$2,818	4.1%	4.0%
10	Mississippi	$5,769,251	$5,830,096	55.5%	$1,976	4.3%	4.7%
11	West Virginia	$4,710,992	$4,828,392	55.4%	$2,708	5.7%	5.5%
12	Delaware	$3,745,971	$4,156,829	53.9%	$4,143	7.0%	5.1%
13	Ohio	$20,057,898	$20,243,849	52.5%	$1,718	3.0%	2.7%
14	Oregon	$10,529,198	$10,952,413	51.2%	$2,579	4.3%	4.1%
15	Louisiana	$8,434,905	$8,023,754	49.5%	$1,735	3.2%	3.1%
16	Wisconsin	$11,244,335	$10,848,496	46.1%	$1,840	3.1%	3.0%
17	California*	$96,436,768	$96,436,768	45.2%	$2,458	3.2%	2.9%
18	Virginia	$14,003,100	$15,753,614	42.9%	$1,823	2.8%	2.7%
19	Kentucky	$7,960,576	$7,364,148	42.5%	$1,633	3.2%	3.1%
20	Pennsylvania	$19,312,691	$20,949,565	39.8%	$1,616	2.5%	2.5%
21	Georgia	$11,018,772	$11,743,971	37.7%	$1,087	2.0%	1.7%
22	Alabama	$4,763,855	$5,908,665	34.5%	$1,172	2.4%	2.4%
23	Nevada	$2,119,926	$2,151,708	33.9%	$684	1.2%	1.1%
24	Kansas	$4,469,440	$4,145,206	30.9%	$1,413	2.4%	2.2%
25	Florida	$17,316,854	$16,476,308	28.5%	$756	1.2%	1.3%
26	New Hampshire	$1,234,029	$1,226,181	28.4%	$883	1.2%	1.2%
27	Colorado	$4,253,928	$5,080,369	28.2%	$874	1.3%	1.2%
28	Minnesota	$8,363,998	$8,346,673	25.0%	$1,462	2.2%	2.0%
29	Maine	$1,447,497	$1,496,851	24.0%	$1,091	1.9%	2.0%
30	Utah	$3,385,598	$3,001,550	22.0%	$899	1.6%	1.4%
31	Texas	$20,392,232	$20,128,257	21.6%	$682	1.1%	1.0%
32	Arizona*	$4,111,696	$4,111,696	21.1%	$565	1.0%	1.0%
33	Michigan	$7,382,000	$8,376,200	20.7%	$833	1.5%	1.5%
34	North Carolina	$6,733,036	$7,236,690	19.7%	$686	1.2%	1.1%
35	Vermont	$725,718	$765,183	17.4%	$1,185	2.0%	2.1%
36	South Dakota	$524,117	$502,671	16.6%	$561	0.9%	0.8%
37	New Mexico	$2,420,408	$2,719,414	15.4%	$1,285	2.6%	2.5%
38	Missouri	$2,789,828	$2,455,447	15.4%	$398	0.7%	0.7%
39	South Carolina	$2,472,378	$2,257,799	11.9%	$435	0.8%	0.8%
40	Alaska	$1,245,699	$1,272,891	11.9%	$1,737	2.6%	2.3%
41	Oklahoma	$1,420,828	$1,572,272	11.3%	$394	0.7%	0.8%
42	Idaho	$888,954	$881,459	11.2%	$464	0.9%	0.9%
43	Iowa	$1,409,258	$1,301,529	10.8%	$408	0.7%	0.6%
44	Arkansas	$1,385,311	$1,199,696	10.4%	$396	0.8%	0.8%
45	Tennessee	$2,085,493	$1,990,960	8.2%	$285	0.5%	0.5%
46	Indiana	$1,716,813	$1,475,443	6.0%	$217	0.4%	0.4%
47	Montana	$148,023	$187,380	4.6%	$170	0.3%	0.3%
48	North Dakota	$35,018	$132,194	1.8%	$171	0.3%	0.2%
49	Nebraska	$31,430	$37,825	0.5%	$19	0.0%	0.0%
50	Wyoming	$13,982	$11,401	0.2%	$20	0.0%	0.0%
	TOTAL	$599,512,467	$620,292,267	43.8%	$1,873	3.0%	2.7%
	MEAN	$11,990,249	$12,405,845	36.2%	$1,772	2.8%	2.6%
	MEDIAN	$4,590,216	$4,954,380	28.4%	$1,179	2.1%	2.1%

*Arizona and California's fiscal 2021 NTSD reflects fiscal 2020 figures because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

Sources: State audited financial statements and Moody's Investors Service

Exhibit 12

Capital assets and capital asset depreciation ratio

Ranking based on capital asset depreciation ratio

	Capital assets subject to depreciation				Capital assets not subject to depreciation		
State	Gross capital assets ($ million)	Gross capital assets (% of GDP)	Accumulated depreciation ($ million)	Capital asset depreciation ratio (%) [1]	Gross capital assets ($ million)	Gross capital assets (% GDP)	Share of capital assets not subject to depreciation
New Mexico[4]	21,817	7.4%	-13,805	63%	2,035	1.9%	8.5%
Louisiana[4]	34,694	5.1%	-21,700	63%	4,251	1.7%	10.9%
Hawaii	23,681	10.1%	-14,554	61%	5,867	6.5%	19.9%
Connecticut[4]	37,162	4.9%	-22,575	61%	8,448	2.8%	18.5%
Maryland[4]	48,216	4.5%	-28,426	59%	13,830	3.2%	22.3%
Alaska	23,169	17.4%	-13,608	59%	3,090	5.6%	11.8%
Nebraska[3]	1,535	0.4%	-901	59%	8,970	6.0%	85.4%
Indiana[3]	4,593	0.5%	-2,659	58%	16,550	3.9%	78.3%
Wisconsin[3][4]	15,662	1.8%	-9,011	58%	25,156	6.9%	61.6%
Ohio[3][4]	18,915	1.1%	-10,806	57%	27,900	3.8%	59.6%
Maine[3][4]	1,538	0.9%	-876	57%	3,836	5.0%	71.4%
Wyoming[3]	1,519	1.6%	-861	57%	721	1.7%	32.2%
West Virginia	23,339	12.1%	-12,765	55%	4,043	4.6%	14.8%
Georgia	67,546	4.6%	-36,404	54%	10,915	1.6%	13.9%
Oklahoma[4]	41,151	9.3%	-21,960	53%	4,167	2.0%	9.2%
Arkansas	29,477	9.5%	-15,679	53%	4,195	2.9%	12.5%
Pennsylvania	84,914	4.7%	-45,124	53%	11,574	1.4%	12.0%
New Hampshire	9,475	4.6%	-4,962	52%	912	0.9%	8.8%
Massachusetts[4]	21,976	1.7%	-11,447	52%	2,518	0.4%	10.3%
New York[3]	46,074	1.2%	-23,965	52%	88,864	4.8%	65.9%
Iowa	32,704	7.1%	-17,014	52%	1,925	0.9%	5.6%
Minnesota[3][4]	24,088	2.8%	-12,348	51%	19,038	4.6%	44.1%
Missouri	69,273	9.4%	-35,420	51%	6,038	1.7%	8.0%
Washington[3]	31,255	2.3%	-15,876	51%	31,578	4.7%	50.3%
Rhode Island[4]	11,825	8.9%	-5,971	50%	1,688	2.6%	12.5%
Florida[3]	45,137	1.8%	-22,684	50%	104,114	8.5%	69.8%
Michigan[3]	15,132	1.3%	-7,593	50%	21,778	3.8%	59.0%
Arizona[2][3]	14,561	2.0%	-7,228	50%	24,675	6.6%	62.9%
New Jersey	40,326	3.0%	-20,016	50%	10,102	1.5%	20.0%
Illinois[4]	62,971	3.4%	-31,141	49%	7,704	0.8%	10.9%
Kansas[3]	9,279	2.5%	-4,475	48%	13,964	7.3%	60.1%
Nevada[3]	7,285	2.0%	-3,490	48%	10,068	5.2%	58.0%
Idaho[3]	6,242	3.5%	-2,977	48%	6,211	6.6%	49.9%
Alabama[3]	21,434	4.6%	-10,135	47%	22,359	9.0%	51.1%
California[2][3][4]	116,077	2.0%	-54,598	47%	129,621	4.3%	52.8%
Kentucky[3]	13,159	3.0%	-6,185	47%	26,632	11.4%	66.9%
Vermont	4,553	6.7%	-2,128	47%	818	2.3%	15.2%
Delaware[3][4]	6,192	4.1%	-2,888	47%	5,734	7.1%	48.1%
Utah[3]	18,682	4.6%	-8,603	46%	21,508	9.8%	53.5%
North Dakota	12,081	10.5%	-5,454	45%	1,017	1.6%	7.8%
Colorado[4]	34,267	4.5%	-15,161	44%	5,201	1.2%	13.2%
Tennessee[3][4]	15,129	2.0%	-6,671	44%	31,058	7.4%	67.2%
South Carolina	38,675	8.3%	-16,157	42%	8,378	3.1%	17.8%
South Dakota	8,156	7.8%	-3,407	42%	1,253	2.0%	13.3%
Oregon	27,770	6.1%	-11,575	42%	3,564	1.3%	11.4%
Montana	9,125	9.0%	-3,779	41%	2,699	4.6%	22.8%
Virginia	78,640	7.8%	-32,342	41%	13,605	2.3%	14.7%
Mississippi	25,005	12.5%	-9,354	37%	6,731	5.4%	21.2%
Texas	186,535	6.1%	-66,169	35%	48,184	2.4%	20.5%
North Carolina	80,239	8.1%	-27,230	34%	28,108	4.3%	25.9%

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

[2] Fiscal 2021 audited financial statements for Arizona and California were not available as of the publication of this report. Data is for fiscal 2020 for these states.

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

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

Sources: State audited financial statements and Moody's Investors Service

Appendix II: Pensions and OPEB

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

GASB 67 and 68 enable analytical refinements for pensions

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

GASB 74 and 75 enable analytical refinements for OPEB

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

Tread water indicator forms contribution benchmark

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

Pension and OPEB measurement dates often misaligned with government reporting years

GASB 68 and 75 allow governments to report net pension and OPEB liabilities measured up to one year prior to their own fiscal year-end. Our balance sheet adjustments reflect liabilities as of the measurement date(s) reported in the government's financial statements. Nearly every state reported liabilities and assets in their 2021 financial statements based on a fiscal 2020 measurement date. Only 12 pension plans were reported based on a 2021 measurement date, most of which were single-employer plans.

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

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

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

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

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

Asset/benefit coverage is a point-in-time measure of pension funding

The asset/benefit coverage provides a rough estimate of the number of years of benefits that pension assets can cover, assuming no further contributions, investment income or change in annual benefit outflows.

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:

- For the tread water metric, if a state's fiscal 2021 pension plan financials were not available, we used the fiscal 2020 plan financials.
- Additional adjustments to own-source revenue have been made for Delaware (Aaa stable), Alaska (Aa3 stable) and Washington to reflect inclusion, exclusion or adjustments of certain funds from governmental revenue.
- California (Aa2 stable) and Arizona (Aa1 stable) did not have fiscal 2021 audits available at the time of publication of this report. Fiscal 2021 ANPL, ANOL, pension tread water and own-source revenue figures reflect fiscal 2020 data because of insufficient information to calculate these metrics for fiscal 2021.
- California's fiscal 2020 audit provides all information required to calculate the ANOL with the exception of the discount rate sensitivity. We have applied a duration estimate of 18 years to calculate the change in the net OPEB liability. 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 estimated a reported discount rate of 3.6%.
- States' fiscal 2022 estimated ANPL was based on information from fiscal 2021 pension plan financial statements. We based the estimates on states' proportionate share of cost-sharing liabilities reported in their fiscal 2021 audits. If the fiscal 2021 pension plan financial statements were not available, we used fiscal 2020 plan information and the FTSE PLI discount rate for the 2021 measurement date to estimate the ANPL.

Exhibit 13

Selected characteristics of state pension plans

State	Rating	# of pension plans	Measurement date for largest plan	Reported discount rate for largest plan	Reported net pension liability ($ thousands)	Moody's adjusted discount rate for largest plan	State share for largest plan
Alabama	Aa1	3	9/30/2020	7.70%	$3,681,999	2.65%	96.8%
Alaska	Aa3	4	6/30/2020	7.38%	$5,006,532	2.70%	62.9%
Arizona*	Aa1	7	6/30/2019	7.50%	$4,004,176	3.51%	12.3%
Arkansas	Aa1	4	6/30/2020	7.15%	$2,269,166	2.70%	63.8%
California*	Aa2	9	6/30/2019	7.10%	$82,795,404	3.51%	35.3%
Colorado	Aa1	2	12/31/2020	7.25%	$5,874,655	2.52%	61.3%
Connecticut	Aa3	3	6/30/2020	6.90%	$42,551,460	2.70%	100.0%
Delaware	Aaa	7	6/30/2020	7.00%	$1,717,955	2.70%	89.8%
Florida	Aaa	3	6/30/2020	6.80%	$10,064,174	2.70%	16.6%
Georgia	Aaa	12	6/30/2020	7.30%	$4,100,939	2.70%	84.5%
Hawaii	Aa2	1	6/30/2020	7.00%	$7,567,480	2.70%	49.4%
Idaho	Aaa	2	6/30/2020	7.05%	$476,327	2.70%	20.3%
Illinois	Baa1	5	6/30/2020	7.00%	$152,891,165	2.70%	100.0%
Indiana	Aaa	8	6/30/2020	6.75%	$11,392,203	2.70%	100.0%
Iowa	Aaa	3	6/30/2020	7.00%	$854,807	2.70%	13.4%
Kansas	Aa2	3	6/30/2020	7.50%	$7,412,596	2.70%	97.4%
Kentucky	Aa3	6	6/30/2020	7.50%	$26,246,788	2.70%	97.6%
Louisiana	Aa2	6	6/30/2020	7.55%	$7,114,423	2.70%	74.8%
Maine	Aa2	3	6/30/2020	6.75%	$2,672,073	2.70%	94.9%
Maryland	Aaa	2	6/30/2021	7.40%	$20,349,509	2.84%	85.0%
Massachusetts	Aa1	3	6/30/2020	7.15%	$46,960,144	2.70%	100.0%
Michigan	Aa1	6	9/30/2020	6.80%	$20,880,119	2.65%	37.8%
Minnesota	Aaa	9	6/30/2020	7.50%	$2,856,818	2.70%	46.4%
Mississippi	Aa2	3	6/30/2020	7.75%	$3,452,564	2.70%	16.8%
Missouri	Aaa	3	6/30/2020	6.95%	$7,304,024	2.70%	80.6%
Montana	Aa1	9	6/30/2020	7.34%	$2,909,162	2.70%	55.0%
Nebraska	Aa1	6	6/30/2020	7.50%	$268,516	2.70%	17.3%
Nevada	Aa1	3	6/30/2020	7.50%	$2,311,453	2.70%	16.5%
New Hampshire	Aa1	2	6/30/2020	6.75%	$1,173,739	2.70%	17.7%
New Jersey	A2	7	6/30/2020	5.40%	$96,330,596	2.70%	100.0%
New Mexico	Aa2	5	6/30/2020	7.25%	$3,936,438	2.70%	50.1%
New York	Aa1	2	3/31/2020	6.80%	$11,583,000	3.12%	39.7%
North Carolina	Aaa	6	6/30/2020	7.00%	$3,082,046	2.70%	21.9%
North Dakota	Aa1	4	6/30/2020	4.64%	$1,242,640	2.70%	37.2%
Ohio	Aa1	4	12/31/2020	7.20%	$3,363,090	2.52%	19.8%
Oklahoma	Aa2	5	6/30/2020	6.50%	$969,998	2.70%	84.9%
Oregon	Aa1	1	6/30/2020	7.20%	$4,534,847	2.70%	20.8%
Pennsylvania	Aa3	2	6/30/2020	7.25%	$39,618,729	2.70%	50.6%
Rhode Island	Aa2	7	6/30/2020	7.00%	$3,672,268	2.70%	89.9%
South Carolina	Aaa	5	6/30/2020	7.25%	$15,711,980	2.70%	56.6%
South Dakota	Aaa	1	6/30/2020	6.50%	($875)	2.70%	20.1%
Tennessee	Aaa	2	6/30/2020	7.25%	$1,127,377	2.70%	70.3%
Texas	Aaa	6	8/31/2020	7.25%	$70,039,357	2.66%	55.3%
Utah	Aaa	6	12/31/2020	6.95%	$397,264	2.52%	23.6%
Vermont	Aa1	2	6/30/2020	7.00%	$3,036,423	2.70%	100.0%
Virginia	Aaa	4	6/30/2020	6.75%	$5,058,611	2.70%	52.2%
Washington	Aaa	10	6/30/2020	7.40%	($277,214)	2.70%	47.7%
West Virginia	Aa2	5	6/30/2020	7.50%	$3,348,205	2.70%	94.0%
Wisconsin	Aa1	1	12/31/2020	7.00%	($829,007)	2.52%	13.3%
Wyoming	NR	5	12/31/2020	7.00%	$420,570	2.52%	18.0%

*Reflects fiscal 2020 figures because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

NR stands for no rating.

