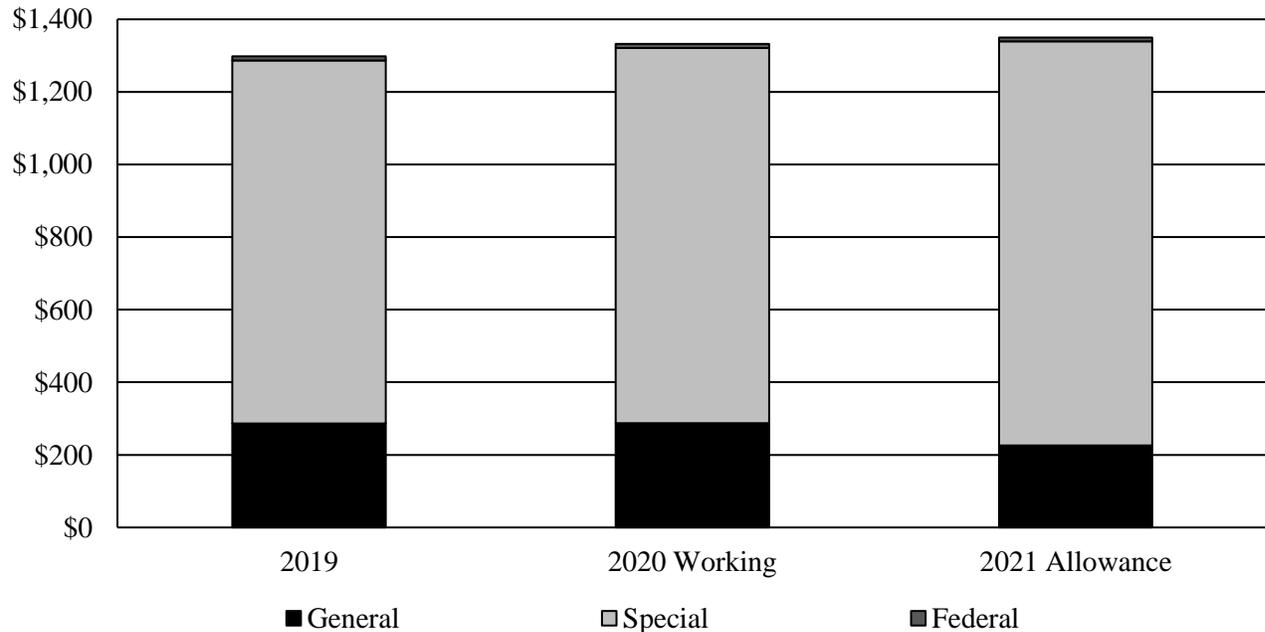# Public Debt

Executive Summary

The Public Debt program appropriates funds for general obligation (GO) bonds' debt service principal and interest payments. GO bonds support the State's general construction program. GO bonds do not pledge specific revenues but rather pledge the State's full faith and credit. Debt service payments are supported by the Annuity Bond Fund (ABF), whose largest revenue source is the State property tax.

Operating Budget Summary

Fiscal 2021 Budget Increases by $17.5 Million or 1.3% to $1.35 Billion
($ in Millions)

Note: Numbers may not sum due to rounding. The fiscal 2020 appropriation includes deficiencies, planned reversions, and general salary increases. The fiscal 2021 allowance includes contingent reductions and general salary increases.

- The General Assembly has limited increases in the GO bond capital program to 1% or less since fiscal 2016, which has led to low growth in debt service in fiscal 2021.

- General fund appropriations in fiscal 2021 decline from fiscal 2020. Bond sale premiums realized in fiscal 2019 and 2020 have exceeded estimates. These funds have been deposited into the ABF and are appropriated as special funds, thus reducing the need for general funds.

For further information contact: Patrick S. Frank   Phone: (410) 946-5530

Analysis of the FY 2021 Maryland Executive Budget, 2020

Key Observations

- ***Maryland Is a High-debt State That Has Expanded Its Capital Program Beyond State Facilities:*** Maryland's net debt service to revenues is the eighth highest among the states, and net debt outstanding as a percent of personal income is the thirteenth highest among the States. Compared to AAA-rated states, Maryland has the highest debt service to revenues, and Maryland is highest behind Delaware with respect to debt outstanding to personal income. This additional debt is used to support capital projects for grants to local jurisdictions and nonprofit organizations, which accounts for 58% of the fiscal 2021 capital budget.

- ***Maryland Relies on Bond Sale Premiums to Support Debt Service Costs:*** GO bonds are selling at a premium. At the most recent sale in August 2019, the State issued $500 million in par value and realized a $99 million premium. This reduces the fiscal 2020 and 2021 general fund appropriations correspondingly. However, this adds $110 million to debt service payments in the out-years, which is an additional $7 million annually in peak years, from fiscal 2023 to 2035. **The Department of Legislative Services recommends that the State study how to limit premiums to reduce out-year debt service costs.**

Operating Budget Recommended Actions

		Funds
1.	Reduce the debt service appropriation to reflect lower debt service costs than assumed in the budget bill.	$ 5,000,000
2.	Adopt narrative to request a report that examines the use of bond sale premiums.	
	Total Reductions	**$ 5,000,000**

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Public Debt

Operating Budget Analysis

Program Description

The Public Debt program appropriates funds for general obligation (GO) bonds' debt service payments. This includes principal and interest payments. The Capital Debt Affordability Committee (CDAC) develops State debt policies and recommends limits on State debt. GO bonds support the State's general construction program, which includes grants to local public school construction, other grants to local jurisdictions and nonprofit organizations, higher education facilities, and State facilities. GO bonds do not pledge specific revenues but rather pledge the State's full faith and credit. Recent issuances include:

