

EFFECT OF LONG-TERM DEBT ON THE FINANCIAL CONDITION OF THE STATE



DEPARTMENT OF LEGISLATIVE SERVICES 2018

Effect of Long-term Debt on the Financial Condition of the State

**Department of Legislative Services
Office of Policy Analysis
Annapolis, Maryland**

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DEPARTMENT OF LEGISLATIVE SERVICES
OFFICE OF POLICY ANALYSIS
MARYLAND GENERAL ASSEMBLY

Victoria L. Gruber
Executive Director

Ryan Bishop
Director

November 2018

The Honorable Roger Manno
Senate Chairman, Spending Affordability Committee

The Honorable Ben Barnes
House Chairman, Spending Affordability Committee

Dear Chairman Manno and Chairman Barnes:

The Department of Legislative Services' annual report on the *Effect of Long-term Debt on the Financial Condition of the State* is presented. This report follows the format of previous reports and includes a review of the recommendations of the Capital Debt Affordability Committee, an independent affordability analysis, and independent policy recommendations to the Spending Affordability Committee.

The Capital Debt Affordability Committee complements the efforts of the Spending Affordability Committee in management of the State's bonded indebtedness. The Capital Debt Affordability Committee is required to submit a recommended level of debt authorization to the Governor and the General Assembly by October 1 of each year. The existence of the committee within the Executive Branch means that consideration of debt affordability will occur at the time of formulation of the State's capital program, as well as the time of approval of the program by the General Assembly.

The statistical analysis and data used in developing the recommendations were prepared by Patrick Frank with assistance from Andrew Gray, Ian Klein, Matthew Klein, Jason Kramer, Steven McCulloch, and Robert Rehrmann. The manuscript was prepared by Katylee Cannon.

Respectfully submitted,

Victoria L. Gruber
Executive Director

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Director

VLG:RB/kmc

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Chapter 1. Recommendations of the Department of Legislative Services

New General Obligation Bond Authorization

The Capital Debt Affordability Committee (CDAC) recommended a limit of \$995 million for new authorizations of general obligation (GO) bonds during the 2019 session. This recommendation is the same level as was recommended for the fiscal 2018 session.

The Administration's objectives are to limit increases in debt service costs and reduce the debt service to revenue ratio. The Administration's objectives can be realized by moderately increasing authorizations. Current estimates have general fund revenues increasing 3% annually and State property taxes increasing 2% from fiscal 2019 to 2024. To restrain debt service costs and provide capacity, annual increases in authorizations should not exceed projected increases in revenues. Based on Department of Legislative Services' (DLS) estimates, the State can achieve these goals by moderately increasing authorizations by 1% annually off of the fiscal 2019 authorization. **DLS concurs with CDAC that limiting GO bond authorizations to \$995 million is affordable. DLS notes that moderate increases, such as limiting annual increases to 1%, are also affordable and do not substantially increase debt service costs.**

Use of General Fund Appropriations to Minimize the Use of General Obligation Bonds Is Recommended

As mentioned in Chapter 7, the State currently has an unusually large, unanticipated general fund balance. Through legislation, the State has also recently taken actions to encourage the use of unanticipated fund balance to increase reserves and fund one-time costs, such as capital projects. Consistent with this approach to restrain from appropriating unanticipated revenues for ongoing costs, the State should consider appropriating fund balance to support capital spending.

At current interest rates, the cost of issuing \$100 million in GO bonds is as much as \$148 million. Appropriating general funds for capital projects eliminates the additional debt service paid over the 15-year life of the bonds. **DLS recommends that the State use a portion of the cash balance to support capital needs and minimize reliance on GO bonds.**

Issuance of Taxable Debt

The State's capital program supports a number of different public policy objectives, such as health, environmental, public safety, education, housing, and economic development objectives. Federal government regulations allow the State to issue debt that does not require the buyer to pay federal taxes on interest earnings. In cases where investors do not pay federal income taxes, they

are willing to settle for lower returns. Investors in taxable debt require higher returns to offset their tax liabilities. Consequently, the State can offer lower interest rates on tax-exempt bonds.

Federal laws and regulations limit the kinds of activities that the proceeds from tax-exempt bonds can support. To avoid exceeding the private activity limits imposed in the federal regulations, the State has previously appropriated funds in the operating budget instead of issuing debt for private purpose programs and projects.

At the August 2013 bond sale, for example, the State issued \$40 million in taxable GO bonds and \$435 million of tax-exempt bonds. The true interest cost of the taxable bonds was noticeably higher than the tax-exempt bonds – 1.48% for four-year, taxable debt compared to 1.04% for four-year, tax-exempt debt. Using market data, DLS estimated the cost of issuing tax-exempt debt. The net effect on spending over four years is that the tax-exempt bonds cost approximately \$478,000 less than taxable bonds. This issue is discussed in more detail in Chapter 7.

The Department of Budget and Management’s fiscal 2019 *Capital Improvement Plan* anticipates authorizing \$58 million for private loans requiring taxable debt in fiscal 2020. **DLS recommends that the State use cash rather than debt for projects and programs that do not qualify for tax-exempt bonds in fiscal 2020. Insofar as the State’s general fund balance is larger than expected and revenues have been unexpectedly revised upward, the State’s cash position should be sufficient to appropriate general funds instead of authorizing taxable debt.**

Authorization of Transportation Debt

The Maryland Department of Transportation issues bonds supported by Transportation Trust Fund revenues. As State tax-supported bonds, these bonds compete with other State capital projects within debt affordability limits. Transportation debt capacity is limited by the constraints on debt outstanding, debt service coverage, the cash flow needs for projects in the capital program, and overall State debt affordability limits. Transportation debt is discussed in Chapter 3. **It is recommended that the General Assembly continue to set an annual limit on the level of State transportation debt to keep debt outstanding within the 4% of personal income debt affordability criterion and debt service within the 8% of revenues affordability criterion.**

Authorization of Bay Restoration Bond Debt

The Bay Restoration Fund was created in 2004 primarily to provide grants for enhanced nutrient removal pollution reduction upgrades at the State’s 67 major wastewater treatment plants. In 2012, the General Assembly adopted legislation to increase funding for these projects. Current plans provide sufficient funding for this initiative. Bay bonds are discussed in more detail in Chapter 3. **It is recommended that the General Assembly continue to limit Bay Restoration Fund revenue bond issuances at a level that maintains debt outstanding within the 4% of**

personal income debt affordability criterion and debt service within the 8% of revenues affordability criteria.

Higher Education Academic Debt

CDAC recommends limiting new debt authorization of the University System of Maryland (USM) academic revenue bonds (ARB) to \$34 million for the 2019 legislative session. This amount reflects a \$10 million increase from the \$24 million authorized in the 2018 legislative session but is consistent with the amount programmed for the 2019 session in the 2018 *Capital Improvement Program*. Academic bond issuances are discussed in Chapter 8. **DLS concurs with the committee's assessment that issuing \$34 million in new USM ARBs is affordable.**

Chapter 2. Recommendations of the Capital Debt Affordability Committee

Chapter 43 of 1978 created the Capital Debt Affordability Committee (CDAC). The committee is required to recommend an estimate of State debt to the General Assembly and the Governor. The committee is chaired by the State Treasurer, and the other committee voting members are the Comptroller, the Secretary of Transportation, the Secretary of Budget and Management, and an individual appointed by the Governor. The chairs of the Capital Budget Subcommittee of the Senate Budget and Taxation Committee and the Capital Budget Subcommittee of the House Appropriations Committee serve as nonvoting members. The committee meets each summer to evaluate State debt levels and recommend prudent debt limits to the Governor and the General Assembly. The Governor and the General Assembly are not bound by the committee's recommendations.

When reviewing State debt, CDAC considers general obligation (GO) bonds, including various taxable, tax-exempt, and tax credit bonds authorized under the federal American Recovery and Reinvestment Act of 2009; consolidated transportation bonds; stadium authority bonds; bay restoration bonds; Grant Anticipation Revenue Vehicle revenue bonds; and capital leases supported by State revenues. Bonds supported by non-State revenues, such as the University System of Maryland's auxiliary revenue bonds or the Maryland Transportation Authority's revenue bonds, are examined but are not considered to be State source debt and are not included in CDAC's debt affordability calculation.

New General Obligation Debt Authorization

GO bonds are backed by the full faith and credit of the State, and they support the State's capital program. CDAC recommends a \$995 million limit on new GO debt authorization for the 2019 session, which is the same amount proposed by CDAC and the same level included in the Governor's *Capital Improvement Program* (CIP) for each of the past three sessions. CDAC's long-range plan recommends keeping new GO debt authorizations at \$995 million annually through the 2027 session, which is the same recommendation made by the committee in its last three reports and the same level programmed for planning purposes in each of the 2016, 2017, and 2018 CIPs.

The recommendation to keep the amount of new GO bond authorizations at \$995 million annually through the planning period was made by the Secretary of Budget and Management and reflects the Administration's ongoing policy to reduce the reliance on general funds for debt service. To support keeping GO bond authorizations level at \$995 million annually, the Secretary of Budget and Management noted that debt service requires increased levels of general fund appropriation, and continued efforts to keep authorizations levels below \$1 billion annually are, therefore, required in order to lower out-year debt service expenditures.

Higher Education Academic Debt

CDAC recommends new debt authorization of academic revenue bonds in the amount of \$34 million for the 2019 session. This amount reflects a \$10 million increase from the \$24 million authorized in the 2018 legislative session but is consistent with the amount programmed for the 2019 session in the 2018 CIP.

Chapter 3. State Debt

Maryland has authorized the issuance of the following types of State debt:

- tax-exempt general obligation (GO) bonds backed by the full faith and credit of the State, which include Qualified Zone Academy Bonds (QZAB), Qualified School Construction Bonds (QSCB), Qualified Energy Conservation Bonds (QECB), and Build America Bonds (BAB);
- taxable GO bonds, which are issued in the place of tax-exempt debt and include private activity bonds;
- capital leases, annual payments subject to appropriation by the General Assembly;
- revenue bonds and notes issued by the Maryland Department of Transportation (MDOT), backed by operating revenues and pledged taxes of the department;
- Grant Anticipation Revenue Vehicles (GARVEE) pledging projected future federal transportation grants to support debt service payments. GARVEEs can be issued by MDOT and the Maryland Transportation Authority (MDTA);
- revenue bonds issued by the Maryland Stadium Authority (MSA), secured by a lease, which is supported by State revenues;
- bay restoration bonds issued by the Maryland Department of the Environment's (MDE) Water Quality Financing Administration, pledging revenues from the Bay Restoration Fund (BRF); and
- revenue or bond anticipation notes, which may be issued by the Treasurer and which must be repaid within 180 days of issuance. Currently, there are no anticipation notes outstanding.

General Obligation Bonds

GO bonds are authorized and issued to pay for the construction, renovation, or equipping of facilities for State, local government, and private-sector entities. Grants and loans are made to local governments and private-sector entities when the State's needs or interests have been identified. Projects funded with GO bonds include, but are not limited to, public and private colleges and universities, public schools and community colleges, prisons and detention centers, and hospitals. **Appendix 1** shows agency GO bond requests for fiscal 2020 through 2024.

New General Obligation Bond Authorizations: Reduced Levels of Authorizations Recommended

The Capital Debt Affordability Committee (CDAC) recommended a limit of \$995 million for new authorizations of GO bonds for the 2019 session. The CDAC long-range plan recommends keeping annual new GO debt authorizations at \$995 million annually through the 2027 session. This is below the \$1,085 million level recommended by the Spending Affordability Committee (SAC) for the 2019 session. The CDAC long-range plan also reflects GO debt levels below amounts proposed by SAC in its 2017 report for each year in the planning period. In addition, the CDAC out-year planning assumption continues to exclude annual incremental increases to account for inflation in the construction market. Prior to the 2015 recommendation, the committee's policy included 3% annual inflationary increases.

Exhibit 3.1 shows that the CDAC long-term forecast recommends a total of \$4,975 million in new GO bond authorizations for the 2019 through 2023 sessions. The exhibit also illustrates the differences between the CDAC 2018 recommended authorization levels as compared to what SAC recommended in its 2017 reports. The SAC recommendation would provide \$550 million more than what CDAC recommends for the period covering the 2019 through 2023 sessions. The 2017 SAC recommendation limits annual increases to 1% on a year-over-year basis. This moderate growth rate limits increases in GO bond authorizations to below projected State property tax and general fund revenue increases, which reduces the ratio of debt service to revenues in the out-years. Both CDAC and SAC recommended that out-year authorization levels are within the debt affordability benchmarks, which limit State tax-supported debt outstanding to no more than 4% of State personal income and debt service to no more than 8% of revenues.

Exhibit 3.1
CDAC and SAC Recommended Authorization Levels
2019-2023 Legislative Sessions
(\$ in Millions)

<u>Session</u>	<u>Proposed GO Authorizations</u> <u>2018 CDAC</u>	<u>Proposed GO Authorizations</u> <u>2017 SAC</u>	<u>Difference from</u> <u>2017 SAC</u>
2019	\$995	\$1,085	-\$90
2020	995	1,095	-100
2021	995	1,105	-110
2022	995	1,115	-120
2023	995	1,125	-130
Total	\$4,975	\$5,525	-\$550

CDAC: Capital Debt Affordability Committee

GO: general obligation

SAC: Spending Affordability Committee

Source: *Report of the Capital Debt Affordability Committee on Recommended Debt Authorizations, 2017; Spending Affordability Committee 2017 Interim Report, December 2017; and Governor's 2018 Capital Improvement Program*

General Obligation Bond Issuance Stream and Debt Service Costs

GO bonds authorized in a given year are not all issued the year in which they are authorized. The State Treasurer's Office (STO) reports that just over half of the GO bonds authorized in a year are typically issued within the first two fiscal years. Specifically, CDAC assumes that bonds authorized in a given year will be fully issued over five years (31% in the first year, 25% in the second year, 20% in the third year, 15% in the fourth year, and 9% in the fifth year). This delay in issuance results in a substantial lag between the time that GO bonds are authorized and the time that the bonds affect debt outstanding and debt service levels.

Exhibit 3.2 compares debt service projected by STO based on the CDAC flat \$995 million annual authorization level and current five-year issuance stream projections to the Department of Legislative Services (DLS) estimates based on the SAC recommendation to increase annual authorizations by 1%.

Appendix 2 shows how the proposed authorizations for fiscal 2019 through 2027 would be issued by STO based on the CDAC flat \$995 million annual authorization level and current five-year issuance stream projections.

Exhibit 3.2
Projected CDAC and SAC Debt Service Costs
Fiscal 2020-2024
(\$ in Millions)

<u>Fiscal Year</u>	<u>2018 CDAC Debt Service Cost Estimate</u>	<u>2017 SAC Debt Service Cost Estimate</u>	<u>Difference</u>
2020	\$1,332	\$1,332	\$0
2021	1,352	1,354	2
2022	1,397	1,401	4
2023	1,426	1,437	11
2024	1,447	1,466	19

CDAC: Capital Debt Affordability Committee
SAC: Spending Affordability Committee

Source: Department of Legislative Services

General Obligation Bond Refunding

GO bonds issued by Maryland are callable after 10 years. In recent years, low interest rates provided the State with the opportunity to refund bonds. The bonds were financed by issuing new debt at lower interest rates. The new debt was placed in an escrow account from which debt service payments for the previously issued debt are made. This increases gross GO bond debt outstanding, but net debt remains constant. **Exhibit 3.3** shows that refunding reduced debt service costs by over \$316 million since December 2009.

Federal Tax Cuts and Jobs Act Ends Advanced Refunding

STO, with advice from its financial advisor, continually monitors financial markets to determine if refinancing GO debt is advantageous. Should it be determined that market interest rates are sufficient to warrant a refunding, such action would be presented to the Board of Public Works (BPW) for its approval. However, the ability to refund tax-exempt bonds has been substantially curtailed by the federal Tax Cuts and Jobs Act of 2017. The law ended advanced refundings. The implications of the law on State debt is discussed in Chapter 9.

Exhibit 3.3
Debt Service Cost Savings Attributable to Bond Refunding
(\$ in Millions)

<u>Date of Sale</u>	<u>Amount Issued</u>	<u>Amount Retired</u>	<u>Savings</u>	<u>Net Present Value of Savings</u>
December 2009	\$602.8	\$606.3	\$25.8	\$24.9
February 2010	195.3	200.4	9.3	8.6
September 2011	254.9	264.6	12.6	11.1
March 2012	138.4	140.7	12.6	10.2
August 2012	183.8	194.5	18.7	16.1
March 2013	165.1	168.7	10.0	8.1
March 2014	236.9	245.9	14.2	12.6
July 2014	649.7	695.2	69.2	58.3
March 2015	365.4	369.7	29.0	21.8
March 2017	465.7	490.3	29.0	24.2
August 2017	785.3	884.5	85.7	75.8
Total	\$4,043.3	\$4,260.7	\$316.2	\$271.8

Source: Public Financial Management, Inc.; Public Resources Advisory Group

Program Open Space Debt Service Payments

Program Open Space (POS) bonds totaling \$70 million were authorized as the POS Acquisition and Opportunity Loan of 2009 (Chapter 419). The bonds were intended to replace funds lost due to the transfer of up to \$70 million in POS State share unencumbered fund balance to the General Fund per the Budget Reconciliation and Financing Act (BRFA) of 2009 (Chapter 487). The Prior Authorizations of State Debt to Fund Capital Projects – Alterations Act of 2010 (Chapter 372) allows for the debt to be issued through GO bonds. In the end, POS bonds were not issued; the State issued GO bonds in place of POS bonds to reduce costs due to GO bonds' low interest rates.

The full \$70 million in GO bonds was issued as part of two State issuances, February and July 2010, as shown in **Exhibit 3.4**. The first purchases were in August 2010. The Department of Natural Resources (DNR) received \$65 million, and the Maryland Department of Agriculture (MDA) received the remaining \$5 million. Some of the debt was issued as BABs. The bonds include federal direct payment subsidies that were reduced by sequestration. The reduction is less than \$100,000.

Exhibit 3.4
Program Open Space GO Bond Issuances
(\$ in Thousands)

<u>Issue Date</u>	<u>GO Bond Issuance</u>	<u>Principal</u>
February 2010	First Series A, Build America Bonds	\$33,333
July 2010	2010 Second Series A, Tax-exempt (Retail Sale)	11,945
July 2010	2010 Second Series B, Tax-exempt (Competitive Sale)	18,472
July 2010	2010 Second Series C, Taxable Build America Bonds	6,250
Total		\$70,000

GO: general obligation

Source: Department of Budget and Management

Exhibit 3.5 shows that debt service costs are \$7.1 million in 2019. The debt service is deducted from transfer tax revenues allocated to DNR and MDA proportionately based on the share of the issuance each received.

Exhibit 3.5
Program Open Space GO Bonds Debt Service Payment Schedule
Fiscal 2019-2024
(\$ in Millions)

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
Debt Outstanding	\$42.3	\$36.6	\$30.7	\$26.1	\$15.0	\$8.4
Debt Service	7.1	6.9	6.9	6.9	7.0	7.0

GO: general obligation

Source: Department of Budget and Management

Federal Tax Credit and Direct Payment Bonds

In addition to tax-exempt GO bonds, the State has also taken advantage of federal programs that allow the State to issue bonds whereby the buyers can receive federal tax credits or the State will receive a direct payment to offset interest costs. These bonds are issued in the place of traditional tax-exempt GO bonds. To date, the State has issued QZABs, QSCBs, QECBs, and

BABs, QZABs, QSCBs, and QECCBs have been issued to support education capital projects. BABs support the same projects that tax-exempt bonds support.

To date, the State has issued \$209 million in QZABs, QSCBs, and QECCBs. **Exhibit 3.6** shows that DLS estimates that the lower costs associated with these bonds reduced total debt service payments by \$66 million. However, some of these bonds are affected by federal sequestration reductions, which reduces the savings by almost \$3 million.

Exhibit 3.6
Summary of Special Purpose Issuances

<u>Type</u>	<u>Date Issued</u>	<u>Amount Issued</u>	<u>Debt Service Payments</u>	<u>Similar GO Payments</u>	<u>Similar GO Payments¹</u>	<u>Savings</u>	<u>Sequestration Reduction</u>	<u>Net Savings</u>
QZAB	Nov-01	\$18,098	\$0	\$12,432 ²	\$27,182	\$14,750	\$0	\$14,750
QZAB	Nov-04	9,043	0	7,356 ²	12,393	5,038	0	5,038
QZAB	Dec-06	4,378	0	3,609 ²	6,132	2,523	0	2,523
QZAB	Dec-07	4,986	0	4,089 ²	6,967	2,877	0	2,877
QZAB	Dec-08	5,563	6,142	6,142	7,606	1,464	0	1,464
QZAB	Dec-09	5,563	6,275	6,275	7,052	778	0	778
QSCB	Dec-09	50,320	0	49,570 ²	63,791	14,221	0	14,221
QSCB	Aug-10	45,175	0	44,497	52,731	8,234	-1,544	6,690
QZAB	Dec-10	4,543	0	4,474	5,302	828	-179	649
QZAB	Aug-11	15,900	15,900	15,900	20,267	4,367	-518	3,849
QECCB	Aug-11	6,500	7,080	7,080	8,285	1,206	-184	1,021
QZAB	Aug-12	15,230	15,230	15,230	18,303	3,073	-334	2,739
QZAB	Dec-13	4,549	4,549	4,549	5,875	1,326	0	1,326
QZAB	Dec-14	4,625	4,625	4,625	5,971	1,346	0	1,346
QZAB	Dec-15	4,625	4,625	4,625	5,971	1,346	0	1,346
QZAB	Dec-16	4,680	4,680	4,680	5,926	1,246	0	1,246
QZAB	Dec-17	4,823	4,823	4,823	5,922	1,099	0	1,099
Total		\$208,601	\$73,928	\$199,954	\$265,677	\$65,723	-\$2,760	\$62,963

GO: general obligation

QECCB: Qualified Energy Conservation Bonds

QSCB: Qualified School Construction Bonds

QZAB: Qualified Zone Academy Bonds

¹ Similar GO payments vary over time because interest rates vary. The analysis uses the GO true interest cost at the time that the debt is issued.

² Sinking Fund payment.

Note: Numbers may not sum to total due to rounding.

Source: Comptroller of Maryland; State Treasurer's Office; Department of Legislative Services

Federal Tax Cuts and Jobs Act Ends Federal Tax Credit Bonds

The federal Tax Cuts and Jobs Act of 2017 ended tax credit bonds. As such, no new issuances are planned.

Effect of Sequestration on Direct Payment Bonds

The federal Budget Control Act (BCA) of 2011 imposed caps on federal discretionary spending from federal fiscal 2012 to 2021. The Act also created a Joint Select Committee on Deficit Reduction to further reduce the federal deficit by at least \$1.2 trillion over 10 years. The BCA of 2011 established a back-up process to achieve the reduction with automatic spending cuts, or “sequestration.” The committee did not reach any agreement on reductions, and mandatory reductions took effect January 2013. Sequestration cuts are spread equally over 9 years and divided equally between defense and non-defense spending, with some programs exempt from sequestration, such as Medicaid and Social Security. Legislation provided some relief to BCA caps in federal fiscal 2013 (American Taxpayer Relief Act of 2012), 2014, and 2015 (Bipartisan Budget Act of 2013), and the sequestration period for nonexempt mandatory funds was extended to federal fiscal 2023. The Bipartisan Budget Act of 2015 continued to provide relief to BCA spending caps in federal fiscal 2016 and 2017, and the sequestration period for nonexempt mandatory funds was extended to federal fiscal 2025.

Direct pay bonds are affected by mandatory reductions required through sequestration. STO advises that this reduces federal fund reimbursements for these bonds. Initially, in fiscal 2013, reimbursements were reduced by approximately \$51,000. **Exhibit 3.7** shows that in fiscal 2019, federal fund reductions peak at \$0.9 million, resulting in an \$11.5 million federal subsidy. Because exact reductions are influenced by the mismatch between federal and State fiscal years, the date bond payments are due, and the timing of the request for federal reimbursements, the amount that federal funds are reduced can vary from initial estimates.

Qualified Zone Academy Bonds

QZABs were created under the federal Tax Reform Act of 1997 as a new type of debt instrument to finance specific education projects. In Maryland, the proceeds support the Aging Schools Program. QZABs are issued with the full faith and credit of the State. Consequently, QZABs are considered State debt. For purposes of calculating State debt affordability, QZABs are included in the State’s GO bond debt outstanding and debt service.

Prior to 2008, the State did not pay interest on QZAB issuances. Instead, bondholders received a federal income tax credit for each year that the bond was held. The State was not required to make payments on the principal until the bonds were redeemed. For example, under its 2001 agreement with Bank of America, the State, through STO, made annual payments into a sinking fund invested into a guaranteed rate of interest. Since the funds were invested in interest-bearing accounts, the repayment of the principal by the State was less than the par value of QZABs, making QZABs less expensive than GO bonds.

Exhibit 3.7
Effect of Sequestration on Federal Fund Revenues
Fiscal 2018-2020
(\$ in Thousands)

<u>Fiscal Year</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>Total</u>
July 2009 Build America Bonds	\$796	\$796	\$796	\$2,389
October 2009 Build America Bonds	942	942	942	2,825
February 2010 Build America Bonds	6,036	6,036	5,302	17,373
July 2010 Build America Bonds	1,094	1,094	1,094	3,281
July 2010 Qualified School Construction Bonds	1,965	1,965	1,965	5,895
December 2010 Qualified Zone Academy Bonds	228	228	228	684
August 2011 Qualified Zone Academy Bonds	660	660	660	1,980
August 2011 Qualified Energy Conservation Bonds	234	234	234	703
August 2012 Qualified Zone Academy Bonds	426	426	426	1,279
<i>Less Sequestration</i>	-854	-904	-699	-2,457
Total	\$11,527	\$11,477	\$10,948	\$33,952

Source: State Treasurer's Office; Congressional Budget Office

In 2008, STO advised that the federal government amended rules regarding arbitrage that precluded the State from investing sinking funds. As a consequence, the State is no longer able to invest the sinking funds payments, interest earnings will no longer be generated, and the State will need to fully appropriate the principal borrowed. Costs also increased because the State cannot issue all QZABs at par but must instead offer a supplemental coupon. The December 2008 sale offered a 1.6% supplemental coupon. As Exhibit 3.6 shows, even with a supplemental coupon, QZABs are still less expensive than GO bonds.

Since 2011, the federal government authorized QZABs with a direct payment to the State. Because interest rates are quite low, the federal payment is sufficient to fully subsidize the interest costs. For example, the State issued \$15.2 million in August 2012. The winning bid was submitted by Morgan Stanley & Co., LLC with a true interest cost that is essentially 0.0% because State debt service costs are reimbursed by the federal government. The net interest cost for the winning bidder was 2.83%. Since the federal government fully reimburses the State, there effectively is no interest payment for these bonds.

As previously mentioned, the federal Tax Cuts and Jobs Act eliminated the QZAB program, so no additional issuances are planned.

Qualified School Construction Bonds

QSCBs were created under the federal American Recovery and Reinvestment Act of 2009 (ARRA) as a new type of debt instrument to finance the construction, rehabilitation, or repair of public school facilities. The bonds are issued with the full faith and credit of the State and are debt. For purposes of calculating State debt affordability, QSCBs are included in the State's GO bond debt outstanding and debt service. These bonds were issued in place of tax-exempt bonds. The net effect of the bonds was to reduce the State debt service payments.