Sources: State audited financial statements and Moody's Investors Service

Exhibit 14

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

Ranking based on FY 2021 ANPL

FY 2021 rank	State	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022 (estimate)
1	California*	$234,042,082	$230,803,077	$214,491,523	$250,074,033	$315,881,118	NA
2	Illinois	$250,135,970	$240,759,774	$229,886,900	$262,979,819	$306,982,138	$224,497,943
3	Texas	$140,253,456	$132,760,832	$131,402,045	$155,795,706	$175,815,294	$172,070,766
4	New Jersey	$115,964,089	$113,845,643	$112,546,910	$130,184,705	$153,793,073	$143,553,756
5	Massachusetts	$80,449,143	$81,227,853	$77,151,349	$88,288,538	$115,468,688	$99,251,734
6	Pennsylvania	$80,549,468	$79,779,435	$78,996,495	$80,784,192	$98,478,123	$91,992,890
7	Connecticut	$71,223,221	$62,059,644	$63,348,693	$73,888,395	$90,195,556	$82,836,497
8	Maryland	$67,240,080	$59,264,776	$53,509,910	$55,659,687	$67,311,029	$57,615,160
9	Kentucky	$46,968,436	$45,916,658	$41,328,094	$47,582,835	$55,331,067	$54,819,919
10	New York	$43,640,389	$39,166,292	$38,812,223	$31,966,831	$53,050,021	$36,865,056
11	Michigan	$37,142,225	$37,993,798	$39,654,044	$46,672,055	$50,521,844	$41,355,333
12	South Carolina	$28,872,871	$30,364,902	$27,954,094	$30,726,294	$37,378,714	$34,659,904
13	Florida	$25,395,230	$23,218,268	$21,972,968	$25,635,594	$31,524,843	$24,871,543
14	Washington	$23,975,681	$22,809,640	$19,184,264	$25,679,735	$30,692,064	$21,549,094
15	Kansas	$17,607,414	$17,341,499	$16,308,038	$18,546,343	$21,971,761	$19,887,528
16	Indiana	$21,256,728	$20,346,062	$17,771,050	$19,139,496	$20,558,874	$17,789,652
17	Ohio	$15,680,805	$16,365,511	$16,229,714	$16,961,569	$20,237,901	$18,779,196
18	Hawaii	$14,351,491	$13,950,603	$13,558,845	$15,885,146	$19,556,196	$19,068,603
19	Louisiana	$15,079,099	$13,788,473	$12,812,243	$14,186,684	$17,200,918	$14,439,113
20	Colorado	$22,642,431	$30,107,806	$25,168,742	$19,326,540	$17,156,155	$14,733,321
21	Oregon	$11,954,071	$11,127,973	$10,618,750	$12,645,980	$16,781,969	$14,307,678
22	Missouri	$14,269,258	$13,764,307	$12,938,750	$14,409,936	$16,732,154	$15,972,244
23	Virginia	$20,140,861	$18,318,199	$16,679,109	$11,918,366	$15,208,771	$13,141,004
24	North Carolina	$10,391,839	$9,421,407	$9,145,550	$11,338,044	$14,916,536	$13,028,609
25	Alaska	$11,983,989	$12,516,054	$10,964,439	$12,006,368	$14,629,857	$14,629,857
26	Georgia	$26,391,116	$23,986,014	$21,986,315	$12,146,215	$14,555,816	$14,163,294
27	Minnesota	$18,252,678	$15,973,832	$12,273,462	$12,209,808	$14,510,699	$12,513,073
28	West Virginia	$12,082,693	$10,602,503	$9,541,291	$10,328,407	$13,160,240	$10,231,499
29	Arizona*	$11,688,286	$11,903,465	$11,552,068	$9,845,661	$12,350,020	NA
30	New Mexico	$8,884,611	$7,353,640	$7,890,987	$9,707,828	$11,833,788	$10,672,080
31	Nevada	$7,902,307	$7,292,773	$6,989,253	$8,280,931	$10,276,437	$10,528,149
32	Mississippi	$8,198,597	$7,573,864	$7,124,379	$8,273,567	$10,149,456	$9,227,098
33	Alabama	$9,281,406	$8,642,954	$7,638,354	$8,648,742	$9,657,665	$9,246,911
34	Arkansas	$8,085,386	$7,318,307	$6,821,936	$7,620,552	$9,475,470	$8,976,854
35	Tennessee	$6,905,551	$6,446,554	$5,944,833	$7,308,026	$9,359,859	$9,046,955
36	Maine	$8,977,858	$8,256,121	$7,192,450	$7,162,546	$8,997,607	$9,954,787
37	Montana	$6,090,280	$6,212,965	$6,741,063	$7,042,203	$8,977,148	$8,114,153
38	Delaware	$6,373,422	$5,831,614	$5,361,945	$6,794,336	$8,345,176	$5,922,305
39	Wisconsin	$9,750,686	$11,318,107	$9,874,769	$6,056,870	$7,853,511	$7,120,318
40	Vermont	$5,123,076	$4,882,266	$4,563,037	$5,721,521	$7,707,309	$7,379,342
41	Rhode Island	$6,741,527	$6,780,891	$6,491,384	$6,975,338	$7,184,929	$7,052,335
42	Oklahoma	$11,325,615	$9,282,282	$8,158,141	$4,437,543	$6,676,706	$4,375,939
43	Utah	$4,187,458	$4,497,709	$4,119,495	$5,026,392	$5,683,881	$5,214,094
44	Iowa	$5,319,983	$4,776,209	$4,552,905	$4,256,261	$5,120,150	$4,925,571
45	Nebraska	$2,870,530	$2,650,498	$2,636,775	$3,183,413	$4,085,341	$3,385,136
46	Idaho	$2,768,296	$2,580,465	$2,237,549	$2,302,990	$3,211,385	$3,123,137
47	New Hampshire	$2,370,644	$2,247,106	$1,984,320	$2,215,991	$2,871,708	$2,461,776
48	North Dakota	$1,831,005	$1,792,617	$1,681,686	$1,376,909	$2,065,554	$1,676,348
49	Wyoming	$1,438,478	$1,466,636	$1,403,893	$1,580,937	$1,885,302	$1,757,734
50	South Dakota	$2,777,714	$1,867,818	$1,713,172	$1,254,296	$1,600,990	$1,687,973
	TOTAL	$1,616,829,533	$1,558,555,695	$1,478,910,201	$1,632,040,175	$1,974,970,811	$1,430,473,261
	MEAN	$32,336,591	$31,171,114	$29,578,204	$32,640,803	$39,499,416	$29,801,526
	MEDIAN	$12,033,341	$12,209,760	$11,258,253	$11,962,367	$14,592,837	$13,084,807

Some historical ANPL figures have been updated and may not match prior published reports. Beginning with fiscal 2020, the liability is aligned with states' governmental activities reported in audited financial statements.

*FY 2021 ANPL figures are estimates because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

Source: Moody's Investors Service

Exhibit 15

Fiscal 2021 state adjusted net pension liability (ANPL) metrics

Ranking based on ANPL as a % of own-source revenue

FY 2021 rank	State	ANPL as a % of own-source revenue	ANPL per capita	ANPL as a % of personal income	ANPL as a % of state GDP
1	Illinois	517.3%	$24,226	36.1%	32.7%
2	Connecticut	373.2%	$25,015	30.5%	30.4%
3	Kentucky	319.1%	$12,270	24.2%	23.6%
4	New Jersey	300.6%	$16,596	22.2%	22.9%
5	Massachusetts	238.3%	$16,532	20.0%	18.1%
6	Hawaii	224.5%	$13,566	22.5%	21.7%
7	Montana	218.6%	$8,129	14.3%	15.1%
8	Maryland	218.1%	$10,918	15.8%	15.4%
9	South Carolina	196.8%	$7,201	13.8%	13.8%
10	Texas	188.7%	$5,954	10.0%	8.9%
11	Pennsylvania	187.2%	$7,596	11.9%	11.7%
12	Vermont	175.4%	$11,939	20.0%	21.3%
13	Kansas	163.9%	$7,487	12.6%	11.4%
14	Nevada	162.1%	$3,269	5.6%	5.3%
15	West Virginia	150.9%	$7,381	15.4%	15.1%
16	California*	148.1%	$8,050	10.5%	9.4%
17	Maine	144.3%	$6,557	11.5%	11.8%
18	Alaska	136.2%	$19,968	29.7%	26.6%
19	Rhode Island	136.1%	$6,558	10.6%	10.9%
20	Michigan	124.7%	$5,027	9.0%	8.9%
21	Delaware	108.1%	$8,317	14.1%	10.3%
22	Louisiana	106.2%	$3,720	6.8%	6.7%
23	Missouri	104.9%	$2,713	4.9%	4.6%
24	Mississippi	96.6%	$3,441	7.6%	8.1%
25	Colorado	95.2%	$2,952	4.3%	4.1%
26	Washington	88.8%	$3,966	5.5%	4.6%
27	Indiana	84.0%	$3,021	5.4%	4.9%
28	Arkansas	82.0%	$3,131	6.1%	6.6%
29	Oregon	78.5%	$3,952	6.5%	6.3%
30	New Mexico	67.2%	$5,593	11.3%	10.9%
31	New Hampshire	66.5%	$2,067	2.9%	2.9%
32	Arizona*	63.3%	$1,697	3.1%	3.0%
33	Alabama	56.4%	$1,916	3.9%	3.9%
34	Florida	54.5%	$1,447	2.4%	2.6%
35	South Dakota	52.9%	$1,788	2.8%	2.6%
36	Ohio	52.5%	$1,718	3.0%	2.7%
37	Nebraska	50.4%	$2,080	3.4%	2.7%
38	Oklahoma	48.1%	$1,675	3.2%	3.2%
39	Georgia	46.8%	$1,348	2.4%	2.1%
40	Minnesota	43.5%	$2,542	3.9%	3.5%
41	Iowa	42.4%	$1,604	2.8%	2.3%
42	Utah	41.7%	$1,703	3.1%	2.6%
43	Virginia	41.5%	$1,760	2.7%	2.6%
44	New York	41.3%	$2,674	3.5%	2.9%
45	Idaho	40.9%	$1,689	3.3%	3.4%
46	North Carolina	40.7%	$1,414	2.6%	2.3%
47	Wyoming	40.4%	$3,257	5.0%	4.5%
48	Tennessee	38.6%	$1,342	2.4%	2.2%
49	Wisconsin	33.4%	$1,332	2.3%	2.1%
50	North Dakota	28.5%	$2,665	4.1%	3.3%
	TOTAL	139.3%	$5,963	9.4%	8.7%
	MEAN	123.2%	$6,055	9.6%	9.2%
	MEDIAN	92.0%	$3,355	5.9%	5.8%

*Metrics based on fiscal 2021 ANPL estimates because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

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

Exhibit 16

Fiscal 2021 state pension assets

Ranking based on pension asset shock indicator

FY 2021 rank	State	Pension assets ($ thousands)	Pension assets as a % of own-source revenue	Pension asset shock indicator	Assets / benefits for largest plan	NICF for largest plan
1	Maryland	$46,865,112	151.9%	3.6%	12.5	-2.4%
2	Maine	$11,519,366	184.8%	3.6%	13.2	-2.8%
3	West Virginia	$12,296,163	141.0%	3.2%	8.9	-4.6%
4	Montana	$5,934,241	144.5%	3.0%	11.8	-3.9%
5	Illinois	$91,780,907	154.7%	2.5%	7.1	-2.2%
6	Kentucky	$23,314,137	134.5%	2.2%	9.2	-3.7%
7	Nevada	$7,855,901	123.9%	2.1%	15.3	-1.9%
8	Texas	$120,803,304	129.7%	1.8%	13.5	-2.5%
9	Connecticut	$31,622,266	130.8%	1.3%	8.4	1.7%
10	Massachusetts	$57,797,269	119.3%	1.2%	8.3	-2.3%
11	Washington	$37,667,377	108.9%	1.1%	27.7	0.3%
12	Delaware	$9,391,050	121.7%	1.1%	13.6	-3.7%
13	Kansas	$13,770,547	102.7%	1.0%	9.4	-3.2%
14	Pennsylvania	$59,522,214	113.1%	0.9%	8.2	-2.3%
15	California*	$206,956,954	97.0%	0.4%	14.6	-0.8%
16	Alaska	$9,652,254	89.9%	0.4%	10.1	-3.7%
17	Hawaii	$8,595,447	98.7%	0.4%	10.9	-1.2%
18	South Carolina	$16,439,483	86.5%	0.2%	8.1	-2.2%
19	Vermont	$3,864,910	88.0%	0.2%	9.0	-2.1%
20	Rhode Island	$4,138,458	78.4%	0.1%	7.4	-4.1%
21	Michigan	$33,174,473	81.9%	0.0%	9.6	-3.6%
22	Louisiana	$10,706,299	66.1%	0.0%	7.9	-3.6%
23	Wisconsin	$16,594,003	70.6%	0.0%	18.6	-3.4%
24	South Dakota	$2,477,601	81.9%	0.0%	18.5	-2.7%
25	Arkansas	$7,786,949	67.4%	0.0%	14.4	-2.7%
26	Oregon	$14,196,577	66.4%	0.0%	12.9	-4.4%
27	Nebraska	$4,909,689	60.6%	0.0%	17.6	-1.9%
28	Colorado	$11,354,942	63.0%	0.0%	9.2	-4.8%
29	Oklahoma	$9,719,517	70.1%	0.0%	14.3	-3.5%
30	Mississippi	$5,064,055	48.2%	0.0%	8.9	-4.8%
31	New Jersey	$35,514,424	69.4%	0.0%	4.6	-4.2%
32	Ohio	$20,768,350	53.9%	0.0%	13.1	-3.8%
33	Missouri	$8,904,792	55.8%	0.0%	8.5	-5.4%
34	New York	$72,744,723	56.6%	0.0%	13.9	-4.5%
35	Utah	$7,138,639	52.4%	0.0%	15.9	-2.9%
36	Georgia	$15,429,774	49.6%	0.0%	9.3	-5.9%
37	Tennessee	$11,278,865	46.5%	0.0%	15.6	-3.6%
38	North Carolina	$17,501,340	47.7%	0.0%	14.6	-2.3%
39	Idaho	$3,650,829	46.5%	0.0%	15.8	-2.0%
40	Iowa	$5,679,493	47.0%	0.0%	14.0	-3.1%
41	New Mexico	$7,576,429	43.0%	0.0%	10.7	-4.6%
42	Florida	$26,942,941	46.6%	0.0%	13.5	-4.6%
43	Minnesota	$12,482,329	37.4%	0.0%	14.6	-3.7%
44	Alabama	$5,950,524	34.8%	0.0%	15.1	0.4%
45	Wyoming	$1,780,758	38.2%	0.0%	12.3	-3.9%
46	Arizona*	$6,468,797	33.2%	0.0%	11.2	-2.5%
47	New Hampshire	$1,687,378	39.1%	0.0%	10.3	-2.1%
48	Virginia	$12,693,339	34.6%	0.0%	12.3	-3.8%
49	Indiana	$8,406,872	34.4%	0.0%	3.1	11.4%
50	North Dakota	$1,310,043	18.1%	0.0%	12.6	-2.2%
	TOTAL	$1,179,682,105	83.2%	NA	NA	NA
	MEAN	$23,593,642	79.2%	0.6%	12.0	-2.7%
	MEDIAN	$11,316,904	68.4%	0.0%	12.3	-3.2%

NICF stands for non-investment cash flow.

