COMMONWEALTH of VIRGINIA

Stephen Cummings
Secretary of Finance

P.O. Box 1475
Richmond, Virginia 23218

December 20, 2022

The Honorable Glenn Youngkin
Governor of Virginia
Patrick Henry Building, 3rd Floor
Richmond, Virginia 23219

The Honorable Susan Clarke Schaar
Clerk of the Senate
Senate of Virginia
Pocahontas Building
Richmond, Virginia 23219

The Honorable G. Paul Nardo
Clerk of the House of Delegates
Virginia House of Delegates
Pocahontas Building
Richmond, Virginia 23219

Dear Governor Youngkin, Ms. Schaar, and Mr. Nardo:

The Debt Capacity Advisory Committee ("Committee" or "DCAC") is required pursuant to Section 2.2-2713 of the Code of Virginia to annually review the Commonwealth's tax-supported debt and submit to the Governor and General Assembly an estimate of the maximum amount of new tax-supported debt that prudently may be authorized and issued for the next two years. In addition, the Committee is required to annually review the Commonwealth's moral obligation debt and other debt for which the Commonwealth has a contingent or limited liability. I am pleased to present the report for 2022.

Based on the debt capacity model, the Committee estimates that up to $970.26 million in additional debt could be authorized and issued in each of fiscal years 2023 and 2024. This is the average amount that will allow the projection of debt service as a percentage of blended revenues to remain at or below five-percent during the 10-year model horizon. This solution is based on a number of issuance assumptions contained in the model. Accordingly, if the assumptions change, the resulting capacity will also change.

The 2022 DCAC Model was calculated using the December 2022 Revenue Forecast produced by the Department of Taxation and a Transportation Trust Fund Revenue Forecast produced by the Department of Transportation based on Taxation's December 2022 Commonwealth Transportation Fund Revenue Forecast. As such, the proposed tax policy changes associated with the Governor's biennial budget are accounted for in the Model beginning in fiscal year 2023. Given that the proposed tax policy changes included in the Governor's biennial budget would result in reductions in revenues, should the proposed tax policy changes not be passed by the Virginia General Assembly, the Commonwealth's debt capacity would increase.

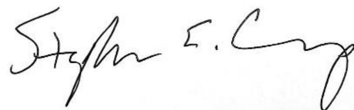
The DCAC model has historically used an average of the most recent 12 quarters of Bond Buyer 11 Index yields for AA+ rated general obligation municipal bonds to estimate the model interest rate. As a result, the standard model rate includes more than two years of historically low yields and has only recently begun to pick up the dramatic rate increases that have occurred during the last year. As a result, the standard model rate of 2.47% materially lags current market rates. To address this issue, Treasury staff consulted with financial advisors and the Office of the Secretary of Finance to determine a more appropriate rate to use in the model. Based on these discussions, current market consideration, and expectations for future rate increases by the Federal Reserve, a recommended modified model rate of 4.25% was determined for presentation to the Committee. The Committee considered interest rate volatility and current market conditions and agreed that 4.25% is an appropriate model interest rate. Therefore, the 2022 DCAC Model uses this recommended modified rate of 4.25% to project future debt service on tax-supported debt issuances.

The Committee acknowledged that the Commonwealth entered into fiscal year 2023 in a position of financial strength, with another large surplus in fiscal year 2022 and reserve fund balances growing to all-time highs. However, the Committee also acknowledged that record inflation, rising interest rates, and global conflict have recessionary fears on the rise, and that it is more important than ever that any new authorizations of tax-supported debt be planned carefully with the risk of economic recession in mind. To the extent that there are material revenue or interest rate changes compared to the forecast and the assumed model rate of 4.25%, the Commonwealth's debt capacity could rise or fall in line with these changes. The 2022 DCAC Report includes additional sensitivity analyses in the Appendix that address these scenarios.

The Committee also discussed Virginia's increasing debt levels over the last 10 years. In addition to the Commonwealth's existing debt, there is currently $4.0 billion in previously authorized but yet to be issued tax-supported debt that is anticipated to be issued over the next four to five fiscal years. While this authorized but unissued debt is already factored in to the debt capacity model, recent increases in construction costs and rising interest rates could result in the need for additional funding sources for previously authorized capital projects. These existing project authorizations should be taken into account when planning for any additional tax-supported debt authorizations during the budget process. The Committee also recognized that the Governor's amendments to the 2022-24 biennial budget appropriates $100 million in fiscal year 2023 (previously contingent on the fiscal year 2022 balance sheet) and proposes an additional $300 million in fiscal year 2024, contingent on revenue triggers in fiscal year 2023, to help address potential funding shortfalls for existing capital project pools that have seen construction costs increase. These amendments are on top of the $350 million previously appropriated to cover inflationary increases.

The attached report provides the Governor and the General Assembly with a basis to assess the impact of debt authorization and issuance on the Commonwealth's fiscal position and enables informed decision-making on capital spending priorities. The report also provides historical perspective on the Commonwealth's authorization and issuance of tax-supported debt over the last decade. In addition, it contains information on the rating agencies' assessment of the Commonwealth. As such, the report encourages the continued use of fiscally prudent practices, as failure to follow these practices could result in a negative bond rating action.

Sincerely,



Stephen Cummings, Chairman
Debt Capacity Advisory Committee

Attachment

CC: Debt Capacity Advisory Committee Members

Commonwealth of Virginia

Debt Capacity Advisory Committee

Report to the Governor and the General Assembly

December 16, 2022

Debt Capacity Advisory Committee Members

The Honorable Stephen Cummings – Chairman
Secretary of Finance

Harold Greer
Director, Joint Legislative Audit & Review Commission

Staci Henshaw
Auditor of Public Accounts

April Kees
Staff Director, Senate Finance & Appropriations Committee

Michael Maul
Director of the Department of Planning & Budget

Lewis McCabe
State Comptroller

Anne Oman
Staff Director, House Appropriations Committee

David Richardson
State Treasurer

Hossein Sadid
Citizen Member

Ronald Tillett
Citizen Member

REPORT OF THE DEBT CAPACITY ADVISORY COMMITTEE
December 16, 2022

Background

Following the Commonwealth's increased use of debt in the 1980's, Governor Wilder issued Executive Order 38 (1991) which established the Debt Capacity Advisory Committee (the "Committee" or "DCAC"). Subsequent to the Executive Order, the DCAC was codified in Section 2.2-2712 of the Code of Virginia. The Committee was initially comprised of the Secretary of Finance, the State Treasurer, the Auditor of Public Accounts, the Director of Planning and Budget, the Director of the Joint Legislative Audit and Review Commission, and two citizen members appointed by the Governor. Legislation enacted in 2010 added three additional members to the Committee: the staff director of the Senate Finance and Appropriations Committee, the director of the House Appropriations Committee, and the State Comptroller. The Secretary of Finance serves as Chairman.

The Committee is vested with the power and duty to annually review the size and condition of the Commonwealth's tax-supported debt and to submit to the Governor and the General Assembly, by January 1st of each year, an estimate of the maximum amount of new tax-supported debt that prudently may be authorized for the next biennium. The Committee's recommendations must consider the projected debt service requirements over the current fiscal year and the following nine fiscal years. The Committee must also review annually the amount and condition of obligations for which the Commonwealth has a contingent or limited liability, and for which the Commonwealth is permitted to replenish reserve funds if deficiencies occur (i.e., Moral Obligation debt).

Control of debt burden is one of several key factors evaluated by rating agencies in their assessment of a state's credit quality. Other factors include: economy, financial management, governance, budgetary and operating performance, and debt and pension liabilities. The Commonwealth's triple-A bond rating, which it has held since 1938, facilitates access to the capital markets at the lowest borrowing cost. However, the ability to take on additional debt while maintaining the triple-A ratings is not unlimited. Higher debt service payments (a fixed expense) mean less flexibility to respond to economic cycles and address other budgetary needs. Because capacity is viewed with many other variables, there is no precise point at which increased debt levels will result in a lower bond rating.

In 1991, after consideration of various alternatives to assess capacity, the Committee decided on a measure based on tax-supported debt service as a percent of revenues. This measure provides a direct comparison of the state's obligations to the resources available to pay them. Measuring the portion of the State's resources committed to debt-related fixed costs provides a measure of the State's budgetary flexibility and its ability to respond to economic downturns.

The target level selected by the Committee in 1991 was five percent - that is, debt service on tax-supported debt obligations should not exceed 5% of blended revenues. This measure is intended to ensure that annual debt service payments do not consume so much of the state's annual operating budget as to hinder the Commonwealth's ability to provide core government services. This basic measure has been endorsed by the DCAC in each subsequent year.

In the wake of the 2008 financial melt-down and the resulting economic downturn, coupled with the increased debt burden of several years of significant bonded debt authorizations, the December 18, 2009 DCAC Report to the Governor and the General Assembly conveyed there was no additional debt capacity. As a result of the findings in the 2009 DCAC Report, the Committee determined that a study should be completed to reevaluate the model and consider ways to smooth dramatic changes in capacity in times of extraordinary revenue fluctuations.

Following the 2010 study, the Committee considered various measures (e.g., debt per capita), as well as changes to the treatment of transportation debt in the model. Ultimately, the changes adopted by the Committee were the (i) inclusion in the model of the 0.25% sales tax enacted in 2004 and certain recurring transfers to the general fund from non-general funds, (ii) the reduction of debt service carried in the model for amounts expected to be paid from non-general fund sources, (iii) a change to the interest rate proxy used to estimate the debt service on future borrowings, and (iv) using a ten-year average capacity to arrive at the Committee's recommendation rather than basing it solely on the next two year period. This latter recommendation was an effort to smooth the effect of dramatic revenue fluctuations, and to facilitate long-term capital planning. The target measure of annual debt service payments to annual blended revenues remained unchanged at 5%.

It is important to note that maintaining debt service at less than 5% of revenues is merely a benchmark of affordability. Debt service requires annual appropriation, and to the extent debt is authorized and issued, debt service will limit the amounts available for other budgetary needs.

Debt Capacity Model

The DCAC report is a resource that assists Commonwealth leaders with planning the issuance of future obligations within future resource constraints. The Committee's report provides elected officials with information to enable them to balance capital funding needs while maintaining fiscal discipline and budgetary flexibility. The DCAC report can guide decision-makers in the development and implementation of the capital budget. Report recommendations are all based on the Committee's analysis of the Debt Capacity Model results.

The Committee's Debt Capacity Model compares annual Blended Revenues from the Official Revenue Forecast to the (i) scheduled debt service payments on all outstanding tax-supported debt obligations, and (ii) estimates of the debt service payments on all currently authorized but yet to be issued tax-supported debt. A calculation is then made to determine the amount of additional debt that could be authorized and issued without causing total debt service to exceed 5% of the forecasted Blended Revenues.

Blended Revenues are comprised of general fund revenues, certain recurring non-general fund transfers including ABC profits, state revenues in the Transportation Trust Fund ("TTF"), and Virginia Health Care Fund revenues. Beginning with the 2010 Report, Blended Revenues also

include the relevant portion of sales tax and certain recurring non-general fund Appropriation Act transfers.

Revenue projections and growth rate assumptions are based on the Official December Revenue Forecast as provided by the Department of Taxation, and as such, include the proposed tax policy changes from the Governor's introduced biennial budget. Therefore, any modifications by the General Assembly to the proposed tax policies would alter revenue projections and impact debt capacity.

Tax-supported debt obligations in the model include general obligation bonds (excluding those general obligation bonds issued pursuant to Article X, Section 9(c) of the Constitution of Virginia for which debt service is paid from project revenues), debt secured by the TTF, obligations issued by the Virginia Public Building Authority (VPBA) and the Virginia College Building Authority (VCBA) that are repaid from general fund appropriations, obligations payable under regional jail reimbursement agreements, and long-term leases and installment purchases paid from general fund appropriations.

The impact of debt service related to authorized but not yet issued bond programs on future operating budgets is an important element of debt management and assessing the state's debt capacity. Accordingly, debt service estimates for those programs are included in the debt capacity calculations.

The DCAC Model has historically used an average of the most recent 12 quarters of Bond Buyer 11 Index yields for AA+ rated general obligation municipal bonds to estimate the model interest rate. As a result, the standard model rate includes more than two years of historically low yields and has only recently begun to pick up the dramatic rate increases that have occurred during the last year. As a result, the standard model rate of 2.47% materially lags current market rates. To address this issue, Treasury staff consulted with financial advisors and the Office of the Secretary of Finance to determine a more appropriate rate to use in the model. Based on these discussions, current market consideration, and expectations for future rate increases by the Federal Reserve Bank (the "Fed"), a recommended modified model rate of 4.25% was used in lieu of the standard model rate.

Potential Influencing Factors for Virginia's Fiscal Position

Fiscal year 2022 proved to be another record year financially for the Commonwealth, with general fund revenue collections, inclusive of transfers, increasing by 16.0% from fiscal year 2021 and exceeding the 2022 caboose budget by approximately $1.9 billion. At the same time, general fund expenditures also fell well below budgeted levels, and Virginia ended fiscal year 2022 with approximately $3.2 billion in surplus and increased its reserve balances to record levels of more than $2.6 billion. Combined with ongoing recovery in the labor force and continued strong consumer spending, the Commonwealth was well positioned fiscally coming into fiscal year 2023. Virginia entered fiscal year 2023 with a conservative general fund revenue forecast projecting a 14% decline in revenues compared to the prior fiscal year. However, through October 2022,

general fund revenues were down just 3.1%. When adjusted for policy actions that affect the timing of tax collections, general fund revenues were up 8.3%. Despite Virginia's strong start to fiscal year 2023, there are a number of potential global, national, and local risks and headwinds that could impact the Commonwealth financially going forward, and it remains essential that those potential risk factors be considered when making decisions regarding fiscal policy and capital planning.

In 2022, a new Governor was inaugurated. As Virginia looks ahead to its first full budget cycle under the leadership of Governor Youngkin, there is an understanding of the potential for additional tax policy changes that could impact Virginia's tax revenue sources. It is anticipated that the Commonwealth will continue to practice balanced budgeting and conservative fiscal policies going forward. However, to the extent future tax policy changes are implemented, any changes to revenues will cause a change to debt capacity.

The most pressing topics in U.S. economics over the last year have been widespread and rampant inflation and the Fed's aggressive interest rate hikes in an attempt to rein in inflation. Historically high levels of inflation were seen both nationally and globally in fiscal year 2022, as the impacts of years of expansionary monetary policy, continued international and national supply chain issues, and global conflicts put strong upward pressures on prices within almost every sector of the economy. Inflation was noted as a potential risk factor in the 2021 DCAC Report and that risk was clearly borne out in fiscal year 2022, with year-over-year U.S. consumer price index ("CPI") inflation peaking at 9.1% in June of 2022, the highest CPI inflation rate in the last 40 years. Virginia has seen the budgeted costs of many of its previously authorized capital projects increase substantially as a result of these inflationary pressures. Fortunately, the most recent CPI inflation figures for October of 2022 declined to 7.7% year-over-year, indicating that inflationary pressures may be beginning to soften as a result of the Fed's aggressive rate hikes in the Federal Funds rate.

