COMMONWEALTH of VIRGINIA

Aubrey L. Layne, Jr., MBA, CPA
Secretary of Finance

P.O. Box 1475
Richmond, Virginia 23218

December 17, 2020

The Honorable Ralph S. Northam
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 Suzette P. Denslow
Clerk of the House of Delegates
Virginia House of Delegates
Pocahontas Building
Richmond, Virginia 23219

Dear Governor Northam, Ms. Schaar, and Ms. Denslow:

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 2020.

Based on the debt capacity model, the Committee estimates that up to $544 million in additional debt could be authorized and issued in each of fiscal years 2021 and 2022. While 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, it will also mean that projected debt service will exceed five-percent in five years and fall below that threshold in five years, should $544 million be authorized and issued each year. 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.

It should be noted that with one exception, the 2020 DCAC Model was calculated using the December 2020 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 Commonwealth Transportation Fund Revenue Forecast. An exception was made to exclude one-time, temporary revenues related to the Federal Tax Cuts and Jobs Act. However, all other revenues were incorporated as presented in the 2020 December Revenue Forecast.

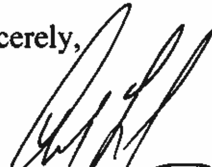
The Committee acknowledged that interest rates have fallen to new historic lows. While it is thought interest rates may remain in a lower range for the next couple of years, market conditions can change quickly and rates could rise sooner than anticipated. Given the Model's structure for determining an interest rate proxy is based on three years of historical data, it is important to note that when interest rates finally rise, it is possible for a future issuance rate to exceed the current Model interest rate of 3.0%. With approximately $6.5 billion of authorized and unissued debt included in the Model, it is important to note that a 100 basis point increase to the Model interest rate results in an $88 million decline in annual capacity to $457 million a year. Given there is typically a delay between debt authorization and issuance and the potential for rates to rise before any debt authorized in the 2021 Session of the General Assembly is issued, the implications of a future rise in interest rates should be considered.

The Committee also discussed Virginia's increasing debt level over the last 10-years. As noted above, there is a significant amount of authorized and unissued debt. Given the many uncertainties related to the pandemic, the Committee would urge that Commonwealth leaders carefully consider whether any new debt is necessary at this time and would recommend that consideration also be given as to whether any existing authorizations of projects not under construction should be rescinded.

The 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 such as establishing a structurally balanced budget and contributing to the reserve fund balances

during periods of economic expansion, as failure to follow these practices could result in a negative bond rating action.

Sincerely,



Aubrey L. Layne, Jr., 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 17, 2020

Debt Capacity Advisory Committee Members

The Honorable Aubrey L. Layne, Jr. – Chairman
Secretary of Finance

Manju S. Ganeriwala
State Treasurer

Harold E. Greer
Director, Joint Legislative Audit & Review Commission

April R. Kees
Staff Director, Senate Finance & Appropriations Committee

Martha S. Mavredes
Auditor of Public Accounts

Anne E. Oman
Staff Director, House Appropriations Committee

Hossein Sadid
Citizen Member

Ronald L. Tillett
Citizen Member

Daniel S. Timberlake
Director of the Department of Planning & Budget

David A. Von Moll
State Comptroller

REPORT OF THE DEBT CAPACITY ADVISORY COMMITTEE
December 17, 2020

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 (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 directors of the Senate Finance and House Appropriations Committees, 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.

REPORT OF THE DEBT CAPACITY ADVISORY COMMITTEE
December 17, 2020

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. It should be noted that for the 2018 DCAC Model, the Department of Taxation

provided the Committee with adjusted general fund revenues that removed temporary revenues related to the Federal Tax Cuts and Jobs Act (the "Act" or "TCJA"); therefore, the actual fiscal year 2019 and 2020 revenues contained in the Appendix are also adjusted to remove the temporary revenues. The Department of Taxation advised that the Committee should continue to adjust general fund revenues to remove estimated temporary TCJA revenues from the 2020 DCAC Model; therefore, the current model and future general fund revenue estimates contained in the Appendix continue to make this adjustment.

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, bonded capital leases paid from a general fund appropriation, and other capital leases and installment purchases.

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. These debt service estimates are based in part on draw schedules compiled by the Department of Planning and Budget or are based on information obtained from agencies on their authorized projects.

Potential Influencing Factors for Virginia's Fiscal Position

With strong 2019 financial results lending hopes for continued growth in 2020, low unemployment, and interest rates still hovering at historic lows, there was little thought the country would experience an economic downturn in 2020. Yet, with the flick of a switch, Virginia, along with most of the country, went from bustling about to work and school to managing as much as possible at home. Segments of the economy have suffered greatly and may not recover, but online consumption, home improvement, and housing market demand have helped the economy bounce back. At the same time, historically low rates dropped to new lows. While there are signs of hope with recent vaccine announcements, the new year is sure to be fraught with challenges.

Virginia has worked diligently to cultivate a diverse employment base. However, there is still a strong concentration of federal, defense, and related contracting employment in the Northern Virginia and Hampton Roads areas. While many businesses were forced to close, these employment sectors, along with state and local governments, had to find ways to remain open, whether through telework or some type of hybrid structure. Despite reductions in restaurant and hospitality sectors, Virginia's high paying technology sector has continued to grow. Virginia's higher education levels compared to the U.S. make it easier for Virginians to be able to shift to telework; however, this is not a viable option for everyone, particularly those in rural areas that

lack reliable internet access. That said, it appears telework will remain in the picture for a while as winter conditions worsen the COVID-19 outlook and companies continue to announce delays in return to the office or decide to offer full-time telework opportunities. It will be interesting to see what the new landscape will be once a vaccine is widely available. For now, Virginia will have some comfort in certain employment revenues remaining stable, but there is a big question relating to whether certain sectors will be able to make it through the winter. A cautious approach to employment revenues and plans for spending such revenues is necessary.

Just as the consumer was driving the economy before the COVID crisis, the consumer has helped to revive it following the initial shock. Buying trends have shifted from a mix of retail and online to occasional hoarding at retail stores resulting in rationing of products and more online purchasing with home delivery. As a result of the recent passage of the collection of internet sales tax, Virginia's sales and use taxes have remained strong. This trend will likely continue, especially if there is a second federal stimulus package. However, some type of shock to the system to dim consumer confidence could result in a temporary downturn in this revenue source, but this may just result in pent-up demand for future goods.

A silver lining to the struggles of recent has been that low borrowing rates have fallen to levels never imagined. The low rates have provided opportunities for well-positioned municipal market participants, such as the Commonwealth, to continue to advance capital projects during this time of uncertainty. As a result, projects that would have been done anyways have been able to be financed as low as 1.5% for 20 years! These low rates have permeated all markets and at a point drove average 30-year mortgage rates below 3%, about a percentage point lower than the prior year. This has created a strong housing market tilted towards sellers and has also led to new construction, along with record volumes of refinancing, all of which has contributed to strong recordation taxes. This trend will be important to watch as prices may run out of steam and some correction might be necessary as rates shift upwards thanks to vaccine hopes.

In addition to the public health and economic crisis, the world is watching America through its political and social movements. President-elect Joe Biden has proposed various energy and tax policies that could cause shifts in various financial and employment sectors. However, unlike COVID, any changes would not likely occur overnight and Virginia should have time to react and make any changes needed to adjust its budget.

While there are high hopes for 2021, the rollout of a vaccine to the general population and the assumption of a new normal is likely not to occur until at least the second half of the calendar year, or the start of the Commonwealth's 2022 fiscal year. We must all maintain a collaborative and understanding spirit, continue to innovate, and improve processes. From a financial perspective, fiscal prudence is of incredible importance. This year has proven the most unexpected of circumstances can knock you down and you must have resilience to make it to the finish line.

REPORT OF THE DEBT CAPACITY ADVISORY COMMITTEE
December 17, 2020

2020 Debt Capacity Recommendations

The 2020 Base Model Solution – Average debt capacity calculation (Appendix A-8) shows that an additional $544 million in debt could be authorized and issued in each 2021 and 2022. This amount will cause projections of debt service as a percent of Blended Revenues to exceed five percent in five years and to be below five percent in the first two and the last three years.