*Metrics based on fiscal 2020 figures because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

Sources: State financial statements and Moody's Investors Service

Exhibit 17

Allocation of pension plan liabilities by state

Alabama	Employees' Retirement System (State)	96.8%
	Teachers' Retirement System	1.9%
	Judicial Retirement Fund	100.0%
Alaska	National Guard/Naval Militia Retirement System	100.0%
	Judicial Retirement System	100.0%
	Public Employees' Retirement System	62.9%
	Teachers' Retirement System	63.7%
Arizona	Corrections Officer Retirement Plan	100.0%
	Elected Officials' Retirement Plan	24.4%
	Arizona State Retirement System	12.3%
	Public Safety Personnel Retirement System (Agent) - Other Entities	100.0%
	Public Safety Personnel Retirement System - Risk Pool	39.2%
	Correction Officers Retirement System - Dept. of Corrections	99.3%
	Public Safety Personnel Retirement System - Dept. of Public Safety	100.0%
Arkansas	Judicial Retirement System	100.0%
	State Highway Employees Retirement System	100.0%
	State Police Retirement System	100.0%
	Public Employees Retirement System	63.8%
California	Judges' Retirement Fund	100.0%
	Judges' Retirement Fund II	100.0%
	Legislators' Retirement Fund	100.0%
	California Public Employees' Retirement System - Peace Officers and Firefighters Plan	100.0%
	California Public Employees' Retirement System-Highway Patrol	100.0%
	California Public Employees' Retirement System-Industrial	100.0%
	California Public Employees' Retirement System-Miscellaneous	71.7%
	California Public Employees' Retirement System-Safety	100.0%
	California State Teachers' Retirement System	35.3%
Colorado	Judicial Division Trust Fund	93.5%
	State Division Trust Fund	61.3%
Connecticut	Judicial Retirement System	100.0%
	State Employees' Retirement System	98.9%
	Teachers' Retirement System	100.0%
Delaware	Closed State Police Pension Plan	100.0%
	Delaware Transit Corporation Contributory Plan	100.0%
	Delaware Transit Corporation Pension Plan	100.0%
	Judiciary Pension Plans (Closed and Revised)	100.0%
	New State Police Pension Plan	100.0%
	Special Fund	100.0%
	State Employees'	89.8%
Florida	National Guard Supplemental Retirement Benefit Plan	100.0%
	Florida Retirement System	16.6%
	Health Insurance Subsidy	13.6%
Georgia	Peace Officers' Annuity and Benefit Fund	100.0%
	Employees' Retirement System	84.5%
	Firefighters' Pension Fund	100.0%
	Judicial Retirement System	100.0%
	Public School Employees Retirement System	100.0%
	Teachers Retirement System	0.5%
	Legislative Retirement Fund	100.0%
	Magistrates Retirement Fund	100.0%
	Military Pension Fund	100.0%
	Judges of the Probate Courts Retirement Fund	100.0%
	Sheriffs' Retirement Fund	100.0%
	Superior Court Clerks' Retirement Fund	100.0%
Hawaii	Employees' Retirement System	49.4%
Idaho	Judges' Retirement Fund	100.0%
	Public Employee Retirement System of Idaho	20.3%

Exhibit 18

Allocation of pension plan liabilities by state (continued)

Illinois	General Assembly Retirement System	100.0%
	Judges' Retirement System	100.0%
	State Employees' Retirement System	97.3%
	State Universities Retirement System	100.0%
	Teachers' Retirement System	100.0%
Indiana	Judges' Retirement System	100.0%
	Legislators' Retirement System	100.0%
	Prosecuting Attorneys' Retirement System	100.0%
	State Police Retirement Fund	100.0%
	State Excise Police, Gaming Agent, Gaming Control Officer, and Conservation Officers' Retirement Plan	100.0%
	State Teachers' Retirement Fund Pre-1996	100.0%
	Public Employees Retirement System	26.1%
	State Police Supplemental Trust	100.0%
Iowa	Judicial Retirement System	100.0%
	Peace Officers' Retirement, Accident and Disability System	100.0%
	Iowa Public Employees Retirement System	13.4%
Kansas	Police and Fire Retirement System	8.2%
	Public Employees Retirement System - School and State	97.4%
	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)	73.6%
	Teachers' Retirement System	97.6%
Louisiana	State Police Retirement System	100.0%
	District Attorneys' Retirement System	44.7%
	Louisiana Clerks of Court Retirement and Relief Fund	8.0%
	Louisiana State Employees' Retirement System	74.8%
	Registrars of Voters Employees' Retirement System	74.3%
	Teachers' Retirement System of Louisiana	4.4%
Maine	Legislative Pension Plan	100.0%
	Judicial Pension Plan	100.0%
	State Employees and Teachers Plan	94.9%
Maryland	Transit Administration Pension Plan	100.0%
	State Retirement and Pension System	85.0%
Massachusetts	Boston Retirement System (State)	96.5%
	State Employees' Retirement System	93.5%
	Teachers' Retirement System	100.0%
Michigan	Military Retirement Provisions	100.0%
	State Employees' Retirement System	98.1%
	State Police Retirement System	100.0%
	Legislative Retirement System	100.0%
	Judges' Retirement System	100.0%
	Public School Employees' Retirement System	37.8%
Minnesota	Legislators Retirement Fund	100.0%
	State Patrol Retirement Fund	100.0%
	Correctional Employees Retirement Fund	99.9%
	General Employees Retirement Fund	3.4%
	St Paul Teachers' Retirement Fund	31.7%
	State Employees Retirement Fund	46.4%
	Teachers Retirement Association of Minnesota	10.2%
	Public Employees Police and Fire Fund	4.9%
	Judicial Retirement Fund	100.0%
Mississippi	Highway Safety Patrol Retirement System	100.0%
	Supplemental Legislative Retirement Plan	100.0%
	Public Employees' Retirement System	16.8%

Exhibit 19

Allocation of pension plan liabilities by state (continued)

Missouri	Judicial Plan	100.0%
	Department of Transportation and Highway Patrol Employees' Retirement System	100.0%
	Missouri State Employees' Plan	80.6%
Montana	Highway Patrol Officers' Retirement System	100.0%
	Judges' Retirement System	100.0%
	Game Wardens' and Peace Officers' Retirement System	94.9%
	Firefighters' Unified Retirement System	70.0%
	Montana Teachers' Retirement System	37.6%
	Public Employees' Retirement System-Defined Benefit Retirement Plan	55.0%
	Municipal Police Officers' Retirement System	66.9%
	Sheriffs Retirement System	4.8%
	Volunteer Firefighters' Compensation Act	100.0%
Nebraska	Omaha School Employees' Retirement System	11.0%
	Service Annuity Plan	100.0%
	Judges Retirement System	100.0%
	State Employees' Retirement Plan	100.0%
	State Patrol Retirement System	100.0%
	School Employees' Retirement System	17.3%
Nevada	Legislators' Retirement System	100.0%
	Judicial Retirement System	89.5%
	Public Employees' Retirement System	16.5%
New Hampshire	Judicial Retirement Plan	100.0%
	New Hampshire Retirement System	17.7%
New Jersey	New Jersey Public Employees' Retirement System - State	100.0%
	New Jersey Police and Firefighters' Retirement System - State	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	100.0%
New Mexico	Judicial Retirement Fund	100.0%
	Magistrate Retirement Fund	100.0%
	Volunteer Firefighters Retirement Fund	100.0%
	Educational Employees' Retirement System	0.3%
	Public Employees Retirement Fund	50.1%
New York	New York State and Local Employees' Retirement System	39.7%
	New York State and Local Police and Fire Retirement System	19.9%
North Carolina	Consolidated Judicial Retirement System	100.0%
	Firefighters' and Rescue Squad Workers' Pension Fund	100.0%
	Legislative Retirement System	100.0%
	Law Enforcement Officer Special Separation Allowance	100.0%
	North Carolina National Guard Pension Fund	100.0%
	Teachers' and State Employees' Retirement System	21.9%
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	37.2%
	North Dakota Teachers Fund for Retirement	0.4%
Ohio	State Highway Patrol Retirement System	100.0%
	Public Employees' Retirement System - Combined Benefit Plan	18.7%
	Public Employees' Retirement System - Traditional Plan	19.8%
	State Teachers' Retirement System	0.4%
Oklahoma	Oklahoma Law Enforcement Retirement System	98.5%
	Uniform Retirement System for Justices and Judges	100.0%
	Wildlife Conservation Retirement Plan	100.0%
	Oklahoma Police Pension and Retirement Plan	0.3%
	Oklahoma Public Employees Retirement System	84.9%

Exhibit 20

Allocation of pension plan liabilities by state (continued)

Oregon	Oregon Public Employees Retirement System	20.8%
Pennsylvania	State Employees' Retirement System	85.3%
	Public School Employees' Retirement System	50.6%
Rhode Island	Judicial Non-Contributory Retirement Plan	100.0%
	Judicial Retirement Benefits Trust	100.0%
	Judicial Retirement Fund	100.0%
	State Police Non Contributory Retirement Plan	100.0%
	State Police Retirement Benefits Trust	100.0%
	Employees' Retirement System - State	89.9%
	Employees' Retirement System - Teachers	42.6%
South Carolina	General Assembly Retirement System	100.0%
	Judges' and Solicitors' Retirement System	100.0%
	National Guard Supplemental Retirement Plan	100.0%
	Police Officers' Retirement System	28.1%
	South Carolina Retirement System	56.6%
South Dakota	South Dakota Retirement System	20.1%
Tennessee	TCRS-Closed State and Higher Education Employee Pension Plan	70.3%
	TCRS-State and Higher Education Employee Retirement Plan	68.6%
Texas	Texas Employees Retirement System	100.0%
	Law Enforcement and Custodial Officer Supplemental Retirement Plan	100.0%
	Judicial Retirement System of Texas Plan One	100.0%
	Judicial Retirement System of Texas Plan Two	100.0%
	Teacher Retirement System	55.3%
	Texas Emergency Services Retirement System Plan	28.5%
Utah	Contributory Retirement System - State and School	33.6%
	Non-Contributory Retirement System - State and School	23.6%
	Public Safety Retirement System - State	96.8%
	Judges Retirement System	100.0%
	Governors and Legislators Retirement Plan	100.0%
	Firefighters Retirement System - Other Division A	2.9%
Vermont	State Retirement System	97.7%
	State Teachers' Retirement System	100.0%
Virginia	Judicial Retirement System	100.0%
	State Police Officers Retirement System	100.0%
	Virginia Law Officers Retirement System	100.0%
	Virginia Retirement System - State	52.2%
Washington	Judges' Retirement Fund	100.0%
	Judicial Retirement System	100.0%
	State Patrol Retirement System 1/2	100.0%
	Law Enforcement Officers and fire fighters retirement system 1	87.1%
	Law Enforcement Officers and fire fighters retirement system 2	39.9%
	Public Employees' Retirement System Plan 1	39.8%
	Public Employees' Retirement System Plan 2/3	47.7%
	Public Safety Employees' Retirement System 2	55.6%
	Teachers' Retirement System Plan 1	1.2%
	Teachers' Retirement System Plan 2/3	1.1%
West Virginia	West Virginia Judges Retirement System	100.0%
	West Virginia Police Retirement System	100.0%
	State Police Death, Disability, and Retirement System	100.0%
	Public Employees Retirement System	55.2%
	Teachers' Retirement System	94.0%
Wisconsin	Wisconsin Retirement System	13.3%
Wyoming	Air Guard Firefighters Pension Plan	100.0%
	Judicial Pension Plan	100.0%
	State Patrol, Game & Fish Warden & Criminal Investigator Pension Plan	36.8%
	Public Employee Pension Plan	18.0%
	Law Enforcement Pension Plan	23.1%

Sources: State audited financial statements and actuarial reports and Moody's Investors Service

Exhibit 21

Fiscal 2021 state adjusted net OPEB liability (ANOL) metrics

Ranking based on ANOL as a % of own-source revenue

FY 2021 rank	State	Reported net OPEB liability ($ thousands)	Adjusted net OPEB liability ($ thousands)	ANOL as a % of own-source revenue	ANOL per capita	ANOL as a % of personal income	ANOL as a % of state GDP
1	New Jersey	$101,605,642	$92,317,678	180.5%	$9,962	13.3%	13.7%
2	Hawaii	$6,299,019	$13,517,656	155.2%	$9,377	15.5%	15.0%
3	Delaware	$9,018,351	$8,194,078	106.2%	$8,166	13.8%	10.2%
4	Connecticut	$26,040,852	$24,499,497	101.4%	$6,795	8.3%	8.3%
5	Maine	$2,918,027	$6,220,037	99.8%	$4,533	7.9%	8.2%
6	Illinois	$58,626,933	$56,037,897	94.4%	$4,422	6.6%	6.0%
7	Vermont	$2,651,443	$2,431,549	55.3%	$3,767	6.3%	6.7%
8	Texas	$54,091,274	$50,068,690	53.7%	$1,696	2.8%	2.5%
9	South Carolina	$10,025,521	$9,557,919	50.3%	$1,841	3.5%	3.5%
10	Alaska	($540,007)	$5,125,765	47.7%	$6,996	10.4%	9.3%
11	Maryland	$15,681,628	$14,102,961	45.7%	$2,288	3.3%	3.2%
12	New Hampshire	$2,087,806	$1,955,491	45.3%	$1,408	2.0%	2.0%
13	New York	$60,284,000	$57,163,388	44.5%	$2,882	3.8%	3.1%
14	Kentucky	$3,129,897	$6,414,299	37.0%	$1,422	2.8%	2.7%
15	Louisiana	$5,917,055	$5,874,241	36.3%	$1,270	2.3%	2.3%
16	Michigan	$7,726,031	$14,217,420	35.1%	$1,415	2.5%	2.5%
17	California*	$74,263,396	$74,816,264	35.1%	$1,907	2.5%	2.2%
18	Massachusetts	$18,434,733	$16,957,747	35.0%	$2,428	2.9%	2.7%
19	Pennsylvania	$19,538,049	$17,975,070	34.2%	$1,387	2.2%	2.1%
20	Missouri	$3,218,270	$3,726,703	23.4%	$604	1.1%	1.0%
21	Arkansas	$2,800,637	$2,452,026	21.2%	$810	1.6%	1.7%
22	Washington	$5,223,712	$4,719,803	13.6%	$610	0.8%	0.7%
23	North Carolina	$5,341,606	$4,883,425	13.3%	$463	0.8%	0.7%
24	Nevada	$865,699	$817,493	12.9%	$260	0.4%	0.4%
25	Florida	$6,957,675	$6,890,042	11.9%	$316	0.5%	0.6%
26	Rhode Island	$330,703	$546,078	10.3%	$498	0.8%	0.8%
27	Alabama	$944,440	$1,766,025	10.3%	$350	0.7%	0.7%
28	West Virginia	$284,345	$854,004	9.8%	$479	1.0%	1.0%
29	Wyoming	$512,872	$455,472	9.8%	$787	1.2%	1.1%
30	Georgia	$671,586	$2,503,628	8.0%	$232	0.4%	0.4%
31	Tennessee	$1,293,947	$1,441,146	5.9%	$207	0.4%	0.3%
32	New Mexico	$998,660	$1,036,274	5.9%	$490	1.0%	1.0%
33	Virginia	$1,063,305	$1,688,884	4.6%	$195	0.3%	0.3%
34	Arizona*	$721,002	$809,309	4.1%	$111	0.2%	0.2%
35	Ohio	$272,702	$1,284,406	3.3%	$109	0.2%	0.2%
36	Mississippi	$307,832	$292,050	2.8%	$99	0.2%	0.2%
37	Wisconsin	$488,446	$646,192	2.7%	$110	0.2%	0.2%
38	Montana	$141,392	$109,718	2.7%	$99	0.2%	0.2%
39	Colorado	$203,724	$371,684	2.1%	$64	0.1%	0.1%
40	Minnesota	$600,933	$579,951	1.7%	$102	0.2%	0.1%
41	Oklahoma	$113,976	$235,580	1.7%	$59	0.1%	0.1%
42	Iowa	$207,374	$198,866	1.6%	$62	0.1%	0.1%
43	North Dakota	$31,941	$74,963	1.0%	$97	0.1%	0.1%
44	Indiana	$54,178	$166,989	0.7%	$25	0.0%	0.0%
45	Oregon	$93,318	$111,975	0.5%	$26	0.0%	0.0%
46	Kansas	$51,151	$50,481	0.4%	$17	0.0%	0.0%
47	Nebraska	$22,304	$21,538	0.3%	$11	0.0%	0.0%
48	Utah	($26,718)	($15,499)	-0.1%	($5)	0.0%	0.0%
49	Idaho	($52,857)	($36,669)	-0.5%	($19)	0.0%	0.0%
50	South Dakota	NA	NA	NA	NA	NA	NA
	TOTAL	$511,537,807	$516,130,184	36.4%	$1,558	2.5%	2.3%
	MEAN	$10,439,547	$10,533,269	30.2%	$1,658	2.6%	2.4%
	MEDIAN	$1,063,305	$1,955,491	11.9%	$490	0.8%	0.8%

*Reflects fiscal 2020 figures because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

ANOL stands for adjusted net OPEB liability.