QSCBs are tax credit bonds entitling the holder of the bond to a tax credit for federal income tax purposes in lieu of receiving current interest on the bonds, similar to QZABs. The tax credit rate on QSCBs is set by the U.S. Treasury to allow for issuance of QSCBs at par and with no interest costs to the issuer. Unlike QZABs, tax credits may be stripped from bonds and sold separately, which could increase the marketability of the bonds.

Under ideal circumstances, the bonds sell at par without any interest payments (referred to as a supplemental coupon). Prior to December 2009, QSCBs were sold with supplemental coupon payments (such as the Baltimore County sale, which included a 1.25% coupon) or at a discount (such as the Virginia Public School sale, which generated proceeds equal to 91.0% of the bonds' principal).

In December 2009, the State sold \$50.3 million in QSCBs at par without a supplemental coupon. The bonds generate savings by replacing subsequent GO bond issuances that would have supported public school construction. Since there was no supplemental coupon, the State will not pay any interest on these bonds.

The State's second QSCB bond sale was in July 2010 when the State sold \$45.2 million in QSCBs. At the time of the sale, federal direct payments fully subsidized the \$29.4 million in debt service payments. Sequestration has reduced the federal subsidy by approximately \$1.7 million. The State is not authorized to issue any additional QSCBs.

Qualified Energy Conservation Bonds

QECBs were created by the Tax Extenders and Alternative Minimum Tax Relief Act of 2008. The ARRA increased the allocation. The bonds are taxable bonds. The State will receive a direct federal subsidy for 70% of the federal tax credit rate. All the bonds mature in 15 years. The definition of qualified energy conservation projects is fairly broad and contains elements relating to energy efficiency capital expenditures in public buildings, renewable energy production, various research and development applications, mass commuting facilities that reduce energy consumption, several types of energy-related demonstration projects, and public energy efficiency education campaigns.

The State issued the full \$6.5 million allocated to the State in July 2011. The proceeds will support the construction of energy conservation projects at a school in St. Mary's County. The winning bid's interest cost was 0.62%. This low rate is attributable to the federal reimbursement.

The winning bidders' net interest cost is 4.22%. Insofar as the federal tax credit rate at the day of the sale was 5.15%, and the State will be reimbursed 70.0% of that rate, the effective federal reimbursement is 86.0%. Annual interest payments are approximately \$273,000. The federal subsidy is \$234,000, requiring a net interest payment that is just over \$39,000 from the State. Sequestration reduces the annual federal subsidy by approximately \$17,000, resulting in a \$56,000 payment by the State.

Build America Bonds

The ARRA authorized the State to sell BABs. The bonds support the types of projects that traditional tax-exempt bonds support and are issued in place of tax-exempt bonds. The buyers of the bonds do not receive any federal tax credit and are subject to federal taxes. Instead, Maryland receives a 35% subsidy from the federal government. Unlike QZABs, QSCBs, and QECCBs, these bonds can support any project that is eligible to be funded with tax-exempt bonds.

To minimize debt service payments, the State bid the first BABs issuance as both traditional tax-exempt bonds and BABs, with the sale awarded to the lowest bid. Nine underwriters bid for BABs, and there were no bids for the tax-exempt bonds. In subsequent bond sales, the State bid them as BABs only.

The federal program expired on December 31, 2010. In 2009 and 2010, the State issued BABs four times: in August 2009, October 2009, February 2010, and July 2010. These issuances totaled \$583 million. BABs are structured similarly to tax-exempt GO bonds. In January 2011, DLS estimated that BABs reduced State GO bond debt service costs by \$39 million over the life of the bonds. Since the estimate was prepared, sequestration has reduced the federal subsidy by \$6 million.

Transportation Debt

MDOT issues 15-year, tax-supported consolidated transportation bonds. Bond proceeds support highway construction and other transportation capital projects. Revenues from taxes and fees and other funding sources accrue to the Transportation Trust Fund (TTF) to pay debt service, operating budget requirements, and to support the capital program. Debt service on consolidated transportation bonds is payable solely from the TTF.

In addition to issuing consolidated transportation bonds, MDOT also has debt referred to as nontraditional debt. Nontraditional debt currently includes Certificates of Participation and debt sold on MDOT's behalf by the Maryland Economic Development Corporation and MDTA. A portion of the financing for the Purple Line transit project will be provided through a federal Transportation Infrastructure Finance and Innovation Act loan, which will be considered MDOT nontraditional debt. The General Assembly annually adopts budget language that imposes a ceiling on MDOT's nontraditional debt.

Consolidated Transportation Bonds

The issuance of transportation bonds is limited by two criteria: an outstanding debt limit and a coverage test. Section 3-202(b) of the Transportation Article establishes the maximum aggregate and unpaid principal balance of consolidated transportation bonds that may be outstanding at any one time. During the 2013 session, the maximum outstanding debt limit was increased to \$4.5 billion (from \$2.6 billion) in recognition of the enactment of an increase in motor fuel tax revenue.

Section 3-202(c) of the Transportation Article further requires the General Assembly to establish each year in the State budget the maximum unpaid principal balance in bonds that may be outstanding at the end of the forthcoming year. The fiscal 2019 budget bill set the maximum ceiling for June 30, 2019, at \$3,422,265,000. DLS estimates that as of June 30, 2019, debt outstanding will total \$3,342,945,000.

The bond revenue coverage test, which is established in MDOT's bond resolutions, establishes that the department will maintain net revenues and pledged taxes equal to at least twice (2.0) the maximum future debt service, or MDOT will not issue bonds until the 2.0 ratio is met. MDOT has adopted an administrative policy establishing a minimum coverage of 2.5. Based on projected bond sales, DLS estimates that as of June 30, 2019, MDOT will have net income coverage of 2.8 and pledged taxes coverage of 4.7.

As shown in **Exhibit 3.8**, MDOT has issued new (*e.g.*, nonrefunding) consolidated transportation bonds in 19 of the past 25 years.

Exhibit 3.9 illustrates annual bond sales and changes in debt outstanding from fiscal 1994 to 2018. In fiscal 2018, MDOT's net debt outstanding was \$2.9 billion, well under the \$4.5 billion debt outstanding debt limit.

Future Debt Issuance

Every fall, DLS prepares a TTF forecast that projects revenues, expenditures, and the amount of debt that may be issued to support the capital program. DLS estimates that revenues will grow 1.0% and 6.1% in fiscal 2019 and 2020, respectively. The fiscal 2020 increase is due primarily to a law change in how transportation aid is provided to local governments (Chapters 330 and 331 of 2018). Beginning in fiscal 2020, transportation aid to local governments will be provided as mandated capital appropriations rather than as a share of transportation revenues. In fiscal 2020, this change increases revenues to MDOT by \$177.0 million. Absent this change, the fiscal 2020 increase would be 0.7%. Over the six-year forecast period, DLS assumes an average annual increase in revenues of 3.1%. This is slightly lower than the 3.3% assumed in the MDOT forecast and results primarily from slightly lower motor fuel gallonage estimates.

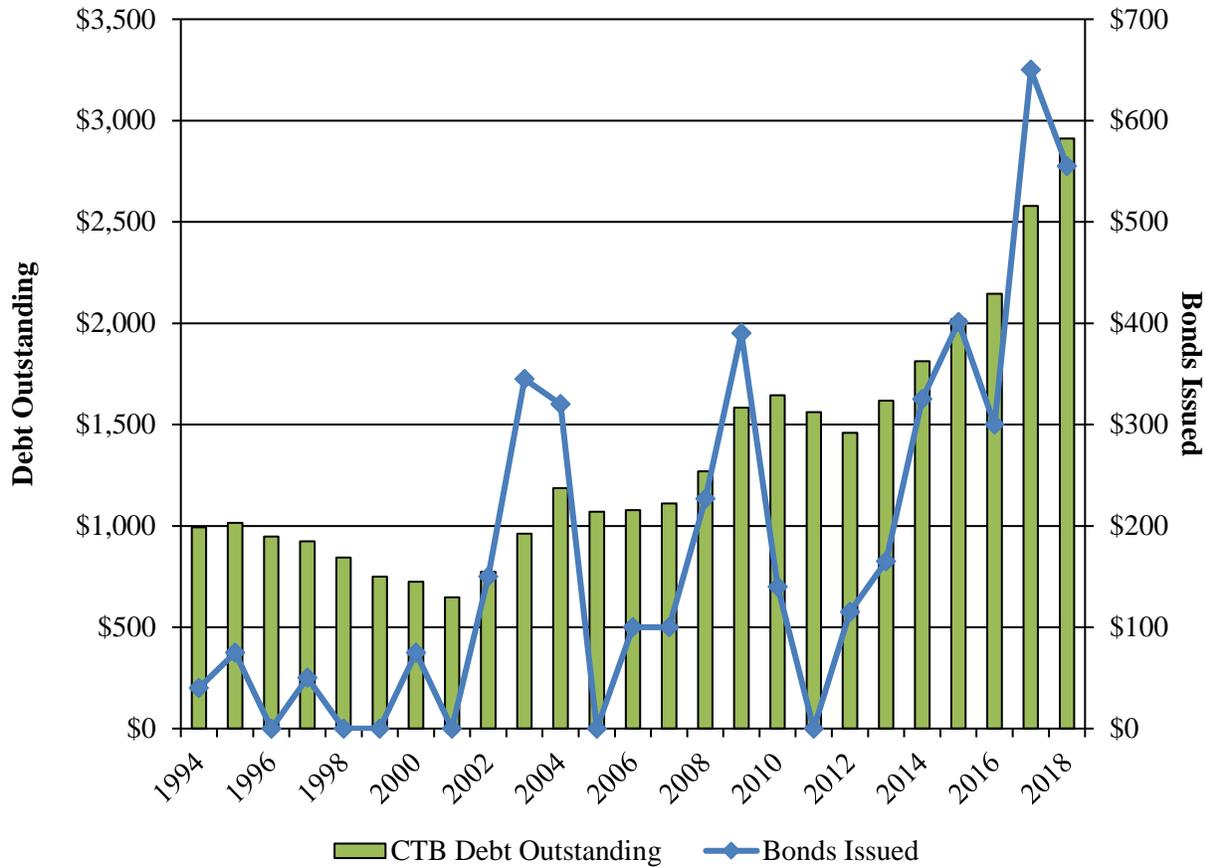
Exhibit 3.8
Consolidated Transportation Bond Issuance*
Fiscal 1994-2018
(\$ in Millions)

<u>Year</u>	<u>Bonds Issued</u>
1994	\$40
1995	75
1996	0
1997	50
1998	0
1999	0
2000	75
2001	0
2002	150
2003	345
2004	320
2005	0
2006	100
2007	100
2008	227
2009	390
2010	140
2011	0
2012	115
2013	165
2014	325
2015	401
2016	300
2017	650
2018	555
Total	\$4,523

*Exclusive of refunding. Seven refunding issuances were made from fiscal 1990 through 2017, including most recently in fiscal 2017, when refunding bonds totaling \$242.5 million were issued and used in conjunction with bond premiums to refund \$253.0 million in previously issued debt.

Source: Maryland Department of Transportation; Department of Legislative Services

Exhibit 3.9
Maryland Department of Transportation
Bonds Issued and Net Debt Outstanding
Fiscal 1994-2018
(\$ in Millions)



CTB: consolidated transportation bonds

Source: Maryland Department of Transportation; Department of Legislative Services

The TTF forecast assumes that capital funds are available after operating needs have been met. The DLS TTF forecast uses the DLS baseline estimate for operating expenditures in fiscal 2020, which is \$47 million above what is shown in the MDOT forecast. For fiscal 2021 through 2024, DLS uses the MDOT operating expense forecast, which increases operating expenses by the five-year average annual increase in operating expenses for the period ending in fiscal 2018, the most recent year for which actual expenditure numbers are available.

Finally, the DLS forecast assumes that the MDOT administrative policy of maintaining a minimum debt service coverage ratio of 2.5 is followed throughout the forecast period with the assumed level of bond issuance adjusted as necessary to achieve this goal. The lower revenue attainment estimates and higher fiscal 2020 operational spending assumption in the DLS forecast result in the need to reduce bond issuances for fiscal 2020 by \$44 million in order to maintain the net income debt service coverage ratio at the 2.5 minimum level. **Exhibit 3.10** compares the levels of bond issuances contained in the MDOT draft 2019 to 2024 forecast with the DLS forecast estimate.

Exhibit 3.10
Department of Legislative Services' Estimate
Consolidated Transportation Bonds – MDOT vs. DLS Projected Issuances
Fiscal 2019-2024
(\$ in Millions)

<u>Year</u>	<u>MDOT</u>	<u>DLS</u>	<u>Difference</u>
2019*	\$675	\$675	\$0
2020	590	546	-44
2021	465	465	0
2022	415	415	0
2023	375	375	0
2024	500	500	0
Total	\$3,020	\$2,976	-\$44

DLS: Department of Legislative Services
MDOT: Maryland Department of Transportation

*Sum of bonds and bond premiums.

Note: Numbers may not sum to total due to rounding.

Source: Maryland Department of Transportation; Department of Legislative Services

Debt Outstanding

Exhibit 3.11 shows the amount of estimated debt outstanding in the DLS forecast from fiscal 2019 to 2024. Over this period, debt outstanding increases each year. Debt outstanding in fiscal 2024 is projected to be \$893 million higher than in fiscal 2019.

Exhibit 3.11
Consolidated Transportation Bonds – MDOT Projected Debt Outstanding
Fiscal 2019-2024
(\$ in Millions)

<u>Year</u>	<u>Amount</u>
2019	\$3,343
2020	3,683
2021	3,893
2022	4,012
2023	4,049
2024	4,236

MDOT: Maryland Department of Transportation

Source: Department of Legislative Services

Debt Service

Exhibit 3.12 shows that debt service costs are projected to increase from \$338 million in fiscal 2019 to \$510 million in fiscal 2023 and decrease slightly to \$487 million in fiscal 2024. The growth is attributable to increased principal payments from prior issuances and the costs associated with issuing the debt from fiscal 2019 to 2024.

Exhibit 3.12
Projected Transportation Debt Service
Fiscal 2019-2024
(\$ in Millions)

<u>Year</u>	<u>Projected Debt Service</u>
2019	\$338
2020	354
2021	419
2022	466
2023	510
2024	487
Total	\$2,575

Source: Department of Legislative Services

Conclusions and Recommendations on Transportation Debt

MDOT competes with other State capital projects within debt affordability limits. Transportation debt capacity is limited by the constraints on debt outstanding, debt service coverage, the cash flow needs for projects in the capital program, and overall State debt affordability limits. The MDOT capital program relies heavily on debt, which results in debt service coverage ratios approaching their minimums by the end of the forecast period. **It is recommended that the General Assembly continue to set an annual limit on the level of State transportation debt to keep debt outstanding within the 4% of personal income debt affordability criterion and debt service within the 8% of revenues affordability criteria.**

Grant Anticipation Revenue Vehicles

GARVEEs are transportation bonds that are issued by states and public authorities that are backed by future federal aid highway and transit appropriations. While the source of funds used to repay GARVEE issuances originates with the federal government, the federal government's agreement to the use of its funds in this manner does not constitute any obligation on the part of the federal government to make these funds available. If for any reason federal appropriations are not made as anticipated, the obligation to repay GARVEEs falls entirely to the state agency or authority that issued them. To increase the GARVEE bond rating and reduce borrowing costs, the State pledges TTF revenues should federal appropriations be insufficient to pay GARVEE debt service. Since paying the debt is an obligation of the State, and TTF revenues have been pledged, GARVEE bonds are considered State debt.

Chapter 472 of 2005 authorized the use of GARVEE bonds for the Intercounty Connector (ICC) project. The law stipulates that the State may issue no more than \$750.0 million in GARVEE bonds and that bond maturity may not exceed 12 years after date of issue. MDTA issued \$325.0 million in GARVEE bonds on May 22, 2007, with a net premium of \$16.9 million to support construction of the ICC. A second GARVEE debt issuance of \$425.0 million was issued on December 11, 2008, with a net premium of \$17.7 million. On August 9, 2017, the Series 2007 GARVEE bonds were refinanced through the issuance of a Series 2017 GARVEE Refunding Bond. GARVEE debt service payments are \$87.5 million annually from fiscal 2010 to 2017. Refunding savings reduce fiscal 2018 payments to \$86.1 million and fiscal 2019 payments to \$86.2 million. In the last year of debt service payments, fiscal 2020 payments remain at \$51.4 million. MDOT anticipates refunding the 2008 issuance, which could further reduce fiscal 2019 and 2020 payments.

Capital Leases Supported by State Revenues

Section 8-104 of the State Finance and Procurement Article requires that capital leases supported by State tax revenues be included in State debt affordability calculations. The law does allow an exception for energy performance contract (EPC) leases if the savings generated exceed the costs and they are properly monitored.

Beginning in 1987, the State's capital program began utilizing lease/leaseback financing for capital projects. These leases are used to acquire both real property and equipment. Since fiscal 1994, the State has operated a program involving equipment leases for energy conservation projects at State facilities to improve energy performance.

Sections 8-401 to 8-407 of the State Finance and Procurement Article regulate leases. The law requires that capital leases be approved by BPW and that the Legislative Policy Committee (LPC) has 45 days to review and comment on any capital lease prior to submission to BPW. Chapter 479 of 2008 further regulates capital leases by amending § 12-204 of the State Finance and Procurement Article to require capital leases that execute or renew a lease of land, buildings, or office space must be certified by CDAC to be affordable within the State's debt affordability ratios or must be approved by the General Assembly in the budget of the requesting unit prior to BPW approval.

All three types of leases (equipment, energy performance, and property) have advantages. Often, equipment leases involve data processing equipment or telecommunications equipment. Equipment leases offer the State more flexibility than purchases since leases can be for less than the entire economic life of the equipment. Equipment leases are especially attractive in an environment where technology is changing very rapidly. Leases may also be written with a cancellation clause that would allow the State to cancel the lease if the equipment were no longer needed. Currently, the Treasurer's lease-purchase program consolidates the State's equipment leases to lower the cost by reducing the interest rate on the lease. The rate that the Treasurer receives for the State's equipment leases financed on a consolidated basis is less than the rates individual agencies would receive if they financed the equipment leases themselves.

For real property, the transaction generally involves an agreement in which the State leases property to a developer who in turn builds or renovates a facility and leases it back to the State. At the end of the lease period, ownership of the facility is transferred to the State. Equipment leases are generally for shorter periods of time, from three to five years. The primary advantages of property leases, when compared to GO bonds, are that they allow the State to act more quickly if an unanticipated opportunity presents itself. Because of the extensive planning and legislative approval process involved in the State's construction program, it often takes years to finance a project. Lease agreements are approved by BPW after they have been reviewed by the budget committees. Since BPW and the budget committees meet throughout the year, leases may be approved much more quickly than GO bonds, which must be approved by the entire General Assembly during a legislative session. Therefore, property leases give the State the flexibility to take advantage of economical projects, which are unplanned and unexpected.

For energy performance projects, agencies make lease payments using the savings that result from implementation of the conservation projects. Using the savings realized in utility cost reductions to pay off energy performance project leases allows projects to proceed that otherwise might not be of high enough priority to be funded given all of the other competing capital needs statewide. Under the program, utility costs will decrease; as the leases are paid off, the savings from these projects will accrue to the State.

Exhibit 3.13 shows that projected tax-supported capital lease debt outstanding totals \$194 million as of June 30, 2018. Debt outstanding is projected to decrease to \$181 million on June 30, 2019.

Exhibit 3.13
Tax-supported Capital Lease Debt Outstanding
As of June 30, 2018, and Projected June 30, 2019
(\$ in Millions)

<u>State Agency/Facility</u>	<u>Amount Outstanding June 2018</u>	<u>Projected Amount Outstanding June 2019</u>	<u>Difference</u>
State Treasurer's Office			
Capital Equipment Leases	\$15.5	\$11.4	-\$4.1
Energy Performance Projects	0.7	0.5	-0.2
Maryland Department of Transportation			
Headquarters Office Building	10.1	7.7	-2.4
Department of General Services			
Prince George's County Justice Center	14.2	13.3	-0.9
Maryland Transportation Authority			
Annapolis State Office Parking Garage	16.8	15.7	-1.1
Maryland Department of Health			
Public Health Laboratory	136.6	128.7	-7.9
<i>Subtotal – Current Leases</i>	<i>\$193.9</i>	<i>\$177.3</i>	<i>-\$16.6</i>
Proposed Leases			
New Capital Equipment Leases	\$0.0	\$3.8	\$3.8
Total	\$193.9	\$181.0	-\$12.8

Notes: Numbers may not sum to total due to rounding. Excludes Maryland Stadium Authority leases since the authority includes them in their balance sheet and debt service calculations.

Source: State Treasurer's Office

Energy Performance Contracts

Chapter 163 of 2011 changed how the State classifies EPCs. Prior to the enactment of the legislation, §8-104 of the State Finance and Procurement Article required that all capital leases supported by State tax revenues be included in State debt calculations. In 2010, CDAC reviewed this issue and determined that most of these EPC leases yielded savings that exceeded the lease payments. Consequently, these tend to reduce total State spending. STO also surveyed other states about their practices. It is common practice for other states to exclude capital leases that realize savings in excess of the capital cost.

The legislation that was enacted allows CDAC to exclude capital leases if the savings they generate equal or exceed the lease payments. It also requires that EPCs are monitored in accordance with the reporting requirements adopted by CDAC. The Department of General Services reviews these EPCs to determine if they do in fact generate savings. STO advises that 13 EPCs can be excluded from the CDAC debt affordability calculation. Three projects, whose fiscal 2018 debt service totaled \$12.3 million, cannot be excluded and are included in the affordability calculation.

Changes to Lease Accounting Rules Are Being Examined

Under current guidelines, leases that meet at least one of the following criteria are considered to be capital leases:

- the lease transfers ownership of the property to the lessee by the end of the lease term;
- the lease allows the lessee to purchase the property at a bargain price at a fixed point in the term of the lease for a fixed amount;
- the term of the lease is 75% or more of the estimated economic useful life of the property;
or
- the present value of the lease payments is 90% or more of the fair value of the property.

Many leases that the State enters into are not considered to be capital leases. Even if the leases represent long-term commitments to make payments, no liabilities are reported. Similarly, no assets are reported on many leases even if the State has long-term rights to receive operating lease payments.

The Governmental Accounting Standards Board (GASB) is an independent, nonpolitical organization dedicated to establishing rules that require state and local governments to report clear, consistent, and transparent financial information. In 2013, GASB initiated a project to reexamine issues associated with lease accounting. The objective of the project was to examine whether operating leases can meet the definitions of assets or liabilities, which could result in new standards for capital leases. A concern was that the current approach to operating leases undervalues

liabilities. For example, there are a number of operating leases that include long-term commitments to make payments, but no liabilities are reported.

After much deliberation, GASB unanimously approved Statement 87 that redefines lease rules. The requirements of the proposed statement would be effective for reporting periods beginning after December 15, 2019, with earlier application permitted. This affects fiscal 2021.

The new rules require government lessees to recognize a lease liability and an intangible asset representing their right to use the leased asset, with limited exception. Lessees would amortize the leased asset over the term of the lease and recognize interest expense related to the lease liability. The exposure draft provides exceptions for short-term leases lasting 12 months or less, along with financed purchases.

The new rules would increase the amount of capital leases, but it is unclear to what extent. The *Comprehensive Annual Financial Report* for fiscal 2017 reports that rent expenditures totaled \$94 million in fiscal 2017. By contrast, capital lease expenditures reported by CDAC totaled \$27 million in fiscal 2017. Changes in lease accounting standards could affect State debt affordability. State agencies should begin to review how the new rules will affect State-supported capital leases.

Bay Restoration Bonds

The BRF was created in 2004 to provide grants for enhanced nutrient removal (ENR) pollution reduction upgrades at the State's 67 major wastewater treatment plants (WWTP), which are defined as WWTPs with a design capacity of 0.5 million gallons per day or greater. The fund is administered by MDE's Water Quality Financing Administration. The fund is financed by a \$60 per year bay restoration fee on users of wastewater facilities (WWTP Fund) and septic systems and sewage holding tanks (Septic Fund). The fees on WWTP users (and users receiving public drinking water) took effect January 1, 2005, and are being collected through water and sewer bills. The fees on septic system and sewage holding tank owners took effect October 1, 2005, and are being collected by the counties. Fees were increased from \$30 per year to \$60 per year in 2012. The fund has several revenue sources and expends funds for both operating (MDE's operating expenses, operation and maintenance grants, bond expenses, and cost-effective nutrient load reductions) and capital (wastewater facility upgrades, sewer rehabilitation, and stormwater projects) purposes.

Revenue Bond Schedule

Based on the current priority list and estimated capital cost of ENR upgrades, **Exhibit 3.14** shows that MDE anticipates issuing \$100 million¹ of revenue bonds in fiscal 2022, two years later

¹ Under current market conditions, bonds are selling at a premium, which generate additional proceeds for capital projects. If this is still the case when MDE goes to market, MDE could reduce the issuance so that the proceeds (par value and premium) total approximately \$100 million. This reduces debt service costs and debt outstanding. Alternatively, MDE could decide to use the additional bond premium proceeds to support capital costs to the extent that any arbitrage penalties can be avoided.

than reported in last year's report. This issuance would increase the total amount of revenue bonds supported by the BRF to \$430 million. While the BRFA of 2017 (Chapter 23) expanded the eligible uses of the BRF to include Biological Nutrient Removal (BNR)² projects and authorized the use of up to \$60 million of tax-supported BRF revenue bonds for this purpose, MDE's projected total issuance need remains at \$430 million, which when combined with the fee revenues deposited into the fund is projected to be sufficient to cover fund expenses. Based on the current issuance stream, the debt outstanding will peak at \$286.2 million in fiscal 2022. Debt service costs increase to \$47 million in fiscal 2023. These issuances are limited by the revenues generated by the WWTP share of the funds, overall State debt considerations, and limitations on uses. All debt will be retired by the end of fiscal 2030, when the fee is reduced to \$30 per year. This limits the final issuance to an eight-year maturity.

Exhibit 3.14
Bay Restoration Wastewater Treatment Fund
Fiscal 2018-2024
(\$ in Millions)

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
Revenue Bonds Issued	\$0.0	\$0.0	\$0.0	\$0.0	\$100.0	\$0.0	\$0.0
Debt Outstanding	273.6	253.4	232.1	209.7	286.2	250.9	218.6
Debt Service	31.8	31.7	31.8	31.8	31.8	47.0	42.4

Note: This exhibit reflects the projected \$430 million issuance of Bay Restoration Fund revenue bonds.

Source: Maryland Department of the Environment; Department of Legislative Services

As noted above, the final planned debt issuance for the WWTP Fund have been shifted out two years from fiscal 2020 to 2022, although there has been no change in the overall amount scheduled to be issued relative to what was identified in last year's report. MDE has reported in the past that the decrease in overall revenue bond issuances from \$530 million to \$430 million and the shift in the timing of issuances is at least partially attributable to the fact that more cash has been used in place of debt as a result of changed assumptions about local government reimbursement schedules. The Septic Fund is operated on a pay-as-you-go basis and does not involve revenue bond proceeds.

² The BRFA of 2017 (Chapter 23) authorized the use of up to \$60 million of tax-supported revenue bonds and the funds in the BRF to fund BNR projects. Chapters 368 and 369 of 2017 (Bay Restoration Fund – Eligible Uses – Expansion) permanently expanded the allowable uses of the BRF to include BNR projects.

