REPORT OF THE

CAPITAL DEBT AFFORDABILITY COMMITTEE

ON

RECOMMENDED DEBT AUTHORIZATIONS

FOR FISCAL YEAR 2020

SUBMITTED TO

THE GOVERNOR AND GENERAL ASSEMBLY

OF MARYLAND

October 2018

CAPITAL DEBT AFFORDABILITY COMMITTEE
Nancy K. Kopp, Chair

September 26, 2018

The Honorable Larry Hogan
Governor of Maryland
State House
Annapolis, Maryland 21401

The Honorable Thomas V. M. Miller, Jr. President of the Senate Maryland General Assembly State House Annapolis, Maryland 21401	The Honorable Michael E. Busch Speaker of the House Maryland General Assembly State House Annapolis, Maryland 21401

Gentlemen:

The Capital Debt Affordability Committee, created pursuant to section 8-108, *et seq*. of the State Finance and Procurement Article, is required to submit to the Governor and the General Assembly each year an estimate of the maximum amount of new general obligation debt that may prudently be authorized for the next fiscal year. The Committee is also required to submit an estimate of the amount of new academic facilities bonds that may prudently be authorized.

The Committee met on September 26, 2018 and considered several options for a recommended amount of new general obligation bonds to be authorized by the 2019 General Assembly to support the fiscal year 2020 capital program. After significant discussion, the Committee approved $995 million as the recommended maximum amount of general obligation bonds to be authorized for fiscal year 2020. The vote was 4-1 with the Treasurer voting against the proposed amounts. The Committee noted that should the economic and fiscal information underlying its recommendation change significantly, the Committee could reconvene and make necessary modifications.

In addition to recommending a prudent authorization for the coming year, the Committee sets out planning assumptions for the Department of Budget and Management to use in its capital program planning process. After reviewing several options, the Committee voted to maintain the authorization at $995 million in future fiscal years. The vote was 4-1 with the Treasurer voting against the proposed amounts and advocating for maintaining the 3% growth level instituted by the Committee in 1992 and would remain within the CDAC affordability benchmarks.

Based on the review of the size and condition of the debt of State institutions of higher education and in light of the debt affordability guidelines, the Committee unanimously voted to recommend a limit of $34 million for new academic facilities bonds for the University System of Maryland for fiscal year 2020.

September 26, 2018
Page Two

We are pleased to submit to you the Committee's Annual Report with the recommendations relating to the fiscal year 2020 capital program.

Nancy K Kopp
Nancy K. Kopp
State Treasurer
Chair

Peter Franchot
Peter Franchot
Comptroller

David Brinkley, Secretary
Department of Budget and Management

Pete K. Rahn
Pete Rahn, Secretary
Department of Transportation

Paul B. Meritt
Paul B. Meritt
Public Member

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EXECUTIVE SUMMARY

The Capital Debt Affordability Committee ("CDAC" or "the Committee"), established under Title 8, subtitle 1, *et seq*. of the State Finance and Procurement Article ("SF&P"), is charged with reviewing:

1. The size and condition of State tax-supported debt on a continuing basis, and advising the Governor and General Assembly each year regarding the maximum amount of new general obligation debt that may prudently be authorized for the next fiscal year; and

2. Higher education debt and annual estimates concerning the prudent maximum authorization of academic facilities bonds to be issued by the University System of Maryland, Morgan State University, St. Mary's College of Maryland and Baltimore City Community College. SF&P §8-112.

In order to establish its recommendations, the Committee held three meetings in September. At its first meeting, the Committee reviewed actions taken by the 2018 General Assembly as well as the size, condition and projected issuances of tax-supported debt. The Committee conducted a similar annual review of the debt of higher education institutions at its second meeting and reviewed the State of Maryland Capital Program and school construction needs at that time.

At its final meeting on September 26, 2018, the Committee reviewed its assumptions on revenues, personal income, interest rates, debt issuance, debt service, and bond authorizations. The Committee believes that these variables have been estimated prudently. The personal income and revenue estimates reflect the most recent forecast by the Board of Revenue Estimates in September 2018. At this meeting, the Secretary of the Department of Budget and Management made a motion to recommend an authorization of $995 million.

The Committee thus approved a total of $995 million for new general obligation authorizations by the 2019 General Assembly to support the fiscal year 2020 capital program. The vote was 4-1, with the Treasurer voting against the proposed amount.

In addition, to determining and recommending a prudent affordable authorization level for the coming year, the Committee also develops planning assumptions for the State to use in its capital program planning process. The Committee reviewed several options that were projected to maintain debt affordability ratios within the CDAC benchmarks of 4% debt outstanding to personal income and 8% debt service to revenues. The Secretary of Budget and Management then made a motion to maintain the authorization at $995 million in future fiscal years. The vote was 4-1, with the Treasurer voting against the proposal.

The Committee recognizes that there are multiple annual authorization levels and patterns that would result in adherence to the benchmarks, depending on future levels of personal income and State revenue. The Committee's planning assumptions for future authorizations will be reviewed in preparation for the 2019 report in light of updated revenues. In addition personal income projections and authorization levels may be adjusted to adhere to these affordability benchmarks.

Based on its review of the condition of State debt in light of the debt affordability guidelines, the Committee recommended a limit of $34 million for new academic facilities bonds for the University System of Maryland for fiscal year 2020. The Committee did not receive any requests for new issuances for Morgan State University, St. Mary's College of Maryland, or Baltimore City Community College and therefore made no recommendations for these institutions.

The 2018 Capital Debt Affordability Report and the 2018 meeting materials are available on the State Treasurer's website at http://www.treasurer.state.md.us/debtmanagement/cdac- reports.aspx.

I. INTRODUCTION

A. Membership

The members of the Capital Debt Affordability Committee ("CDAC" or "Committee") are the State Treasurer (Chair), the Comptroller, the Secretaries of the Department of Budget and Management and Department of Transportation, one public member appointed by the Governor, and as non-voting members, the Chairs of the Capital Budget Subcommittees of the Senate Budget and Taxation Committee and the House Appropriations Committee.

B. Duties

The Committee is required to review the size and condition of State debt on a continuing basis and to submit to the Governor and to the General Assembly by October 1 of each year,[1] an estimate of the total amount of new State debt that may prudently be authorized for the next fiscal year. Although the Committee's estimates are advisory only, the Governor is required to give due consideration to the Committee's findings in determining the total authorizations of new State debt and in preparing a preliminary allocation for the next fiscal year. The Committee is required to consider:

- The amount of State tax-supported debt[2] that will be:
    - Outstanding, and
    - Authorized but unissued during the next fiscal year;
- The capital program prepared by the Department of Budget and Management and the capital improvement and school construction needs during the next five fiscal years, as projected by the Interagency Committee on School Construction;
- Projected debt service requirements for the next ten years;
- Criteria used by recognized bond rating agencies to judge the quality of State bond issues;
- The aggregate impact of public-private partnership agreements on the total amount of new State debt that may prudently be authorized for the next fiscal year;
- Other factors relevant to the ability of the State to meet its projected debt service requirements for the next five years or relevant to the marketability of State bonds; and
- The effect of new authorizations on each of the factors enumerated above.

The Committee also continually reviews the size and condition of any debt of the University System of Maryland, Morgan State University, St. Mary's College of Maryland, and Baltimore City Community College; takes any debt issued for academic facilities into account as part of the Committee's affordability analysis with respect to the estimate of new authorizations of general obligation debt; and, finally, submits to the Governor and the General Assembly a recommendation of the amount of new bonds for academic facilities that may prudently be authorized in the aggregate for the next fiscal year by these institutions of higher education.

[1] Chapter 695, Laws of Maryland 2010 changed the date from September 10 to October 1 of each year to allow the Committee to consider updated projections from the Board of Revenue Estimates made in September of each year.

[2] See Appendix A for the Committee's definition of tax-supported debt.

A history of the Committee's membership, duties, debt affordability criteria, definition of tax-supported debt and authorization increases can be found in Appendix A.

C. 2017 Recommendations and Subsequent Events

The recommendations of the Committee to the Governor and the General Assembly for the fiscal year 2019 capital program and the subsequent events related to those recommendations are summarized below.

2017 CDAC Report

The Committee made a recommendation of $995 million in new debt for fiscal year 2019 in the report. In the letter dated September 29, 2017 to the Governor, President of the Senate and the Speaker of the House, the Committee noted that the motion to recommend $995 million specifically recognized that authorization levels proposed in the Governor's 2019 capital budget could be adjusted to reflect up-to-date economic and fiscal information.

Based on its review of the condition of State debt in light of the debt affordability guidelines, the Committee recommended a limit of $24.0 million for new academic facilities for the University System of Maryland for fiscal year 2019.

Authorizations by the 2018 General Assembly

The net general obligation debt authorized for the fiscal year 2019 capital program (effective June 1, 2018) totaled $1.075 billion.

The 2018 General Assembly authorized the University System of Maryland to issue $24 million in new academic facility bonds including $17.0 million to finance specific capital projects.

II. TAX-SUPPORTED DEBT - TRENDS AND OUTLOOK

The State of Maryland has issued six types of tax-supported debt in recent years including: General Obligation Bonds, Consolidated Transportation Bonds, GARVEE Bonds, Lease and Conditional Purchase Financings, Maryland Stadium Authority Revenue Bonds and Bay Restoration Bonds. Although the State has the authority to make short-term borrowings in anticipation of taxes and other receipts up to a maximum of $100.0 million, the State has not issued short-term tax anticipation notes or made any other similar short-term borrowings for cash flow purposes. A detailed discussion of each component of tax-supported debt is included in the following pages.

A. General Obligation ("G.O.") Bonds

Purpose

General Obligation Bonds, which are limited to a maximum maturity of 15 years per the State Constitution, are authorized and issued to:

- Provide funds for State-owned capital improvements, including institutions of higher education, and the construction of locally owned publics schools;
- Fund local government improvements, including grants and loans for water quality improvement projects and correctional facilities; and
- Provide funds for repayable loans or outright grants to private, nonprofit, cultural, or educational institutions.

Security

The State has pledged its full faith and credit as security for its General Obligation Bonds.

Current Status:

Debt Outstanding as of June 30, 2018: $9,479,407,075
Amount Authorized but Unissued at June 30, 2017: $2,397,141,588

Ratings

Fitch Ratings ("Fitch"), Moody's Investors Service ("Moody's") and Standard and Poor's ("S&P") have rated Maryland's General Obligation Bonds AAA since S&P's first rating in 1961, Moody's in 1973 and Fitch's in 1993. On July 16, 2018, in conjunction with the sale of Maryland's General Obligation Bonds State and Local Facilities Loan of 2018, Second Series, Moody's, S&P and Fitch all affirmed their AAA ratings for Maryland's General Obligation debt.

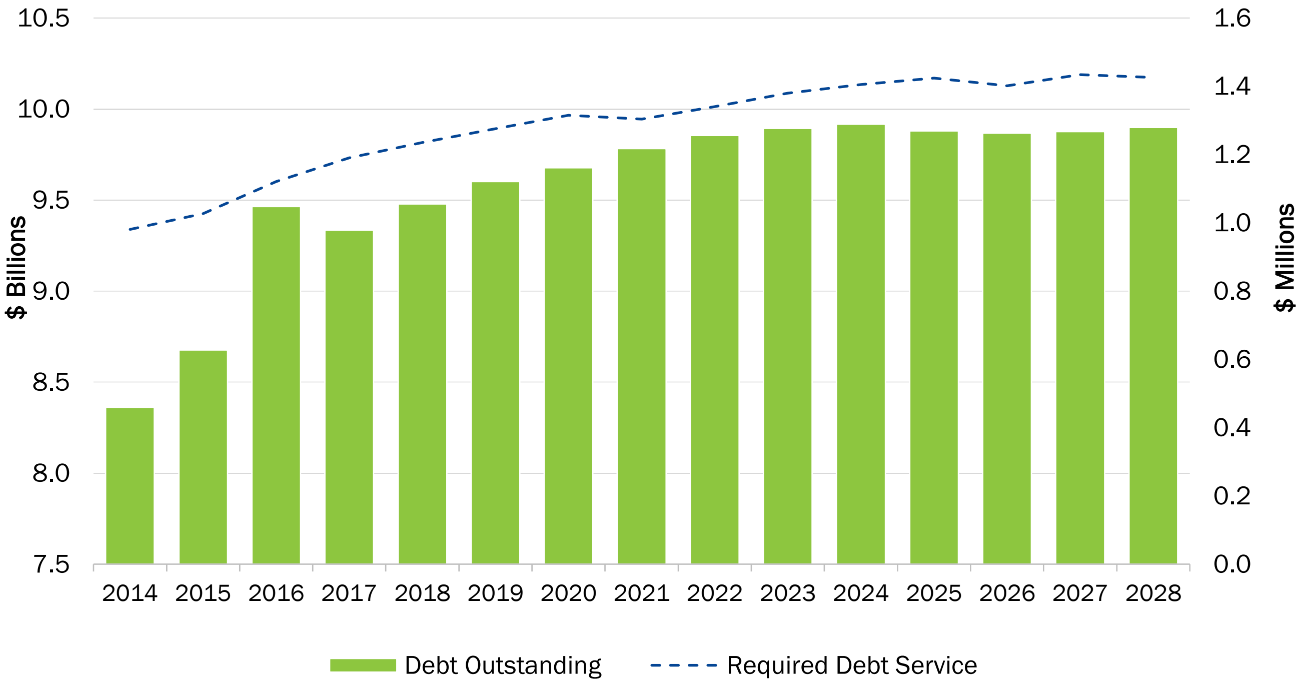
Use of Variable Rate Debt, Bond Insurance, Interest Rate Exchange Agreements and Guaranteed Investment Contracts

The State is authorized to issue variable interest rate bonds in an amount that does not exceed 15% of the outstanding general obligation indebtedness. The State has not issued any variable rate debt and has not executed any interest rate exchange agreements. Because the State is a "natural" AAA credit, there has been no need for bond insurance. To invest the sinking funds paid on certain Qualified Zone Academy Bonds ("QZABs"), the State has entered into master repurchase agreements.

Trends in Outstanding General Obligation Debt

General Obligation Bond debt outstanding, including authorized but unissued amounts, for the past five fiscal years and projections for the next ten fiscal years are shown in ***Graph 1***. A detailed historical summary of General Obligation debt activity may be found in ***Appendices B-1 through B-4***.

Graph 1: General Obligation Debt Outstanding and Required Debt Service



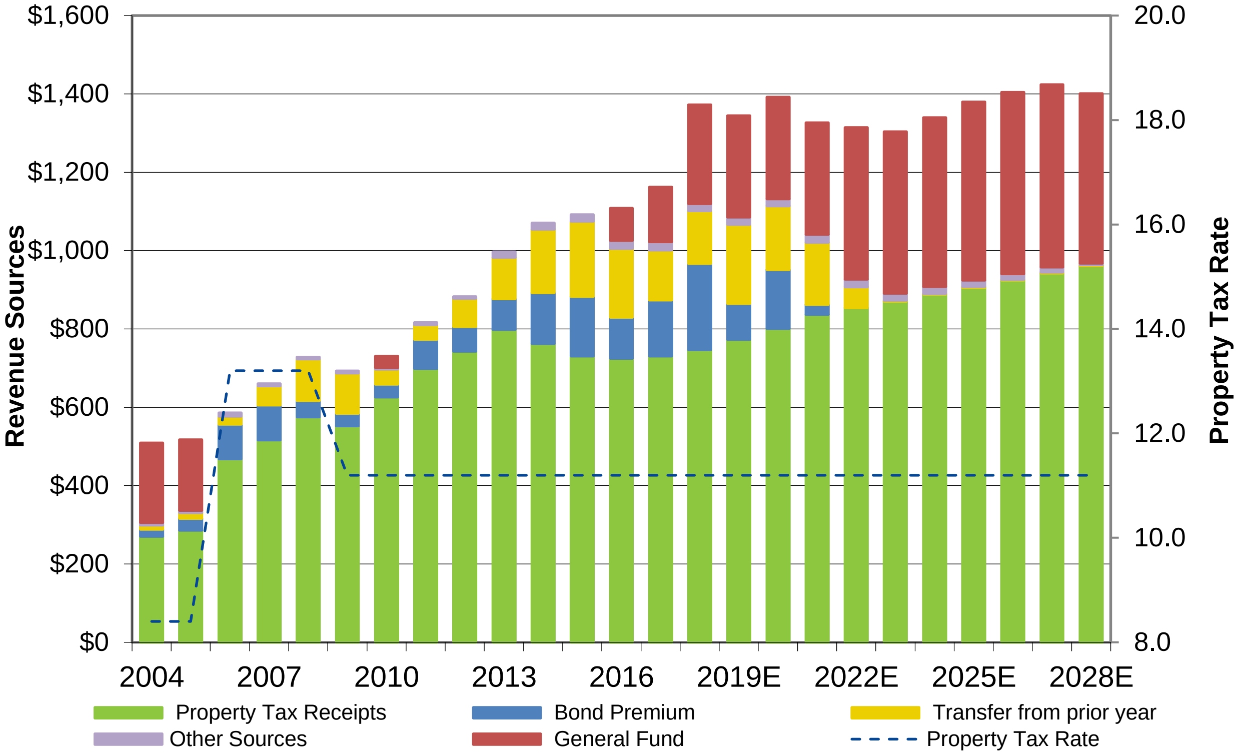
Future authorizations are projected to be issued over a five year period. The bonds are sold over an extended period of time as the projects are developed and cash is required to pay property owners, consultants, contractors, equipment manufacturers, etc. The following table provides a detailed summary of projected General Obligation debt activity.

Summary of Projected Debt Activity
General Obligation Bonds
($ in millions)

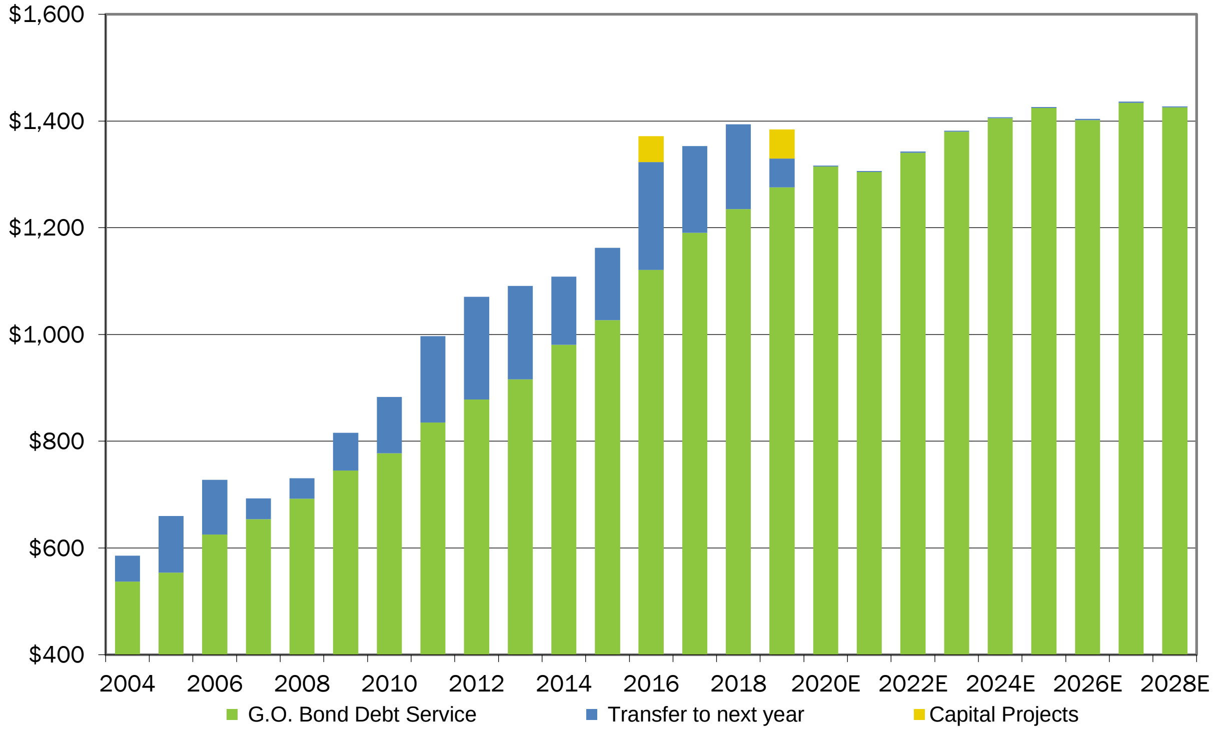
Fiscal Year	Debt Outstanding at Beginning of Year	New Issues	Redeemed	Debt Outstanding at End of Year	Required Debt Service
2019	9,479	1,000	878	9,601	1,276
2020	9,601	995	918	9,678	1,315
2021	9,678	995	890	9,783	1,304
2022	9,783	995	923	9,855	1,341
2023	9,855	995	956	9,894	1,380
2024	9,894	995	972	9,917	1,405
2025	9,917	995	1,032	9,880	1,424
2026	9,880	995	1,007	9,868	1,402
2027	9,868	995	987	9,876	1,434
2028	9,876	995	972	9,899	1,426

Debt service for General Obligation Bonds is paid from the Annuity Bond Fund ("ABF"). The State constitution requires the collection of an annual tax to pay debt service and State statute requires that, after considering the balance in the ABF and other revenue sources, the Board of Public Works set an annual property tax rate sufficient to pay debt service in the following fiscal year. ***Graphs 2 and 3*** depict the sources and uses, respectively, for the ABF for the past fifteen fiscal years and projections for the next 10 fiscalyears.