Sources: State audited financial statements and Moody's Investors Service

Appendix III: Fixed costs

Exhibit 22

Fiscal 2021 fixed costs as % of own-source revenue

State	Implied debt service	OPEB contribution	Implied other long-term liabilities carrying cost	Pension contribution	Pension tread water	Pension contributions as a % of pension tread water	Tread water shortfall as a % of own-source revenue	Total fixed costs (contribution)	Total fixed costs (tread water)
Alabama	2.0%	0.3%	0.2%	1.6%	1.6%	99.1%	0.0%	4.1%	4.1%
Alaska	0.8%	0.5%	0.4%	4.1%	4.0%	104.1%	-0.2%	5.8%	5.6%
Arizona*	2.9%	0.6%	0.1%	1.8%	1.8%	102.1%	0.0%	5.4%	5.3%
Arkansas	0.9%	0.5%	0.3%	2.1%	2.2%	96.2%	0.1%	3.8%	3.8%
California*	3.8%	1.2%	0.4%	4.5%	4.1%	110.0%	-0.4%	9.9%	9.5%
Colorado	1.7%	0.1%	0.3%	2.3%	2.5%	88.9%	0.3%	4.3%	4.6%
Connecticut	8.4%	3.7%	0.6%	16.4%	14.1%	115.6%	-2.2%	28.9%	26.7%
Delaware	3.5%	2.8%	0.4%	3.7%	3.3%	111.6%	-0.4%	10.4%	10.0%
Florida	2.1%	0.2%	0.6%	1.3%	1.6%	78.4%	0.3%	4.2%	4.5%
Georgia	2.5%	0.4%	0.1%	2.0%	1.4%	147.4%	-0.7%	5.0%	4.4%
Hawaii	7.1%	12.7%	0.4%	7.8%	9.2%	85.6%	1.3%	28.0%	29.4%
Idaho	0.8%	0.0%	0.3%	1.2%	1.0%	118.0%	-0.2%	2.4%	2.2%
Illinois	4.3%	1.8%	0.1%	7.9%	20.7%	37.9%	12.9%	14.2%	27.0%
Indiana	0.5%	0.1%	0.1%	7.5%	3.6%	205.8%	-3.9%	8.2%	4.3%
Iowa	0.9%	0.1%	0.2%	1.2%	1.2%	99.3%	0.0%	2.4%	2.4%
Kansas	2.4%	0.0%	0.3%	5.3%	4.8%	109.6%	-0.5%	8.0%	7.5%
Kentucky	3.3%	1.3%	0.3%	11.9%	11.4%	105.1%	-0.6%	16.9%	16.3%
Louisiana	3.7%	1.3%	1.9%	4.6%	3.7%	126.3%	-1.0%	11.5%	10.6%
Maine	1.7%	1.8%	0.2%	6.4%	4.1%	155.2%	-2.3%	10.1%	7.8%
Maryland	3.9%	2.1%	0.2%	6.3%	6.4%	97.5%	0.2%	12.5%	12.6%
Massachusetts	6.8%	1.1%	0.4%	6.7%	8.1%	83.1%	1.4%	15.2%	16.5%
Michigan	1.3%	2.1%	0.3%	4.6%	4.0%	115.9%	-0.6%	8.4%	7.7%
Minnesota	1.8%	0.1%	0.3%	0.9%	0.9%	99.4%	0.0%	3.0%	3.0%
Mississippi	3.9%	0.1%	0.1%	2.1%	2.8%	73.6%	0.7%	6.3%	7.0%
Missouri	1.3%	0.6%	1.2%	3.9%	4.1%	94.6%	0.2%	6.9%	7.2%
Montana	0.3%	0.0%	0.7%	3.2%	5.6%	56.8%	2.4%	4.2%	6.6%
Nebraska	0.0%	0.0%	0.4%	1.4%	1.0%	143.4%	-0.4%	1.9%	1.5%
Nevada	2.4%	0.4%	0.1%	2.8%	3.1%	90.4%	0.3%	5.8%	6.1%
New Hampshire	2.0%	1.0%	0.4%	2.0%	2.3%	90.7%	0.2%	5.4%	5.6%
New Jersey	6.2%	3.6%	0.6%	9.2%	13.2%	69.7%	4.0%	19.6%	23.6%
New Mexico	1.0%	0.1%	0.4%	1.1%	1.9%	59.1%	0.8%	2.7%	3.4%
New York	4.0%	1.4%	0.6%	1.4%	1.9%	73.7%	0.5%	7.4%	7.9%
North Carolina	1.3%	0.7%	0.4%	1.6%	1.2%	137.8%	-0.4%	4.0%	3.6%
North Dakota	0.0%	0.1%	0.1%	0.5%	1.6%	29.0%	1.1%	0.6%	1.8%
Ohio	3.7%	0.0%	0.2%	1.1%	1.1%	100.1%	0.0%	5.0%	5.0%
Oklahoma	0.7%	0.2%	0.1%	2.0%	1.3%	157.1%	-0.7%	3.0%	2.3%
Oregon	3.5%	0.1%	0.5%	2.1%	2.6%	80.8%	0.5%	6.2%	6.7%
Pennsylvania	2.6%	1.1%	0.6%	9.7%	7.3%	132.6%	-2.4%	14.1%	11.7%
Rhode Island	4.8%	0.9%	0.2%	6.1%	5.6%	109.5%	-0.5%	11.9%	11.4%
South Carolina	0.9%	0.9%	0.4%	5.8%	6.4%	91.2%	0.6%	8.0%	8.6%
South Dakota	1.2%	0.0%	0.4%	0.9%	0.6%	147.4%	-0.3%	2.5%	2.2%
Tennessee	0.6%	0.5%	0.2%	1.3%	0.8%	158.5%	-0.5%	2.7%	2.2%
Texas	1.6%	1.2%	0.1%	3.4%	6.7%	50.7%	3.3%	6.3%	9.6%
Utah	1.8%	0.2%	0.2%	1.6%	1.1%	150.3%	-0.5%	3.7%	3.2%
Vermont	1.2%	2.8%	0.2%	4.8%	6.2%	78.6%	1.3%	9.1%	10.4%
Virginia	2.7%	0.3%	0.1%	1.2%	1.4%	88.9%	0.2%	4.3%	4.5%
Washington	5.0%	0.3%	0.7%	2.6%	0.7%	380.3%	-1.9%	8.5%	6.6%
West Virginia	3.9%	1.4%	1.1%	5.8%	3.9%	150.5%	-1.9%	12.2%	10.2%
Wisconsin	3.5%	0.1%	0.8%	0.6%	0.4%	162.6%	-0.2%	5.1%	4.8%
Wyoming	0.0%	0.1%	0.0%	0.8%	0.9%	87.6%	0.1%	0.9%	1.0%
TOTAL	3.1%	1.1%	0.4%	4.1%	4.7%	86.2%	-0.7%	8.7%	9.4%
MEAN	2.5%	1.1%	0.4%	3.8%	4.0%	110.8%	0.2%	7.8%	8.0%
MEDIAN	2.1%	0.5%	0.3%	2.4%	2.7%	99.7%	0.0%	6.0%	6.3%

*Reflects fiscal 2020 figures because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

Sources: State audited financial statements and Moody's Investors Service

Appendix IV: Total long-term liabilities

Exhibit 23

Fiscal 2021 state other long-term liabilities metrics

Ranking based on other long-term liabilities as a % of own-source revenue

FY 2021 rank	State	Other long-term liabilities ($ thousands)	Other long-term liabilities as a % of own-source revenue	Other long-term liabilities per capita	Other long-term liabilities as a % of personal income	Other long-term liabilities as a % of state GDP
1	Louisiana	$3,873,312	23.9%	$838	1.5%	1.5%
2	Missouri	$2,686,236	16.8%	$435	0.8%	0.7%
3	West Virginia	$1,384,897	15.9%	$777	1.6%	1.6%
4	Wisconsin	$2,671,655	11.4%	$453	0.8%	0.7%
5	Montana	$395,811	9.6%	$358	0.6%	0.7%
6	Pennsylvania	$4,647,775	8.8%	$359	0.6%	0.6%
7	Florida	$4,760,973	8.2%	$219	0.4%	0.4%
8	New York	$10,309,000	8.0%	$520	0.7%	0.6%
9	Connecticut	$1,917,971	7.9%	$532	0.6%	0.6%
10	Oregon	$1,625,478	7.6%	$383	0.6%	0.6%
11	Washington	$2,352,163	6.8%	$304	0.4%	0.4%
12	Nebraska	$533,109	6.6%	$271	0.4%	0.4%
13	Hawaii	$565,363	6.5%	$392	0.6%	0.6%
14	California*	$12,839,285	6.0%	$327	0.4%	0.4%
15	Massachusetts	$2,907,055	6.0%	$416	0.5%	0.5%
16	New Hampshire	$256,367	5.9%	$185	0.3%	0.3%
17	Delaware	$449,515	5.8%	$448	0.8%	0.6%
18	North Carolina	$2,043,041	5.6%	$194	0.4%	0.3%
19	South Dakota	$167,651	5.5%	$187	0.3%	0.3%
20	South Carolina	$1,051,973	5.5%	$203	0.4%	0.4%
21	Alaska	$581,090	5.4%	$793	1.2%	1.1%
22	Idaho	$401,858	5.1%	$211	0.4%	0.4%
23	Kansas	$615,854	4.6%	$210	0.4%	0.3%
24	Michigan	$1,834,900	4.5%	$183	0.3%	0.3%
25	Wyoming	$196,245	4.2%	$339	0.5%	0.5%
26	New Jersey	$2,118,100	4.1%	$229	0.3%	0.3%
27	Arkansas	$468,280	4.1%	$155	0.3%	0.3%
28	Minnesota	$1,273,429	3.8%	$223	0.3%	0.3%
29	Colorado	$657,968	3.6%	$113	0.2%	0.2%
30	Rhode Island	$177,897	3.4%	$162	0.3%	0.3%
31	Kentucky	$574,217	3.3%	$127	0.3%	0.2%
32	Iowa	$381,212	3.2%	$119	0.2%	0.2%
33	Maine	$195,204	3.1%	$142	0.2%	0.3%
34	Maryland	$905,558	2.9%	$147	0.2%	0.2%
35	Vermont	$126,360	2.9%	$196	0.3%	0.3%
36	Alabama	$464,111	2.7%	$92	0.2%	0.2%
37	Tennessee	$624,077	2.6%	$89	0.2%	0.1%
38	Ohio	$906,252	2.4%	$77	0.1%	0.1%
39	Utah	$316,202	2.3%	$95	0.2%	0.1%
40	New Mexico	$373,620	2.1%	$177	0.4%	0.3%
41	Arizona*	$405,926	2.1%	$56	0.1%	0.1%
42	Nevada	$130,821	2.1%	$42	0.1%	0.1%
43	Oklahoma	$279,967	2.0%	$70	0.1%	0.1%
44	Illinois	$1,061,292	1.8%	$84	0.1%	0.1%
45	Mississippi	$175,090	1.7%	$59	0.1%	0.1%
46	Texas	$1,469,840	1.6%	$50	0.1%	0.1%
47	Indiana	$294,335	1.2%	$43	0.1%	0.1%
48	Georgia	$369,212	1.2%	$34	0.1%	0.1%
49	Virginia	$387,821	1.1%	$45	0.1%	0.1%
50	North Dakota	$61,579	0.8%	$79	0.1%	0.1%
	TOTAL	$75,266,947	5.3%	$227	0.4%	0.3%
	MEAN	$1,505,339	5.3%	$245	0.4%	0.4%
	MEDIAN	$577,654	4.2%	$190	0.3%	0.3%

*Reflects fiscal 2020 figures because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

Sources: State audited financial statements and Moody's Investors Service

Exhibit 24

Fiscal 2021 total long-term liabilities as a % of own-source revenue

FY 2021 rank	State	Net tax-supported debt	Adjusted net pension liability	Adjusted net OPEB liability	Other long-term liabilities	Total long-term liabilities
1	Illinois	63.2%	517.3%	94.4%	1.8%	676.7%
2	Connecticut	119.6%	373.2%	101.4%	7.9%	602.1%
3	New Jersey	98.0%	300.6%	180.5%	4.1%	583.2%
4	Hawaii	114.0%	224.5%	155.2%	6.5%	500.3%
5	Kentucky	42.5%	319.1%	37.0%	3.3%	401.9%
6	Massachusetts	98.4%	238.3%	35.0%	6.0%	377.6%
7	Maryland	56.3%	218.1%	45.7%	2.9%	323.1%
8	Delaware	53.9%	108.1%	106.2%	5.8%	274.0%
9	Maine	24.0%	144.3%	99.8%	3.1%	271.2%
10	Pennsylvania	39.8%	187.2%	34.2%	8.8%	270.0%
11	Texas	21.6%	188.7%	53.7%	1.6%	265.6%
12	South Carolina	11.9%	196.8%	50.3%	5.5%	264.5%
13	Vermont	17.4%	175.4%	55.3%	2.9%	251.0%
14	Montana	4.6%	218.6%	2.7%	9.6%	235.4%
15	California*	45.2%	148.1%	35.1%	6.0%	234.4%
16	West Virginia	55.4%	150.9%	9.8%	15.9%	232.0%
17	Louisiana	49.5%	106.2%	36.3%	23.9%	216.0%
18	Rhode Island	64.5%	136.1%	10.3%	3.4%	214.3%
19	Nevada	33.9%	162.1%	12.9%	2.1%	211.0%
20	Alaska	11.9%	136.2%	47.7%	5.4%	201.2%
21	Kansas	30.9%	163.9%	0.4%	4.6%	199.8%
22	Michigan	20.7%	124.7%	35.1%	4.5%	185.0%
23	Washington	72.4%	88.8%	13.6%	6.8%	181.6%
24	Missouri	15.4%	104.9%	23.4%	16.8%	160.5%
25	Mississippi	55.5%	96.6%	2.8%	1.7%	156.5%
26	New York	59.8%	41.3%	44.5%	8.0%	153.6%
27	New Hampshire	28.4%	66.5%	45.3%	5.9%	146.1%
28	Oregon	51.2%	78.5%	0.5%	7.6%	137.8%
29	Colorado	28.2%	95.2%	2.1%	3.6%	129.0%
30	Arkansas	10.4%	82.0%	21.2%	4.1%	117.7%
31	Ohio	52.5%	52.5%	3.3%	2.4%	110.7%
32	Alabama	34.5%	56.4%	10.3%	2.7%	104.0%
33	Florida	28.5%	54.5%	11.9%	8.2%	103.1%
34	Georgia	37.7%	46.8%	8.0%	1.2%	93.7%
35	Wisconsin	46.1%	33.4%	2.7%	11.4%	93.6%
36	Indiana	6.0%	84.0%	0.7%	1.2%	91.9%
37	New Mexico	15.4%	67.2%	5.9%	2.1%	90.7%
38	Arizona*	21.1%	63.3%	4.1%	2.1%	90.6%
39	Virginia	42.9%	41.5%	4.6%	1.1%	90.1%
40	North Carolina	19.7%	40.7%	13.3%	5.6%	79.3%
41	South Dakota	16.6%	52.9%	0.0%	5.5%	75.1%
42	Minnesota	25.0%	43.5%	1.7%	3.8%	74.1%
43	Utah	22.0%	41.7%	-0.1%	2.3%	66.0%
44	Oklahoma	11.3%	48.1%	1.7%	2.0%	63.2%
45	Iowa	10.8%	42.4%	1.6%	3.2%	57.9%
46	Nebraska	0.5%	50.4%	0.3%	6.6%	57.7%
47	Idaho	11.2%	40.9%	-0.5%	5.1%	56.8%
48	Tennessee	8.2%	38.6%	5.9%	2.6%	55.3%
49	Wyoming	0.2%	40.4%	9.8%	4.2%	54.6%
50	North Dakota	1.8%	28.5%	1.0%	0.8%	32.2%
	TOTAL	43.8%	139.3%	36.4%	5.3%	224.8%
	MEAN	36.2%	123.2%	29.6%	5.3%	194.3%
	MEDIAN	28.4%	92.0%	11.1%	4.2%	155.0%

*Reflects fiscal 2020 figures because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

Source: Moody's Investors Service

Moody's related publications

Sector Research

» State and Local Government - US: Rapid employee wage inflation will cause hikes in pension liabilities, August 4, 2022

» State and Local Government - US: Persistent inflation stands to boost retiree healthcare costs, July 18, 2022

» State and Local Government - US: Pension liabilities to decline due to higher interest rates, but assets are losing ground, June 22, 2022

» Financial Stability - US: Private credit and other alternatives pose greater risk for pension funds than insurers, May 23, 2022

» State Government - US: Medians - Pension and OPEB liabilities up ahead of decline in 2022, September 30, 2021

» State Government - US: Medians - State debt rose 2.5% in 2020, spurred by pandemic-linked borrowing, June 14, 2021

Outlook

» States - US: 2022 outlook stable as fiscal momentum set to offset lingering economic risks, December 1, 2021

Methodology

» US States and Territories Methodology, March 22, 2022

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

Endnotes

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

[2] Total fixed costs include implied debt service, the pension tread water payment, OPEB contributions and implied other long-term liabilities carrying cost.

[3] The estimate for aggregate state ANPL in fiscal 2022 includes fiscal 2021 ANPL estimates for California and Arizona because these states did not have fiscal 2021 audited financial statements available as of the publication of this report.

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

[5] Asset/benefit coverage is a point-in-time measure of pension funding that provides a rough estimate of the number of years of benefits that assets can cover, assuming no further contributions, investment income or change in annual benefit outflows.