Prioritization

As of fiscal 2020, the funding prioritization schedule, in order of priority, is as follows:

- funding an upgrade of a wastewater facility with a design capacity of 0.5 million gallons or more per day from no upgrade all the way to ENR per Chapters 368 and 369;
- funding for the most cost-effective ENR upgrades at WWTP with a design capacity of less than 0.5 million gallons per day from no upgrade all the way to ENR per Chapters 368 and 369; and
- as determined by MDE and based on water quality and public health benefits for the following:
 - funding up to 100.0% for ENR upgrades at WWTPs that discharge into the Atlantic Coastal Bays or other waters of the State;
 - funding future upgrades of WWTPs to achieve additional nutrient removal or water quality improvement that is greater than ENR treatment levels;
 - funding up to 87.5% of the cost for combined sewer overflows abatement, rehabilitation of existing sewers, and upgrading conveyance systems, including pumping stations;
 - costs associated with upgrading septic systems and sewage holding tanks;
 - grants for local government stormwater control measures for jurisdictions that have implemented a specified system of charges under current authority, and
 - stormwater alternative compliance plans.

Outside of the prioritization schedule noted above, the BRF is authorized to purchase cost-effective nitrogen, phosphorus, or sediment load reductions in support of the State's efforts to restore the health of the Chesapeake Bay per Chapters 366 and 367 of 2017.

Refunding Potential

Debt service savings for the bay bonds could be achieved by refunding them after the specified redemption date for each issuance. However, the savings depend upon the future favorable status of the bond market and recent federal tax law changes that have complicated the refunding process. The recent tax law changes are discussed in more detail in Chapter 9.

CDAC considered whether bay bonds are State debt in 2004. At the time, the committee agreed that the bonds are State debt. The Water Quality Financing Administration's bond counsel

reviewed this issue and concurred with this opinion. The bond counsel noted that there is a substantial likelihood that, if challenged in court, the Maryland courts would consider bay bonds to be State debt since the bonds are supported by an involuntary exaction that serves a general public purpose.

It is recommended that the General Assembly continue to limit BRF revenue bond issuances at a level that maintains debt outstanding within the 4% of personal income debt affordability criterion and debt service within the 8% of revenues affordability criteria.

Maryland Stadium Authority

Chapter 283 of 1986 created MSA to construct and operate stadium sites for professional baseball and football in the Baltimore area. MSA is authorized to issue taxable and tax-exempt revenue bonds for property acquisition and construction costs related to two stadiums at Baltimore's Camden Yards. The authority may also participate in the development of practice fields, team offices, parking lots, garages, and related properties.

In subsequent years, MSA's role was expanded to include managing and issuing revenue bonds to renovate and expand convention centers in Baltimore and Ocean City, construct a conference center in Montgomery County, renovate the Hippodrome Performing Arts Center, and renovate Camden Station. Most recently, MSA's role has been expanded to issue up to \$1.1 billion in debt for the purpose of constructing and improving public school facilities in Baltimore City. The Baltimore City school debt is not considered a debt of the State. **Exhibit 3.15** lists MSA's current tax-supported authorized debt, debt outstanding, and annual debt service.

Camden Yards Sports Complex

Provisions of the Financial Institutions Article limit the amount of bonds that the authority may issue at the Camden Yards Sports Complex and the allocation of outstanding tax-supported debt. The authority may only exceed the limit with approval of BPW and notification to LPC. During the construction of the baseball and football stadiums, MSA remained within the statutory limit of \$235 million in outstanding debt; however, BPW has, on several occasions, reallocated the specific statutory project limits to meet the cash flow needs of the construction efforts. Debt service is supported by lottery revenues.

Exhibit 3.15
Maryland Stadium Authority
Revenue Debt Authorizations, Debt Outstanding, and Debt Service
(\$ in Millions)

<u>Project</u>	<u>Authorized</u>	<u>Outstanding as of July 1, 2018</u>	<u>Debt Service Fiscal 2019</u>
State Debt			
Baseball and Football Stadiums ¹	\$235.0	\$70.2	\$21.5
Montgomery County Conference Center	23.2	7.9	1.6
Hippodrome Performing Arts Center	20.3	6.0	1.6
Camden Station ¹	n/a	4.6	0.7
Subtotal	\$278.4	\$88.6	\$25.4
Non-State Debt			
Baseball and Football Stadiums ¹	n/a	\$12.8	\$2.2
Baltimore City Public Schools	\$1,100.0	728.8	48.1
Subtotal	\$1,100.0	\$741.6	\$50.3
Total	\$1,378.4	\$830.3	\$75.7

¹ Authorization limit for Camden Complex includes the stadiums and Camden Station. The authorization does not specify between State and non-State debt. Total debt is limited to \$235 million.

Note: Numbers may not sum to total due to rounding.

Source: Maryland Stadium Authority

Non-State Debt Issued for the Camden Yards Sports Complex on Advise of Bond Counsel

Between 2010 and 2012, MSA issued over \$30 million in Sports Facilities Taxable Lease Revenue Bonds in order to fund capital improvement projects at the Camden Yards Sports Complex. The bonds will be secured by lottery revenues and, in the opinion of bond counsel, will not constitute tax-supported debt. An agreement with the Comptroller ensures that lottery proceeds are deposited with a trustee for the benefit of the holders of the bonds. The bonds were sold as a private placement at a 2.9% interest rate and a 3.5-year term. Funds were used primarily for the three phases of capital improvements to Oriole Park, including concrete restoration, seat renovation, waterproofing, roof replacement, electrical repairs, and some structural steel painting. A refunding and reissue of a portion of this debt occurred in fiscal 2014 to avoid a significant final

payment and to extend payments beyond fiscal 2015. The remaining debt was similarly refunded and reissued in fiscal 2015. The original offering was done in conjunction with \$4 million financed through the State Treasurer's Master Equipment Lease Program to replace video boards at the football stadium and \$10 million financed through the State Treasurer's Energy Performance Contract Master Lease Program for various energy projects at the facilities.

In 2012, MSA issued approximately \$105 million in fixed-rate lease revenue bonds that were used to refund the 1998 and 1999 variable-rate bonds. This transaction eliminated exposure risks and some annual fees associated with the current variable-rate debt.

Montgomery County Conference Center

In July 2003, MSA issued \$23.2 million in tax-supported bonds to support construction of the Montgomery County Conference Center. Of this amount, \$20.3 million represents the State's contribution to construction costs, which totaled \$66.0 million. The remaining bond proceeds funded a capitalized interest account established as part of the financing plan to fund interest-only debt service payments beginning on June 15, 2003, and continuing through June 15, 2004. Debt service payments thereafter and continuing through June 15, 2024, are paid from funds subject to appropriation by the State. Montgomery County contributed \$13.7 million for construction and another \$2.5 million for project-related enhancements. The project opened in 2004. In 2012, MSA submitted an Amended Comprehensive Plan of Financing for the center to refund the existing issuance at a lower rate.

Hippodrome Performing Arts Center

On July 10, 2002, the authority issued \$20.25 million in taxable revenue bonds for the renovation of the Hippodrome Performing Arts Center in Baltimore City. The total cost of the Hippodrome project was \$63 million, excluding capitalized interest expense. Funding for the project was provided by the State, MSA revenue bonds, Baltimore City, Baltimore County, private contributions, the performing arts center's operator, historic tax credits, and interest earnings. The project was completed in February 2004.

The Hippodrome is leased to the State and, subsequently, leased back to MSA. The rent paid under the lease by the State is equivalent to the debt service on the revenue bonds and is derived from the State's General Fund. Debt service payments are subject to appropriation and were averaging \$1.8 million annually for the 20-year term of the bond. The debt service is partially offset by a \$2 per ticket surcharge for events at the Hippodrome, which is required by legislation authorizing the project. The surcharge was originally expected to cover approximately half of the debt service; however, lower than expected sales have led to greater contributions by the State.

Camden Station

Section 13-708.1 of the Financial Institutions Article provides that MSA may develop any portion of Camden Yards to generate incidental revenues for the benefit of the authority subject to

approval of BPW and LPC. MSA received LPC approval in January 2003 and BPW approval in December 2003 to renovate Camden Station, a historic four-story building next to the baseball stadium.

In February 2004, MSA issued \$8.7 million in 20-year taxable revenue bonds to renovate Camden Station. Of that amount, \$8 million is to pay for capital construction associated with the development of the project. The remaining bond proceeds were used to pay capitalized interest, costs of issuance, and bond insurance. The capital interest period covered biannual debt service payments through June 15, 2006.

Phase I of the project, involving the basement and first floor, was completed in March 2005. Phase II, involving the second and third floors, was completed in August 2006. The Geppi's Entertainment Museum rents approximately 16,055 square feet on the second and third floor. The first floor and basement are currently vacant; MSA is in the process of attracting new tenants.

Local Project Assistance and Feasibility Studies

The 1998 capital budget bill (as amended by Chapter 204 of 2003 and Chapter 445 of 2005) authorizes MSA to assist State agencies and local governments in managing construction projects. The budget committees must be notified, and funding must be provided entirely by the agency or local government requesting assistance unless funding is specifically provided in the budget for the project. The 1998 bill also authorizes the authority to conduct feasibility studies. The budget committees must give approval for the studies, and costs must add to no more than \$500,000 annually of MSA's nonbudgeted funds.

Several studies are currently in various stages of completion by the authority. Studies that MSA is currently conducting include a master plan improvements to the Fair Hill Race Course Complex in Cecil County, minor league ballpark in Hagerstown, Baltimore City circuit court site alternate use study, phase 2 of Pimlico/Preakness market and asset study, and phase 2 of the Baltimore City Convention Center study.

Feasibility studies represent projects still in the planning stages. Since the projects are in a planning stage and are quite speculative, they are excluded from the affordability analysis and long-term debt projections. However, if any of these projects were to be developed and funded by the State, it would add to the State debt load and reduce the State's debt capacity.

Baltimore City School Revitalization Program

In 2013, the General Assembly adopted HB 860 (Chapter 647) authorizing MSA to issue up to \$1.1 billion in debt for the purpose of constructing and improving public school facilities in Baltimore City. Any debt issued by MSA to finance construction or improvement of

Baltimore City public school facilities is not a debt, liability, or pledge of the faith and credit or taxing power of the State. Sources of revenue to pay the debt service and other project costs are:

- all revenues generated by the Baltimore City beverage container tax;
- all of the city proceeds from table games at the video lottery facility located in Baltimore City that are dedicated to school construction and 10% of the participation rent paid by the video lottery facility operator to Baltimore City;
- \$20 million in State education aid due to the Baltimore City Board of School Commissioners;
- \$20 million in annual proceeds from the State lottery;
- proceeds from the sale of State bonds to finance improvements to Baltimore City public school facilities; and
- any other funds or revenues received from or dedicated by any public source to support the initiative.

MSA is responsible for managing all public school construction and improvement projects in Baltimore City that are financed under the Act. However, MSA may not use any of its own funds, whether appropriated or nonbudgeted, to pay for any costs or expenses related to its role as project manager.

In April 2016, MSA issued the first round of debt dedicated to the first phase (Year 1 schools) of the school construction program. The 30-year, tax-exempt revenue bonds totaled \$320.0 million and garnered a premium of \$66.1 million to be used for construction costs for 11 schools. The annual debt service is approximately \$20.8 million.

The second bond issuance supporting Year 2 schools was issued in February 2018. A total of \$426.4 million was issued. The sale generated \$70 million premium that supports construction. The annual debt service costs total \$48.1 million. MSA anticipates a third sale totaling \$200 million. After all three issuances, debt service costs are expected to be \$60 million, which is consistent with the amount of revenues supporting these projects.

Chapter 4. Affordability Analysis

The Capital Debt Affordability Committee's (CDAC) mission is to advise the Governor and the General Assembly regarding the maximum amount of debt that can prudently be authorized. To evaluate debt affordability, the committee has adopted these two criteria:

- State debt outstanding should be limited to 4% of Maryland personal income; and
- State debt service should be limited to 8% of revenues supporting the debt service.

These criteria compare debt to economic factors that relate to the wealth of Maryland citizens (personal income) and the resources of the State (revenues). Maintaining debt levels within the guidelines set by the committee allows the State to maintain its AAA bond rating and support a growing capital program that is sustainable.

The criteria are flexible enough to allow the State to adjust the program as the State's fiscal condition changes. The flexibility allowed the State to prudently increase the capital program when operating funds became scarce during the recession earlier this decade. The criteria also offer the State a predictable, stable, and transparent process.

This section examines the economic factors that measure debt affordability and evaluates the Spending Affordability Committee recommendation to determine affordability.

Personal Income

Exhibit 4.1 shows the Board of Revenue Estimates September 2018 personal income estimates. The average annual growth rate of personal income is 3.7% over the five-year period.

Exhibit 4.1
Maryland Personal Income
Calendar 2019-2024
(\$ in Billions)

<u>Year</u>	<u>Personal Income Estimate</u>	<u>% Change</u>
2019	\$389	4.24%
2020	404	3.90%
2021	419	3.74%
2022	435	3.89%
2023	451	3.64%
2024	467	3.54%

Source: Board of Revenue Estimates

Revenue Projections

Exhibit 4.2 shows that the Department of Legislative Services (DLS) out-year revenue projections are greater than the CDAC projections through fiscal 2024. The differences between forecasts are minor. The most significant difference relates to Transportation Trust Fund revenues. DLS prepares a separate forecast while CDAC uses the Maryland Department of Transportation (MDOT) forecast. Variations in motor fuel and motor vehicle excise taxes revenues account for the differences.

Exhibit 4.2
Comparison of DLS and CDAC Revenue Projections
Fiscal 2019-2024
(\$ in Millions)

<u>Year</u>	<u>General Funds</u>	<u>Property Tax</u>	<u>Other ABF</u>	<u>ETF Slots</u>	<u>Transfer Taxes</u>	<u>TTF</u>	<u>GARVEE</u>	<u>Stadium</u>	<u>BRF¹</u>	<u>DLS Total</u>	<u>CDAC Estimate</u>	<u>Difference</u>
2019	\$18,088	\$835	\$15	\$528	\$228	\$3,248	\$549	\$21	\$116	\$23,628	\$23,665	-\$37
2020	18,678	850	14	536	236	3,467	549	21	117	24,468	24,472	-4
2021	19,231	867	13	527	242	3,581	0	7	118	24,587	24,576	10
2022	19,812	884	13	535	245	3,698	0	7	219	25,414	25,344	70
2023	20,537	902	12	540	248	3,779	0	7	121	26,146	26,198	-52
2024	21,287	920	10	545	251	3,809	0	7	123	26,951	27,006	-55

ABF: Annuity Bond Fund

BRF: Bay Restoration Fund

CDAC: Capital Debt Affordability Committee

DLS: Department of Legislative Services

ETF: Education Trust Fund (supported by video lottery terminals)

GARVEE: Grant Anticipation Revenue Vehicle

TTF: Transportation Trust Fund

¹ BRF revenues only include revenues for wastewater treatment and exclude septic revenues.

Source: Capital Debt Affordability Committee; Department of Legislative Services

Affordability Analysis

DLS has prepared a revised estimate of State debt outstanding to personal income and State debt service to revenues. **Exhibit 4.3** shows affordability calculation assumptions for general obligation bonds authorizations. The Grant Anticipation Revenue Vehicle, Stadium Authority, and bay restoration bond issuances are also consistent with CDAC estimates. There are differences with respect to MDOT bonds since DLS prepared its own forecast.

Exhibit 4.3
Projected New Debt Issuances
Fiscal 2019-2024
(\$ in Millions)

<u>Year</u>	<u>GO Bond Authorization</u>	<u>GO Bond Issuances</u>	<u>MDOT Bonds</u>	<u>GARVEE</u>	<u>Capital Leases</u>	<u>Stadium Authority Bonds</u>	<u>Bay Restoration Bonds</u>
2019	\$995	\$1,080	\$675	\$0	\$4	\$0	\$0
2020	995	1,007	546	0	8	0	0
2021	995	972	465	0	8	0	0
2022	995	937	415	0	8	0	100
2023	995	926	375	0	8	0	0
2024	995	999	500	0	8	0	0

GARVEE: Grant Anticipation Revenue Vehicle

GO: general obligation

MDOT: Maryland Department of Transportation

Source: Capital Debt Affordability Committee; Department of Legislative Services

CDAC policy is that tax-supported State debt outstanding not exceed 4% of personal income. **Exhibit 4.4** shows that for the forecast period, debt outstanding as a percent of personal income peaks at 3.49% in fiscal 2019, as the ratio steadily declines.

Exhibit 4.4
State Tax-supported Debt Outstanding
Components and Relationship to Personal Income
Fiscal 2019-2024
(\$ in Millions)

<u>Year</u>	<u>General Obligation Bonds</u>	<u>MDOT Bonds</u>	<u>GARVEE</u>	<u>Capital Leases</u>	<u>Stadium Authority Bonds</u>	<u>Bay Restoration Bonds</u>	<u>Total Tax-supported Debt</u>
2019	\$9,692	\$3,343	\$49	\$181	\$65	\$253	\$13,583
2020	9,804	3,683	0	169	44	232	13,932
2021	9,878	3,893	0	153	36	210	14,170
2022	9,873	4,012	0	136	28	286	14,334
2023	9,827	4,049	0	121	20	251	14,269
2024	9,837	4,236	0	109	13	219	14,413

State Tax Supported Debt Outstanding as a Percent of Personal Income
(Affordability Criteria = 4.0%)

2019	2.49	0.86	0.01	0.05	0.02	0.07	3.49
2020	2.43	0.91	0.00	0.04	0.01	0.06	3.45
2021	2.36	0.93	0.00	0.04	0.01	0.05	3.38
2022	2.27	0.92	0.00	0.03	0.01	0.07	3.29
2023	2.18	0.90	0.00	0.03	0.00	0.06	3.16
2024	2.11	0.91	0.00	0.02	0.00	0.05	3.08

GARVEE: Grant Anticipation Revenue Vehicle
MDOT: Maryland Department of Transportation

Source: Capital Debt Affordability Committee; Department of Legislative Services

With respect to debt service, the policy is that State tax-supported debt service not exceed 8% of tax revenues supporting debt service. **Exhibit 4.5** shows that the debt service as a percent of revenues fluctuates between 7.4% and 7.7%, peaking in fiscal 2023.

Exhibit 4.5
State Tax-supported Debt Service
Components and Relationship to Revenues
Fiscal 2019-2024
(\$ in Millions)

<u>Year</u>	<u>General Obligation Bonds</u>	<u>MDOT Bonds</u>	<u>GARVEE</u>	<u>Capital Leases</u>	<u>Stadium Authority Bonds</u>	<u>Bay Restoration Bonds</u>	<u>Total Tax-supported Debt Service</u>
2019	\$1,298	\$338	\$86	\$25	\$25	\$32	\$1,803
2020	1,332	354	51	27	24	32	1,820
2021	1,352	419	0	27	10	32	1,840
2022	1,397	466	0	26	10	32	1,932
2023	1,426	510	0	23	9	47	2,015
2024	1,447	487	0	23	9	42	2,009

State Tax Supported Debt Service as a Percent of Revenues
(Affordability Criteria = 8.0%)

2019	5.49	1.43	0.36	0.11	0.10	0.13	7.63
2020	5.44	1.45	0.21	0.11	0.10	0.13	7.44
2021	5.50	1.71	0.00	0.11	0.04	0.13	7.48
2022	5.50	1.84	0.00	0.10	0.04	0.13	7.60
2023	5.45	1.95	0.00	0.09	0.03	0.18	7.71
2024	5.37	1.81	0.00	0.09	0.03	0.16	7.46

GARVEE: Grant Anticipation Revenue Vehicle
MDOT: Maryland Department of Transportation

Note: Numbers may not sum to total due to rounding.

Source: Capital Debt Affordability Committee; Department of Legislative Services

Exhibit 4.6 shows that debt outstanding ratios estimated by DLS are slightly more favorable than the CDAC estimates.

Exhibit 4.6
State Debt to Personal Income
Comparison of DLS and CDAC Estimates
Fiscal 2019-2024

<u>Year</u>	<u>DLS</u>	<u>CDAC</u>
2019	3.49%	3.49%
2020	3.45%	3.45%
2021	3.38%	3.39%
2022	3.29%	3.32%
2023	3.16%	3.21%
2024	3.08%	3.13%

CDAC: Capital Debt Affordability Committee
DLS: Department of Legislative Services

Source: Capital Debt Affordability Committee; Department of Legislative Services

Exhibit 4.7 shows the debt service ratios based on the DLS forecast of revenues and those estimated by CDAC from fiscal 2019 to 2024. CDAC's estimates are slightly lower than DLS' estimates, with differences attributable to transportation revenues.

Exhibit 4.7
State Debt Service to State Revenues
Comparison of DLS and CDAC Estimates
Fiscal 2019-2024

<u>Year</u>	<u>DLS</u>	<u>CDAC</u>
2019	7.63%	7.56%
2020	7.44%	7.38%
2021	7.48%	7.33%
2022	7.60%	7.44%
2023	7.71%	7.56%
2024	7.46%	7.32%

CDAC: Capital Debt Affordability Committee
DLS: Department of Legislative Services

Source: Capital Debt Affordability Committee; Department of Legislative Services

Chapter 5. General Obligation Bonds' Long-term Costs

In the previous chapter, the affordability of bonds was examined utilizing the Capital Debt Affordability Committee's debt affordability criteria. The committee compares debt outstanding to personal income and debt service costs to revenues.

While this debt affordability approach is enlightening, it is not sufficient. This chapter provides an analysis of out-year costs and the effect of these costs on general fund spending. Specific issues examined are:

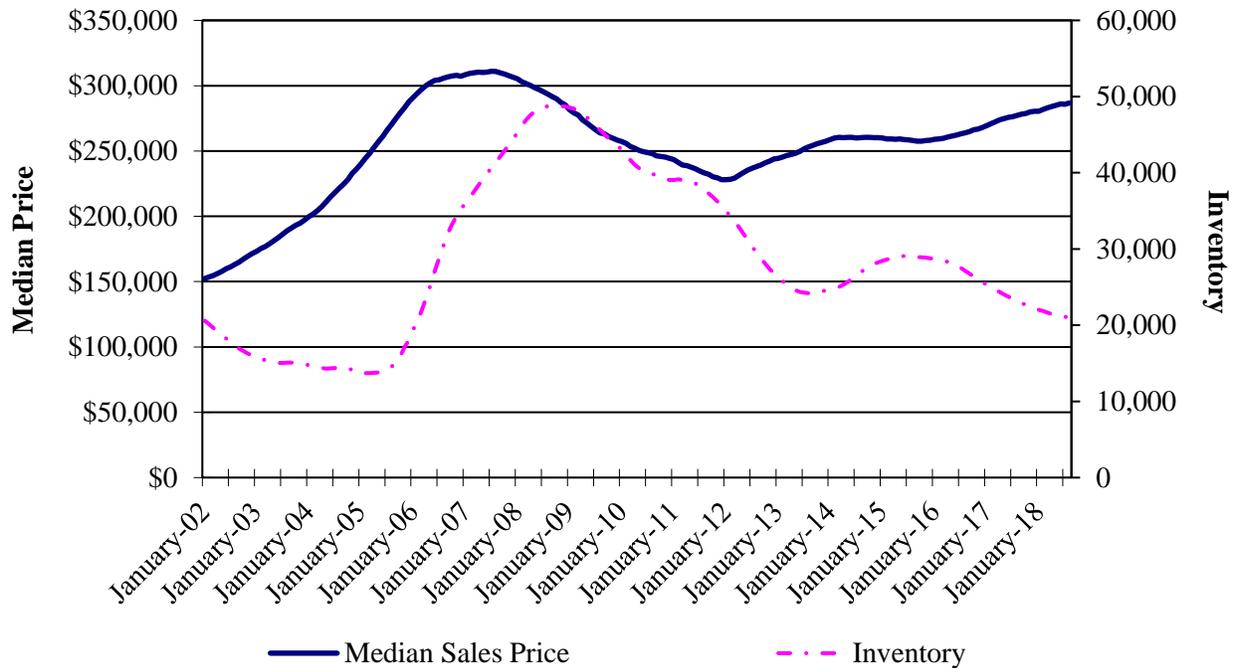
- the Annuity Bond Fund (ABF), which provides revenues that support general obligation (GO) bond costs;
- general fund spending on debt service since the affordability process began in fiscal 1979; and
- pension costs, which are the State's other large long-term liability that are examined by rating agencies.

General Fund Appropriations Are Necessary to Support Debt Service

GO bond debt service costs are supported by the ABF. The fund's largest revenue source is the State property tax. In April 2006, the State property tax rate was set at \$0.112 per \$100 of assessable base and has remained at that level since fiscal 2007. Other revenue sources include proceeds from bond sale premiums, interest and penalties on property taxes, and repayments for local bonds. When the ABF has not generated sufficient revenues to fully support debt service, general funds have subsidized debt service payments.

State property tax collections are influenced by trends in the housing market. **Exhibit 5.1** shows that there was a substantial increase in real estate values, which peaked in summer 2007, followed by a decline in values. The year-over-year decline began in July 2007 and continued until February 2012. That was 55 straight months of year-over-year declines in median home values. Property values have been increasing recently, though not as steeply as in some earlier periods. Since November 2015, year-over-year median home costs have increased each month, except July 2018.

Exhibit 5.1
Maryland Housing – Median Prices and Inventory
12-month Moving Average
January 2002-August 2018

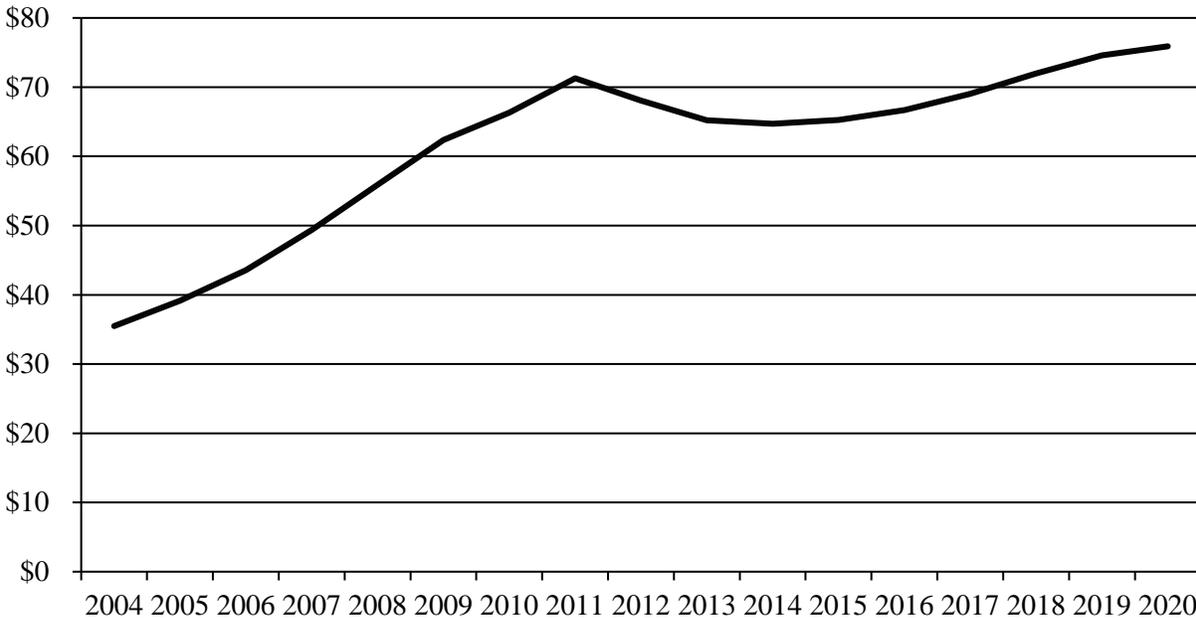


Source: Maryland Association of Realtors; Department of Legislative Services

Inventories went through a similar increase and decline. However, they lagged behind the pattern seen in home prices. Since the increase in home values in February 2012, inventories continued to decline through February 2013. Since November 2015, inventories have consistently declined.