- tax-exempt bonds sold to institutional investors;

- tax-exempt bonds sold to retail investors;

- taxable bonds sold to institutional investors;

- Build America Bonds (BAB) that were taxable bonds for which the State receives a direct subsidy from the federal government;

- Qualified Zone Academy Bonds (QZAB) that support specific education projects. Depending on the date of issuance, these bonds have received federal tax credits or direct federal subsidies;

- Qualified School Construction Bonds (QSCB) that supported specific education projects. Depending on the date of issuance, these bonds have received federal tax credits or direct federal subsidies; and

- Qualified Energy Conservation Bonds (QECB) that are direct federal subsidy bonds that support energy efficiency capital expenditures in public buildings, renewable energy production, and other related projects.
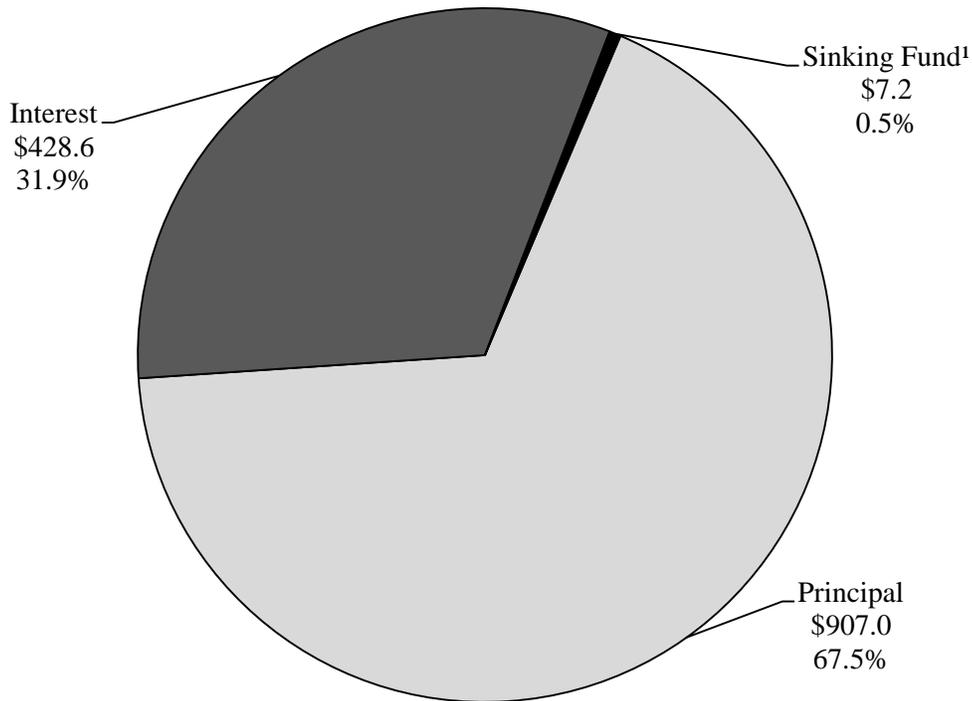
GO bond debt service payments are supported by the Annuity Bond Fund (ABF). ABF revenues include State property tax revenues; federal subsidies; bond sale premiums; and repayments from certain State agencies, subdivisions, and private organizations. General funds may subsidize debt service if these funds are insufficient.

The State usually issues tax-exempt GO bonds to institutional investors twice a year. Other bonds are issued as they become authorized as needed (taxable) or as they are in demand (retail bonds). Each issuance's goal is to minimize the bonds' debt service costs.

Fiscal 2021 Overview of Spending

Exhibit 1 shows that over two-thirds of debt service costs are principal payments. This is an unusually high level of principal payments attributable to Maryland GO bonds' relatively short maturities. The State constitution does not allow for any State debts in excess of 15 years. To level out debt service payments, each issuance sells tranches of bonds that mature between 3 and 15 years. The average maturity is about 10 years. This means that Maryland tends to have higher debt service payments for the level of debt that is outstanding and also retires debt more quickly.

Exhibit 1
Overview of Agency Spending
Fiscal 2021 Allowance
($ in Millions)

Sinking Fund[1]
$7.2
0.5%

Interest
$428.6
31.9%

Principal
$907.0
67.5%

[1] Sinking funds payments are required of some federal tax credit bonds. These bonds have a reduced or even 0% interest rate so that most of the sinking fund appropriations support the principal.

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

Analysis of the FY 2021 Maryland Executive Budget, 2020

Exhibit 2 shows that most of the State's debt is fixed-rate bonds sold to institutional investors. The State has also issued taxable bonds and has $220.7 million taxable debt outstanding at the beginning of fiscal 2021, of which $72.5 million will be retired during the year.[1] BABs, QZABs, QSCBs, and QECBs issuances are structured to take advantage of federal tax credits or subsidies. Debt service payments for these issuances are less than traditional GO bonds. At the beginning of fiscal 2021, $708.7 million of the State's GO debt outstanding is attributable to these bonds.