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 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 page 10 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 bonded capital lease and other conduit borrowings typically result in higher financing costs, and are ultimately still viewed as tax-supported debt.

c) 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-triple A state medians, as calculated by Moody's, on pages 18 and 19 of this report. These sections also detail debt ratios of each of Virginia's triple-triple A peers. Between the 2011 and 2020 Moody's Medians Reports, Virginia increased from the 16th highest net tax-supported debt to the 10th highest and it's other comparative ratios also increased going from the 26th highest net tax-supported debt per capita to the 16th highest and the 30th highest net tax-supported debt as a percentage of personal income to the 19th highest. These numbers only consider the debt outstanding as of the prior calendar year-end and do not contemplate the additional $7.3 billion of authorized and unissued tax-supported debt as of June 30, 2020, of which $6.5 billion is net of 9(c) debt and is included in the DCAC Model. Given the financial unknowns created by the pandemic and the uncertainties regarding future education and workplace space needs once a vaccine is widely available, it is prudent that any new debt authorizations be viewed carefully as to whether they are necessary at this time. Consideration should also be given as to whether any existing authorizations of projects not under construction should be rescinded.

Review of Tax-Supported Debt

General Fund Supported Debt

The State issues two types of tax-supported debt: General Obligation 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 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 capital 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 Transportation Board for the purpose of increased funding for construction and other capital needs of state highways, airports, mass transit and ports. Chapter 1230 of the Acts of the General Assembly of the Commonwealth of Virginia 2020 Regular Session (Chapter 1230)

enacts numerous structural changes to the transportation funding system in the Commonwealth. These changes generally became effective July 1, 2020.

Under Chapter 1230, 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 Transportation Trust Fund 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. Chapter 1230 makes changes and adds 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.

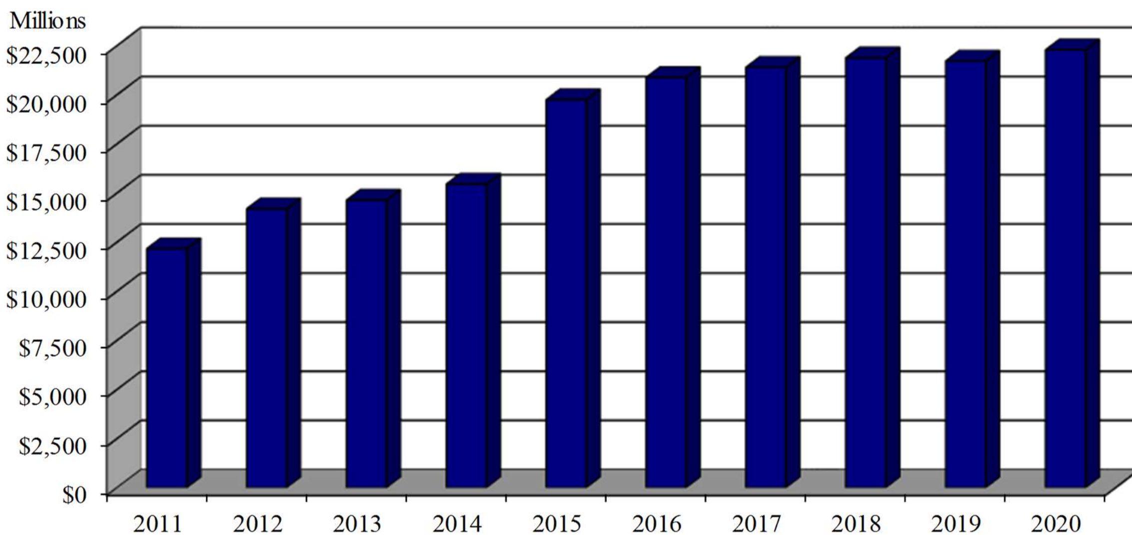
Transportation debt has been authorized and issued with a pledge that other available amounts, including the general fund, may be appropriated for their repayment. Since repayment is not limited solely to the TTF (though in practice, payments are made from the TTF), these bonds are viewed by rating agencies 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 Commonwealth Transportation Board (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. Currently, debt service on debt paid by the TTF exceeds 5% of TTF revenues. Accordingly, to the extent the 5% measure is exceeded, capacity derived from the general fund is being utilized. 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.

Trends in Tax-Supported Debt

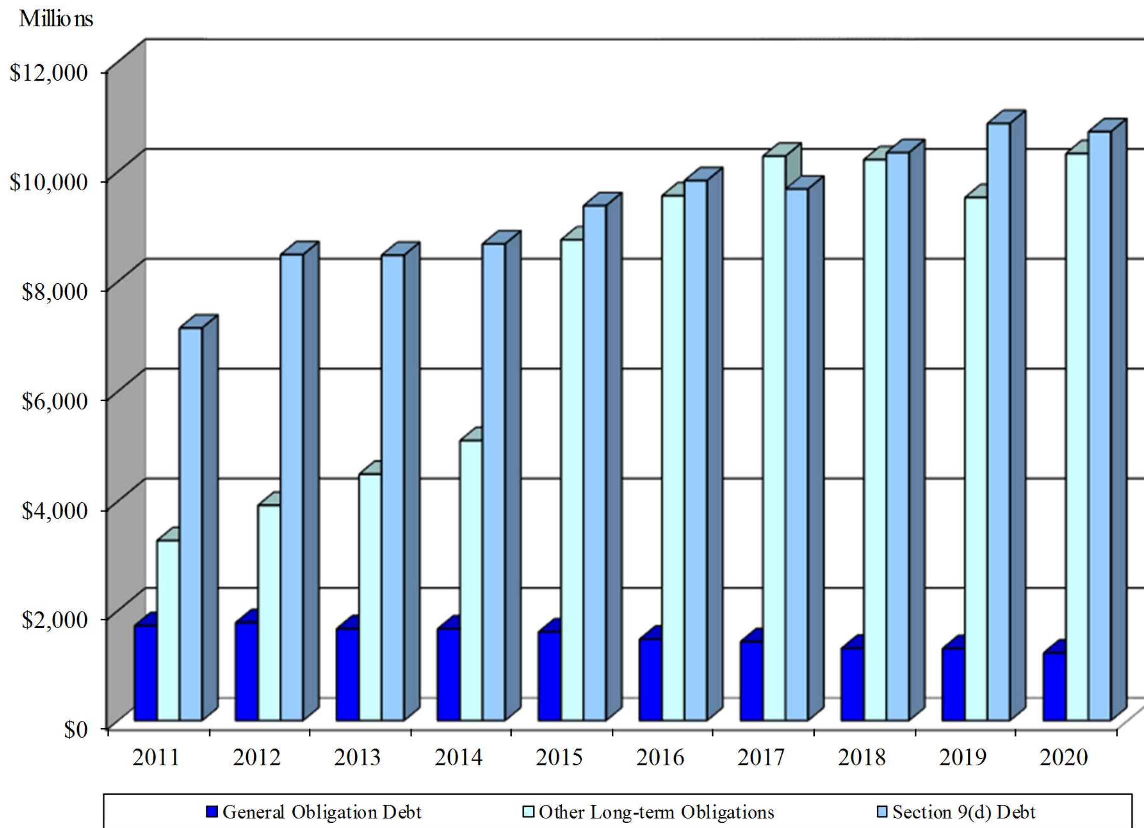
Outstanding tax-supported debt of the Commonwealth increased by 83%, or $10.1 billion, from $12.2 billion in fiscal year 2011 to $22.3 billion in fiscal year 2020. The significant increase is the result of growing 9(d) debt outstanding and overall increases in pension and other post-employment benefits (OPEB) liabilities, some of which is due to underlying growth and some of which is the result of financial reporting changes. Despite the large increase during the review period, outstanding tax-supported debt increased just $0.6 billion, or 3%, between fiscal year 2019 and fiscal year 2020. While modest growth appears to have occurred over the last fiscal year, the limited growth was actually the result of declines in both general obligation bonds and 9(d) debt obligations that was more than offset by a sharp increase in pension liabilities. 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 following graph provides a historical perspective on the Commonwealth's outstanding tax-supported debt, including these other long-term obligations.

Outstanding Tax-Supported Debt
Fiscal Years 2011-2020[(1), (2)]



[(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.

Outstanding Tax-Supported Debt by Category
Fiscal Years 2011-2020[(1), (2)]



(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.

The chart above shows outstanding tax-supported debt separated into three major categories: GO bonds, debt obligations incurred pursuant to Article X, Section 9(d) of the Virginia Constitution (i.e. appropriation-supported debt), and other long-term obligations, which include pension liabilities and OPEB liabilities.