The Fed began increasing its overnight borrowing rates in March of 2022, with an initial 25 basis point ("bps") increase from the historically low 0.00%-0.25% rates that had been in place for nearly 2 years in an attempt to boost the economy during the Covid-19 pandemic. Since this initial rate hike, the Fed has increased the overnight borrowing rate a total of five additional times, resulting in a combined increase of 375 bps and a rate range of 3.75%-4.00% as of November 2022. These increases in overnight borrowing rates effectively increased the cost of borrowing across the economy, and municipal bond yields saw similar increases over this period. As of the writing of the 2021 DCAC Report, the Bond Buyer 11 Index yield for AA+ rated general obligation municipal bonds was approximately 1.6%. As of the writing of the 2022 DCAC Report, the Bond Buyer 11 Index yield had increased to approximately 3.6%. It is anticipated that the Fed will implement another 50 bps increase at its December 2022 meeting. Despite these historic rate increases, inflation continues at more than three times higher than the Fed's stated goal of 2%. It is expected that the Fed will continue its aggressive rate hikes well into calendar year 2023, with a terminal rate of 5.00% or greater and will likely keep rates high until inflation returns to levels closer to the stated goal of 2%. The combined influence of increased prices and higher borrowing rates has a substantial impact on the Commonwealth's cost of capital. Not only have previously authorized projects that have yet to be constructed seen cost estimates increase substantially, but

any planning for the Commonwealth's future capital needs must consider the potential for additional increases in construction costs and borrowing rates. It should be noted that Chapter 1, 2022 Special Session I, appropriated $350 million in fiscal year 2022 to supplement previously authorized capital projects for inflationary increases with an additional $100 million contingently reserved on the balance sheet at the end of fiscal year 2022. The Governor's introduced amendments to the 2022-24 biennial budget appropriates the previously contingent $100 million in fiscal year 2023 and proposes an additional $300 million in fiscal year 2024 to supplement previously authorized capital projects. The fiscal year 2024 amount is contingent on fiscal year 2023 general fund revenues meeting the official forecast.

Despite inflationary pressures and increased borrowing rates, consumer spending has remained strong in calendar year 2022. Household debt to income ratios remain low by historical standards and households continue to hold strong levels of savings that were accumulated during the pandemic. However, there have been recent signs of weakening in consumer spending and recessionary fears loom heavy as inflation and increased borrowing rates begin to eat away at household savings. Interest rate sensitive sectors of the national economy have begun to show declines as a result of the Fed's aggressive interest rate hikes. U.S. housing starts were negative from July through September and month-over-month job creation numbers have been slowing since February, both indications that the labor market is beginning to soften. Recent layoffs in the technology sector may indicate a continued weakening in the labor force in the coming year. Rising interest rates have also led to broad declines in the stock market in calendar year 2022, with the markets on track for their worst calendar year since the great recession in 2008. Should these recessionary fears be realized in 2023, Virginia could experience erosion of its revenue sources while borrowing costs remain high, making it essential that the Commonwealth position itself conservatively to protect against a potential economic downturn. Fortunately, Virginia has worked diligently to cultivate a diverse employment base. There is a strong concentration of federal, defense, and related contracting employment in the Northern Virginia and Hampton Roads areas. As a result, Virginia tends to experience mitigated employment losses during economic downturns, but lags in employment gains during recoveries.

Virginia entered fiscal year 2023 in a position of historical fiscal strength, with record reserves, a strong labor force, and continued revenue growth. However, as the Commonwealth ends calendar year 2022 and looks ahead to the next biennium, signs of an economic downturn are beginning to appear, and it remains more important than ever that the Commonwealth use fiscal prudence in planning for its capital needs going forward.

2022 Debt Capacity Recommendations

The 2022 Base Model Solution – Average debt capacity calculation (Appendix A-8) shows that an additional $1.183 billion in debt could be authorized and issued in each of fiscal years 2023 and 2024. However, it is important to note that the model uses the last 12 quarters of historic rates to estimate the model interest rate. This results in a model interest rate of 2.47% which lags current market rates as the historically low rates of 2020 and 2021 are still being factored into the rate

calculation. Given this disconnect between the model rate and current market rates, along with the stated intention of the Fed to continue raising rates in the coming year, it is the recommendation of the Committee that the Modified 4.25% Interest Rate Scenario Model Solution – Average debt capacity calculation (Appendix A-10) be used to determine the amount of additional tax-supported debt that can prudently be authorized in each of fiscal years 2023 and 2024. The Modified 4.25% Interest Rate Scenario Model Solution – Average debt capacity calculations show that $970.26 million in additional debt could be prudently authorized and issued in each of fiscal years 2023 and 2024. This amount of new authorization and issuance would cause projections of debt service as a percent of Blended Revenues to remain below the 5% debt capacity limit in seven out of the ten years of the projection period, with the capacity limit being exceeded in fiscal years 2025, 2026, and 2027. As always, the 2-year excess capacity requirement acts as a limiting factor to the average debt capacity solution.

Other Recommendations

a) The Committee recognizes that a significant amount of 9(d) projects have been authorized in recent years and that many project needs have been met with the earlier bond authorizations. Once significant project needs return, the Committee expresses its support in seeking the approval of 9(b) general obligation bonds, which must be approved by a State-wide voter referendum. With a higher bond rating than 9(d) appropriation-backed debt, general obligation bonds have lower interest costs. The growing proportion of 9(d) debt compared to general obligation bonds has caught the attention of the bond rating agencies and in the past has resulted in comments in ratings of the Commonwealth. Please see the chart on pages 11 and 12 for more information regarding the growing proportion of 9(d) debt.

b) The Committee expresses its continued support of the use of traditional financing methods for state projects such as those offered through the issuance of general obligation bonds, or appropriation-supported programs through the VCBA or the VPBA, since leases and other forms of borrowing typically result in higher financing costs and are ultimately still viewed as tax-supported debt.

c) Given the continued impacts that global supply chain delays, elevated inflation, and continued planned interest rate increases may have on the economy, it is prudent that any new tax-supported debt authorizations be planned carefully with the risk of economic recession in mind. In addition, the Commonwealth has seen construction costs increase dramatically over the last year due to inflationary pressures, and as a result, there are now questions surrounding the actual cost of certain projects for which debt was previously authorized but has yet to be issued. The Committee recognizes that the Governor's introduced biennial budget includes an additional $300 million in contingent cash funding to supplement previously authorized capital projects for which costs have substantially increased. However, the Committee also recognizes the possibility that additional funding sources may still be needed to fully fund projects that were previously authorized and

consideration should be given as to whether any existing authorizations of projects not under construction should be rescinded or amended.

d) The Committee is cognizant of the Commonwealth's increasing outstanding debt over the last 10-years, which can be seen graphically compared to U.S. and triple AAA state medians, as calculated by Moody's, on pages 23 and 24 of this report. These sections also detail debt ratios of each of Virginia's triple AAA peers. Between the 2013 and 2022 Moody's Medians Reports, Virginia actually decreased from the 12th highest state in total net tax-supported debt ("NTSD") to the 13th highest on a nominal basis. However, its other comparative ratios increased, going from the 19th highest NTSD per capita to the 16th highest and the 22nd highest NTSD as a percentage of personal income to the 19th highest, as Virginia's total NTSD burden continued to grow. These numbers only consider the debt outstanding as of the prior calendar year-end and do not contemplate the additional $4.7 billion of authorized and unissued tax-supported debt as of June 30, 2022, of which $4.0 billion is net of 9(c) debt and is included in the DCAC Model.

Review of Tax-Supported Debt

General Fund Supported Debt

The State issues two types of tax-supported debt: General Obligation ("GO") Bonds and various kinds of appropriation-supported obligations. The Commonwealth's GO Bonds are secured by the full faith and credit of the Commonwealth and are rated in the highest rating category by the bond rating agencies. Several factors contribute to the high bond ratings, including the legal protections inherent in constitutionally-permitted debt, investor confidence in the pledge of the full faith and credit of the State, and the presumption of the availability of the government's full resources. GO bonds are the most transparent of the various types of State debt obligations and typically carry the lowest interest cost. GO bonds issued under Article X, Section 9(b) of the Constitution require State-wide approval by the voters through referendum.

Article X, Section 9(c) of the Constitution provides for the issuance of GO debt that is self-supporting (e.g. through tolls, dormitory fees, etc.). The GO pledge for 9(c) Bonds provides a back-stop in the event net project revenues are insufficient to service the debt. These bonds do not require voter approval, but do require a two-thirds majority approval by each house of the General Assembly. They also require the Governor to opine that net project revenues will be sufficient to pay debt service on the bonds. Because of the GO pledge, 9(c) debt is considered tax-supported debt for financial reporting purposes; however, it is not included in the debt capacity model. Only if the net revenues are insufficient and the GO pledge is invoked, will that debt be incorporated in the model. This has not occurred since 9(c) debt was first issued in 1973.

Commonwealth appropriation-supported debt includes bonded debt as well as certain long-term leases and installment purchase obligations. Such debt is authorized by the General Assembly. Principal and interest payments on these obligations are made from annual appropriations from the

general fund or the TTF. These bonds are rated slightly lower than Virginia's GO bonds, reflecting the marginally higher risk that debt service will not be annually appropriated. Depending upon market conditions, interest rates on appropriation-supported debt on any given day may range from 5 to 20 basis points higher than comparable GO bonds. The Commonwealth has increasingly relied on the use of appropriation-supported debt (e.g. VPBA and VCBA) to provide financing for capital projects.

Transportation Debt

The rating agencies view all debt supported by state-wide, generally applied taxes and fees to be "Tax-Supported Debt". The Transportation Trust Fund was established by the General Assembly in Chapters 11, 12, 13 and 15 of the Acts of the Assembly, 1986 Special Session (the "1986 Special Session Acts"), as a special non-reverting fund administered and allocated by the Commonwealth Transportation Board ("CTB") for the purpose of increased funding for construction and other capital needs of state highways, airports, mass transit and ports. Chapters 1230 and 1275 of the Acts of the General Assembly of the Commonwealth of Virginia 2020 Regular Session ("Chapters 1230 and 1275") enacted numerous structural changes to the transportation funding system in the Commonwealth. These changes generally became effective July 1, 2020.

Under Chapters 1230 and 1275, transportation-related revenues are directed to a new a special non-reverting fund known as the Commonwealth Transportation Fund, and the distribution of revenues is streamlined, based on codified formulas, to sub-funds established to meet the varying transportation needs and different modes of transportation in the Commonwealth. The TTF continues to be funded primarily from the initial base of revenues specified by the 1986 Special Session Acts, as amended, including the retail sales and use tax, motor fuels tax and motor vehicle related taxes and fees. Chapters 1230 and 1275 made changes to and added to these revenue sources.

Those revenues, as well as the debt service supported by those revenues, are included in the model calculation. Not included in the Debt Capacity Model are highway maintenance and operating revenues ("HMO"), federal transportation revenues, and debt related to Grant Anticipation Revenue Vehicles ("GARVEEs") paid from federal transportation revenues.

Transportation debt has been authorized and issued with a pledge that other available amounts, including the general fund, may be appropriated for their repayment. Since repayment is not limited solely to the TTF (though in practice, payments are made from the TTF), these bonds are viewed by rating agencies the same as other appropriation-supported obligations of the Commonwealth. The strength of the Commonwealth appropriation pledge and the depth of resources available for repayment may result in a higher rating than if secured by the TTF alone.

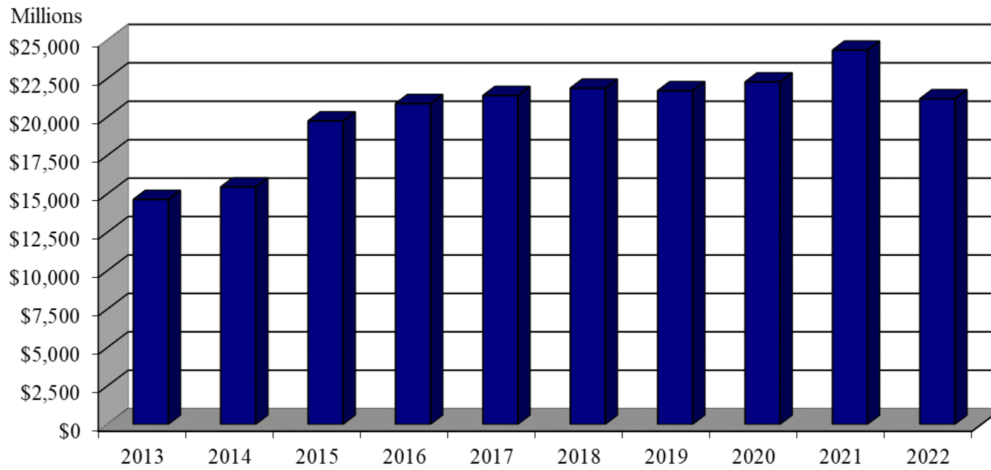
The CTB has issued bonds to be repaid from the TTF for construction projects involving U.S. Route 28, the U.S. Route 58 Corridor Development Program, the Northern Virginia Transportation District Program, the Oak Grove Connector in Chesapeake, and most recently various projects through the Capital Projects Revenue ("CPR") Bonds authorized by the General Assembly in

2007. Historically, transportation specific debt service as a percentage of TTF revenues has greatly exceeded 5%. From fiscal year 2013 through fiscal year 2022, TTF debt service as a percentage of TTF revenues ranged from 11.5% to 20.5%. Accordingly, to the extent the 5% measure is exceeded, capacity derived from the general fund is being utilized by transportation debt service. This does not mean that general fund dollars are supplementing debt service payments on TTF debt; rather, it means that capacity derived from the general fund is being used to keep overall capacity for all tax-supported debt under the 5% target. Model projections indicate that TTF debt service as a percentage of TTF revenues will continue to exceed 5% going forward, with projected TTF debt service to TTF revenue ratios ranging from 10.4% to 13.6%. However, projected TTF debt service as a percentage of TTF revenues is estimated to continue to decline as existing tax-supported transportation debt is being paid off more quickly than new tax-supported transportation debt is being issued, although any new authorization of tax-supported transportation debt could cause this trend to reverse.