As expected, the rising property values from 2002 to 2007 increased State property tax receipts. **Exhibit 5.2** shows how much revenue one cent on the State property tax has generated since fiscal 2004. From fiscal 2004 to 2011, the increases were quite steep. Revenues declined from fiscal 2011 to 2014 and increased in fiscal 2015. Revenues are expected to reach the fiscal 2011 peak of \$76 million for each cent in fiscal 2020. The projected out-year increase is between 1% and 2%.

Exhibit 5.2
Revenues Generated by One Cent of State Property Taxes
Fiscal 2004-2020
(\$ in Millions)



Source: State Department of Assessments and Taxation; Department of Budget and Management; Department of Legislative Services

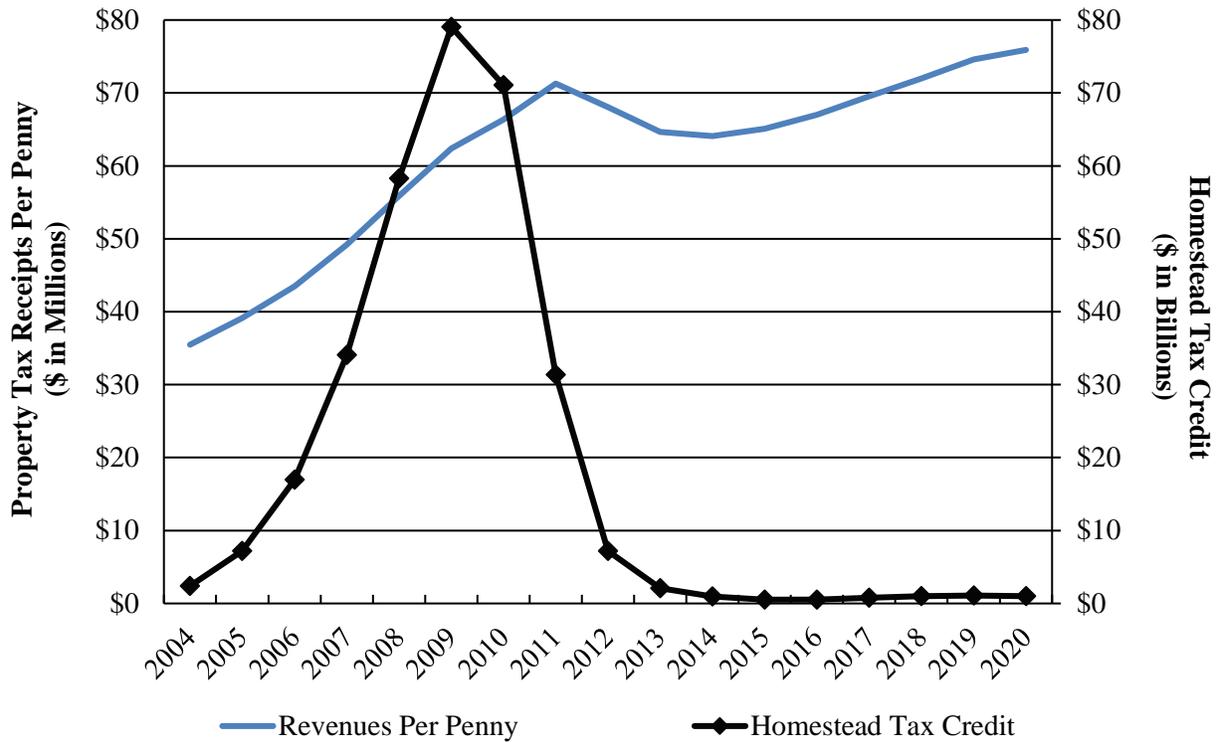
Assessment policies and the Homestead Tax Credit account for the lag between changes in the real estate market and tax receipts. Property values are assessed every three years, and increases are phased in over three years. For example, if a value increases by 9%, the State increase would be 3% in the first year, 6% in the second year, and 9% in the third year.

The Homestead Tax Credit limits the annual increase in State property assessments subject to the property tax to 10%. If reassessing a resident's assessed property value results in an increase that exceeds 10%, the homeowner receives a credit for any amount above 10%. This limits revenue growth when property values rise quickly. Taken together, the three-year assessment process and Homestead Tax Credit slowed the revenue increases during the real estate boom and delayed the peak until after the decline in property values.

The Homestead Tax Credit also provides the State a hedge against declining property values. As home values declined, the homestead credit declined, and revenues continued to increase slowly. The result was to smooth State revenues; State property tax revenue growth was

slower as home values increased, and there was no decline in revenues when home values decreased. **Exhibit 5.3** shows that State credits increased to \$79 billion in fiscal 2009, in response to increases in assessments. From fiscal 2014 to 2017, the aggregate homestead credits are under \$1 billion each year. Credits are expected to be slightly more than \$1 billion in fiscal 2019.

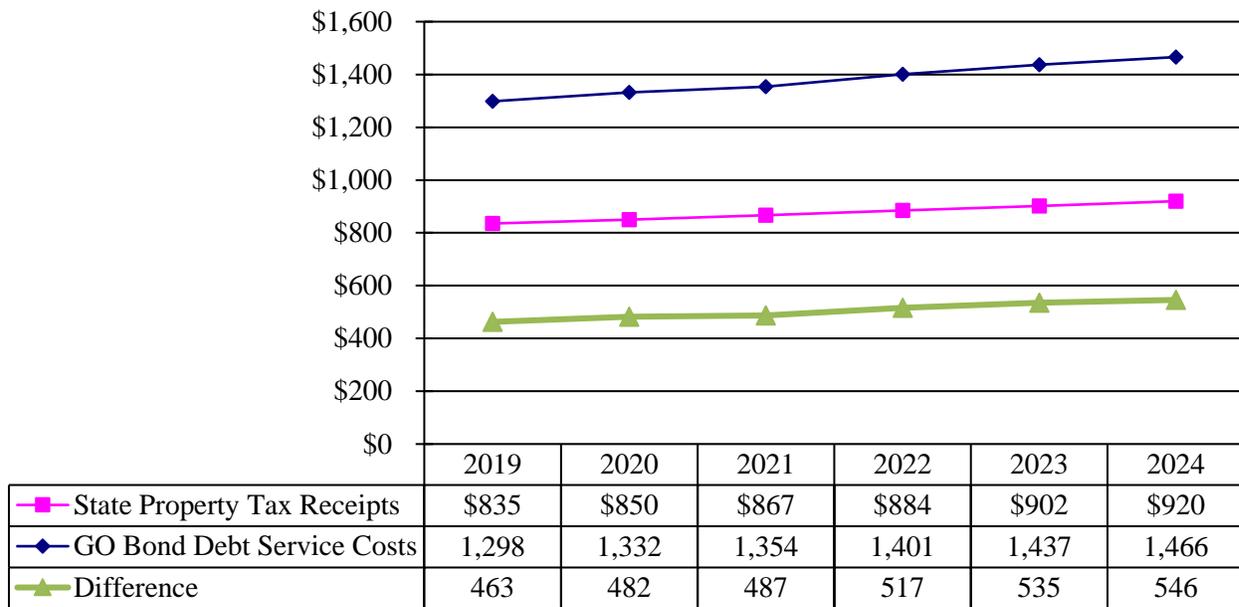
Exhibit 5.3
State Property Tax Homestead Tax Credits
Fiscal 2004-2020



Source: State Department of Assessments and Taxation

Over the next few years, State property tax revenues are estimated to increase at a moderate rate of 1.9% annually from fiscal 2019 to 2024. This contrasts with debt service costs, which are expected to increase at a rate of 2.5% over the same period. **Exhibit 5.4** shows how State property tax revenues, which are \$463 million less than debt service costs in fiscal 2019, are expected to be \$546 million less than debt service costs in fiscal 2024.

Exhibit 5.4
GO Bond Debt Service Costs and State Property Tax Revenue Collections
Fiscal 2019-2024
(\$ in Millions)



GO: general obligation

Source: Department of Legislative Services

Before fiscal 2014, the shortfall in State property tax receipts was not a problem because the ABF had a large fund balance. This fund balance was largely attributable to the low interest rates offered for AAA-rated State and municipal bonds. These low rates have reduced GO bonds' true interest cost, resulting in higher bond sale premiums. These premiums have been deposited into the ABF to support debt service costs.

Exhibit 5.5 shows that general fund subsidies will support the ABF from fiscal 2019 to 2024. General fund appropriations are required despite the availability of \$158 million in fund balance at the beginning of fiscal 2019 and an estimated \$142 million in premiums from the fiscal 2019 and 2020 bond sales. By fiscal 2022, debt service is supported almost entirely by State property taxes and general funds.

Exhibit 5.5
Revenues Supporting Debt Service
Fiscal 2019-2024
(\$ in Millions)

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
Special Fund Revenues						
State Property Tax Receipts	\$835	\$850	\$867	\$884	\$902	\$920
Bond Sale Premiums ¹	72	70	31	0	0	0
Other Revenues	2	2	2	2	2	2
ABF Fund Balance Transferred from Prior Year	158	74	1	1	1	1
Subtotal Special Fund Revenues	\$1,068	\$996	\$902	\$888	\$905	\$924
General Funds	\$286	\$322	\$433	\$498	\$517	\$530
Transfer Tax Special Funds ²	7	7	7	7	7	7
Federal Funds ³	11	11	10	9	8	7
Total Revenues	\$1,372	\$1,336	\$1,355	\$1,402	\$1,438	\$1,468
Debt Service Expenditures	\$1,298	\$1,332	\$1,354	\$1,401	\$1,437	\$1,466
ABF End-of-year Fund Balance	\$74	\$4	\$1	\$1	\$1	\$1

ABF: Annuity Bond Fund

¹ Estimated bond sale premiums total \$46.6 million in March 2019, \$36.8 million in summer 2019, \$33.2 million in March 2020, and \$31.1 million in summer 2020. Fiscal 2019 premiums exclude \$55 million supporting capital projects.

² This supports \$70.0 million of general obligation bonds issued in 2010 for Program Open Space.

³ This includes federal interest subsidies for Build America Bonds, Qualified Zone Academy Bonds, Qualified School Construction Bonds, and Qualified Energy Conservation Bonds.

Source: Department of Legislative Services

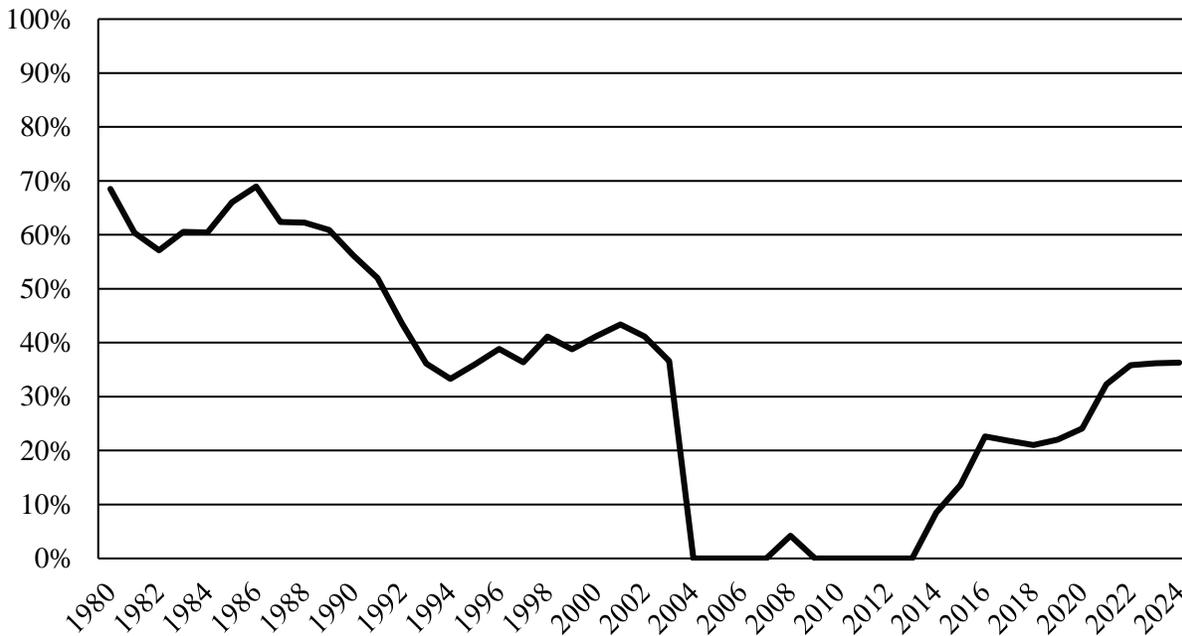
Levels of General Fund Appropriations for Debt Service

In most years, State policy has been to keep State property tax rates low. To fund debt service, the State has appropriated general funds in all but nine years since fiscal 1980.

Exhibit 5.6 shows that the Department of Legislative Services projects that general fund appropriations for debt service will exceed 30% of debt service appropriations by fiscal 2021. Since the affordability process began in fiscal 1979, the level of general fund support has varied

considerably; general fund support peaked at 69% in fiscal 1986, while no support was provided from fiscal 2004 to 2007 and from fiscal 2009 to 2013.

Exhibit 5.6
General Funds as a Percent of Debt Service Appropriations
Fiscal 1980-2024

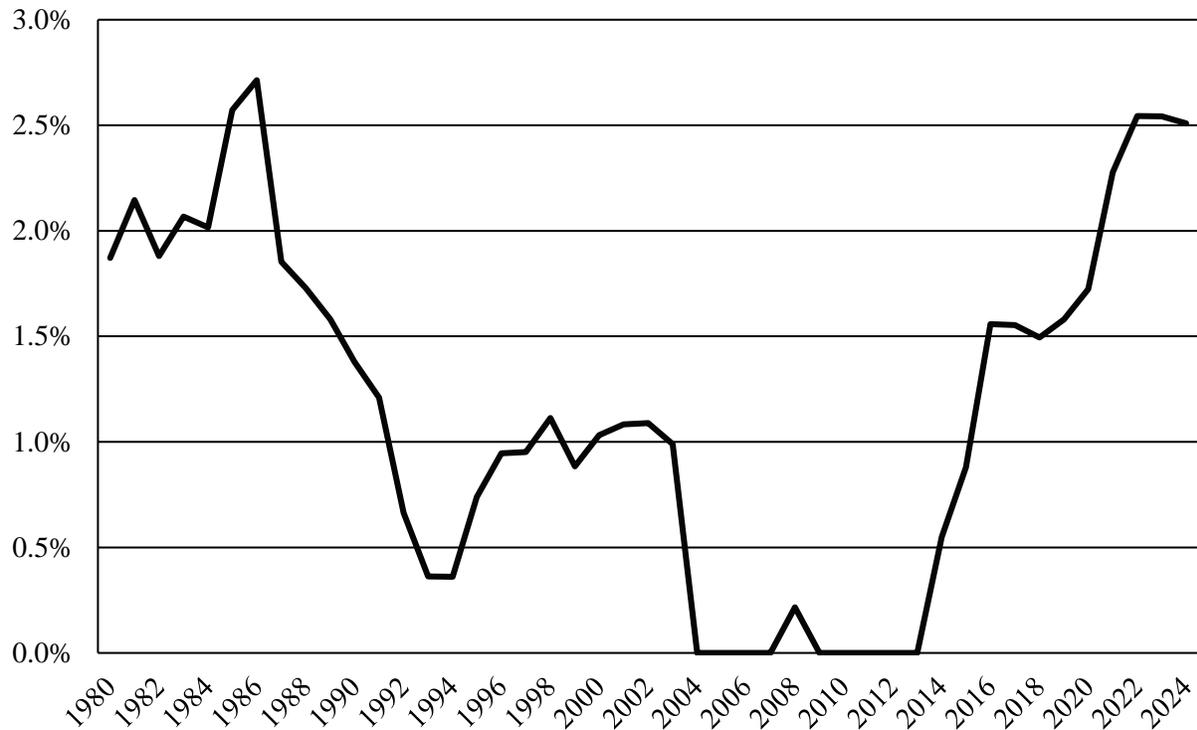


Note: Fiscal 1985 to 2003 includes general funds appropriated in the Maryland State Department of Education for capital school construction. Fiscal 2002 and 2003 adjusted to remove proceeds from refunding bonds.

Source: Department of Budget and Management

Exhibit 5.7 shows that current estimates expect that general fund costs for debt service will be 2.5% of total general fund revenues by fiscal 2023. This is about the same level as the previous peak in 1986. From fiscal 2004 to 2013, the State appropriated general funds only once. The State property tax rate was increased from \$0.084 to \$0.132 per \$100 of assessable base in fiscal 2004. The State also benefited from low interest rates, which generated large bond sale premiums that were used to support debt service payments. (Bond sale premiums are discussed in more detail in Chapter 7.) The State property tax rate was reduced to its current rate, \$0.112 per \$100 of assessable base, in fiscal 2007.

Exhibit 5.7
General Fund Debt Service Appropriations
As a Percentage of General Fund Revenues
Fiscal 1980-2024



Note: Fiscal 1985 to 2003 includes general funds appropriated in the Maryland State Department of Education for capital school construction. Fiscal 2002 and 2003 are adjusted to remove proceeds from refunding bonds.

Source: Department of Budget and Management; State Treasurer's Office; Department of Legislative Services

Rating Agencies Are Concerned about Pension Liabilities

Another consideration is the State debt rating. Maryland has been rated AAA by all three major rating agencies for decades. High ratings tend to reduce interest costs. The current estimate is that the AAA rating reduces interest rates by about 0.2% (20 basis points) compared to the AA+ rating. When reviewing debt, rating agencies have commented on pension liabilities. Pension costs and debt service represent the State's two largest long-term liabilities. High pension liabilities are often cited when rating agencies downgrade a State or municipality's debt. For example, Standard & Poor's cited pension liabilities when the state of Illinois' debt rating was

recently downgraded. Pension concerns were also cited when ratings for the city of Fort Worth, Texas and the state of Connecticut were downgraded.

This section examines State pension trends. The good news for Maryland is that all three rating agencies have acknowledged Maryland's efforts to achieve adequate funding.

Overview of Defined Benefit Plans

The State provides defined benefit pension plans. These plans require the State to make annual payments that represent the normal cost (the cost of the annual increase in benefits earned by employees) and a share of the unfunded liability. These pension payments are made to employees for years after they retire and represent a long-term liability to the State.

Pension costs are primarily supported by the General Fund. Special and federal funds support pension costs associated with positions funded by special funds (such as the Maryland Department of Transportation) and federal funds (such as the Maryland Department of Health).

About 97% of the teachers' pension fund supports the staff of the local school boards. By statute, the local school boards pay the normal costs (which is the annual increase in the pension liability), and the State is responsible for any remaining costs (which is the unfunded liability).

Pension Costs Have Increased in Recent Years

State pension costs have increased in recent years. The primary reason for the increased costs are market losses suffered in fiscal 2008 and 2009 when the pension fund lost 5.4% and 20.0%, respectively. This reduced the funded ratio from 80.4% at the beginning of fiscal 2008 to 65.0% at the end of fiscal 2009. To reduce the unfunded liability, higher appropriations are necessary from the State. The amount that the State appropriates each year is determined by the actuarial funding method. It is State practice for the Governor to propose and the General Assembly to appropriate the amount certified by the State Retirement and Pension System Board. Pension costs have increased substantially in recent years; total pension contributions increased from \$1.0 billion in fiscal 2010 to \$1.7 billion in fiscal 2020.

Pension Costs Contained in Response to Increasing Liabilities

In response to increasing liabilities, the State has reduced benefits, increased contributions, and required local jurisdictions to share in the costs of teacher pensions.

The most significant pension reform was enacted in 2011. Key provisions include:

- reducing cost-of-living adjustments earned after fiscal 2011;
- increasing employee contributions from 5.0% to 7.0% for most employees (judges, for example, were excluded);

- increasing the vesting period for employees hired after June 30, 2011, from 5 years to 10 years;
- reducing the multiplier for employees hired after June 30, 2011, to 1.5% of salary per year worked;¹ and
- appropriating a share of savings to overfund pension contributions.

The State also required local governments to begin sharing in teacher pension costs in fiscal 2013.

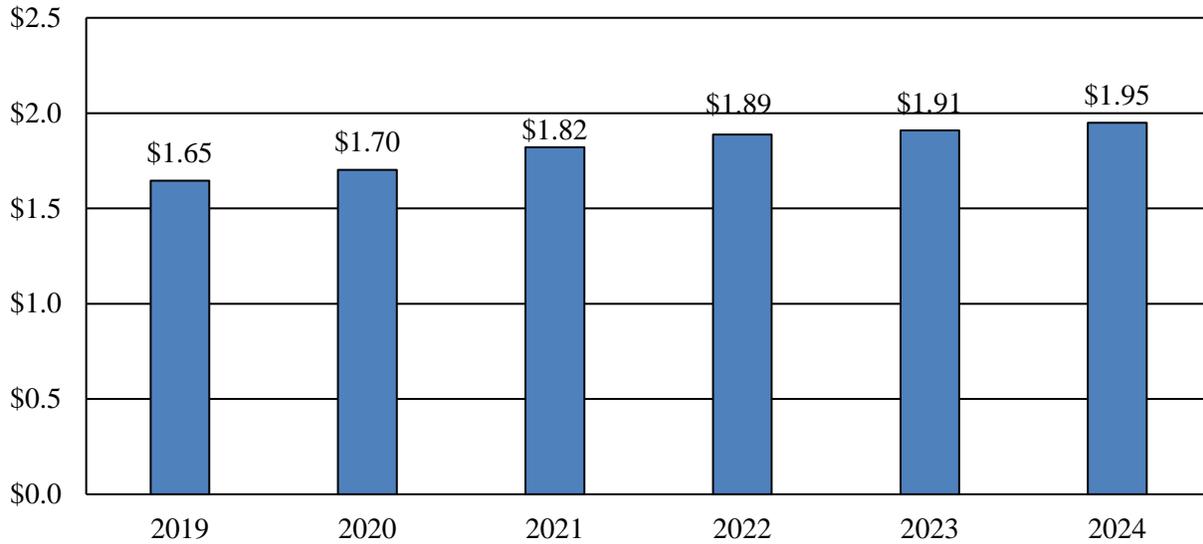
Current law requires supplemental pension contributions. The Administration is required to include \$75.0 million in supplemental contributions and to provide appropriate unassigned general fund balances of up to \$50.0 million. In fiscal 2018, unassigned general fund balance totaled \$503.8 million, of which \$50.0 million is to be appropriated in fiscal 2020. In sum, fiscal 2019 is required to have \$125.0 million in additional contributions. Taken together, these reforms reduce the State's out-year unfunded liabilities.

Pension Cost Outlook

Exhibit 5.8 shows that the State's annual actuarially required contribution is expected to increase from \$1.65 billion in fiscal 2019 to \$1.95 billion in fiscal 2024. This is an annual increase of 3.4%. Pension costs increases are accelerating because the pension board recently reduced the expected rate of return. Less investment income is offset by increasing annual contributions.

¹ The multiplier remains at 1.8% per year worked for employees hired before June 30, 2011.

Exhibit 5.8
Total State Pension Costs
Fiscal 2019-2024
(\$ in Billions)

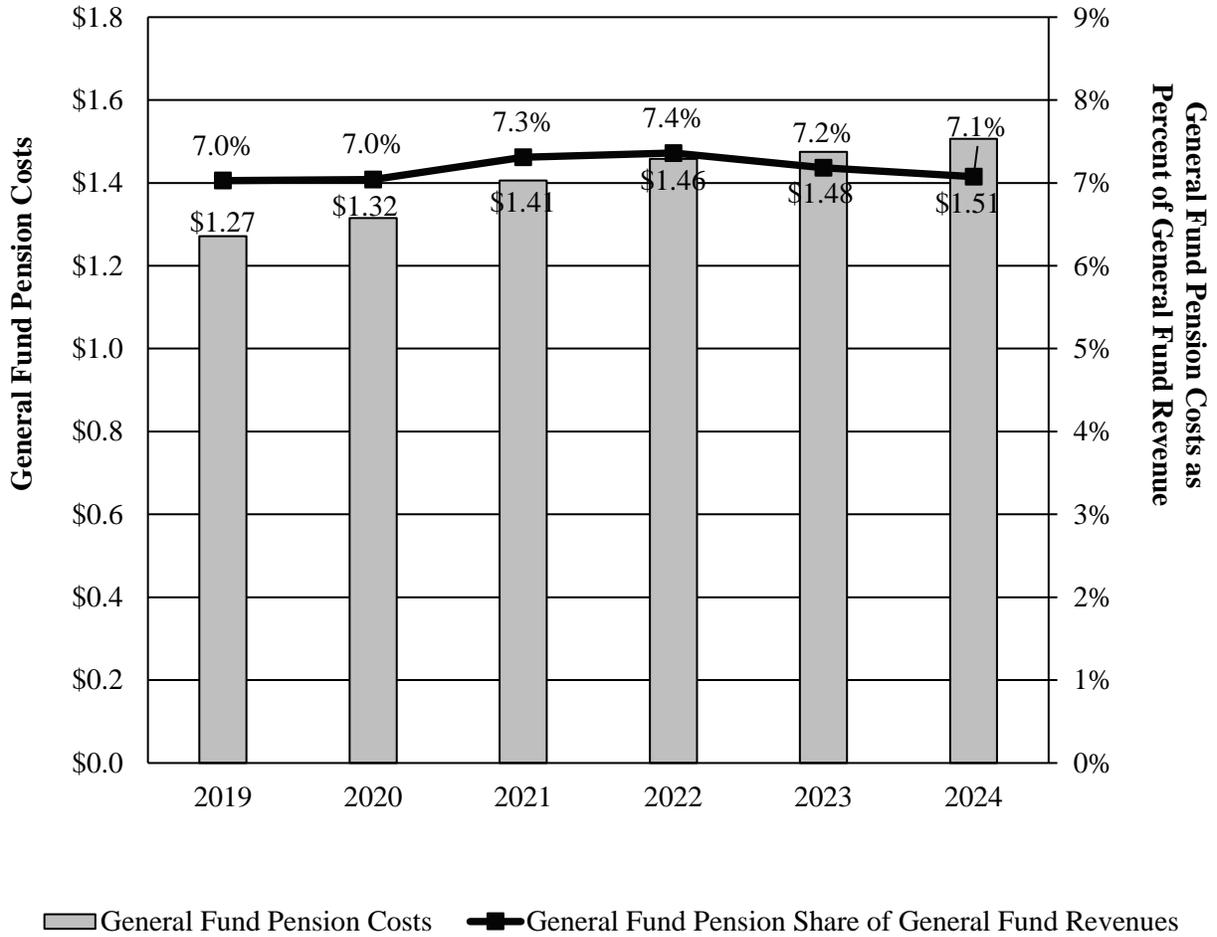


Note: State pension contribution excludes local teacher pension cost sharing and other local contributions.