General obligation debt, which had a June 30, 2020 balance outstanding of $1.23 billion, peaked in fiscal year 2012 and has declined 29%, or $497 million, over the 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. Between fiscal years 2010 and 2012, increases in the general obligation debt outstanding came 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. However, with a lag between the timing of new 9(c) bond authorizations and the issuance of those bonds and the continued payment of previously issued 9(b) and 9(c) debt, GO debt levels have been declining since 2012. Between

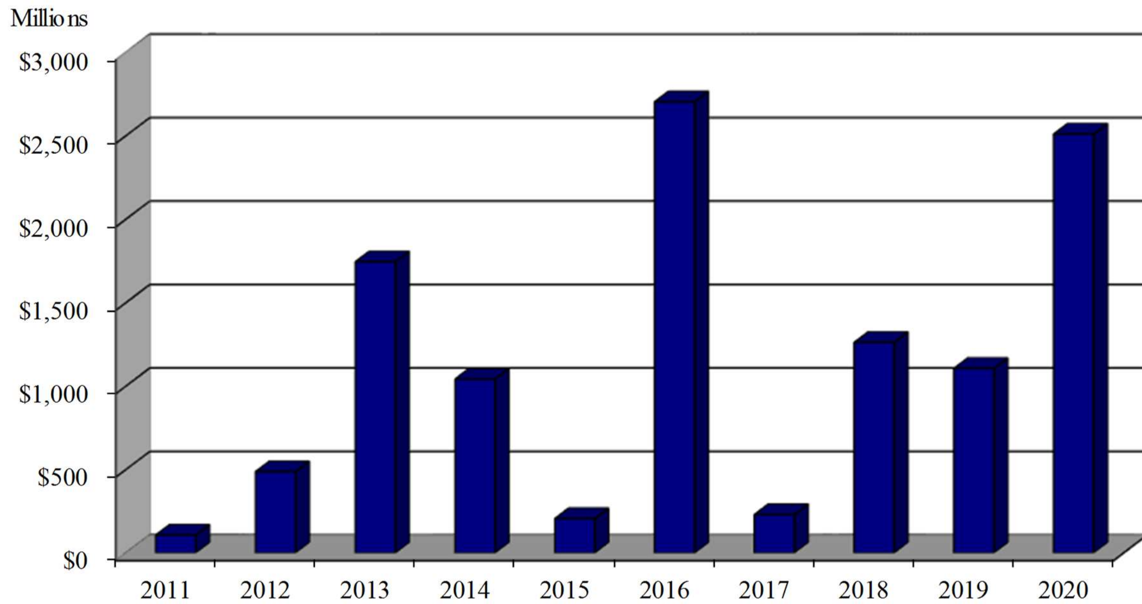
fiscal year 2019 and fiscal year 2020, the outstanding GO balance declined 6%, or $81 million. Since fiscal year 2012, the outstanding GO balance has declined 31%, or $552 million.

Section 9(d) debt includes tax-supported bonds issued by the VCBA, the VPBA, the CTB, and certain obligations of the Virginia Port Authority. It also includes bonded capital leases, other long-term capital leases, and installment purchases. This debt category has shown significant dollar growth over the last ten years, increasing $3.57 billion during the ten-year period. Total outstanding Section 9(d) debt at June 30, 2020 was $10.73 billion compared to $7.15 billion at fiscal year-end 2011, which is equivalent to a 50% increase over the ten-year period. 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. Given the timing of authorizations versus issuances, the large fiscal year 2020 authorizations have not had an impact to the currently outstanding 9(d) debt, but the authorizations will have a significant impact on the outstanding debt in future years. The outstanding balance of section 9(d) debt decreased 1%, or $150 million, between fiscal year 2019 and fiscal year 2020. The decrease does not represent a new pattern, rather there were some issuance timing changes that merely pushed debt issuance into fiscal year 2021. Project spending has not slowed amid the pandemic and an increase in debt issuance is anticipated in the near-tem as earlier authorizations continue to be issued.

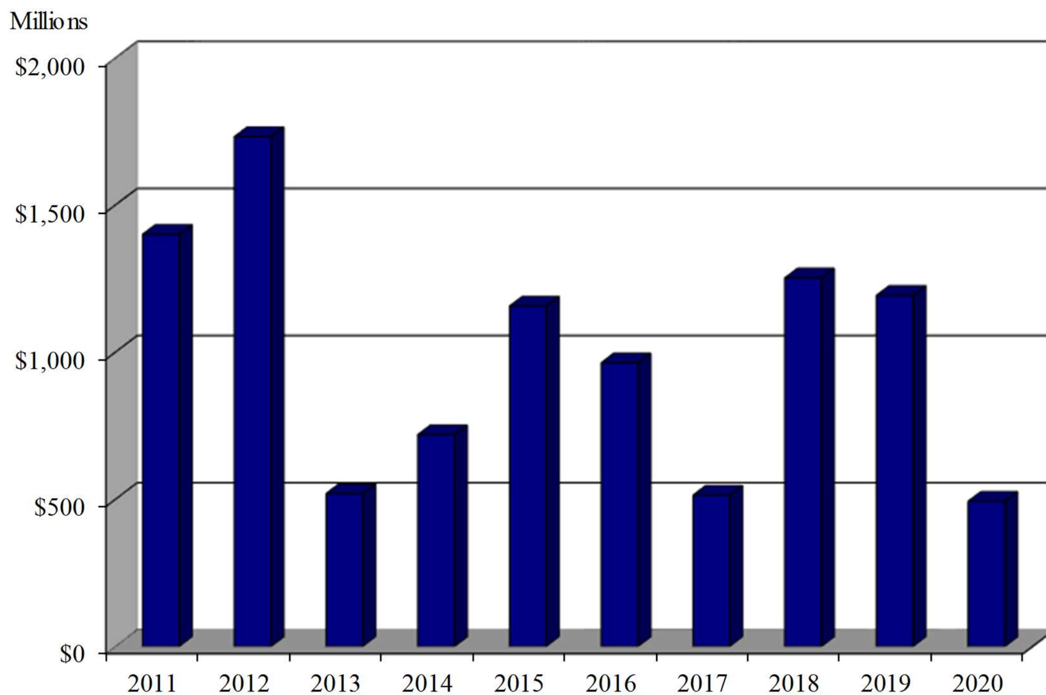
Other long-term obligations have experienced the most growth, increasing $7.05 billion, or 215%, from $3.28 billion at fiscal year-end 2011 to $10.33 billion at fiscal year-end 2020. The increase is due to a significant overall rise in pension and OPEB obligations. The increase also reflects the implementation of GASB 68 in fiscal year 2015, which impacted the reporting of net pension liabilities. Although there has generally been a steady increase in this group of obligations, other long-term obligations declined less than 1% between fiscal year 2017 and 2018 and continued to decline 7% between fiscal year 2018 and 2019. However, the two-year blip downwards came to a halt last fiscal year. Between fiscal year 2019 and fiscal year 2020, other long-term obligations increased $801 million, which equates to an 8% increase. The increase during fiscal year 2020 was attributable to an increase in pension liabilities of slightly over $1 billion, or 17%. While there was also a 3% increase in compensated absences, this increase only added $21 million. OPEB liabilities helped to slightly offset the overall growth in other long-term liabilities by declining $257 million, or 10%.

The following two charts illustrate the amounts of tax-supported debt authorized and issued from fiscal years 2011 to 2020. Over the 10-year period, $11.40 billion of tax-supported debt was authorized across various programs with the majority authorized for VCBA and VPBA. In fiscal year 2020, authorizations amounted to $2.51 billion. Authorizations in a year ranged from a conservative $107.5 million in fiscal year 2011 to 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 with three of those amounts exceeding $1.5 billion. As can be seen in the graph that follows, significant authorizations 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 Authorizations
Fiscal Years 2011-2020
$11.40 Billion in Authorizations



Tax-Supported Debt Issued
Fiscal Years 2011-2020
$9.95 Billion in Issuances

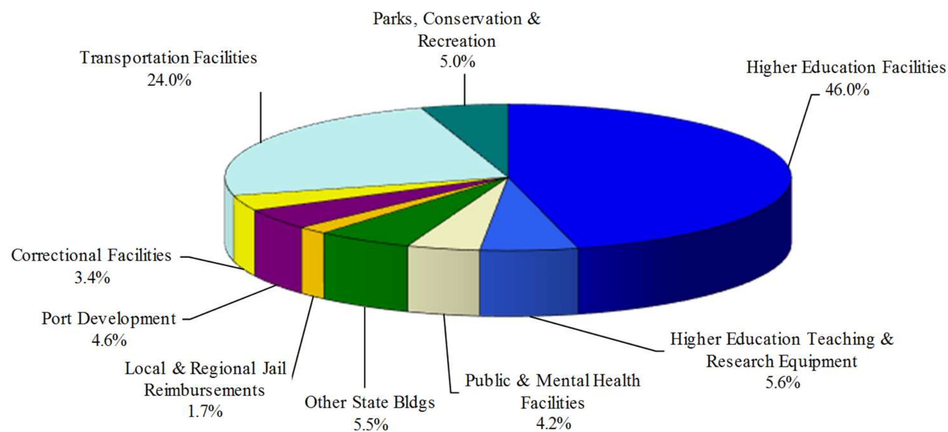


Between fiscal year 2011 and fiscal year 2020, $9.95 billion of new tax-supported debt was issued with only $0.49 billion of that amount occurring in fiscal year 2020. Annual debt issuance, refundings excluded, ranged from a low of $494 million in fiscal year 2020 to as much as $1.73 billion in fiscal year 2012. Issuances of below $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 $11.40 billion of authorizations within the last 10-years, there was $1.45 billion less of issuances. With the June 30, 2020 authorized and unissued debt amounting to $7.31 billion, of which $6.53 billion is for 9(d) projects, it is likely that significant issuances will continue over the next several years even if additional debt authorizations are restrained during the 2021 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 $9.95 billion, 52% 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 24%. (Note: transportation projects financed with federal revenues are not considered tax-supported debt and are not included.)