Trends in Tax-Supported Debt

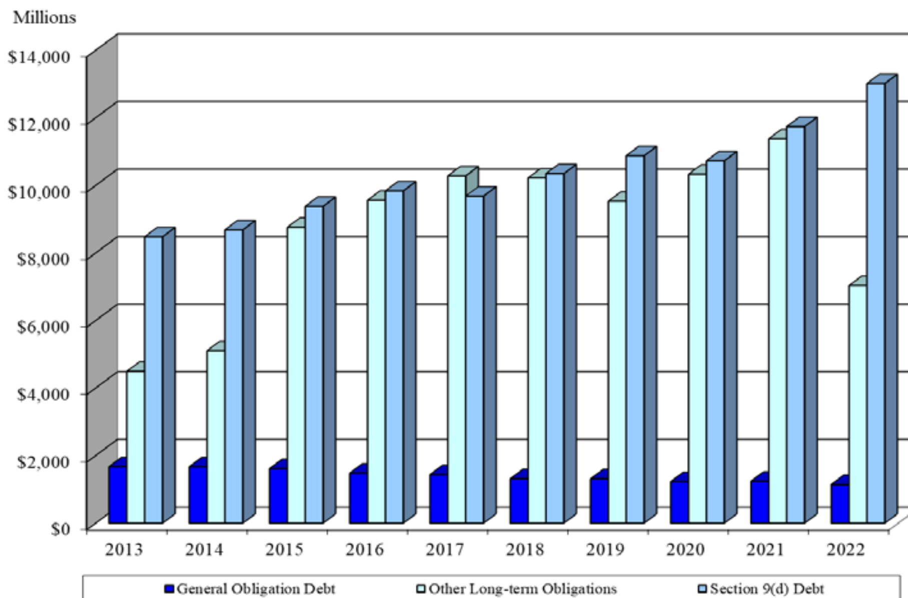
Outstanding tax-supported debt of the Commonwealth increased by 44.8%, or $6.6 billion, from $14.6 billion in fiscal year 2013 to $21.2 billion in fiscal year 2022. The significant increase is the result of growing 9(d) debt outstanding and overall increases in pension and other post-employment benefits ("OPEB") liabilities, some of which is due to underlying growth and some of which is the result of financial reporting changes. However, outstanding tax-supported debt actually decreased by $3.2 billion, or 14.9%, between fiscal year 2021 and fiscal year 2022. The primary drivers of the sharp decline in tax-supported debt during the most recent fiscal year were strong investment returns and the use of surplus cash to pay down pension liabilities, which decreased by $4.0 billion, or 47.7% in fiscal year 2022. The overall decline in tax-supported debt was offset slightly by increases in 9(d) appropriation supported bonds related to transportation, public buildings, and higher education and a sharp increase in long-term lease liabilities as a result of the implementation of Governmental Accounting Standards Board ("GASB") Statement 87. GASB 87 eliminated the use of capital leases and operating leases and made any lease with a term greater than 12 months a long-term lease obligation to be reported as a long-term liability on government financial statements. As a result, tax-supported long-term lease liabilities under the new GASB rule amounted to $555.1 million in fiscal year 2022, an increase of $512.8 million, or 1,212.5% as compared to fiscal year 2021. The following graph includes long-term obligations such as pension liabilities, OPEBs, and compensated absences. These obligations are generally evaluated by rating agencies as part of an issuer's overall debt profile, but are not part of their calculations of debt ratios. Accordingly, they are not included in the Commonwealth's debt capacity calculation. The graphs on the following pages provide historical perspective on the Commonwealth's outstanding tax-supported debt in total, outstanding tax-supported debt by category, and breakouts of the primary components that comprise Section 9(d) debt and other long-term obligations.

Outstanding Tax-Supported Debt
Fiscal Years 2013-2022[(1), (2), (3)]



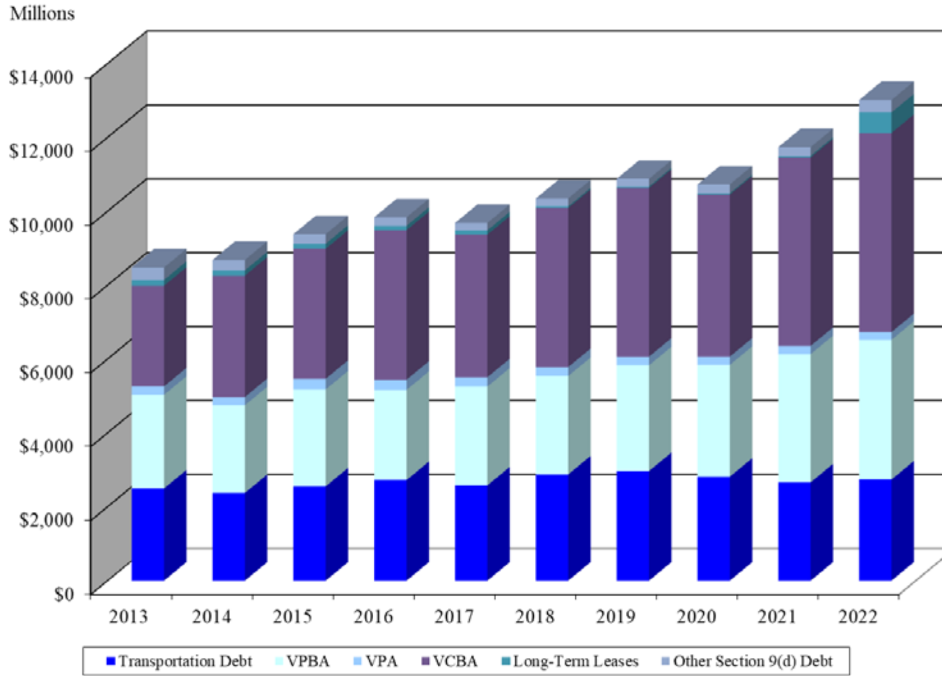
(1) Includes other long-term obligations such as pension liabilities, OPEB and compensated absences.
(2) Implementation of GASB 68 occurred in FY2015, which impacted the reporting of net pension liabilities.
(3) Implementation of GASB 87 occurred in FY2022, which impacted the reporting of long-term lease liabilities.

Outstanding Tax-Supported Debt by Category
Fiscal Years 2013-2022[(1), (2), (3)]

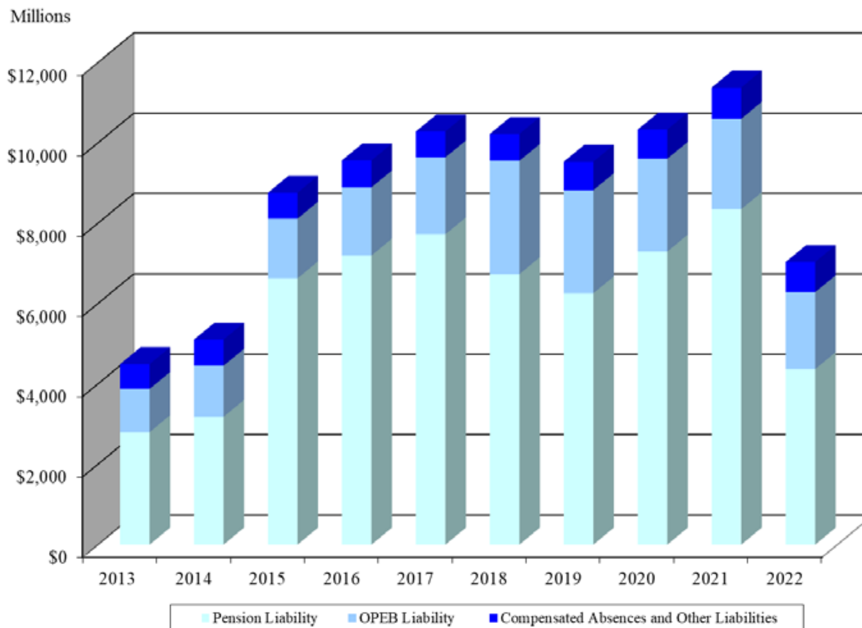


(1) Includes other long-term obligations such as pension liabilities, OPEB and compensated absences.
(2) Implementation of GASB 68 occurred in FY2015, which impacted the reporting of net pension liabilities in the Other Long-term Obligations bar.
(3) Implementation of GASB 87 occurred in FY2022, which impacted the reporting of long-term lease liabilities in the Section 9(d) Debt bar.

Outstanding Section 9(d) Debt
Fiscal Years 2013-2022



Outstanding Other Long-Term Obligations
Fiscal Years 2013-2022



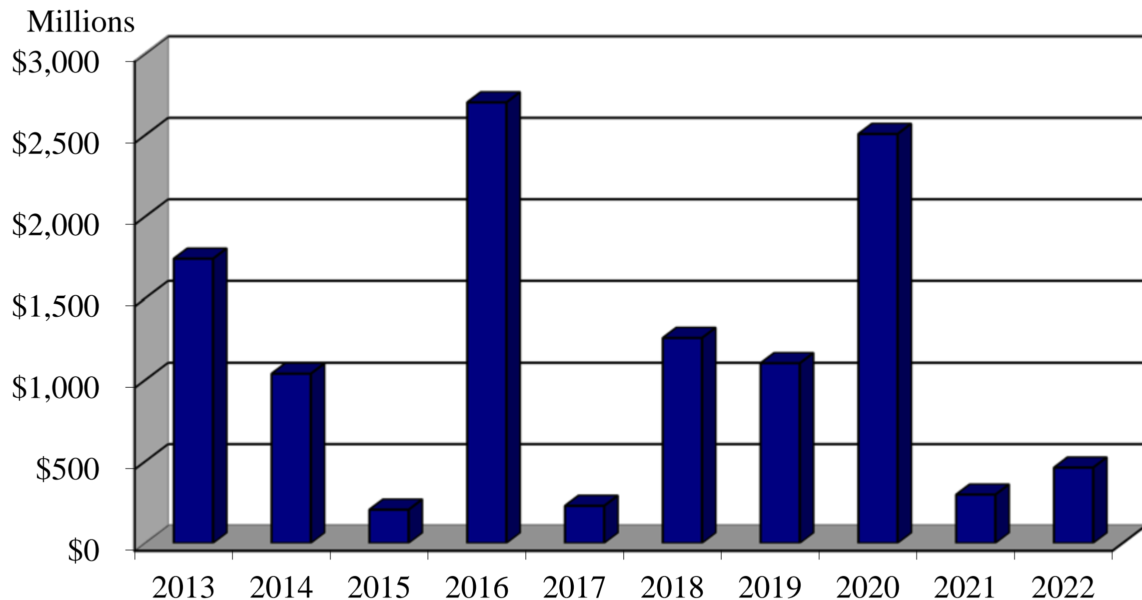
General obligation debt, which had a June 30, 2022 balance outstanding of $1.1 billion, peaked in fiscal year 2013 and has declined 31.5%, or $525.8 million, over the last ten-year period. This is due in part to a $1 billion 9(b) general obligation bond referendum approved by the voters in 2002. Bonds from the 2002 authorization were issued as needed, with the final issuance occurring during fiscal year 2010. From fiscal year 2011 onward, any new issuances of general obligation debt came solely from the issuance of 9(c) general obligation bonds, which are regularly authorized by the General Assembly for qualifying revenue-producing capital projects and are not included in the debt capacity calculation as they are self-supporting. Despite the regular issuance of new 9(c) debt, total GO debt levels declined in all but one fiscal year from fiscal year 2013 through fiscal year 2022 as the payoff of existing 9(b) debt outpaced the issuance of new 9(c) debt. However, in fiscal year 2021, the outstanding GO balance increased by 1.0%, or $12.2 million, as 9(c) bond issuances outpaced the payoff of 9(b) bonds. In fiscal year 2022, total GO debt outstanding decreased substantially by 8.4%, or $96.5 million, as 9(b) debt continued to be paid off while no new 9(c) issuances occurred during the fiscal year.

Section 9(d) debt includes tax-supported bonds issued by the VCBA, the VPBA, the CTB, and certain obligations of the Virginia Port Authority ("VPA"). It also includes long-term lease liabilities that are paid for directly by general fund appropriations and certain general fund supported installment purchases. This debt category has shown significant dollar growth over the last ten fiscal years, increasing by $4.5 billion during the ten-year period. Total outstanding Section 9(d) debt as of June 30, 2022 was $13.0 billion, which is equivalent to a 53.2% increase over the ten-year period from the $8.5 billion that was outstanding at fiscal year-end 2013. The increase is attributed to significant authorizations for transportation bonds in 2007 that have been issued over the last 10 years, and significant authorizations of VCBA and VPBA bonds in 2008, 2009, 2010, 2013, 2014, 2016, 2018, 2019, and 2020. The large amount of new 9(d) authorizations in recent years led to another year of strong 9(d) bond issuance for fiscal year 2022. In addition, the implementation of GASB 87 in fiscal year 2022 lead to an additional $486.0 million in reported long-term lease liabilities that further increased the outstanding amount of 9(d) debt. All told, the outstanding balance of Section 9(d) debt increased 9.6%, or $1.3 billion, from fiscal year 2021 to fiscal year 2022. However, fiscal year 2022 saw another relatively low amount of new 9(d) debt authorizations, with only $363.8 million in new 9(d) debt authorized. Despite back-to-back years with relatively low 9(d) debt authorization, the Commonwealth still had $4.0 billion in authorized and unissued 9(d) debt remaining at fiscal year-end 2022. The Commonwealth has seen construction costs increase dramatically in the last year due to inflationary pressures, and as a result, there are now questions surrounding the actual cost to finance these authorized but unissued amounts going forward, and it is possible that additional debt authorizations may be needed to fully fund projects that were previously authorized.

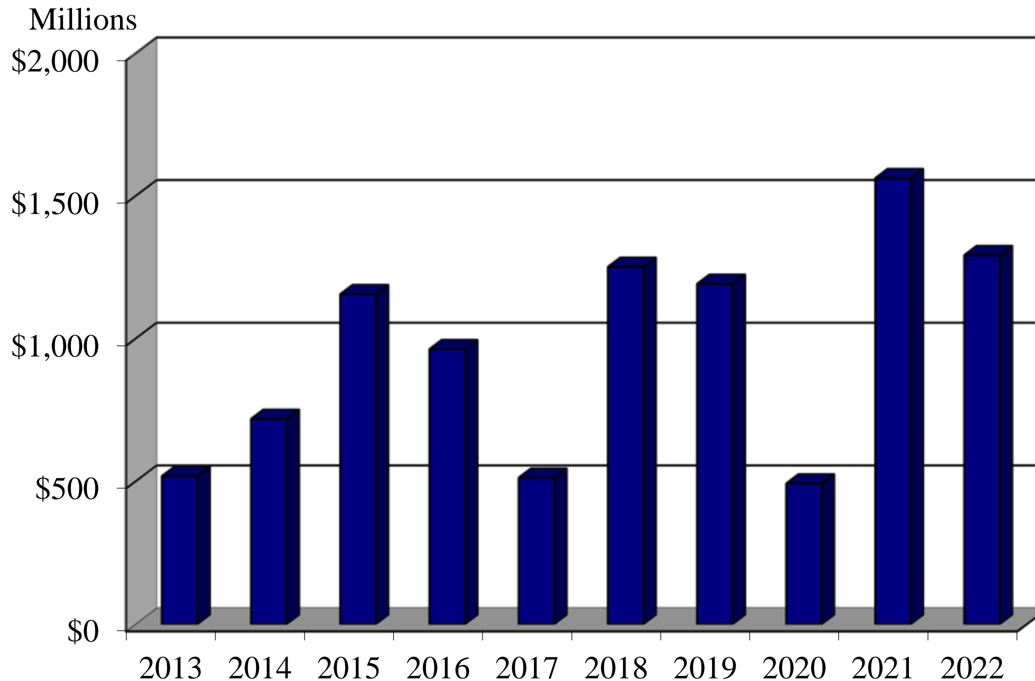
Other long-term obligations had previously experienced the most growth amongst the various tax-supported debt categories of the Commonwealth. However, the Commonwealth used surplus cash balances to pay down a portion of its net pension liabilities in fiscal year 2022. As a result, other long-term obligations actually decreased by $4.3 billion, or 61.8%, from fiscal year 2021 to fiscal year 2022. The significant increases in other long-term obligations experienced in previous fiscal years were due primarily to a significant overall rise in pension and OPEB obligations, due in part

to these costs rising and in part to the implementation of GASB 68 in fiscal year 2015. Overall, other long-term obligations increased by $2.5 billion, or 56.6%, over the last ten years, despite the welcome decline in fiscal year 2022.

The following two charts illustrate the amounts of total tax-supported debt authorized and issued from fiscal years 2013 through 2022. Over the 10-year period, $11.6 billion of tax-supported debt was authorized across various programs, with the majority authorized for VCBA and VPBA projects. Authorizations in a given year ranged from a low of $206 million in fiscal year 2015 to a high of more than $2.7 billion in fiscal year 2016. In four of the ten years, authorizations were below $500 million, while in the other six years, authorizations were above $1 billion. As can be seen in the graph that follows, significant authorizations can occur in both even and odd years and are not always related to a new two-year budget being passed. However, it is more common for higher authorizations to occur with the passage of a new two-year budget.