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REPORT NUMBER 1335042

APPENDIX C

State of Vermont

New Issue Summary

Sale Date: The 2021 series A and B bonds are expected to sell the week of April 26, 2021, competitively. The 2021 series C bonds are expected to sell the week of April 26, 2021, via negotiation.

Series: $80,260,000 General Obligation Bonds, 2021 Series A; $31,860,000 General Obligation Refunding Bonds, 2021 Series B; and $39,315,000 General Obligation Refunding Bonds (Vermont Citizens Board), 2021 Series C.

Purpose: Proceeds from the new issuance will be used to fund various capital projects and refund certain outstanding series of GO bonds.

Security: The bonds are general obligations of the State of Vermont (the state), backed by the state's full faith and credit.

The 'AA+' Long-Term Issuer Default Rating (IDR) and GO rating reflect conservative financial management, positioning the state well to absorb the budgetary implications of the coronavirus pandemic. Fitch Ratings anticipates that the moderate long-term liability burden will remain relatively stable.

Economic Resource Base: Vermont's small and modestly growing economy has a larger-than-average reliance on health and educational services, manufacturing and tourism; as such, it remains exposed to several key large employers. The state's population is older than most states, and growth has been relatively limited. Leading into the pandemic, Vermont's labor force had been flat to declining over the prior decade. 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 the agency's long-term expectations for the state's economy. Although property taxes represent the largest component of state revenues and have grown at a robust rate, 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 voter decisions in those districts. The state has complete legal control over its revenues.

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

Long-Term Liability Burden: 'aa': Vermont's long-term liabilities burden is above the median for U.S. states but remains moderate. Positively, the state's leadership team maintains close oversight and management of debt issuance and engages in ongoing efforts to adjust policies to improve the sustainability of retirement liabilities over time.

Operating Performance: 'aaa': Fitch anticipates Vermont will utilize its broad gap-closing capacity to manage its finances through economic downturns while maintaining a high level of fundamental financial flexibility. The state took steps during the pre-pandemic economic growth period to expand its fiscal flexibility.

Ratings

Long-Term Issuer Default Rating	AA+

New Issues

$80,260,000 General Obligation Bonds, 2021 Series A	AA+
$31,860,000 General Obligation Refunding Bonds, 2021 Series B	AA+
$39,315,000 General Obligation Refunding Bonds (Vermont Citizen Bonds), 2021 Series C	AA+

Outstanding Debt

General Obligation Bonds	AA+

Rating Outlook

Stable

Applicable Criteria

U.S. Public Finance Tax-Supported Rating Criteria (March 2020)

Related Research

Fitch Rates Vermont's $151MM GOs 'AA+'; Outlook Stable (April 2021)

U.S. States Labor Markets Tracker (Employment Recovery Remained Muted Through February, Pickup Expected in March) (April 2021)

Global Economic Outlook - March 2021 (March 2021)

2020 State Liability Report (Liability Burdens Fall in Final Year of Economic Expansion) (October 2020)

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Rating Sensitivities

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

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

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

- An inability to prudently manage the long-term liability burden in the context of modest growth expectations for the economic base available to support repayment.

Rating History (IDR)

Rating	Action	Outlook/ Watch	Date
AA+	Affirmed	Stable	4/16/21
AA+	Downgraded	Stable	7/10/19
AAA	Revised	Stable	4/5/10
AA+	Affirmed	Stable	4/13/06
AA+	Upgraded	—	10/25/99
AA	Assigned	—	8/18/92

Current Developments

Federal Relief Provides Critical Support

Federal aid measures enacted in 2020 provided direct fiscal support and bolstered economic activity in Vermont and nationwide. The American Rescue Plan Act (ARPA) could prove to be even more of a direct benefit for the state. Direct fiscal aid authorized last year included a 6.2 percentage point (pp) increase in the Federal Medical Assistance Percentage (FMAP) for Medicaid and $1.25 billion from the Coronavirus Relief Fund (CRF) included within the Coronavirus Aid, Relief and Economic Security (CARES) Act. Vermont directed its allocation primarily to economic relief for businesses and individuals, with more than three fourths of CRF expenditures in the form of grants.

The Committee for a Responsible Federal Budget (CRFB) estimates that Vermont's residents, businesses and healthcare providers received approximately $4.8 billion in additional federal funding from the multiple stimulus and relief bills enacted by Congress since the pandemic's onset in March 2020, with the majority coming in the form of various federal loan programs such as the Paycheck Protection Program. This significant influx of federal funding played a key role in supporting a rebound in economic activity.

Under the ARPA, Vermont's state government is also in line to receive just over $1 billion in direct aid from the Coronavirus State and Local Fiscal Recovery Fund, with the first installment arriving within 60 days of the ARPA's enactment on March 11, 2021. The statute allows the U.S. Treasury Department to withhold up to 50% of any state's allocation for up to 12 months based on the treasury secretary's evaluation of the state's unemployment rate. Fitch anticipates details on that evaluation, along with allowable uses of the direct aid, will be forthcoming from the Treasury Department. Vermont will also receive $113 million from the Coronavirus Capital Projects Fund established by ARPA.

Vermont’s House of Representatives has enacted a plan to allocate about $650 million of the ARPA direct aid, primarily toward infrastructure measures. The governor recently put forward his own plan for utilizing the ARPA receipts, focusing primarily on one-time infrastructure investments that include broadband, affordable housing and water/sewer infrastructure. The combination of direct aid and a significant amount of economic stimulus should have a positive near-term effect on state revenues. Although Fitch does not expect the stimulus aid to alter Vermont’s long-term credit fundamentals, it should help to bridge near-term fiscal gaps.

Vermont Economic and Budgetary Update

Vermont’s economic performance has improved since the pandemic’s onset but slightly trails current national trends. Following a steep decline in April 2020 of more than 20% from the prior month, Vermont’s nonfarm payrolls had recovered 56.5% through February. This compares to a national decline of just under 14.7% in April 2020 and a slightly more robust recovery of 57.6% through February. For details, see “U.S. States Labor Markets Tracker (Employment Recovery Remained Muted Through February, Pickup Expected in March),” published April 15, 2021, on www.fitchratings.com. Vermont's employment growth waned beginning in October 2020 but should benefit from the accelerating rate of coronavirus vaccinations. As of April 15, 2021, Vermont ranks seventh among all states with 29.1% of its population fully vaccinated, compared to about 23.6% nationally, according to the Centers for Disease Control and Prevention (CDC).

State revenue performance has outperformed expectations and, in some cases, even exceeds pre-pandemic forecasts. The state reports revenues over three primary operating funds: the general, education and transportation funds. Collectively, the state's January 2021 revenue forecasting body (the Emergency Board, or "E-Board") anticipates revenues in the three funds will be largely unchanged in the current fiscal year, relative to both fiscal 2020 and fiscal 2019, at $2.4 billion. This represents a $254.3 million (or 11.6%) improvement compared to the previous E-Board forecast in August 2020.

Versus the most recent pre-pandemic forecast from January 2020, the January 2021 forecast for the three funds combined is essentially flat. The education fund forecast (comprising predominantly sales tax) is 2.7% ahead of the pre-pandemic outlook, while the general fund and transportation fund forecasts still slightly lag pre-pandemic expectations.

Through February, the state reports revenue collections are running 2.5% ahead of the January 2021 forecast, at $1.8 billion across the three primary operating funds. Administrative issues, including a delay in the start of the federal tax filing season and the individual income tax filing deadline extension into May, imply a potentially slower pace of growth over the rest of fiscal 2021 in income tax collections. The individual income tax, representing nearly half of total revenues in the three funds, is over 5% ahead of the target through February. Sales tax revenues, at one fifth of total revenues, were essentially in line with the January 2021 forecast.

Based on the January 2021 E-Board revenue forecast and appropriations as revised under a March 2021 budget adjustment act, the state anticipates a strong $225 million general fund operating surplus in fiscal 2021 on $1.7 billion in spending. Vermont is also anticipating modest surpluses in the education and transportation funds. This follows small operating surpluses in 2020 for the general and education funds and a minor deficit in the transportation fund. The likely strong fiscal 2021 operating results position Vermont well for fiscal 2022.

The state did not draw on its operating reserves last year and has no plans to draw on them in 2021 or 2022. All three funds maintain budget stabilization reserves (BSR) at their statutory maximum levels of 5% of prior year appropriations. For the general fund, the BSR equals $80 million. The state also maintains several additional general fund reserves that total nearly $150 million.

For fiscal 2022, the E-Board anticipates strong 5.4% growth in revenues, attributable to an anticipated acceleration in economic recovery through the year. Notably, the E-Board completed this forecast before passage of the ARPA, which Fitch expects will provide a significant boost to national economic activity (see "Global Economic Outlook - March 2021," published March 17, 2021, on www.fitchratings.com). The governor's executive budget for fiscal 2022 is built on the January 2021 E-Board forecast, leaving budgetary upside for lawmakers to consider as they settle on a final budget. Prudently, the governor's proposal uses the anticipated $200 million (approximate) fiscal 2021 operating surplus for one-time needs, mainly capital, in fiscal 2022, rather than building it into the base budget.

The executive budget includes full actuarial contributions for the state's pension systems, consistent with prior years. Fiscal 2022 contributions are materially higher than current-year levels based on recent updates to actuarial assumptions, including a decrease in the investment return assumption. The Vermont House of Representatives passed its version of the budget in late March, and the State Senate is now deliberating.

Credit Profile

Fitch considers the state's economic growth trajectory to be modest and midrange relative to its New England peers. Vermont's population has been largely unchanged since 2010, falling below the national trend of slow and steady growth. Pre-pandemic, the state's unemployment rate was the lowest in New England and among the lowest nationally, as labor force weakness had been a primary factor. 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 that include a grant program for remote workers relocating to Vermont.

Given Vermont's small population of 623,347 as of July 2020 (the second lowest among all states), even minor shifts in migration trends could lead to notable population and workforce changes. Early data, including rapid growth in housing prices and unanticipated spikes in property transfer tax receipts, imply at least a short-term boost in migration into the state during the pandemic. The sustainability of these recent gains could be an important consideration in determining the state's longer-term economic and credit implications.

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 (MRT) intended to export a share of the tax burden to visiting tourists. Vermont also levies a state property tax for education, which is an unusual feature for state governments yet comprises the largest source of Vermont's total revenues. Since Vermont essentially passes through property tax collections to local school districts, Fitch discounts the importance of this stream in its revenue framework assessment. There are no legal limitations on the state's ability to raise revenues.

Fitch anticipates limited growth in Vermont's revenues over the long term, 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 essentially flat on a real basis over the past decade. The limited growth reflects the state's ongoing 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 the state's largest expenditure item from own-source revenues; this is driven by Vermont's unique funding system whereby the state covers the full cost for locally administered K–12 schools, primarily through the property tax and the sales and use tax. Health and human services, primarily Medicaid, is the second-largest expenditure area.

Spending growth, absent policy action, will likely be slightly ahead of revenue growth. This is 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 along with federal government rules limits states' options in managing the pace of spending growth. Federal action to revise Medicaid's fundamental programmatic and financial structure does not appear to be a near-term priority of the current federal administration or the U.S. Congress. As with all federal initiatives, Medicaid remains subject to regulatory changes that could affect various aspects of the program.

Vermont has been particularly aggressive in addressing the long-term national trend of steadily rising healthcare costs (including Medicaid), including a recent shift toward outcome-based care under an "all-payer" system, rather than the traditional fee-for-service model. Under terms of the 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 gaining 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, and it has since expanded the program to cover the vast majority of Vermont's Medicaid members.

Medicaid Spending Growth Remains Modest

Leading into the pandemic, healthcare spending had leveled off in recent years, with the state reporting that Medicaid spending growth slowed considerably from fiscal 2016 onward. The state also reported a sharp decline in Medicaid enrollment during this period (by 21% between fiscal years 2016 and 2019). This trend was observed in numerous other states given the then-expanding economy and was a key factor in the slower Medicaid spending growth.

Through the early months of the pandemic, despite the deep job losses noted above, Vermont's Medicaid spending increased only modestly. The state's Agency for Health Services notes enrollment growth since the onset of the pandemic has been offset by a decline in utilization, partially due to the pandemic's limiting effects on public interaction. Fiscal 2020 spending (combined state and federal spending) was flat yoy at 0.2%, while the state currently projects fiscal spending to increase 2.1% and 1.6% in fiscal years 2021 and 2022, respectively. Both levels actually trail the pre-pandemic five-year average for Medicaid spending growth (through 2019) of 2.6%. Medicaid spending growth during the pandemic-driven downturn also trailed the fiscal 2009 growth rate of over 12%, which coincided with the peak of the Great Recession.

Lake Champlain Cleanup Costs

Following a June 2016 agreement between the EPA and the state to address pollution issues in Lake Champlain, the Vermont Legislature enacted legislation (Act 76 of 2019) to meet a federal mandate to establish an ongoing funding source for cleanup efforts. As such, Act 76 dedicates 6% of the state's MRT collections to a clean water fund. The state estimates the MRT dedication, along with other allocated state revenues, will yield approximately $20 million annually for cleanup costs. The EPA indicated last April that the state's recent statutory dedication of revenues puts it on track to meet its obligations under the June 2016 agreement. However, sharp declines in the MRT over the past year will decrease dedicated revenues; should MRT receipts fail to recover within the next several years, the EPA may require the state to supplement its annual contributions.

Fitch anticipates Vermont's low fixed carrying cost burden (5.8% of governmental expenditures in fiscal 2020) will increase modestly based on the most recent actuarial valuation reports given the state's commitment to, at minimum, full actuarial contributions to its pension systems. The state has regularly contributed in excess of actuarially determined amounts for pensions in an effort to manage and reduce its net pension liabilities (NPLs). Overall, the state retains ample flexibility to adjust its main expenditure items.

New Pension Valuations Will Trigger Higher Contributions

In October, the state's primary pension systems released new actuarial valuations based on the most recent experience study (completed in September 2020), which reported sizable growth in unfunded liabilities and actuarially determined employer contributions. Combined contributions to the Vermont State Employees' Retirement System (VSERS) and the Vermont State Teachers' Retirement System (VSTRS) will increase 44% in fiscal 2022. This approximately $96 million increase is not a material concern in the context of the state's fiscal 2020 governmental funds expenditures of $6.2 billion.

Long-Term Liability Burden

On a combined basis, Vermont's debt and NPLs as of Fitch's "2020 State Liability Report" (published Oct. 26, 2020, on www.fitchratings.com) totaled 11.5% of 2019 personal income, compared with a U.S. states median of 5%. Based on the state's fiscal 2020 audited financial statements, Fitch calculates a long-term liability burden of 11.9% of 2020 personal income. This ratio includes special obligation transportation infrastructure bonds (TIBs) supported by a dedicated share of Vermont's gasoline and diesel taxes, along with Vermont Housing Finance Agency bonds paid from the state's real property transfer tax. Vermont considers the TIBs to be self-supporting from the dedicated tax revenues as part of its legal and policy calculations for tax-supported debt.

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

NPLs are more significant, with Fitch-adjusted NPLs representing approximately 10% of personal income. The pension liability calculations include essentially 100% of the liability in the VSERS and VSTRS, for which the state makes the full actuarial contribution. Market losses during the last two recessions contributed to recent growth in NPLs for both systems.

State Looks To Address Growth in Pension and Other Post-Employment Benefit Liabilities

The October valuations noted earlier will lead to an approximate 25% increase in the reported actuarial unfunded liability for VSERS and VSTRS, although Fitch anticipates Vermont's long-term liability burden will remain consistent with an 'aa' assessment over the long term. An analysis from the Vermont State Treasurer's Office attributed the growth to a change in the discount rate assumption to 7.0% from 7.5%, along with various demographic changes based on the experience study findings.

Earlier this year, the Vermont Legislature considered a bill to revise pension benefits and increase both employer and employee contributions in an effort to reduce the projected growth in liabilities. The state treasurer had previously presented a January 2021 report to the legislature with a series of recommendations. However, instead of enacting legislation, the legislature elected to create a task force to study the issue and propose new legislation for the next session in 2022.

Other post-employment benefit (OPEB) liabilities are also significant, with the reported 2020 net OPEB liability equal to 7.3% of the state's personal income, up from 6.6% the prior year. The treasurer's office notes that the increase is due entirely to interest rate changes; given the lack of full actuarially determined contributions, the state (following guidelines from the Governmental Accounting Standards Board) reports its OPEB liability using a 20-year AA municipal bond rate to calculate the present value of its benefit obligation. The prescribed rate declined last year, lowering the discount rate used for the OPEB liability calculation and increasing the liability.

The state has taken modest steps toward prefunding OPEB liabilities and has made some progress in reducing liabilities through collective bargaining with unions. Fitch anticipates Vermont will continue to seek ways to reduce OPEB costs and long-term liabilities. The treasurer's January 2021 report to the Vermont Legislature also included recommendations regarding OPEB.