Uses of Tax-Supported Debt Issued
FY 2011 - FY 2020



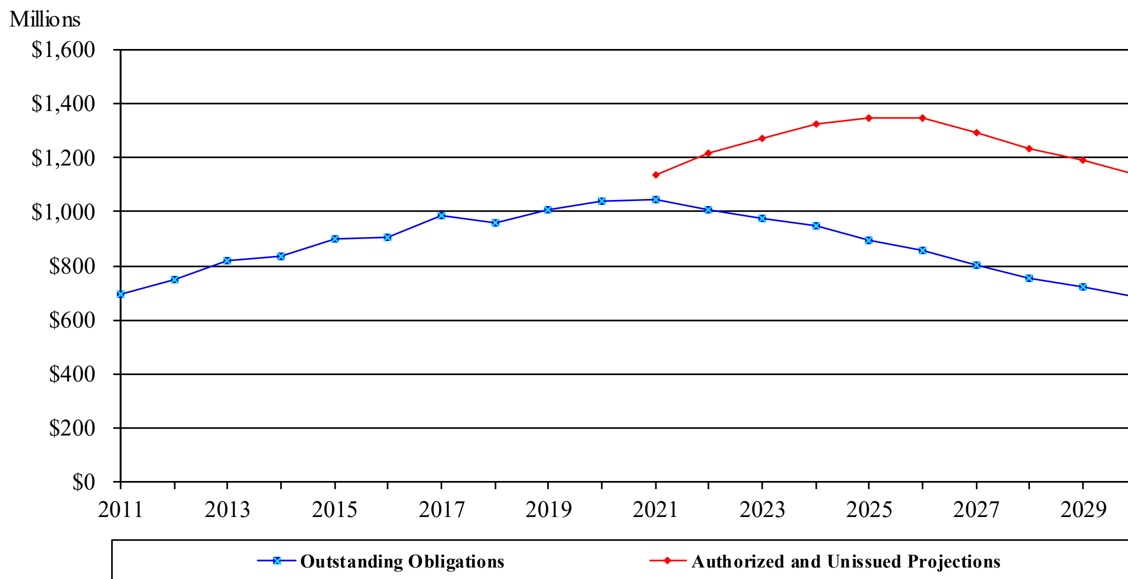
Ten-year Total = $9.95 Billion

VIRGINIATREASURY
Stewardship·Integrity·Excellence

Debt Service

Amounts paid annually for debt service have increased over the last ten years. The increase has been both on an absolute basis and as a percentage of Blended Revenues compared to ten years ago. However, as revenues have also increased and Virginia has been able to take advantage of historically low interest rates, debt service as a percentage of Blended Revenues has declined slightly since a peak of nearly 4.7% in fiscal year 2017. An increasing trend for both absolute debt service and as a percentage of blended revenues is expected to continue as currently authorized debt is issued, and the amount of outstanding debt increases. Annual debt service, including the estimated debt service on all currently authorized but unissued amounts and capital leases and installment purchases, is illustrated below.

Tax-Supported Debt Service: Actual and Projected
Fiscal Years 2011 – 2030[1]



[1] Assumes authorized debt is issued in future periods in accordance with the Model's current assumptions. Past data includes lease revenue bonds issued by the Virginia Biotech Research Park Authority and Newport News Industrial Development Authority.

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.

While coronavirus recovery is a top concern of the rating agencies, it is thought Virginia was well positioned to react to the recession and to continue to weather the ongoing impacts. Virginia's focus on developing structurally balanced budgets and the efforts to replenish reserve funds in recent years are seen as solid steps that helped prepare the Commonwealth for this unexpected downturn. As late as this fall, each of the rating agencies has continued to note Virginia's strong liquidity and financial management and they have recognized Virginia's increased reserves and the development of budget plans that balance priorities rather than taking from already deposited reserve funds. 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 is the case during the pandemic, but it also places Virginia at risk as potential federal government shutdowns and downsizing loom. Other credit challenges noted in ratings reports relate to the general issue of controlling growing spending needs in the education and transportation sectors, managing Medicaid costs, and combatting climate change and sea level rise. Unfunded pension liabilities are also becoming increasingly important to state credit ratings and investors alike. Except for the concentration of federal government related employment, many of these challenges span the municipal sector and are not unique to Virginia.

While Virginia finished fiscal year 2020 with a shortfall, the drop in revenues was not as severe as initially anticipated. Additionally, the initial concerns for the 2020-2022 biennial budget are not as great as was thought in spring 2020. As the revenue picture improves, rating agencies will be closely watching for any dips in revenue performance caused by worsening COVID or other conditions, as well as any unanticipated cost increases of government-funded programs. Rating agencies note that should the Commonwealth 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 this cushion, an action to lower the Commonwealth's rating would be considered.

It is conservative financial management that resulted in the award of AAA bond ratings and it is those bond ratings that result in Virginia's low cost 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 net tax-supported debt (NTSD) data for US states for more than 30 years. Each year, Moody's releases a comparative NTSD ratios report, its *State Debt Medians Report* (Moody's Medians). The *State Debt Medians 2020 Report*, which was published on May 12, 2020 and includes data as of the prior calendar year end, has been reviewed and certain data and analytical opinions from Moody's are incorporated herein.

In recent years, Moody's has continued to predict stable to low growth in new debt issuances. The *State Debt Medians 2020 Report* noted that total NTSD declined by 0.8% in 2019 and 33 of the 50 states actually experienced declines in their level of NTSD compared to the prior year.

In the 2020 Report, Moody's noted that governments recently benefited from growth in the economy and an increasing population that improved debt metrics for most states. In addition, it is believed that greater use of pay-go financing helped to reduce debt issuances. As a result of the positive environment, governments were better positioned for the coronavirus impacts that hit this year. It is important to note that the Moody's report was released during the early phase of the pandemic. At that time, Moody's noted that issuances were initially being cancelled or postponed. However, it was speculated that debt issuances would increase during calendar year 2020 due to debt restructuring, deficit financing, and a switch from pay-go back to debt financing as revenues diminish. The pandemic has impacted governments differently. Early estimates of the pandemic's negative revenue impacts are being lessened, which may prove Moody's prediction for restructuring and deficit financing incorrect. However, low interest rates have presented opportunities for well-positioned governments to potentially increase capital investment through debt financing, which may lead to increased debt levels noted in next year's report. Based on other sources, the 2020 calendar year is shaping up to be a record year for issuance.

Moody's reported that the 2019 median nationwide NTSD per capita declined by 5.8% to $1,071. It should be noted that for the 2020 report, Moody's modified their practice of using the year prior's population compared to the debt being reported and instead is now using the same year's population as the debt. A recalculation of historical data for NTSD per capita was not provided, like was done for the NTSD as a percentage of personal income. Virginia jumped to the 16th highest debt per capita compared to a fairly steady ranking of 19th in recent reports. Moody's reported Virginia's NTSD per capita as $1,677 in the most recent report.

Moody's reported a continued decline in median nationwide NTSD as a percentage of personal income which fell to 2.0% from 2.2% last year. Virginia's NTSD as a percentage of personal

income actually increased recently, rising to 2.8% from 2.7% the prior year. In the current report, Virginia's ranking for this metric remained steady at 19th highest.

The table and chart on the following page illustrate how Virginia compares to other triple-A states based on net tax-supported debt per capita and the table and chart that later follow on page 19 compare Virginia's net tax-supported debt as a percentage of personal income with that of other triple-A states.