Exhibit 2
Debt Service Costs
Fiscal 2021
($ in Millions)

Type of Debt	Principal	Interest	Sinking Fund	Total
Previously Issued Debt				
GO Bonds Sold to Institutional Investors	$770.3	$364.6	$0.0	$1,134.8
Retail Bonds	6.3	0.4	0.0	6.7
Taxable Bonds	72.5	3.3	0.0	75.8
Build America Bonds	55.4	21.0	0.0	76.5
Qualified Zone Academy Bonds	2.4	1.3	0.8	4.5
Qualified School Construction Bonds	0.0	2.0	6.4	8.3
Qualified Energy Conservation Bonds	0.0	0.3	0.0	0.3
Subtotal	*$907.0*	*$392.8*	*$7.2*	*$1,307.0*
Debt to Be Issued				
March 2019 Bond Sale	$0.0	$22.3	$0.0	$22.3
Summer 2019 Bond Sale	0.0	13.5	0.0	13.5
Subtotal	*$0.0*	*$35.8*	*$0.0*	*$35.8*
Total	**$907.0**	**$428.6**	**$7.2**	**$1,342.7**

GO: general obligation

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

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

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[1] Taxable debt is more expensive than tax-exempt debt, so taxable bonds are issued with shorter maturities. This minimizes the extra costs paid for taxable bonds. At the most recent bond sale in August 2019, the State sold $50 million in taxable GO bonds to institutional investors with three- and four-year maturities. The issuance's yield was 1.61% for the four-year bonds. Thirty minutes later, the State also issued $14.89 million in tax-exempt bonds to institutional investors. The tax-exempt bond sale had a TIC of 0.94%. The difference between the four-year bonds was 0.67% (67 basis points). The Department of Legislative Services estimates that the additional 67 basis points paid for taxable three- and four-year bonds increased interest payments by $1.13 million from fiscal 2020 to 2023.

Fiscal 2021 Annuity Bond Fund Projections

Most of the revenues supporting GO bond debt service are derived from State property taxes. **Exhibit 3** shows that for fiscal 2021, State property taxes provide $883 million, which represents 65.8% of the appropriation. The Department of Budget and Management (DBM) projects that the March 2020 bond sale will realize a $58 million premium, increasing total fiscal 2020 premiums supporting debt service to $157 million. DBM also budgeted $109 million in premiums to support fiscal 2021 debt service. Even with bond premiums, the current State property tax rate (at $0.112 per $100 of assessable base) and the ABF balance are insufficient to fully fund debt service costs. To support debt service without raising State property taxes, the allowance includes $226 million in general funds.

Exhibit 3
Annuity Bond Fund Forecast
Fiscal 2019-2021 Allowance
($ in Millions)

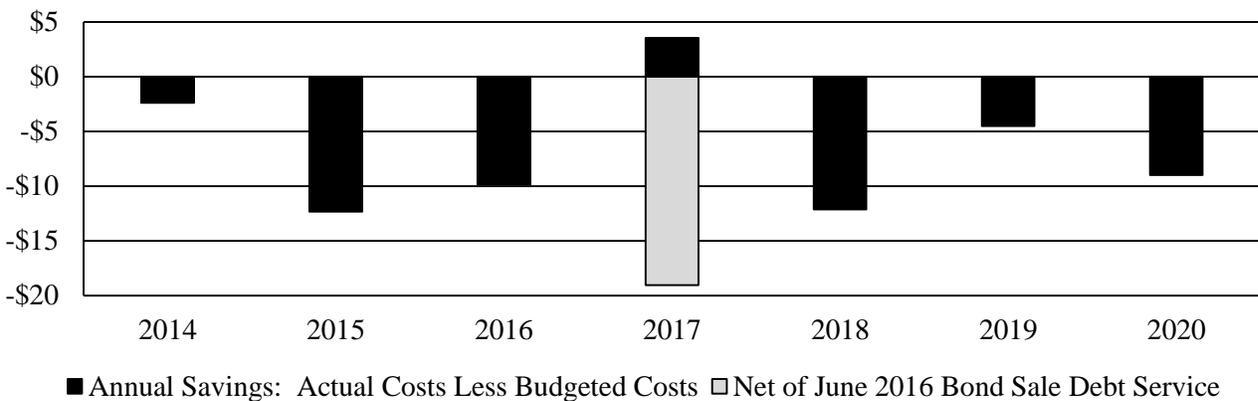|	2019 Expenditures	2020 Appropriation	2021 Allowance
Annuity Bond Fund (ABF) Activity			
Beginning Balance	$159.0	$113.4	$116.7
Property Tax Receipts	828.5	862.7	882.9
Interest and Penalties on Property Taxes	2.5	2.2	2.2
Other Repayments and Receipts	0.1	0.2	0.2
Bond Premium	116.9	156.9	109.0
Transfer to Reserve	-113.4	-116.7	-11.3
ABF Special Fund Appropriations	**$993.7**	**$1,018.7**	**$1,099.6**
General Fund Appropriations	$286.0	$287.0	$226.0
Transfer Tax Special Fund Appropriations	7.1	6.9	6.9
Federal Fund Appropriations	11.6	11.0	10.2
Projected Total Debt Service Expenditures	**$1,298.3**	**$1,323.5**	**$1,342.7**
Changes to the Fiscal 2020 Legislative Appropriation			
Savings from August 2019 Bond Sale	$0.0	$3.6	$0.0
Other Excess Appropriations	0.0	5.4	0.0
Budgeted Appropriation	**$1,298.3**	**$1,332.5**	**$1,342.7**

Note: Data in this exhibit varies from the data published in the budget books. The Department of Legislative Services' federal fund estimates are reduced by approximately $642,000 to reflect the effect of sequestration.