Graph 2: Annuity Bond Fund Revenue Sources
Fiscal Years 2004 - 2028



Graph 3: Annuity Bond Fund Uses
($ in Millions)



B. Transportation Debt (Consolidated Transportation Bonds)

Purpose

Consolidated Transportation Bonds ("CTB"), like State General Obligation Bonds are 15- year obligations, issued by the Maryland Department of Transportation ("MDOT") for highway and other transportation projects.

Security

Debt service on CTBs is payable from MDOT's share of the motor vehicle fuel tax, the motor vehicle titling tax, sales tax on rental vehicles, and a portion of the corporate income tax. The 2011 Budget Reconciliation and Financing Act (House Bill 72/Chapter 397) made the following changes to MDOT's pledged revenues effective July 1, 2011:

(1) MDOT will no longer receive a distribution of the State's general sales and use tax revenues; and

(2) MDOT will receive a reduced distribution of the State's corporate income tax revenues

The bill also made provision for these revenues to remain available, if needed, to pay debt service on CTBs issued prior to July 1, 2011 while they remain outstanding and unpaid.

The Transportation Infrastructure Investment Act of 2013 (House Bill 1515/Chapter 429) increased MDOT's pledged revenue effective July 1, 2013 as follows.

(1) MDOT will receive an annual adjustment to the motor fuel tax indexed to the Consumer Price Index, compounding with each adjustment. The annual increase may not be greater than 8% of the previous rate.

(2) MDOT will receive a sales and use tax equivalent rate applied to motor fuel based upon the product of the 12-month average retail price of motor fuel, less State and federal taxes, multiplied by specified percentage rates. As of July 1, 2016, the rate is 5.0%.

In addition, other receipts of MDOT (including motor vehicle licensing and registration fees and operating revenue of MDOT) are available to meet debt service if these tax proceeds should become insufficient. The holders of CTBs are not entitled to look to other sources for payment, including the federal highway capital grants that are pledged to GARVEE Bonds.

Limitations to Debt Outstanding

The gross outstanding aggregate principal amount of CTBs is limited by statute to $4.5 billion, which was increased from $2.6 billion effective June 1, 2013. The General Assembly may set a lower limit each year, and for fiscal year 2018 the limit is $3.4 billion. In addition, MDOT has covenanted with the holders of outstanding CTBs not to issue additional bonds unless:

(1) the excess of Transportation Trust Fund revenues over MDOT operational expenses in the preceding fiscal year is equal to at least twice the maximum amount of debt service for any future fiscal year, including debt service on the additional bonds to be issued; and

(2) total proceeds from taxes pledged to debt service for the past fiscal year equal at least twice such maximum debt service or, conversely, total debt service cannot exceed 50% of total proceeds from taxes pledged using the debt service divided by revenues convention.

Current Status:

Debt Outstanding as of June 30, 2018: $2,911,675,000
Amount Authorized but Unissued at June 30, 2018: $110,000,000

Ratings

CTBs are currently rated AAA by S&P, Aa1 by Moody's and AA+ by Fitch.

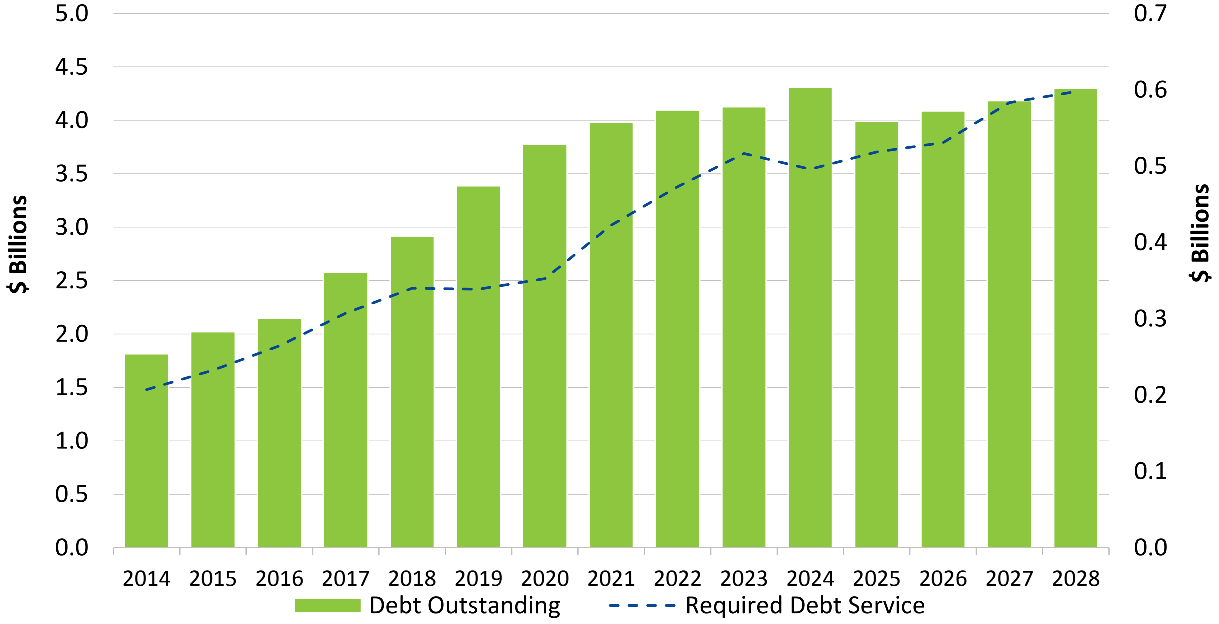
Use of Variable Rate Debt, Bond Insurance, Interest Rate Exchange Agreements and Guaranteed Investment Contracts

MDOT does not have variable rate debt or bond insurance on CTBs nor does MDOT use interest rate exchange agreements or guaranteed investment contracts.

Trends in Transportation Debt

Historically, MDOT has used a combination of current revenues and bond financing to fund its capital program. Reliance on debt to support capital projects has often varied with revenue performance and cash flow requirements. For example, in 2008 and 2009 revenues were affected by the slowing economy and consequently MDOT increased its reliance on debt to support capital projects. The growth in debt outstanding slowed substantially in 2010 and in 2011, revenues were slightly higher than target levels at the same time capital funds were not expended as quickly as anticipated, therefore the issuance of debt was delayed. Transportation debt outstanding and required debt service currently projected for the next ten fiscal years are shown in ***Graph 4***. A detailed historical summary of Transportation debt activity may be found in ***ScheduleC-3.***

Graph 4: Transportation Debt Outstanding and Required Debt Service



Projected bond issuances are based on MDOT's revenue projections, the draft six-year capital budget for transportation projects, and adhere to statutory debt outstanding limitations and bondholder covenants. The following table provides a detailed summary of projected Transportation debt activity.

Summary of Projected Debt Activity
MDOT Consolidated Transportation Bonds
($ in millions)

Fiscal Year	Debt Outstanding at Beginning of Year	New Issues	Redeemed	Debt Outstanding at End of Year	Required Debt Service
2019	2,912	675	199	3,387	339
2020	3,387	590	206	3,772	353
2021	3,772	465	255	3,982	422
2022	3,982	415	302	4,095	473
2023	4,095	375	343	4,127	516
2024	4,127	500	317	4,310	496
2025	4,310	25	345	3,991	519
2026	3,991	460	364	4,087	531
2027	4,087	505	407	4,185	583
2028	4,185	530	417	4,297	598

C. Grant Anticipation Revenue Vehicles ("GARVEE") Bonds

Purpose

Grant Anticipation Revenue Vehicle ("GARVEE") Bonds are authorized by State statute to leverage federal aid to finance the cost of transportation facilities. GARVEEs were used as a part of the funding plan for the Intercounty Connector ("ICC") project, in addition to various other debt instruments and cash. The use of GARVEEs for the ICC allowed the project to be constructed sooner than otherwise would have been possible and with less reliance on the State's available funds.

Security

GARVEE bonds are secured by a pledge of federal transportation funds received by the State which approximate $548.64 million annually. In addition, there is a subordinate pledge of certain State Transportation Trust Fund ("TTF") tax sources. The GARVEEs were also structured to include debt service reserve funds for additional security.

Limitations to Debt Outstanding

Statute limits the total amount that can be issued for GARVEEs to an aggregate principal amount of $750.0 million, with a maximum maturity of 12 years. Under state law, the proceeds could only be used for the ICC. Legislation enacted by the 2005 General Assembly specified that GARVEE bonds be considered tax-supported debt in the CDAC affordability analysis.

Current Status:

Debt Outstanding as of June 30, 2018: $129,680,000

Ratings

GARVEEs are currently rated AAA by S&P, Aa1 by Moody's and AA+ by Fitch.

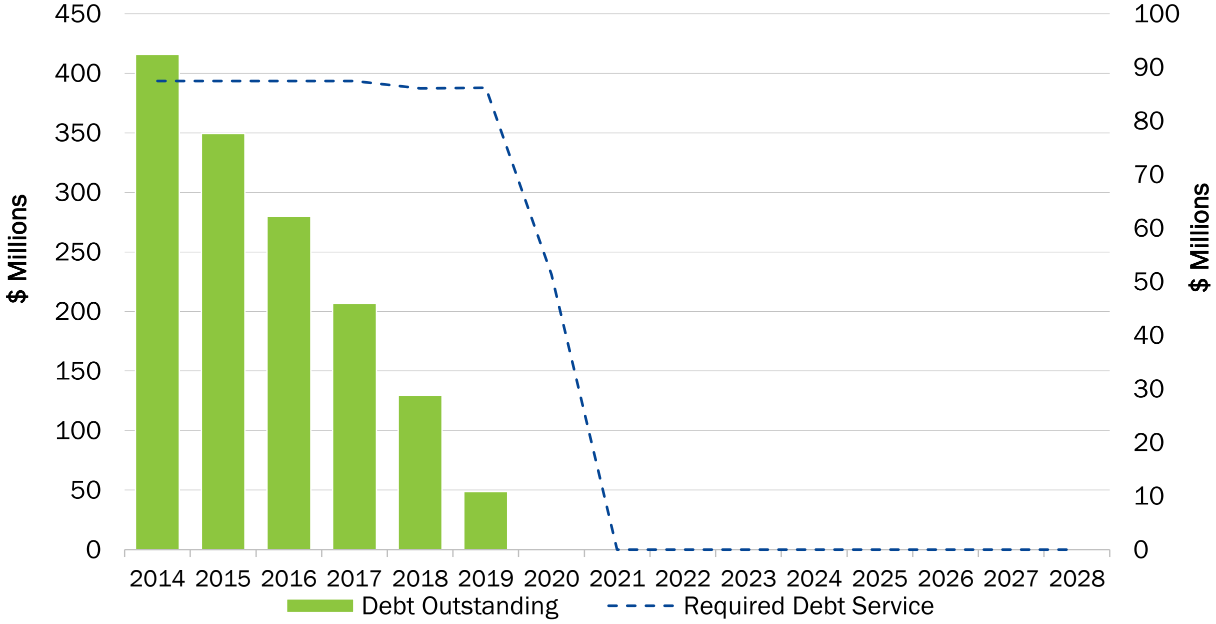
Use of Variable Rate Debt, Bond Insurance, Interest Rate Exchange Agreements and Guaranteed Investment Contracts

The GARVEE bonds are fixed rate bonds, and were issued without bond insurance due to the subordinate pledge of the TTF and the availability of debt service reserve funds. The Maryland Transportation Authority ("MTA") has not used derivatives or guaranteed investment contracts.

Trends in GARVEE Debt

A total of $750.0 million in GARVEE bonds have been issued by the MTA. The first issuance occurred in May 2007 and totaled $325.0 million with a true interest cost of 3.99%. In December 2008, the MTA sold the remaining $425.0 million of GARVEE bonds with a true interest cost of 4.31%. GARVEE debt outstanding and required debt service for the past five fiscal years and projections until the debt is repaid are shown in ***Graph 5***. On August 9, 2017 the Series 2007 GARVEE Bonds were refunded and redeemed through the issuance of a Series 2017 GARVEE Refunding Bond. The final GARVEE bond matures on March 1, 2020 and no additional new money issuances are permitted, though a refinancing opportunity for the remaining Series 2008 bonds will occur on the upcoming March 1, 2019 call date.

Graph 5: Garvee Bonds Debt Outstanding and Required Debt Service



D. Lease and Conditional Purchase Financings

Purpose

The State has financed assets using capital leases, energy leases and conditional purchase financings through Certificates of Participation ("COPs"). In a capital lease financing the State builds an equity interest in the leased property over time and gains title to such property at the end of the leasing period and have been used for the acquisition of both real property and equipment. Under current practice, capital leases for equipment (primarily computers and telecommunications equipment) are generally for periods of five years or less. Real property capital leases are longer term (in the range of 20 to 30 years) and have been used to acquire a wide variety of facilities. In all leases, the term of the lease does not exceed the economic life of the property. The State also uses lease-purchase agreements with a maximum term of 15 years to provide financing for energy conservation projects at State facilities.

The CDAC considers capital leases in accordance with current Generally Accepted Accounting Principles ("GAAP"). Therefore if a lease meets one or more of the following four criteria it is classified as a capital lease and thereby included as tax-supported debt as long as the lease is supported directly or indirectly by State tax revenues:

- The lease transfers ownership of the property to the lessee (user) by the end of the lease term.
- The lease allows the lessee (user) to purchase the property at a bargain price at fixed points in the term of the lease and for fixed amounts.
- The term of the lease is 75% or more of the estimated useful economic life of the property.
- The present value of the lease payments is 90% or more of the fair value of the property.

State Agencies have also made significant use of COPs, another form of conditional lease purchase debt financing. Some COPs are supported by facility revenues and therefore are not considered to be tax supported and are not included in the capital lease component of the affordability analysis. The following lease activity for equipment and energy performance contracts does not include leases for the Maryland Stadium Authority ("MSA") which are reported as MSA debt.

Limitations to Debt Outstanding

Financings described in this section may be subject to statutory limitations such as transportation leases or to various approval processes including but not limited to legislative review and approval by the Board of Public Works.

Current Status:

The following table summarizes the current tax-supported leases and tax-supported Conditional Purchase Financings with debt outstanding totaling $210,008,647 as of June 30, 2018.

Debt Outstanding and Debt Service by Agency
($ in millions)

State Agency	Facilities Financed	Debt Outstanding	Debt Service
Treasurer's Office	Capital Equipment Leases	15.5	5.0
	Energy Performance Projects	13.6	2.9
Transportation	Headquarters Office Building	10.1	2.8
General Services	Hilton Street Facility	0.2	0.2
	Prince George's County Justice Center	14.2	1.5
Transportation Authority	State Office Parking Facility	17.8	0.7
Health	Public Health Lab	136.6	14.0
Total		**208.1**	**27.2**

Ratings

The Treasurer's Office equipment and energy leases are not rated. However, the MAA Shuttle Bus COPs are rated AA+ by S&P, Aa2 by Moody's and AA by Fitch. The lease revenue bonds issued by MEDCO for the MDOT headquarters building are rated AA+ by S&P and Aa2 by Moody's, while those for the MDH Public Health Lab are rated AA+ by S&P and Aa1 by Moody's.

Energy Leases

As directed by statute, tax supported debt does not include capital leases used to finance energy performance contracts if, as determined by the CDAC, energy savings that are guaranteed by the contractor: 1) equal or exceed the capital lease payments on an annual basis; and 2) are monitored in accordance with reporting requirements adopted by the CDAC SF&P §8-104 & §12-301. The Committee has adopted the following guidelines in regards to its analysis of energy leases:

(1) All energy leases that do not have any guarantees should be included as tax supported debt in CDAC's affordability analysis.

(2) Prior to the recommendation of the total amount of new State debt that may prudently be authorized for the next fiscal year, CDAC should monitor and review the following:

If construction of the energy improvement is complete:

- The Guarantee must be current and not expired
- If the amount of the Guarantee is greater than or equal to the annual debt service on the lease, the lease will not be included as tax supported debt in CDAC's affordability analysis.

If the energy project is in construction:

- If the proposed amount of the surety bond that will be posted is greater than or equal to the future annual debt service on the lease, the lease will not be included as tax supported debt in CDAC's affordability analysis.

Based on these criteria the following leases are not included as tax-supported debt in the affordability analysis.

Energy Lease Project	Debt Service for FY 2018	Annual Surety Bond Amount
DPSCS – Hagerstown Prison	$488,395	$936,601
DHMH – Deer's Head Hospital	255,946	582,557
Spring Grove Hospital	1,896,641	2,423,576
Department of Agriculture	194,960	300,459
DGS – Multi-Service Centers	1,588,714	2,346,325
UMCP	1,836,990	2,330,078
UMCES (Horn Point Lab)	148,783	219,767
State Police	483,258	1,122,960
Workforce Technology	169,101	206,449
DPSCS – Jessup	1,267,274	1,530,064
Maryland Aviation Administration	1,600,404	2,147,121
State Highway Administration	1,828,852	2,151,595
Maryland Transit Administration	493,823	656,974
Total	**$12,253,141**	**$16,954,526**

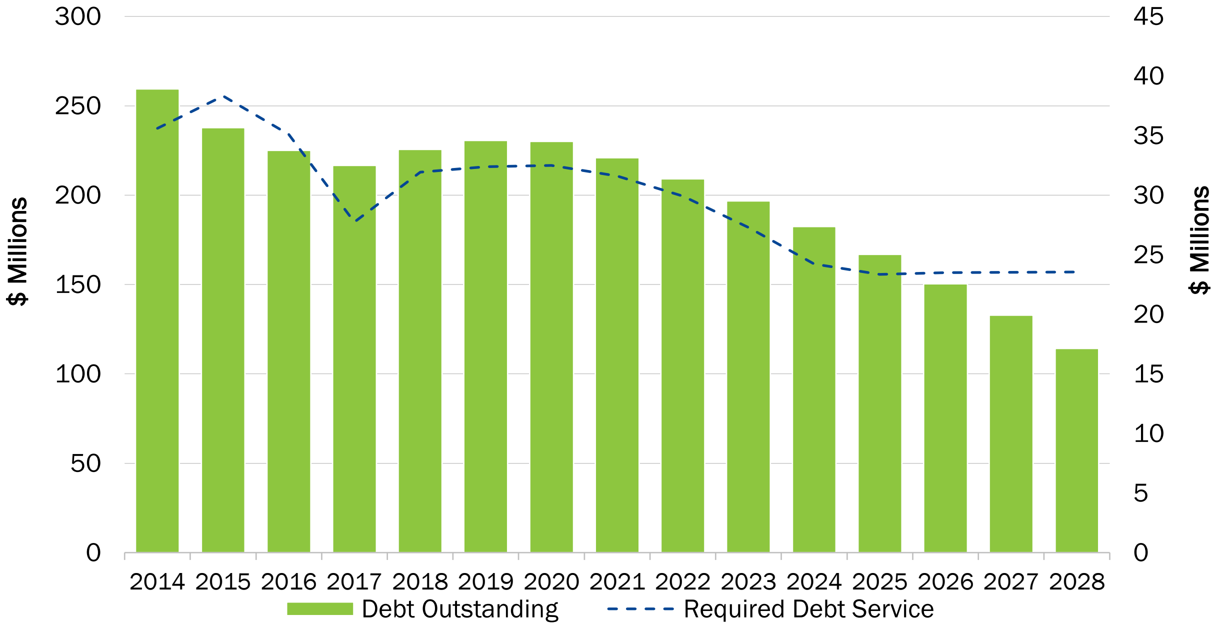
The following leases are included as tax-supported debt in the affordability analysis on ***Tables 1 and 2*** because the energy savings were not guaranteed in an amount that was equal to or greater than annual debt service. In some instances surety bonds are less than the debt service, or have been cancelled due to facility closure or cost savings.

Energy Lease Project	Debt Service for FY 2018	Debt Outstanding as of June 30, 2018
St. Mary's College of Maryland	$205,295	$391,995
Veterans Affairs	56,638	330,353
University of Baltimore	649,125	3,660,581
Stadium Authority (Ravens)	263,232	1,071,976
Stadium Authority (Oriole Park)	716,432	2,781,971
Maryland Port Administration	964,413	5,400,463
	$2,855,135	**$13,637,340**

Trends in Lease and Conditional Purchase Financings

Debt outstanding from lease and conditional purchase financings and required debt service for the past five fiscal years and projections for the next ten fiscal years are shown in ***Graph 6***.

Graph 6: Capital Leases Debt Outstanding and Required Debt Service



Projected financings are based on annual surveys of State agencies. The Department of General Services ("DGS") has advised the CDAC that all of the projected energy lease financings will have surety bond guarantees that equal or exceed the debt service payments throughout the term of the lease; therefore, these leases are not included in the CDAC Affordability Analysis.

The following table provides a detailed summary of projected lease and conditional purchase financings.