REPORT OF THE DEBT CAPACITY ADVISORY COMMITTEE
December 17, 2020

AAA/Aaa/AAA STATE DEBT BURDENS FROM 2010-2019
PROVIDED BY MOODY'S INVESTORS SERVICE

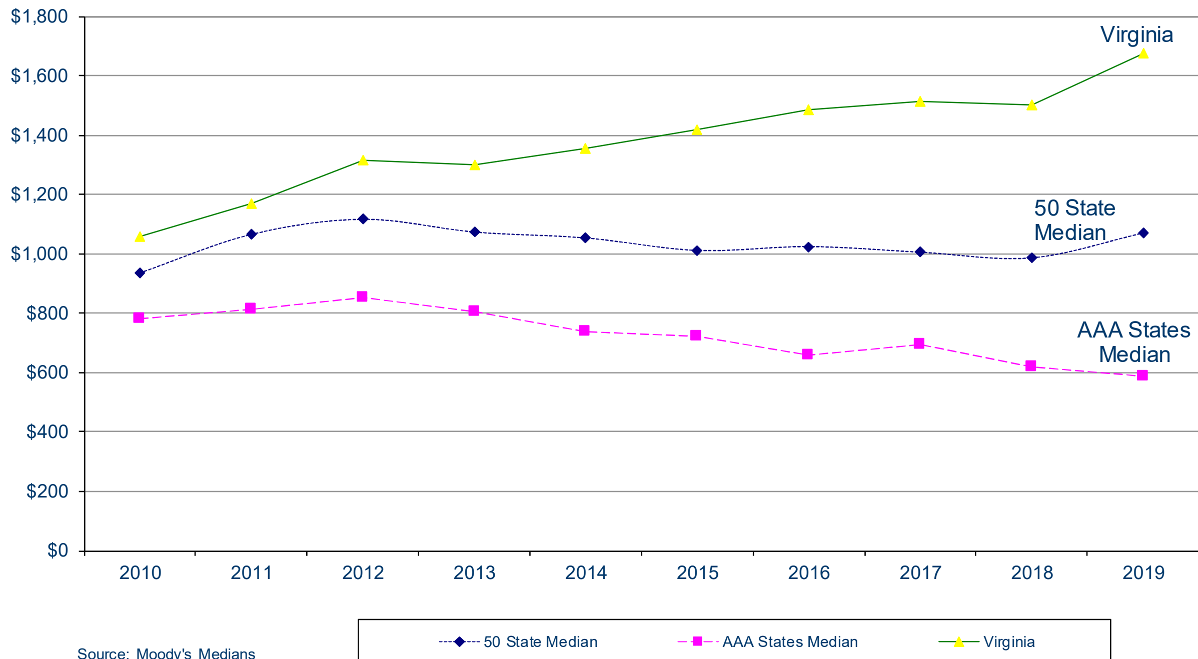
Net Tax-Supported Debt per Capita (1)

	2019 Ranking	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Delaware	6	$3,289	$3,206	$2,587	$2,544	$2,385	$2,438	$2,485	$2,536	$2,674	$2,676
Maryland	9	2,323	2,343	2,164	2,122	1,928	1,889	1,791	1,799	1,742	1,681
VIRGINIA	**16**	**1,677**	**1,502**	**1,515**	**1,486**	**1,418**	**1,356**	**1,302**	**1,315**	**1,169**	**1,058**
Georgia	27	971	996	986	992	1,029	1,043	1,064	1,061	1,099	1,103
Florida *	30	780	812 *	889 *	961 *	1,038 *	973 *	1,008 *	1,087 *	1,167 *	1,150 *
Utah	31	720	792	772	824	921	1,060	1,187	1,275	1,393	1,222
North Carolina	36	586	531	611	659	721	739	806	853	815	782
South Dakota *	39	493	618	694	641 *	652 *	547 *	391 *	355 *	358 *	328 *
Missouri	41	464	487	532	579	574	606	668	699	741	775
Texas *	42	379	389	410	383	383	406	614 *	580 *	588 *	612 *
Tennessee*	44	292	305	312	322	298 *	327 *	324 *	343 *	343 *	345 *
Indiana *	45	251	270	295	310	463 *	474 *	533 *	424 *	446 *	471 *
Iowa *	46	150	207	219	228	239	250	275	287	310	270 *
Median All States		1,071	987	1,006	1,025	1,012	1,054	1,074	1,117	1,066	936
AAA Median		586	618	694	659	721	739	806	853	815	782
AAA Average		952	958	922	927	927	931	958	970	988	959

** State was not triple triple A during entire 2010-2019 period.*

(1) Year refers to calendar year-end.

Net Tax-Supported Debt Per Capita
Virginia Versus Moody's U.S. 50-State Median and other AAA States
2010 – 2019



REPORT OF THE DEBT CAPACITY ADVISORY COMMITTEE
December 17, 2020

AAA/Aaa/AAA STATE DEBT BURDENS FROM 2010-2019
PROVIDED BY MOODY'S INVESTORS SERVICE

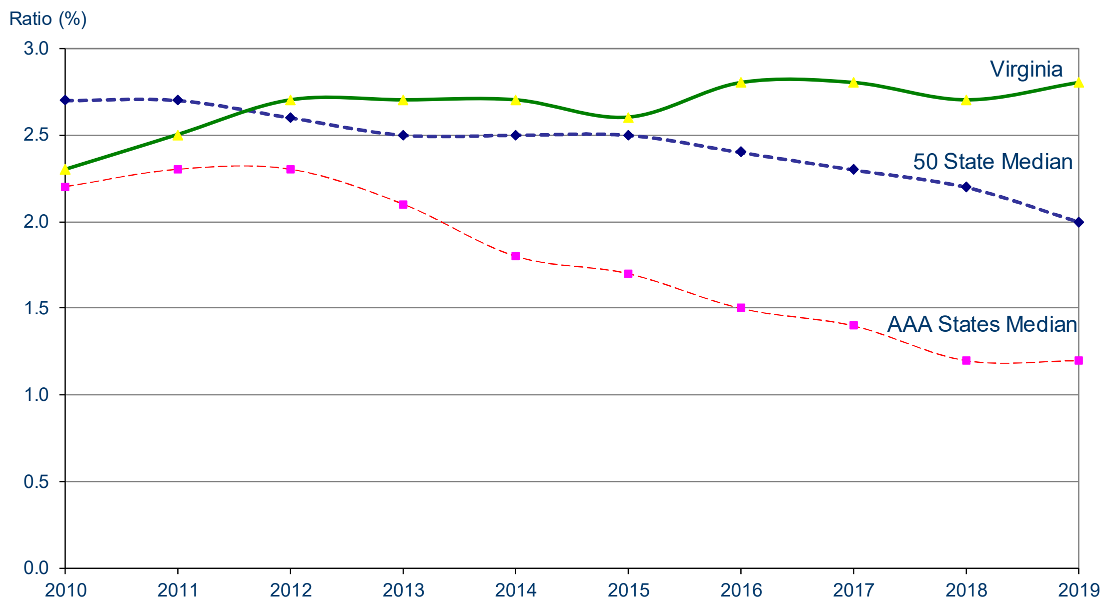
Net Tax-Supported Debt as Percent of Personal Income (1)

	2019 Ranking	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
Delaware	4	6.1 %	6.1 %	6.2 %	6.4 %	6.2 %	6.6 %	5.6 %	5.7 %	6.4 %	6.6 %
Maryland	14	3.5	3.7	3.6	3.5	3.4	3.5	3.4	3.3	3.4	3.2
VIRGINIA	**19**	**2.8**	**2.7**	**2.8**	**2.8**	**2.6**	**2.7**	**2.7**	**2.7**	**2.5**	**2.3**
Georgia	25	2.0	2.1	2.2	2.3	2.5	2.6	2.8	2.8	3.0	3.2
Florida *	30	1.5	1.6 *	1.9 *	2.1 *	2.3 *	2.3 *	2.5 *	2.6 *	2.9 *	2.9 *
Utah	31	1.5	1.7	1.8	1.9	2.3	2.8	3.2	3.6	4.1	4.0
North Carolina	32	1.2	1.2	1.4	1.5	1.7	1.8	2.1	2.3	2.3	2.2
Missouri	40	0.9	1.0	1.2	1.3	1.4	1.5	1.7	1.8	1.9	2.1
South Dakota *	41	0.9	0.9	1.1	1.0 *	1.1 *	0.9 *	0.9 *	0.8 *	0.9 *	0.9 *
Texas *	42	0.7	0.8	0.9	0.8	0.8	0.9	1.4 *	1.4 *	1.5 *	1.6 *
Tennessee*	44	0.6	0.7	0.7	0.7	0.7 *	0.8 *	0.8 *	0.9 *	0.9 *	1.0 *
Indiana*	45	0.5	0.6	0.6	0.7	0.8 *	0.8 *	1.4 *	1.1 *	1.3 *	1.3 *
Iowa *	46	0.3	0.4	0.5	0.5	0.5	0.6	0.6	0.7	0.8	0.7 *
Median All States		2.0 %	2.2 %	2.3 %	2.4 %	2.5 %	2.5 %	2.5 %	2.6 %	2.7 %	2.7 %
AAA Median		1.2	1.2	1.4	1.5	1.7	1.8	2.1	2.3	2.3	2.2
AAA Average		1.7	1.8	1.9	2.0	2.0	2.1	2.2	2.3	2.5	2.5

** State was not triple triple A during entire 2010-2019 period.*

(1) Year refers to 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 2010 - 2019



Source: Moody's Medians

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-A states, a statutory requirement for a short amortization of debt mitigates the effect of the higher debt levels.