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. Official revenue forecasts are updated at a minimum of twice a year through the E-Board, a consensus process involving the administration and legislature. During the Great Recession, the state moved to quarterly updates to enhance its ability to respond to rapidly changing fiscal circumstances. At the onset of the pandemic in early 2020, the state implemented more frequent "revenue risk assessment analyses."

The governor can implement a spending reduction plan either unilaterally, in the event a revenue forecast lowers revenues less than one percent from the prior forecast, or with approval from the legislature's Joint Fiscal Committee (a bipartisan and bicameral committee comprising legislative fiscal leaders) for larger forecast revenue shortfalls. As noted earlier, the state has been able to engage key stakeholders, including labor, to develop spending reduction plans during economic and fiscal downturns. The state's recent pattern has been to focus on expenditure cuts, such as negotiated wage reductions or programmatic cuts, rather than revenue increases.

Last year, the Vermont Legislature and the governor implemented two budget adjustment acts, including one in May 2020 that was expressly in response to the pandemic. The state focused on reducing spending primarily by holding back on planned expenses and freezing hiring, rather than resorting to deep programmatic cuts or widespread layoffs.

Vermont's multiple budget reserves also support the state's robust financial resilience. These include fully funded budget stabilization reserves (5% of prior year appropriations) in each of its three primary operating funds (general, education and transportation), along with separate, fund-specific reserves or unreserved balances of lesser amounts. The state estimates the various general fund reserves will total $228.1 million at fiscal YE21, representing approximately 15% of forecast general fund uses. Combined reserves across the three primary operating funds total 13% of revenues, net of the statewide property tax.

FAST Scenario Analysis for Vermont

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

Vermont has robust financial resilience that should allow it to absorb the budgetary effects of the pandemic. Fitch's standard FAST scenario of a 1% GDP decline in year 1 results in a 1% decline in Vermont's revenue, versus an approximate 3% median decline for all states. The state appears to be less vulnerable to cyclical revenue declines tied to economic downturns than most other states.

Prudent Management Prepares the State for Downturns

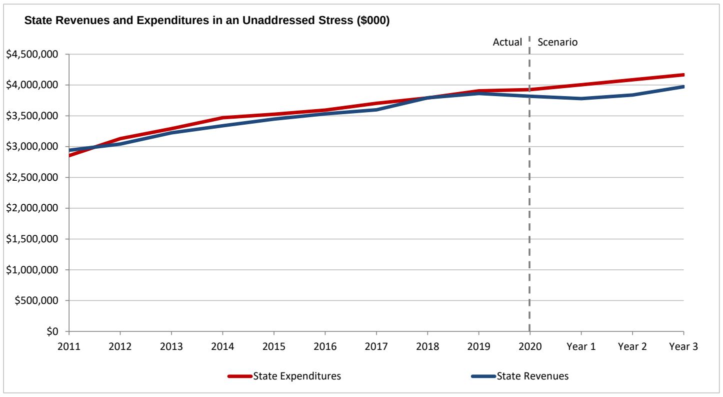
The state's budgeting practices tend to be conservative in forecasting and proactive through the fiscal year, with most fiscal years ending with at least a modest general fund budget surplus despite the lack of a statutory or constitutional balanced budget requirement. In the years leading into the pandemic, the state took steps to build in additional fiscal resilience 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 used primarily for Medicaid; and a “27/53” reserve, established in 2016 to address years that feature a 27th biweekly payroll or a 53rd week of Medicaid disbursements.

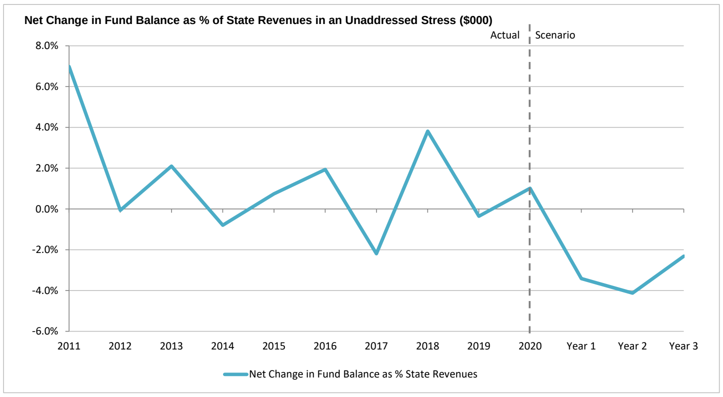
ESG Considerations

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

Vermont, State of (VT)

Scenario Analysis


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


Net Change in Fund Balance as % of State Revenues in an Unaddressed Stress ($000)

Analyst Interpretation of Scenario Results:

FAST Scenario Analysis for Vermont

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

Vermont has robust financial resilience that should allow it to absorb the budgetary effects of the ongoing pandemic. Fitch's standard FAST scenario of a 1% decline in GDP in year 1 results in a 1% decline in Vermont's revenue compared to an approximately 3% states' median decline. The state appears to be less vulnerable to cyclical revenue declines tied to economic downturns than most other states.

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)	*Minimum Y1 Stress:* -1% *Case Used:* **Moderate**	(1.0%)	1.5%	3.5%

Revenues, Expenditures, and Net Change in Fund Balance	Actuals										Scenario Output		
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Year 1	Year 2	Year 3
Expenditures													
Total Expenditures	4,860,504	5,017,124	5,157,410	5,408,365	5,611,911	5,614,127	5,695,460	5,787,926	5,912,667	6,198,921	6,322,899	6,449,357	6,578,344
% Change in Total Expenditures	4.2%	3.2%	2.8%	4.9%	3.8%	0.0%	1.4%	1.6%	2.2%	4.8%	2.0%	2.0%	2.0%
State Expenditures	2,852,399	3,129,968	3,291,870	3,470,157	3,524,751	3,592,491	3,703,795	3,791,118	3,906,257	3,925,660	4,004,173	4,084,256	4,165,942
% Change in State Expenditures	4.1%	9.7%	5.2%	5.4%	1.6%	1.9%	3.1%	2.4%	3.0%	0.5%	2.0%	2.0%	2.0%
Revenues													
Total Revenues	4,949,512	4,929,587	5,088,868	5,276,849	5,532,771	5,554,187	5,589,659	5,790,446	5,868,514	6,091,766	6,099,046	6,202,882	6,386,041
% Change in Total Revenues	5.8%	(0.4%)	3.2%	3.7%	4.8%	0.4%	0.6%	3.6%	1.3%	3.8%	0.1%	1.7%	3.0%
Federal Revenues	2,008,105	1,887,156	1,865,540	1,938,208	2,087,160	2,021,636	1,991,665	1,996,808	2,006,409	2,273,261	2,318,726	2,365,101	2,412,403
% Change in Federal Revenues	4.2%	(6.0%)	(1.1%)	3.9%	7.7%	(3.1%)	(1.5%)	0.3%	0.5%	13.3%	2.0%	2.0%	2.0%
State Revenues	2,941,407	3,042,431	3,223,328	3,338,641	3,445,611	3,532,550	3,597,994	3,793,638	3,862,104	3,818,505	3,780,320	3,837,781	3,973,639
% Change in State Revenues	6.9%	3.4%	5.9%	3.6%	3.2%	2.5%	1.9%	5.4%	1.8%	(1.1%)	(1.0%)	1.5%	3.5%
Excess of Revenues Over Expenditures	89,008	(87,537)	(68,542)	(131,516)	(79,140)	(59,941)	(105,801)	2,519	(44,153)	(107,154)	(223,853)	(246,475)	(192,303)
Total Other Financing Sources	116,561	85,505	136,216	104,926	104,723	128,397	26,941	142,304	30,416	145,866	94,785	88,063	100,287
Net Change in Fund Balance	205,569	(2,032)	67,674	(26,590)	25,583	68,456	(78,859)	144,823	(13,737)	38,712	(129,068)	(158,413)	(92,016)
% Total Expenditures	4.2%	(0.0%)	1.3%	(0.5%)	0.5%	1.2%	(1.4%)	2.5%	(0.2%)	0.6%	(2.0%)	(2.5%)	(1.4%)
% State Expenditures	7.2%	(0.1%)	2.1%	(0.8%)	0.7%	1.9%	(2.1%)	3.8%	(0.4%)	1.0%	(3.2%)	(3.9%)	(2.2%)
% Total Revenues	4.2%	(0.0%)	1.3%	(0.5%)	0.5%	1.2%	(1.4%)	2.5%	(0.2%)	0.6%	(2.1%)	(2.6%)	(1.4%)
% State Revenues	7.0%	(0.1%)	2.1%	(0.8%)	0.7%	1.9%	(2.2%)	3.8%	(0.4%)	1.0%	(3.4%)	(4.1%)	(2.3%)

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

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APPENDIX D

MOODY'S
INVESTORS SERVICE

CREDIT OPINION
21 July 2022

Send Your Feedback

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Vermont (State of)

Update to credit analysis

Summary

The State of Vermont (Aa1 stable) has the smallest US state economy, as measured by gross domestic product, and has the second smallest population, but resident income is above average and educational attainment is high. Still, over the long term, an aging and slowly growing population may be a drag on future economic growth. Vermont's performance on multiple economic measures has lagged that of the US for years and employment recovery over the past couple years in particular has trailed that of most states.

At the same time, state revenue continues to grow and the state maintains a strong financial position supported by prudent fiscal management. Vermont continues to build financial reserves and recently implemented legislation aimed at reducing long-term pension and other post employment benefits liabilities.

With slower than average growth, Vermont's long-term liabilities could weigh more heavily on its economic base. Vermont's leverage, measured by combined debt and unfunded post-employment obligations relative to revenue, is high among states, though still well below the ratio of the most heavily burdened states. As a US state, Vermont has broad flexibility to adjust its finances in response to operating challenges and the recently enacted pension and OPEB legislation could bring those liabilities down in coming years.

Exhibit 1

Vermont's outstanding debt, estimated as of June 30, 2022

Type of debt	Principal outstanding ($m)	Moody's rating
General obligation	$579	Aa1
Special tax - property transfer tax	$30	Aa2
Appropriation - mental health services	$20	A1
Capital leases	$9	N/A

The table does not show net bond premium, but our debt burden calculation includes bond premium.
Source: State of Vermont and Moody's Investors Service

Credit strengths

- Although Vermont's economy is the smallest of all US states, resident income is above average, educational attainment is high, and unemployment is low
- Financial operations and budget reserves are sound and stable, and liquidity is very healthy

Credit challenges

- The state's economic performance lags that of the US and many state peers, and an aging population may be a drag on future growth
- Relative to state GDP, Vermont's leverage (combined debt and unfunded post-employment liabilities) is higher than most states

Rating outlook

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

Factors that could lead to an upgrade

- Improved demographic and economic trends that more closely track those of the nation and other highly rated states
- Moderated leverage, especially unfunded pensions and retiree health care liabilities, relative to state revenue

Factors that could lead to a downgrade

- Substantial growth in debt or unfunded post-employment liabilities
- A slowdown in economic expansion or revenue growth
- A departure from strong fiscal management practices

Key indicators

Exhibit 2

	2020	2021	State Medians (2020)
Economy			
Nominal GDP ($billions)	33.4	36.2	243.8
Real GDP, annual growth	-4.2%	3.5%	-3.0%
RPP-adjusted per capita income as % of US	97.7%	97.7%	96.7%
Nonfarm employment, annual growth	-9.3%	2.4%	-5.5%
Financial performance			
Available balance as % of own-source revenue	14.3%	24.5%	20.2%
Net unrestricted cash as % of own-source revenue	48.1%	38.2%	48.1%
Leverage			
Total long-term liabilities as % of own-source revenue	227.5%	251.0%	164.5%
Adjusted fixed costs as % of own-source revenue	8.2%	10.4%	7.3%

Source: Audited financial statements, Moody's Investors Service, US Bureau of Economic Analysis and US Bureau of Labor Statistics

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

Profile

The State of Vermont is located in the northeast United States. Its population of just under 650,000 is the second lowest in the country. It has the smallest economy among US states, as measured by a gross domestic product of about $38 billion.

Detailed credit considerations

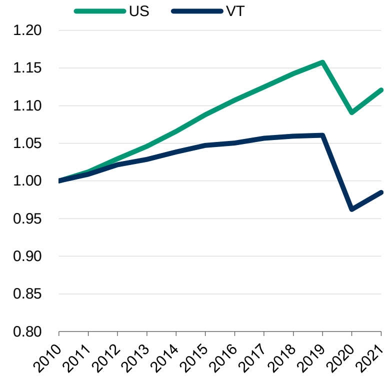
Economy

Vermont continues to recover jobs more slowly than most states. Full year 2021 nonfarm employment was 93% of the state's full year 2019 nonfarm employment, falling below the 97% ratio for the US. Through May 2022, the picture improved with the state's nonfarm employment rising to 95% of its pre-pandemic level. But, this continued to lag that of the total US, where May 2022 nonfarm employment was at just about 100% of its pre-pandemic level.

The current pace of job recovery is not out of line with Vermont's economic trajectory, relative to the US, over the past decade. Since 2010, Vermont's growth in employment, personal income and overall economic output has steadily lagged that of the nation (see Exhibits 3-5 below). Slow population growth and a generally aging population are two factors likely contributing to the state's below average economic performance, and could continue to be a drag on the state's long-term growth.

Exhibit 3

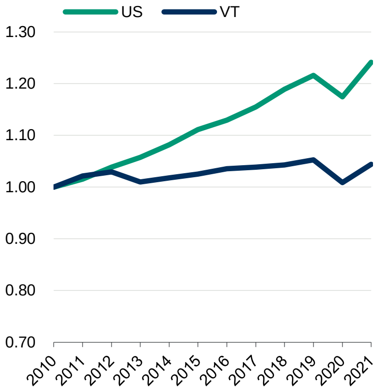
Annual nonfarm employment indexed to base year 2010
by calendar year



Source: US Bureau of Labor Statistics

Exhibit 4

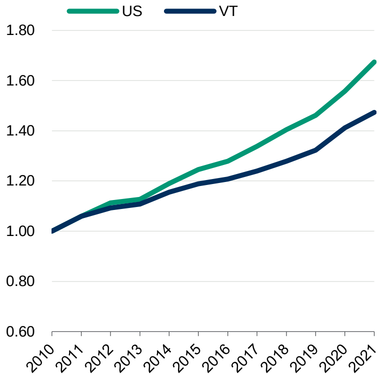
Annual real GDP indexed to base year 2010
by calendar year



Source: US Bureau of Economic Analysis

Exhibit 5

Annual total personal income indexed to base year 2010
by calendar year



Source: US Bureau of Economic Analysis

Financial performance

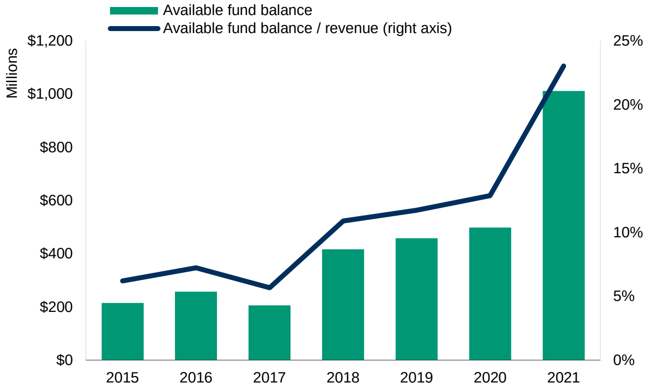
Notwithstanding economic challenges relative to the nation, Vermont's financial performance remains strong. Available fund balance has continued to rise over the past several years and we expect it to remain stable (see Exhibit 6). A portion of the state's audited fund balance consists of its statutory budget reserves, which are held across its three main operating funds - general, transportation and education funds. The state's fiscal 2023 budget includes some one-time spending of surplus reserves, but maintains all statutory reserves at required levels.

Through May of fiscal 2022 (closed June 30, 2022), tax revenue in these three funds was up 7% over the same period last year. Vermont relies most heavily on personal income and sales taxes (see Exhibit 7). The state also accounts for school district property taxes in its financial statements because the taxes are pooled in the state's education fund. However, the property taxes are restricted for education and levied, per statute, as an education tax. The state cannot use the property taxes to cover state spending other than education.

Exhibit 6

Trend in GAAP-basis available fund balance

by fiscal year ending June 30



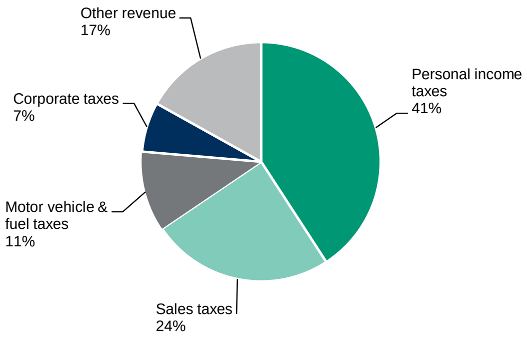
Available fund balance is the sum of governmental fund balances classified as unassigned, assigned and committed.