Summary of Projected Debt Activity
Lease and Conditional Purchase Financings
($ in millions)

Fiscal Year	Debt Outstanding at Beginning of Year	New Issues	Redeemed	Debt Outstanding at End of Year	Required Debt Service
2019	$226	$19	$14	$231	$32
2020	$231	$20	$21	$230	$32
2021	$230	$20	$29	$221	$32
2022	$221	$21	$33	$209	$30
2023	$209	$21	$33	$197	$27
2024	$197	$22	$37	$182	$24
2025	$182	$23	$38	$167	$23
2026	$167	$23	$40	$150	$24
2027	$150	$24	$41	$133	$24
2028	$133	$25	$44	$114	$24

E. Maryland Stadium Authority ("MSA")

Purpose

The MSA was created in 1986 as an instrumentality of the State responsible for financing and directing the acquisition and construction of professional sports facilities in Maryland. Since then, the MSA's responsibility has been extended to include convention centers in Baltimore City, Ocean City and a conference center in Montgomery County, and the Hippodrome Theater in Baltimore, Maryland.

The Baltimore City Public Schools Construction and Revitalization Act of 2013 (Chapter 647 of the Maryland Laws of 2013) assigns responsibility to MSA for the issuance of bonds to finance and manage certain public school construction and improvement projects in Baltimore City. Additional information is available at http://www.mdstad.com/current-projects/baltimore- city-public-schools-construction.

Additional information on MSA's financings is included in Appendix B.

Security

Lease rental payments subject to annual appropriation by the State are pledged to pay debt service on certain MSA bonds. Revenues pledged to pay debt service include lottery revenues from certain select lottery games that are transferred to MSA for operations and the State's lease rental payments, General Fund appropriations, ticket surcharges and other operating revenues. Lottery revenues have been pledged for other bond issuances including bonds authorized under the Baltimore City Public Schools Construction and Revitalization Act of 2013. These bonds are not considered tax-supported debt and are not included in the CDAC affordability analysis and the debt data that is presented in this report.

Current Status:

Debt Outstanding as of June 30, 2018: $101,083,947

Debt Outstanding and Debt Service by Project
($ in millions)

	Debt Outstanding	Debt Service
Oriole Park at Camden Yards	26.0	14.1
Ravens Stadium	40.3	6.4
Montgomery County Conference Center	7.9	1.6
Hippodrome Theater	6.0	1.6
Camden Station Renovation	4.6	0.7
Total Tax Supported Debt:	**84.8**	**24.4**
Oriole Park at Camden Yards	2.8	0.7
Ravens Stadium	1.1	0.3
Total Energy Leases:	**3.9**	**1.0**

Ratings

MSA bonds currently have a long-term rating of AA+ by S&P, Aa2 by Moody's and AA by Fitch. Short-term bonds are currently rated A1+ by S&P, VMIG1 by Moody's and F1+ by Fitch.

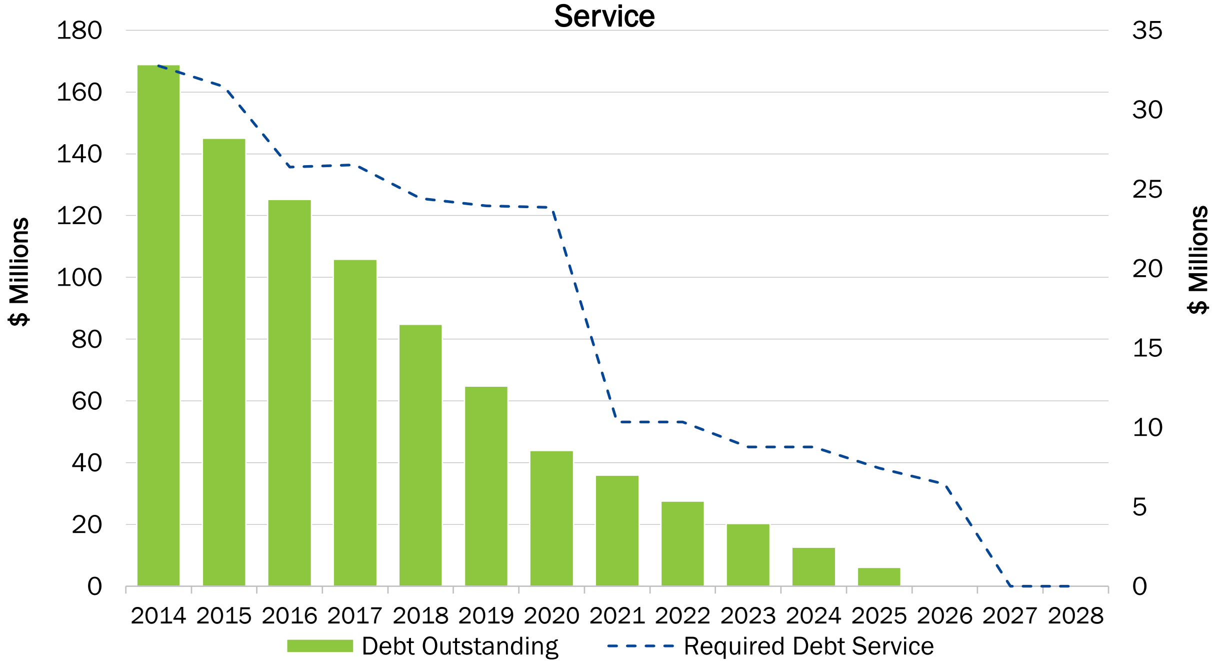
Use of Variable Rate Debt, Bond Insurance, Interest Rate Exchange Agreements and Guaranteed Investment Contracts

MSA has one outstanding issue of approximately $40.3 million of outstanding variable rate debt that has been swapped to fixed rate. Barclay's is the counterparty on the swap.

Trends in MSA Debt

Debt outstanding and required debt service for MSA tax-supported debt for the past five fiscal years and projections for the next ten fiscal years are shown in ***Graph 7*** on the next page. In fiscal year 2018 MSA sold $426.4 million in Baltimore City Public School Construction and Revitalization Revenue bonds with the proceeds being used for the balance of plan year 1 and a portion of the plan year 2 renovation and replacement of Baltimore City Public Schools.

Graph 7: Stadium Authority Debt Outstanding and Required Debt Service



F. Bay Restoration Fund Revenue Bonds (Bay Restoration Bonds)

Purpose

Bay Restoration Bonds are authorized by statute as up to 15-year obligations to finance grants to water treatment plants for upgrades to remove nutrients thereby reducing nitrogen and phosphorus loads in the Chesapeake Bay and its tributaries.

Security

Bay Restoration Bonds are secured by a pledge of revenues deposited in the Bay Restoration Fund from a monthly charge of $5 for most Maryland households served by a water treatment plants. The Bay Restoration Fund is administered by the Water Quality Financing Administration of the Maryland Department of the Environment.

Current Status:

Debt Outstanding as of June 30, 2018: $273,590,000

Ratings

Bay Restoration Bonds are currently rated Aa2 by Moody's Investor Service and AA by Standard & Poor's.

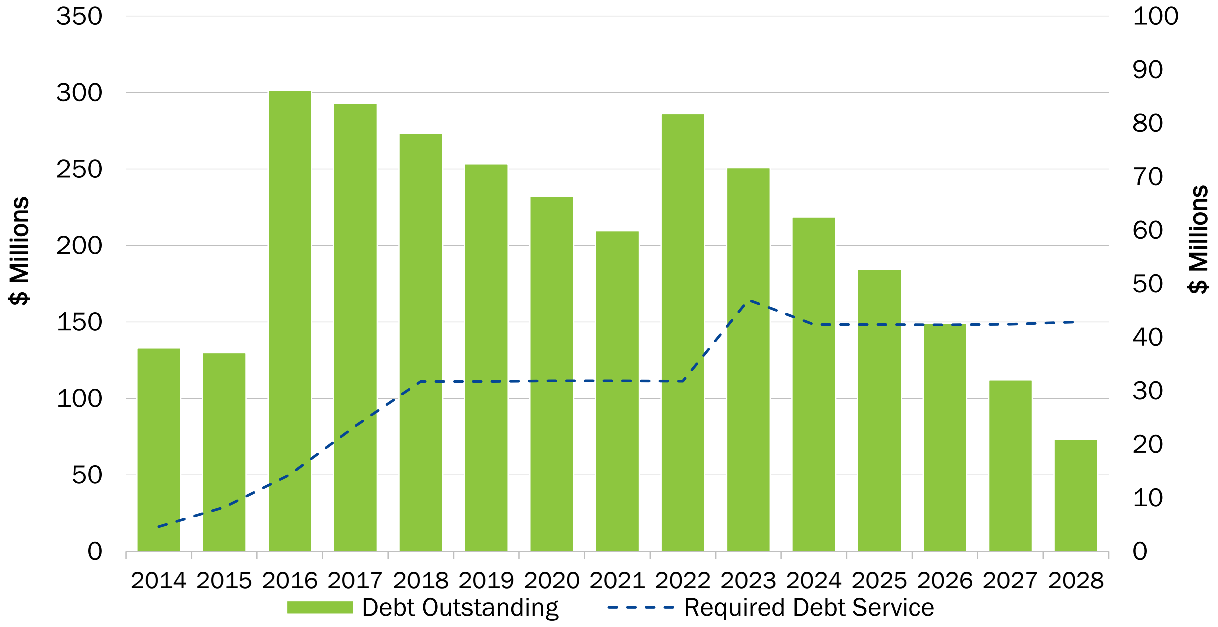
Use of Variable Rate Debt, Bond Insurance, Interest Rate Exchange Agreements and Guaranteed Investment Contracts

The indenture permits the issuance of variable rate debt although none has been issued to date. The structure for the Series 2008, Series 2014 and Series 2015 issues were fixed rate only, with no debt service reserve that may have required guaranteed investment contracts and no bond insurance.

Trends in Bay Restoration Bond Debt

The Water Quality Financing Administration has issued a total of $320.0 million over three sales in FY 2008, 2014, and 2016. The most recent sale occurred in December 2015 and totaled $180.0 million. The bonds received a 2.59% TIC. Another $100.0 million issuance is anticipated in FY 2022. Bay Restoration Bond debt outstanding and required debt service for the past five fiscal years and projections for the next ten fiscal years are shown in ***Graph 8*** below.

Graph 8: Bay Restoration Debt Outstanding and Required Debt Service



The timing and amount of future bond issuances will depend on the fee revenue attained and project cash flow funding requirements as upgrades of water treatment plants proceed. The following table provides a detailed summary of projected Bay Restoration Bond debt activity.

Summary of Projected Debt Activity
Bay Restoration Bonds
($ in millions)

Fiscal Year	Debt Outstanding at Beginning of Year	New Issues	Redeemed	Debt Outstanding at End of Year	Required Debt Service
2019	274	0	20	253	32
2020	253	0	21	232	32
2021	232	0	22	210	32
2022	210	100	23	286	32
2023	286	0	35	251	47
2024	251	0	32	219	42
2025	219	0	34	185	42
2026	185	0	36	149	42
2027	149	0	37	112	42
2028	112	0	39	73	43

III. Capital Programs

A. State of Maryland Capital Program

Capital Program Structure

The State's annual capital program includes projects funded from General Obligation Bonds, general tax revenues, dedicated tax or fee revenues, federal grants, and auxiliary revenue bonds issued by State agencies.

The General Obligation Bond-financed portion of the capital program consists of an annual Maryland Consolidated Capital Bond Loan ("MCCBL"). The MCCBL is a consolidation of projects authorized as general construction projects and various Administration-sponsored capital programs, capital grants for non-State-owned projects, and separate individual legislative initiatives.

General Obligation Bond funds are occasionally supplemented with State general fund capital appropriations ("PAYGO") authorized in the annual operating budget. The amount of funds available to fund capital projects with operating funds varies from year to year. Within the past decade PAYGO appropriations have been as high as $147.7 million in fiscal year 2007 and as low as $60,000 in fiscal year 2010. The most recent PAYGO appropriation totaled $0.5 million in fiscal 2018.

The operating budget also traditionally includes PAYGO capital programs funded with: (i) a broad range of dedicated taxes, loan repayments, and federal grants such as the State's Drinking Water Revolving Loan Program and the Water Quality Revolving Loan Program; (ii) individual dedicated revenue sources such as the property transfer tax which supports the State's land preservation programs; and (iii) specific federal grants which provide funds for armory construction projects, veteran cemetery expansion projects, and housing programs.

State-Owned Facilities

Requests for improvements to State-owned facilities are expected to exceed $2.9 billion over the next five years. Higher education, judiciary facilities, and correctional facilities comprise the bulk of these requests.

State Capital Grants and Loans

State capital grants and loans are allocated to local governments and non-profit organizations. These grants and loans are primarily used to improve existing, and construct new public schools and community college buildings. Grants and loans are also used to restore the Chesapeake Bay, improve and expand access to quality health care, and revitalize existing communities.

Authorizations for capital grants and loans have increased in recent years to accommodate the need to improve the State's public elementary and secondary schools. Future requests for funding are expected to remain high for public schools, community colleges, and environmental programs. The need for funding environmental programs reflects the State's efforts to restore the Chesapeake Bay.

Requests for State capital grant and loan programs to be funded with General Obligation Bonds are expected to exceed $5.6 billion over the next five years.

Legislative Initiatives

Funding requests are also submitted each year by members of the General Assembly to provide financial support for local programs or projects of statewide interest. These bond requests include capital grants to local governments and private non-profit sponsors to support construction of local public and private facilities. These requests are estimated to total $175.0 million over the next five years based on the past five-year average of $35.0 million per year.

Summary of Capital Program: FY 2020 – 2024

The total capital requests are estimated at $8.6 billion for the next five years. By contrast, the Department of Budget and Management anticipates recommending a five-year capital improvement program of approximately $4.975 billion in General Obligation Bonds (based on the authorization levels recommended by the Committee on September 26, 2018). The total capital program will depend on the amount of general funds and other non-General Obligation Bond sources available for capital funding.

FY 2020 – FY 2024 **Requests versus Anticipated Funding** (millions)	
Current and Anticipated Requests	
State-Owned Facilities	$2,905
Capital Grant Programs	5,560
Legislative Initiatives	175
Total Requests	**$8,640**
CDAC Recommendation	4,975
Difference Between Anticipated Requests and Funding Level	**$3,665**

B. Capital Improvement and School Construction Needs

The Public School Facilities Act of 2004 established a State goal to provide $2.0 billion in State funding over eight years to address deficiencies, or $250 million per year through fiscal 2013. Since fiscal year 2006, the State has invested a total of $4.61 billion in public school construction, for an average of $303 million annually.

In fiscal year 2018, public school construction received $280 million in general obligation bond funding. The Governor's fiscal year 2019 Capital Improvement Program proposed to increase the annual funding commitment for public school construction to $313.9 million through fiscal year 2023. It is important to recognize that escalation in building costs since 2004 has significantly raised the actual cost of the basic goal of the Public School Facilities Act - to bring all public schools up to minimum standards by fiscal year 2013. Funding requests from local jurisdictions and school construction needs continue to exceed the anticipated level of State funding.

The Baltimore City Public Schools Construction and Revitalization Act of 2013 (chapter 647 of the Maryland Laws of 2013) allocates $20 million in annual State lottery proceeds, $20 million in annual Baltimore City Public Schools revenues and $20 million in annual Baltimore City revenues to support a multiyear, $1.1 billion public school construction and renovation initiative in Baltimore City. The Maryland Stadium Authority is authorized to issue up to $1.1 billion in bonds to fund the initiative and the dedicated State and local funds are pledged to pay debt service for the life of the bonds. Additional information is available at http://www.mdstad.com/current-projects/baltimore-city-public-schools-construction.

The enacted MCCBL included an additional $40.0 million for local school systems with significant enrollment growth or relocatable classrooms. The 2015 General Assembly passed legislation (senate Bill 490/Chapter 355), which establishes a mandated appropriation in the capital budget of $20.0 million annually beginning in fiscal 2017 for local school systems impacted by significant enrollment growth and reliance on relocatable classrooms. Currently, five counties are eligible for a share of these funds. The fiscal year 2019 budget includes $68.2 million for this initiative, $48.2 million more than the mandated appropriation.

IV. CREDIT RATING AGENCY REPORTS

A. Rating Discussion

On July 16, 2018, in conjunction with the sale of Maryland's General Obligation Bonds State and Local Facilities Loan of 2018, Second Series, Moody's, S&P and Fitch all affirmed their AAA ratings for Maryland's General Obligation debt.

Maryland is one of only 12 states to hold the coveted AAA rating, the highest possible rating, from all three major rating agencies. Standard & Poor's has rated the bonds AAA since 1961. Moody's has assigned the bonds a rating of Aaa since 1973, and Fitch has rated the bonds AAA since 1993. The other eleven states that hold AAA ratings from all three rating agencies are Delaware, Florida, Georgia, Iowa, Missouri, North Carolina, South Dakota, Tennessee, Texas, Utah and Virginia.

B. Excerpts from Rating Agency Reports.

Generally there is consensus among the rating agencies in evaluating the State's credit strengths and weaknesses. All three major rating agencies cite Maryland's debt policies, fiscal management and economy as credit positives and the state's debt burden and pension funding as concerns. The complete reports are available on the Treasurer's website at www.treasurer.state.md.us and may be summarized as follows:

Financial Management

All three rating agencies point to the State's history of strong, sound financial management as a credit strength, with Moody's stating the "proactive financial management enables it to make midcourse corrections and weather economic cycles." All three commend the Board of Revenue Estimates' binding, consensus-based revenue forecast and the Board of Public Works' ability to adjust spending mid-year when necessary, with S&P Global Ratings mentioning the State has a "long history of… frequent and timely budget adjustments to align revenues and expenditures and long-term financial planning." Fitch notes that its rating reflects Maryland's "exceptionally strong" financial resilience and its unlimited ability to increase revenues, as well as its strong reserve levels.

Debt Policies and Debt Burden

In the case of all three rating agencies, the State's Capital Debt Affordability Committee process and constitutionally imposed fifteen-year amortization of debt are considered credit strengths and help to offset concerns the rating agencies have regarding the State's debt burden, which S&P Global Ratings calls "moderate." Fitch notes that "centralized debt planning and issuance" managed by the State Treasurer's Office is an "additional credit strength." S&P states that our "well-developed debt management practices with a moderate debt burden for most measures and rapid amortization."

Economy

In assigning its 'AAA' long-term rating and stable outlook, S&P Global Ratings said: "The rating reflects what we view as the state's "broad and diverse economy," and "strong wealth and income levels." S&P's further states: "The stable outlook reflects Maryland's continued focus on structural budget alignment and maintenance of minimum state reserve levels." Fitch observed that Maryland's economy "has long benefited from proximity to the nation's capital" and notes that the State's service-oriented economy "is likely to grow ahead of, or in line with, national economic growth."

Each rating agency cites ties to the federal government as both benefits and risks to Maryland's economy, with Moody's calling the large federal presence in Maryland a "mixed blessing." S&P Global Ratings notes the State's economy "continues to recover slowly after weakness in recent years due to federal budget uncertainty and sequestration" while also stating that the government sector and federal agencies are economic strengths. Fitch writes that despite the "drag posed by federal sequestration," the federal government continues to be an "important anchor… supporting the State's solid economic performance."

Pension and Other Liabilities

Fitch calls pensions a "moderate burden," while Moody's indicates they "will continue to be a challenge." S&P's stated that "failure to demonstrate a consistent commitment to fully funding its pensions could also pressure [Maryland's] rating."

C. Moody's 2018 State Debt Medians

In April 2018 Moody's released its 2018 State Debt Medians Report. This annual report uses various debt measures to compare state debt burdens, which is one of many factors that Moody's uses to determine state credit quality. Selected measures from the report are summarized in the table below. The Moody's calculation of debt outstanding as a percent of personal income will differ from the CDAC calculations due to timing variances. For example, the Moody's reported ratio for 2018 measures net state tax-supported debt as of calendar year-end 2017 compared to personal income as of 2016.

Measure	Maryland	Mean	Median	Ranking
Net Tax-Supported Debt per Capita	$2,164	$1,477	$987	11
Net Tax-Supported Debt as % of Personal Income	3.7%	2.9%	2.3%	15
Net Tax-Supported Debt as % of GDP	3.4%	2.6%	2.1%	13
Debt Service Ratio	7.0%	4.5%	4.2%	9

V. AFFORDABILITY ANALYSIS

The objective of this affordability analysis is to draw a proper balance between two basic interests: the State's capital needs and the State's ability, as measured by the Committee's self- imposed affordability criteria, to repay the debt issued to finance those capital needs.

A. The Concept of Affordability

The ultimate test of debt affordability is the willingness and ability of the State to pay the debt service when due. Apart from revenue sources which are dedicated by law, the allocation of future resources between debt repayment and other program needs is a matter of judgment. A careful and comprehensive determination of affordability should take into consideration the demand for capital projects, the relationship between debt authorization and debt issuance, available and potential funding mechanisms, overall budgetary priorities, and revenues.

The Committee believes that the crux of the concept of affordability is not merely whether or not the State can pay the debt service; rather, affordability implies the ability to manage debt over time to achieve certain goals. Maryland has a long tradition of effectively managing its finances and debt. The challenge of debt management is to provide sufficient funds to meet growing capital needs within the framework of the State's debt capacity, thereby maintaining the AAA credit rating.

B. Affordability Criteria

The Committee has self-imposed affordability criteria which are: State tax-supported debt outstanding should be no more than 4.0% of State personal income; and debt service on State tax- supported debt should require no more than 8.0% of revenues.

C. 2018 Affordability Recommendation

At its September 26, 2018 meeting, the Committee approved a total of $995 million for new general obligation authorizations by the 2019 General Assembly to support the fiscal year 2020 capital program. The vote was 4-1, with the Treasurer voting against the proposed amount.