Tax-Supported Debt Issued
Fiscal Years 2013-2022
$9.7 Billion in Issuances

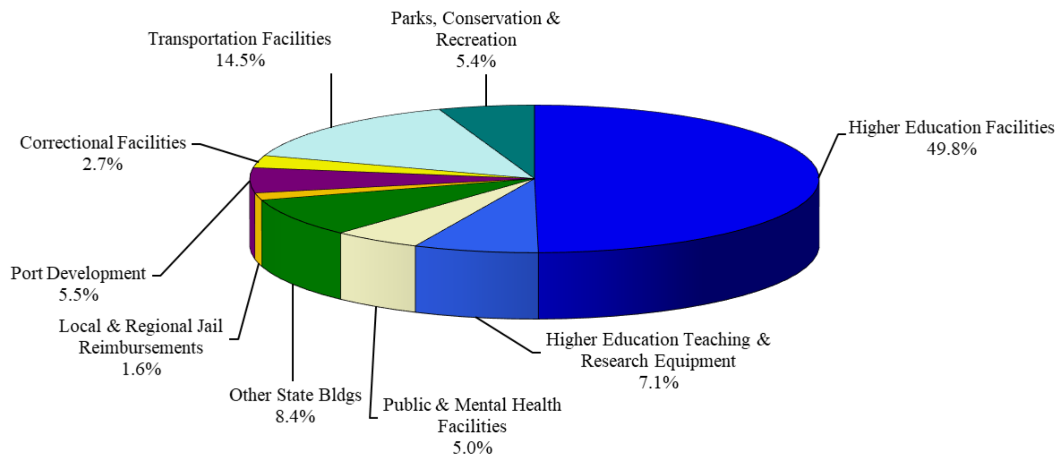


Between fiscal year 2013 and fiscal year 2022, $9.7 billion of new tax-supported debt, exclusive of refundings, was issued, with $1.3 billion of that amount issued in fiscal year 2022. Annual new-money debt issuance ranged from a low of $493.7 million in fiscal year 2020 to a high of $1.6 billion in fiscal year 2021. Issuances of less than $1 billion in a fiscal year have occurred five times over the last ten years. Bond issuances are based on the cash flow needs of authorized projects and are not market driven. As such, authorizations do not result in the immediate issuance of associated bonds. Despite $11.6 billion of authorizations within the last 10-years, there was $1.9 billion less in actual issuances. With the June 30, 2022 authorized and unissued tax-supported debt amounting to $4.7 billion, of which $4.0 billion is for 9(d) projects and is included in the debt capacity calculation, it is likely that significant issuances will continue over the next several years despite higher rates and rising costs, even if additional debt authorizations are restrained during the 2023 General Assembly Session.

Uses of Outstanding Tax-Supported Debt

The following chart illustrates how the Commonwealth has utilized its tax-supported debt over the last ten years. Of the total $9.67 billion issued, 57% has been used for capital projects and teaching and research equipment at state institutions of higher education. Transportation projects paid from the TTF is the next highest category at 20%. (Note: transportation projects financed with federal revenues are not considered tax-supported debt and are not included.)

Uses of Tax-Supported Debt Issued
FY 2013 - FY 2022

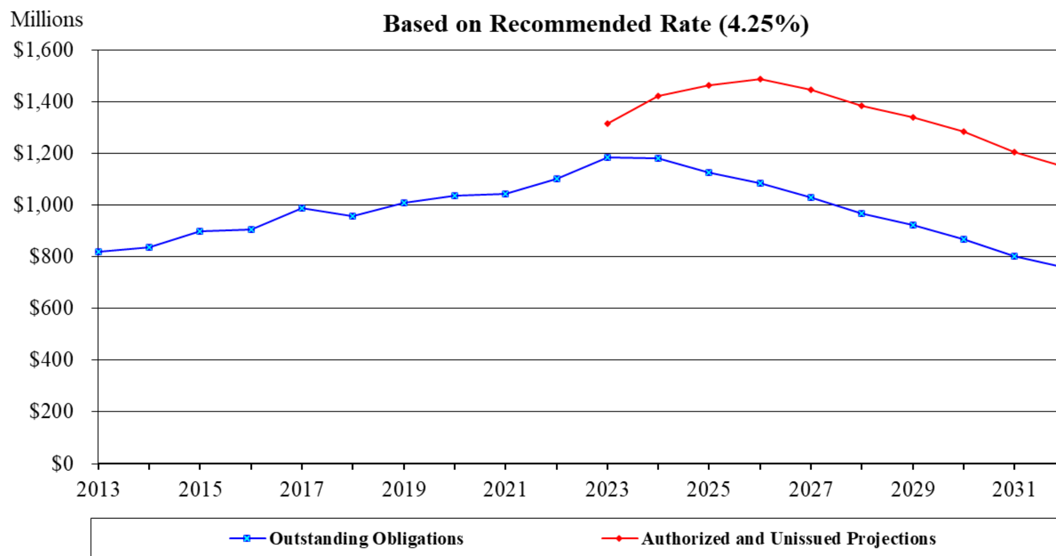


Ten-year Total = $9.67 Billion

Debt Service

Amounts paid annually for debt service have steadily increased over the last ten years, increasing in all but one of the last ten fiscal years. The increase has been both on an absolute basis, and through fiscal year 2017, as a percentage of Blended Revenues compared to ten years ago. However, as revenues have increased sharply in recent years and Virginia has been able to take advantage of historically low interest rates, debt service as a percentage of Blended Revenues has actually declined in each of the last five fiscal years from a peak of nearly 4.7% in fiscal year 2017 to a ten-year low of 3.4% in fiscal year 2022. Future debt service payments, including payments on existing debt and estimated payments on authorized but unissued debt, are projected to increase through fiscal year 2026, and then decline annually through fiscal year 2032 as existing debt is retired. However, as revenue projections have increased, debt service as a percentage of Blended Revenues is only projected to increase through fiscal year 2024 before declining annually through fiscal year 2032 to a projected low of 2.9% in 2032. It is worth noting that Virginia has no variable rate tax-supported debt outstanding as of June 30, 2022 and does not utilize short term financing, such as revenue anticipations notes, for operational needs. As a result, the Commonwealth's debt service has stability and is insulated against certain interest rate volatility. Annual debt service, including the estimated debt service on all currently authorized but unissued amounts and long-term lease liabilities and installment purchases, is illustrated below. Please note, that the following chart uses the modified recommended interest rate of 4.25% to model debt service on all authorized and unissued tax-supported debt.

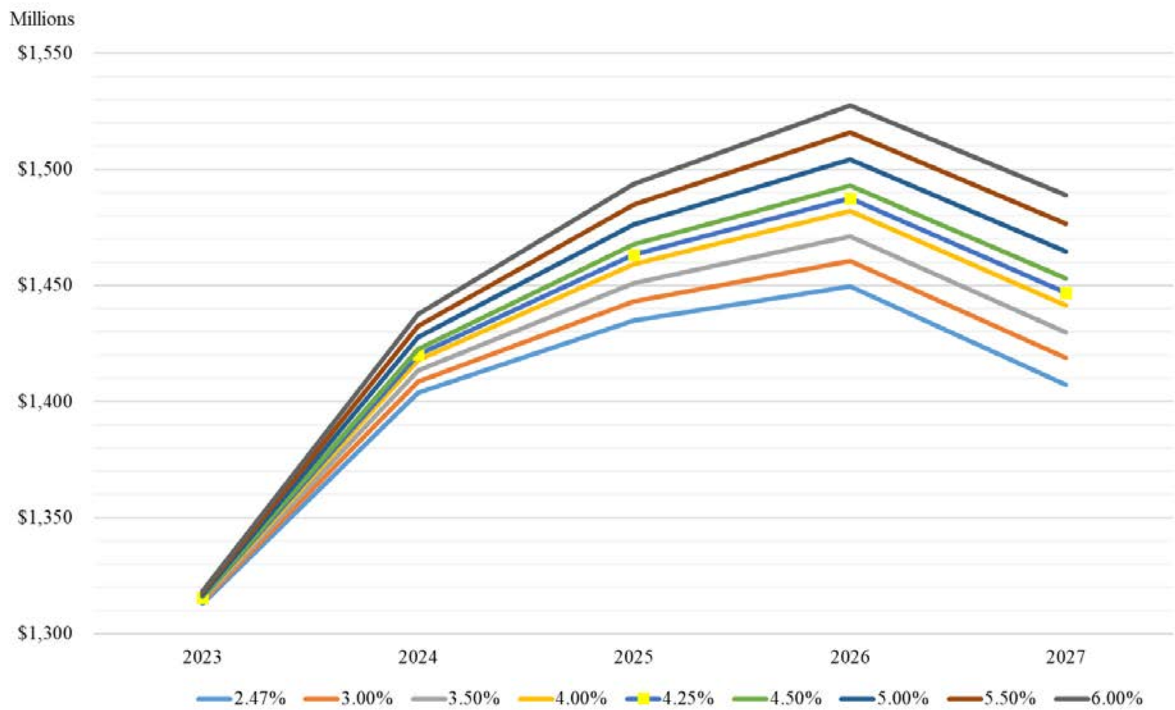
Tax-Supported Debt Service: Actual and Projected
Fiscal Years 2013 – 2022[1]



[1] Assumes authorized debt is issued in future periods at an interest rate of 4.25% in accordance with the Model's other standard assumptions. Past data includes lease revenue bonds issued by the Virginia Biotech Research Park Authority and Newport News Industrial Development Authority.

While the recommended modified model rate of 4.25% is considered a reasonable and appropriate rate given current market conditions and future expectations for market rates, there is always great uncertainty in trying to predict future interest rate movements. Recent market volatility and recessionary fears make it more important than ever that Virginia consider the impacts various interest rates could have on the future debt service costs of the Commonwealth. The chart below illustrates the Commonwealth total projected tax-supported debt service payments over the next 5 fiscal years at various rates ranging from the base model rate of 2.47% to a maximum rate of 6.00%. The recommended modified model rate of 4.25% is highlighted with yellow markers.

Projected Tax-Supported Debt Service: Interest Rate Sensitivity
Fiscal Years 2023 – 2027



Review of Other Debt Not Supported by Taxes

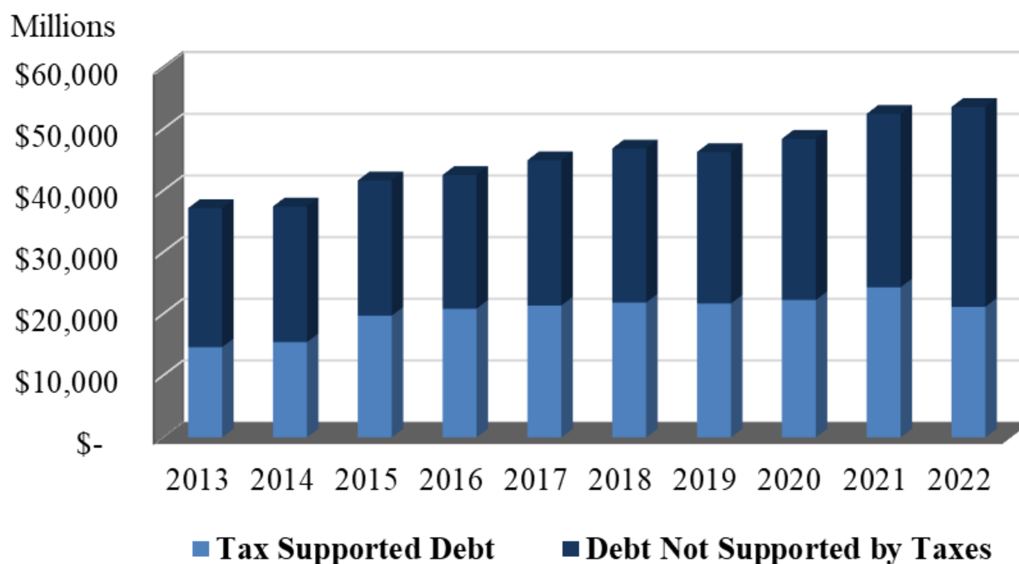
In addition to the various forms of tax-supported debt discussed in the previous sections of this report, Virginia also has a substantial amount of other long-term obligations that are not supported by taxes. These other debts not supported by taxes include the 9(d) obligations of Virginia's higher education institutions for which general revenues of the institutions are pledged, obligations of the Commonwealth's various debt issuing agencies and authorities for which general tax revenues are not pledged as security for the debt, GARVEE's for which the debt is secured by Federal grants, Interstate 81 Revenue Bonds which are secured by special regional fuels taxes, the obligations of

various State Foundations, certain portions of notes payable, certain portions of pension and OPEB liabilities, long-term lease liabilities and installment purchases for which payments are not secured by general tax revenues, tuition benefits payable, and lottery prizes payable. While these debt obligations do not impact the State's debt capacity, they are still long-term obligations reported in the Commonwealth's Annual Comprehensive Financial Report and should be noted, particularly given the growth in these obligations.

The Commonwealth's other debt not supported by taxes has grown significantly over the last ten fiscal years, increasing from $22.6 billion in 2013 to $32.4 billion in 2022, an increase of $9.8 billion, or 43.7%. The Commonwealth's other debt not supported by taxes increased sharply in fiscal year 2022, increasing by 15.2%, or $4.3 billion over fiscal year 2021 levels, driven primarily by a $1.0 billion increase in the obligations of the Hampton Roads Transportation Accountability Commission ("HRTAC") and a $2.5 billion increase in long-term lease liabilities related to the changes from GASB 87. While most categories of debt not supported by taxes saw growth over the last ten fiscal years, the primary drivers were growing 9(d) higher education obligations, Virginia Public School Authority obligations, GARVEE's, long-term lease liabilities, and obligations of HRTAC. Other debt not supported by taxes that carry either a moral obligation pledge or contingent liability pledge totaled $4.0 billion as of June 30, 2022, and these obligations actually decreased by $234.0 million over the last ten years, or (-5.6%).

As of June 30, 2022, Virginia's total debt outstanding was $53.6 billion, which represented an increase of $16.4 billion over the last ten years, or 44.1%. Virginia's total debt, broken out by tax-supported debt and other debt not supported by taxes, is illustrated below.

Total Debt of the Commonwealth
Fiscal Years 2013-2022



Review of State Credit Ratings

Credit ratings are the rating agencies' assessment of a governmental entity's ability and willingness to repay debt on a timely basis going forward. Credit ratings are an important factor in the public debt markets and generally influence the interest rates a borrower must pay. The Commonwealth is rated Aaa/Stable (Moody's), AAA/Stable (S&P), and AAA/Stable (Fitch).

Ratings on the Commonwealth's appropriation-supported programs are "one notch" below the general obligation rating: Aa1 (Moody's), AA+ (S&P) and AA+ (Fitch). The appropriation-supported bonds carry the same outlooks as the G.O. ratings.

As noted earlier in the report, Virginia ended fiscal year 2022 with another record surplus, increasing reserve fund balances to over $2.6 billion, with projected reserve fund balances of over $4 billion by fiscal year-end 2024. Rating reports note that while Virginia has seen substantial growth in revenues in recent years and has bolstered reserve fund balances, Virginia is highly reliant on individual income taxes, which make up nearly 70% of the general fund revenues. A high dependence on income taxes can result in increased revenue volatility during times of economic downturn. Each of the rating agencies has continued to note Virginia's strong liquidity and the development of budget plans that balance priorities rather than taking from already deposited reserve funds. Virginia's focus on developing structurally balanced budgets and the efforts to bolster reserve funds in recent years are seen as solid steps that have prepared the Commonwealth for any economic downturns that may arise in the future. Virginia's Constitution provides limitations on the use of the Revenue Stabilization Fund and requires its replenishment, which are factors that the rating agencies note as positives for Virginia's credit. Rating agencies also note the General Assembly's ability to raise taxes and the Governor's ability to implement budget cuts as additional flexibilities that allow for revenue generation and expense cutting in times of need.