Source: Department of Budget and Management; Department of Legislative Services

In fall 2019, the Department of Legislative Services (DLS) estimated bond sale premiums for the winter 2020, summer 2020, and winter 2021 sales. Independent variables in the DLS estimate were 10-year bond interest rates, anticipated coupon rates, and amount of bonds sold. Using present value-based financial modeling, DLS estimated that the summer 2020 bond sale premium would be $55 million, and the winter 2021 bond sale premium would be $34 million. DBM advises that it has prepared its own estimate of bond sale premiums that anticipates $55 million on premiums from the summer 2020 sale and $54 million in premiums from the winter 2021 sale. DLS advises caution when estimating premiums. Issue 3 provides a summary of DLS' concerns. **DBM should be prepared to brief the committees on its methodology, including inputs and financial modeling.**

Exhibit 3 also shows that fiscal 2020 appropriations exceed projected costs by $9 million. It is common for actual costs to be less than budgeted costs. One reason for this is that the State assumes a relatively high coupon rate of 5.00%, and recent bond sales have realized an average coupon rate less than 5.00%.[2] For example, the average coupon rate was 3.70% at the most recent bond sale. Debt service costs from this sale were $3.6 million less than estimated in the budget. **Exhibit 4** shows that from fiscal 2014 through 2020, appropriations exceeded actual spending in all years except fiscal 2017. Costs exceeded appropriations in fiscal 2017 because the August 2016 bond sale was moved to June 2016, which moved the second debt service payment from fiscal 2018 to 2017. This payment added $22.6 million in debt service costs into fiscal 2017. Without this payment, actual appropriations would have been $19 million less than budgeted.

Exhibit 4
Comparing Actual and Budgeted Debt Service Costs
Fiscal 2014-2020
($ in Millions)

■ Annual Savings: Actual Costs Less Budgeted Costs   ☐ Net of June 2016 Bond Sale Debt Service

Sources: Public Financial Management, Inc.; Public Resources Advisory Group; Department of Budget and Management

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[2] The coupon rate is the interest rate that the State pays on the bonds in the par value of the bonds. In recent years, underwriters have structured bonds so that the coupon rate is more than the true interest cost. Consequently, State GO bonds have been selling at a premium so that proceeds from the sale exceed the par value of the bonds. This is discussed in more detail in Issue 3.

Analysis of the FY 2021 Maryland Executive Budget, 2020

Federal Funds and the Effect of Sequestration

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 backup 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 nondefense spending, with some programs exempt from sequestration, such as Medicaid and Social Security. Legislation provided some relief to BCA caps in every fiscal year since federal fiscal 2013 (American Taxpayer Relief Act of 2012). In addition to providing short-term relief, prior legislation has also extended the period of sequestration. The most recent legislation, the Bipartisan Budget Act of 2019, increased spending caps and extended mandatory sequester spending to federal fiscal 2029.

Direct pay bonds are affected by mandatory reductions required through sequestration. The State Treasurer's Office (STO) advises that this reduces federal fund reimbursements for these bonds. Initially, in fiscal 2013, reimbursements were reduced by approximately $51,000. **Exhibit 5** shows that in fiscal 2019, federal fund reductions peak at $0.8 million, resulting in an $11.6 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.

Exhibit 5
Issuances Receiving Federal Fund Appropriations and Reductions Attributable to Federal Sequestration
Fiscal 2019-2021
($ in Thousands)

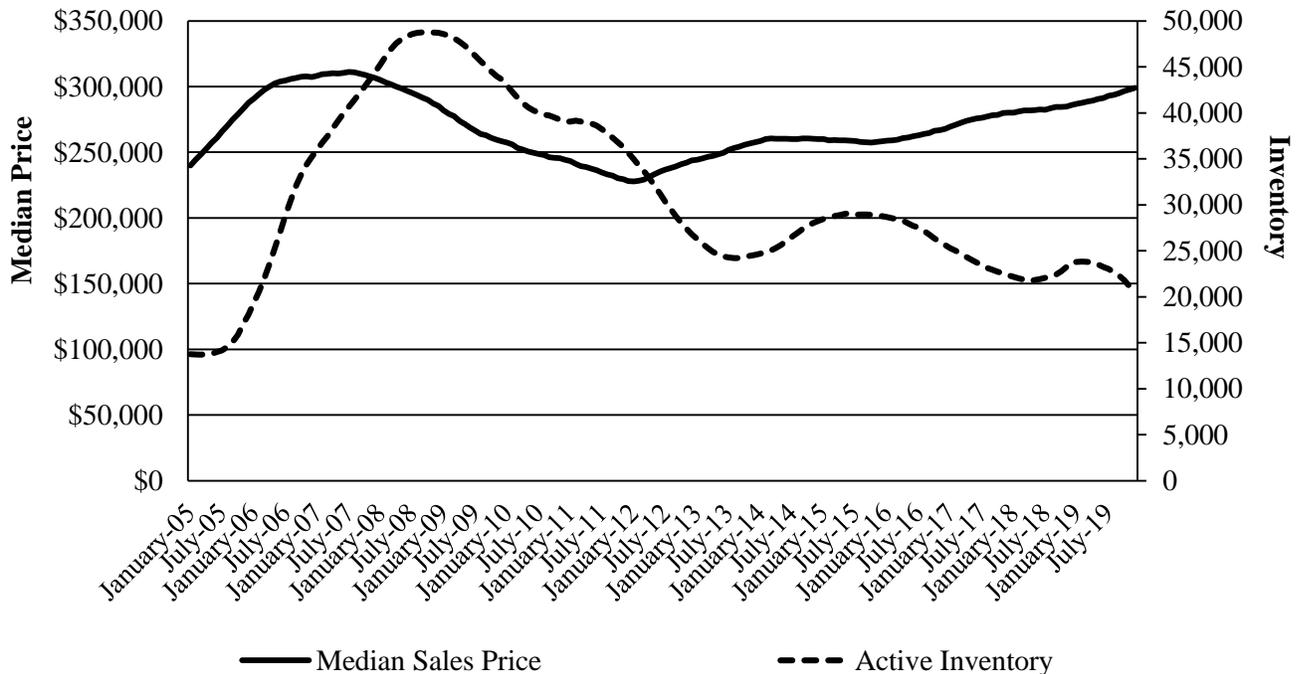| Fiscal Year	2019	2020	2021	Total
July 2009 Build America Bonds	$796	$796	$796	$2,389
October 2009 Build America Bonds	942	942	942	2,825
February 2010 Build America Bonds	6,036	5,302	4,528	15,865
July 2010 Build America Bonds	1,094	1,094	1,094	3,281
July 2010 Qualified School Construction Bonds	1,965	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
Less Sequestration	*-$768*	*-$687*	*-$642*	*-$2,097*
Total	**$11,613**	**$10,960**	**$10,232**	**$32,804**