In terms of total net tax-supported debt, California remains at the top of the list with $84.9 billion outstanding, followed by New York with $64.5 billion. California has continued to experience a decline in its NTSD due to continued pay down of debt while New York's NTSD debt has increased in the four most recent years. Wyoming remained at the bottom of the list for the third year in a row and experienced a continued decline in NTSD to only $16.3 million. It should be noted, Wyoming does not issue G.O. debt. Based on Moody's mid-fiscal year 2020 to mid-fiscal year 2019 comparison, Virginia's NTSD increased just over $1.5 billion to $14.3 billion outstanding. Given the increasing debt of Virginia compared to the nation's stable to declining NTSD, Virginia increased from the 12th highest to the 10th highest NTSD of all states.

Summary

Virginia was experiencing strong financial performance before the onset of the pandemic. Due to swift public health measures to limit the initial spread of COVID-19, the large number of industries that were able to shift to telework and the recent implementation of online sales tax, Virginia was able to weather the last quarter of fiscal year 2020 better than anticipated. As a result of strong financial management, Virginia is preparing to enter the second-half of fiscal year 2021 on strong footing and without having to dip into reserves. Remarkably, the Commonwealth was able to increase its revenue forecast from the interim forecast completed in August.

While the pandemic has pulled down the economy from levels otherwise expected, interest rates have plunged to new historic lows. The low rates have thus far provided favorable conditions for issuing authorized debt and to an extent refinancing existing debt. Assuming interest rates remain low, Virginia is set to benefit as it continues to issue debt from its significant amount of available authorizations. This interest rate environment creates additional debt capacity to the extent issuances are completed at rates below those assumed in the Model. Although interest rates are currently low, there are many economic and global factors that could result in changes to the rate environment. It is also important to note that the recent low interest rates result in a low DCAC Model interest rate. When actual issuance rates finally begin to rise, the market rate could exceed the rate used in the Model, given the Model rate is based on the prior three years of data and currently sits at 3.0%, which would be considered a historically low level.

Debt capacity has fallen from $765 million to $544 million a year. The change is due in part to the decline in revenues due to the pandemic, with a portion of the decline offset by lower interest rates, but it is also lower due to the significant amount of debt authorizations during the 2020 Session of the General Assembly. Given the amount of authorizations was several times the amount calculated as prudent in the December 2019 Model, this reduced available capacity for

future years. Despite the pandemic, rating agencies are continuing to monitor the Commonwealth's budget process to confirm a structurally balanced budget is adopted. Additionally, rating agencies will continue to assess the level of and choice to draw upon reserves. Given the Commonwealth remains in a public health emergency and a time of economic uncertainty, it is of critical importance to ensure continued strong financial budgeting practices.

Appendix A

Debt Capacity Calculation, Sensitivity Analysis and Moral Obligation Update

December 17, 2020

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 Official Forecast and for the General Fund Forecast, Department of Taxation has provided amounts for the DCAC Model that remove temporary Tax Cuts and Jobs Act ("TCJA") revenues.

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 (2.75%) plus 25 basis points for 9(d) debt (3.00%).

Model Includes:

- Blended Revenues from Official Forecast:
    - General fund revenues (adjusted to exclude temporary TCJA 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 capital 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.

- Capital leases (80% of total of first year amounts in Commonwealth CAFR for both primary government and component units).
- Installment purchases (80% of total of first year amounts in Commonwealth CAFR for both primary government and component units).
- Obligations for which the debt service is derived from payments received from the Commonwealth on a capital 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 17, 2020

(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, 2020[1]	$ -	$ 2,488.2	$ 252.9	$ 2,925.2	$ 243.2	$ 24.7	$ 595.7	$ -	$ 6,529.9
Issued Jul 1 - Dec 31, 2020	$ -	$ -	$ 71.6	$ 309.3	$ -	$ -	$ -	$ -	$ 380.8
Assumed Issued:									
FY 2021	$ -	$ 650.0	$ 85.7	$ 550.0	$ 96.6	$ -	$ 133.0	$ -	$ 1,515.3
FY 2022	$ -	$ 551.5	$ 84.2	$ 550.0	$ 146.6	$ 24.7	$ 236.3	$ -	$ 1,593.3
FY 2023	$ -	$ 549.6	$ -	$ 550.0	$ -	$ -	$ -	$ -	$ 1,099.6
FY 2024	$ -	$ 499.4	$ -	$ 550.0	$ -	$ -	$ 152.2	$ -	$ 1,201.6
FY 2025	$ -	$ 237.7	$ -	$ 350.2	$ -	$ -	$ 74.2	$ -	$ 662.2
FY 2026	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FY 2027	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FY 2028	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FY 2029	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
FY 2030	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Planned	$ -	$ 2,488.2	$ 169.9	$ 2,550.2	$ 243.2	$ 24.7	$ 595.7	$ -	$ 6,071.9
Subtotal Issued & Planned	$ -	$ 2,488.2	$ 241.4	$ 2,859.5	$ 243.2	$ 24.7	$ 595.7	$ -	$ 6,452.7
Authorized Debt Assumed Unissued[2]	$ -	$ -	$ 11.5	$ 65.7	$ -	$ -	$ -	$ -	$ 77.2

(1) VPBA amount includes an additional $1.5 million that was authorized through Chapter 56 of the 2020 Special Session I that occurred after June 30.

(2) Assumed funded from premium from bonds sold.

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

Debt Capacity Model – An Explanation of Solution Pages

Column Descriptions:

(1) Blended Revenues include all general fund revenues (adjusted to remove temporary TCJA revenues), 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 (6/30/2020), excluding (i) 9(c) debt, (ii) the subsidized portion of interest on Build America Bonds and (iii) 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)

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 $544.11 million.
- Accordingly, the Committee finds the additional tax supported debt that may prudently be authorized in each 2021 and 2022 is $544.11 million.

DEBT CAPACITY MODEL

(Dollars in Millions)

December 17, 2020

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
2011	16,751.10	837.56	693.64	4.14%	N/A	4.14%	143.92	**N/A**	N/A	143.92	4.14%
2012	17,787.10	889.36	747.02	4.20%	N/A	4.20%	142.34	**N/A**	N/A	142.34	4.20%
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	23,403.40	1,170.17	1,008.23	4.31%	N/A	4.31%	161.94	**N/A**	N/A	161.94	4.31%
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	24,727.35	1,236.37	1,043.55	4.22%	94.91	4.60%	97.91	**393.19**	26.036	71.87	4.71%
2022	25,561.29	1,278.06	1,005.97	3.94%	210.49	4.76%	61.61	**0.00**	26.036	35.57	4.86%
2023	26,414.79	1,320.74	972.75	3.68%	296.25	4.80%	51.74	**0.00**	26.036	25.70	4.90%
2024	27,014.89	1,350.74	947.03	3.51%	377.67	4.90%	26.04	**0.00**	26.036	0.00	5.00%
2025	27,934.81	1,396.74	893.55	3.20%	451.36	4.81%	51.83	**389.45**	51.825	0.00	5.00%
2026	28,812.36	1,440.62	854.27	2.96%	490.29	4.67%	96.06	**667.98**	96.057	0.00	5.00%
2027	29,174.09	1,458.70	801.40	2.75%	490.29	4.43%	167.01	**1,071.52**	167.010	0.00	5.00%
2028	29,897.22	1,494.86	755.80	2.53%	479.39	4.13%	259.67	**1,399.26**	259.666	0.00	5.00%
2029	30,647.55	1,532.38	724.34	2.36%	466.33	3.89%	341.71	**1,238.95**	341.706	0.00	5.00%
2030	31,417.34	1,570.87	685.01	2.18%	453.50	3.62%	432.35	**280.71**	360.294	72.06	4.77%

10 Year Average:	$544.11	2 Yrs Excess Avg Capacity:	$1,088.21

DEBT CAPACITY MODEL

(Dollars in Millions)