Virginia's economy is significantly influenced by the federal government through both direct employment and contract spending. This relationship can have a positive impact on Virginia's revenues, as was the case during the pandemic, as the impacts to Virginia were less severe than in most states. However, that relationship also places Virginia at risk whenever potential federal government shutdowns or downsizing loom and typically causes economic recovery in Virginia to lag that of that nation. Other credit challenges noted in ratings reports relate to the general issue of controlling growing spending needs in the education and transportation sectors, planning for an aging population and related population declines in rural areas, managing Medicaid costs, and combatting climate change and sea level rise. Except for the concentration of federal government related employment, many of these challenges span the municipal sector and are not unique to Virginia. In addition, the Federal aid and Infrastructure Act funding received by the Commonwealth during the pandemic has helped begin to address many of these areas of concern.

While Virginia finished fiscal year 2022 with another large surplus and record reserve funds, it will remain important for Virginia to be conservative with its fiscal management going forward. Virginia must remain cautious with its future budgets and revenue projections, particularly as it

plans for any tax policy changes, as the potential for a recession appears to be growing given recent economic trends. Rating agencies note that should the Commonwealth ever return to a practice of a structurally unbalanced budget that utilizes one-time revenues to fund ongoing expenses, or should an extensive reliance on reserve funds deplete current balances, an action to lower the Commonwealth's rating would be considered.

It is conservative financial management that resulted in the award of Virginia's AAA bond ratings and it is those bond ratings that result in Virginia's low cost of borrowing that helps create budget flexibilities. A loss of even one AAA rating would prove costly not only to Virginia's reputation, but it would also result in higher debt service costs and reduced budget flexibility.

Review of Comparative Ratios

Moody's Investors Service has compiled NTSD data for US states for more than 30 years. Moody's defines NTSD 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") 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. Each year, Moody's releases a comparative NTSD ratios report, its *State Debt Medians Report* (Moody's Medians). The *State Debt Medians 2022 Report* was published on September 7, 2022 and includes data as of each state's 2021 fiscal year end. This is a change from the prior Moody's Medians reports, which included data as of the most recent calendar year end. In addition, Moody's made revisions in how NTSD is calculated to include unamortized bond premiums/discounts and accreted interest. As a result of these change, Moody's revised their fiscal year end 2020 NTSD numbers, resulting in a substantial 15% increase in NTSD compared to what was previously reported for fiscal year end 2020. The 2022 Moody's Medians report has been reviewed and certain data and analytical opinions from The 2022 Moody's Medians report are incorporated herein.

In recent years, Moody's has continued to predict modest growth in new debt issuances. The *State Debt Medians 2022 Report* noted that while total NTSD increased by 3.5% in fiscal year 2021, the majority of states utilized cash surpluses from Federal stimulus money to support infrastructure investment, likely suppressing the growth in NTSD. Moody's also noted that many states are well positioned fiscally to weather potential economic downturns that may be looming, particularly the higher rated state credits. However, Moody's also noted that capital asset depreciation ratios indicate that some states which have delayed infrastructure investment in recent years may face increased demand for investment in buildings, roads, and other infrastructure in coming years, which could drive their state debt issuance in the near future.

In the 2022 Report, Moody's noted that adjusted net pension liabilities ("ANPL") increased by nearly $2 trillion nationwide in fiscal year 2021 as a result of continued historic lows in interest

rates and investment returns. However, Moody's projects that ANPLs will decline sharply in fiscal year 2022 as a result of significant Federal stimulus inflows and rising interest rates and investment returns. Moody's also noted that NTSD per capita and as a percentage of personal income both increased in fiscal year 2021 and in the revised figures for fiscal year 2020 after having showed a general declining trend over the last ten fiscal years. However, these increases are largely due to Moody's revisions to their calculation methods and not due to a large uptick in debt financing by state issuers. Given the strong fiscal position many states found themselves in at fiscal year-end 2021, combined with project cost inflation, economic uncertainties, and rising interest rates, it is expected that state level NTSD issuances may be suppressed in coming fiscal years.

Moody's reported that the 2021 median nationwide NTSD per capita was $1,179, an increase of 13.5% compared to 2020. For AAA rated states, the median in 2021 was $721, an increase of 11.7% compared to the prior fiscal year. However, these large jumps in the medians were due primarily to Moody's revisions in calculating NTSD which led to a substantial increase in NTSD for most states. Virginia actually moved down one spot to the 16th highest debt per capita from 15th in the previous report. Moody's reported Virginia's NTSD per capita as $1,823 in the 2022 report, up from $1,746 in the 2021 report.

Moody's reported that median nationwide NTSD as a percentage of personal income for 2021 increased to 2.1% from 1.9% in 2020, with the increase again attributable to Moody's calculation method revisions. Over the last ten years, this metric had seen a steady decline nationwide, reflecting states' more restrained approaches to debt issuance over the last decade. However, Virginia had seen this metric increase over the same period. Despite this trend and the revision to Moody's calculation methods, Virginia's NTSD as a percentage of personal income actually remained flat in 2021 at 2.8%. In addition, Virginia's ranking for this metric fell two spots to 19th highest from 17th highest the previous year. For triple AAA rated states, the median decreased from 1.3% in 2020 to 1.2% in 2021, but the average for triple AAA rated states increased from 1.7% in 2020 to 1.9% in 2021.

The table and charts on the following two pages illustrate how Virginia compares to the 13 other triple AAA states based on NTSD per capita and NTSD as a percentage of personal income. It is worth noting that as of July 28, 2022, Moody's upgraded Minnesota from Aa1 to Aaa, making Minnesota a triple AAA rated state and bringing the total number of triple AAA rated states nationwide to 14.

AAA/Aaa/AAA STATE DEBT BURDENS FROM 2012-2021
PROVIDED BY MOODY'S INVESTORS SERVICE

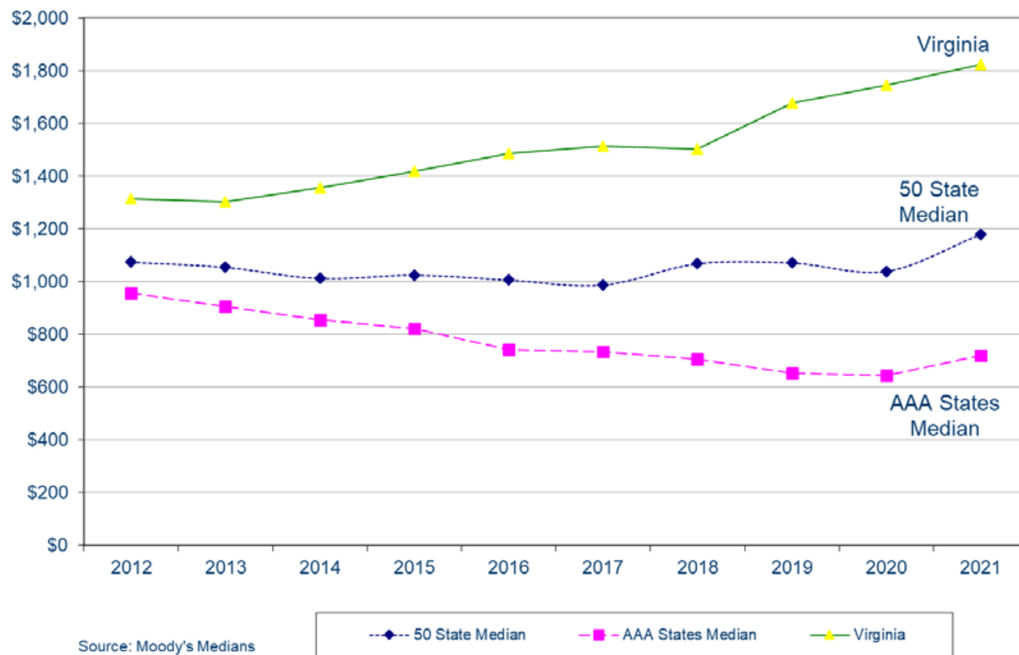
Net Tax-Supported Debt per Capita

	2021 Ranking	2021 (1)	2020	2019	2018	2017	2016	2015	2014	2013	2012
Delaware	5	$4,143	$3,400	$3,289	$3,206	$2,587	$2,544	$2,385	$2,438	$2,485	$2,536
Maryland	10	2,818	2,410	2,323	2,343	2,164	2,122	1,928	1,889	1,791	1,799
VIRGINIA	**16**	**1,823**	**1,746**	**1,677**	**1,502**	**1,515**	**1,486**	**1,418**	**1,356**	**1,302**	**1,315**
Minnesota	22	1,462	1,400 *	1,406 *	1,415 *	1,430 *	1,480 *	1,527 *	1,538 *	1,402 *	1,315 *
Georgia	27	1,087	987	971	996	986	992	1,029	1,043	1,064	1,061
Utah	28	899	866	720	792	772	824	921	1,060	1,187	1,275
Florida *	32	756	710	780	812 *	889 *	961 *	1,038 *	973 *	1,008 *	1,087 *
North Carolina	34	686	581	586	531	611	659	721	739	806	853
Texas *	35	682	365	379	389	410	383	383	406	614 *	580 *
South Dakota *	37	561	482	493	618	694	641 *	652 *	547 *	391 *	355 *
Iowa	40	408	157	150	207	219	228	239	250	275	287
Missouri	41	398	413	464	487	532	579	574	606	668	699
Tennessee*	44	285	266	292	305	312	322	298 *	327 *	324 *	343 *
Indiana *	45	217	233	251	270	295	310	463 *	474 *	533 *	424 *
Median All States		1,179	1,039	1,071	1,068	987	1,006	1,025	1,012	1,054	1,074
AAA Median		721	646	653	705	733	742	821	856	907	957
AAA Average		1,159	1,001	984	991	958	967	970	975	989	995

** State was not triple triple A during entire 2012-2021 period.*

(1) Beginning in 2021 Moody's revised calculation to be based on fiscal year-end. Prior years were based on calendar year-end.

Net Tax-Supported Debt Per Capita
Virginia Versus Moody's U.S. 50-State Median and other AAA States
2012 – 2021



REPORT OF THE DEBT CAPACITY ADVISORY COMMITTEE
December 16, 2022

AAA/Aaa/AAA STATE DEBT BURDENS FROM 2012-2021
PROVIDED BY MOODY'S INVESTORS SERVICE

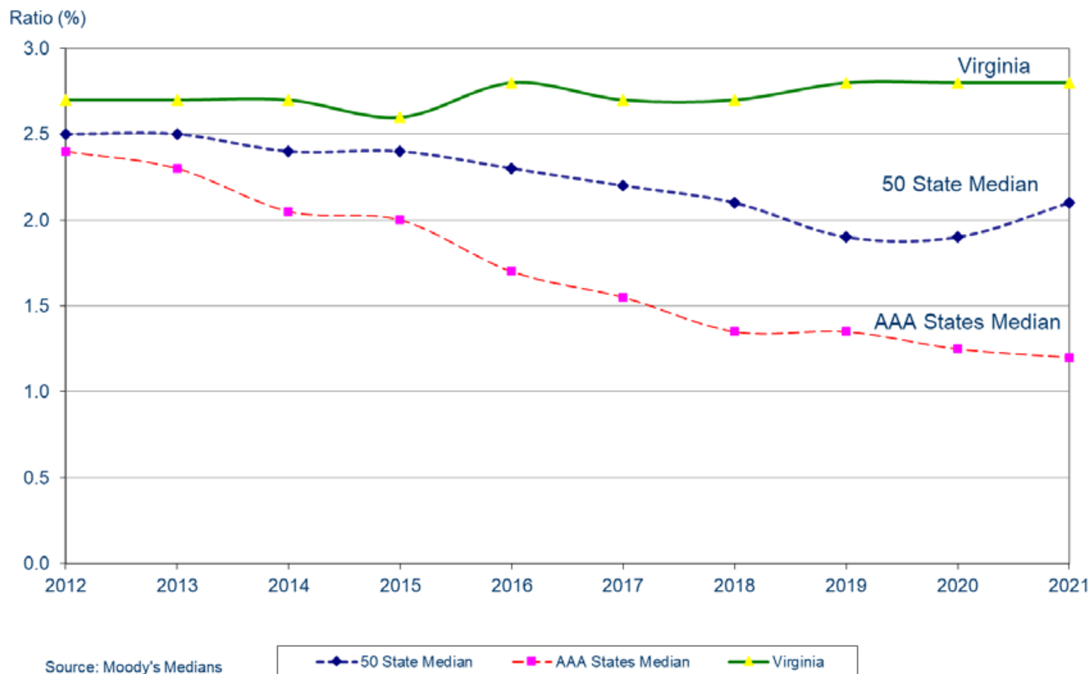
Net Tax-Supported Debt as Percent of Personal Income

	2021 Ranking	2021 (1)	2020	2019	2018	2017	2016	2015	2014	2013	2012
Delaware	5	7.0 %	6.0 %	6.0 %	6.1 %	6.1 %	6.3 %	6.2 %	6.6 %	5.6 %	5.8 %
Maryland	13	4.1	3.5	3.6	3.7	3.6	3.5	3.4	3.5	3.4	3.4
VIRGINIA	**19**	**2.8**	**2.8**	**2.8**	**2.7**	**2.7**	**2.8**	**2.6**	**2.7**	**2.7**	**2.7**
Minnesota	25	2.2	2.3 *	2.4 *	2.5 *	2.6 *	2.8 *	2.9 *	3.1 *	2.9 *	2.7 *
Georgia	26	2.0	1.9	2.0	2.1	2.2	2.3	2.5	2.6	2.8	2.9
Utah	29	1.6	1.7	1.5	1.7	1.7	1.9	2.3	2.8	3.2	3.5
Florida *	33	1.2	1.3	1.5	1.6 *	1.8 *	2.1 *	2.3 *	2.3 *	2.5 *	2.6 *
North Carolina	35	1.2	1.2	1.2	1.1	1.4	1.5	1.7	1.8	2.1	2.2
Texas *	36	1.1	0.7	0.7	0.8	0.8	0.8	0.8	0.9	1.4 *	1.3 *
South Dakota *	38	0.9	0.8	0.9	0.9	1.1	1.0 *	1.1 *	0.9 *	0.9 *	0.8 *
Missouri	42	0.7	0.8	1.0	1.0	1.2	1.3	1.4	1.5	1.7	1.7
Iowa	44	0.7	0.3	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.7
Tennessee*	45	0.5	0.5	0.6	0.7	0.7	0.7	0.7 *	0.8 *	0.8 *	0.9 *
Indiana*	46	0.4	0.5	0.5	0.6	0.6	0.7	0.8 *	0.8 *	1.3 *	1.1 *
Median All States		2.1 %	1.9 %	1.9 %	2.1 %	2.2 %	2.3 %	2.4 %	2.4 %	2.5 %	2.5 %
AAA Median		1.2	1.3	1.4	1.4	1.6	1.7	2.0	2.1	2.3	2.4
AAA Average		1.9	1.7	1.8	1.9	1.9	2.0	2.1	2.2	2.3	2.3

** State was not triple triple A during entire 2012-2021 period.*

(1) Beginning in 2021 Moody's revised calculation to be based on fiscal year-end. Prior years were based on calendar year-end.