In addition to determining and recommending a prudent affordable authorization level for the coming year, the Committee also sets out planning assumptions for the State to use in its capital program planning process. The Committee reviewed several options that were projected to maintain debt affordability ratios within the CDAC benchmarks of 4% debt outstanding to personal income and 8% debt service to revenues. The Secretary of Budget and Management then made a motion to maintain the authorization at $995 million in future fiscal years. The vote was 4-1, with the Treasurer voting against the proposal commenting that the role of the Committee was to recommend an affordable authorization level while the role of the General Assembly was to balance the needs of the State. The Treasurer also noted that maintaining the 3% growth level instituted by the Committee in 1992 would remain within the CDAC affordability benchmarks.

The Committee recognizes that there are multiple annual authorization levels and patterns that would result in adherence to the benchmarks, depending on future levels of personal income and State revenue. The Committee's planning assumptions for future authorizations will be reviewed in preparation for the 2019 report in light of updated revenue and personal income projections and authorization levels may be adjusted to adhere to these affordability benchmarks.

Current estimates for personal income and revenues were updated in September 2018 to reflect the Board of Revenue Estimates September forecast and both support the recommended authorization while adhering to the affordability criteria. Schedules of Personal Income and Revenues are in ***Schedule A-1 and Schedule A-2,*** respectively. The Committee reviewed these estimates as well as assumptions for interest rates, authorizations, and issuances at its meeting on September 26. The Committee believes that revenues, personal income and interest rates have been prudently estimated. Any variation to the assumptions for revenues, interest rates, and projected activity in tax-supported debt issuance could impact directly the amount of future tax-supported authorizations and issuances.

The virtue of the annual CDAC process is the ability, if needed, to adjust authorizations in future years should forecasts of personal income and revenues decline or if projections for debt service rise because of increases in interest rates. However, these reductions to authorizations can be significant. For example, primarily as a result of declining revenues, the projected legislative authorizations of general obligation bonds in the five year period of 2013 - 2017 declined from $5.6 billion in the 2009 CDAC Report to $4.7 billion in the 2012 CDAC Report. See the history of projected authorizations in ***Schedule B-4*** which highlights the effect of the maturity limit of 15 years on the State’s General Obligation Bonds and the resulting rapid amortization of current outstanding debt. Debt service on current outstanding debt declines appreciably after about five years.

D. Comparison of Recommendation and Criteria

To analyze the relationship of the Committee's recommendation for general obligation debt to the affordability criteria, each component of tax-supported debt and debt service has been examined.

Debt Outstanding

The rise in total tax-supported debt in ***Table 1*** reflects the projected level authorizations and issuances of general obligation bonds and the increased authorization of transportation bonds as the department approaches its statutory debt limit of $4.5 billion. Total general obligation debt outstanding rises steadily from $9.6 billion in fiscal year 2019 to $9.9 billion in fiscal year 2028. Debt outstanding on Maryland Stadium Authority bonds are projected to decline with the assumption of no future issuances. GARVEE debt outstanding peaked at $704 million in fiscal year 2009 and is expected to be retired in fiscal year 2020. Bay Restoration Bond debt will continue to increase with one additional planned issuance in fiscal year 2022. Following that sale, debt outstanding Bay Restoration Bonds will peak at $286 million and decline thereafter.

Debt Outstanding as a Percent of Personal Income

The ratio of debt outstanding to personal income reflects the State’s reliance on revenues (sales tax and income tax) that are primarily based on consumption and income. Debt outstanding is measured as of the fiscal year end and personal income is measured as of the calendar year end. For example, the fiscal year 2018 ratio is calculated using debt outstanding as of June 30, 2018 and personal income is projected as of December 2017.

The ratio of State tax-supported debt outstanding to personal income (***Table 1***) peaked at 3.59% in fiscal year 2016 and will decline to 2.64% by fiscal year 2028. At all times, the ratio remains below the affordability criterion of 4.0%.

State Tax Supported Debt Outstanding
Components and Relationship to Personal Income

Table 1

State Tax Supported Debt Outstanding (in $ Thousands)

Fiscal Year	General Obligation Bonds[a]	Consolidated Transportation Bonds	Capital Leases[b,c]	Stadium Authority	Bay Restoration Bonds	Garvee Bonds	Supported Debt Outstanding
2014	8,362,343	1,813,000	259,394	168,863	133,055	415,775	11,152,430
2015	8,677,214	2,020,250	237,781	145,022	129,980	349,440	11,559,687
2016	9,465,285	2,146,085	224,978	125,181	301,615	279,780	12,542,925
2017	9,334,206	2,578,385	216,653	105,883	292,880	206,590	12,734,597
2018	9,479,407	2,911,675	225,588	84,790	273,590	129,680	13,104,731
2019	9,601,231	3,387,265	230,528	64,760	253,375	48,865	13,586,024
2020	9,677,966	3,771,510	230,032	43,910	232,075	-	13,955,494
2021	9,782,695	3,981,650	220,838	35,920	209,715	-	14,230,818
2022	9,855,151	4,095,150	209,094	27,520	286,245	-	14,473,160
2023	9,893,987	4,126,930	196,749	20,275	250,944	-	14,488,885
2024	9,917,064	4,310,200	182,407	12,615	218,558	-	14,640,844
2025	9,880,132	3,990,500	166,899	6,080	184,611	-	14,228,222
2026	9,867,761	4,086,655	150,374	-	149,105	-	14,253,895
2027	9,875,820	4,184,540	132,765	-	112,052	-	14,305,176
2028	9,899,169	4,297,260	114,184	-	73,296	-	14,383,909

State Tax Supported Debt Outstanding as a Percentage of Personal Income

Fiscal Year	General Obligation Bonds[a]	Consolidated Transportation Bonds	Capital Leases[b,c]	Stadium Authority	Bay Restoration Bonds	Garvee Bonds	Supported Debt Outstanding
2014	2.59%	0.56%	0.08%	0.05%	0.04%	0.13%	3.46%
2015	2.57%	0.60%	0.07%	0.04%	0.04%	0.10%	3.43%
2016	2.71%	0.61%	0.06%	0.04%	0.09%	0.08%	3.59%
2017	2.59%	0.72%	0.06%	0.03%	0.08%	0.06%	3.53%
2018	2.54%	0.78%	0.06%	0.02%	0.07%	0.03%	3.51%
2019	2.47%	0.87%	0.06%	0.02%	0.07%	0.01%	3.49%
2020	2.39%	0.93%	0.06%	0.01%	0.06%	0.00%	3.45%
2021	2.33%	0.95%	0.05%	0.01%	0.05%	0.00%	3.39%
2022	2.26%	0.94%	0.05%	0.01%	0.07%	0.00%	3.32%
2023	2.19%	0.91%	0.04%	0.00%	0.06%	0.00%	3.21%
2024	2.12%	0.92%	0.04%	0.00%	0.05%	0.00%	3.13%
2025	2.04%	0.82%	0.03%	0.00%	0.04%	0.00%	2.94%
2026	1.96%	0.81%	0.03%	0.00%	0.03%	0.00%	2.83%
2027	1.89%	0.80%	0.03%	0.00%	0.02%	0.00%	2.73%
2028	1.82%	0.79%	0.02%	0.00%	0.01%	0.00%	2.64%

[a] Reflects presumed authorizations as follows:

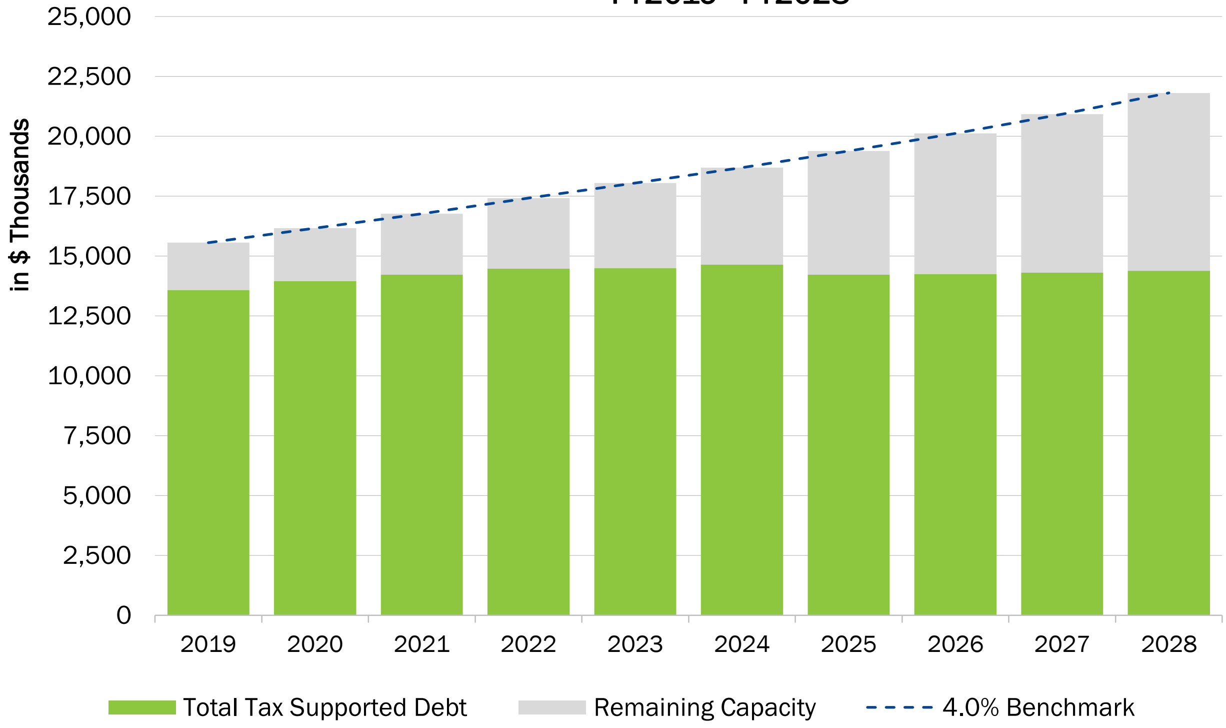
General Assembly Session	2019	2020	2021	2022	2023
Fiscal Year/Capital Budget	**2020**	**2021**	**2022**	**2023**	**2024**
(in millions)	$995	$995	$995	$995	$995

[b] Includes financings for a multi-agency office building in St. Mary's County, district court facilities in Prince George's County, a MDOT headquarters building, shuttle buses at BWI airport, the MDH public health lab and parking facilities at the Annapolis Complex and State Center.

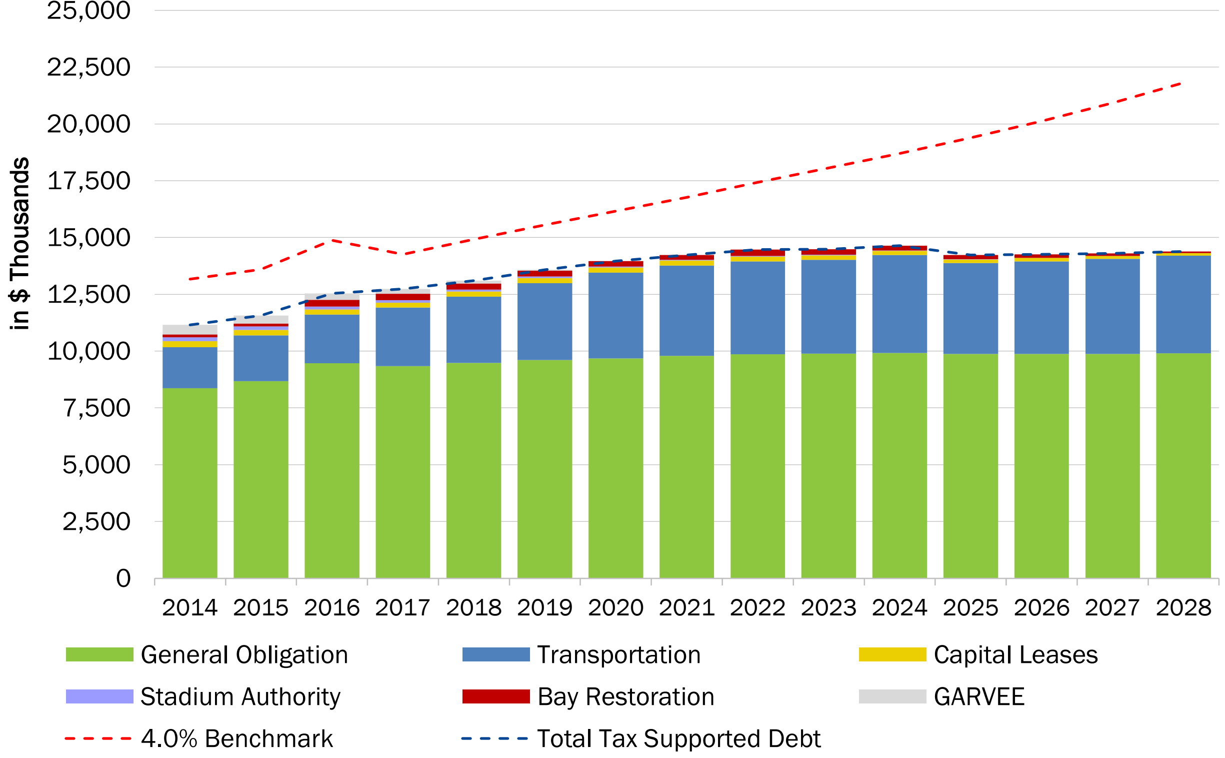
[c] Leases include equipment, video lottery terminals and energy leases that do not have guaranteed energy savings equal to or greater than the debt service.

Issuance Assumptions: (in millions)	**2020**	**2021**	**2022**	**2023**	**2024**
G.O. Issues	$995.0	$995.0	$995.0	$995.0	$995.0
DOT Issues	590.0	465.0	415.0	375.0	500.0
Stadium Authority Issues	21.4	0.0	0.0	0.0	0.0
New Capital Leases	19.6	20.2	20.8	21.4	22.1
GARVEE Bond Issues	0.0	0.0	0.0	0.0	0.0
Bay Bond Issues	0.0	0.0	100.0	0.0	0.0
Total	$1,626.0	$1,480.2	$1,530.8	$1,391.4	$1,517.1
Personal Income (billions)(Schedule A-1)	$404.1	$419.2	$435.6	$451.4	$467.4

Graph 9: Tax Supported Debt Outstanding to Personal Income
Available Debt Capacity using the 4.0% Benchmark
FY2019 - FY2028



Graph 10: Tax Supported Debt Outstanding to Personal Income
FY2014 - FY2028



Debt Service

Projected general obligation debt service (***Schedule B-4)*** assumes that future interest rates are consistent with current forecasts and also assumes authorizations total $995 million for the fiscal years 2019 through 2028 as shown in ***Schedule B-1.***

Debt Service as a Percent of Revenues

Compared to the prior criterion, debt service as a percent of revenues is a better measure for State financial management purposes, meaning the legislature has control of both variables, revenues through the enactment of taxes and fees and debt service through the authorization of debt. It also more accurately reflects the State's ability to repay its debt.

The ratio of annual debt service to revenues (***Table 2a)*** increased to a peak of 7.64% in fiscal year 2018. The ratio then continues to decrease to 7.33% in 2021 to then increase to the next peak of 7.56% in fiscal year 2023.

State Tax Supported Debt Service **Table 2A**

State Tax Supported Debt Service as a Percent of Revenues

Fiscal Year	General Obligation Bonds[a]	Consolidated Transportation Bonds[b]	Capital Leases[c,d]	Stadium Authority	Bay Restoration Bonds	Garvee Bonds	Total Tax Supported Debt Service	Total Revenues	Total Tax Supported Debt Service as a % of Revenues
2014	980,738	207,000	35,615	32,761	4,614	87,458	1,348,185	19,661,600	6.86%
2015	1,027,003	232,404	38,317	31,447	8,248	87,454	1,424,874	20,702,600	6.88%
2016	1,120,994	264,358	35,095	26,394	14,330	87,450	1,548,621	21,298,900	7.27%
2017	1,190,728	307,215	27,733	26,520	23,431	87,452	1,663,079	22,084,007	7.53%
2018	1,234,921	340,060	31,936	24,414	31,756	86,055	1,749,141	22,902,445	7.64%
2019	1,275,668	338,708	32,380	23,954	31,717	86,179	1,788,605	23,664,725	7.56%
2020	1,314,678	352,528	32,485	23,854	31,827	51,365	1,806,737	24,471,743	7.38%
2021	1,304,281	422,358	31,599	10,329	31,829	-	1,800,397	24,576,326	7.33%
2022	1,340,562	472,894	29,912	10,342	31,823	-	1,885,533	25,343,520	7.44%
2023	1,380,068	516,419	27,282	8,766	46,985	-	1,979,520	26,197,826	7.56%
2024	1,405,132	495,938	24,213	8,775	42,377	-	1,976,434	27,006,020	7.32%
2025	1,424,273	518,651	23,349	7,434	42,375	-	2,016,082	27,892,508	7.23%
2026	1,401,825	530,705	23,499	6,432	42,295	-	2,004,756	28,805,322	6.96%
2027	1,434,158	583,136	23,515	-	42,458	-	2,083,268	29,473,605	7.07%
2028	1,425,495	597,576	23,538	-	42,858	-	2,089,466	30,441,693	6.86%

[a] Includes payments for Qualified Zone Academy Bonds (QZABs).

[b] Does not include debt service on county transportation bonds. Highway user revenues from counties exceed debt service requirements.

[c] Includes financings for a multi-agency office building in St. Mary's County, district court facilities in Prince George's County, a MDOT headquarters building, the MDH public health lab and parking facilities at the Annapolis Complex and State Center.

[d] Debt service on leases include capital equipment, video lottery terminals and energy leases that do not have guaranteed energy savings equal to or greater than the debt service.

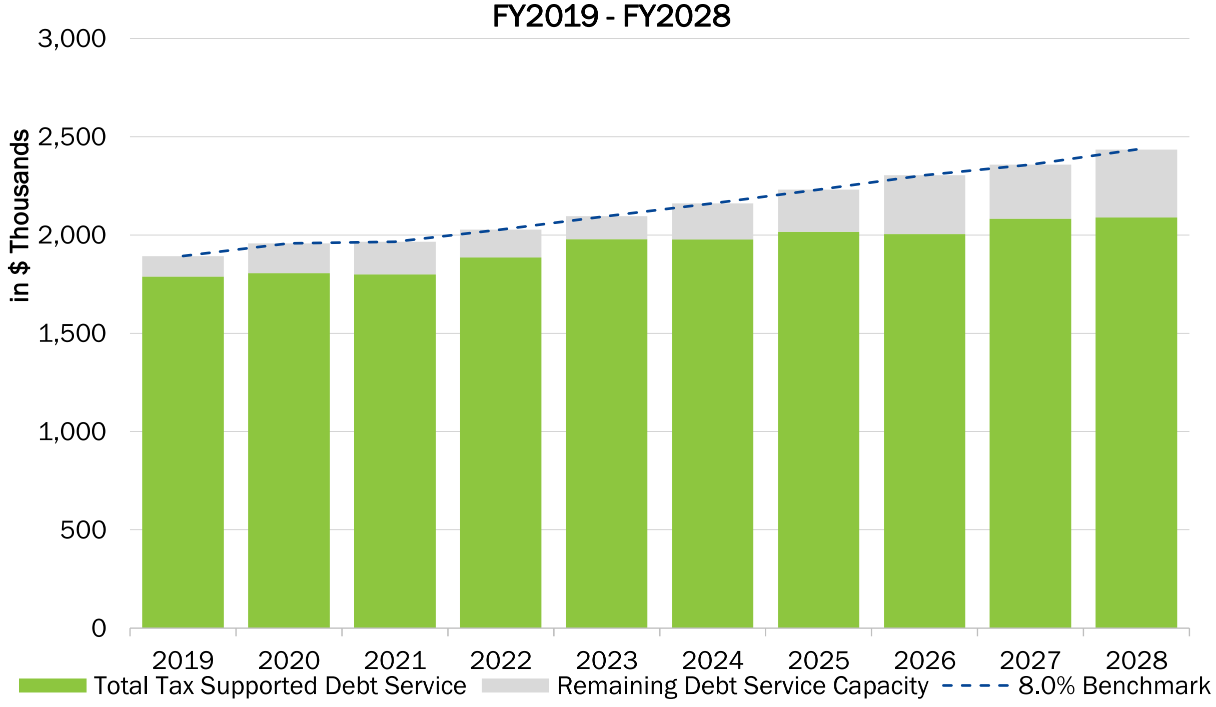
Table 2B

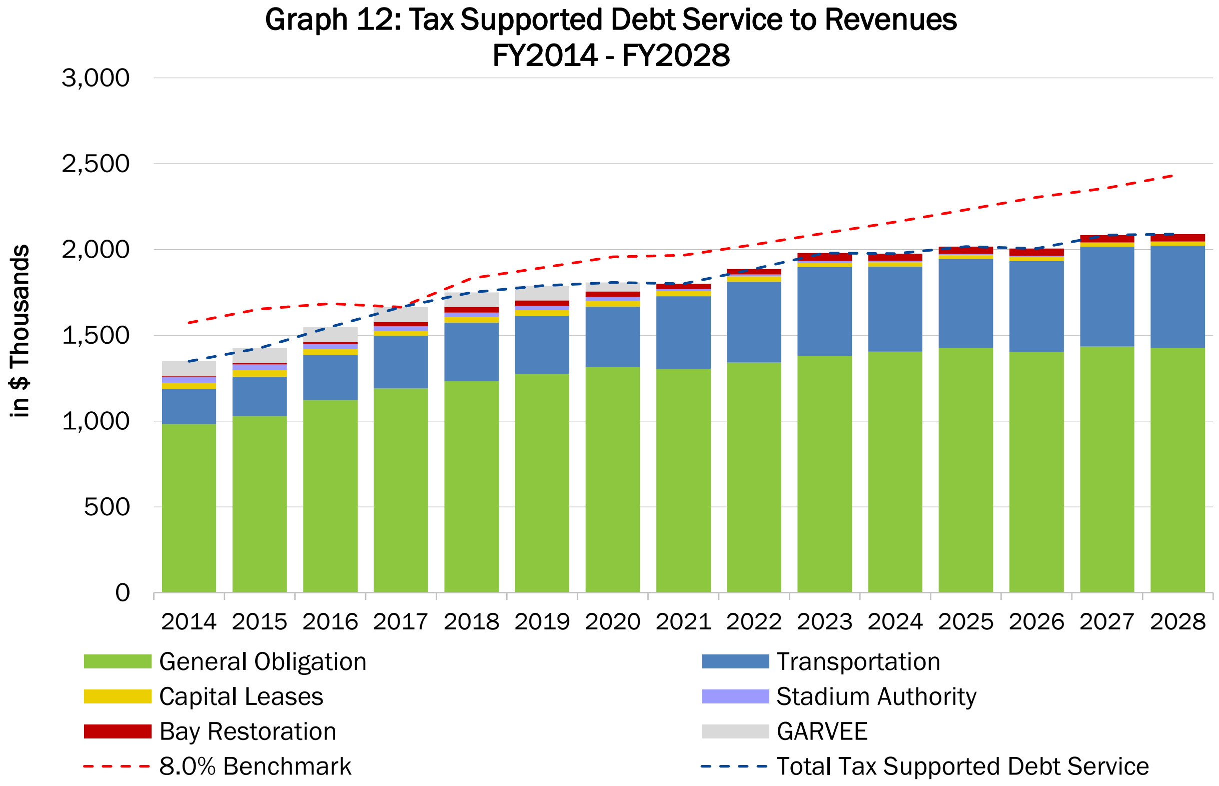
State Tax Supported Debt Service as a Percent of Dedicated Revenues