December 17, 2020

Base Model Average Solution

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
2011	16,751.10	837.56	693.64	4.14%	N/A	4.14%	143.92	**N/A**	N/A	143.92	4.14%
2012	17,787.10	889.36	747.02	4.20%	N/A	4.20%	142.34	**N/A**	N/A	142.34	4.20%
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	23,403.40	1,170.17	1,008.23	4.31%	N/A	4.31%	161.94	**N/A**	N/A	161.94	4.31%
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	24,727.35	1,236.37	1,043.55	4.22%	94.91	4.60%	97.91	**0.00**	0.000	97.91	4.60%
2022	25,561.29	1,278.06	1,005.97	3.94%	210.49	4.76%	61.61	**544.11**	36.029	25.58	4.90%
2023	26,414.79	1,320.74	972.75	3.68%	296.25	4.80%	51.74	**544.11**	72.059	(20.32)	5.08%
2024	27,014.89	1,350.74	947.03	3.51%	377.67	4.90%	26.04	**544.11**	108.088	(82.05)	5.30%
2025	27,934.81	1,396.74	893.55	3.20%	451.36	4.81%	51.83	**544.11**	144.118	(92.29)	5.33%
2026	28,812.36	1,440.62	854.27	2.96%	490.29	4.67%	96.06	**544.11**	180.147	(84.09)	5.29%
2027	29,174.09	1,458.70	801.40	2.75%	490.29	4.43%	167.01	**544.11**	216.176	(49.16)	5.17%
2028	29,897.22	1,494.86	755.80	2.53%	479.39	4.13%	259.67	**544.11**	252.206	7.46	4.98%
2029	30,647.55	1,532.38	724.34	2.36%	466.33	3.89%	341.71	**544.11**	288.235	53.47	4.83%
2030	31,417.34	1,570.87	685.01	2.18%	453.50	3.62%	432.35	**544.11**	324.264	108.09	4.66%

10 Year Average: $544.11

DEBT CAPACITY MODEL REVENUE DATA

December 2020

(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]
Actual 2006	15,318.30	(1)	912.90	(1)	8.37%	(1)	7.84%	(1)	288.90	(1)	16,520.10	10.26%
Actual 2007	16,028.30	(1)	969.00	(1)	4.63%	(1)	6.15%	(1)	285.30	(1)	17,282.60	4.62%
Actual 2008	16,261.30	(1)	968.70	(1)	1.45%	(1)	-0.03%	(1)	298.90	(1)	17,528.90	1.43%
Actual 2009	14,359.20	(1)	1,014.20	(1)	-11.70%	(1)	4.70%	(1)	307.50	(1)	15,680.90	-10.54%
Actual 2010	14,786.70	(1)	1,006.20	(1)	2.98%	(1)	-0.79%	(1)	292.80	(1)	16,085.70	2.58%
Actual 2011	15,452.30	(1)	1,015.40	(1)	4.50%	(1)	0.91%	(1)	283.40	(1)	16,751.10	4.14%
Actual 2012	16,348.00	(1)	1,060.20	(1)	5.80%	(1)	4.41%	(1)	378.90	(1)	17,787.10	6.18%
Actual 2013	17,109.20	(1)	1,083.60	(1)	4.66%	(1)	2.21%	(1)	433.50	(1)	18,626.30	4.72%
Actual 2014	16,949.10	(1)	1,189.00	(1)	-0.94%	(1)	9.73%	(1)	364.70	(1)	18,502.80	-0.66%
Actual 2015	18,369.50	(1)	1,324.50	(1)	8.38%	(1)	11.40%	(1)	346.70	(1)	20,040.70	8.31%
Actual 2016	18,601.70	(1)	1,367.50	(1)	1.26%	(1)	3.25%	(1)	413.50	(1)	20,382.70	1.71%
Actual 2017	19,348.40	(1)	1,431.40	(1)	4.01%	(1)	4.67%	(1)	383.10	(1)	21,162.90	3.83%
Actual 2018	20,509.10	(1)	1,440.60	(1)	6.00%	(1)	0.64%	(1)	402.00	(1)	22,351.70	5.62%
Actual 2019	21,510.50	(1)	1,497.00	(1)	4.88%	(1)	3.92%	(1)	395.90	(1)	23,403.40	4.71%
Actual 2020	22,441.70	(1)	1,532.06	(1)	4.33%	(1)	2.34%	(1)	335.00	(1)	24,308.76	3.87%
Forecasted for 2021	22,482.70	(2)	1,761.55	(5)	0.18%	(2)	14.98%	(5)	483.10	(7)	24,727.35	1.72%
Forecasted for 2022	23,187.60	(2)	1,877.09	(5)	3.14%	(2)	6.56%	(5)	496.60	(7)	25,561.29	3.37%
Forecasted for 2023	23,978.60	(2)	1,936.19	(5)	3.41%	(2)	3.15%	(5)	500.00	(7)	26,414.79	3.34%
Forecasted for 2024	24,539.60	(2)	1,968.19	(5)	2.34%	(2)	1.65%	(5)	507.10	(7)	27,014.89	2.27%
Forecasted for 2025	25,402.20	(2)	2,027.01	(5)	3.52%	(2)	2.99%	(5)	505.60	(7)	27,934.81	3.41%
Forecasted for 2026	26,223.10	(2)	2,085.06	(5)	3.23%	(2)	2.86%	(5)	504.20	(7)	28,812.36	3.14%
Forecasted for 2027	26,573.40	(2)	2,098.49	(5)	1.34%	(2)	0.64%	(5)	502.20	(7)	29,174.09	1.26%
Forecasted for 2028	27,251.70	(2)	2,145.12	(5)	2.55%	(2)	2.22%	(5)	500.40	(7)	29,897.22	2.48%
Forecasted for 2029	27,956.64	(3)	2,192.31	(6)	2.59%	(3)	2.20%	(6)	498.60	(8)	30,647.55	2.51%
Forecasted for 2030	28,680.00	(3)	2,240.54	(6)	2.59%	(3)	2.20%	(6)	496.80	(8)	31,417.34	2.51%

(1) Department of Taxation and Department of Transportation.

(2) December General Fund Forecast for FY 2021-2028 (adjusted to remove temporary TCJA revenues), 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 2.6% for General Fund Revenues and 3.2% for Sales Tax Transfers. A.B.C. Profits and recurring Transfers per Appropriation Act held flat at $150.1 million and $103.7 million, 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 2021-2028.

(6) Based on flat growth rate of 2.2% for years 2029-2030, per Department of Transportation and Department of Taxation.

(7) December Virginia Health Care Fund Forecast for FY 2021-2028.

(8) Based on declining rate of 0.36% for Virginia Health Care Fund Revenues, 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.

Debt Capacity Model - Sensitivity Analysis

2-Year Reserve Excess Capacity Sensitivity

- The Base Model solution provides for average debt capacity of $544.11 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 $593.57 million.
    - 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 $652.93 million.

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 $6.29 million.
    - Assuming a 1% change of revenues in each and every year, the incremental change is $19.77 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 $87.51 million to $456.59 million.
    - Subtract 100 basis points from base rate, and average capacity increases by $99.82 million to $643.93 million.

Debt of the Commonwealth
(Dollars in Thousands)

	As of June 30, 2020	As of June 30, 2019
Tax-Supported Debt		
9(b) General Obligation [1]	$ 330,934	$ 401,873
9(c) General Obligation - Higher Education [2]	886,837	893,106
9(c) General Obligation - Transportation [2]	3,083	6,061
9(c) General Obligation - Parking Facilities [2]	7,583	8,567
Commonwealth Transportation Board	2,813,942	2,966,581
Virginia Public Building Authority	3,028,198	2,863,660
Virginia Port Authority	223,708	234,114
Virginia College Building Authority - 21st Century & Equipment	4,384,599	4,566,772
Virginia Biotechnology Research Park Authority	9,669	14,220
Capital Leases	35,318	38,392
Installment Purchases	216,159	170,190
Virginia Aviation Board	-	-
Economic Development Authority Obligations [3]	15,624	23,366
Subtotal Tax Supported Debt	$ 11,955,654	$ 12,186,902
Other Tax-Supported Debt		
Compensated Absences [2]	$ 687,473	$ 666,786
Pension Liability [2]	7,294,376	6,254,910
OPEB Liability[2]	2,309,561	2,566,963
Pollution Remediation Liability [2]	9,475	10,430
Other Liabilities [2]	29,263	30,322
Subtotal Tax Supported Debt Not Included in Capacity Model	$ 10,330,148	$ 9,529,411
Total Tax-Supported Debt	$ 22,285,802	$ 21,716,313