Net Tax-Supported Debt as Percentage of Personal Income Virginia Versus Moody's U.S. 50-State Median and other AAA States 2012 - 2021



While these rankings are useful for comparison purposes, it is important to note that many other factors contribute to a state's overall credit rating. For example, while ratios for Delaware appear high compared to other triple AAA states, a statutory requirement for a short amortization of debt mitigates the effect of the higher debt levels.

In terms of total NTSD, California remains at the top of the list with $96.4 billion outstanding, followed by New York with $76.8 billion. Wyoming remained at the bottom of the list and experienced a continued decline in NTSD to only $11.4 million. It should be noted, Wyoming does not issue G.O. debt. Virginia's NTSD increased by approximately $1.8 billion from $14.0 billion to $15.8 billion outstanding, although much of the increase was due to Moody's revisions to their calculation methods. Despite Virginia's increasing NTSD burden, Virginia ranked as the 13th highest amongst all states in total NTSD, a fall from the 12th spot in the prior year.

Summary

Virginia ended fiscal year 2022 in an historically strong fiscal position with reserve funds at all-time highs and revenue growth that continued to outpace budget expectations. However, as the Commonwealth moves into the next budget cycle, record inflation, rising interest rates, and global conflict have recessionary fears on the rise. While it remains to be seen whether or not a recession becomes reality, it is more important than ever that Virginia continue to exercise fiscal prudence in its capital planning. Current economic expectations are that interest rates will continue to rise well into calendar year 2023 and are likely to stay at elevated levels for an extended period. Just how long rates will remain high and whether or not those high rates will tamp inflation remains to be seen, but the impact on the Commonwealth's cost of capital is already being felt in the rising construction costs on current projects and the higher interest rates on recent bonded debt issuances.

Despite the recent rate increases from the Fed, it is important to note that the prior two years of historically low interest rates has resulted in a DCAC Model interest rate that lags both current rates and expected future rates. As a result, Treasury staff consulted with financial advisors and the Office of the Secretary of Finance to determine a more appropriate interest rate to be used to model the Commonwealth's debt capacity for the next biennium. As a result, the Committee has recommended a modified model rate of 4.25% that better represents the interest rates at which the Commonwealth anticipates issuing its future tax-supported debt.

Despite limited new tax-supported debt authorization in the last two fiscal years, the Commonwealth's debt capacity fell from $1.10 billion to $970.26 million in fiscal year 2022. The decreased capacity is due primarily to changes to revenue projections and higher interest rates. Rating agencies will continue to monitor the Commonwealth's budget process to confirm a structurally balanced budget is adopted and that a reliance on reserves is not needed to cover future revenue shortfalls. The Governor's amendments to the 2022-24 biennial budget appropriates $100 million in fiscal year 2023 (previously contingent on the fiscal year 2022 balance sheet) and proposes an additional $300 million in fiscal year 2024 to further cushion the Commonwealth against inflationary pressures and higher interest rates. These amendments are on top of the $350 million previously appropriated to cover inflationary increases.

Appendix A

Debt Capacity Calculation, Sensitivity Analysis and Moral Obligation Update

December 16, 2022

Debt Capacity Model – An Explanation of Model and Assumptions

Virginia's Debt Capacity Measure:

- Calculation:
  - Tax-Supported Debt Service $\leq$ 5% of Blended Revenues.
- Recommendation:
  - Expressed in terms of a ten-year average.

Model Characteristics:

- Covers a 10-year issuance period.
- Incorporates currently authorized but unissued debt.
- Uses Blended Revenues from December Official Forecast.

Model Assumptions:

- Term and structure:
  - 20-year bonds with level debt service payments.
  - Interest rate based on the average of the last twelve quarters of the Bond Buyer 11 Bond Index for GO debt (2.22%) plus 25 basis points for 9(d) debt (2.47%).
  - Given the low rate noted above, the 2022 Model was modified to utilize a 4.25% rate.

Model Includes:

- Blended Revenues from Official Forecast:
  - General fund revenues, certain recurring non-general fund transfers including ABC profits, state revenues in the Transportation Trust Fund, and Virginia Healthcare Fund revenues.
- Actual and Projected Debt Service:
  - Actual debt service on all issued tax-supported debt, including long-term leases and installment purchases.
  - Debt service on authorized but unissued tax-supported debt.
    - Level debt service payments (except 9(b) General Obligation debt).
    - 9(b) General Obligation debt is amortized on a level principal basis.
    - VCBA Equipment Notes amortized over 7-year term.
    - CTB Bonds amortized over 25-year term.

Outstanding Tax-supported Debt as Determined by the DCAC includes:

- General obligation bonds (Section 9(a) and 9(b)). Self-supporting 9(c) projects are not included.
- Obligations issued by the Commonwealth Transportation Board or Virginia Port Authority that are secured by the Transportation Trust Fund.
- Obligations issued by the Virginia Public Building Authority and the Virginia College Building Authority secured, in whole or in part, by general fund appropriations.
- Long-Term lease liabilities that are paid for directly by the general fund or from general fund appropriations.

- Installment purchases (80% of total of first year amounts in Commonwealth ACFR for both primary government and component units).
- Obligations for which the debt service is derived from payments received from the Commonwealth on a long-term lease.
- That portion of outstanding moral obligation debt for which the underlying debt service reserve fund has been utilized to pay all or a portion of debt service, and for which the General Assembly has appropriated funds to replenish all or a portion of such debt service reserve.

Authorized but Unissued Tax-supported Debt Included in the DCAC Model:

- Must be authorized by an Act of the General Assembly with no contingency for subsequent General Assembly approval.

Moral Obligation Debt:

- In the event a moral obligation issuer has experienced an event of default on an underlying revenue stream and been forced to draw on the debt service reserve fund to pay debt service, the Committee shall immediately meet and review the circumstances surrounding such event and report its findings to the Governor and the General Assembly.
- In the event this section is invoked, the Committee's Report to the Governor and General Assembly shall include a Model scenario showing annual debt capacity including that portion of the moral obligation debt.
- Inclusion of the moral obligation debt in the Model is in no way intended to bind the Governor or General Assembly to make future appropriations to replenish future draws on the debt service reserve fund(s).
- The subject debt will be removed from the Model once the General Assembly has not appropriated funds to replenish the debt service reserve fund(s).

Currently Authorized Tax-Supported Debt Issuance Assumptions

December 16, 2022

(Dollars in Millions)

	9(b)	VPBA	VCBA 21st Century Equipment	VCBA 21st Century Projects	CPR Transportation	NVTD Transportation	Route 58 Transportation	VPA	Total
Authorized & Unissued as of June 30, 2022	$ -	$1,382.0	$ 183.3	$ 1,610.0	$ 146.6	$ 24.7	$ 462.7	$ 166.0	$ 3,975.3
Issued Jul 1 - Dec 31, 2022	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Assumed Issued:									
FY 2023	$ -	$ -	$ 91.65	$ 600.0	$ -	$ -	$ 236.3	$ 166.0	$ 1,094.0
FY 2024	$ -	$ 400.0	$ 91.65	$ 600.0	$ 146.6	$ -	$ -	$ -	$ 1,238.3
FY 2025	$ -	$ 400.0	$ -	$ 410.0	$ -	$ -	$ 152.2	$ -	$ 962.2
FY 2026	$ -	$ 400.0	$ -	$ -	$ -	$ -	$ 74.2	$ -	$ 474.2
FY 2027	$ -	$ 182.0	$ -	$ -	$ -	$ -	$ -	$ -	$ 182.0
FY 2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FY 2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FY 2030	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FY 2031	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FY 2032	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Planned	$ -	$1,382.0	$ 183.3	$ 1,610.0	$ 146.6	$ -	$ 462.7	$ 166.0	$ 3,950.6
Subtotal Issued & Planned	$ -	$1,382.0	$ 183.3	$ 1,610.0	$ 146.6	$ -	$ 462.7	$ 166.0	$ 3,950.6
Authorized Debt Assumed Unissued[1]	$ -	$ -	$ -	$ -	$ -	$ 24.7	$ -	$ -	$ 24.7

[(1)] NVTD authorized debt is assumed not to be issued.

* 9(c) Debt is not included in the table above since it is excluded from the Model.

<u>Debt Capacity Model – An Explanation of Solution Pages</u>

Column Descriptions:

(1) Blended Revenues include all general fund, certain recurring non-general fund transfers including ABC profits, state tax revenues in the Transportation Trust Fund, and Virginia Healthcare Fund revenues.

(2) Base Capacity to Pay Debt Service is calculated as 5% of Blended Revenues.
(Column 2 = Column 1 x .05)

(3) Annual Payments for Debt Service on Debt Issued is actual debt service on all tax-supported debt outstanding at the end of the most recent fiscal year (6/30/2022), excluding (i) 9(c) debt and (ii) the non-general fund portion of debt service paid on certain VCBA bonds.

(4) Actual Outstanding Debt Service as a % of Revenues is the percentage of Blended Revenues required for payments on currently issued tax-supported debt included in the model.
(Column 4 = Column 3 ÷ Column 1)

(5) Annual Payments for Debt Service on All Planned Debt Issuances is the estimated amount of debt service for currently authorized and unissued tax-supported debt to be issued within the ten-year period.

(6) Actual and Planned Debt Service as a % of Revenues is the sum of Annual Payments for Debt Service on Debt Issued and Annual Payments for Debt Service on All Planned Debt Issuances as a percentage of Blended Revenues.
(Column 6 = (Column 3 + Column 5) ÷ Column 1)

(7) Net Capacity to Pay Debt Service is the capacity that remains to pay any additional debt service related to subsequent authorized and issued debt and is the Base Capacity to Pay Debt Service less Annual Payments for Debt Service on Debt Issued and less Annual Payments for Debt Service on All Planned Debt Issuances.
(Column 7 = Column 2 – Column 3 – Column 5)

(8) Amount of Additional Debt that May Be Issued is the amount of additional tax-supported debt (above and beyond that which is currently authorized but unissued) that may be issued in any given year without exceeding the Base Capacity to pay debt service.

(9) Debt Service on the Amount of Additional Debt that May Be Issued is the estimated amount of debt service for the Amount of Additional Debt that May be Issued, given the amount is authorized and issued.

(10) Remaining Capacity to Pay Debt Service is the residual amount derived from the Net Capacity to Pay Debt Service less Debt Service on the Amount of Additional Debt that May be Issued.

(Column 10 = Column 7 – Column 9)

(11) Total Debt Service as a % of Revenues is the percentage of Blended Revenues used for the sum of Annual Payments for Debt Service on Debt Issued, Annual Payments for Debt Service on All Planned Debt Issuances and Debt Service on Amount of Additional Debt that May be Issued.
(Column 11 = (Column 3 + Column 5 + Column 9) ÷ Column 1)

Standard Model Solution:

- Model solves for the additional annual capacity above and beyond amounts already authorized and assumed issued over the next ten fiscal years at the base capacity to pay debt service (5%), while maintaining two additional years of capacity at the end of the ten-year period.
- This solution results in an average annual capacity of $1.18 billion.

Recommended Modified Model Solution:

- Model solves for the additional annual capacity above and beyond amounts already authorized and assumed issued over the next ten fiscal years at the base capacity to pay debt service (5%), while maintaining two additional years of capacity at the end of the ten-year period.
- Replaces the model interest rate of 2.47% with a rate of 4.25%. This recommended rate is based on current market rates, as well as the planned additional rate increases from the Fed, and is recommended in order to better model the rates at which future tax-supported debt issuances are anticipated to occur.
- This solution results in an average annual capacity of $970.26 million.
- Accordingly, the Committee finds the additional tax supported debt that may prudently be authorized in each of fiscal years 2023 and 2024 is $970.26 million.

DEBT CAPACITY MODEL

(Dollars in Millions)

December 16, 2022

Base Model Solution

Debt Capacity Maximum Ratio

Debt Service as a % of Revenue = 5.0%

Fiscal Year	[1] Blended Revenues	[2] Base Capacity to Pay Debt Service	[3] Annual Payments for Debt Service on Debt Issued	[4] Actual Outstanding Debt Service as a % of Revenues	[5] Annual Payments for Debt Service on All Planned Debt Issuances	[6] Actual & Projected Debt Service as a % of Revenues	[7] Net Capacity to Pay Debt Service	[8] Amount of Additional Debt that may Be Issued	[9] Debt Service on Amount of Additional Debt that may Be Issued	[10] Remaining Capacity to Pay Debt Service	[11] Total Debt Service as a % of Revenues
2013	18,626.30	931.32	820.77	4.41%	N/A	4.41%	110.55	**N/A**	N/A	110.55	4.41%
2014	18,502.80	925.14	835.53	4.52%	N/A	4.52%	89.61	**N/A**	N/A	89.61	4.52%
2015	20,040.70	1,002.04	897.38	4.48%	N/A	4.48%	104.65	**N/A**	N/A	104.65	4.48%
2016	20,382.70	1,019.14	904.30	4.44%	N/A	4.44%	114.83	**N/A**	N/A	114.83	4.44%
2017	21,162.90	1,058.15	988.33	4.67%	N/A	4.67%	69.82	**N/A**	N/A	69.82	4.67%
2018	22,351.70	1,117.59	957.97	4.29%	N/A	4.29%	159.62	**N/A**	N/A	159.62	4.29%
2019	23,858.40	1,192.92	1,008.23	4.23%	N/A	4.23%	184.69	**N/A**	N/A	184.69	4.23%
2020	24,308.76	1,215.44	1,037.16	4.27%	N/A	4.27%	178.28	**N/A**	N/A	178.28	4.27%
2021	28,136.78	1,406.84	1,043.55	3.71%	N/A	3.71%	363.29	**N/A**	N/A	363.29	3.71%
2022	32,588.24	1,629.41	1,101.44	3.38%	N/A	3.38%	527.98	**N/A**	N/A	527.98	3.38%
2023	29,975.88	1,498.79	1,184.01	3.95%	129.11	4.38%	185.68	**1,825.71**	115.402	70.28	4.77%
2024	30,387.91	1,519.40	1,179.49	3.88%	224.50	4.62%	115.40	**0.00**	115.402	0.00	5.00%
2025	32,001.76	1,600.09	1,125.21	3.52%	309.70	4.48%	165.18	**787.41**	165.173	0.00	5.00%
2026	33,033.72	1,651.69	1,084.89	3.28%	364.87	4.39%	201.93	**581.43**	201.925	0.00	5.00%
2027	33,993.32	1,699.67	1,030.94	3.03%	376.37	4.14%	292.35	**1,430.56**	292.350	0.00	5.00%
2028	34,902.54	1,745.13	967.14	2.77%	376.37	3.85%	401.62	**1,728.67**	401.617	0.00	5.00%
2029	36,107.04	1,805.35	922.18	2.55%	376.37	3.60%	506.80	**1,663.95**	506.794	0.00	5.00%
2030	37,376.60	1,868.83	867.81	2.32%	376.37	3.33%	624.64	**1,864.34**	624.638	0.00	5.00%
2031	38,706.63	1,935.33	803.24	2.08%	362.52	3.01%	769.58	**1,952.69**	748.066	21.51	4.94%
2032	40,086.03	2,004.30	757.96	1.89%	348.66	2.76%	897.68	**0.00**	748.066	149.61	4.63%

10 Year Average:	$1,183.48	2 Yrs Excess Avg Capacity:	$2,366.95

DEBT CAPACITY MODEL

(Dollars in Millions)