Fiscal Year	General Obligation Bonds	Consolidated Transportation Bonds	Capital Leases	Stadium Authority	Bay Restoration Bonds	Garvee Bonds
2014	6.0%	7.6%	0.2%	140.0%	4.3%	18.7%
2015	6.0%	8.0%	0.2%	143.6%	7.4%	18.8%
2016	6.4%	8.4%	0.2%	121.1%	12.7%	18.8%
2017	6.5%	9.7%	0.2%	121.1%	20.8%	15.9%
2018	6.5%	10.7%	0.2%	111.9%	28.0%	15.7%
2019	6.5%	10.4%	0.2%	100.0%	27.7%	15.7%
2020	6.5%	10.2%	0.2%	100.0%	27.5%	9.4%
2021	6.2%	11.9%	0.2%	100.0%	27.2%	0.0%
2022	6.2%	12.7%	0.1%	100.0%	26.9%	0.0%
2023	6.2%	13.5%	0.1%	100.0%	39.4%	0.0%
2024	6.1%	12.9%	0.1%	100.0%	35.2%	0.0%
2025	6.0%	13.2%	0.1%	100.0%	34.8%	0.0%
2026	5.7%	13.3%	0.1%	100.0%	34.4%	0.0%
2027	5.7%	14.4%	0.1%	0.0%	34.2%	0.0%
2028	5.4%	14.5%	0.1%	0.0%	34.2%	0.0%

Note: Unlike Table 2A, Table 2B ratios are serviced by separate and specific revenue sources and have different denominators; therefore, ratios cannot be added across to provide a sum on combined ratio totals. Refer to "Schedule A-2, Revenue Projections."

Graph 11: Tax Supported Debt Service to Revenues Available Capacity using the 8.0% Benchmark FY2019 - FY2028





As indicated by ***Table 3***, Tax-Supported Debt Outstanding and Debt Service Stress Test, if the projections for debt service are held constant, limited declines in revenues can still be absorbed and the affordability ratios maintained. Similarly, there is limited capacity for increases in debt service if the revenue projections are held constant and the affordability criteria is 8.0%. Based on the estimates and assumptions in September 2018, the Committee's recommendation is expected to result in a pattern of debt issuances and debt service payments that remain within this 8.0% affordability benchmark.

Tax Supported Debt Outstanding and Debt Service Stress Test Table 3

State Tax Supported Debt Outstanding as a Percentage of Personal Income Under "Stress" Scenarios

Fiscal Year	Debt Outstanding ($000)	Personal Income ($000)	Current Ratios	Maximum Ratio	Minimum Personal Income ($000)	Difference[a] ($000)	Additional Affordable Debt Outstanding[c]
2018	13,104,731	373,145,515	3.51%	4.00%	327,618,265	45,527,251	1,821,090
2019	13,586,024	388,949,152	3.49%	4.00%	339,650,591	49,298,560	1,971,942
2020	13,955,494	404,112,581	3.45%	4.00%	348,887,349	55,225,232	2,209,009
2021	14,230,818	419,233,028	3.39%	4.00%	355,770,455	63,462,572	2,538,503
2022	14,473,160	435,553,366	3.32%	4.00%	361,828,991	73,724,375	2,948,975
2023	14,488,885	451,406,962	3.21%	4.00%	362,222,122	89,184,841	3,567,394
2024	14,640,844	467,395,456	3.13%	4.00%	366,021,093	101,374,363	4,054,975
2025	14,228,222	484,568,788	2.94%	4.00%	355,705,553	128,863,236	5,154,529
2026	14,253,895	502,901,468	2.83%	4.00%	356,347,386	146,554,083	5,862,163
2027	14,305,176	523,111,227	2.73%	4.00%	357,629,411	165,481,816	6,619,273
2028	14,383,909	545,310,948	2.64%	4.00%	359,597,720	185,713,228	7,428,529

State Tax Supported Debt Service as a Percentage of Revenues Under "Stress" Scenarios

Fiscal Year	Debt Service ($000)	Revenues ($000)	Current Ratios	Maximum Ratio	Minimum Revenues ($000)	Difference[b] ($000)	Additional Affordable Debt Service[c]
2018	1,749,141	22,902,445	7.64%	8.00%	21,864,267	1,038,178	83,054
2019	1,788,605	23,664,725	7.56%	8.00%	22,357,565	1,307,160	104,573
2020	1,806,737	24,471,743	7.38%	8.00%	22,584,212	1,887,531	151,002
2021	1,800,397	24,576,326	7.33%	8.00%	22,504,960	2,071,366	165,709
2022	1,885,533	25,343,520	7.44%	8.00%	23,569,166	1,774,354	141,948
2023	1,979,520	26,197,826	7.56%	8.00%	24,743,998	1,453,829	116,306
2024	1,976,434	27,006,020	7.32%	8.00%	24,705,430	2,300,589	184,047
2025	2,016,082	27,892,508	7.23%	8.00%	25,201,028	2,691,480	215,318
2026	2,004,756	28,805,322	6.96%	8.00%	25,059,455	3,745,866	299,669
2027	2,083,268	29,473,605	7.07%	8.00%	26,040,846	3,432,759	274,621
2028	2,089,466	30,441,693	6.86%	8.00%	26,118,326	4,323,367	345,869

This table demonstrates the minimum levels to which personal income and revenues could fall without violating the 4.0% and 8.0% criteria on projected debt and debt service levels.

[a] Holding debt outstanding constant, personal income could decline by indicated amounts and affordability ratios would not exceed the 4.0% maximum.

[b] Holding debt service constant, revenues could decline by indicated amounts and affordability ratios would not exceed the 8.0% maximum.

[c] Holding personal income and revenues constant, these figures indicate additional debt outstanding and debt service that is affordable without exceeding current maximum affordability ratios.

Source: Table 1 and 2a
Schedules A-1 and A-2

E. Comparison of Recommendation and Capital Program

The Committee's recommendation of $995 million in general obligation authorizations provides a commitment for the fiscal year 2020 Capital Improvement Program. However, the program and the recommendations fall short of total funding needs and the Committee recognizes that allocation decisions will have to be made by the Governor and General Assembly.

F. Affordability Risk Analysis

Background

Since 1989, the Committee has included in its Reports an *affordability risk analysis*: the analysis of the risk that a particular five-year General Obligation Bond authorization plan, if followed over time, might lead to a violation of the Committee's affordability criteria, even though the plan was deemed affordable at the time it was proposed. Beginning in its 2007 review, the Committee has examined this risk over a ten-year horizon.

Components of Risk

Economic uncertainty continues as the economic recovery has been slow and potential future federal reductions in employment and procurement could negatively impact Maryland more than most states. In light of this context, the Committee identified and reviewed the following risks in making a judgment about the ultimate affordability of its 2018 recommended authorization and the projected future authorizations as described earlier:

- Changes in personal income;
- Changes in and sources of revenues;
- Interest rate risk;
- Changes in the definition of tax-supported debt;
- Changes in the bond issuance plans of non-general obligation issuers of tax-supported debt;
- Changes within the General Obligation Bond program.

Changes in Personal Income

Significant adjustments to personal income estimates have occurred in the past. These changes result from either after-the-fact measurement changes by federal statisticians or revised projections by the Board of Revenue Estimates, which are used by the Committee. These risks are beyond the Committee's control but it should be noted that material changes are often limited to the first couple of years following the close of the measurement period and subsequent adjustments generally have been small. Projections of future personal income levels require certain economic and demographic assumptions that may not prove accurate.

Table 3 demonstrates that current projections for personal income could decline by no more than $55.2 billion, or 15.8% of total projected personal income, in fiscal year 2020 without the affordability ratio exceeding the 4.0% maximum. The personal income projections seem prudent as the projected annual growth rates shown in ***Schedule A-1*** for fiscal year 2018 through fiscal year 2028 average 3.84%, more than the 2.89% average rate for the 10-year period of 2009 through 2018.

Changes in and Sources of Revenues

Sources of Revenues

Schedule A-2 displays the components of and total tax-supported revenues from fiscal year 2013 to fiscal year 2028. Tax-supported revenues are comprised of a variety of sources that are available to make debt service payments on tax-supported debt. The following paragraphs will discuss some of the major revenue sources in more detail. In general, the estimates are based on current law and do not take into account any possible changes in future tax rates or structures.

General fund revenues are shown as projected by the Board of Revenue Estimates in its most recent forecast as of September 2018. Year to year changes during this period are not significant and reflect the slow growth following the recession. Beginning in fiscal year 2024, growth is assumed to hold at 3.7% annually.

Property tax revenue estimates were calculated using assessable base data obtained from the Department of Assessments and Taxation for fiscal years 2019-2020. Property tax revenues are projected to hold around 2.0% annually for fiscal years 2020 through 2028.

Bond premiums and various other Annuity Bond Fund revenues are also included in tax- supported revenues. Bond premiums can be volatile and are not projected on future sales. Although some amount may likely occur, premiums are expected to decrease with the anticipated rise in interest rates. Miscellaneous receipts and US Treasury subsidies on a Build America bonds, Qualified School Construction Bonds, Qualified Zone Academy Bonds and Qualified Energy Conservation Bonds are included but the amounts are relatively insignificant. The amounts received have been reduced by varying amounts due to sequestration since fiscal year 2014.

Revenues from the Education Trust Fund, which is primarily funded by gaming revenues, and the State property transfer tax may be available for debt service on general obligation bonds to the extent that bonds are used to support school construction or Program Open Space respectively.

The remaining revenues shown in ***Schedule A-2*** represent the revenues available to pay debt service on the other components of tax-supported debt. These revenues are projected by the entity responsible for issuing and oversight of the bonds and are based on the most currently available data.

Changes in Revenues

Table 3 demonstrates that, holding debt service constant, current revenue projections could decrease by $1,887.5 million, or 7.7% of total projected revenues, in fiscal year 2020 without the affordability ratio exceeding the 8.0% maximum. CDAC meets annually to review the affordability ratios. If the Board of Revenue Estimates were to reduce the projected revenues it is likely that significant revision of debt authorizations and issuance would be considered, as has been past practice.

Interest Rate Risk

Debt service is calculated for future General Obligation Bonds, assuming coupon and market interest rates of 5.0%. Traditionally, municipal bonds are issued at a 5.0% coupon to meet investor demands for tax-free income. Investors then pay more than the face value of the bond or a premium for receiving the higher interest payment. The premium is placed in the Annuity Bond Fund to cover debt service or to be used as PAYGO funds for capital projects.

Debt service on capital equipment leases is projected using tax-exempt rates of 3.0% for fiscal year 2019 and gradually increasing to 3.5% in fiscal 2028. The most recent actual rates on capital equipment leases were 2.73% for a three year lease, and 2.86% for a five year lease. Recent rates are rising, albeit slowly, after historically low tax-exempt rates. Future Bay Restoration Bond debt service is projected using a weighted average interest rate of 4.5%. The Department of Transportation estimates rates of 4.2% for the 2019 through 2026 sales and 4.5% thereafter.

There is a risk to the federal tax-exemption for all municipal bonds from recent discussions to reduce the federal deficit. If the State and other municipal issuers have to issue taxable debt or if tax-exempt debt is less attractive to taxpayers with high income tax rates, municipal interest rates and debt service will increase. At this time, there is no clear indication of the potential adoption of any proposal to alter the State's ability to issue tax-exempt debt.

Changes in the Definition of Tax-Supported Debt

Changes in the definition of tax-supported debt dictated by an outside authoritative group could have a major impact on the affordability ratios.

The Financial Accounting Standards Board ("FASB") has a current project that proposes to establish a common leasing standard and to change lease accounting so that all lease obligations and the related right-to-use are reported on private sector balance sheets. Consequently, all leases would be considered debt. The proposed changes could increase the amount of tax – supported debt subject to CDAC review by requiring the State's operating leases be classified as capital leases (debt). The State's 2017 Comprehensive Annual Financial Report ("CAFR") indicates that the State's governmental funds pay for various office spaces that are accounted for as operating leases. These rent expenditures for the fiscal year 2017 totaled approximately $93.9 million.

According to its website, FASB published an exposure draft in May 2013 and conducted outreach to investors and analysts from May 2013 through September 2013. A second exposure draft was released and FASB is re-deliberating based on comments received. The final Standard was expected to be released in the 4th Quarter of 2017. The State's financial statements conform to Governmental Accounting Standards Board ("GASB") which has added a similar lease accounting project to their research agenda but does not expect to complete their research until the FASB's proposed standards become more certain. More information and updates can be found on GASB's website, www.gasb.org.

Since there have been no definitive changes to accounting standards to date, CDAC continues to consider only capital leases in its affordability analysis. CDAC will continue to monitor this accounting issue at future meetings and may review the affordability benchmarks if the accounting standards change.

Changes in Bond Issuance – General Obligation Bonds

Changes within the General Obligation Bond program may arise because of changes in either the types and costs of facilities and other projects financed by General Obligation Bonds or changes in the speed at which authorized bonds are issued.

There do not appear to be any federal regulatory changes that might lead to an acceleration of general obligation debt issuances. Regulatory actions are from time to time announced or proposed and litigation is threatened or commenced which, if implemented or concluded in a particular manner, could adversely affect the market value of the Bonds. It cannot be predicted whether any such regulatory action will be implemented, how any particular litigation or judicial action will be resolved, or whether the Bonds or the market value thereof would be impacted thereby. Therefore, we have not considered this to be a risk to our interest rate assumptions.

Changes in the types and costs of facilities do not necessarily affect total authorizations but may lead to a re-allocation of resources. The Committee's recommendations are made in terms of a total dollar amount of bonds, not in specific capital projects. Changes in construction costs, the availability of PAYGO funding, the need for unanticipated new projects, changes in federal tax laws, and a host of other variables influence both the need for General Obligation Bonds and the share of the total allocation allotted to each use. Such changes affect which assets can be acquired within a specific dollar amount of the program. These changes by themselves, however, affect neither the dollar amount of the Committee's assumed authorizations nor the affordability ratios. Therefore, without General Assembly action to alter the total dollars to be authorized in the plan, there is no affordability risk resulting from such changes within the general obligation plan.

While some currently authorized projects will be abandoned or completed for less than authorized, it is assumed that any such amounts will be reallocated to other approved projects through the legislative process. Although some authorizations may ultimately be cancelled, the amount of such cancellations has historically been immaterial to the analysis.

Changes in the timing of issuance of authorized bonds, however, may affect the affordability criteria. Bonds authorized at a General Assembly session are not immediately issued. In fact, just over half of the bonds authorized each year are typically issued within the ensuing two fiscal years and the remaining issuances occur over the next three years. The bonds are sold over an extended period of time as the projects are developed and cash is required for payment. Consequently, the impact of a change in any year's debt authorizations affects issuances over time and impacts debt outstanding with a substantial lag.

Schedule B-1, Proposed General Obligation Authorizations and Estimated Issuances converts the recommended levels of new General Obligation Bond authorizations into a projected level of annual issuances; it is assumed that all authorized debt will be issued. In addition to projecting issuances at prescribed levels, the State Treasurer’s Office monitors the disbursement of bond proceeds and has adjusted issuance amounts as necessary. Any systematic change altering the speed of bond issuance would impact the amounts of debt outstanding and debt service and consequently affect both of the affordability ratios. The Committee reviewed the issuance projections for the 2018 Report in light of the pattern of recent authorizations and issuances. The following chart compares projected issuances, in CDAC Reports from 2011 to 2018, to actual issuances.

Projected Issuances in CDAC Reports
($ millions)

CDAC Report	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
2011 Projection	935	930	940	1,020	1,100
2012 Projection	995	1,014	1,068	1,125	1,164
2013 Projection	1,018	1,056	1,125	1,193	1,239
2014 Projection	1,018	1,056	1,125	1,193	1,239
2015 Projection		1,018	1,036	1,035	1,014
2016 Projection			568	1,075	1,050
2017 Projection				1,025	1,015
2018 Projection					1,000
Actual Issuance	1,018	1,541	675	1,075	-

Project cash flows as well as market conditions can explain some of the differences between projections and issuances in a specific fiscal year; however, authorization increases greater than previously projected are likely to have a greater impact. A history of projected authorizations is depicted in the following chart. The chart also illustrates the decline in projected authorizations in fiscal years 2012 and 2013 due to the recession’s impacts.

Projected General Assembly Authorizations ($ millions)								
CDAC Report	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**
2018								995
2017							995	995
2016						995	995	995
2015					995	995	995	995
2014				1,170	1,180	1,275	1,315	1,355
2013			1,160	1,170	1,180	1,275	1,315	1,280
2012		1,085	1,095	1,105	1,200	1,240	1,280	1,320
2011	925	1,075[1]	945	955	1,200	1,240	1,280	1,320

[1] The conditional recommendation of $935 million made September 2011 was revised to $1,075 million in December.

There was an acceleration of issuance in calendar year 2010 to provide sufficient proceeds for projects like the ICC which had construction underway, to take advantage of historically low interest rates and to keep the cash flow of bond proceeds positive and minimize liquidity pressures on the State's cash accounts. Future substantial acceleration of the issuances of General Obligation Bonds appears unlikely at this time. The current amount of authorizations that are unissued appears reasonable and the amount of bond issuances appears sufficient to meet projected cash flows.

Changes in the Bond Issuance – Other Components of State Tax-Supported Debt

Changes in the bond issuance plans for other issuers of tax-supported debt may include the expansion of existing programs or the creation of a new debt financing program. In the past, significant new debt has factored into the affordability analysis that had not been accounted for or contemplated in the prior years' report. The impact of previously unplanned debt on the affordability ratios and process resulted in the Committee's recommendation in the 2011 Report that the Administration coordinate the issuance plans for all issuers of tax-supported debt. The Committee has recommended an aggregate total of $1,626.0 million in new issuances in fiscal year 2020. The changes in the issuance plans of other components of tax-supported debt also appear to pose limited risk at this time.

Planned New Tax-Supported Issues for Fiscal Year 2020 (millions)	
General Obligation Bonds	$995.0
Maryland Department of Transportation	590.0
Capital Leases	19.6
GARVEEs	0.0
Maryland Stadium Authority	21.4
Bay Restoration Fund	0.0
Total	**$1.626.0**

Conclusion

In light of the assumptions and risks noted above, the Committee believes that the variables that factor into the affordability analysis have been estimated prudently and conservatively in many cases. The most noteworthy risk appears to be economic uncertainty and the potential impact on personal income and revenues. Because the affordability ratio for debt service to revenues near the 8.0% benchmark during the forecast period, any variation to the assumptions for revenues, interest rates, and projected activity in tax-supported debt issuance may have a direct impact on future tax- supported authorizations and issuances.

Based on the assumptions outlined in this report, the Committee’s recommendation of $995 million for the 2019 legislative session and fiscal year 2020 capital program remains within the debt affordability criteria. The Committee’s adopted planning assumptions project maintaining the authorization amount at $995 million in future fiscal years. With these authorization levels, the debt affordability ratios remain within the CDAC benchmarks of 4% debt outstanding to personal income and 8% debt service to revenues. The affordability analysis presented in this report indicates that the Committee’s projection of General Obligation Bond authorizations will continue to be affordable (within debt guidelines) going into the future.