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

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Annuity Bond Fund Six-year Forecast

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. Other revenue sources include proceeds from bond sale premiums, interest and penalties on property taxes, and repayments for local bonds. Due to the State refraining from increasing State property tax rates, general funds have subsidized debt service payments.

State property tax collections are influenced by trends in the housing market. **Exhibit 6** 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. In recent years, home values have trended upward, but this trend has not been uninterrupted. Inventories went through a similar increase and decline, although they often lag prices.
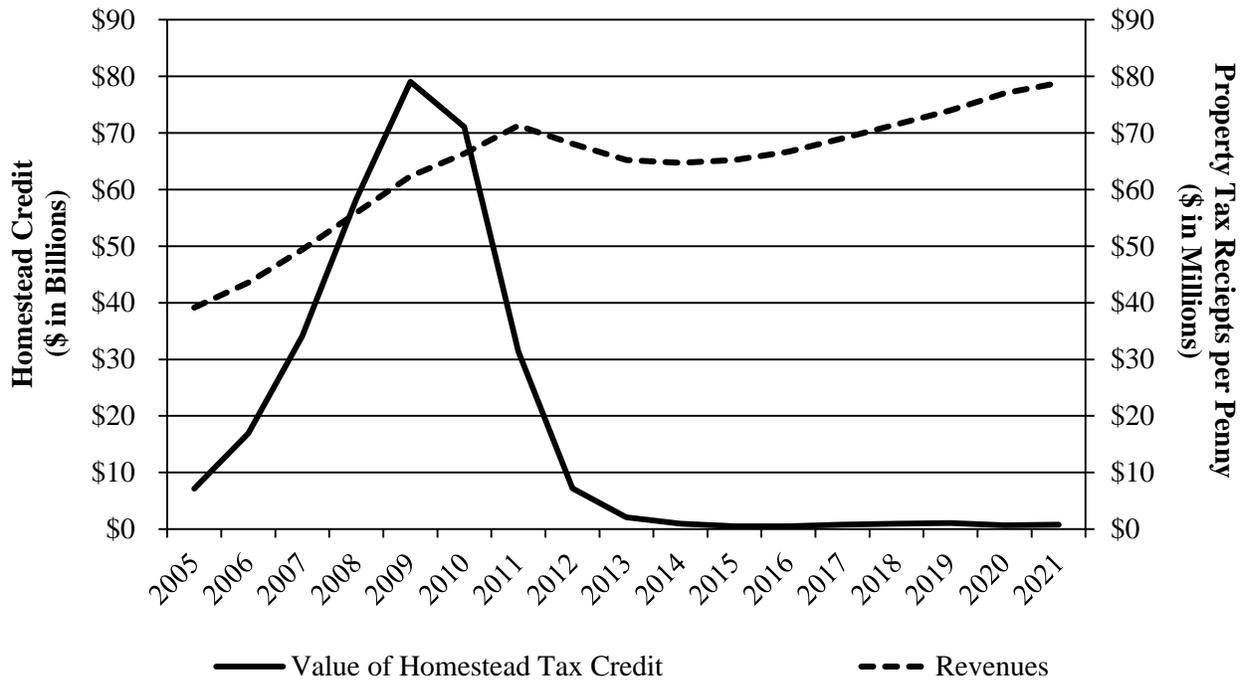
Exhibit 6
Maryland Housing – Median Prices and Inventory
12-month Moving Average
January 2005 to December 2019

Source: Maryland Association of Realtors; Department of Legislative Services

As expected, the rising property values prior to 2007 increased State property tax receipts. **Exhibit 7** shows how much revenue $0.01 on the State property tax has generated since fiscal 2005. State property tax receipts generated by $0.01 of revenues continued to increase from fiscal 2005 to 2011, even as home values peaked in fiscal 2007. Revenues declined from fiscal 2011 to 2014 and have generally increased since fiscal 2015.

Exhibit 7
State Property Tax Homestead Tax Credits and Property Tax Receipts
Fiscal 2005-2021

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. This means that the State is slow to realize increases in property values in property taxes. In addition, increased assessments 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. This further slows increases in State property tax receipts when values increase. Conversely, when property values decline, State property tax collections may not immediately fall since valuations lag market values.