Source: Gabriel, Roeder, Smith and Company; Department of Legislative Services

Exhibit 5.9 shows that general fund costs for pensions hover near 7% of general fund revenues over the forecast period. Increases in pension costs have slowed, in part due to pension reforms. Rapid turnover in system membership has accelerated the benefits of pension reform. The turnover has resulted in nearly one-third of teachers and employees participating in the reformed pension plan.

Exhibit 5.9
General Fund Pension Costs
As a Percentage of General Fund Revenues
Fiscal 2019-2024
(\$ in Billions)



Note: State pension contribution excludes local teacher pension cost sharing and higher education institutions.

Source: Gabriel, Roeder, Smith and Company; Department of Legislative Services, October 2018

Chapter 6. Analysis of Factors Influencing Bonds' Interest Cost

The interest rate that Maryland pays for the bonds that it sells is referred to as the true interest cost (TIC). This rate is derived by calculating a bond sale's Internal Rate of Return. The TIC is calculated at each bond sale, and the bidder with the lowest TIC is awarded the bid.

The financial literature provides information about factors that influence the TIC of State and municipal bond sales. Since 2006, the Department of Legislative Services (DLS) has prepared a statistical analysis to evaluate these financial factors. In this chapter, the sum of least squares regression is used to evaluate what factors influence the TIC that Maryland receives on general obligation (GO) bond sales. **Appendix 3** shows the data used in the analysis.

Financial Theory and Research Identifies Factors That Influence the True Interest Cost

Financial theory suggests factors that could influence Maryland's GO bonds' TIC. Research has confirmed a number of significant influences in other states and in national studies that include Maryland. To build the least squares regression equation, data was collected and analyzed for the 65 bond issuances since March 1991 (refunding sales are excluded): 57 competitively bid, tax-exempt bond issuances; and 8 negotiated, retail bond issuances. The data collected includes:

- the TIC;
- *The Bond Buyer* 20-bond index;¹
- date of the bond sale, fiscal year, and calendar years that the bonds were sold;
- if the bond sale includes one of the various call provisions offered since 1991;
- average years to maturity;
- amount of debt sold;
- Consumer Price Index to examine if inflation affected the market's perception of the amount of debt sold;

¹ *The Bond Buyer* is a trade publication that gathers data about the yield on State and municipal bonds. The 20-bond index includes 20 GO State and municipal bonds maturing in 20 years. These bonds have an average rating equivalent to AA by Standard & Poor's and Aa2 by Moody's Investors Service, Inc. The data is reported weekly every Friday and reflects the yields from the previous day.

- use of a financial advisor;
- ratio of Maryland personal income to U.S. personal income; and
- ratio of Maryland gross State product to U.S. gross domestic product, both nominal and adjusted for inflation.

The Equation Identifies Statistically Significant Factors Influencing Interest Costs

The sum of least squares regression analysis dependent variable is the TIC. All the other variables are independent variables that are included to control the factors that could influence the TIC. The question that the regression equation addresses is which of the independent variables influence the dependent variable, which is the TIC. The regression equation examines the variables previously listed and identifies four statistically significant variables at the 95% confidence level that affect the TIC. **Exhibit 6.1** shows the data for the statistically significant variables.

- ***Bond Buyer 20-bond Index:*** The key variable is the 20-bond index. This rates 20 different State and municipal issuances with 20-year maturities that have an average rating equivalent to AA. DLS has collected the estimated yields since 1991.
- ***Years to Maturity:*** Under normal economic conditions, bonds with shorter maturities have lower interest costs than bonds with longer maturities. This is referred to as a positive yield curve. The analysis estimates that every year adds 0.24% (24 basis points) to the TIC.
- ***Ratio of Maryland Total Personal Income to U.S. Total Personal Income:*** One perspective on interest rates is to consider them as a return for risk. The higher the risk, the higher the interest rate investors will expect. One factor of risk is the fiscal health of the entity selling the debt. In the DLS regression equation, State personal income is used as a proxy for the State's fiscal health. The equation uses a ratio that compares State personal income to U.S. personal income. If the ratio increases, Maryland is doing relatively better than the rest of the United States, and a GO bond issuance's TIC tends to decline. DLS has also examined the effect of Maryland gross State product with U.S. gross domestic product and found that personal income is a stronger factor.
- ***Post-financial Crisis:*** This is a variable that indicates if a bond was sold before or after the financial crisis of 2008. The financial press has noted a "flight to quality" since the crisis. Statistical data from Maryland bond sales suggests that there has been a flight to quality with respect to bonds sold after March 2008. This date may be related to the collapse of Bear Stearns, which resulted in a Federal Reserve bailout and sale to JPMorgan Chase. The equation estimates that Maryland bond yields are 0.71% (71 basis points) less than *The Bond Buyer* 20-bond index.

Exhibit 6.1
TIC Regression Equation – Evaluating the Independent Variables

<u>Independent Variable</u>	<u>Coefficient</u>	<u>Std. Error</u>	<u>t-test</u>	<u>Sig.</u>	<u>Tol.</u>	<u>Comment</u>
<i>The Bond Buyer</i> 20-bond Index	0.869	0.043	20.242	0.000	0.531	Highest t-test suggests that this is a most significant independent variable.
Maryland Personal Income/ U.S. Personal Income	-1.313	0.596	-2.203	0.031	0.762	Negative coefficient suggests stronger Maryland economy reduces debt costs.
Years to Maturity	0.237	0.023	10.103	0.000	0.903	Positive coefficient means that longer maturities tend to have higher TICs.
Post-financial Crisis	-0.707	0.086	-8.201	0.000	0.435	Maryland bonds' yields are reduced since the crisis.
Constant	0.554					

Sig.: significance or confidence interval

Std.: standard

TIC: true interest cost

Tol.: tolerance, a test of multicollinearity

Source: Department of Legislative Services

Statistical Analysis Suggests That the Equation Explains the True Interest Cost Extremely Well

In addition to estimating and evaluating the specific variables, a proper statistical analysis must also incorporate an analysis of the equation as a whole, such as:

- how confident are we in the equation (confidence interval);
- what is the equation's margin of error;
- how close are the equation's estimates to the actual data; and
- is there a dependence between successive dependent variables (serial or autocorrelation).

The regression equation has a high level of explanatory power and suggests that the determinants of Maryland's TIC are well understood and account for almost all of the variations that are seen in the TIC. **Exhibit 6.2** shows the equation's statistics.

Exhibit 6.2
TIC Regression Equation – Evaluating the Entire Equation

<u>What Is Measured</u>	<u>Statistic Used to Measure</u>	<u>Value of Statistic</u>	<u>Explanation</u>
Confidence in the equation	F Statistic	441.049	We are over 99.9% confident that the independent variables influence the dependent variable.
Margin of error	Standard error of the estimate	0.228	We expect the actual TIC to be within 0.22% (22 basis points) of the estimate.
Estimate in relation to actual data	Adjusted R Square	0.965	The model's estimates explain 96.5% of the actual data.
Serial or autocorrelation	Durbin-Watson	1.419	The ideal value is 2.0. If the number deviates too far from 2.0, it suggests that there are patterns in the errors, such as missing a key independent variable.

TIC: true interest cost

Source: Department of Legislative Services

Examining the Effectiveness of the Regression Equation – An Intuitive Approach

As previously noted, the appendices provide all the statistical data. This allows statisticians to examine DLS' least squares regression equation. In addition to the statistical data, a more intuitive analysis of the regression equation may be made.

In the past, DLS has compared the TIC to the 20-bond index to examine the State's GO bond yields. The purpose of the exercise is to improve upon this approach and to determine what factors are statistically significant and to what extent they influence the TIC. For the regression equation to be useful, it should be able to better estimate the TIC than any particular index (such as the 20-bond index) alone. While the index is a good proxy for general market conditions, it does not reflect any

independent variables specific to Maryland's financial condition or a bond sale's attributes (such as the bonds' years to maturity or the health of Maryland's economy).

Exhibit 6.3 compares the DLS regression equation and the 20-bond index to each bond sale's actual TIC, which shows that the DLS regression equation is more often closer to the TIC than the 20-bond index is. Of the 65 bond sales analyzed, the DLS estimate is closer to the actual TIC than the 20-bond index 64 times (98% of bond sales). The 20-bond index is closer than the DLS equation 1 time (2% of bond sales). The average error of the DLS regression equation is 17 basis points, compared to 110 basis points for the 20-bond index.

Exhibit 6.3
Comparison of the DLS Regression Equation and
***The Bond Buyer* 20-bond Index to Actual TIC**

Bond Sale Date	TIC	DLS Model	20-bond Index	Difference Between TIC and DLS	Difference Between TIC and 20-bond	Closer Estimate
03/13/91	6.31	6.28	7.32	0.03	1.01	DLS Equation
07/10/91	6.37	6.21	7.21	0.16	0.84	DLS Equation
10/09/91	5.80	5.74	6.66	0.06	0.86	DLS Equation
05/13/92	5.80	5.65	6.54	0.15	0.74	DLS Equation
01/13/93	5.38	5.32	6.19	0.06	0.81	DLS Equation
05/19/93	5.10	4.97	5.77	0.13	0.67	DLS Equation
10/06/93	4.45	4.57	5.30	0.12	0.85	DLS Equation
02/16/94	4.48	4.67	5.42	0.19	0.94	DLS Equation
05/18/94	5.36	5.31	6.14	0.05	0.78	DLS Equation
10/05/94	5.69	5.63	6.50	0.06	0.81	DLS Equation
03/08/95	5.51	5.37	6.18	0.14	0.67	DLS Equation
10/11/95	4.95	5.06	5.82	0.11	0.87	DLS Equation
02/14/96	4.51	4.64	5.33	0.13	0.82	DLS Equation
06/05/96	5.30	5.20	5.94	0.10	0.64	DLS Equation
10/09/96	4.97	5.02	5.73	0.05	0.76	DLS Equation
02/26/97	4.90	4.95	5.65	0.05	0.75	DLS Equation
07/30/97	4.64	4.59	5.23	0.05	0.59	DLS Equation
02/18/98	4.43	4.47	5.07	0.04	0.64	DLS Equation
07/08/98	4.57	4.50	5.12	0.07	0.55	DLS Equation
02/24/99	4.26	4.44	5.08	0.18	0.82	DLS Equation
07/14/99	4.83	4.67	5.36	0.16	0.53	DLS Equation
07/19/00	5.05	4.89	5.60	0.16	0.55	DLS Equation
02/21/01	4.37	4.52	5.21	0.15	0.84	DLS Equation

<u>Bond Sale Date</u>	<u>TIC</u>	<u>DLS Model</u>	<u>20-bond Index</u>	<u>Difference Between TIC and DLS</u>	<u>Difference Between TIC and 20-bond</u>	<u>Closer Estimate</u>
07/11/01	4.41	4.49	5.22	0.08	0.81	DLS Equation
03/06/02	4.23	4.41	5.19	0.18	0.96	DLS Equation
07/31/02	3.86	4.25	5.00	0.39	1.14	DLS Equation
02/19/03	3.69	4.06	4.79	0.37	1.10	DLS Equation
07/16/03	3.71	3.98	4.71	0.27	1.00	DLS Equation
07/21/04	3.89	4.10	4.84	0.21	0.95	DLS Equation
03/02/05	3.81	3.80	4.50	0.01	0.69	DLS Equation
07/20/05	3.79	3.66	4.36	0.13	0.57	DLS Equation
03/01/06	3.87	3.72	4.39	0.15	0.52	DLS Equation
07/26/06	4.18	3.85	4.55	0.33	0.37	DLS Equation
02/28/07	3.86	3.48	4.10	0.38	0.24	20-bond Index
08/01/07	4.15	3.85	4.51	0.30	0.36	DLS Equation
02/27/08	4.14	4.38	5.11	0.24	0.97	DLS Equation
07/16/08	3.86	3.26	4.65	0.60	0.79	DLS Equation
03/04/09	3.39	3.29	4.96	0.10	1.57	DLS Equation
03/02/09	3.63	3.46	4.87	0.17	1.24	DLS Equation
08/05/09	2.93	2.99	4.65	0.06	1.72	DLS Equation
08/03/09	3.20	3.03	4.69	0.17	1.49	DLS Equation
10/21/09	2.93	2.52	4.31	0.41	1.38	DLS Equation
07/28/10	1.64	1.81	4.21	0.17	2.57	DLS Equation
07/28/10	1.91	2.01	4.21	0.10	2.30	DLS Equation
03/07/11	2.69	2.73	4.90	0.04	2.21	DLS Equation
03/09/11	3.49	3.60	4.91	0.11	1.42	DLS Equation
07/25/11	1.99	2.04	4.46	0.05	2.47	DLS Equation
07/27/11	3.08	3.09	4.47	0.01	1.39	DLS Equation
03/02/12	2.18	2.03	3.72	0.15	1.54	DLS Equation
03/07/12	2.42	2.46	3.84	0.04	1.42	DLS Equation
07/27/12	2.52	2.15	3.61	0.37	1.09	DLS Equation
08/01/12	2.17	2.34	3.66	0.17	1.49	DLS Equation
03/06/13	2.35	2.47	3.86	0.12	1.51	DLS Equation
07/24/13	3.15	3.41	4.77	0.26	1.62	DLS Equation
03/05/14	2.84	3.11	4.41	0.27	1.57	DLS Equation
07/18/14	1.27	1.81	4.36	0.54	3.09	DLS Equation
07/23/14	2.65	3.04	4.29	0.39	1.64	DLS Equation
03/05/15	2.65	2.40	3.68	0.25	1.03	DLS Equation
07/16/15	2.83	2.68	3.82	0.15	0.99	DLS Equation
06/08/16	2.17	1.86	3.03	0.31	0.86	DLS Equation

Bond Sale Date	<u>TIC</u>	<u>DLS Model</u>	<u>20-bond Index</u>	<u>Difference Between TIC and DLS</u>	<u>Difference Between TIC and 20-bond</u>	<u>Closer Estimate</u>
03/08/17	2.84	2.96	4.02	0.12	1.18	DLS Equation
08/16/17	2.29	2.33	3.57	0.04	1.28	DLS Equation
03/07/18	2.83	2.86	3.88	0.03	1.05	DLS Equation
08/01/18	2.33	2.08	3.95	0.25	1.62	DLS Equation
08/01/18	3.12	3.58	3.95	0.46	0.83	DLS Equation
Total Error				11.35	71.38	
Average Error				0.17	1.10	
Median Error				0.15	0.95	

DLS: Department of Legislative Services
TIC: true interest cost

Source: Department of Legislative Services

Chapter 7. Policy Changes That Reduce Debt Service Costs

This chapter identifies opportunities to reduce debt service costs by:

- substituting general funds for the general obligation (GO) bond issuances;
- ending the reliance on taxable GO bonds for capital programs and projects that do not qualify for less expensive tax-exempt bonds; and
- resizing bond sales and using the premium to support capital projects.

We Have Cash, Use It to Reduce Debt Service Costs

Recent data shows that the State's economy has exceeded expectations and that fund balances are higher than previously projected. Fiscal 2018 ended with a \$590 million general fund balance. This is \$398 million more than projected at the end of the 2018 legislative session. The State Comptroller's Office reports that the unassigned fund balance totals \$503.8 million.

Improved economic performance has also led the Board of Revenue Estimates (BRE) to revise revenue projections. In September 2018, BRE added \$325 million to the fiscal 2019 general fund revenue estimate. The outlook for fiscal 2020 has also improved. During the 2018 legislative session, the Department of Legislative Services (DLS) anticipated \$18,301 million in general fund revenues. BRE's September estimates project \$18,678 million,¹ which is \$377 million more than anticipated.

While the short-term outlook is vastly improved, a structural spending deficit is anticipated in the out-years. Beginning in fiscal 2021, DLS projects that ongoing expenditures exceed ongoing revenues by \$600 million. The deficit increases to \$1.3 billion by fiscal 2024.

In recent years, efforts have been made to place limits on ongoing spending when the economy is performing well. The concern is that periods with substantial and unexpected increases in revenues tend to be ephemeral. These periods are often followed by disappointingly slow growth, or even declines, in revenues so that new ongoing spending is unsustainable. Consequently, the Governor and General Assembly's task to balance the budget becomes more difficult if too much new ongoing spending is appropriated.

To limit the number of reductions that need to be made to the budget during recessions, efforts have been made to slow the growth in new ongoing spending. Most conspicuously, Chapters 4 and 550 of 2017 cap budgeted revenues if certain volatile revenues appear to be

¹ This includes a \$94 million reduction to implement Chapters 4 and 550 of 2017. Excluding the adjustment increases, the fiscal 2020 general fund revenue estimate is \$18,771 million.

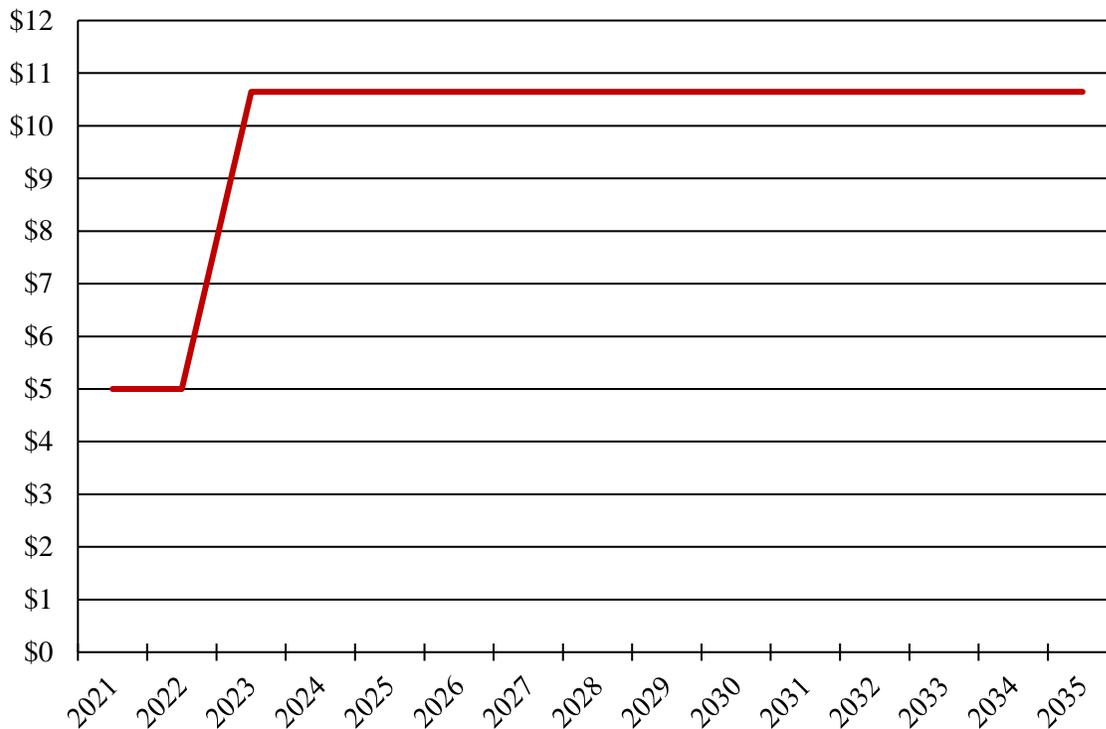
overperforming at a level that is not sustainable. The legislation caps nonwithholding revenues (quarterly estimated payments and final payments from individuals and fiduciaries that include especially volatile revenues from capital gains) based on the 10-year average. Beginning in fiscal 2020, operating budgets are reduced so that these revenues are not used to support unsustainable ongoing spending. In its September general fund estimate, BRE adjusts the fiscal 2020 general fund forecast with a \$94 million reduction to begin phasing in the legislation.

If these additional revenues are realized, the legislation requires that funds be used to close a budget gap, if there is a budget gap. If there is not a budget gap, the legislation requires that these funds either increase the Rainy Day Fund balance or support pay-as-you-go (PAYGO) capital projects for educational institutions, including local public school construction.

Since the State currently has large fund balances at a time when structural deficits are anticipated, additional funds could be used to support one-time capital projects. **Exhibit 7.1** shows the debt service costs of issuing \$100 million in GO bonds over the 15-year life of the bonds, assuming a 5% coupon rate. The first 2 interest only years require \$5 million per year. Beginning in the third year, costs are \$10.6 million until the bonds are retired. The total cost is \$148.4 million. Recent bonds have sold at a premium; DLS anticipates that the winter 2018 bond sale will generate \$8.8 million per \$100 million sold. Adjusting for premiums reduces the total cost of issuing \$100 million to \$139.6 million. The consensus is that premiums will be declining, and eventually bonds will sell near par again, so savings may approach the full \$148.4 million.

Insofar as the State has a substantial general fund balance and fiscal 2019 and 2020 revenues have been revised upward, the State is in an excellent cash position. DLS recommends that the State authorize general funds for capital PAYGO projects in the place of GO bonds. This substantially reduces out-year debt service costs.

Exhibit 7.1
Cost of Issuing \$100 Million in General Obligation Debt
Fiscal 2021-2035
(\$ in Millions)



Source: Department of Legislative Services

Reducing Taxable Debt Authorizations to Reduce Interest Payments

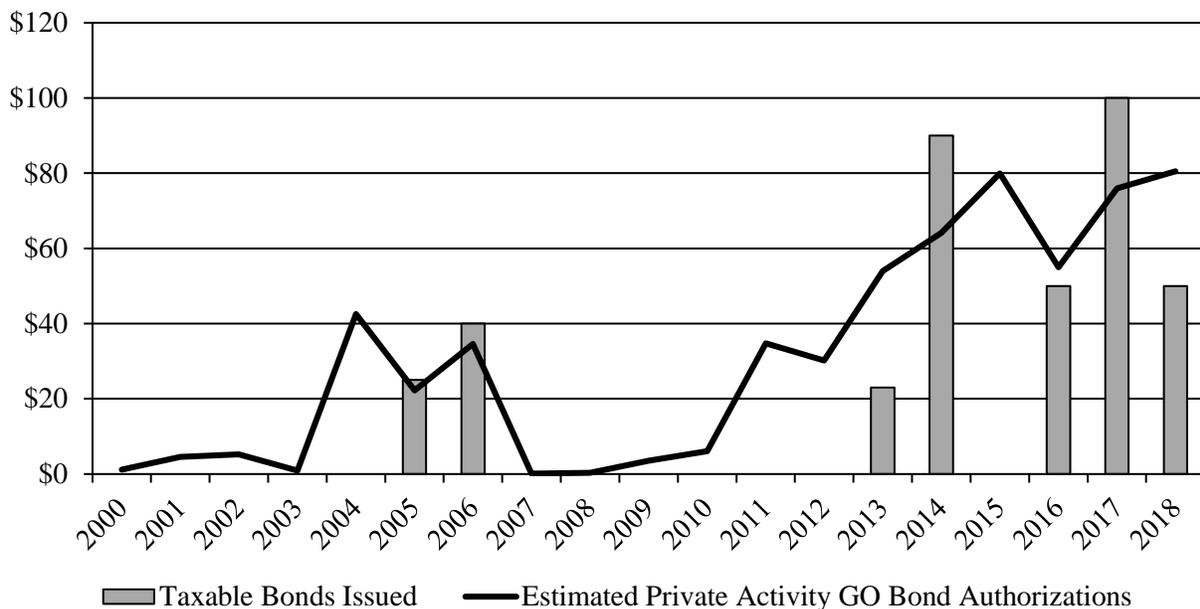
The State's capital program supports a number of different public policy areas, such as health, environment, public safety, education, housing, and economic development. Federal government regulations allow the State to issue debt that does not require the buyer to pay federal taxes on interest earnings. In cases where investors do not pay federal income taxes, they are willing to settle for lower returns. Investors in taxable debt require higher returns to offset their tax liabilities. Consequently, the State can offer lower interest rates on tax-exempt bonds.

Federal laws and regulations limit the kinds of activities that the proceeds from tax-exempt bonds can support. One such requirement limits private activities or private purposes of the bond proceeds to 5% of the bond sales proceeds. Another requirement limits the bonds to \$15 million

for business-use projects and \$5 million for business loans. Examples of programs that support private activities or uses include the Partnership Rental Housing and Neighborhood Business Development programs of the Department of Housing and Community Development and the Water Quality Revolving Loan Fund of the Maryland Department of the Environment.

To avoid exceeding the private activity limits imposed in the federal regulations, the State has previously appropriated funds in the operating budget instead of issuing debt for private purpose programs and projects. Recent years' fiscal constraints have limited the amount of operating funds available for capital projects. To continue these programs, the State authorized GO bonds. In fiscal 2011, the State began migrating private purpose programs from the operating budget into the capital budget. **Exhibit 7.2** shows that the State has authorized \$474 million in private activity projects since fiscal 2011. To support these projects, the State issued \$313 million in taxable debt over the same period. Insofar as the State has recently authorized GO bonds for additional private activity projects, additional taxable bond sales are expected, even if they have not yet been planned.

Exhibit 7.2
Private Activity Authorizations and Taxable Bond Issuances
Fiscal 2000-2018
(\$ in Millions)



GO: general obligation

Source: Department of Budget and Management's *Capital Improvement Program*; Financial Advisor's *Report on Bond Sales*

Taxable Bonds Cost More and Taxable Bonds' Costs Are Expected to Increase

In August 2012, the State sold \$23 million in taxable GO bonds to institutional investors with three- and four-year maturities. The issuance's true interest cost (TIC) was 0.45%, and the State did not realize a premium. At the same bond sale, the State also issued \$4 million in tax-exempt bonds to institutional investors. The tax-exempt bond sale had a TIC of 0.33%. In other words, the difference between the two bonds, which were both issued on the same day, was 0.12% (12 basis points). DLS estimates that if the taxable issuance had sold at a TIC of 0.33% instead of 0.45%, the bonds would have generated a premium totaling approximately \$500,000.

In the out-years, the additional costs for issuing taxable debt are likely to increase. The current low interest rate environment is probably suppressing the additional costs paid by issuers of taxable debt. For example, the State issued taxable debt in fiscal 2005 and 2006. At the time, interest rates were higher, and DLS estimates that taxable bonds added \$2.8 million in debt service costs for the \$65.0 million issued. This is roughly twice the cost differential of the August 2012 bond sale.

The bottom line is that there is a measurable difference between the cost of taxable and tax-exempt debt. The additional price paid by issuers of taxable debt is more likely to increase than decrease when compared to tax-exempt debt.

Reliance on GO Bonds for Private Use and Activities Continues After Budget Improves

Exhibit 7.3 shows that out-year private activity authorizations planned in the 2019 *Capital Improvement Program* range from \$98 million in fiscal 2019 to \$58 million in fiscal 2020. Even without authorizing more taxable bonds, the State is still likely to issue substantial levels of taxable bonds. From fiscal 2011 to 2018, taxable authorizations exceeded taxable issuances by as much as \$160 million. There is still a substantial reliance on GO bond funds to support projects and programs that are traditionally supported in PAYGO capital funding. These large authorizations are likely to result in the issuance of taxable bonds in the out-years.