Source: State of Vermont and Moody's Investors Service

Exhibit 7

Composition of Vermont's core operating revenue

through May 2022 of fiscal 2022



Consists of revenue collected in the state's general, transportation and education funds. Excludes school property taxes collected in the education fund and returned to school districts.

Source: State of Vermont and Moody's Investors Service

Liquidity

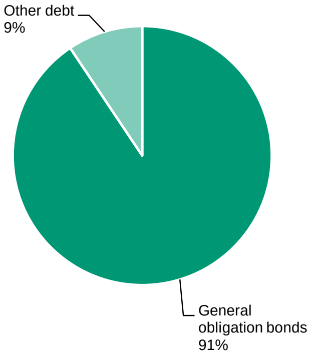
Across government activities, Vermont's cash balances also remain healthy (see Exhibit 2 above). Monthly cash reports released by the state indicate likely further improvement in overall liquidity at the close of fiscal 2022.

Leverage

Vermont's debt burden will remain moderate, but the state will continue to carry a heavier post-employment liability burden. Vermont's debt primarily consists of general obligation bonds (see Exhibit 8) and its debt ratios are very close to the state medians. However, Vermont's post-employment liability burden, measured by the combination of our adjusted net pension liability and adjusted net OPEB liability, is the principal component of its leverage (see Exhibit 9). Vermont's pension and OPEB burdens incorporate all liabilities associated with statewide school districts because the state accounts for all primary and secondary education financial activities in its own financial statements. Despite this broad inclusion of liabilities, Vermont's overall long-term liability burden remains much lower than those of the most highly leveraged states.

Exhibit 8

Composition of Vermont's outstanding debt

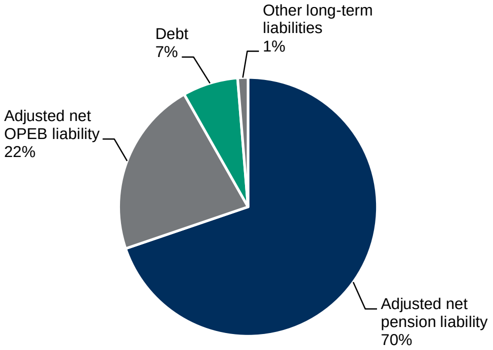


Debt estimated as of June 30, 2022.

Source: State of Vermont and Moody's Investors Service

Exhibit 9

Composition of Vermont's long-term liabilities



Debt estimated as of June 30, 2022; other liabilities as of June 30, 2021.

Source: State of Vermont and Moody's Investors Service

Legal security

Exhibit 1 above details the different types of bonds outstanding that we consider to be direct debt of Vermont. Exhibit 10 below details the legal security associated with each type of bond.

Exhibit 10

Legal security of Vermont's debt

Type of debt	Legal security
General obligation	Full faith and credit obligation of the state backed by the state's authority to levy taxes without limitation as to rate or amount.
Special tax - property transfer tax	Statutory transfer of the first $2.5 million of property transfer tax receipts from the state to the Vermont Housing Finance Agency (HFA). Act 85 of 2017 specifically allocates the first $2.5 million of collections to the HFA to pay debt service on the authorized bonds. The bonds have been issued by the HFA.
Appropriation - mental health services	Payments appropriated by the state to providers of developmental disability services; the bonds have been issued by the Vermont Economic Development Authority and Vermont Educational and Health Buildings Finance Agency.

Source: Respective bond offering documents and Moody's Investors Service

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 $223 million in fiscal 2021 consumed 5% of own-source revenue. This contribution was just below the $271 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. The gap between Vermont's actual contribution and the “tread water” indicator was a modest 1% of own-source revenue. Vermont's fiscal 2018 and 2019 contributions had slightly exceeded those years' respective “tread water” indicators.

In May 2022, the Vermont legislature overrode a gubernatorial veto to enact numerous changes to pension and OPEB benefits and funding. The state will make large, lump sum contributions to its retirement plans and will also require active employees to gradually increase their own contributions. Further, the legislation implements a host of benefit formula changes and extends the amount of time that many retirees must wait to begin receiving pension cost-of-living adjustments. All of these measures will have a positive impact on the state's long-term pension liabilities. For more details on this legislation, please see this report.

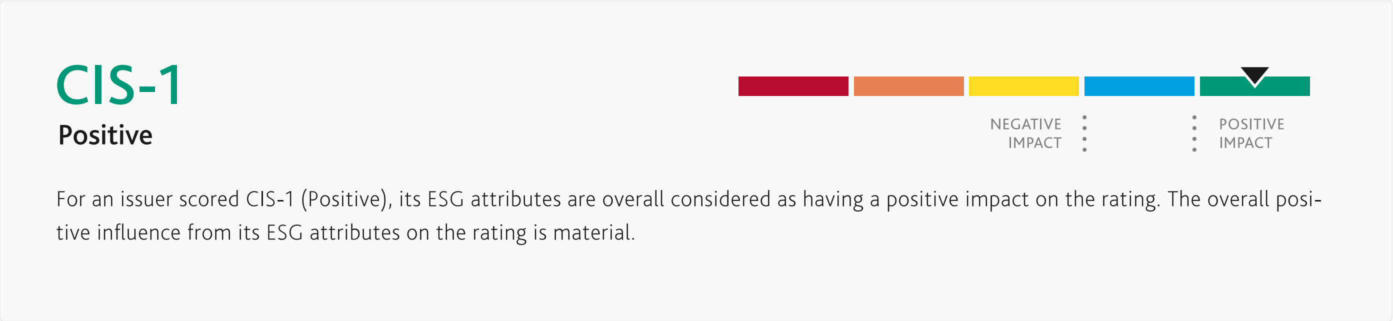
Our calculation of Vermont's fiscal 2021 adjusted net OPEB liability is $2.4 billion. As with pensions, we adjust OPEB liabilities using a market-based interest rate. However, because many public OPEB plans are not prefunded, they are already discounted at a lower rate than public pensions plans tend to use. Across governmental activities, Vermont contributed $125 million to its OPEB plans in fiscal 2021, which is also incorporated in our fixed cost ratio reported in Exhibit 2. The May legislation also commits the state to greater pre-funding of other post-employment benefits, which over time will also lower the state's net OPEB liabilities.

ESG considerations

VERMONT (STATE OF)'s ESG Credit Impact Score is Positive CIS-1

Exhibit 11

ESG Credit Impact Score



CIS-1

Positive

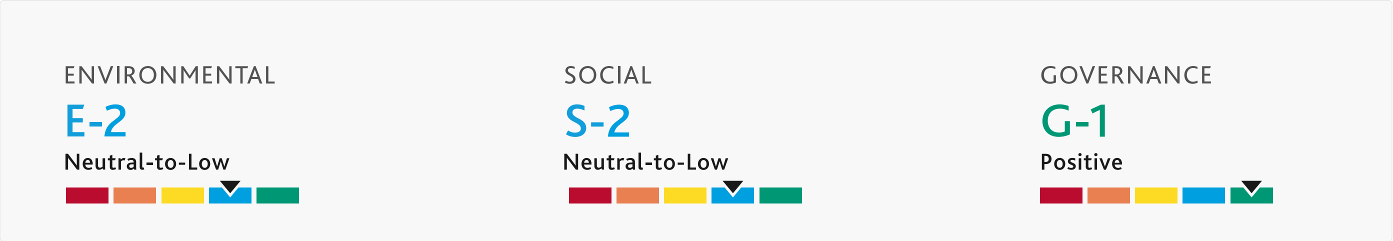
For an issuer scored CIS-1 (Positive), its ESG attributes are overall considered as having a positive impact on the rating. The overall positive influence from its ESG attributes on the rating is material.

Source: Moody's Investors Service

Vermont's ESG Credit Impact Score is positive (**CIS-1**), reflecting neutral to low exposures to environmental and social risks and a positive governance profile.

Exhibit 12

ESG Issuer Profile Scores



ENVIRONMENTAL

E-2

Neutral-to-Low

SOCIAL

S-2

Neutral-to-Low

GOVERNANCE

G-1

Positive

Source: Moody's Investors Service

Environmental

Vermont's E issuer profile score is neutral-to-low (**E-2**). With no coastal exposure, Vermont local governments are primarily exposed to extreme rainfall risk, according to data of Moody's ESG Solutions. Increased rainfall could result in more frequent local or regional flooding. We expect the state and most of its local governments have the resources and capacity to address flood events.

Social

Vermont's S issuer profile score is neutral-to-low (**S-2**). Vermont has one of the slowest growing populations in the US and the most rapid decline in prime working age population (residents aged 25-54). Since 2000, the state's prime working age population fell just over 16% and it has fallen nearly 10% since 2010. These are the highest rates of decline over these two periods among the 50 states and the District of Columbia. Since 2010, the prime working age population in the US grew nearly 5%. Support for health services by the federal government, mainly through Medicaid grants, represents a vulnerability for states and Vermont is no exception. According to data of the federal government, approximately 27% of Vermont residents are currently enrolled in Medicaid and the Children's Health Insurance Program (CHIP), a ratio higher than the 24% of the national population enrolled. This indicates that Vermont is a bit more vulnerable to a change in federal policy or funding than other states. Statewide, housing affordability has not fallen as much in Vermont as it has in many parts of the US. Though slow population growth could be a drag on future economic growth, it could keep housing affordable in most parts of the state.

Governance

Vermont's governance is strong, reflected in its positive G issuer profile score (**G-1**). 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 2008-09 recession, the state has updated its revenue forecast more frequently to aid responses to weakened revenue performance.

ESG Issuer Profile Scores and Credit Impact Scores for the rated entity/transaction are available on Moodys.com. In order to view the latest scores, please click here to go to the landing page for the entity/transaction on MDC and view the ESG Scores section.

Rating methodology and scorecard factors

The US States and Territories Rating Methodology includes a scorecard, which summarizes the 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 rat ing assigned.

Exhibit 13

Vermont (State of)

	Measure	Weight	Score
Economy			
Resident Income (PCI Adjusted for RPP / US PCI)	97.7%	15%	Aa
Economic Growth (5-year CAGR real GDP - 5-year CAGR US real GDP)	-1.7%	15%	A
Financial performance			
Financial performance	Aaa	20%	Aaa
Governance/Institutional Framework			
Governance/Institutional Framework	Aaa	20%	Aaa
Leverage			
Long-term liabilities ratio (adjusted long-term liabilities / own-source revenue)	251.0%	20%	A
Fixed-costs ratio (adjusted fixed costs / own-source revenue)	10.4%	10%	Aa
Notching factors			
Very limited and concentrated economy			0
Scorecard-Indicated Outcome			Aa2
Assigned rating			Aa1

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

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APPENDIX E

S&P Global
Ratings

RatingsDirect®

Vermont; General Obligation; School State Program

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Credit Profile		
Vermont GO		
Long Term Rating	AA+/Stable	Outlook Revised

Credit Highlights

- S&P Global Ratings revised the outlook to stable from negative and affirmed its 'AA+' long-term rating on the State of Vermont's general obligation (GO) bonds outstanding.
- At the same time, S&P Global Ratings revised the outlook to stable from negative and affirmed its 'AA' rating on the Vermont Municipal Bond Bank's Vermont State College System bonds that include an intercept mechanism dependent on appropriation funding from the state to the Vermont State Colleges System.
- The outlook revision primarily reflects our view that Vermont's credit profile is stabilized by recently enacted retirement reforms designed to significantly reduce unfunded liabilities in the long term.

Security

The GO bonds are secured by the full faith and credit of Vermont.

Credit overview

In our view, Vermont's proactive budget management practices and well-embedded strong financial policies have helped anchor the state's credit profile over time, as pressures have mounted in recent years from demographic trends and retirement liabilities. These strengths--which include regular forecast updates, annual midyear budget adjustments, consistent reserve levels across economic cycles, and debt affordability oversight--remain crucial to the state's credit quality.

Vermont has faced growing unfunded liabilities in recent years resulting in unfunded retiree health care and pension liabilities ranking sixth and eighth highest in the nation on a per capita basis in fiscal 2021, according to our calculations. We expect the state's recently passed retirement reform package will spur structural improvement to its retirement systems in the long term. The reforms are designed to build the systems' assets through one-time general fund appropriations, phase-in employee contribution increases, and raise state contributions above actuarially determined levels (until the systems reach 90% funded), among other actions. In addition, the reforms are expected to reduce costs by modifying benefit structures and implementing cost-of-living delays and reductions. Officials expect the reforms will reduce long-term unfunded retirement liabilities for state employees and teachers by approximately $2 billion when fully implemented or what we calculate as a sizable 38% of combined net pension and other postemployment benefit (OPEB) liabilities as of fiscal 2021. Although we recognize that some of these reforms will increase demand on Vermont's budgetary resources initially, we believe their long-term impact will be to decrease pressure on the state's budget as the unfunded liability is reduced. Officials report the reform package --which includes no changes to the benefits of current retirees, beneficiaries, or terminated vested members-- was designed alongside stakeholders and is not expected to face legal opposition. For more detail on Vermont's recently enacted pension reforms, see pension liabilities section.

While we still expect Vermont's aging population will limit economic growth opportunities over time, we believe the state has benefited--at least in the short term--from an uptick in in-migration related to the COVID-19 pandemic because low population density and outdoor recreation opportunities attracted those who could work remotely to the state. According to the latest data from the U.S. Census Bureau, Vermont's population growth outpaced the nation in 2021. Specifically, the state's population growth of 0.48% was four times higher than the nation's population growth of 0.12% for the same period. This is a stark reversal in trend since it represents the only year within the past decade that Vermont's population has grown at a faster rate than that of the nation. Although it remains unclear if remote workers will remain in the state long term, Vermont continues to actively pursue initiatives to address its demographic challenges; officials note funding for various programs related to housing, workforce and economic development, and childcare have totaled $150 million, $140 million, and $40 million, respectively. In our opinion, the state's strong budgetary management practices will remain crucial to Vermont's credit profile as long-term demographic pressures persist.

Vermont's latest consensus revenue forecast, as of July 28, 2022, increases general fund and education fund revenues for fiscal 2023 and fiscal 2024 compared with the previous forecast (from January). Specifically, strong personal income tax receipts are driving forecast general fund revenues to increase by $138.2 million (7.2%) in fiscal 2023 and by $31.9 million (1.6%) in fiscal 2024 despite Vermont's expectations that national and state economic growth is poised to slow. Partial education fund revenues (including sales taxes, but excluding property tax estimates not yet available at the time of the forecast) are projected to increase by a slight $11.4 million (1.7%) in fiscal 2023 and $14.0 million (2.0%) in fiscal 2024 because rising interest rates are likely to suppress property transfer tax collections. In our view, the state's forecast includes reasonable and forward-looking projections with calls for interim quarterly revenue updates if economic conditions appreciably deteriorate in fiscal 2023. The next regularly scheduled consensus revenue forecast is expected to be held in January 2023.

The state's enacted budget for fiscal 2023 totals $2.03 billion for the general fund and $1.92 billion for the education fund, for a combined $4.3 billion for Vermont's main operating funds (including the transportation fund). This represents a 4.0% decrease from $4.5 billion in fiscal 2022, which we believe corresponds with the state's expectations for some slowdown in economic growth, in line with forecast national trends. Beyond retirement reforms, the enacted budget includes new funding initiatives for infrastructure projects, climate change mitigation, and various workforce and economic development projects, among others. In addition, the budget fully funds Vermont's reserve accounts at statutory maximums.

For the fiscal year ended June 30, 2022, both general and education fund revenues are reported ahead of target given strong economic activity during the fiscal year. Vermont's Agency of Administration reports the general fund was $225.4 million (11.9%) above estimates due to strong personal income tax receipts. For the same period, the education fund was $8.6 million (1.3%) above estimates given strong sales and use tax receipts.

Vermont maintains separate budget stabilization funds in its general, transportation, and education funds, along with some additional dedicated reserves in the general fund. The state's budget stabilization reserve accounts have typically remained at their maximum statutory levels of 5% of the previous year's budgetary appropriations, including in fiscal 2022, which we consider good. As of the close of fiscal 2022, the state's general fund budget stabilization reserve held $87.1 million, which represents 3.7% of annual general fund expenditures (or 5.0% of fiscal 2021 expenditures in line with statutory requirements). We note this percentage is down slightly in fiscal 2022 given an increase in one-time spending as the state aligned certain one-time revenues with one-time expenditures. The three funds' stabilization reserves remained funded at their statutory maximums through the Great Recession and through the pandemic; management expects them to remain at their statutory maximums through fiscal 2023.

The ratings reflect our opinion of the state's:

- Strong financial and budget management policies that have contributed to consistently good reserve and liquidity levels;
- Employment composition reflective of the U.S. economy, characterized by average income levels and low unemployment rates, although economic growth has been slow and demographic challenges persist despite some recent improvement;
- 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 OPEB, which remain sizable relative to those of state peers, although we expect recently enacted retirement reforms will moderate these liabilities over time.