Another reason that revenues did not decline when the housing bubble crashed, is the Homestead Tax Credit.[3] This credit helps lower homeowners property tax assessments when property values increase rapidly. Exhibit 7 shows that Homestead Tax Credits declined sharply after fiscal 2009. Initial losses in property values resulted in reducing homeowners' credits without reducing State property tax receipts. In other words, since homeowners were undertaxed, declining values reduced how much they were undertaxed first.
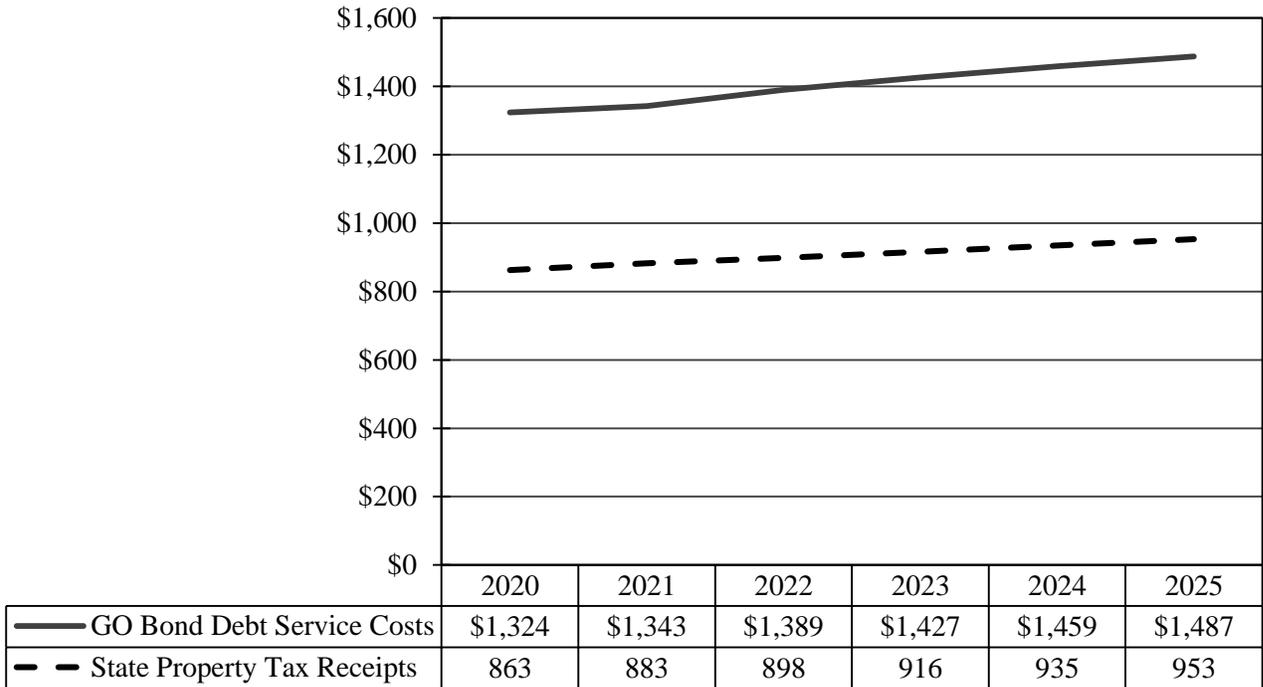
The Homestead Tax Credit also provides the State and local governments a hedge against declining property values. As home values declined, the value of homestead credit declined, and revenues continued to increase slowly. The result was to smooth State revenues; State property tax revenue growth was slower as home values increased, and there was no decline in revenues when home values decreased until fiscal 2011, which was four years after peak home prices.

General Fund Appropriation Will Be Needed to Avoid State Property Tax Increases

State property tax revenues are estimated to increase at a moderate rate of 2% annually from fiscal 2020 to 2025. This is slightly less than debt service costs, which are expected to increase at a rate of 2.4% over the same period. **Exhibit 8** shows that steady increases in State property tax revenues and debt service costs are projected. Unless State property tax rates are increased, the State will need to continue to subsidize the ABF with general funds, as shown in **Exhibit 9**.

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[3] This 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%.

Exhibit 8
GO Bond Debt Service Costs and State Property Tax Revenue Collections
Fiscal 2020-2025
($ in Millions)

	2020	2021	2022	2023	2024	2025
GO Bond Debt Service Costs	$1,324	$1,343	$1,389	$1,427	$1,459	$1,487
State Property Tax Receipts	863	883	898	916	935	953

GO: general obligation

Source: Department of Legislative Services

Exhibit 9
Revenues Supporting Debt Service
Fiscal 2020-2025
($ in Millions)

	2020	2021	2022	2023	2024	2025	Annual % Change
Special Fund Revenues							
State Property Tax Receipts	$863	$883	$898	$916	$935	$953	2.0%
Bond Sale Premiums[1]	157	109	0	0	0	0	-100.0%
Other Revenues	2	2	2	2	2	2	0.0%
ABF Fund Balance Transferred from Prior Year	113	117	11	1	1	1	
Subtotal Special Fund Revenues	*$1,135*	*$1,111*	*$912*	*$920*	*$938*	*$957*	*-3.4%*
General Funds	287	226	462	493	508	519	12.6%
Transfer Tax Special Funds[2]	7	7	7	7	7	7	0.4%
Federal Funds[3]	11	10	9	8	7	5	-13.9%
Total Revenues	**$1,440**	**$1,354**	**$1,390**	**$1,428**	**$1,460**	**$1,488**	**0.7%**
Debt Service Expenditures[4]	**$1,324**	**$1,343**	**$1,389**	**$1,427**	**$1,459**	**$1,487**	**2.4%**
ABF End-of-year Fund Balance	**$117**	**$11**	**$1**	**$1**	**$1**	**$1**	

ABF: Annuity Bond Fund

[1] The budget submitted by the Department of Budget and Management estimates $58 million in bond premiums in March 2020, $55 million in bond premiums in summer 2021, and $54 million in winter 2021.
[2] Payments for $70 million of general obligation bonds issued in 2010 for Program Open Space and the Maryland Agricultural Land Preservation Fund. These bonds retire in fiscal 2026.
[3] Includes federal interest subsidies for Build America Bonds, Qualified Zone Academy Bonds, Qualified School Construction Bonds, and Qualified Energy Conservation Bonds. These amounts are adjusted to reflect federal sequestration.
[4] Fiscal 2020 debt service costs are adjusted to reflect savings from the August 2019 bond sale and do not equal the budgeted amount.