VI. PUBLIC-PRIVATE PARTNERSHIPS

Chapter 5 of the Laws of 2013 modified the process for establishing public-private partnerships (P3s) and associated reporting requirements. The Board of Public Works (BPW) approval is required at critical project milestones including approval of a P3 solicitation method and a final agreement. The law also provides that the BPW may not approve a P3 that results in the State exceeding its debt affordability guidelines.

The legislation specified that a project's debt affordability impact be assessed at two intervals prior to a P3 agreement being signed. The reporting agency must include a preliminary analysis on debt affordability, done in consultation with the Department of Budget and Management, in the pre-solicitation report for a P3 project. Prior to BPW approval of a P3 agreement, the Treasurer, in coordination with the Comptroller, analyzes the impact of the P3 project on the State's capital debt affordability limits. The annual CDAC report must also include an analysis of the aggregate impact of P3 agreements on the total amount of new State debt that may prudently be authorized for the next fiscal year.

Section §8-104 of the State Finance and Procurement ("SF&P") Article defines tax-supported debt as "State debt…and debt of the Department of Transportation, the Maryland Stadium Authority, and other units of State government which, in the opinion of the Committee, are supported directly or indirectly by State tax revenues." In past determinations on questions of whether specific projects might result in tax-supported debt, the CDAC has relied upon a review of financial documents and, when necessary, sought guidance from additional sources, including: (1) the Comptroller's Office, advised by the State's independent auditor, regarding whether an agreement was considered debt from an accounting perspective; and (2) the Office of the Attorney General regarding applicable legal precedent in relation to the direct or indirect use of State tax revenues.

In addition, SF&P §8-112 also directs the CDAC, in making its annual estimate of the total amount of new State debt that may prudently be authorized for the next fiscal year, to consider "the criteria that recognized bond rating agencies use to judge the quality of issues of State bonds." The rating agencies have recently released details on how P3 obligations will be factored into the State's net tax-supported debt calculations.

On March 2, 2016, the Maryland Department of Transportation (MDOT) announced it had selected Purple Line Transit Partners as the concessionaire for the Purple Line Light Rail Transit Project, the State's first P3 to fall under the framework established by Chapter 5 of the 2013 Laws of Maryland. The State Treasurer's Office received an executed version of the P3 Agreement between MDOT and Purple Line Transit Partners LLC on March 4, 2016, which it analyzed in coordination with the Comptroller as required by law. The analysis concluded that none of the payments included in the Agreement should count as State tax-supported debt that would impact the State's capital debt affordability limits. The analysis noted that this conclusion only applied to the State's CDAC process and that the rating agencies would make their own determinations. The full analysis may be found on the Treasurer's website at: http://treasurer.state.md.us/media/87631/purple_line_report_4_3final_report.pdf

HIGHER EDUCATION DEBT

A. Background

Title 19 of The Education Article (the “Statute”), establishes the revenue bonding framework and authority of the University System of Maryland (“USM”), Morgan State University (“MSU”), St. Mary's College of Maryland (“SMCM”) and Baltimore City Community College (“BCCC”). The Committee is assigned certain duties relevant to higher education debt, as described below.

The Statute provides a framework for the issuance of higher education debt. Specifically, the Statute distinguishes between auxiliary facilities (which generate fees or income arising from the use of the facility) and academic facilities (which are primarily instructional, but can include any facilities not defined as auxiliary). The statute also authorizes institutions to issue bonds to finance either auxiliary or academic facilities (maximum terms of 33 and 21 years, respectively) with the stipulation that any academic facilities so financed must first be expressly approved by an act of the General Assembly as to both project and amount.

Furthermore, the Statute specifies fund sources that can be pledged as security as well as those that can be used for debt service payments. Specifically available to be pledged as security are auxiliary fees (fees and rents arising from the use of the auxiliary facility) and academic fees (tuition and student fees). The systems specifically cannot pledge: (1) a State appropriation; (2) contracts, grants, or gifts; or (3) any other source not expressly authorized by the General Assembly. Debt service on bonds is payable solely from auxiliary fees, academic fees, a State appropriation expressly authorized for that purpose, or revenues from contracts, gifts, or grants, as appropriate.

B. CDAC Duties

The Committee is directed to:

1. "…review on a continuing basis the size and condition of any debt of the University System of Maryland, Morgan State University, St. Mary's College of Maryland, and Baltimore City Community College;"

2. "In preparing an estimate with respect to the authorization of any new State debt” [i.e., general obligation debt] to "take into account as part of the affordability analysis any debt for academic facilities to be issued by a System;" and

3. “…submit to the Governor and the General Assembly the Committee's estimate of the amount of new bonds for academic facilities that may prudently be authorized in the aggregate for the next fiscal year by the University System of Maryland, Morgan State University, St. Mary's College of Maryland, and the Baltimore City Community College."

To satisfy the Committee’s responsibilities in these area representatives from all four institutions presented debt information to the Committee at its September 12, 2018 meeting. A summary of the information presented and the committee’s consideration of higher education debt is discussed in the sections below.

C. Size and Condition of Higher Education Debt

University System of Maryland ("USM")

Bond Activity

Since 1989, the General Assembly has authorized bonds totaling $965.0 million for various academic facilities for USM. Of this amount, $17.0 million was authorized by the 2018 General Assembly for academic facilities (Chapter 553, Laws of Maryland, 2018).

In fiscal year 2018, USM issued $115,000,000 in new debt. USM reports its bond debt outstanding at $1,186,800,395 (at par value) at June 30, 2018. USM has no revolving loan program bonds and has not used interest rate exchange agreements or guaranteed investment contracts. Projected issuances through fiscal year 2024 are shown in ***Table 4***.

The bonds are rated as follows: Fitch, AA+; S&P, AA+; and Moody's, Aa1. All ratings have a stable outlook. USM credit strengths include strong state operating and capital support, sound financial operations and a large, diverse revenue base. Credit challenges noted by the rating agencies include potential increased nationwide competition for high school graduates and State budget pressure. According to a 2015 report, Moody's median rating for 211 public universities is A1.

Other Debt and Capital Lease Activity

USM has $29,700,395 of Other Debt and Capital Lease Obligations outstanding as of June 30, 2018. ***Section II D***, ***Lease and Conditional Purchase Financings***, in this 2018 CDAC Report lists the energy leases, including those for the University System, that are not included in the CDAC affordability analysis because the annual guaranteed savings equals or exceeds the annual debt service on the leases.

Debt Management Policy

The USM debt management policy outlines criteria to protect bond ratings, interest rate management strategies, definitions of all types of debt and its impact on debt capacity and a process to assess a project's impact on debt capacity. The policy was revised in April 2018 to reflect the current planning metrics used by USM. The policy requires that debt be managed so that:

1. Debt service that does not exceed 4.0% of operating revenues plus State Appropriations; and

2. Available resources must be at least 90% of direct debt, adjusted for outstanding commitments, both cash and debt-funded

Table 4 shows that debt service is expected to be 3.00% of operating revenues plus State appropriations in fiscal year 2018 and projects compliance with the debt policy standard through 2023. Available resources include net assets of USM and its affiliated foundations with adjustments for certain long term liabilities. An analysis of the ratio of available resources to debt outstanding follows. The table includes actual data for fiscal years 2014 through 2017 and estimates for fiscal years 2018 and 2019.

University System Maryland Ratio of Available Resources to Debt Outstanding			
($ millions)			
Fiscal Year	Available Resources adjusted for claims*	Debt Outstanding plus commitments*	Ratios of Available Resources to Debt Outstanding*
2014	$1,581	$1,428	111%
2015	$1,439	$1,470	98%
2016	$1,639	$1,464	112%
2017	$1,738	$1,466	119%
2018(Proj.)	$1,940	$1,474	132%
2019(Est.)	$1,999	$1,498	133%

*Reflects audited financial statement amounts for unrestricted fund balances and debt outstanding, adjusted for unspent commitments.

St. Mary's College of Maryland ("SMCM")

Bond Activity

As of June 30, 2018, SMCM had a total of $29.3 million in revenue bonds outstanding. Moody's underlying rating for SMCM debt is A2 with a negative outlook as of the most recent update in May 2018. SMCM does not have any interest rate exchange agreements or guaranteed investment contracts. In 2018, SMCM issued $18.7 million in the 2018 Series A Academic Fees and Auxiliary Fees Refunding Revenue Bonds to currently refund all remaining outstanding maturities of the College's 2005 Series A, 2006 Series A, 2014 Series A and the 2018 maturity of the 2012 Series A bonds. The 2018 issue is insured by Build America Mutual (BAM) and the 2012 refunding issue is uninsured.

Lease Activity

There is a capital lease through the State Treasurer's Office with a remaining balance of $0.4 million related to an energy performance contract. ***Section II D, Lease and Conditional Purchase Financings***, in this 2016 CDAC Report lists the SMCM energy lease that is included in the CDAC affordability analysis because the annual guaranteed savings do not equal or exceed the annual debt service on the lease. For this particular project the desired savings were realized however it was later decided to discontinue the guarantee as it was no longer cost effective.

Morgan State University ("MSU")

Bond Activity

As of July 5, 2018, MSU bonds are currently rated A+ by S&P and rated A1 with a stable outlook by Moody's. Revenue bonds outstanding total $31.2 million as of June 30, 2018. MSU is in the process of issuing $28 million in bonds to build new student housing and a new public safety facility and does not have any interest rate exchange agreements, variable rate bonds or guaranteed investment contracts nor are any of their bonds insured.

Lease Activity

MSU has capital leases it has entered into utilizing the State Treasurer's Office Capital Equipment Lease-Purchase Program for financing facilities and technology equipment and it has also entered into other capital leases independently. As of June 30, 2018, $15.3 million in debt outstanding remained for all of its capital leases.

Baltimore City Community College ("BCCC")

Bond Activity

In 2009 the General Assembly increased the total amount of debt authorized for BCCC from $15.0 million to $65.0 million and expanded the authorization to include academic as well as auxiliary facilities. BCCC has no bonds outstanding and has no plans to issue bonds in fiscal year 2018. BCCC is currently re-examining the feasibility of various projects that might be funded by the issuance of academic and/or auxiliary bonds or capital leases in the next ten years. The college is focusing its efforts on finding solutions which serve the students and community and which align with the mission of the College.

Lease Activity
BCCC has $0.8 million in capital leases outstanding as of June 30, 2018.

D. Incorporating Higher Education Academic Debt into the Affordability Analysis

The statutory language of the Committee's charge states: "In preparing an estimate with respect to the authorization of any new State debt [i.e., general obligation debt], the Committee shall take into account as part of the affordability analysis any debt for academic facilities to be issued by a system." This language, however, is not explicit regarding the meaning of "take into account."

The statute does not direct, nor has the Committee elected to include higher education debt as a component of State tax-supported debt for purposes of the capacity criteria or affordability analysis. Consequently, the Committee's recommendations relating to new authorizations of general obligation debt and higher education academic debt are made independently for the following reasons.

1. The rating agencies do not consider debt issued by institutions of higher education as State tax-supported debt. The debt of the systems, either currently outstanding or related to future issuances, is not included by the rating agencies in determining the rating of the State's General Obligation Bonds.

2. Both the statutory structure of higher education debt and the current budgetary policies related to higher education debt underscore the separation of higher education debt and tax-supported debt. The Statute provides that higher education debt may not be secured by a pledge of the issuer's general fund appropriation. The Statute further provides that no general funds may be used to pay debt service unless specifically authorized in the budget.

3. The revenue sources that secure the bonds are under the direct control of the systems and not directly subject to the approval of either the Governor or the General Assembly.

The Committee believes that its analysis, discussions, and deliberations of higher education debt levels, capacity, and needs address the legislative intent to take into account higher education academic debt.

E. 2018 Recommended Authorization for Higher Education Academic Debt

The Committee's charge is to submit an "estimate of the amount of new bonds for academic facilities that may prudently be authorized in the aggregate for the next fiscal year by University System Maryland, Morgan State University, St. Mary's College of Maryland and the Baltimore City Community College." This charge, therefore, requires the Committee to distinguish between burdens imposed by academic debt and those imposed by auxiliary debt in arriving at a recommendation for academic debt alone. From a credit analyst's point of view, however, the aggregate level of a system's debt iscritical.

One approach to determining a prudent amount of new academic debt to be authorized is to start with the aggregate level of debt that each system anticipates issuing. If it is estimated that the level of debt is prudent over time, then it is reasonable for the Committee to accept the aggregate total and also to accept the breakdown between academic and auxiliary as proposed by the System.

The guidelines initially adopted by the Committee to judge debt manageability are those contained in the rating methodology used by one of the major rating agencies. Five of the factors S&P uses to rate a public institution's debt (over a time frame of several years) are: (1) the rating of the State; (2) the State's general financial support for higher education as a whole; (3) the State's financial support for the particular institution; (4) the institution's demand and financial factors; and (5) the security pledge. The first, second, and fifth factors are the same for all four systems. All systems benefit from the State's AAA rating; all are part of public higher education in Maryland; and all can offer the same types of security.

S&P's third factor looks at the trends in State appropriations to the four systems. The fourth factor, the institution's demand and financial factors, encompasses a host of data dealing with the student body, financial performance, and components ofdebt.

Table 4 displays information on the debt of each of the four higher education systems, compliance with statutory limitations, and financial performance.

1. Legislation limits the aggregate principal amount of revenue bonds outstanding and the present value of capital lease payments, less the amount of any reserves established therefore, for both academic and auxiliary facilities. The current statutory limits are $1,400.0 million for USM, $88.0 million for MSU, $60.0 million for SMCM, and $65.0 million for BCCC. All four higher education systems are within the statutory limits as of June 30, 2018.
2. A key measurement of financial performance frequently used by credit analysts is debt burden; that is, debt service as a percent of operating revenues plus State appropriations. For USM, debt is managed so that the ratio does not exceed 4.5% which is the limit established in the USM debt policy.

For purposes of this analysis and for the CDAC recommendation, the relevant measure is debt burden. As can be seen from the final column in ***Table 4***, for USM its debt issuance plan would result in a debt burden level well below the 4.5% maximum mandated by USM's debt management policy.

TABLE 4

HIGHER EDUCATION DEBT

($ in thousands)

	Projected Issuances		Debt Outstanding as of June 30		Debt Service for Fiscal Year				
Fiscal Year	Auxiliary	Academic	Bonds	Leases	Bonds	Leases	Total Debt Service	Revenues (see note)	Ratio of Debt Service to Revenues
University System Of Maryland									
2018	$83,000	$32,000	$1,254,140	$64,145	$137,733	$8,850	$146,583	$4,906,877	2.99%
2019	$93,000	$22,000	$1,179,210	$23,113	$143,243	$5,345	$148,588	$4,929,238	3.01%
2020	$83,000	$32,000	$1,200,659	$18,340	$136,416	$5,651	$142,067	$5,027,823	2.83%
2021	$83,000	$32,000	$1,221,869	$13,806	$139,491	$5,113	$144,604	$5,128,380	2.82%
2022	$83,000	$32,000	$1,242,820	$9,530	$139,772	$4,751	$144,523	$5,230,948	2.76%
2023	$83,000	$32,000	$1,262,293	$6,733	$133,721	$4,390	$138,111	$5,335,567	2.59%
2024	$83,000	$32,000	$1,281,809	$3,892	$138,444	$2,886	$141,330	$5,442,278	2.60%
Morgan State University									
2018	$0	$0	$31,185	$15,280	$5,818	$2,514	$8,332	$204,057	4.08%
2019	$0	$0	$26,985	$13,203	$5,815	$2,514	$8,329	$210,057	3.96%
2020	$0	$0	$22,565	$11,064	$5,800	$2,514	$8,314	$216,557	3.84%
2021	$0	$0	$17,925	$9,038	$2,691	$2,336	$5,027	$223,557	2.25%
2022	$0	$0	$16,130	$7,131	$2,217	$2,159	$4,376	$229,557	1.91%
2023	$0	$0	$14,720	$5,167	$1,959	$2,159	$4,065	$235,557	1.73%
2024	$0	$0	$14,720	$3,146	$730	$2,159	$4,065	$241,557	1.68%
St. Mary's College of Maryland									
2018	$0	$0	$31,390	$577	$3,311	$205	$3,516	$64,059	5.49%
2019	$0	$0	$29,254	$392	$3,795	$205	$4,000	$65,660	6.09%
2020	$0	$0	$25,959	$199	$2,318	$205	$2,523	$67,302	3.75%
2021	$0	$0	$24,340	$0	$3,054	$205	$3,054	$68,985	4.43%
2022	$0	$0	$22,135	$0	$3,044	$0	$3,044	$70,709	4.30%
2023	$0	$0	$19,865	$0	$3,019	$0	$3,019	$72,477	4.17%
2024	$0	$0	$17,535	$0	$3,014	$0	$3,014	$74,289	4.06%
Baltimore City Community College									
2018	$0	$0	$0	$781	$0	$99	$99	$74,109	0.12%
2019	$0	$0	$0	$731	$0	$99	$99	$84,895	0.12%
2020	$0	$0	$0	$678	$0	$99	$99	$84,546	0.12%
2021	$0	$0	$0	$622	$0	$99	$99	$87,156	0.12%
2022	$0	$0	$0	$561	$0	$99	$99	$90,174	0.11%
2023	$0	$0	$0	$497	$0	$99	$99	$93,330	0.11%
2024	$0	$0	$0	$428	$0	$99	$99	$96,597	0.10%

Note: Revenues include operating Revenues plus State appropriations.

CDAC has concluded that the overall level of debt is prudent over time and therefore recommends a limit of $34.0 million for new academic facilities bonds for the University System of Maryland for fiscal year 2020. Morgan State University, St. Mary's College of Maryland and Baltimore City Community College do not propose to issue bonds for academic facilities in fiscal year 2019.

VII. APPENDICES

Appendix A: History of the Capital Debt Affordability Committee

Duties

The creation of the Capital Debt Affordability Committee was an outgrowth of two events: the dramatic increase in outstanding debt during the mid-1970's due to the creation of the State's school construction program and the release in June 1974 of the Department of Legislative Services' two year study on the State's debt picture, titled "An Analysis and Evaluation of the State of Maryland's Long-Term Debt: 1958 - 1988." In response to this study and the rising level of State debt, the 1978 General Assembly enacted the current SF&P §8-104, *et seq*., which created the Committee and Capital Debt Affordability process.

The 1989 General Assembly further expanded the Committee's charge as part of legislation relating to higher education debt (Chapter 93, Laws of Maryland, 1989). The statute requires the Committee to review on a continuing basis the size and condition of any debt of the University System of Maryland, Morgan State University, and St. Mary's College of Maryland; take any debt issued for academic facilities into account as part of the Committee's affordability analysis with respect to the estimate of new authorizations of general obligation debt; and, finally, to submit to the Governor and the General Assembly an estimate of the amount of new bonds for academic facilities that may prudently be authorized in the aggregate for the next fiscal year by the University System of Maryland, Morgan State University, and St. Mary's College of Maryland. The 1994 General Assembly added Baltimore City Community College to the list of higher education institutions that the Committee reviews and the 2009 General Assembly expanded the debt authorization for Baltimore City Community College to academic as well as auxiliary facilities.

The 2004 General Assembly added to the duties of the Committee in Public School Facilities Act of 2004 (Chapters 306, 307, Laws of Maryland, 2004, uncodified Section 11), in which it directed the Committee to annually "review the additional school construction funding needs as identified in the 2004 Task Force to Study Public School Facilities report and … make a specific recommendation regarding additional funding for school construction when recommending the State's annual debt limit." The statute also directed that the Committee "include a multiyear funding recommendation that will provide stability in the annual funding for school construction." The 2009 General Assembly repealed this requirement that the Committee annually review the school construction needs and make a specific recommendation regarding additional funding (Chapter 485, Laws of Maryland 2009).

Chapter 641 of the Laws of 2010 requires the CDAC to analyze and report on the aggregate impact of Public-Private Partnership agreements on the total amount of new State debt that may prudently be authorized for the next fiscal year.

Membership

Since 1979, the members have been the State Treasurer (Chair), the Comptroller, the Secretaries of Budget and Management and Transportation, and one public member appointed by the Governor. Chapter 445, Laws of Maryland, 2005 expanded the membership of the Committee with the addition of the Chair of the Capital Budget Subcommittee of the Senate Budget and Taxation Committee and the Chair of the Capital Budget Subcommittee of the House Committee on Appropriations as non-voting *ex officio* members.

Definition of Tax-Supported Debt

In addition to the duties previously noted, the Committee has generally reviewed other types of public debt issued by State or State-created authorities or agencies. In keeping with a narrow interpretation of its statutory charge, the Committee's efforts through 1986 focused mainly on bringing the State's general obligation debt in line with certain parameters. In 1987, however, the Committee began to adopt a more comprehensive view of State debt that included all tax- supported debt in addition to general obligation debt.

This broader view was adopted in recognition of the fact that the rating agencies and investment community take a more comprehensive view of a state's debt when analyzing that state's obligations. Discussions with rating analysts over several years indicated that analysts were interested in all tax-supported debt. Summaries of rating agency reports indicated that the measure of debt used was "net tax-supported debt" - the sum of general obligation debt, consolidated and county transportation debt (net of sinking funds), capital lease commitments, and tax or bond anticipation notes.