Based on the analytic factors we evaluate for states, on a four-point scale in which '1.0' is the strongest and '4.0' is the weakest, we have assigned a composite score of '1.8' for Vermont, which is associated with a 'AA+' indicative credit level.

Environmental, social, and governance

ESG credit indicators: E-2, S-3, G-2

Social factors are a moderately negative consideration in our credit rating analysis for Vermont. In our view, the state's demographic profile, which includes a population that is among the oldest in the nation, could limit long-term economic growth. The state has pursued several initiatives aimed at mitigating demographic challenges, including workforce development initiatives to attract and retain remote workers. In our view, the state's focus on addressing this challenge over the years helps to alleviate additional credit pressure.

In our view, environmental and governance factors do not have a material influence on our credit rating analysis for Vermont.

Outlook

The stable outlook reflects our view that the state's newly passed retirement reforms offer a structural path toward easing budgetary pressures from mounting retirement liabilities as Vermont's unfunded liability burden shrinks. The outlook revision also reflects our view that the state's demographic profile, while still expected to limit long-term economic growth potential, has benefited from pandemic-related in-migration, at least in the near term, while Vermont continues to address its demographic challenges through programs related to remote work, workforce development, and housing affordability.

Downside scenario

We could lower our rating on Vermont if we believed the state faced budgetary pressure, for example, stemming from its economic trends or retirement liabilities, despite strong management practices and policies. Although we believe recently improved demographic metrics and enacted retirement reforms have alleviated some near-term concerns, we expect these challenges will remain because their credit effects are felt gradually over the long term.

Upside scenario

Although unlikely to occur during the outlook horizon, a higher rating would likely require sustainable improvement to Vermont's economic metrics (such as growth in gross state product [GSP] and personal income levels) alongside improved pension metrics that we expect could occur with time given recently enacted retirement reforms.

Credit Opinion

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 and 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, and meal taxes. The education fund relies primarily on a statewide property tax and sales and use taxes. 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

Financial Management Assessment: Strong

We consider Vermont's financial management practices strong under our 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 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 typically 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 in response to the Great Recession and the potential effect on revenue and expenditures. The emergency board includes the governor and the legislative chairs of the house and senate money committees. The forecasting process includes traditional economic and revenue forecasting, which Vermont performs with the assistance of outside economists, for the current and 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 not exceed 5.0% of nonproperty tax revenues. 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 the legislature instead added a general fund balance reserve fund with a separate cap of 5.00% of expenditures.

On a four-point scale, with '1.0' being the strongest score, we have assigned a '1.0' to Vermont's financial management.

Economy

We believe Vermont's long-term economic growth potential will remain challenged by the state's demographic profile. Vermont is the second-smallest state in the nation, with 646,000 residents in 2021, and has one of oldest populations (with 20% of its residents over 65 years of age), with a sustained history of weak population growth trends. Management, however, believes the recent uptick in remote working opportunities spurred by the pandemic has increased in-migration trends and attracted new state residents.

According to the latest data released by the U.S. Census Bureau. Vermont's population has grown more slowly than that of the nation over the past decade. Specifically, Vermont recorded 0.25% growth from 2012 to 2021 compared with 0.63% growth for the nation, with weaker growth than the U.S. in nine of the 10 years. However, a reversal in trend was recorded in 2021. The state's 0.48% compound annual population growth for the year was stronger than the nation's 0.12% growth. In our view, this performance is likely indicative of recent in-migration trends related to the pandemic as remote work opportunities became permanent and employees continued to move out of increasingly expensive cities to areas with both lower population densities and real estate prices.

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 education, and higher education. Specific initiatives include work-opportunity tax credits and a program to attract remote workers. We believe that, while Vermont is taking proactive steps, the long-term effectiveness of these measures remains unclear.

The state's quality of life and well-educated workforce provide economic development opportunities; however, Vermont ranks low among the states in its business-tax and regulatory environment, and its slow workforce expansion could continue to stifle future economic growth prospects. Its residents, however, are highly educated, which is beneficial for attracting companies that offer high-wage jobs.

The state's economy is driven by tourism, higher education, electronics, consumer goods manufacturing, and agriculture (including dairy farming). Exports are an important part of Vermont's economy, with a substantial portion going to Canada, according to S&P Global Market Intelligence . Exports in 2021 primarily consisted of computer and electronic products (56.5%), followed by miscellaneous manufactured commodities (8.8%) and machinery (7.3%). In 2021, the state's exports totaled more than $2.6 billion, ranking Vermont the 46th-largest exporting state, 32.0% of which was with Canada.

Vermont's employment diversity by sector is generally in line with that of the nation, in our view, and has not demonstrated more cyclicality than when GlobalFoundries completed its acquisition of IBM--the third-largest private-sector employer in the state, accounting for a large portion of Vermont's manufacturing employment and exports. GlobalFoundries, which manufactures semiconductors for consumer electronic products, including chips for cell phones and other devices, employs about 2,500 workers at its Essex Junction plant. The company is expected to benefit from the federal government's Creating Helpful Incentives to Produce Semiconductors Act, enacted on Aug. 9, 2022, which provides $52 billion in funding to boost U.S. domestic semiconductor manufacturing. According to S&P Global Market Intelligence , 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 will be demolished by 2026. Encore Renewable Energy, a Vermont solar panel company, received a total of $1 million in investment grants from Maine, New Hampshire, and Vermont to continue its expansion in the region, according to S&P Global Market Intelligence .

State income levels are average, in our opinion. Vermont's per-capita income of $59,704 was 94.1% of that of the U.S. in 2021. GSP per capita of $55,028 was 80.9% of that of the U.S. in 2021 and has historically remained at about this level.

On a four-point scale, with '1.0' being the strongest, we have assigned a '2.4' to Vermont's economy.

Budgetary Performance

We believe Vermont has a history of proactive budget management. The state, by statute, establishes a consensus revenue forecast at least each July and January. It has authority to make midyear budget adjustments and has done so, with an emphasis on structural balance, each fiscal year since 2012 through various budget adjustment acts. The state's process for identifying and remediating budget shortfalls early in the fiscal year allows for flexibility of resolution, in our view.

S&P Global Ratings considers Vermont's combined general fund and education fund revenue to be diverse, with statewide education taxes, personal income taxes, and sales taxes constituting 32.5%, 30.7%, and 13.9% of fiscal 2021 general fund and education fund revenue collections, respectively.

Several key changes were made to existing state revenue and expenditure distributions effective in fiscal 2019, as passed in Act 11 in 2018. The most significant changes were the shifts of the entirety of the sales-and-use tax and 25% of the meals-and-rooms tax to the education fund from the general 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 an additional spotlight on the education fund as one of the state's core operating funds.

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 results in sufficient liquidity for operations during the fiscal year. Officials indicate that the state has not borrowed externally for liquidity since fiscal 2004.

We note Vermont maintains other available reserves outside of its budget stabilization fund that are restricted for designated uses. These funds include the general fund balance reserve (rainy-day fund), the 27/53 reserve (to meet liabilities during years with a 27th biweekly payroll and a 53rd week of Medicaid payments), the human services caseload reserve (for caseload-related needs of several human services agencies), and other reserves. These funds contained $80.4 million, $100,000, $97.7 million, and $150 million, respectively, at the close of fiscal 2022. Officials report the 27/53 reserve was used as intended for the first time in fiscal 2022, and it will begin to be built back up in fiscal 2023. Vermont's $150 million of other reserves will be used for the state's retirement systems.

Audited fiscal 2021 results (generally accepted accounting principles basis)

Vermont's audited financial statements as of June 30, 2021, report positive operating results for the state's general fund, on a generally accepted accounting principles (GAAP) basis. Total general fund revenues were $1.9 billion, up $324.4 million (20.7%) from fiscal 2020 given strong tax revenues. Total general fund expenditures were $1.0 billion, while net transfers out are sizable, at $460.6 million (44% of expenditures), attributable in part to providing funding for the state's Medicaid program waiver. The general fund ended the fiscal year with a total fund balance of $652.6 million, which is a sizable increase from $264.5 million in fiscal 2020. The general fund balance is composed of $50.0 million in nonspendable funds, $15.6 million in assigned funds, and $587.0 million in unassigned funds. General fund cash and cash equivalents totaled $666.0 million, up substantially from $205.6 million in fiscal 2020.

The education fund, on a GAAP basis, closed the fiscal year with positive operating results. Total education fund revenues were $1.79 billion and total education fund expenditures were $1.76 billion, resulting in an operating surplus of $30.4 million (1.7% of expenditures); net transfers into the fund were $39.3 million. The education fund ended the fiscal year with a total fund balance of $165.9 million, which is up from $96.2 million from fiscal 2020. The education fund balance is composed entirely of committed funds. Cash and cash equivalents totaled $139.4 million, up from $68.5 million in fiscal 2020.

Across total governmental funds, the state posted an ending balance of $1.7 billion, a sizable $583 million (53.2%) increase from fiscal 2020. This ending balance consists of $57.4 million in nonspendable balances, $609.3 million in restricted funds, $408.6 million in committed funds, $16.2 million in assigned funds, and $587.0 million in unassigned funds. Available cash and cash equivalents are $1.4 billion, which represents a strong 18.4% of total governmental funds expenditures, in our view.

On a four-point scale, with '1.0' being the strongest, we have assigned a '1.4' to Vermont's budgetary performance.

Debt And Liability Profile

In our opinion, Vermont's total tax-supported debt burden as of June 30, 2021, is generally low to moderate at $1,023 per capita, 1.7% of personal income, and 2.1% of general government spending. Compared with GSP, the fiscal 2021 tax-supported debt service was low, in our view, at about 1.8%. We consider the debt amortization to be rapid, with officials retiring nearly 74% of tax-supported debt over the next 10 years.

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.

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 recommendation for fiscal years 2022 and 2023 is $123.18 million, reflecting no change from the recommendation in previous biennium fiscal years 2020 and 2021. Recommendations for fiscal years 2023 and 2024 are due to the legislature by Sept. 30. Officials report the state is aiming to reduce its debt issuances and amounts outstanding, as evidenced by lower debt affordability recommendations in recent years. Debt service can be paid without a budget, but there is no other priority for the payment of debt before other general state expenditures.

When determining the state's liabilities, we view in aggregate its proportionate share of liabilities in Vermont's two defined-benefit pension plans and its two OPEB plans that offer health care to retirees.

We view the state's pension funding discipline as somewhat weak because, while contributions in recent years have met actuarially determined levels, they have not covered our calculation of minimum funding progress. However, we expect funding will improve given recently passed reforms that require additional contributions.

The state has historically funded its retiree health care obligations on a pay-as-you-go basis but is transitioning to pre-funding the liability following the passage of new retirement reforms. We view the state's current net OPEB liability as significant but expect it to reduce over time giving the state's switch to pre-funding.

Pension liabilities

Vermont's unfunded pension liabilities as of fiscal 2021 remain significant compared with those of state peers while Vermont's contributions, despite meeting or exceeding actuarially determined funding levels, continue to fall below our calculation of the minimum funding progress needed to reduce the unfunded liability. However, we expect the retirement reform package passed in Vermont's 2022 legislative session will create a structural pathway to begin reducing the state's pension burden.

We consider Vermont's three-year average, pension-funded ratio across its pension plans in fiscal 2021 to be relatively low, at 61.1%. At the same time, the state's proportionate share of the plans' net pension liability reflects what we view as a high $3,890 per capita and moderate 6.5% of personal income.

Vermont maintains three statutory defined-benefit pension plans. The Vermont State Employees' Retirement System (VSERS), is a single-employer plan; and the Vermont State Teachers' Retirement System (VSTRS) and Vermont Municipal Employees' Retirement System (MERS), which are multiple-employer, cost-sharing plans. The state appropriates funding for the first two systems; the municipal system is supported entirely by municipal employers and employees and is not included in our calculation of the state's pension liabilities. Two plans report the following as of fiscal 2021:

- VSERS: 74.51% funded, with the state's applicable net pension liability $815.9 million.
- VSTRS: 58.83% funded, with the state's applicable net pension liability $1.70 billion.

On the whole, management factors and actuarial inputs do not significantly encumber or improve our view of Vermont's overall pension funding discipline. VSERS and VSTRS each assume a closed, 19-year amortization period and uses the level-percentage-of-pay method, which assumes rising future payroll and results in escalating absolute pension contributions over time, based on the method's deferral of current contributions. Neither plan projects an asset-depletion date under the most recent available Governmental Accounting Standards Board (GASB) reporting.

The long-term investment return assumption for VSERS and VSTRS of 7.0% was lowered from 7.5% in September 2020. We note the 7.0% discount rate is above our guideline that, based on current market conditions, a sustainable discount rate guideline for a typical plan is 6.0%. We generally view plans with discount rates near our guideline as less likely to contribute to budgetary stress than plans with much higher discount rates. Prior adjustments to Vermont's assumed long-term investment rate of return include an agreement made in July 2017 to lower the rate 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.

Extraordinarily strong investment returns in fiscal 2021 have significantly boosted the five-year average rates of return for VSERS and VSTRS compared with prior-year reporting. For VSERS, 24.6% returns in fiscal 2021 boosted the system's five-year average rate of return to 10.3% from 5.7% as of fiscal 2020. For VSTRS, 24.8% returns in fiscal 2021 boosted the system's five-year average rate of return to 10.4% from 5.8% as of fiscal 2020. These five-year average returns for both systems are higher than the assumed 7.0% rate of return. We expect our calculation next year could be lower for both systems as poor market returns in fiscal 2022 are expected to replace above-average returns reported in 2017.

The VSERS plan's ratio of active members to beneficiaries equals 1.06, below the median national ratio of 1.3. The VSTRS plan's ratio is lower, at 0.99. We believe the plans incorporate experience trends and industry standards in their experience studies conducted at least every five years. As enacted in the state's recent pension reform package, experience studies will likely be conducted at least every three years, which we view positively.

State contributions for VSERS and VSTRS are actuarially based and funding has historically been at least 100% of the actuarially defined contributions (ADC), 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 VSTRS ADC appropriation at the beginning of the year. The VSERS 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. However, contributions for both plans continue to fall below our calculation of minimum funding progress, which we anticipate will lead to growing liabilities over time. We expect, however, that funding will improve given recently passed reforms that require additional contributions.

OPEB liabilities

While we believe Vermont's OPEB liabilities are significant, we expect the state's recent commitment to begin pre-funding OPEBs will substantially reduce unfunded liabilities over time. Notably, in fiscal 2021, Vermont's unfunded retiree health care liabilities were the fifth highest in the nation compared with personal income, sixth highest in the nation on a per capita basis, and larger than the state's unfunded pension liabilities. We expect Vermont's upcoming transition to pre-funding from pay-as-you-go financing will reduce the state's unfunded OPEB liabilities.

Vermont offers two retiree health care plans to retirees of the VSERS and STRS. The Vermont State Postemployment Benefits Trust Fund (VSPB) is a single-employer, defined-benefit plan, and the Retired Teachers' Health and Medical Benefit Fund (RTHMB) is a cost-sharing, multiple-employer, defined-benefit plan. The separate multiple-employer 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 combined basis, Vermont's proportionate share of the net OPEB liability (NOL) was $2.72 billion in fiscal 2021, according to GASB 74/75 reporting. This translates into a NOL per capita of about $4,219, which is well above the median of $407 and average of $1,448 across the states. For more information on retirement liabilities across the states, see "Market Swings Could Signal Contribution Volatility For U.S. State Pensions And OPEBs," published Aug. 3, 2022, on RatingsDirect.

With OPEB reforms passed in the 2022 legislative session, Vermont plans to begin consistently pre-funding its retirement health care liabilities. Officials expect the new funding strategy will reduce unfunded OPEB liabilities by about $891.3 million for VSERS and $836.8 million for VSTRS.

Previously, Vermont had taken other steps to contain growth of unfunded retiree health care liabilities. The state's retiree health care plans enrolled retirees in a Medicare Part D Employer Group Waiver Plan from a retiree drug-subsidy program--effective Jan. 1, 2014, for VSPB and Jan. 1, 2015, for RTHMB--partially to achieve cost savings. The state has also established an OPEB trust fund for the VSERS, but it is minimally funded.

On a four-point scale, with '1.0' being the strongest, we have revised our score on Vermont's debt and liability profile to a '2.7' from a '2.8'.

Related Research

Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

Ratings Detail (As Of August 19, 2022)		
Vermont GO		
Long Term Rating	AA+/Stable	Outlook Revised
Vermont GO		
Long Term Rating	AA+/Stable	Outlook Revised
Vermont GO		
Long Term Rating	AA+/Stable	Outlook Revised
Vermont GO		
Long Term Rating	AA+/Stable	Outlook Revised
Vermont Bnd Bank, Vermont		
Vermont		
Vermont Mun Bnd Bank (Vermont) SCHSTPR		
Long Term Rating	AA/Stable	Outlook Revised

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