Source: Department of Budget and Management; Department of Legislative Services

Issues

1. **Maryland Is a High-debt State That Has Expanded Its Capital Program to Support Local Jurisdictions and Nonprofit Organizations**

Maryland authorizes and issues higher levels of debt than most states and also most AAA-rated states. Maryland has used these high levels of debt to expand its capital program beyond only supporting State agency facilities. More than half of Maryland's capital program supports non-State programs and projects, the largest of which support public education and health.

Maryland's Debt Ratios Are Above the Average

Each year, Moody's Investors Service compares State debt levels. Two of the measures estimated by Moody's are measures that the State uses when evaluating debt: debt outstanding to personal income; and debt service to revenues. Maryland is among the highest debt states for both measures.

Exhibit 10 shows that Moody's ranked Maryland the thirteenth highest State with respect to debt outstanding, which is 3.8% of personal income. This is the second highest level among AAA-rated states. Altogether, there are 20 states above the mean and 30 below the mean. The mean is skewed because there are states with exceptionally high levels of debt outstanding. For example, the state with highest ratio, Hawaii at 10.3%, has a ratio that is almost three times Maryland's ratio.

Exhibit 10
Ranking AAA-rated States
Net Debt Outstanding as a Percent of Personal Income
Fiscal 2017

Rank	State	Ratio
4	Delaware	6.5%
13	Maryland	3.8%
Between 20 and 21	Mean	2.8%
21	Virginia	2.7%
25	Georgia	2.3%
28	Utah	1.9%
30	Florida	1.7%
36	South Dakota	1.3%
39	North Carolina	1.2%
40	Missouri	1.1%
42	Texas	0.8%
44	Tennessee	0.7%
45	Indiana	0.6%
46	Iowa	0.4%

Note: Moody's estimate of net tax-supported debt outstanding excludes non-State debt supported by revenues other than State taxes. Moody's includes all lottery bonds, while Maryland excludes some lottery bonds. Consequently, Moody's estimates are usually a few tenths of a percent higher than Maryland's estimates.

Source: Moody's Analytics

Exhibit 11 shows that Maryland's debt service to revenues is the highest among AAA-rated states, at 7.1%. Maryland bonds have relatively short maturities since the State constitution limits State debt to 15 years. The average maturity for each issuance is 10 years. This increases debt service costs since principal is retired earlier. Rating agencies consider this advantageous; the State retires debt more quickly and is burdened less by prior issuances. However, this leads to higher debt service payments in the short term, which is reflected in this ratio.

Exhibit 11
Ranking AAA-rated States
Debt Service as a Percent of Revenues
Fiscal 2017

Rank	State	Ratio
8	Maryland	7.1%
10	Delaware	6.6%
12	Georgia	5.9%
20	Virginia	4.5%
22	Florida	4.4%
At 23	Mean	4.3%
25	Utah	4.1%
31	Missouri	3.4%
33	North Carolina	3.1%
34	Texas	2.6%
35	South Dakota	2.4%
43	Tennessee	1.2%
46	Indiana	1.1%
47	Iowa	0.7%

Note: Moody's estimate of debt service excludes non-State debt supported by revenues other than taxes. Moody's does include all lottery bonds, while Maryland excludes some lottery bonds. Consequently, Moody's estimates are a few tenths of a percent higher than Maryland's estimates.
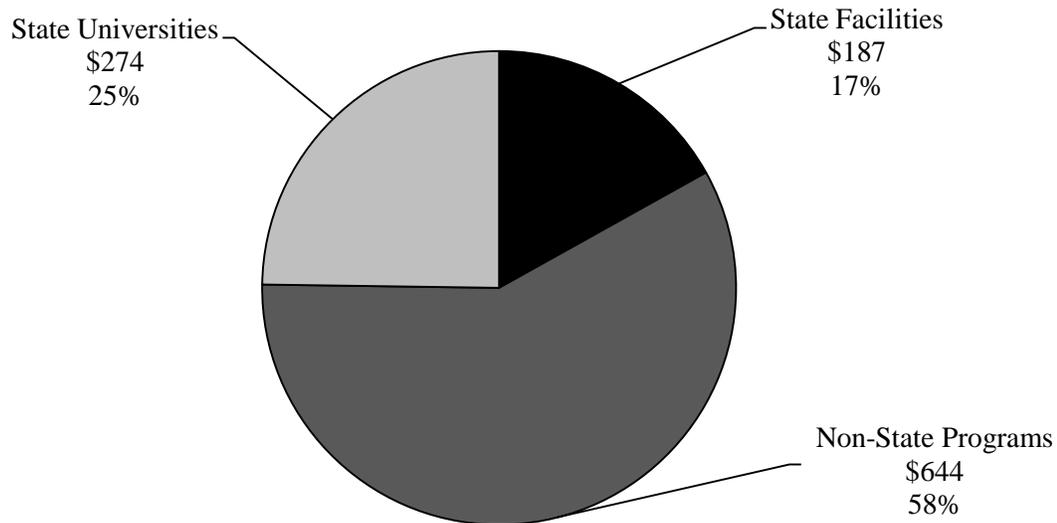
Source: Moody's Analytics

Maryland's Bond Program Supports Non-State Programs

Maryland's bond program supports various State and non-State projects and programs. **Exhibit 12** shows 59% of proposed fiscal 2021 GO bond authorizations support non-State projects and programs. The three largest areas of support receive $554 million, which is 50% of total authorizations, and is more than the entire State facility allocation. These areas are:

- public school construction that receives $330 million, or 29.9%, of total authorizations;

- housing that receives $122 million, or 11% of total authorizations; and

- community colleges that receive grants totaling $97 million, or 8.8%, of total authorizations.