Exhibit 7.3
Private Activity Authorizations by Department
Fiscal 2019-2023
(\$ in Millions)

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>Total</u>
Private Business Use						
State Agency						
University System of Maryland	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.2
Maryland Public Television	0.1	8.2	0.0	0.0	0.0	8.3
Subtotal	\$0.2	\$8.2	\$0.0	\$0.0	\$0.0	\$8.5
Private Loans						
State Agency						
Department of Housing and Community Development	\$78.4	\$48.1	\$63.6	\$63.6	\$63.6	\$317.3
Maryland Department of the Environment	18.9	9.4	9.4	9.4	9.4	56.6
Department of Planning	0.0	0.2	0.2	0.2	0.2	0.6
Subtotal	\$97.3	\$57.7	\$73.2	\$73.2	\$73.2	\$374.5
Total	\$97.5	\$65.9	\$73.2	\$73.2	\$73.2	\$383.0

Note: Numbers may not sum to total due to rounding.

Source: Department of Budget and Management, 2018 *Capital Improvement Program*

To reduce debt service costs, DLS recommends that the State fund private loan projects and programs that do not qualify for tax-exempt bonds with cash in fiscal 2020. Insofar as the State's general fund balance is larger than expected and revenues have been unexpectedly revised upward, the State's cash position should be sufficient to appropriate general funds instead of authorizing taxable debt.

Bond Sale Premiums: Why We Get Them, Why We Must Be Careful, and What We Can Do About Them

When bonds are sold, they have a par value (principal) and a coupon rate (interest rate paid to the bondholder based on par value). When the bonds are bid, the State Treasurer's Office determines how many bonds are sold (par value of the bonds) and when the bonds mature.² The underwriter determines the coupon rate (interest rate the issuer pays) and the sale price of the bonds, which is awarded to the underwriter with the lowest interest cost.³ If the coupon rate is

² Section 34 of Article III of the Constitution of Maryland limits State debt to 15 years.

³ Chapter 6 includes a discussion of factors that influence the TIC of Maryland's GO bonds.

greater than the market rate, the bonds sell at a premium, and the State's bond proceeds exceed par value of the bonds.

For example, at the most recent bond sale in August 2018, the State issued \$510 million in tax-exempt GO bonds (par value). The average coupon was 4.71%, and the TIC (market interest rate) was 2.81%. Since the coupon rate exceeded the market interest rate, the bonds sold at a premium, and total bond proceeds totaled \$590 million (after deducting the underwriters discount and cost of issuance expenses). This additional \$80 million is the bond premium.

Why Do Bonds Sell at a Premium?

Economic theory tells us that in a world without uncertainty, there will be no difference in value between bonds selling at a high coupon rate or bonds selling at a low coupon rate. If bonds sell at a high coupon rate, the seller receives a large premium that offsets the high interest cost.

However, we do live in an uncertain world. Investors may see advantages in purchasing bonds at a premium. For investors of Maryland bonds, the primary risk is that the bonds will lose value if interest rates rise. Since Maryland bonds offer a fixed interest rate, the value of Maryland bonds decline if interest rates rise.

How investors value bonds is relative and depends on what interest rates the market offers. If rates on low-risk bonds, such as U.S. government bonds, are low, the State will be able to issue bonds at a lower rate than if these interest rates are high. In other words, a 2% interest rate can be a good deal if everyone else is offering less than 2%, but it is not such good deal if everyone else is offering 3% or more.

In the current environment, interest rates are more likely to increase than decrease. Current interest rates are historically low. According to data from the Federal Reserve Board, the yield on 10-year treasury notes on Friday, August 3, 2018 (the time of the most recent bond sale), was among the lowest since 1962. In fact, only 400 out of 2,952 weeks had lower interest costs; 86% of the time, interest rates were higher than at the time of the last bond sale. In this environment, it certainly makes sense for investors to protect themselves against rising interest rates, and this is done by purchasing bonds at a premium.

To protect the value of their investment, bonds can be purchased at a premium. **Exhibit 7.4** examines a tranche of \$36,125,000 in bonds sold with an eight-year maturity in the July 2015 bond sale. The top half of the exhibit compares the return if you buy bonds at par and at a premium. It shows that paying \$6,080 and getting a 5.0% interest rate yields the same return as paying \$5,000 and getting a 2.06% interest rate, since the TIC for both is 2.06%. The bottom half shows what happens if market interest rates increase. In both examples, the bonds are worth less. The difference is that bonds sold at a premium lost 17.8% of their value, while bonds selling at par lost 19.2% of their value. For investors that are intent on preserving wealth or cash, this matters.

Exhibit 7.4
Effect of Higher Interest Rates on the Value of Bonds
Data from Bond Sale from July 2015 Bond Sale

	<u>Premium Bonds</u>	<u>Sold at Par</u>	<u>Explanation</u>
Par Value of Bonds	\$5,000	\$5,000	This is the principal you get back.
Coupon Rate	5.00%	2.06%	This is the interest rate on the bond's par value.
Premium	\$1,080	\$0	This is what you pay extra for the higher rate.
Value at Sale	\$6,080	\$5,000	This is what you pay.
Yield or TIC	2.06%	2.06%	This is what matters, rate of return.

If the Market Interest Rate Increases to 5%

Value at Sale	\$6,080	\$5,000	This is what you paid for the bonds.
Value After Interest			
Rates Increase	\$5,000	\$4,038	This is what your bonds are now worth.
Total Loss	-\$1,080	-\$962	This is how much you lose due to rate change.
Percent Loss	-17.8%	-19.2%	This is what matters, value lost.

TIC: true interest cost

Source: Public Financial Management; Department of Legislative Services

In conclusion, why do bonds sell at a premium? Because buying bonds at a premium is a hedge against increasing interest rates, and it looks like interest rates are going to increase.

Why Should We Budget Premiums Carefully?

In recent years, bond premiums have been substantial. From fiscal 2012 to 2015, bond sale premiums have generated over \$100 million annually. Although premiums are expected to diminish, DLS anticipates that bond sales will continue to generate premiums in fiscal 2020.

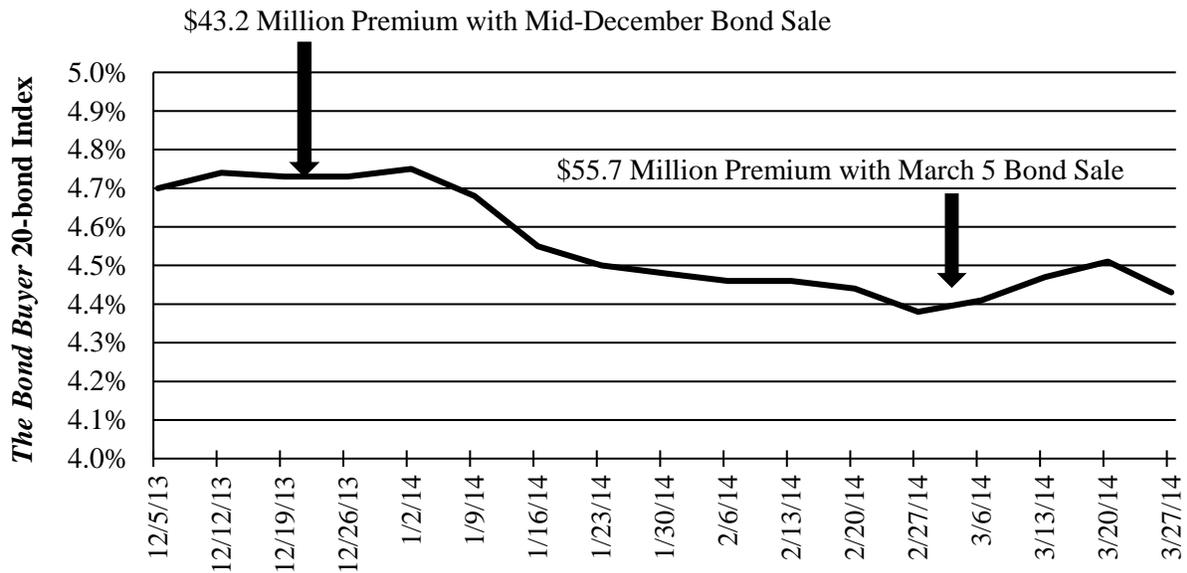
A concern with budgeting premiums is that small changes in interest rates can generate substantial changes in the amount of premiums realized. Interest rates have been highly volatile, and rates have climbed or plummeted in a matter of weeks. For example, from April 9 to May 7, 2015, *The Bond Buyer* 20-bond index increased from 3.49% to 3.74%. Such an increase substantially decreases a bond sale premium.

Most of this volatility cannot be foreseen. This means that the key variables used to estimate premiums cannot be predicted with any precision. An example of this is the March 6, 2014 bond sale. The State projected a \$40.8 million premium. This forecast was prepared in December 2013 and was used in the Governor's fiscal 2015 budget. Using interest rates from December 2013, DLS forecasted a \$43.2 million premium. DLS' conclusion was that the premium

in the budget was entirely reasonable based on the data that was available when the budget was prepared.

However, the actual bond sale premium for the March 2014 sale was \$55.7 million. This is \$14.9 million more than the Department of Budget and Management projected. The reason for this difference is a sudden decline in interest rates. **Exhibit 7.5** shows that *The Bond Buyer* 20-bond index declined from over 4.7% in December 2013 to approximately 4.4% in early March 2014. In the short term, the State benefited from the change by receiving a larger premium.

Exhibit 7.5
Timing of Bond Sale Influences Interest Rates and Premiums
December 2013-March 2014



Note: The mid-December bond sale premium is estimated based on the interest rate generated using the statistical equation in Chapter 6. The amount of bonds sold and the coupon rate are assumed to be the same as the March sale.

Source: Department of Legislative Services

This volatility goes both ways. For example, the State issued bonds on July 24, 2013. There was a sharp increase in interest rates during July 2013. From July 3 to July 25, 2013, the index interest rates increased from 4.39% to 4.77%. This increase of 38 basis points could have substantially decreased a forecasted premium. At the time, premiums were not forecast beyond the spring sale, so it cannot be determined to what extent the higher rates resulted in a smaller premium

or higher debt service costs. But the lesson is that large changes in interest rates can happen suddenly.

In conclusion, why should we budget premiums carefully? Because interest rates in this environment are volatile, and even estimates prepared weeks before a bond sale are routinely off by tens of millions of dollars.

What Can We Do with Bond Sale Premiums?

Bonds are sold at a premium because investors want to buy them at a premium. If the State were to dictate the coupon rate (instead of the underwriters), the State could eliminate the premium by offering low coupon rates. However, if the State were to set the coupon rate instead of the underwriter, the TIC would be expected to increase. Underwriters are purchasing bonds at a premium because of current market conditions. Eliminating the premium would make Maryland bonds less attractive, which increases borrowing costs and State spending. To keep costs down, the State has accepted that it will receive premiums. With respect to premiums, here are three options:

- ***Deposit Premiums in the Annuity Bond Fund (ABF) to Pay Debt Service Costs:*** This approach has been taken with most of the premiums realized. The State is paying higher interest costs for these premiums. Depositing the premium into the ABF reduces the short-term general fund requirements at the expense of greater long-term debt service costs.
- ***Support Capital Programs:*** Premiums are bond sale proceeds. Bonds are sold so that the proceeds support capital projects. The State has authorized premiums for capital projects in the past. For example, premiums supported capital projects in fiscal 2016 and 2019. Sections 8-125 and 8-132 of the State Finance and Procurement Article require that premiums are deposited into the ABF, so any authorization for capital projects would require capital budget bill authorization. This approach increases capital spending but does not lead to any short- or long-term savings.
- ***Resize the Bond Sale:*** If the objective is to generate a specific level of bond proceeds, the amount of bonds sold can be reduced, and bond sale premiums can be used to support capital projects. This is referred to as resizing the bond sale. This has been done by the Maryland Department of Transportation as recently as its October 2018 bond sale. For example, if the State determines that \$500 million in bond proceeds are needed and a \$45 million premium is anticipated, the State could reduce the par value of the bonds by \$40 million and use any premiums to support projects. This would need to be authorized in the State's capital budget. Bond documents, such as the Preliminary Official Statement, would need to clarify that bonds could be resized prior to opening the bids. This approach minimized total costs but does not provide any short-term cost relief.

What Is the Out-year Cost of Bond Sale Premiums?

As discussed in the previous section, generating a high premium provides short-term budget relief at the expense of higher out-year costs. In August 2017, the State issued \$510 million in new GO bonds. The bonds generated an \$80 million premium. **Exhibit 7.6** compares this bond sale to the resized bond sale. Instead of issuing the full \$510 million, the resized bond sale issues \$445 million. Assuming the same TIC as the actual sale, the resized issuance sells at a \$69 million premium, and proceeds totaled \$514 million. If \$510 million of the sale supports the capital program, another \$4 million is available to reduce debt service costs.

Exhibit 7.6
Comparing Sources and Uses of an Actual Bond Sale to a Resized Bond Sale
August 2018 Bond Sale
(\$ in Millions)

	<u>Actual Bond Sale</u>	<u>Resized Bond Sale</u>	<u>Difference</u>
Sources of Proceeds			
Principal Issued	\$510.0	\$445.0	-\$65.0
Bond Sale Premium	80.1	68.5	-11.6
Total Proceeds	\$590.1	\$513.5	-\$76.6
Uses of Proceeds			
Total Capital Program	\$510.0	\$510.0	\$0.0
Premium Available for Debt Service	80.1	3.5	-76.6
Total Proceeds	\$590.1	\$513.5	-\$76.6

Source: Public Resources Advisory Group; Department of Legislative Services

The larger \$510 million issuance's advantage is that it offers a large amount of cash in the short term. However, the resized bonds reduce debt service costs over the 15 years until the bonds mature. **Exhibit 7.7** shows that the total debt service costs for the resized bonds are \$94 million less than the actual bond sale. After adjusting for the premiums used to support debt service, the difference in interest payments is \$18 million. The State is paying \$94 million over 15 years to get an additional \$77 million up front.

Exhibit 7.7
Cost of the August 2018 Bond Sale Premium
(\$ in Millions)

	<u>Actual Bond Sale</u>	<u>Resized Bond Sale</u>	<u>Difference</u>
Total Debt Service	\$741.2	\$647.1	-\$94.1
less: Premiums for Debt Service	-80.1	-3.5	76.6
Net Interest Payments	\$661.1	\$643.5	-\$17.6

Source: Public Resources Advisory Group; Department of Legislative Services

Exhibit 7.8 shows how the resized sale reduces costs. From fiscal 2019 to 2034, resizing reduces debt service costs by \$94 million. In the peak debt service cost years, fiscal 2021 to 2023, resizing saves almost \$7 million annually.

Exhibit 7.8
Out-year Costs of the August 2018 Bond Premium
(\$ in Millions)

	<u>Actual Bond Sale</u>	<u>Resized Bond Sale</u>	<u>Difference</u>
Debt Service Payments	\$741.2	\$647.1	-\$94.1
Annual Peak Debt Service	52.5	45.9	-6.5

Source: Public Resources Advisory Group; Department of Legislative Services

Effect of Recent Interest Rate Increases on Bond Sale Premiums

Interest rates have been rising recently, which should reduce the value of premiums since the purpose of premiums is to protect against rising interest rates. **Exhibit 7.9** shows how interest rates have increased over the last three summer bond sales and how these increases have affected premiums. Since the average maturity of the Maryland GO bond sales is 10 years, the 10-year U.S. Treasury bond is an appropriate market rate to use. From June 2016 to August 2018, the yield on the 10-year U.S. Treasury note increased from 1.70% to 2.97%. The exhibit also shows that the 2016 sale occurred when interest rates were exceptionally low since it was lower than more than 99% of observations since January 1962. By August 2018, rates had increased so that they were lower than 85% of observations. This is still a low rate but not as exceptionally low as in 2016.

Exhibit 7.9
Changes in Interest Rates and Bond Sale Premiums
2016 to 2018 Summer Bond Sales
(\$ in Millions)

<u>Sale Date</u>	<u>Rate on 10-year Treasury Note on the Following Friday</u>	<u>Percent of Observations Below Rate on Friday After Sale</u>	<u>True Interest Cost</u>	<u>Premium Per \$100 Million Issued</u>
6/8/2016	1.70%	0.7%	2.17%	\$17.0
8/16/2017	2.22%	6.2%	2.29%	17.1
8/1/2018	2.97%	14.5%	2.81%	15.7

Note: Observations are the yield of the prior 10-year treasury notes for each Friday since January 1962.

Source: Federal Reserve Board; Department of Legislative Services

What is somewhat surprising is how muted the impact of recent increases in interest rates have been on bond sale premiums. In spite of the substantial increases in interest rates, the reduction in the amount of premiums received per \$100 million in bonds issued was quite limited. The TIC increased by 29.5% from 2016 to 2018, while the premiums only declined by 7.5%. To date, rising interest rates have not had much effect on premiums. This suggests that investors still expect interest rates to increase, so there is still an advantage to buy bonds at a premium.

Although the State has not yet seen a substantial reductions in premiums, it would be imprudent to expect to receive substantial premiums in perpetuity. The State is realizing premiums because investors are concerned that interest rates will increase after they purchase the bonds. As rates rise, this become less likely. At some point, investors will no longer expect the rates to increase, and the State will no longer realize substantial premiums. Based on interest rate forecast data received from Moody's Economy.com and IHS Global Insights, premiums should be declining steadily. However, a shock to the economy could result in abrupt changes in interest rates or investors' expectations. As Herbert Stein, the former chair of the federal Council of Economic Advisors said, "if something cannot go on forever, it will stop." What we cannot know now is how abruptly it will stop.

Chapter 8. Nontax-supported Debt

In addition to the tax-supported debt that Maryland issues, there are various forms of nontax-supported debt that are issued by State agencies and non-State public purpose entities. While this debt is not backed by the full faith and credit of the State and is not included within the tax-supported debt limits, concerns have been raised that a default in payment of debt service on this debt could negatively impact other Maryland debt.

Nontax-supported debt generally takes the form of either a project/program revenue debt or conduit debt, as discussed below:

- **Revenue Bonds:** Revenue bonds are bonds issued to raise funds for a specific project or program. The debt service on these bonds is generally repaid using revenues generated through the operation of the project or program for which the bonds were sold. For example, the Maryland Transportation Authority (MDTA) issues project revenue bonds to finance the cost of constructing revenue-generating transportation facilities, and MDTA then repays the bonds using the revenues generated through the tolls charged to drivers for the use of the facilities.
- **Conduit Debt:** Conduit debt is debt that agencies or authorities issue on behalf of clients. Clients could include local governments, nonprofit organizations, or private companies. When an agency or authority serves as a conduit issuer, the bonds that it issues may not be obligations of the issuing entity. Should the client for whom the bonds are issued be unable to meet debt service obligations on their bonds, the issuing entity is not necessarily obligated to make the debt payments. In such circumstances, the issuing agency may take the client's property into receivership or exercise other contractual provisions to meet the debt service. Agencies and authorities in the State that serve as conduit issuers include MDTA, the Maryland Economic Development Corporation (MEDCO), the Maryland Health and Higher Educational Facilities Authority, and the Maryland Industrial Development Financing Authority (MIDFA).

Revenue and Private Activity Bonds

Debt service on revenue bonds is generally paid from the revenue generated from facilities built with the bond proceeds. The Department of Housing and Community Development's (DHCD) Community Development Administration (CDA) makes housing loans with revenue bond proceeds, and the mortgage payments help pay debt service. Likewise, MDTA constructs toll facilities with bond proceeds, and the tolls collected pay off the bonds. Other State agencies issue bonds for various purposes. This agency debt is funded through what are referred to as private activity bonds.

The U.S. Tax Reform Act of 2006 established an annual limit on the amount of tax-exempt private activity bonds that may be issued by any state in any calendar year. This limit is based on a per capita limit adjusted annually for inflation. Maryland's 2018 allocation totaled \$635.5 million.

The federal Tax Reform Act of 1986 specifically allows states to set up their own allocation procedures for use of their individual bond limit. Bond allocation authority in Maryland is determined by §§ 13-801 through 13-807 of the Financial Institutions Article. The Secretary of Commerce is the responsible allocating authority. Each year's bond issuing ability is initially allocated in the following manner: 50.0% to all counties (35.0% for housing bonds allocated to each county based on population and 15.0% for bonds other than housing allocated to each county based on average bond issuances); 2.5% to the Secretary for the purpose of reallocating the cap to municipalities; 25.0% to CDA for housing bonds; and 22.5% to what is referred to as the Secretary's Reserve. This reserve may be allocated to any State or local issuer as determined at the sole discretion of the Secretary of Commerce and pursuant to the goals listed under § 13-802(4)(iii).

In practice, most localities transfer much of their allocation authority to CDA, because CDA can more efficiently and cost effectively issue mortgage revenue and multifamily housing bonds than any individual jurisdiction. The debt belongs to the county that received the initial allocation and is not backed by CDA. State issuers, such as MIDFA and MEDCO, as well as counties who need bond allocations in excess of their initial allocation, may request allocations from the Secretary's Reserve.

Private activity bonds are subject to the unified volume cap set by Congress in the Tax Reform Act of 1986. Allocations, however, may be carried forward by eligible users and for specific purposes but expire at the end of three years if not issued. Unused cap, other than that which has been allocated to CDA or transferred to CDA by local governments, reverts back to the Department of Commerce (Commerce) on September 30 of each year. Commerce then determines what amount to carry forward in support of existing projects or endeavors. Historically, any remaining nonhousing allocations have been reallocated to CDA at year end for carry-forward purposes.

Reporting of Bond Activity

As the State's single allocating authority agency, Commerce is required to collect and submit allocation and issuance data annually to the Internal Revenue Service. Section 13-804 of the article requires each agency that issues private activity bonds to annually submit to Commerce by September 15 the following information:

- the amount of the total allocation of the Maryland State ceiling allocated in that year to the issuer;
- the amount and type of bonds issued in that year pursuant to the total allocation to the issuer in that year;

- the amount and type of bonds not issued but anticipated to be issued on or before September 30 of that year pursuant to the total allocation to the issuer in that year; and
- any other information that the Secretary may request.

Although the article requires State entities that issue private activity bonds to annually report to Commerce, it does not set forth a reporting requirement from Commerce to the Spending Affordability Committee (SAC) or any other State entity. Instead, State Government Article § 2-1010 requires any State agency with private activity bond issuance authority to annually submit a report to SAC that provides the actual level of private activity bonds issued in the prior year, and the projected level of private activity bonds to be issued in the current year.

While the agencies do not adhere to the reporting under State Government Article § 2-1010, Commerce does maintain this information as required by Financial Institutions Article § 13-804, and the Department of Legislative Services annually publishes the aggregate data in this report. Moreover, there is a separate annual report published by the Department of Budget and Management required under Executive Order 01.01.1998.07 that provides information on the financing transactions and the level of outstanding debt of State agencies whose debt limit is not limited in amount by State law, which includes private activity bond issuances.

Allocation of Private Activity Bonds

Exhibit 8.1 provides the calendar 2014 through 2018 figures for the amount of available tax-exempt bond authority and the level of issuances made under the volume cap limits. Total carry forward remains high because it has outpaced annual issuances recently; in some years, CDA does not issue any debt directly against that year's allocation if sufficient amounts of carry forwards are available to support program activity.

Exhibit 8.1
Allocation of Private Activity Bonds
Calendar 2014-2018
(\$ in Millions)

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>YTD</u> <u>2018</u>
Fund Sources					
Annual Cap	\$592.9	\$597.6	\$600.6	\$601.6	\$635.5
Carry Forward from Prior Years	1,528.6	1,576.0	1,596.5	1,632.2	1,586.1
Total Capacity Available	\$2,121.5	\$2,173.6	\$2,197.1	\$2,233.8	\$2,221.6
Issuances					
Single-family Housing	\$140.7	\$24.7	\$19.5	\$16.4	\$69.0
Mortgage Credit Certificates ¹	203.0	202.3	236.4	262.1	n/a
Multifamily Housing	170.4	250.7	228.9	227.5	151.0
Housing – Other	16.5	0.0	0.0	0.0	0.0
Industrial Development Bonds	14.5	25.6	8.0	6.5	0.0
Nonhousing County	0.0	0.0	0.0	0.0	0.0
Total Issuances	\$545.1	\$503.3	\$492.8	\$512.5	\$220.0
Prior Year Carry Forward Abandoned	\$0.2	\$87.1	\$71.2	\$135.1	n/a
Carry Forward	\$1,576.4	\$1,596.5	\$1,632.2	\$1,586.1	n/a

YTD: year to date

¹ Mortgage Credit Certificates are not debt issuances. However, federal rules require that they be counted against the State's private activity bond allocation cap.

Note: Numbers may not sum to total due to rounding.

Source: Department of Commerce

Maryland Mortgage Program mortgages represent between 5% and 10% of single-family home sales in the State within DHCD's price limits, excluding investment purchases. When the bond market is unfavorable to fund its single-family program, CDA instead securitizes mortgages to be sold on the open market to private investors. The relevant difference between these two funding methods is that the securitization of mortgages means both the debt and the asset (the mortgage) are not held by CDA, while when CDA issues bonds, it typically holds either the mortgages or a mortgage security. CDA also offers mortgage credit certificates, which provide eligible homebuyers with a federal tax credit equal to 25% of the value of mortgage interest payments (up to \$2,000) annually. While the credits are not debt, they must be counted against the State's private activity allocation. Previous versions of this report did not include these credits in its accounting of the State's private activity allocation.

Multifamily issuances remained nearly level in calendar 2017 and look to continue that trend in calendar 2018. Higher levels of State general obligation bond funding available in DHCD's primary multifamily housing program, Rental Housing Works, has allowed DHCD to maintain a higher level of issuances in recent years.

Expansion of CDA Authority

During the 2016 session, the legislature passed two pieces of legislation that increased the scope of CDA's lending authority. Chapter 482 of 2016 authorized CDA (as well as the Maryland Housing Fund) to lend to business projects and expanded the geographic area in which DHCD's Neighborhood Business Development Program – which operates as Neighborhood Business Works – can operate to include all priority funding areas designated in the State Finance and Procurement Article. According to the department, CDA has approved three projects totaling \$8.8 million in loans in which CDA holds a senior lien position as well as \$3.8 million in subordinate loans. CDA has also funded one subordinate loan of \$500,000 and provided a \$1 million loan guarantee as part of a project that received \$12.5 million in private financing. However, since financing these projects in early 2017, no further projects have been approved. The department had hoped to resell the loans to finance additional activity but was unable to find favorable terms on the private bond market.

Debt Outstanding

Exhibit 8.2 summarizes the change in debt outstanding for different types of debt between fiscal 2008 and 2018:

- **Agency Debt Subject to State Regulatory Cap:** This category includes debt held by State agencies on which the State sets limits. The debt is not backed by State taxes.
- **Agency Debt Not Subject to State Regulatory Cap:** This type of debt is held by State agencies that do not have limits set by the State. The debt is not backed by State taxes.
- **Tax-supported Debt:** State debt that is supported by taxes.
- **Authorities and Corporations:** Debt held by non-State agencies that are not subject to any debt ceiling or allocation caps.

A table containing debt outstanding by year for individual agencies is included as **Appendix 4**.

Exhibit 8.2
Debt Outstanding as of June 30
Fiscal 2008 and 2018
(\$ in Millions)

	<u>2008</u>	<u>2018</u>	<u>Total Change</u>	<u>Annual % Change</u>
Agency Debt Subject to State Regulatory Cap	\$2,001	\$2,192	\$191	0.9%
Agency Debt Not Subject to State Regulatory Cap	4,985	4,135	-849	-1.9%
Tax-supported Debt	7,632	13,103	5,470	5.6%
Authorities and Corporations without Caps	10,299	11,365	1,067	1.0%
Total	\$24,917	\$30,795	\$5,878	2.1%

Note: Numbers may not sum to total due to rounding.