The more comprehensive view of debt also recognized that other forms of long-term commitments were becoming more common. Capital leases, particularly lease purchase obligations, were more visible, if not more widely used. The bonds issued by the Maryland Stadium Authority for the Baltimore stadiums are supported by lease arrangements; the State had consolidated a significant amount of equipment lease obligations; and the Motor Vehicle Administration was using the capital lease method for expanding or relocating its service center network. Although these leases do not represent debt in the constitutional sense, any default on these leases would be viewed by the market as similar to a default on State bonds. This broader view was ultimately codified and included in the Committee's statutory charge by Chapter 241, Laws of Maryland, 1989.

The Committee considered in 2004 the question of whether Bay Restoration Bonds constitute a new component of State tax-supported debt for purposes of debt affordability calculations. The Bay restoration fee is applied broadly across the State and is not directly tied to the use of a specific water treatment plants. There is a consensus among counsel that the maturity of the bonds must be limited to 15 years, the maximum for “State debt.” As a result, the Committee concluded that the Bay Restoration Bonds are State tax-supported debt.

The 2005 General Assembly expanded the scope of what the Committee considers in Chapters 471, 472, Laws of Maryland, 2005, by explicitly recognizing debt issued by the Maryland Department of Transportation (“MDOT”) under Title 4, Subtitle 6 of the Transportation Article, or by the Maryland Transportation Authority (“MTA”) under Title 4, Subtitle 3 of that Article, when “secured by a pledge of future federal aid from any source” (e.g., GARVEE Bonds) as “tax-supported debt.” Thus, this type of debt must be taken into account both in the annual authorization recommendation and in consideration of the amount of tax-supported debt.

It is useful to note that the bond rating agencies are not uniform in their treatment of the federal-revenue backed debt when assessing the State’s situation. Two of the agencies do include GARVEEs as tax-supported debt outstanding; the remaining agency considers it a “gray area” and would not include them as long as the bonds are “stand alone,” that is, not backed by the State’s full faith and credit. All three agencies also noted that to the extent the State includes GARVEEs as tax supported, it would be appropriate to include the supporting federal revenue stream that backs the bonds when considering the debt service affordability criterion of 8.0% of State revenues. Further, one of the two bond rating agencies that include GARVEEs as tax-supported debt stated that they did so for their own analytic purposes, but would accept and understand if a State did otherwise for affordability determination purposes.

In accordance with SF&P §8-104(c), leases are considered tax-supported debt when the lease or unit of State government is "supported directly or indirectly by State tax revenues". However, SF&P §8-104 was amended in the 2011 Session by Chapter 163 of the 2011 Laws of Maryland. Effective June 1, 2011, tax supported debt does not include capital leases used to finance energy performance contracts if, as determined by the committee, energy savings that are guaranteed by the contractor:

(i) equal or exceed the capital lease payments on an annual basis; and

(ii) are monitored in accordance with reporting requirements adopted by the Committee.

History of Debt Affordability Criteria

Based upon an analysis of available material and consultation with a number of financial experts, the following affordability criteria were developed by the Committee in 1979:

- Outstanding debt should be no more than 3.2% of State personal income;
- Adjusted debt service should be no more than 8.0% of State revenues; and
- New authorizations should be kept in the range of redemptions of existing debt over the near term.

These criteria were adopted by the Committee solely for the analysis of general obligation debt.

Criteria 1 and 2 represented traditional measures and criterion 3 reflected a discretionary policy position that the State should "get out of debt." The Committee at that time declared that, given the high debt level of the mid-late 1970's, the first two criteria were goals to be achieved over time, and the final criterion became controlling over the short term.

In 1987, while retaining the first and second criteria for evaluating the expanded definition of debt and debt service, the Committee concluded that the third criterion was no longer an applicable guideline. The basis for its conclusion was threefold. First, the high ratings of the State's General Obligation and Transportation Bonds indicated that the existing level of debt and the planned increases were acceptable to the rating agencies. Second, pressing legislative and executive commitments required an increase in the level of bonded debt to finance needed transportation and other projects. Third, adherence to the criterion tied yearly authorizations to events of 15 years before, thereby producing highly variable bond authorizations inconsistent with either good debt management or a stable capital program.

In 1988, a detailed survey of credit analysts was undertaken to obtain their views on the Committee's comprehensive approach to reviewing debt and to the criteria the Committee had been using for 10 years. The survey affirmed the Committee's decision to take an expanded view of debt. In addition, criteria 1 and 2 were almost universally approved. This position was reinforced in discussion with investment banks and bond rating agencies in July 2005. Indeed, the rating agencies have repeatedly cited the Capital Debt Affordability process and criteria as major reasons for awarding Maryland AAA status.

The 2007 Capital Debt Affordability Committee Report (Section VII) documented the Committee's review of its affordability criteria, initiated at the request of the General Assembly. The Committee concluded the 2007 Report with a recommendation for the continued study and evaluation of the criteria in 2008. That recommendation was followed and, after thorough analysis by the Committee and staff, and following consultation with the rating agencies and the State's financial advisor, the Committee voted to retain the 8.0% debt service to revenues criterion and to change the debt outstanding to personal income criterion from 3.2% to 4.0%. A complete report of the process undertaken by the Committee to change the criterion is in Section V of the Report of the CDAC on Recommended Debt Authorizations for Fiscal Year 2009.

In 2008, as part of the 2007 and 2008 review of variables incorporated in the affordability criteria, the Committee standardized the calculation of revenues for all components of tax- supported debt. Beginning in the 2008 analysis, revenues for GARVEE Bonds and Bay Restoration Bonds are no longer limited to their respective debt service as had been the prior practice. Revenues for GARVEE Bonds and Bay Restoration Bonds include all federal capital highway revenues and bay restoration fees respectively. This adjustment matches the convention that has been used by CDAC for all other tax-supported debt. For instance, debt service on General Obligation Bonds is measured using all available revenues from the general fund, bond premiums and real property taxes and revenues were not restricted solely to debt service on General Obligation ("G.O.") Bonds.

Actual affordability ratios for 1980 through 2018 are in ***Schedule C-2***.

History of Authorizations

In its 1992 report, while reaffirming its belief in the theories underlying its prior recommendations, the Committee recommended that the six-year program originally recommended in 1988 be reduced, due principally to the severe national and state economic downturn. The 1992 recommendation acknowledged that the persistent recession had depressed the levels of personal income and that the structural changes in Maryland's economy would deter near term resumption of the State's rapid growth in personal income. The 1992 program also recognized that, while there had been no abatement in the population growth and need for services, cost inflation and, therefore, total need had been lower than originally projected in the years between 1988 and 1991. Considering all of these factors, the Committee recommended limiting authorization increases to 3% based at that time on the prevailing inflation rate plus 1%. In earlier years, the recommended out-year increases had varied between 3-5%, usually incorporating some estimate of inflation plus need.

In the years between 1993 and 2002, the State's economy and personal income recovered significantly but, due to the availability of general PAYGO funds, the guideline increase of 3% was generally observed and incorporated in future year projections. As debt authorizations grew at a slower rate than personal income, the level of "unused" debt capacity increased. Between 2002 and 2008, the inclusion of Bay Restoration Bonds and GARVEEs as State tax-supported debt and the increases in the authorizations of General Obligation Bonds absorbed virtually all of the previously unused debt capacity. The recommendations for General Obligation Bond authorizations in 2006, 2007, 2008 and 2009 were over the amount that would have been recommended had the 3.0% growth rate been maintained. In 2006 and 2007, the $100 million increases extended to future years. In 2008 and 2009, $150 million was projected as a one-time increase for each year.

In 2010, CDAC recommended an authorization of $925.0 million which was $215.0 million below the 2009 CDAC recommendation. The 2010 Committee also adjusted future authorization levels to remain within the CDAC self-imposed affordability benchmarks. These future levels were essentially unchanged in the 2011 CDAC Report. In December 2011, the CDAC increased its original recommendation by $150 million. In October 2014, at the request of the Secretary of the Department of Budget and Management, the CDAC increased the authorization recommendation by $75 million to address the growing project backlog. The out-year assumptions were also increased by $75 million through fiscal year 2020. In October 2015, at the request of the Secretary of the Department of Budget and Management, the Committee reduced the authorization from the 2014 CDAC planned amount of $1,180 million to $995 million, a reduction of $185 million. The $995 million authorization was carried forward in future fiscal years at the Secretary of the Department of Budget and Management's request.

For a history of recent authorizations and issuances, see Section V of the 2017 CDAC Report, "***Changes in Bond Issuance – General Obligation Bonds"*** for further discussion.

Appendix B: History of Maryland Stadium Authority ("MSA") Financings

Oriole Park at Camden Yards - Bonds. Currently the MSA operates Oriole Park at Camden Yards, which opened in 1992. In connection with the construction of that facility, MSA issued $155.0 million in notes and bonds. In October 1993, MSA entered into an agreement to implement a synthetic fixed rate refinancing of the sports facility bonds using a combination of variable rate refunding obligations and forward interest rate exchange agreements. As provided under the agreements, savings of $15.5 million was paid to MSA on April 1, 1996. In accordance with this agreement and in consideration for the prior payment of the savings, MSA issued its $17.9 million Sports Facilities Lease Revenue Refunding Bonds in Series 1998A in December 1998 to refund its outstanding Sports Facility Lease Revenue Bonds Series 1989C, and issued its $121.0 million Sports Facilities Lease Revenue Refunding Bonds Series 1999 in December 1999 to refund its Sports Facilities Lease Revenue Bonds Series 1989D.

In December 2011, MSA terminated the 1998 synthetic fixed rate refinancing with AIG Financial Products ("AIG-FP"), which required payment of a termination fee in the amount of $19.7 million. The variable rate debt associated with the synthetic fixed rate refinancing was called and replaced with the Sports Facilities Lease Revenue Refunding Bonds Series 2011A Bonds in the amount of $31.4 million. The federally taxable proceeds of the Series 2011A Bonds were used to defease the Series 1998A Bonds, and to pay the termination fee due to AIG-FP, underwriter's costs and issuance costs. MSA also issued the Sports Facilities Lease Revenue Refunding Bonds Series 2011B in the amount of $62.9 million, whose tax-exempt proceeds and premium of $7.7 million were used to defease the Series 1999 Bonds. The amounts outstanding as of June 30, 2018, are $8.4 million for the Series 2011A Bonds and $17.6 million for the Series 2011B Bonds.

MSA's notes and bonds are lease-backed revenue obligations, the payment of which is secured by, among other things, an assignment of revenues received under a lease of Oriole Park at Camden Yards from MSA to the State. The rental payments due from the State under that lease are subject to annual appropriation by the General Assembly. Revenues to fund the lease payments are generated from a variety of sources, including in each year lottery revenues, the net operating revenues of MSA, and $1.0 million from the City of Baltimore.

In April 2010, MSA issued the Sports Facilities Taxable Revenue Bonds, Series 2010 Bonds, in the amount of $10.0 million. The proceeds were used for capital repairs to Oriole Park at Camden Yards located at the Camden Yards Complex. The Series 2010 Bonds matured on December 15, 2013. In December 2013, MSA issued the Sports Facilities Taxable Revenue Bonds, Series 2013, in the amount of $8.7 million. The proceeds were used to refinance the Sports Facilities Taxable Revenue Bonds, Series 2010. The Series 2013 bonds will mature on December 15, 2023. The amount outstanding as of June 30, 2018, totaled $5.5 million. MSA's share of lottery revenues are pledged for these bonds, therefore they are not considered tax-supported debt and not included in the CDAC affordability analysis.

In August 2011, MSA issued the Sports Facilities Taxable Revenue Bonds, Series 2011 Bonds, in the amount of $11.1 million. The proceeds were used for capital repairs to the warehouse located at the Camden Yards Complex. The Series 2011 Bonds matured on December 15, 2014. In December 2014, MSA issued the Sports Facilities Taxable Revenue Bonds, Series 2014, in the amount of $9.6 million. The proceeds were used to refinance the Sports Facilities Taxable Revenue Bonds, Series 2011. The Series 2014 bonds will mature on December 15, 2024. The amount outstanding as of June 30, 2018, totaled $7.0 million. MSA's share of lottery revenues are pledged for these bonds; therefore they are not considered tax-supported debt and not included in the CDAC affordability analysis.

Oriole Park at Camden Yards - Leases. In early 2007, the Baltimore Orioles filed for arbitration over the selection and installation of a new video board at Oriole Park at Camden Yards. In September 2007 MSA and the Baltimore Orioles reached a settlement, agreeing to purchase and install $9.0 million of new audio and video equipment funded by $5.5 million from the "Supplemental Improvements Fund" and $3.5 million from MSA. MSA's share was financed under the State's Master Equipment Lease-Purchase Program and amortized over 10 years. This lease matured in fiscal year 2018.

In November 2009, MSA entered into a contract with Pepco Energy Services to provide $6.0 million of energy upgrades and enhancements to Oriole Park at Camden Yards and the adjoining warehouse. MSA is financing the upgrades and enhancements under the State's Energy Performance Contract Lease-Purchase Program over 12 years. Some of the upgrades and enhancements include the replacement of a chiller and cooling tower, replacement of light fixtures and upgrades to the generator plant. The outstanding balance as of June 30, 2018, was $2.8 million. This lease is included in the CDAC affordability analysis because the guaranteed annual savings was terminated.

The amount outstanding of MSA's bonds and leases, included in the CDAC analysis related to the Oriole Park at Camden Yards project totaled $41.2 million as of June 30, 2018.

Ocean City Convention Center. MSA also constructed an expansion of the Ocean City Convention Center. The expansion cost $33.2 million and was financed through a matching grant from the State to Ocean City and a combination of funding from Ocean City and MSA. In October 1995, MSA issued $17.3 million in revenue bonds to provide State funding; as required, Ocean City sold $15.0 million of its special tax and general obligation bonds before the sale by MSA.

In March 2011, MSA refinanced the outstanding balance of $6.5 million. A new fixed rate series was issued in the amount of $6.6 million with $6.5 million being used to call the Series 1995 Bonds and the balance used for transactional costs. The annual debt service on the Series 2011 Bonds is approximately $1.4 million annually. These bonds matured December 15, 2015.

MSA will also continue to pay one-half of any annual operating deficits of the facility through December 15, 2035, after which time Ocean City will be solely responsible for operating deficits. The 2018 contribution to operating deficits and the project's capital improvements fund was approximately $1.4 million. The project has generated direct and indirect benefits to the State that offset its costs (debt service, operating deficit contributions, deposits to the capital improvements fund, and that portion of MSA's budget that is allocable to the Ocean City Convention Center project) since 2007.

Ravens Stadium. MSA currently operates Ravens Stadium, which opened in 1998. In connection with the construction of that facility, MSA sold $87.6 million in lease-backed revenue bonds on May 1, 1996 for Ravens Stadium. The proceeds from MSA's bonds, along with cash available from State lottery proceeds, investment earnings, contributions from the Ravens and other sources were used to pay project design and construction expenses of approximately $229.0 million. The bonds are solely secured by an assignment of revenues received under a lease of the project from MSA to the State. In June 1998, MSA entered into an agreement to implement a synthetic fixed rate refinancing of the football lease-backed revenue bonds using a combination of variable rate refunding obligations and forward interest rate exchange agreements. As provided under the agreements, the savings of $2.6 million werepaid to MSA on June 10, 1998. MSA issued Maryland Stadium Authority Sports Facilities Lease Revenue Refunding Bonds Football Stadium Issue Series 2007 in the amount of $73.5 million of which $73.1 million was used to call the outstanding principal balance on the 1996 Series Bonds on March 1, 2007. The balance of the proceeds, $375,000, was used for closing costs. The 1996 Series Bonds were called on March 1, 2007 in accordance with the swap agreement.

MSA's combined debt service on the remaining outstanding revenue bonds is $6.5 million annually. The bonds outstanding as of June 30, 2018, totaled $40.3 million.

In November 2009 MSA entered into a contract with Pepco Energy Services to provide energy upgrades and enhancements to Ravens Stadium. The energy upgrades and enhancements will cost approximately $2.5 million. MSA is financing the upgrades and enhancements under the State's Energy Performance Contract Lease-Purchase Program over 12 years. The outstanding balance as of June 30, 2018, was $1.1 million. This lease is included in the CDAC affordability analysis because the guaranteed annual savings was terminated.

In the spring of 2010, MSA entered into several contracts for the replacement of the video boards and control room at Ravens Stadium. The budget for the project was estimated at $10.0 million. The Baltimore Ravens funded approximately $6.0 million and MSA funded $4.0 million. MSA's share was financed under the State's Equipment Lease-Purchase Program and amortized over 10 years. The equipment lease balance of $1.5 million was paid off in January 2017.

The amount outstanding of MSA's bonds and leases, included in the CDAC affordability analysis, related to the Ravens Stadium project totaled $41.2 million as of June 30, 2018.

Montgomery County Conference Center. In January 2003, MSA issued $23.2 million in lease-backed revenue bonds in connection with the construction of a conference center in Montgomery County. The conference center is adjacent and physically connected to a Marriott Hotel, which has been privately financed. The center cost $33.5 million and was financed through a combination of funding from Montgomery County and MSA. MSA does not have any operating risk. The average annual debt service for these bonds is $1.6million.

In November 2012, MSA refinanced the outstanding balance of $16.0 million. A new fixed rate series was issued in the amount of $13.6 million with $13.3 million plus $2.3 million in premium being used to call the Series 2003 Bonds and the balance used for interest and transactional costs. The annual debt service on the Series 2012 Bonds is approximately $1.6 million. The bonds outstanding as of June 30, 2018, totaled $7.9 million.

Hippodrome Theater. In July 2002, MSA issued $20.3 million in taxable lease- backed revenue bonds in connection with the renovation and construction of the Hippodrome Theater as part of Baltimore City's West Side Development. The cost of renovating the theater was $63.0 million and was financed by various public and private sources. MSA does not have any operating risk for the project which was completed in February 2004. The average annual debt service for these bonds is $1.6 million.

In July 2012, MSA refinanced the outstanding balance of $13.7 million. A new fixed rate series was issued in the amount of $14.1 million with $13.7 million being used to call the Series 2002 Bonds and the balance used for interest and transactional costs. The annual debt service on the Series 2011 Bonds is approximately $1.6 million. The bonds outstanding as of June 30, 2018, totaled $6.0 million.

Camden Station Renovation. In February 2004, MSA issued $8.7 million in taxable lease-backed revenue bonds in connection with the renovation of the historic Camden Station located at the Camden Yards Complex in Baltimore, Maryland. The cost of the renovation was $8.0 million. MSA has executed lease agreements for the entire building, with the Babe Ruth Museum leasing approximately 22,600 square feet since May 2000 and Geppi's Entertainment Museum leasing the balance of the building since early fall 2006. To date, lease payments have not been sufficient to cover debt service on the bonds and the shortfall has been subsidized by MSA. The average annual debt service for these bonds is $0.7 million. Bonds outstanding as of June 30, 2018 totaled $4.6 million.

Baltimore City Public School Construction. On May 5, 2016, MSA issued $320.0 million, Series 2016 Maryland Stadium Authority Baltimore City Public Schools ("BCPS") Construction and Revitalization Program Revenue Bonds. There was approximately $66.1 million in bond premium generated from the transaction. The proceeds of $386.1 million will be used for issuance costs and construction costs for BCPS. Interest is payable semiannually at the rate of 5.00% per annum on May 1st and November 1st. This bond will mature May 1, 2046. The annual debt service is secured by the funds received from Baltimore City, BCPS and Lottery from the State of Maryland; therefore, they are not considered tax-supported debt and not included in the CDAC affordability analysis. The annual debt service is approximately $20.8 million. Bonds outstanding as of June 30, 2018, totaled $310.0 million.

On February 7, 2018, MSA issued $426.4 million, Series 2018A Maryland Stadium

Authority BCPS Construction and Revitalization Program Revenue Bonds. There was approximately $70.0 million in bond premium generated from the transaction. The proceeds of $496.4 million will be used for issuance costs and construction costs for the BCPS. Interest is payable semiannually at the rate of 5.00% per annum on May 1st and November 1st. This bond will mature May 1, 2047. The annual debt service is secured by the funds received from Baltimore City, BCPS and Lottery from the State of Maryland, therefore, they are not considered tax-supported debt and not included in the CDAC affordability analysis. The annual debt service is approximately $27.3 million. Bonds outstanding as of June 30, 2018, totaled $418.8 million.