December 16, 2022

Base Model Solution

Debt Capacity Maximum Ratio

Debt Service as a % of Revenue = 5.0%

Fiscal Year	[1] Blended Revenues	[2] Base Capacity to Pay Debt Service	[3] Annual Payments for Debt Service on Debt Issued	[4] Actual Outstanding Debt Service as a % of Revenues	[5] Annual Payments for Debt Service on All Planned Debt Issuances	[6] Actual & Projected Debt Service as a % of Revenues	[7] Net Capacity to Pay Debt Service	[8] Amount of Additional Debt that may Be Issued	[9] Debt Service on Amount of Additional Debt that may Be Issued	[10] Remaining Capacity to Pay Debt Service	[11] Total Debt Service as a % of Revenues
2013	18,626.30	931.32	820.77	4.41%	N/A	4.41%	110.55	**N/A**	N/A	110.55	4.41%
2014	18,502.80	925.14	835.53	4.52%	N/A	4.52%	89.61	**N/A**	N/A	89.61	4.52%
2015	20,040.70	1,002.04	897.38	4.48%	N/A	4.48%	104.65	**N/A**	N/A	104.65	4.48%
2016	20,382.70	1,019.14	904.30	4.44%	N/A	4.44%	114.83	**N/A**	N/A	114.83	4.44%
2017	21,162.90	1,058.15	988.33	4.67%	N/A	4.67%	69.82	**N/A**	N/A	69.82	4.67%
2018	22,351.70	1,117.59	957.97	4.29%	N/A	4.29%	159.62	**N/A**	N/A	159.62	4.29%
2019	23,858.40	1,192.92	1,008.23	4.23%	N/A	4.23%	184.69	**N/A**	N/A	184.69	4.23%
2020	24,308.76	1,215.44	1,037.16	4.27%	N/A	4.27%	178.28	**N/A**	N/A	178.28	4.27%
2021	28,136.78	1,406.84	1,043.55	3.71%	N/A	3.71%	363.29	**N/A**	N/A	363.29	3.71%
2022	32,588.24	1,629.41	1,101.44	3.38%	N/A	3.38%	527.98	**N/A**	N/A	527.98	3.38%
2023	29,975.88	1,498.79	1,184.01	3.95%	129.11	4.38%	185.68	**0.00**	0.000	185.68	4.38%
2024	30,387.91	1,519.40	1,179.49	3.88%	224.50	4.62%	115.40	**1,183.48**	74.807	40.60	4.87%
2025	32,001.76	1,600.09	1,125.21	3.52%	309.70	4.48%	165.18	**1,183.48**	149.613	15.56	4.95%
2026	33,033.72	1,651.69	1,084.89	3.28%	364.87	4.39%	201.93	**1,183.48**	224.420	(22.49)	5.07%
2027	33,993.32	1,699.67	1,030.94	3.03%	376.37	4.14%	292.35	**1,183.48**	299.226	(6.87)	5.02%
2028	34,902.54	1,745.13	967.14	2.77%	376.37	3.85%	401.62	**1,183.48**	374.033	27.58	4.92%
2029	36,107.04	1,805.35	922.18	2.55%	376.37	3.60%	506.80	**1,183.48**	448.839	57.96	4.84%
2030	37,376.60	1,868.83	867.81	2.32%	376.37	3.33%	624.64	**1,183.48**	523.646	101.00	4.73%
2031	38,706.63	1,935.33	803.24	2.08%	362.52	3.01%	769.58	**1,183.48**	598.453	171.12	4.56%
2032	40,086.03	2,004.30	757.96	1.89%	348.66	2.76%	897.68	**1,183.48**	673.259	224.42	4.44%

10 Year Average: $1,183.48

DEBT CAPACITY MODEL

(Dollars in Millions)

December 16, 2022

Base Model Solution

Debt Capacity Maximum Ratio

Debt Service as a % of Revenue = 5.0%

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Fiscal Year	**Blended Revenues**	**Base Capacity to Pay Debt Service**	**Annual Payments for Debt Service on Debt Issued**	**Actual Outstanding Debt Service as a % of Revenues**	**Annual Payments for Debt Service on All Planned Debt Issuances**	**Actual & Projected Debt Service as a % of Revenues**	**Net Capacity to Pay Debt Service**	**Amount of Additional Debt that may Be Issued**	**Debt Service on Amount of Additional Debt that may Be Issued**	**Remaining Capacity to Pay Debt Service**	**Total Debt Service as a % of Revenues**
2013	18,626.30	931.32	820.77	4.41%	N/A	4.41%	110.55	**N/A**	N/A	110.55	4.41%
2014	18,502.80	925.14	835.53	4.52%	N/A	4.52%	89.61	**N/A**	N/A	89.61	4.52%
2015	20,040.70	1,002.04	897.38	4.48%	N/A	4.48%	104.65	**N/A**	N/A	104.65	4.48%
2016	20,382.70	1,019.14	904.30	4.44%	N/A	4.44%	114.83	**N/A**	N/A	114.83	4.44%
2017	21,162.90	1,058.15	988.33	4.67%	N/A	4.67%	69.82	**N/A**	N/A	69.82	4.67%
2018	22,351.70	1,117.59	957.97	4.29%	N/A	4.29%	159.62	**N/A**	N/A	159.62	4.29%
2019	23,858.40	1,192.92	1,008.23	4.23%	N/A	4.23%	184.69	**N/A**	N/A	184.69	4.23%
2020	24,308.76	1,215.44	1,037.16	4.27%	N/A	4.27%	178.28	**N/A**	N/A	178.28	4.27%
2021	28,136.78	1,406.84	1,043.55	3.71%	N/A	3.71%	363.29	**N/A**	N/A	363.29	3.71%
2022	32,588.24	1,629.41	1,101.44	3.38%	N/A	3.38%	527.98	**N/A**	N/A	527.98	3.38%
2023	29,975.88	1,498.79	1,184.01	3.95%	131.69	4.39%	183.10	**1,343.58**	99.003	84.09	4.72%
2024	30,387.91	1,519.40	1,179.49	3.88%	240.90	4.67%	99.00	**0.00**	99.003	0.00	5.00%
2025	32,001.76	1,600.09	1,125.21	3.52%	338.24	4.57%	136.64	**510.73**	136.637	0.00	5.00%
2026	33,033.72	1,651.69	1,084.89	3.28%	402.70	4.50%	164.09	**372.57**	164.090	0.00	5.00%
2027	33,993.32	1,699.67	1,030.94	3.03%	416.12	4.26%	252.61	**1,201.31**	252.610	0.00	5.00%
2028	34,902.54	1,745.13	967.14	2.77%	416.12	3.96%	361.88	**1,482.81**	361.873	0.00	5.00%
2029	36,107.04	1,805.35	922.18	2.55%	416.12	3.71%	467.05	**1,427.41**	467.054	0.00	5.00%
2030	37,376.60	1,868.83	867.81	2.32%	416.12	3.44%	584.90	**1,599.25**	584.897	0.00	5.00%
2031	38,706.63	1,935.33	803.24	2.08%	402.26	3.11%	729.83	**1,764.92**	714.947	14.89	4.96%
2032	40,086.03	2,004.30	757.96	1.89%	388.40	2.86%	857.94	**0.00**	714.947	142.99	4.64%

10 Year Average:	$970.26	2 Yrs Excess Avg Capacity:	$1,940.51

DEBT CAPACITY MODEL

(Dollars in Millions)

December 16, 2022

Base Model Solution

Debt Capacity Maximum Ratio

Debt Service as a % of Revenue = **5.0%**

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
Fiscal Year	**Blended Revenues**	**Base Capacity to Pay Debt Service**	**Annual Payments for Debt Service on Debt Issued**	**Actual Outstanding Debt Service as a % of Revenues**	**Annual Payments for Debt Service on All Planned Debt Issuances**	**Actual & Projected Debt Service as a % of Revenues**	**Net Capacity to Pay Debt Service**	**Amount of Additional Debt that may Be Issued**	**Debt Service on Amount of Additional Debt that may Be Issued**	**Remaining Capacity to Pay Debt Service**	**Total Debt Service as a % of Revenues**
2013	18,626.30	931.32	820.77	4.41%	N/A	4.41%	110.55	**N/A**	N/A	110.55	4.41%
2014	18,502.80	925.14	835.53	4.52%	N/A	4.52%	89.61	**N/A**	N/A	89.61	4.52%
2015	20,040.70	1,002.04	897.38	4.48%	N/A	4.48%	104.65	**N/A**	N/A	104.65	4.48%
2016	20,382.70	1,019.14	904.30	4.44%	N/A	4.44%	114.83	**N/A**	N/A	114.83	4.44%
2017	21,162.90	1,058.15	988.33	4.67%	N/A	4.67%	69.82	**N/A**	N/A	69.82	4.67%
2018	22,351.70	1,117.59	957.97	4.29%	N/A	4.29%	159.62	**N/A**	N/A	159.62	4.29%
2019	23,858.40	1,192.92	1,008.23	4.23%	N/A	4.23%	184.69	**N/A**	N/A	184.69	4.23%
2020	24,308.76	1,215.44	1,037.16	4.27%	N/A	4.27%	178.28	**N/A**	N/A	178.28	4.27%
2021	28,136.78	1,406.84	1,043.55	3.71%	N/A	3.71%	363.29	**N/A**	N/A	363.29	3.71%
2022	32,588.24	1,629.41	1,101.44	3.38%	N/A	3.38%	527.98	**N/A**	N/A	527.98	3.38%
2023	29,975.88	1,498.79	1,184.01	3.95%	131.69	4.39%	183.10	**0.00**	0.000	183.10	4.39%
2024	30,387.91	1,519.40	1,179.49	3.88%	240.90	4.67%	99.00	**970.26**	71.495	27.51	4.91%
2025	32,001.76	1,600.09	1,125.21	3.52%	338.24	4.57%	136.64	**970.26**	142.989	(6.35)	5.02%
2026	33,033.72	1,651.69	1,084.89	3.28%	402.70	4.50%	164.09	**970.26**	214.484	(50.39)	5.15%
2027	33,993.32	1,699.67	1,030.94	3.03%	416.12	4.26%	252.61	**970.26**	285.979	(33.37)	5.10%
2028	34,902.54	1,745.13	967.14	2.77%	416.12	3.96%	361.88	**970.26**	357.474	4.40	4.99%
2029	36,107.04	1,805.35	922.18	2.55%	416.12	3.71%	467.05	**970.26**	428.968	38.09	4.89%
2030	37,376.60	1,868.83	867.81	2.32%	416.12	3.44%	584.90	**970.26**	500.463	84.44	4.77%
2031	38,706.63	1,935.33	803.24	2.08%	402.26	3.11%	729.83	**970.26**	571.958	157.88	4.59%
2032	40,086.03	2,004.30	757.96	1.89%	388.40	2.86%	857.94	**970.26**	643.452	214.48	4.46%

10 Year Average: $970.26

DEBT CAPACITY MODEL REVENUE DATA

December 2022

(Dollars In Millions)

	Fiscal Year	General Fund	Transportation Trust Fund [4]	General Fund Growth	Transportation Trust Fund Growth	Virginia Health Care Fund	Total Blended Revenue [9]	Blended Revenue Growth Rate [10]
2013	Actual 2013	17,109.20 (1)	1,083.60 (1)	4.66% (1)	2.21% (1)	433.50 (1)	18,626.30	4.72%
2014	Actual 2014	16,949.10 (1)	1,189.00 (1)	-0.94% (1)	9.73% (1)	364.70 (1)	18,502.80	-0.66%
2015	Actual 2015	18,369.50 (1)	1,324.50 (1)	8.38% (1)	11.40% (1)	346.70 (1)	20,040.70	8.31%
2016	Actual 2016	18,601.70 (1)	1,367.50 (1)	1.26% (1)	3.25% (1)	413.50 (1)	20,382.70	1.71%
2017	Actual 2017	19,348.40 (1)	1,431.40 (1)	4.01% (1)	4.67% (1)	383.10 (1)	21,162.90	3.83%
2018	Actual 2018	20,509.10 (1)	1,440.60 (1)	6.00% (1)	0.64% (1)	402.00 (1)	22,351.70	5.62%
2019	Actual 2019	21,965.50 (1)	1,497.00 (1)	7.10% (1)	3.92% (1)	395.90 (1)	23,858.40	6.74%
2020	Actual 2020	22,441.70 (1)	1,532.06 (1)	2.17% (1)	2.34% (1)	335.00 (1)	24,308.76	1.89%
2021	Actual 2021	25,637.10 (1)	1,885.78 (1)	14.24% (1)	23.09% (1)	613.90 (1)	28,136.78	15.75%
2022	Actual 2022	29,749.30 (1)	2,152.84 (1)	16.04% (1)	14.16% (1)	686.10 (1)	32,588.24	15.82%
2023	Forecasted for 2023	27,067.20 (2)	2,243.98 (5)	-9.02% (2)	4.23% (5)	664.70 (7)	29,975.88	-8.02%
2024	Forecasted for 2024	27,694.40 (2)	2,244.01 (5)	2.32% (2)	0.00% (5)	449.50 (7)	30,387.91	1.37%
2025	Forecasted for 2025	29,181.50 (2)	2,372.66 (5)	5.37% (2)	5.73% (5)	447.60 (7)	32,001.76	5.31%
2026	Forecasted for 2026	30,149.90 (2)	2,439.42 (5)	3.32% (2)	2.81% (5)	444.40 (7)	33,033.72	3.22%
2027	Forecasted for 2027	31,064.80 (2)	2,484.12 (5)	3.03% (2)	1.83% (5)	444.40 (7)	33,993.32	2.90%
2028	Forecasted for 2028	31,931.60 (2)	2,526.54 (5)	2.79% (2)	1.71% (5)	444.40 (7)	34,902.54	2.67%
2029	Forecasted for 2029	33,098.90 (2)	2,563.74 (5)	3.66% (2)	1.47% (5)	444.40 (7)	36,107.04	3.45%
2030	Forecasted for 2030	34,330.00 (2)	2,602.20 (5)	3.72% (2)	1.50% (5)	444.40 (7)	37,376.60	3.52%
2031	Forecasted for 2031	35,621.00 (3)	2,641.23 (6)	3.76% (3)	1.50% (6)	444.40 (8)	38,706.63	3.56%
2032	Forecasted for 2032	36,960.78 (3)	2,680.85 (6)	3.76% (3)	1.50% (6)	444.40 (8)	40,086.03	3.56%

(1) Department of Taxation and Department of Transportation.

(2) December General Fund Forecast for FY 2023-2030, including A.B.C. Profits, 0.375% sales tax (enacted 2013), and certain recurring Transfers per the Appropriation Act.

(3) Based on flat growth rates of 3.8% for General Fund Revenues, 2.6% for Sales Tax Transfers, and 1.3% for A.B.C. Profits and recurring Transfers per the Appropriation Act, per Department of Taxation.

(4) Does not include Highway Maintenance and Operating Fund, Federal Grants and Contracts or Toll Revenues.

(5) Provided by Department of Tranportation based on December Commonwealth Transportation Fund Forecast for FY 2023-2030.

(6) Based on flat growth rate of 1.5% for years 2031-2032, per Department of Transportation and Department of Taxation.

(7) December Virginia Health Care Fund Forecast for FY 2023-2030.

(8) Based on holding Virginia Health Care Fund Revenues flat at $444.4 million, per Department of Taxation.