Source: Department of Budget and Management

Debt Service on University Academic and Auxiliary Revenue Bonds

Chapter 93 of 1989 gave Morgan State University (MSU), St. Mary's College of Maryland (SMCM), and the University System of Maryland (USM) the authority to issue bonds for academic and auxiliary facilities. Chapter 208 of 1992 gave Baltimore City Community College (BCCC) the authority to issue bonds for auxiliary facilities, and Chapter 213 of 2009 extended its authority to include academic revenue bonds (ARB) as well. Academic facilities are primarily used for the instruction of students, while auxiliary facilities are those that produce income from fees charged for the use of the facility. A residential dormitory is an example of an auxiliary facility. Debt service on auxiliary and academic debt may be paid from auxiliary and academic fees; a State appropriation expressly authorized for that purpose; or revenues from contracts, gifts, and grants.

Statute specifies that academic facilities must be expressly approved by an act of the General Assembly that determines both the project and bond issue amount. Each year, USM introduces legislation entitled the Academic Facilities Bonding Authority, listing the specific academic projects requiring authorization. Legislation may also increase the total debt limit for institutions when warranted. Section 13-102 of the Education Article limits debt outstanding to \$1.4 billion for USM, \$88 million for MSU, \$65 million for BCCC, and \$60 million for SMCM.

University System of Maryland

USM issues 20-year bonds with serial maturities and level debt service payments. The first year is interest only, and the principal is retired in the remaining 19 years. USM's debt

management policies aim to reassure investors and the rating agencies of the system's financial stability and control over debt. The policy was revised in April 2018 to reflect the current planning metrics used by USM. USM aims for debt service to be less than 4.0% of operating revenues plus State appropriations including grants and contracts. This ratio was developed after discussions with its financial advisor (Public Financial Management's Higher Education Office), rating agencies, and investors.

Since the economic downturn, the ratings of many higher education institutions were downgraded due to their weaker financial positions. USM reports that it expects to maintain the current rating of AA1 (stable) from Moody's and the equivalent AA+ from both Fitch (stable) and Standard & Poor's (which removed the system from negative watch). The most recent credit reviews by the rating agencies were in January 2018.

Exhibit 8.3 shows that USM will be under the 4.0% debt service goal for fiscal 2018 to 2024. Including debt issued in fiscal 2018, total debt service will be approximately \$143 million, or 2.9%, of fiscal 2018 operating revenues plus State appropriations including grants and contracts. The forecast indicates that the ratio will stay at or below 2.8% through the fiscal 2024 projection.

Exhibit 8.3
University System of Maryland Debt Service as Related to Operating Funds
Plus State Appropriations
Fiscal 2011-2024 Estimated
(\$ in Millions)

<u>Year</u>	<u>Total Debt Outstanding</u>	<u>Total Debt Service</u>	<u>Operating Revenues Plus State Appropriations</u>	<u>Ratio of Debt Service to Operating Revenues Plus State Appropriations</u>
2011	\$1,129	\$127	\$4,065	3.1%
2012	1,170	124	4,204	3.0%
2013	1,271	137	4,283	3.2%
2014	1,200	141	4,478	3.1%
2015	1,218	138	4,567	3.0%
2016	1,270	143	4,645	3.1%
2017	1,298	149	4,811	3.1%
2018	1,286	143	4,935	2.9%
2019 Estimated	1,305	142	5,034	2.8%
2020 Estimated	1,321	145	5,134	2.8%
2021 Estimated	1,337	145	5,237	2.8%
2022 Estimated	1,358	138	5,342	2.6%
2023 Estimated	1,375	141	5,449	2.6%
2024 Estimated	1,392	141	5,558	2.5%

Note: Total debt outstanding and total debt service include academic, auxiliary, and capital lease debt.

Source: University System of Maryland

USM also has a goal for the ratio of expendable resources (defined as unrestricted assets of USM and the affiliated foundation with adjustments for certain long-term liabilities) to debt outstanding. With advice from its financial advisor, USM's goal is for expendable resources to be no less than 90% of total debt outstanding, adjusted for outstanding commitments.

Exhibit 8.4 shows USM's expendable resources to debt outstanding ratio for fiscal 2011 to 2024. USM also makes adjustments to this ratio in its internal cash management analysis. Adjustments include expanding debt outstanding to include anticipated issuances for projects that the system is committed to completing. This reduces the ratio of available resources to debt outstanding by increasing the denominator of the fraction. USM advises that after adjustments are made, fiscal 2018 ratio is 132%. USM has exceeded the target minimum 90% throughout the entire period. The ratio has grown in recent years, indicating capacity to issue more debt under the criterion. In fiscal 2019, the system will seek a total of \$24 million in ARBs to provide facility renewal and capital project funding for USM institutions. This will increase to approximately \$40 million per year from fiscal 2020 through 2023.

Exhibit 8.4
Summary of Available Resources to Debt Outstanding for the
University System of Maryland
Fiscal 2011-2024 Estimated
(\$ in Millions)

<u>Year</u>	<u>Available Resources</u>	<u>Debt Outstanding</u>	<u>Ratio of Available Resources to Debt Outstanding</u>
2011	\$1,432	\$1,129	126.9%
2012	1,622	1,170	138.6%
2013	1,752	1,196	146.6%
2014	1,728	1,269	136.2%
2015	1,787	1,194	149.7%
2016	1,919	1,270	151.1%
2017	2,035	1,298	156.8%
2018	2,384	1,286	185.5%
2019 Estimated	2,283	1,305	174.9%
2020 Estimated	2,264	1,321	171.3%
2021 Estimated	2,220	1,337	166.0%
2022 Estimated	2,179	1,358	160.4%
2023 Estimated	2,125	1,376	154.4%
2024 Estimated	2,070	1,393	148.7%

Note: Debt outstanding includes auxiliary, academic, and capital lease debt.

Source: University System of Maryland

St. Mary's College of Maryland

SMCM's outstanding debt consists of auxiliary and capital lease debt. SMCM has no outstanding academic debt. The total debt in fiscal 2019 is estimated to be \$29.3 million and is expected to decrease to \$17.5 million by fiscal 2024. As shown in **Exhibit 8.5**, the college's ratio of debt service to unrestricted expenditures is also expected to decline from an estimated 6.1% in fiscal 2019 to 4.1% in fiscal 2024. In fiscal 2010, SMCM was at its 5.5% debt ratio goal in order to construct additional residential buildings to house increasing enrollment. The college breaches the limit in fiscal 2019 but expects that the ratio will decline in fiscal 2020.

In May 2018, SMCM's bond rating was affirmed by Moody's at A2 with a negative outlook. In spite of a history of strong State support to the college, there are concerns about declining enrollment. Because the college's bonds are issued at a fixed rate, there is no effect on existing bonds. In June 2018, the college held a competitive sale to refinance approximately two-thirds of outstanding debt, resulting in \$1.7 million in net present value debt service savings, which are reflected in the data.

Exhibit 8.5
St. Mary's College of Maryland Debt Service Related to Unrestricted Funds
Fiscal 2011-2024 Estimated
(\$ in Thousands)

<u>Year</u>	<u>Total Debt Outstanding</u>	<u>Total Debt Service</u>	<u>Unrestricted Expenditures</u>	<u>Ratio of Debt Service to Unrestricted Expenditures</u>
2011	\$41,753	\$3,500	\$65,187	5.4%
2012	38,313	3,416	66,817	5.1%
2013	38,311	3,211	63,082	5.1%
2014	36,387	3,208	61,031	5.3%
2015	34,268	3,200	65,858	4.9%
2016	33,904	3,436	70,310	4.9%
2017	31,735	3,682	68,414	5.4%
2018	31,390	3,516	64,059	5.5%
2019 Estimated	29,254	4,000	65,660	6.1%
2020 Estimated	25,959	2,523	67,302	3.7%
2021 Estimated	24,340	3,054	68,985	4.4%
2022 Estimated	22,135	3,044	70,709	4.3%
2023 Estimated	19,865	3,019	72,477	4.2%
2024 Estimated	17,535	3,014	74,289	4.1%

Note: Total debt outstanding and total debt service includes auxiliary and capital lease debt only. St. Mary's College of Maryland does not have any academic debt.

Source: St. Mary's College of Maryland

Morgan State University

As shown in **Exhibit 8.6**, MSU estimates \$40.2 million of debt in fiscal 2019. This figure includes academic, auxiliary, and capital lease debt. Auxiliary debt is the largest of the three, totaling \$27.0 million. The ratio of debt service to unrestricted expenditures is estimated to be 4.0% in fiscal 2019, below MSU's 5.5% goal ratio. MSU is not planning to issue more debt in the next five years, and the college's projected debt ratio is expected to stay between 1.7% and 4.1% through fiscal 2024. Like USM, MSU issues 20-year bonds with serial maturities and level debt service payments. The first year is interest only, and the principal is retired in the remaining 19 years. MSU was most recently rated A1 Stable by Moody's in April 2016 and A+ (stable) by Standard & Poor's in February 2015. MSU advises that the large decline in its debt service in fiscal 2021 is due to the maturation of its 1993 series bonds and that this is in line with the institution's financial planning.

Exhibit 8.6
Morgan State University Debt Service as Related to Unrestricted Funds
Fiscal 2010-2024 Estimated
(\$ in Thousands)

<u>Year</u>	<u>Total Debt Outstanding</u>	<u>Total Debt Service</u>	<u>Unrestricted Expenditures</u>	<u>Ratio of Debt Service to Unrestricted Expenditures</u>
2011	\$59,556	\$8,034	\$150,429	5.3%
2012	55,165	7,429	157,647	4.7%
2013	47,761	5,776	165,502	3.5%
2014	43,770	6,422	164,211	3.9%
2015	43,145	6,078	177,568	3.4%
2016	54,409	7,100	183,346	3.9%
2017	48,481	8,312	198,116	4.2%
2018	46,465	8,332	204,057	4.1%
2019 Estimated	40,188	8,329	210,179	4.0%
2020 Estimated	33,629	8,314	216,485	3.8%
2021 Estimated	26,963	5,027	222,979	2.3%
2022 Estimated	23,261	4,376	229,668	1.9%
2023 Estimated	19,887	4,065	236,558	1.7%
2024 Estimated	16,696	4,067	243,655	1.7%

Note: Total debt outstanding and total debt service include academic, auxiliary, and capital lease debt.

Source: Morgan State University

Baltimore City Community College

To date, BCCC has not taken advantage of its ability to issue auxiliary or academic debt but is authorized to issue up to \$65 million. Since both the amount and eligible uses of its debt authorization were expanded in the 2009 session, BCCC has repeatedly postponed plans to initiate the bond rating process and issue debt. However, the college has more recently decided not to pursue the rating process and has no plans to issue debt in the foreseeable future. This position may be revisited by its Board of Trustees, which was reformed by legislation (Chapter 848 of 2017) in fiscal 2018 and is tasked with reviewing the institution's capital planning needs.

Chapter 9. Issues

Key issues examined in this chapter are:

- capacity available to increase general obligation (GO) bond authorizations;
- availability of fund balances allow for general fund appropriations that reduce out-year debt service costs;
- evaluating affordability risks, including the impact of a recession; and
- potential effects of federal tax law changes.

Capacity Is Sufficient for Modest Increases in Authorizations Consistent with Spending Affordability Committee Recommendations

The Capital Debt Affordability Committee's (CDAC) recommendation is to continue to limit GO bond authorizations to \$995 million. This is affordable. As discussed in Chapter 4, the Department of Legislative Services (DLS) estimates that debt service peaks at 7.71% of revenues in fiscal 2023 and that debt outstanding peaks at 3.45% of personal income in fiscal 2020.

In 2016, the Spending Affordability Committee (SAC) recommended that GO bond authorizations be limited to \$1,065 million in fiscal 2018 and that subsequent increases be limited to 1%. This approach links increases in authorizations to projected increases in the major revenue source that supports debt service, which is the State property tax. State property tax revenues are projected to increase at a rate of 2%. Cost are contained at a rate of growth that does not exceed projected increases in the revenues that support them.

Exhibit 9.1 shows that this level of authorizations is still affordable. Debt service to revenues peaks at 7.75% in fiscal 2023, and debt outstanding peaks at 3.46% in fiscal 2020.

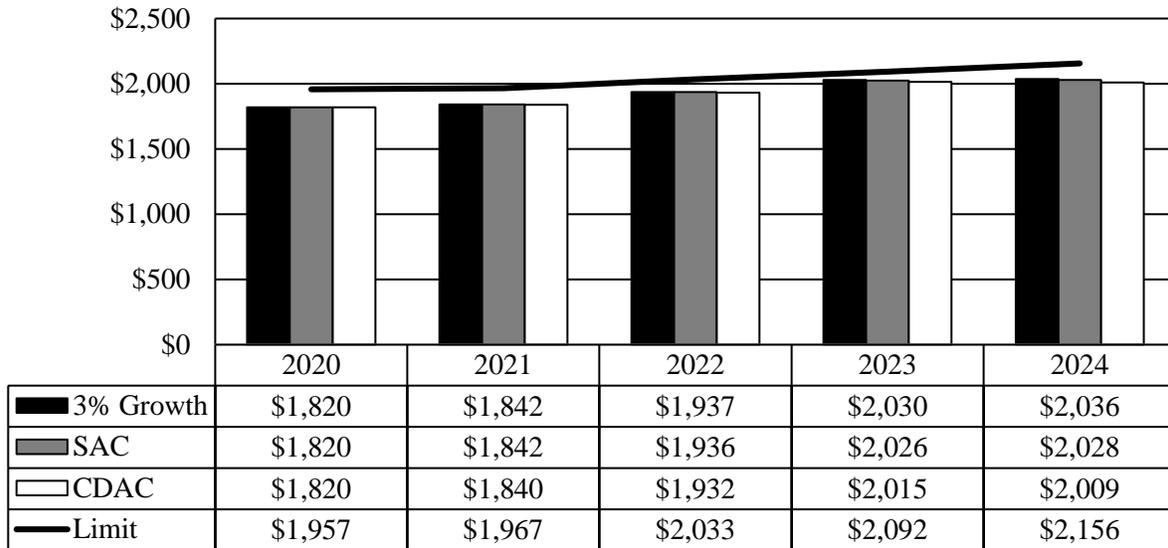
Exhibit 9.1
Impact of 2016 Spending Affordability Committee Recommendations on
Debt Service and Affordability Ratios
Fiscal 2020-2024
(\$ in Millions)

<u>Year</u>	<u>Authorization</u>	<u>Additional Debt Service</u>	<u>Debt Service to Revenues</u>	<u>Debt Outstanding to Personal Income</u>
2020	1,085	0	7.44%	3.46%
2021	1,095	2	7.49%	3.40%
2022	1,105	4	7.62%	3.33%
2023	1,115	11	7.75%	3.22%
2024	1,125	19	7.53%	3.16%

Source: Department of Legislative Services

Prior to 2015, CDAC policy was to plan for 3% annual increases in authorizations. In 2016, CDAC recommended that the fiscal 2017 capital budget GO bond authorizations be limited to \$995 million. That year, SAC recommended that GO bond authorizations be increased 1% annually. All of these approaches are affordable. **Exhibit 9.2** shows that all three approaches are comfortably below the limit.

Exhibit 9.2
Debt Service Capacity
Fiscal 2020-2024
(\$ in Millions)



CDAC: Capital Debt Affordability Committee
 SAC: Spending Affordability Committee

Source: Capital Debt Affordability Committee; Department of Legislative Services

Use General Funds to Limit Bond Authorizations

As mentioned in Chapter 7, the State currently has unusually large, unanticipated fund balances. Through legislation, the State has also recently taken actions to encourage the use of unanticipated fund balance to increase reserves and fund one-time costs, such as capital projects. Consistent with this approach to restrain from appropriating unanticipated revenues for ongoing costs, the State should consider appropriating fund balance to support capital spending.

At current interest rates, the cost of issuing \$100 million in GO bonds is as much as \$148 million. Appropriating general funds for capital projects eliminates the additional debt service paid over the 15-year life of the bonds. A concern raised in Chapter 7 is that the State has issued \$200 million in high-cost taxable debt from fiscal 2016 to 2018. Appropriating general funds for these projects can yield additional savings in excess of the savings realized when issuing tax-exempt bonds. **DLS recommends that the State use fund balances to support capital needs and minimize reliance on GO bonds.**

Affordability Risks

The objective of the debt affordability process is twofold: (1) the process should keep the State's debt at a level that is affordable; and (2) the process should provide reliable estimates for a stable capital program. This report shows that, based on current assumptions about the State's economy, revenue, interest rates, federal laws and accounting definitions, the State debt is prudently being authorized under CDAC's proposed GO bond authorization limits. It also shows that modest increases in authorizations are also prudent. While general fund appropriations are expected to increase, these increases are in line with historical levels of appropriations, as shown in Chapter 5.

However, the report makes a number of assumptions that, if violated, could result in the State exceeding its debt limit. This section examines these assumptions and the risks that the assumptions may be invalid because there are consequences if CDAC overestimates what is affordable. In the past, the State has reacted to potentially breaching the debt limits by limiting or even reducing authorizations. This can be disruptive to the capital budget process. Most recently, the fiscal 2012 capital budget was reduced by \$215 million in response to declining annual revenues during the Great Recession. The planned authorizations were not affordable, so authorizations were reduced.

For this analysis, risk is defined as the likelihood that the ratios will be breached, and the State will need to make reductions in planned capital spending or that substantial increases in general fund costs will be required. Risks are grouped into these two categories: (1) negligible or marginal risks that may affect ratios but should not affect affordability; and (2) risks that could potentially lead to a breach in affordability limits. There are sets of assumptions that are examined in this section:

- increases in interest rates that increase debt service costs;
- reduced personal income that could increase the State debt outstanding to personal income ratio;
- changes in issuances resulting in earlier or increased issuances;
- changes in definitions that could increase State debt service and debt outstanding; and
- reduced revenues that could increase the State debt service to revenue ratio.

Negligible or Marginal Risks to Affordability Over the Forecast Period

There are four sets of assumptions that could increase the affordability ratios but are unlikely to lead to a breach of the criteria: increases in interest rates that increase debt service costs; reduced personal income that could increase the debt outstanding to personal income ratio;

changes in issuances resulting in earlier or increased issuances; and changes in definitions that could increase State debt service and debt outstanding.

Interest Rate Risk Over the Forecast Period

Debt service costs are a function of the amount that is borrowed and the interest rate paid. As such, interest rates are a key affordability assumption. The amount borrowed is the par value and the interest rate that the State pays bondholders is the coupon rate.

As discussed in Chapter 7, interest rates have been increasing over the last two years, and projections are that they will continue to rise. However, market rates are still well below the coupon rate, so potential increases are unlikely to have any effect on affordability because of the State's cautious budgeting approach. When budgeting, the State assumes a 5% coupon rate, while average coupon rates have commonly been between 4% and 4.5%. Furthermore, market rates were 2.81% in August 2018, at the time of the most recent bond sale. For coupon rates to increase above 5%, substantial increases in interest rates would be required.

Even if market rates rise above the coupon rate, there is still capacity in the debt service to revenues ratio. DLS estimates that the coupon rate would need to increase to at least 6.5% for debt service to revenues to breach the limit.

Changes in Personal Income

One of the affordability criterion is that State debt outstanding cannot exceed 4% of personal income. Currently, the likelihood that the debt outstanding to personal income criterion will be breached is low because the ratio is well below the limit, as Exhibit 9.1 shows. The year with the highest ratio is fiscal 2020, in which debt outstanding is 3.46% of personal income. For this ratio to be breached, the 2020 personal income estimate would need to decline by more than 13.62%. The two sources of changes to personal income are:

- ***Adjustments to Prior and Current Estimates:*** The federal Bureau of Economic Analysis (BEA) provides estimates of personal income that the State Board of Revenue Estimates (BRE) uses. BEA collects and reviews data, and it is not uncommon for BEA to make after-the-fact revisions to estimates; sometimes, these revisions go back five or more years. As recently as 2017, BEA lowered its personal income estimates. While these revisions can be material, they are usually only a few percentage points and not near the 14% reduction required for debt to be unaffordable; and
- ***Overestimating Personal Income:*** In the out-years, BRE projects modest but steady increases in personal income. Should personal income decline, the ratio would increase even if no changes are made to State authorizations or issuances. Fortunately, personal income is fairly robust, and declines are uncommon. In the last 15 years, personal income declined only twice, and both declines were less than 1%. Even in 2009, during the deepest recession since World War II, Maryland personal income only declined 0.32%. The reason

for this robustness is that personal income is less affected by recessions. BEA defines personal income as “[i]ncome that people get from wages and salaries, Social Security and other government benefits, dividends and interest, business ownership, and other sources.” This does not include capital gains, which are much more volatile. Much of personal income is transfer payments, like Social Security, that are either unaffected by recession or countercyclical. Although a decline in personal income would reduce the debt outstanding to personal income ratio, it is unlikely that the State would see a decline substantial enough to result in the State breaching the ratio.

Changes in Issuances

Debt service payments and the amount of debt outstanding are influenced by the timing of issuances. The capital budget bill authorizes GO bonds but does not specify when the bonds will be issued and when debt service will be paid. When the bonds are issued is determined by the State Treasurer’s Office (STO) based on capital projects’ cash flow needs. The goal is to issue bonds and spend the proceeds shortly thereafter. There are federal arbitrage regulations that penalize issuers that spend bond proceeds too slowly.

There is often a multi-year delay between authorizations and issuances. Capital projects take years to plan and construct. The authorizations are needed to award multi-year construction contracts that will not need much funding in the current year. The GO bond program also funds grant programs for which the State is billed years after the bonds are authorized. Given the projects’ long horizons, it is not uncommon for there to be delays in projects that slow spending so that the full amount of spending is not required in the year that the bonds are authorized.

Since the full authorization is not needed in the fiscal year that is authorized, CDAC has a policy to spread issuance over a five-year period that has been in place for decades. The policy assumes that 31% of authorized bonds are issued in the first year, 25% in the second year, 20% in the third year, 15% in the fourth year, and 9% in the fifth year. If more bonds are issued sooner, then the bonds debt service and debt outstanding will increase more rapidly than projected and estimates understate the cost of debt.

However, the effect of authorizing debt more quickly on the debt service is muted. State debt issuances do not begin to make principal payments until the third year so full impact of issuing bonds is not realized until the third. Consequently, the initial effect is limited.

At this point, it does not appear that understating issuances is a risk that could result in the State breaching debt limits. But the State should continuously review issuances so that estimates are accurate.

Changes in Definitions

CDAC has definitions for State debt and State revenues. BEA has defined personal income. While the definitions are quite static, they do change. Definitions that are currently evolving are capital leases and public-private partnerships (P3).

P3s: A P3 is a contractual agreement between the State and a private-sector entity in which the skills and assets of each sector (public and private) are shared in delivering a service for facility to the public. Each party also shares in the risks and rewards. There is substantial variation in these projects since the kinds of assets, risks, and rewards can vary substantially from project to project. Risks not only include construction costs but also revenue, regulatory, and legal risks.

In 2013, the State adopted legislation that requires CDAC to review the affordability of P3 projects prior to the State entering into a contract with a P3 concessionaire. The legislation requires that CDAC review each project's debt to determine the extent to which proposed debt is State debt. This includes consulting with the State Comptroller's Office's General Accounting Division, bond counsel, and municipal market professionals.

To date, the State entered into two P3 arrangements, with State Center in Baltimore City and the Purple Line transit project in Montgomery and Prince George's counties. The State entered into the State Center contract prior to the 2013 legislation and into the Purple Line after the legislation was enacted. For these two projects, CDAC excludes debt issued by concessionaires in the affordability calculation. DLS estimates that the State Center debt service costs range from \$20 million to \$30 million annually. Additional phases are anticipated to more than double these costs. For the Purple Line, debt service costs are projected to exceed \$60 million when the project is operational. Taken together, these P3 projects could require over \$100 million when all phases are completed. These costs are substantial but are not sufficient to add to the debt service or debt outstanding to the point that the affordability ratios would be breached.

Another concern is that there is not consensus about what is State debt among the three large rating agencies (Fitch, Moody's, and Standard and Poor's). Fitch and Standard and Poor's have included debt issued by the concessionaire as debt of the government, which Maryland does not consider State debt, when calculating State debt. Moody's does not necessarily include concessionaire debt as public debt.

In conclusion, the State has reviewed P3s and determined that substantial amounts of debt are not State debt. The State's approach is not universally accepted because there are not commonly accepted definitions. While there is no reason to change definitions at this point, it is conceivable that, should there be a commonly accepted definition, the State could change its definition to conform. This could substantially add to State debt service and State debt outstanding but would not breach affordability limits at this time.

Capital Leases: An example of this change is discussed in Chapter 3. The Government Accounting Standards Board (GASB) has approved standards for capital leases. CDAC has adopted GASB's definitions. The GASB process is deliberative, so its standards tend to change slowly with substantial public comment.

GASB has approved Statement 87, which has a new standard that requires that all leases extending beyond the current fiscal year be accounted for as capital leases. This is effective beginning in State fiscal 2020. The *Comprehensive Annual Financial Report* for fiscal 2017

reports that rent expenditures totaled \$94 million in fiscal 2017. By contrast, capital lease expenditures reported by CDAC totaled \$27 million in fiscal 2017.

STO and DLS have been monitoring GASB and are aware of the changes in accounting standards. In the fiscal 2019 *Joint Chairmen's Report*, the budget committees require that the Department of General Services, the Maryland Department of Transportation, and the Department of Budget and Management examine the effect of the accounting standards and report on the effect the change will have on State capital leases. The GASB statement is expected to increase the number of capital leases included in the affordability ratios. This change does not appear to be substantial enough to result in a breach in the affordability ratios.

Deep Recession Could Lead to Breach in the Debt Service to Revenues Ratio

The business cycle affects State revenues. When economic activity slows, the largest revenues sources, personal and corporate income taxes and sales taxes, either slow or decline. CDAC uses revenue estimates from BRE to calculate affordability ratios. These estimates increase as economic activity increases. When the economy goes into recession, actual revenues can decline instead of increase as projected. Consequently, reducing revenues can result in a substantially higher State debt service to revenues ratio even if the State makes no changes in policies. CDAC policy is that State debt service cost cannot exceed 8% of the revenues supporting the debt service costs. If the decline in revenues is deep enough, the ratio could be breached. To avoid exceeding this limit, the State has reduced GO bond authorizations. When the limit was reached in fiscal 2010, reductions were made to the capital budget.

Since fiscal 2010, general fund revenues have been increasing steadily so that the State has been able to increase authorizations and allow for some capacity in excess of authorizations. Although the State is comfortably within its affordability ratios, a deep recession with multiple years of revenue losses could increase the debt service to revenue ratio.

Exhibit 9.3 shows how much fiscal 2019 State revenues supporting debt service can decline over a two-year period and still stay within the 8% affordability ratio. If fiscal 2019 revenue, which totals \$23.6 billion, declines by more than 2.6% from fiscal 2019 to 2021, the affordability ratio drops below 8%. The two-year period was chosen because the most recent recessions have resulted in two-year declines in revenues. As the exhibit shows, revenues two years into these recessions were 4% and 3% less than peak revenues before the recession.