VIII. SCHEDULES

Schedule A-1: Maryland Personal Income and Population

Calendar Year	Personal Income	% Change	Population	% Change
2004	230,473		5,547,000	
2005	242,159	5.07%	5,592,000	0.81%
2006	257,913	6.51%	5,627,000	0.63%
2007	267,774	3.82%	5,653,000	0.46%
2008	280,995	4.94%	5,685,000	0.57%
2009	279,901	-0.39%	5,730,000	0.79%
2010	288,737	3.16%	5,773,552	0.76%
2011	304,388	5.42%	5,849,337	1.31%
2012	314,160	3.21%	5,896,817	0.81%
2013	312,370	-0.57%	5,937,480	0.69%
2014	322,609	3.28%	5,974,162	0.62%
2015	337,212	4.53%	6,003,541	0.49%
2016	349,267	3.57%	6,027,958	0.41%
2017	360,251	3.14%	6,055,807	0.46%
2018	373,146	3.58%	6,083,338	0.45%
2019	388,949	4.24%	6,105,272	0.36%
2020	404,113	3.90%	6,122,692	0.29%
2021	419,233	3.74%	6,139,664	0.28%
2022	435,553	3.89%	6,158,042	0.30%
2023	451,407	3.64%	6,176,736	0.30%
2024	467,395	3.54%	6,195,502	0.30%
2025	484,569	3.67%	6,213,849	0.30%
2026	502,901	3.78%	6,231,410	0.28%
2027	523,111	4.02%	6,248,176	0.27%
2028	545,311	4.24%	6,264,309	0.26%

3.03%	Average Rate of personal income growth for 10 year period 2004 through 2013
3.24%	Median rate of personal income growth for 10 year period 2004 through 2013

Sources: Personal income
2000-2014 Bureau of Economic Analysis, U.S. Dept. of Commerce
2018-2028 Forecast: BRE September 2015 forecast
Population
1999-2014 Census Bureau, U.S. Dept. of Commerce
2018-2028 Forecast: Economy.com September 2015 forecast

Schedule A-2: Maryland State Tax-Supported Revenue Projections

Maryland State Tax-Supported Revenue Projections (in $ Millions)

Fiscal Year	General Fund	% Change	Property Taxes	% Change	Premium and Misc. ABF Receipts	Federal Interest Subsidy	Educational Trust Fund (VLT revenues)	Transfer Taxes	Total	Transportation Revenues	Stadium Related Revenues	Garvee Revenues	Bay Restoration Fund	Total Revenues	% Change
2013	14,620.5		730.4		154.9	12.1	308.3	140.4	15,966.6	2,446.0	24.6	467.2	92.8	18,997.2	
2014	15,017.0	2.7%	724.8	-0.8%	107.9	11.4	328.4	164.0	16,353.5	2,709.0	23.4	467.2	108.5	19,661.6	3.50%
2015	15,778.4	5.1%	730.7	0.8%	128.1	11.5	387.4	161.0	17,197.1	2,906.0	21.9	465.8	111.8	20,702.6	5.29%
2016	16,082.6	1.9%	747.0	2.2%	171.2	11.5	379.6	174.5	17,566.4	3,132.0	21.8	465.8	112.9	21,298.9	2.88%
2017	16,698.7	3.8%	773.1	3.5%	91.2	11.5	451.2	210.1	18,235.8	3,165.0	21.9	548.6	112.7	22,084.0	3.69%
2018	17,372.5	4.0%	800.8	3.6%	153.0	11.5	496.7	217.9	19,052.5	3,166.0	21.8	548.6	113.5	22,902.4	3.71%
2019	18,088.2	4.1%	836.8	4.5%	28.2	12.4	527.6	228.2	19,721.5	3,256.0	24.0	548.6	114.7	23,664.7	3.33%
2020	18,677.6	3.3%	853.6	2.0%	3.2	11.6	536.1	236.3	20,318.5	3,465.0	23.9	548.6	115.8	24,471.7	3.41%
2021	19,231.3	3.0%	870.6	2.0%	3.2	10.9	527.5	241.6	20,885.0	3,564.0	10.3	-	117.0	24,576.3	0.43%
2022	19,812.3	3.0%	888.0	2.0%	3.2	10.1	535.1	245.3	21,494.0	3,721.0	10.3	-	118.1	25,343.5	3.12%
2023	20,537.3	3.7%	905.8	2.0%	3.2	8.9	539.9	247.7	22,242.7	3,827.0	8.8	-	119.3	26,197.8	3.37%
2024	21,286.6	3.6%	923.9	2.0%	3.2	7.5	548.0	250.6	23,019.7	3,857.0	8.8	-	120.5	27,006.0	3.08%
2025	22,074.2	3.7%	942.4	2.0%	3.2	5.5	556.3	259.9	23,841.4	3,922.0	7.4	-	121.7	27,892.5	3.28%
2026	22,890.9	3.7%	961.2	2.0%	3.2	2.6	564.6	269.5	24,692.0	3,984.0	6.4	-	122.9	28,805.3	3.27%
2027	23,737.9	3.7%	980.5	2.0%	3.2	0.9	573.1	-	25,295.4	4,054.0	-	-	124.2	29,473.6	2.32%
2028	24,616.2	3.7%	1,000.1	2.0%	3.2	0.2	581.7	-	26,201.3	4,115.0	-	-	125.4	30,441.7	3.28%

Schedule B-1: Proposed General Obligation Authorizations and Estimated Issuances

Proposed Authorization (in $ Millions)

FY	Legislative Session	Proposed Authorization	Rate of Increase
2020	2019	1,075	
2021	2020	995	-8%
2022	2021	995	0%
2023	2022	995	0%
2024	2023	995	0%
2025	2024	995	0%
2026	2025	995	0%
2027	2026	995	0%
2028	2027	995	0%
2029	2028	995	0%

Projected Issuance of New Authorization (in $ Millions)

Auth. Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
2020	-	333	269	215	161	97	-	-	-	-	1,075
2021	-	-	308	249	199	149	90	-	-	-	995
2022	-	-	-	308	249	199	149	90	-	-	995
2023	-	-	-	-	308	249	199	149	90	-	995
2024	-	-	-	-	-	308	249	199	149	90	995
2025	-	-	-	-	-	-	308	249	199	149	905
2026	-	-	-	-	-	-	-	308	249	199	756
2027	-	-	-	-	-	-	-	-	308	249	557
2028	-	-	-	-	-	-	-	-	-	308	308
2029	-	-	-	-	-	-	-	-	-	-	-
Total	-	333	577	772	917	1,002	995	995	995	995	7,582
Prior Authorization	1,000	662	418	223	78	(7)	-	-	-	-	2,373
Total Projected Issuance	1,000	995	995	995	995	995	995	995	995	995	9,955

Projected Bond Sales by Fiscal Year (in $ Millions)

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
1st Sale	510	500	500	500	500	500	500	500	500	500	5,010
2nd Sale	490	495	495	495	495	495	495	495	495	495	4,945
Total	1,000	995	995	995	995	995	995	995	995	995	9,955

Schedule B-2: Projected General Obligation Authorized But Unissued Debt

in $ Millions

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Total
Beginning Balance	2,397	2,472	2,472	2,472	2,472	2,472	2,472	2,472	2,472	2,472	
PLUS: New Authorizations[a]	1,075	995	995	995	995	995	995	995	995	995	10,030
LESS: Total Bonds Issued[b]	1,000	995	995	995	995	995	995	995	995	995	9,955
Ending Balance	2,472	2,472	2,472	2,472	2,472	2,472	2,472	2,472	2,472	2,472	

Summary

Authorized but Unissued at 7/1/2018	2,397,142
Total Authorizations	9,950,000
Total Issuances	-10,030,000
Total Authorized but Unissued at 6/30/28	2,317,142

[a] Authorizations are shown in the fiscal year of the legislative session to support the capital program of the following year.
[b] As projected in Appendix B-1

Schedule B-3: Projected General Obligation Debt Outstanding

General Obligation Debt Outstanding

in $ Thousands

Fiscal Year	Outstanding at Beginning of FY	PLUS: New GO Debt Issues	LESS: Redemptions	LESS: Refundings	Outstanding at End of FY
2019	9,479,407	1,000,000	878,176	-	9,601,231
2020	9,601,231	995,000	918,264	-	9,677,966
2021	9,677,966	995,000	890,271	-	9,782,695
2022	9,782,695	995,000	922,544	-	9,855,151
2023	9,855,151	995,000	956,164	-	9,893,987
2024	9,893,987	995,000	971,923	-	9,917,064
2025	9,917,064	995,000	1,031,932	-	9,880,132
2026	9,880,132	995,000	1,007,371	-	9,867,761
2027	9,867,761	995,000	986,941	-	9,875,820
2028	9,875,820	995,000	971,651	-	9,899,169
		9,955,000	**9,535,238**	-	

Summary

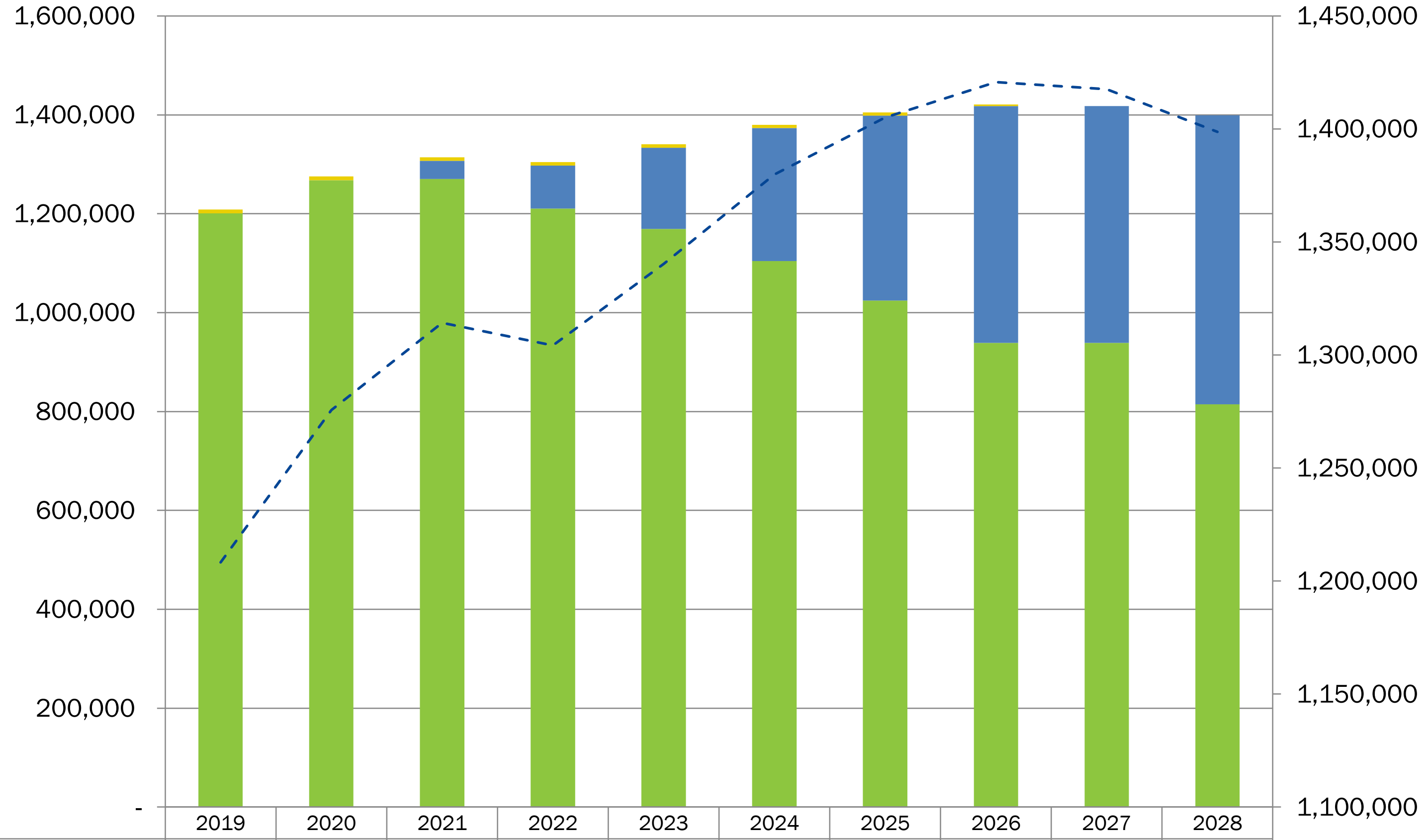
Outstanding at 7/1/2018	9,479,407
Total GO Issued	9,955,000
Total GO Redeemed	-9,535,238
Outstanding at 6/30/28	9,899,169

[a] As projected in Appendix B-1

Schedule B-4: Projected General Obligation Debt Service and Sinking Fund Payments

Fiscal Years 2018 - 2027

($ in thousands)



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
🟨 QZAB/QSCB Sinking Fund Payments	7,674	7,674	7,183	7,183	6,943	6,670	6,628	3,076	-	-
🟦 Debt Service: Expected New Issues	-	-	37,000	86,750	164,163	269,157	374,152	479,146	479,146	584,140
🟩 Debt Service: Existing Issues	1,200,588	1,267,994	1,270,005	1,210,348	1,169,215	1,103,968	1,024,310	938,499	938,499	814,609
- - - - TOTAL	1,208,261	1,275,668	1,314,188	1,304,281	1,340,321	1,379,795	1,405,090	1,420,721	1,417,645	1,398,749

Schedule C-1: Historical Data – General Obligation Debt

	Summary of Authorizations				Summary of Debt Activity					
Fiscal Year	Authorized[(a)]	Cancelled	New Issuances	Authorized but Unissued	New Issuances	Refunding	Redeemed	Refunded	Outstanding at Fiscal Year End	Total Debt Service
2002	731,058	12,614	418,098	1,773,604	418,098	109,935	322,320	112,435	3,544,178	495,217
2003	756,513	11,634	725,000	1,793,483	725,000	376,950	326,695	386,940	3,932,493	496,870
2004	663,663	10,692	500,000	1,946,454	500,000	-	330,215	-	4,102,278	536,819
2005	679,807	6,730	784,043	1,835,488	784,043	855,840	348,180	882,155	4,511,826	553,783
2006	690,000	1,004	750,000	1,774,484	750,000	-	393,355	-	4,868,471	625,208
2007	821,126	4,645	679,378	1,911,587	679,378	-	405,695	-	5,142,154	654,055
2008	935,000	2,749	779,986	2,063,852	779,986	-	428,310	-	5,493,830	692,539
2009	1,112,000	1,939	845,563	2,328,350	845,563	65,800	464,725	66,825	5,873,643	744,799
2010	1,214,543	7,026	1,140,883	2,394,984	1,140,883	798,080	482,754	806,630	6,523,222	777,523
2011	940,902	4,127	974,718	2,357,041	974,718	-	515,094	-	6,982,846	834,833
2012	1,090,324	4,525	1,112,400	2,330,440	1,112,400	393,295	542,179	405,260	7,541,102	878,208
2013	1,079,549	6,116	1,043,230	2,360,643	1,043,230	348,930	564,299	363,160	8,005,803	915,982
2014	1,164,625	7,305	979,549	2,538,414	979,549	236,855	613,979	245,880	8,362,348	980,738
2015	1,028,505	9,574	1,022,625	2,534,720	1,022,625	1,015,075	658,368	1,064,465	8,677,215	1,027,003
2016	999,625	2,838	1,540,625	1,990,882	1,540,625	-	734,456	-	9,483,384	1,120,994
2017	1,089,383	1,317	1,145,365	1,933,583	1,145,365	465,685	786,139	490,305	9,817,990	1,183,054

[(a)] Authorizations for a fiscal year represent those authorizations effective for that fiscal year.

Schedule C-2: History of Affordability Ratios

Tax-Supported Debt

Calendar Year	Debt as a % of Personal Income[1]	Debt Service as % of Revenues[2]
2002	2.34%	5.86%
2003	2.58%	6.15%
2004	2.59%	5.93%
2005	2.56%	5.54%
2006	2.56%	5.55%
[3] 2007	2.68%	5.40%
[4] 2008	2.75%	5.55%
2009	3.21%	6.21%
2010	3.34%	6.85%
2011	3.14%	6.57%
2012	3.23%	6.64%
2013	3.33%	6.60%
2014	3.39%	6.86%
2015	3.40%	6.90%
2016	3.49%	7.27%
2017	3.54%	7.58%

[1] The criterion for debt outstanding to personal income was 3.2% from 1979-2007 and increased to 4.0% in 2008.

[2] The criterion for debt service to revenues has been 8.0% since 1979.

[3] GARVEE Bonds were first issued in 2007 and included in tax-supported debt beginning in that year.

[4] Bay Restoration Bonds were first issued in 2008 and included in tax-supported debt in that year.

Schedule C-3: Historical Data – Department of Transportation Debt

Consolidated Transportation Bonds

($ in thousands)

	Summary of Debt Activity									Summary of Debt Service (d)				
Fiscal Year	Gross Debt Outstanding Beginning of Year	Issued		Defeased		Redeemed	Gross Debt Outstanding End of Year	Sinking Fund(s) Balance (c)	Net Debt Outstanding End of Year	Deposits to Refunding Sinking Fund	Principal Redeemed		Interest	Total
1981	$399,865.00	$120,000.00	(a)	$0		$0	$519,865							
1982	519,865	60,000				60,000	519,865							
1983	519,865	40,000		0		60,000	499,865	240,601	259,264	20,924	60,000		32,884	113,808
1984	499,865	0		0		0	499,865	283,617	216,248	20,924	0		29,219	50,143
1985	499,865	0		0		0	499,865	335,241	164,624	20,924	0		29,219	50,143
1986	499,865	0		354,865	(b)	3,000	142,000	29,299	112,701	10,462	3,000		19,547	33,009
1987	142,000	100,000		0		7,000	235,000	48,317	186,683	0	7,000		12,919	19,919
1988	235,000	0		0		8,000	227,000	58,953	168,047	0	8,000		15,685	23,685
1989	227,000	100,000		0		17,000	310,000	68,162	241,838	0	17,000		18,195	35,195
1990	310,000	260,000		0		20,000	550,000	67,309	482,691	0	20,000		28,842	48,842
1991	550,000	310,000		0		18,000	842,000	68,329	773,671	0	18,000		46,261	64,261
1992	842,000	120,000		0		21,000	941,000	66,230	874,770	0	21,000		59,211	80,211
1993	941,000	75,000		0		56,200	959,800	39,901	919,899	0	56,200	(e)	61,445	117,645
1994	959,800	543,745	(f)	457,800		25,455	1,020,290	27,570	992,720	0	25,455		56,423	81,878
1995	1,020,290	75,000		0		47,785	1,047,505	32,338	1,015,167	0	47,785		52,841	100,626
1996	1,047,505	0		0		69,880	977,625	30,940	946,685	0	69,880		51,526	121,406
1997	977,625	50,000		0		88,245	939,380	15,495	923,885	0	88,245		47,448	135,693
1998	939,380	93,645	(g)	91,200		97,810	844,015	0	844,015	0	97,810		44,959	142,769
1999	844,015	0		0		94,885	749,130	0	749,013	0	94,885		38,025	132,910
2000	749,130	75,000		0		99,360	724,770	0	724,770	0	99,360		35,873	135,233
2001	724,770	0		0		76,720	648,050	0	648,050	0	76,720		32,954	109,674
2002	648,050	150,000		0		83,900	714,150	0	714,150	0	83,900		29,278	113,178
2003	714,150	607,405	(h)	46,500		313,810	961,245	0	961,245	0	313,810		34,204	348,014
2004	961,245	395,900	(i)	77,500		93,995	1,185,650	0	1,185,650	0	93,995		40,915	134,910
2005	1,185,650	0		0		115,705	1,069,945	0	1,069,945	0	115,705		53,950	169,655
2006	1,069,945	100,000		0		91,470	1,078,475	0	1,078,475	0	91,470		49,702	141,172
2007	1,078,475	100,000		0		67,425	1,111,050	0	1,111,050	0	67,425		50,999	118,424
2008	1,111,050	226,755		0		68,990	1,268,815	0	1,268,815	0	68,990		52,400	121,390
2009	1,268,815	390,000		0		76,210	1,582,605	0	1,582,605	0	76,210		66,145	142,355
2010	1,582,605	140,000		0		77,595	1,645,010	0	1,645,010	0	77,595		73,358	150,953
2011	1,645,010	0		0		83,170	1,561,840	0	1,561,840	0	83,170		75,492	158,662
2012	1,561,840	276,435	(j)	172,800		102,845	1,562,630	0	1,562,630	0	102,845		71,370	174,215
2013	1,562,630	165,000		0		109,340	1,618,290	0	1,618,290	0	109,340		70,968	180,308
2014	1,618,290	325,000		0		130,620	1,812,670	0	1,812,670	0	130,620		76,614	207,234
2015	1,812,670	661,250	(k)	301,255		152,415	2,020,250	0	2,020,250	0	152,415		79,989	232,404
2016	2,020,250	300,000		0		174,165	2,146,085	0	2,146,085	0	174,165		90,193	264,358
2017	2,146,085	892,525	(l)	253,040		207,185	2,578,385	0	2,578,385	0	207,185		100,030	307,215
2018	2,578,385	555,000				221,710	2,911,675		2,911,675		221,710		118,350	340,060

(a) Includes $60 million Consolidated Transportation Bonds plus a one-year Bond Anticipation Note for $60 million. The one-year BAN was re-issued the following year.

(b) Represents a defeasance of the balance remaining of the series 1978 refunding bonds.

(c) For bonds issued prior to 7/1/89, sinking fund balances reflect the net effect of: deposits into the fund, one calendar year in advance, of debt service; fund earnings; and payments, from the sinking fund, to bondholders. Bonds issued after 7/1/89 do not require such a sinking fund.

(d) Amounts may differ from budgetary amounts

(e) Includes early redemptions of $30 million.

(f) MDOT sold two issues of refunding bonds in FY 94:
$211.985 million to refund $204.0 million
$291.760 million to refund $253.8 million

(g) MDOT issued $93.645 million refunding bonds

(h) MDOT issued $262.405 million refunding bonds

(i) MDOT issued $75.9 million refunding bonds

(j) MDOT issued $161.435 million refunding bonds

(k) MDOT issued $259.715 million refunding bonds

(l) MDOT issued $242.525 million refunding bonds