(9) Total Blended Revenue = GF + TTF + Virginia Health Care Fund.

(10) Blended Revenue Growth Rate = (Current FY Total Blended Revenue / Prior FY Total Blended Revenue) - 1.

Modified Debt Capacity Model at 4.25% - Sensitivity Analysis

2-Year Reserve Excess Capacity Sensitivity

- The Recommended Modified Model solution provides for average debt capacity of $970.26 million over the model period, with two years of average capacity, beyond the 10-year model period.
    - If the Model solution is altered to reduce the two years of excess capacity to one year of excess capacity, the resulting debt capacity is $1.06 billion.
    - If the Model solution is altered to reduce the two years of excess capacity beyond the model period to no excess capacity, the resulting average debt capacity is $1.16 billion.

Revenue Sensitivity

- If the Model solution is altered to increase or decrease Blended Revenues, the following incremental average debt capacity changes occur:
    - Assuming a change of $100 million in each and every year, the incremental change is $5.65 million.
    - Assuming a 1% change of revenues in each and every year, the incremental change is $22.66 million.

Interest Rate Sensitivity

- If the Model solution is altered to change interest rates, the following changes to average debt capacity occur:
    - Add 100 basis points to base rate, and average capacity decreases by $100.20 million to $870.06 million
    - Subtract 100 basis points from base rate, and average capacity increases by $113.84 million to $1.08 billion.
- The exhibit on the following page highlights the impacts of various interest rates, ranging from the standard model rate of 2.47% to a maximum rate of 6.00%, on the Commonwealth's debt capacity. The recommended modified model rate of 4.25% is highlighted in light blue.

DCAC - 2022 Model - Interest Rate Sensitivity Stress Testing

Interest Rate	Annual Capacity Impact to Base Model	Annual Debt Capacity
2.47%	N/A	$ 1,183.48
3.00%	$ (68.53)	$ 1,114.95
3.50%	$ (129.24)	$ 1,054.24
4.00%	$ (186.12)	$ 997.35
4.25%	$ (213.22)	$ 970.26
4.50%	$ (239.47)	$ 944.01
5.00%	$ (289.54)	$ 893.94
5.50%	$ (336.57)	$ 846.91
6.00%	$ (380.79)	$ 802.68

Severe Economic Downturn Scenario Analysis

- If the Model solution is altered to project a severe economic downturn, the resulting debt capacity is $606.20 million, or a decline of $577.28 million. This scenario not only assumes the recommended modified model rate of 4.25%, but also revenue declines in the next two fiscal years. The revenues used to model this scenario are presented below along with footnotes containing the assumptions for revenue growth.

DEBT CAPACITY MODEL REVENUE DATA

December 2022

(Dollars In Millions)

Severe Economic Downturn Scenario

	Fiscal Year	General Fund	Transportation Trust Fund	General Fund Growth	Transportation Trust Fund Growth	Virginia Health Care Fund	Total Blended Revenue (6)	Blended Revenue Growth Rate (7)
2023	Forecasted for 2023	27,067.20 (1)	2,243.98 (4)	-9.02% (1)	4.23% (4)	664.70 (5)	29,975.88	-8.02%
2024	Forecasted for 2024	25,608.28 (2)	2,123.03 (2)	-5.39% (2)	-5.39% (2)	628.87 (2)	28,360.18	-5.39%
2025	Forecasted for 2025	26,161.42 (2)	2,168.89 (3)	2.16% (3)	2.16% (3)	642.46 (3)	28,972.76	2.16%
2026	Forecasted for 2026	26,726.50 (2)	2,215.73 (3)	2.16% (3)	2.16% (3)	656.33 (3)	29,598.57	2.16%
2027	Forecasted for 2027	27,303.80 (2)	2,263.59 (3)	2.16% (3)	2.16% (3)	670.51 (3)	30,237.90	2.16%
2028	Forecasted for 2028	27,893.56 (2)	2,312.49 (3)	2.16% (3)	2.16% (3)	684.99 (3)	30,891.04	2.16%
2029	Forecasted for 2029	28,496.06 (2)	2,362.44 (3)	2.16% (3)	2.16% (3)	699.79 (3)	31,558.28	2.16%
2030	Forecasted for 2030	29,111.57 (2)	2,413.46 (3)	2.16% (3)	2.16% (3)	714.90 (3)	32,239.94	2.16%
2031	Forecasted for 2031	29,740.38 (3)	2,465.60 (3)	2.16% (3)	2.16% (3)	730.35 (3)	32,936.33	2.16%
2032	Forecasted for 2032	30,382.78 (3)	2,518.85 (3)	2.16% (3)	2.16% (3)	746.12 (3)	33,647.75	2.16%

(1) December General Fund Forecast for FY 2023, including A.B.C. Profits, 0.375% sales tax (enacted 2013), and certain recurring Transfers per the Appropriation Act.

(2) 5.39% decline is based on average revenue declines during last three recessions (2002, 2009, 2014) from last 20 years of historical blended revenue amounts.

(3) 2.16% is average growth rate from FY23 through FY32 from December General Fund Forecast

(4) Provided by Department of Transportation based on December Commonwealth Transportation Fund Forecast for FY 2023.

(5) December Virginia Health Care Fund Forecast for FY 2023

(6) Total Blended Revenue = GF + TTF + Virginia Health Care Fund.

(7) Blended Revenue Growth Rate = (Current FY Total Blended Revenue / Prior FY Total Blended Revenue) - 1.

Debt of the Commonwealth
(Dollars in Thousands)

	As of June 30 2022	As of June 30 2021
Tax-Supported Debt		
9(b) General Obligation [1]	$ 225,600	$ 278,221
9(c) General Obligation - Higher Education [2]	912,817	955,729
9(c) General Obligation - Transportation [2]	-	-
9(c) General Obligation - Parking Facilities [2]	5,664	6,640
Commonwealth Transportation Board	2,737,497	2,661,007
Virginia Public Building Authority	3,780,877	3,472,631
Virginia Port Authority	210,246	222,831
Virginia College Building Authority - 21st Century & Equipment	5,389,998	5,101,393
Virginia Biotechnology Research Park Authority	-	4,903
Long-Term Lease Liabilities [4]	555,071	42,290
Installment Purchases	339,548	224,013
Virginia Aviation Board	-	-
Economic Development Authority Obligations [3]	-	7,542
Subtotal Tax Supported Debt	$ 14,157,318	$ 12,977,200
Other Tax-Supported Debt		
Compensated Absences [2]	$ 713,185	$ 737,166
Pension Liability [2]	4,369,154	8,348,881
OPEB Liability [2]	1,913,633	2,250,039
Pollution Remediation Liability [2]	8,685	9,140
Other Liabilities [2]	28,411	32,130
Subtotal Tax Supported Debt Not Included in Capacity Model	$ 7,033,068	$ 11,377,356
Total Tax-Supported Debt	$ 21,190,387	$ 24,354,556

Source: Department of the Treasury and Department of Accounts

[1] Voter approved

[2] Not Included in Debt Capacity Model

[3] Fairfax County Economic Development Authority Joint Venture with VDOT for Camp 30 Project

[4] GASB 87 eliminated Capital Leases beginning FY22. All leases over 12 months now considered Long-Term Lease

Debt of the Commonwealth
(Dollars in Thousands)

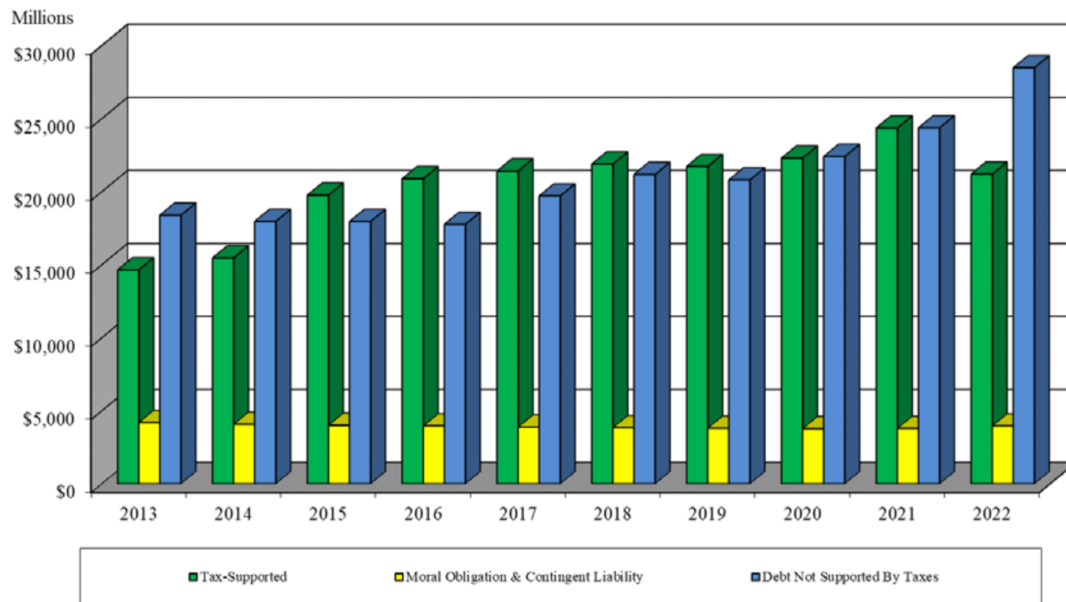
		As of June 30, 2022		As of June 30, 2021
Debt Not Supported by Taxes [1]				
Moral Obligation / Contingent Liability Debt				
Virginia Resources Authority	$	929,911	$	914,377
Virginia Housing Development Authority		-		-
Virginia Public School Authority - 1997 Resolution		2,475,290		2,327,010
Virginia Public School Authority - School Tax Credit Bond Program		359,566		359,566
Virginia Public School Authority - Equipment Technology Notes		188,420		185,545
Total Moral Obligation/Contingent Liability Debt	$	3,953,187	$	3,786,498
Other Debt Not Supported By Taxes				
9(d) Higher Education	$	4,449,563	$	4,106,374
Virginia College Building Authority - Pooled Bond Program		1,403,940		1,442,450
Virginia Public School Authority - Stand Alone Program		1,052,865		795,235
Virginia Housing Development Authority		4,679,799		4,358,584
Virginia Port Authority		266,025		272,815
Hampton Roads Sanitation District Commission		868,472		835,006
Hampton Roads Transportation Accountability Commission		2,785,352		1,748,229
Virginia Resources Authority		2,445,127		2,482,752
Grant Anticipation Notes (GARVEES)		979,791		1,086,897
I-81 Revenue Bonds		102,401		-
Notes Payable		290,091		181,662
Other Long-Term Debt		507,128		764,329
Foundations		1,814,098		1,760,809
Pension Liability		101,268		225,160
OPEB Liability		115,763		100,825
Long-Term Lease Liabilities [2]		4,867,967		2,334,082
Compensated Absences		13,699		14,545
Installment Purchase Obligations		572		771
Tuition Benefits Payable		1,613,747		1,733,998
Lottery Prizes Payable		112,828		116,934
Total Other Debt Not Supported By Taxes	$	28,470,496	$	24,361,457
Grand Total of Tax Supported Debt and Debt Not Supported By Taxes	**$**	**53,614,070**	**$**	**52,502,511**

Source: Department of the Treasury and Department of Accounts

[1] Not Included In Debt Capacity Model

[2] GASB 87 eliminated Capital Leases beginning FY22. All leases over 12 months now considered Long-Term Lease

Outstanding Commonwealth Debt
Fiscal Years 2013-2022



Moral Obligation and Contingent Liability Debt

Moral Obligation Debt

Moral obligation debt refers to a bond issue structure originally created in the 1960s and utilized primarily by state housing finance agencies or state-administered municipal bond banks as additional credit enhancement for revenue bond issues. A government's moral obligation pledge provides a deficiency make-up for bondholders should underlying project revenues prove insufficient. The mechanics involve funding a debt service reserve fund when the bonds are issued. If a revenue deficiency exists, reserve fund monies are used to pay bondholders. The issuer then informs the legislative body and requests that it replenish the reserve fund before subsequent debt service is due. The legislative body "may", but is not legally required to, replenish the reserve fund. Rating agencies do not include moral obligation debt in tax-supported debt ratios as long as these bonds are self-supporting.

The Virginia Resources Authority (VRA) is the Commonwealth's only remaining moral obligation debt issuer. The VRA issues moral obligation bonds under its financing programs to provide low-cost financing to localities for water, wastewater, public safety, transportation, and other General Assembly authorized project categories. Due to increased demand for VRA's financing programs, the 2009 General Assembly approved an increase to VRA's moral obligation debt limit from $900 million to $1.5 billion.

Below are the statutory caps and outstanding amounts (in thousands):

Issuer	Statutory Cap	Outstanding at June 30, 2022	Available Authorization
Virginia Resources Authority	$1,500,000	$929,911	$570,089
Virginia Housing Development Authority	$1,500,000	$0	$1,500,000
Virginia Public School Authority	$800,000	$0	$800,000
Total	$3,800,000	$929,911	$2,870,089

Alternative financing programs were initiated by the Virginia Housing Development Authority and the Virginia Public School Authority. Neither of these entities expect to issue additional moral obligation debt.

Moral Obligation Debt Sensitivity

A sensitivity analysis was completed for moral obligation debt. The analysis demonstrates the impact on tax-supported debt capacity as a result of the conversion of moral obligation debt to tax-supported debt. The sensitivity analysis is prepared using a worst-case scenario and shows the impact of the conversion of all moral obligation debt. However, conversion would only occur if the General Assembly appropriated funds to replenish a debt service reserve fund shortfall upon the request by a moral obligation issuer. Further, if any such debt were ever converted, it would be only the amount necessary to cure the default of an underlying revenue stream (e.g., a locality participating in a pooled bond issue).

If the Model solution is altered to assume the conversion of all outstanding moral obligation debt as of June 30, 2022 to tax-supported debt, the resulting average debt capacity is $892.76 million, a decrease of $77.50 million.

Contingent or Limited Liability Debt

The Virginia Public School Authority (VPSA) is the only issuer of non-tax-supported debt that utilizes a sum-sufficient appropriation (SSA) as an additional credit enhancement. SSA debt represents a contingent liability for the Commonwealth. The VPSA had $2.5 billion of 1997 Resolution bonds outstanding as of June 30, 2022 and an additional $359.6 million of School Tax Credit bonds outstanding. Both VPSA programs receive authorization to issue bonds with a SSA credit enhancement from the Code of Virginia, §22.1-167.2.

The use of SSA credit enhancement for VPSA's issuance of bonds or notes for the purpose of making grants to local school boards was codified during the 2001 General Assembly session (§22.1-167.3, Code of Virginia). As of June 30, 2022, outstanding notes for school technology and security amounted to $188.4 million.

VPSA's bonds issued through its Stand Alone Program are secured by the related local government's G.O. pledge. While these bonds are afforded the security enhancement of VPSA's ability to intercept state aid to the obligated locality for VPSA's use towards payment of debt

service should the locality default on its payment to VPSA, the Stand Alone Program bonds are not additionally secured by SSA.

Sum-Sufficient Appropriation Sensitivity

A sensitivity analysis was completed for the VPSA's SSA debt. The analysis demonstrates the impact on tax-supported debt capacity as a result of the conversion of SSA debt to tax-supported debt.

If the Model solution is altered to assume the conversion of the VPSA's total outstanding debt secured by a sum sufficient appropriation as of June 31, 2022 to tax-supported debt, the resulting average debt capacity is $718.32 million, a decrease of $251.94 million.