Exhibit 9.3
Revenues Required to Maintain Debt Service Affordability Ratio Above 8%
(\$ in Millions)

	October 2018: Fiscal 2019 Base Year	2007-2009 Recession: Fiscal 2008 Base Year	2001 Recession: Fiscal 2001 Base Year
Base Year: State-supported Debt Total Revenues	\$23,628	\$16,735	\$11,707
Minimum Affordable Revenues in Fiscal 2021: Actual Revenues Two Years Later (Fiscal 2010 and 2003)	22,997	16,061	11,353
Total Change in Revenues	-\$631	-\$674	-\$354
Percent Change	-2.7%	-4.0%	-3.0%

Note: State revenue supporting State debt include general fund revenues, State property taxes, Transportation Trust Fund Revenues, federal funds supporting Grant Anticipation Revenue Notes, Bay Restoration fund revenues, stadium revenues support stadium debt, and transfer taxes. This assumes the Spending Affordability Committee's authorizations, which assume 1% out-year growth. Using the Capital Debt Affordability Committee authorizations allows for a 2.7%, or \$631 million, reduction in revenues.

Source: Department of Legislative Services

This analysis is not meant to suggest that a recession will result in a breach of the affordability criterion. There have been recessions without such substantial declines in revenues. Also, revenues are expected to strengthen in the out-years, so the later the State goes into recession, the more robust the criterion will be. However, it is clear from the analysis, that a deep recession could push debt service over 8% of revenues.

Effect of Federal Tax Law Changes

On December 22, 2017, President Donald J. Trump signed the federal Tax Cuts and Jobs Act. This new law enacts broad changes to federal tax laws that were effective on January 1, 2018. The new law has some provisions that will impact GO bonds and the cost of the State's capital program. Specifically, there are three provisions that are expected to affect the State's GO bond program. In all cases, the effect is to increase costs. This issue examines the new law's impact on GO bonds supporting the State's capital program.

Effect of Reducing Taxes on the State and Municipal Bond Market

Most GO bonds issued by the State are tax-exempt bonds. The purchaser of these bonds does not have to pay federal taxes on the bonds' interest earnings. This makes these bonds especially attractive to individuals in high income tax brackets and corporations. This reduced the top bracket on individual taxes from 39.6% to 37% through calendar 2025 and reduces the top corporate income tax rate from 39% to 21% permanently. Lower tax rates reduce the amount of tax avoided by investing in tax-exempt bonds. This is anticipated to reduce the demand for tax-exempt bonds. For example:

- Financial institutions, like banks and insurance companies, are estimated to own 25% of tax-exempt bonds. These institutions would require a higher interest rate to purchase tax-exempt bonds.
- Some reports note that owners of pass-through entities, such as partnerships and Subchapter S Corporations, may also be less likely to purchase tax-exempt bonds, thereby dampening the demand and driving up prices.

Repealing Advanced Refunding of Tax-exempt Bonds

The GO bonds that Maryland issues are callable. This means that the State can retire the bonds early. Callable bonds have a call date. This is the earliest date that a bond can be retired. For example, GO bonds from Maryland's most recent bond issuance are callable after 10 years, which is common.

The State can issue refunding bonds at a lower rate than bonds issued previously and then retire the principal that is callable. When doing this, the State replaces higher interest bonds with lower interest bonds.

Until January 1, 2018, federal tax law allowed the State one advanced refunding for every bond sale. Advanced refunding allows the State to issue tax-exempt refunding bonds before the call date. The advantages are:

- ***Savings Can Be Realized Early:*** If the State has a 10-year call, the State cannot take advantage of lower interest rates until 10 years have passed. With advanced refunding bonds, the State can realize savings sooner. For example, at the last refunding sale in August 2017, the State issued refunding bonds to redeem \$884.5 million in previously issued bonds. The earliest call date for the redeemed bonds was fiscal 2019. Through refunding bonds, the State reduced debt service costs by \$9.1 million in fiscal 2018. Under the new law, the State can no longer realize these savings. Savings from fiscal 2019 to 2022 totaled \$25.4 million, most of which would not be achieved without advanced refunding.

- ***Advanced Refunding Bonds Provide a Hedge Against Increasing Interest Rates:*** In the most recent refunding bond sale, the State realized \$85.7 million in savings between fiscal 2018 and 2027. As previously mentioned, most of the \$34.5 million in savings prior to fiscal 2023 would not have been realized without the ability to issue advanced refunding bonds. Advanced refunding allows states and municipalities to lock into savings if interest rates are low rather than waiting until the bonds are callable and risk a rise in interest rates.
- ***Issuances Can Be Bundled:*** In the most recent refunding sale, the State refunded bonds with call dates ranging from 2019 to 2023. Without the ability to combine all these callable tranches into one issuance, each tranche would need to be refunded individually, requiring nine refunding issuances. This adds to the transaction costs, which reduces savings, and requires additional staff work that could increase operating costs. Advanced refunding issuances are much more efficient.

Savings attributable to advanced refunding bonds are substantial. As Exhibit 3.3 in Chapter 3 shows, advanced refundings have reduced debt service costs by over \$316 million since December 2009. The State can still refund and call tax-exempt bonds without advanced refunding bonds. But without the ability to realize savings early, lock into low interest rates, and bundle issuances, the savings attributable to refunding bonds are substantially less, and the process is much less efficient. Since interest rates are expected to rise in the near term, there may be no immediate impact on the rate as there will be little opportunity to generate savings through refunds.

Repealing Tax Credit Bonds

In addition to tax-exempt GO bonds, the State has also taken advantage of federal programs that allow it to issue bonds whereby the buyers can receive federal tax credits, or the State will receive a direct payment to offset interest costs. Most recently, the federal government has authorized Qualified Zone Academy Bonds (QZAB). These bonds are issued in the place of traditional tax-exempt GO bonds.

To date, the State has issued \$107 million in QZABs. As discussed in Chapter 3, DLS estimates that the lower costs associated with these bonds reduced total debt service payments by \$42 million. However, some of these bonds are affected by federal sequestration reductions, which reduce the savings by \$1 million. These bonds have been deauthorized. The last Maryland QZAB was issued on December 15, 2017.

How Tax Law Changes Could Affect How Bonds Are Structured

It has been less than one year since the tax laws have changed, and markets have not yet completely adapted to these changes. Eliminating advance refunding authority for tax-exempt bonds could affect how issuers structure bonds. Maryland has not made any material changes to how bonds are structured. But financial advisors and bond counsel are reviewing what options issuers have. Some possible changes include:

- ***Issuing Bonds Can Be Called Sooner:*** Maryland issues bonds that are callable after 10 years, which is fairly standard. To be able to lock into savings earlier, states and municipalities may issue bonds that are callable in less than 10 years;
- ***Issuing Fewer Callable Bonds:*** In October 2007, DLS examined the factors that influenced the true interest cost (TIC). The data suggest that this added 0.08% (8 basis points) to the TIC. In discussions with municipal market professionals, some have indicated that they estimated about 0.1% (10 basis points) in additional costs for callable bonds. Although it is unclear exactly what the cost of issuing callable bonds is, it is clear that there is a cost. If there are fewer opportunities to call bonds, the State could decide to forgo paying this premium; and
- ***Issuing Taxable Bonds That Are Reissued as Tax-exempt Bonds:*** States can issue advanced refunding bonds for taxable bonds. According to various bond counsel, there is no prohibition from issuing taxable bonds and reissuing them as tax-exempt bonds. As discussed in Chapter 7, taxable bonds are more expensive than tax-exempt bonds. If the State were to consider this approach, it would need to compare the additional costs associated with taxable bonds to the likely and potential savings realized from refunding tax-exempt bonds.

The State can still call bonds so that there still are potential savings. But the State will no longer be able to bundle refunding bonds, which will reduce savings. While the State will be able to adapt to the new federal policies, these adaptations will require more effort and costs while yielding fewer savings.

Effect of Tax Reform on the Cost of Debt

With respect to the recent tax reform, there are countervailing forces that influence tax-exempt bonds' interest rates. By reducing taxes, the new law reduces the value of tax-exempt bonds. This tends to increase the interest rates. When the bill was enacted, a research and consulting firm estimated that reducing the corporate income tax rate to 20% would increase tax-exempt interest rates by 0.50% to 0.75% (50 to 75 basis points) without considering the effect of other provisions in the bill.

On the other hand, ending advanced refunding reduces the amount of debt that is issued and outstanding (since the refunded bonds are not retired until the call date), which reduces the supply and lowers interest rates.

To test if there is a measureable change in the TIC, DLS used the statistical model discussed in Chapter 6. The variable tested had a negative coefficient, suggesting there has been a net reduction in rates, but it was not statistically significant, so it is unclear if this a coincidence or a trend.

A review of interest rate indices also does not suggest that the tax law changes have had a clear effect on interest rates. **Exhibit 9.4** shows a general increase in interest rates. The index with the highest percent increase is the 10-year U.S. Treasury note, and the index with the lowest percent increase is the 30-year U.S. Treasury bond. These are both taxable bonds. While tax law changes may have affected interest rates, other factors seem to be more significant. From this data, the simplest explanation is that a bond's years to maturity has more to do with the changes in interest rates than the tax-exempt status.

Exhibit 9.4
Change in Interest Rates
October 2017-October 2018

<u>Date</u>	Tax-exempt Bonds			Taxable Bonds	
	AA+ Rated Municipal Bonds with 20-year Maturities	AA Rated Municipal Bonds with 20-year Maturities	A Rated Municipal Revenue Bonds with 30-year Maturities	10-year U.S. Treasury Notes	30-year U.S. Treasury Bonds
10/12/2017	3.12%	3.61%	3.82%	2.33%	2.86%
10/11/2018	3.84%	4.37%	4.88%	3.15%	3.32%
Change	0.72%	0.76%	1.06%	0.82%	0.46%
Percent Change	23.04%	20.92%	27.73%	35.06%	16.01%

Source: The Bond Buyer, U.S. Department of the Treasury

At this point, there does not appear to be any clear evidence indicating how the tax changes have affected tax-exempt bonds' interest rates. Perhaps the law's most lasting effect is to end advanced refunding thereby reducing opportunities for states and municipalities to reduce borrowing costs when interest rates decline.

Appendix 1
General Obligation Bond Requests
Fiscal 2020-2024
(\$ in Millions)

	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>Total</u>	Category Totals
State Facilities							\$493.7
Board of Public Works	\$40.2	\$52.3	\$112.6	\$99.9	\$62.3	\$367.2	
Veterans Affairs	1.5	10.0	11.0	0.0	0.0	22.5	
Military	7.3	13.0	9.7	0.6	3.7	34.4	
Disabilities	2.2	1.6	1.6	1.6	1.6	8.6	
Maryland Public Broadcasting	8.3	0.9	0.0	0.0	0.0	9.1	
Information Technology	30.8	8.0	5.5	4.5	3.0	51.8	
Health and Social Services							\$547.1
Health	\$9.8	\$16.2	\$29.4	\$17.5	\$9.0	\$81.9	
University of Maryland Medical System	9.0	24.0	39.0	39.0	39.0	150.0	
Senior Citizen Activity Center	0.8	1.6	1.6	1.6	1.6	7.2	
Juvenile Services	3.8	39.2	54.9	53.4	67.4	218.6	
Private Hospital Grant Program	7.7	6.0	6.0	6.5	7.0	33.2	
Prince George's County Hospital	56.2	0.0	0.0	0.0	0.0	56.2	
Environment							\$309.9
Natural Resources	\$16.2	\$21.0	\$11.8	\$14.7	\$8.5	\$72.2	
Agriculture	23.6	11.5	11.5	11.5	11.5	69.6	
Environment	16.3	14.9	14.9	14.9	14.9	75.7	
Maryland Environmental Service	9.3	27.1	21.3	17.5	17.1	92.4	
Education							\$3,781.1
Education Other	\$5.0	\$5.0	\$5.0	\$5.0	\$5.0	\$25.0	
Maryland School for the Deaf	0.5	7.8	5.9	1.0	3.6	18.8	
Public School Construction ¹	679.3	758.2	909.3	672.1	718.3	3,737.3	
Higher Education							\$2,207.4
University System of Maryland ²	\$139.6	\$258.7	\$306.0	\$212.0	\$280.2	\$1,196.5	
Baltimore City Community College	10.4	0.0	0.0	0.0	0.0	10.4	
St. Mary's College of Maryland	16.5	32.8	22.6	3.1	3.4	78.3	
Morgan State University	48.2	17.8	72.9	93.0	46.3	278.3	
Community Colleges	122.5	100.1	138.9	98.0	118.7	578.2	
Private Facilities Grant Program	13.3	16.0	14.8	12.0	9.5	65.6	

	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>Total</u>	<u>Category Totals</u>
Public Safety							\$603.5
Public Safety	\$43.3	\$59.2	\$53.5	\$124.2	\$182.4	\$462.7	
State Police	7.8	6.4	12.9	11.1	10.7	48.8	
Local Jails	10.6	18.4	12.8	44.4	5.9	92.0	
Housing and Economic Development							\$750.3
Housing and Community Development	\$154.3	\$162.8	\$130.8	\$130.8	\$130.8	\$709.4	
Historic St. Mary's City	9.0	9.3	0.0	0.3	0.3	18.9	
Planning	5.9	6.5	6.1	1.8	1.8	22.1	
							\$252.1
Legislative Initiatives³	\$35.0	\$35.0	\$35.0	\$35.0	\$35.0	\$175.0	
Miscellaneous⁴	25.9	22.0	15.3	8.0	6.0	77.1	
Subtotal Request	\$1,570.0	\$1,763.3	\$2,072.4	\$1,734.9	\$1,804.4	\$8,945.1	\$8,945.1
Debt Affordability Limits 2017 SAC	\$1,075.0	\$1,085.0	\$1,095.0	\$1,105.0	\$1,115.0	\$5,475.0	
Debt Affordability Limits 2018 CDAC	\$995.0	\$995.0	\$995.0	\$995.0	\$995.0	\$4,975.0	
Variance 2017 SAC	\$495.0	\$678.3	\$977.4	\$629.9	\$689.4	\$3,470.1	
Variance 2018 CDAC	\$575.0	\$768.3	\$1,077.4	\$739.9	\$809.4	\$3,970.1	

CDAC: Capital Spending Affordability Committee
SAC: Spending Affordability Committee

¹ Figures represent requests made by Local Education Agencies to the Interagency Committee on School Construction as of October 1, 2018.

² In addition to the general obligation bond request, the University System of Maryland has requested academic revenue bond funding of \$34 million in fiscal 2020, \$32 million in fiscal 2021, \$30 million in fiscal 2022 and 2023, and \$34 million in fiscal 2024.

³ Figures represent an estimated average of the total funding requests received through legislative local bond bills.

⁴ Figures represent total funding requests received through Administration-sponsored capital miscellaneous projects already programmed in the 2018 *Capital Improvement Program*.

Note: Numbers may not sum to total due to rounding.

Source: Department of Budget and Management

Appendix 2
Estimated General Obligation Issuances
Fiscal 2019-Post 2028
(\$ in Millions)

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Fiscal Year	Proposed Auth.	Estimated Issuances During Fiscal Year (a) =====>										Post 2028	Total Issued	
		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028			
2020	\$995	\$0	\$308	\$249	\$199	\$149	\$90							\$995
2021	995		0	308	249	199	149	\$90						995
2022	995			0	308	249	199	149	\$90					995
2023	995				0	308	249	199	149	\$90				995
2024	995					0	308	249	199	149	\$90			995
2025	995						0	308	249	199	149	\$90		995
2026	995							0	308	249	199	239		995
2027	995								0	308	249	438		995
2028	995									0	308	687		995
Total New Authorization		\$0	\$308	\$557	\$756	\$905	\$995	\$995	\$995	\$995	\$995	\$995	\$1,454	
Previously Authorized GO Bonds	\$2,399	\$1,080	\$699	\$415	\$181	\$21	\$4	\$0	\$0	\$0	\$0	\$0	\$0	
Total Issuances		\$1,080	\$1,007	\$972	\$937	\$926	\$999	\$995	\$995	\$995	\$995	\$995	\$1,454	\$11,355
Percentage Issuance Assumptions by Fiscal Year														
Fiscal Year Following Year of Authorization						1st	2nd	3rd	4th	5th				
Percent of Authorization Issued						31%	25%	20%	15%	9%				

GO: general obligation

Appendix 3
Maryland General Obligation Bond Debt True Interest Cost Analysis
Statistically Significant Variables

<u>Bond Sale Date</u>	<u>TIC</u>	<u>20-bond Index</u>	<u>MD/US PI</u>	<u>YTM</u>	<u>Post-crisis</u>
03/13/91	6.31%	7.32%	2.261	9.84	No
07/10/91	6.37%	7.21%	2.240	9.85	No
10/09/91	5.80%	6.66%	2.230	9.80	No
05/13/92	5.80%	6.54%	2.220	9.80	No
01/13/93	5.38%	6.19%	2.221	9.73	No
05/19/93	5.10%	5.77%	2.212	9.73	No
10/06/93	4.45%	5.30%	2.206	9.73	No
02/16/94	4.48%	5.42%	2.208	9.74	No
05/18/94	5.36%	6.14%	2.199	9.74	No
10/05/94	5.69%	6.50%	2.191	9.72	No
03/08/95	5.51%	6.18%	2.184	9.78	No
10/11/95	4.95%	5.82%	2.163	9.65	No
02/14/96	4.51%	5.33%	2.159	9.65	No
06/05/96	5.30%	5.94%	2.144	9.69	No
10/09/96	4.97%	5.73%	2.144	9.70	No
02/26/97	4.90%	5.65%	2.136	9.68	No
07/30/97	4.64%	5.23%	2.135	9.68	No
02/18/98	4.43%	5.07%	2.119	9.68	No
07/08/98	4.57%	5.12%	2.128	9.68	No
02/24/99	4.26%	5.08%	2.134	9.60	No
07/14/99	4.83%	5.36%	2.146	9.60	No
07/19/00	5.05%	5.60%	2.157	9.72	No
02/21/01	4.37%	5.21%	2.178	9.71	No
07/11/01	4.41%	5.22%	2.201	9.68	No
03/06/02	4.23%	5.19%	2.233	9.61	No
07/31/02	3.86%	5.00%	2.241	9.66	No
02/19/03	3.69%	4.79%	2.235	9.60	No
07/16/03	3.71%	4.71%	2.250	9.67	No
07/21/04	3.89%	4.84%	2.254	9.70	No
03/02/05	3.81%	4.50%	2.259	9.70	No
07/20/05	3.79%	4.36%	2.268	9.69	No
03/01/06	3.87%	4.39%	2.242	9.68	No
07/26/06	4.18%	4.55%	2.238	9.64	No
02/28/07	3.86%	4.10%	2.228	9.64	No
08/01/07	4.15%	4.51%	2.218	9.65	No
02/27/08	4.14%	5.11%	2.208	9.64	No

<u>Bond Sale Date</u>	<u>TIC</u>	<u>20-bond Index</u>	<u>MD/US PI</u>	<u>YTM</u>	<u>Post-crisis</u>
07/16/08	3.86%	4.65%	2.213	9.60	Yes
03/04/09	3.39%	4.96%	2.287	9.01	Yes
03/02/09	3.63%	4.87%	2.287	10.04	Yes
08/05/09	2.93%	4.65%	2.303	8.96	Yes
08/03/09	3.20%	4.69%	2.303	9.01	Yes
10/21/09	2.93%	4.31%	2.242	7.91	Yes
07/28/10	1.64%	4.21%	2.259	5.34	Yes
07/28/10	1.91%	4.21%	2.259	6.20	Yes
03/07/11	2.69%	4.90%	2.286	6.86	Yes
03/09/11	3.49%	4.91%	2.286	10.51	Yes
07/25/11	1.99%	4.46%	2.299	5.65	Yes
07/27/11	3.08%	4.47%	2.299	10.05	Yes
03/02/12	2.18%	3.72%	2.306	8.33	Yes
03/07/12	2.42%	3.84%	2.306	9.71	Yes
07/27/12	2.52%	3.61%	2.277	9.10	Yes
08/01/12	2.17%	3.66%	2.277	9.71	Yes
03/06/13	2.35%	3.86%	2.288	9.61	Yes
07/24/13	3.15%	4.77%	2.284	10.20	Yes
03/05/14	2.84%	4.41%	2.265	10.14	Yes
07/18/14	1.27%	4.36%	2.240	4.69	Yes
07/23/14	2.65%	4.29%	2.240	10.16	Yes
03/05/15	2.65%	3.68%	2.232	9.63	Yes
07/16/15	2.83%	3.82%	2.238	10.33	Yes
06/08/16	2.17%	3.03%	2.207	9.62	Yes
03/08/17	2.84%	4.02%	2.205	10.59	Yes
08/16/17	2.29%	3.57%	2.200	9.59	Yes
03/07/18	2.83%	3.88%	2.129	10.29	Yes
08/01/18	2.33%	3.95%	2.124	6.72	Yes
08/01/18	3.12%	3.95%	2.124	13.05	Yes

MD/US PI: Ratio of Maryland personal income to U.S. personal income

TIC: true interest cost

YTM: years to maturity

Source for 20-bond Index: *The Bond Buyer*

Source for personal income: Federal Bureau of Economic Analysis

Remaining Source: Bond Sale Official Statements

Appendix 4
Agency Debt Outstanding
Fiscal 2008-2018
(\$ in Millions)

	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>Change</u> <u>2008-18</u>	<u>Average</u> <u>Annual</u> <u>% Change</u> <u>2008-18</u>
<u>Agency Debt Subject to Ceiling and Allocation Caps</u>													
Maryland Environmental Service	\$18.7	\$19.8	\$28.5	\$31.2	\$27.5	\$25.2	\$27.9	\$26.4	\$24.8	\$23.1	\$21.4	\$2.7	1.3%
Maryland Wholesale Food Center Authority	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n/a
Maryland Transportation Authority	1,877.4	2,247.1	2,708.2	3,292.9	3,279.7	3,303.2	3,179.3	3,176.4	3,062.0	2,928.4	2,149.9	272.5	1.4%
Maryland Water Quality Financing Administration ¹	104.9	140.0	126.3	112.0	57.7	47.2	36.7	33.2	29.2	24.7	20.3	-84.6	-15.1%
Revenue Cap Total	\$2,001.0	\$2,406.9	\$2,863.0	\$3,436.1	\$3,364.9	\$3,375.6	\$3,243.9	\$3,235.9	\$3,116.0	\$2,976.2	\$2,191.6	\$190.6	0.9%
% Change/Prior Year	75.4%	20.3%	18.9%	20.0%	-2.1%	0.3%	-3.9%	-0.2%	-3.7%	-8.0%	-29.7%		
<u>Agency Debt Not Subject to Ceiling and Allocation Caps</u>													
Baltimore City Community College	\$0.7	\$0.7	\$0.7	\$1.2	\$1.0	\$0.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	-\$0.7	-100.0%
Department of Housing and Community Development ²	3,259.4	3,177.5	3,345.9	3,238.7	3,106.5	2,979.0	2,783.2	2,557.0	2,535.9	2,445.4	2,295.9	-963.5	-3.4%
Local Government Infrastructure (CDA)	135.1	121.6	109.7	127.2	122.8	129.6	137.1	164.1	156.1	167.8	184.0	48.8	3.1%
Maryland Industrial Development Financing Authority	382.0	344.9	375.7	484.8	492.6	347.7	335.1	312.6	288.3	286.4	265.8	-116.2	-3.6%
MDOT – County Revenue Bonds	56.8	98.5	95.1	89.1	82.9	101.7	94.9	87.9	120.2	108.8	97.0	40.2	5.5%
MDOT – Nontax-supported Issuances	64.2	59.9	57.3	54.2	51.1	47.7	44.7	41.5	38.2	33.4	29.8	-34.3	-7.4%
Morgan State University	68.4	67.8	64.4	59.6	55.2	47.8	44.3	43.5	58.3	51.8	46.5	-21.9	-3.8%
St. Mary’s College of Maryland	48.2	46.8	45.3	41.8	38.3	36.1	34.3	34.6	32.5	32.0	29.6	-18.6	-4.7%
University System of Maryland	969.9	1,028.5	1,082.9	1,129.2	1,170.0	1,195.0	1,269.0	1,128.5	1,178.7	1,202.0	1,186.8	216.9	2.0%
Noncap Total	\$4,984.7	\$4,946.2	\$5,177.0	\$5,225.8	\$5,120.4	\$4,885.5	\$4,742.7	\$4,369.7	\$4,408.2	\$4,327.5	\$4,135.5	-\$849.2	-1.9%
% Change/Prior Year	1.4%	-0.8%	4.7%	0.9%	-2.0%	-4.6%	-2.9%	-7.9%	0.9%	-1.0%	-6.2%		

	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	Change 2008-18	Average Annual % Change 2008-18
<u>Tax-supported Debt</u>													
Transportation Debt	\$1,268.8	\$1,582.6	\$1,645.0	\$1,561.8	\$1,562.6	\$1,618.0	\$1,813.0	\$2,020.3	\$2,146.1	\$2,578.4	\$2,911.7	\$1,642.9	8.7%
Grant Anticipation Revenue Vehicles	300.7	704.4	651.8	596.9	539.4	479.0	415.8	349.4	279.8	206.6	129.7	-171.0	-8.1%
Capital Leases	247.4	266.8	242.5	166.4	310.3	286.2	260.3	242.2	236.0	216.7	223.6	-23.8	-1.0%
Maryland Stadium Authority	271.6	256.0	243.6	225.7	218.3	193.0	168.9	145.0	125.2	105.8	84.8	-186.8	-11.0%
Bay Restoration Bonds	50.0	46.8	44.2	41.6	38.8	36.0	133.1	130.0	301.6	292.9	273.6	223.6	18.5%
General Obligation Debt	5,493.8	5,873.6	6,523.2	6,982.8	7,541.1	8,005.8	8,362.3	8,677.2	9,465.3	9,334.2	9,479.4	3,985.6	5.6%
Tax-supported Debt Total	\$7,632.3	\$8,730.2	\$9,350.3	\$9,575.2	\$10,210.5	\$10,618.0	\$11,153.4	\$11,564.1	\$12,554.0	\$12,734.5	\$13,102.8	\$5,470.5	5.6%
% Change/Prior Year	7.4%	14.4%	7.1%	2.4%	6.6%	4.0%	5.0%	3.7%	8.6%	10.1%	4.4%		
<u>Authorities and Corporations Not Subject to Ceiling and Allocation Caps</u>													
Health/Higher Education Facilities Authority	\$8,204.8	\$8,466.8	\$8,660.7	\$8,656.4	\$8,913.1	\$8,835.3	\$8,837.2	\$8,779.5	\$8,664.0	\$9,042.8	\$9,063.4	\$858.6	1.0%
Maryland Economic Development Corporation	2,094.0	2,115.1	2,329.9	2,471.2	2,471.2	2,376.7	2,244.8	2,192.7	2,426.6	2,311.0	2,301.9	207.9	1.0%
Authorities and Corporations Total	\$10,298.8	\$10,581.9	\$10,990.6	\$11,127.6	\$11,384.3	\$11,212.0	\$11,082.0	\$10,972.2	\$11,090.6	\$11,353.8	\$11,365.3	\$1,066.5	1.0%
% Change/Prior Year	12.5%	2.7%	3.9%	1.2%	2.3%	-1.5%	-1.2%	-1.0%	1.1%	3.5%	2.5%		

CDA: Community Development Administration
MDOT: Maryland Department of Transportation

¹ Excludes bay restoration bonds.

² Excludes local government infrastructure.