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

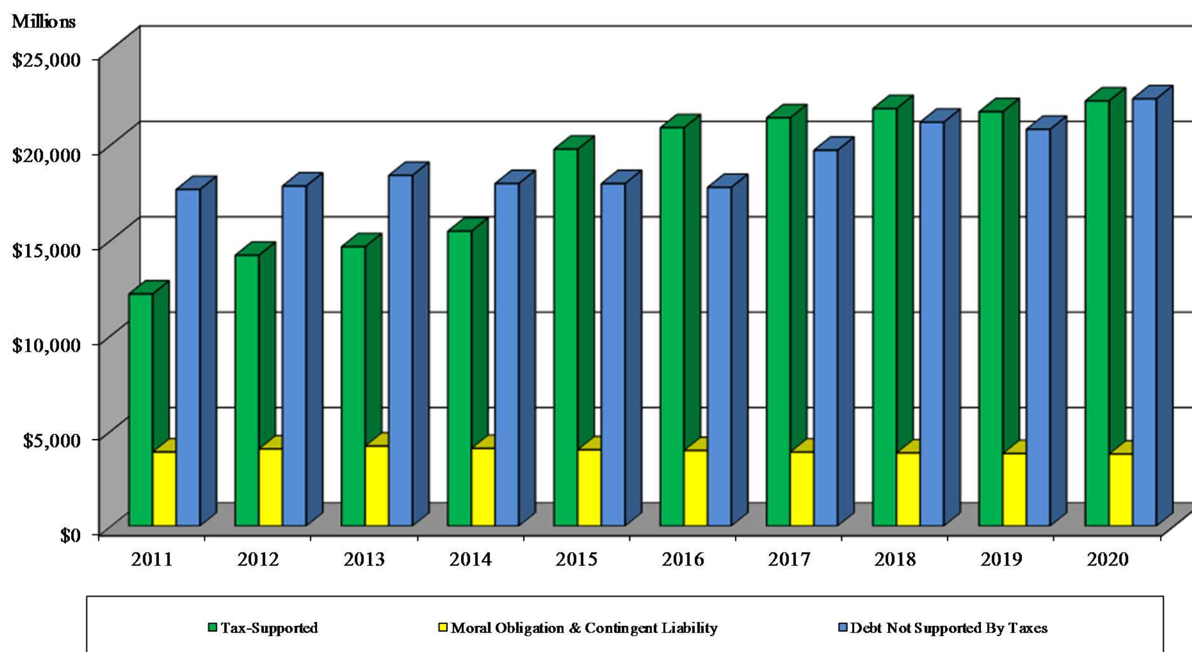
Debt of the Commonwealth
(Dollars in Thousands)

	As of June 30, 2020	As of June 30, 2019
Debt Not Supported by Taxes [1]		
Moral Obligation / Contingent Liability Debt		
Virginia Resources Authority	$ 933,279	$ 926,540
Virginia Housing Development Authority	-	-
Virginia Public School Authority - 1997 Resolution	2,289,710	2,322,460
Virginia Public School Authority - School Tax Credit Bond Program	359,566	359,566
Virginia Public School Authority - Equipment Technology Notes	187,175	189,935
Total Moral Obligation/Contingent Liability Debt	$ 3,769,730	$ 3,798,501
Other Debt Not Supported By Taxes		
9(d) Higher Education	$ 3,420,479	$ 2,844,656
Virginia College Building Authority - Pooled Bond Program	1,522,505	1,674,580
Virginia Public School Authority - Stand Alone Program	754,075	688,855
Virginia Housing Development Authority	3,997,125	3,042,060
Virginia Port Authority	279,396	285,782
Hampton Roads Sanitation District Commission	835,479	891,629
Hampton Roads Transportation Accountability Commission	1,023,334	580,311
Virginia Resources Authority	2,482,611	2,553,130
Grant Anticipation Notes (GARVEES)	1,059,387	1,151,850
Notes Payable	297,708	325,373
Other Long-Term Debt	315,326	337,488
Foundations	1,795,783	1,712,396
Pension Liability	190,277	163,849
OPEB Liability	114,651	121,252
Capital Lease Obligations	2,340,329	2,305,489
Compensated Absences	13,663	11,070
Installment Purchase Obligations	964	518
Tuition Benefits Payable	1,831,064	1,991,469
Lottery Prizes Payable	119,871	112,983
Total Other Debt Not Supported By Taxes	$ 22,394,027	$ 20,794,740
Grand Total of Tax Supported Debt and Debt Not Supported By Taxes	**$ 48,449,559**	**$ 46,309,554**

Source: Department of the Treasury and Department of Accounts

[1] Not Included In Debt Capacity Model

Outstanding Commonwealth Debt
Fiscal Years 2011-2020



Tax-Supported Debt Issued Fiscal Year 2021
Through December 15, 2020

Issuer	Date Issued	Par Amount
Virginia Port Authority, Commonwealth Port Fund Revenue Refunding Bonds, Series 2020A (Federally Taxable) and Series 2020B (AMT)	August 4, 2020	$97,615,000
Virginia College Building Authority, Educational Facilities Revenue and Revenue and Refunding Bonds (21st Century College and Equipment Programs), Series 2020A and Series 2020B (Federally Taxable)	August 6, 2020	$680,815,000
Commonwealth of Virginia, General Obligation and Refunding Bonds, Series 2020A and Series 2020B (Federally Taxable)	November 5, 2020	$228,470,000

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, 2020	Available Authorization
Virginia Resources Authority	$1,500,000	$933,279	$566,721
Virginia Housing Development Authority	$1,500,000	$0	$1,500,000
Virginia Public School Authority	$800,000	$0	$800,000
Total	$3,800,000	$933,279	$2,866,721

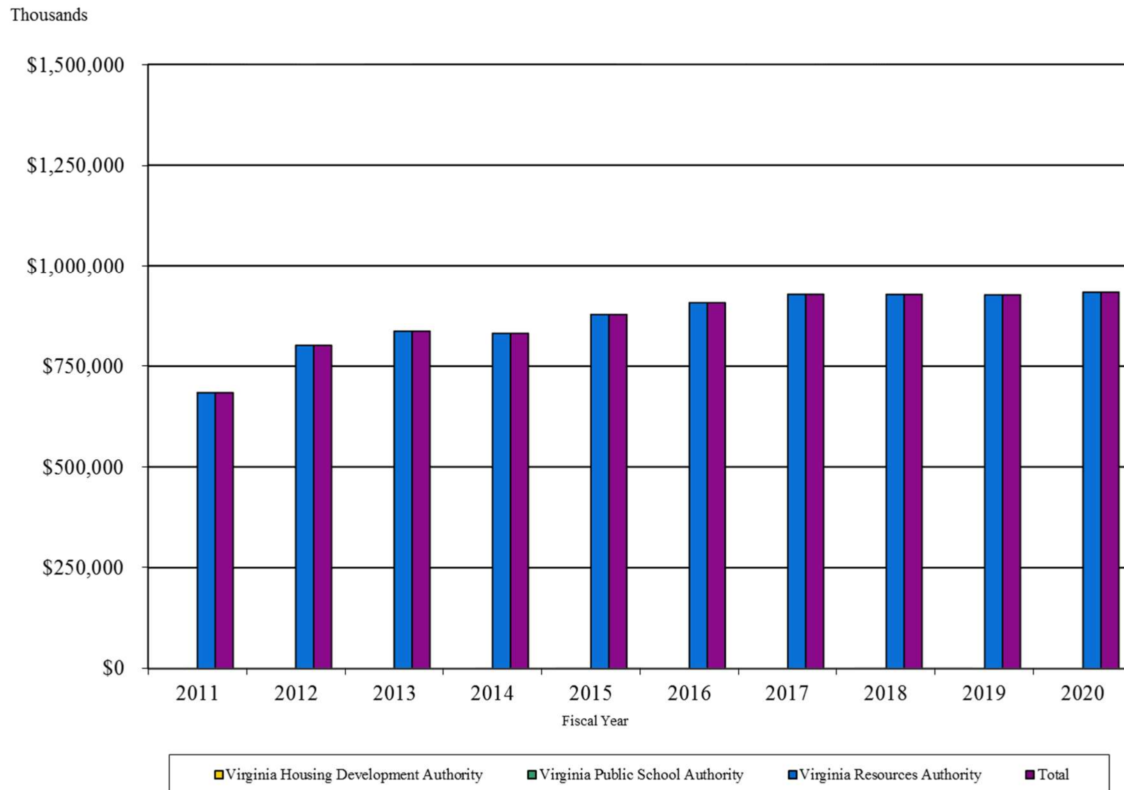
Alternative financing programs were initiated by the Virginia Housing Development Authority and the Virginia Public School Authority. Neither of these entities expect to issue additional moral obligation debt.

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, 2020 to tax-supported debt, the resulting average debt capacity is $466.33 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 $2.29 billion of 1997 Resolution bonds outstanding as of June 30, 2020 and an additional $360 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, 2020, outstanding notes for school technology and security amounted to $187 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 30, 2020 to tax-supported debt, the resulting average debt capacity is $307.74 million.