Exhibit 12
Uses of General Obligation Bonds' Proceeds
Fiscal 2021 as Introduced
($ in Millions)

State Universities
$274
25%

State Facilities
$187
17%

Non-State Programs
$644
58%

Note: The capital budget bill proposes $1,104.1 million in projects and deauthorizes $9.1 million so that net authorizations are $1,095 million.

Source: Department of Budget and Management

Pension and Other Post Employment Benefits Liabilities

In addition to debt outstanding and debt service costs, creditors and rating agencies also consider other long-term liabilities. In addition to bonds, Maryland also has substantial pension and Other Post Employment Benefits (OPEB) liabilities.

Maryland's major pension plans include plans for State employees, employees of local education boards, community colleges and libraries, State police officers, other law enforcement officers, and judges. As of June 30, 2019, membership for all State plans totaled approximately 193,000 active members, 50,000 vested former members, and 165,000 retirees. Local government agencies can participate in the plans and are referred to as Participating Governmental Units (PGU) if they do participate. PGU membership totals approximately 26,000 active members, 7,000 vested former members, and 19,000 retirees.

OPEB benefits are health insurance benefits for retired State employees. As of June 30, 2019, approximately 49,000 retirees, 2,600 inactive vested, and 81,000 State employees were participating in the State's health insurance plan. The average age of active employees is 47 years, and the average

length of service is 12 years, so it likely that a substantial number of active employees will be vested when they retire. These amounts do not include other beneficiaries.

Exhibit 13 shows that as of June 30, 2019, pension and OPEB liabilities total $83 billion, of which $33 billion is unfunded. The actuaries estimate that the fiscal 2021 pension contribution should be $2 billion, and the fiscal 2020 OPEB contribution should be $645 million.[4] In recent years, the State has been making the full pension contribution and an additional $75 million to reduce the unfunded liability more quickly. With respect to OPEB, the State is not making any attempt to reduce the unfunded liability. The State is making pay-as-you-go payments. Since fiscal 2009, no additional funds have been appropriated to reduce the liabilities that have been earned. State law requires that $25 million in unappropriated general fund revenues from fiscal 2019 be appropriated in fiscal 2021 to reduce each of the pension and OPEB liabilities. This is included in the budget bill, but the Administration is proposing to delete the appropriation in the Budget Reconciliation and Financing Act of 2020.

Exhibit 13
Pension and Other Post Employment Benefits
Liabilities and Annual Costs
Fiscal 2019 Closeout, Fiscal 2020 OPEB Costs, and Fiscal 2021 Pensions Costs
($ in Millions)

	Total Liability[2]	Unfunded Liability[2]	Funded Ratio[2]	Actuarially Determined Contribution[3]	Contribution Rate as % of Salaries[4]
Pension[1]	$68,657	$19,053	72%	$1,963	18.46%
OPEB	14,641	14,290	2%	645	n/a

OPEB: Other Post Employment Benefits

[1] Total liability and unfunded liability include participating governmental units.
[2] Fiscal 2019 end-of-year from actuarial reports.
[3] Pension amount is projected for fiscal 2021 and includes $294 million of local school board's share. OPEB amount is fiscal 2020.
[4] State rate is projected for fiscal 2021 and includes reinvestment that totals $75 million in fiscal 2021.

Sources: Gabriel, Roeder, Smith & Company, September 2019; Segal Consulting, October 2019

Maryland Credit Strengths and Weaknesses

Although Maryland is a high-debt State with substantial unfunded pension and OPEB liabilities, the State's debt is sold with a low interest rate, and all three major rating agencies give Maryland

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[4] As introduced, the fiscal 2021 budget includes $815 million ($511 million general funds) for State employee health care and $366 million ($228 million general funds) for retiree health care. These amounts exclude payments from nonbudgeted agencies.

GO bonds the highest rating, which is AAA. The rating reports identify credit strengths, weaknesses, and challenges. Key strengths reported by all agencies include:

- a strong and diverse economy with an educated workforce and high personal income; and

- strong financial management with well-developed debt policies that are consistently applied.

With respect to financial management, Moody's notes that the State has taken "difficult actions to strengthen the foundation for long term fiscal sustainability." Examples of this include reducing retiree pension and OPEB benefits as well as reducing the GO bond debt authorizations to keep debt service costs within 8% of revenues in fiscal 2012. Bond authorizations were reduced by $215 million compared to fiscal 2011, which delayed planned projects.

Clearly, Maryland's credit weakness is the State's high levels of debt and unfunded pension and OPEB liabilities. Moody's notes that the State has "above-average debt and pension burdens stemming from the state's practice of issuing debt and absorbing certain pension costs on behalf of local governments." Standard and Poor's rates Maryland's debt and liability profile 2.7, out of a scale from 1.0 to 4.0, with 1.0 being the best rating. All other aspects of Maryland's profile are rated 1.0 to 1.4. Fitch notes that the long-term liability burden is consistent with the AA rating, but notes that all other aspects are consistent with AAA, allowing the State to keep its AAA rating.

Conclusions

A top credit rating and good reputation keeps Maryland GO bonds' interest rates low and debt service costs down. Each year, DLS measures the factors that influence GO bonds' interest rates. This analysis compares Maryland bonds' true interest cost (TIC) to *The Bond Buyer* 20-Bond Index.[5] The analysis estimates that Maryland's rating is 0.89% of the index, suggesting that Maryland's bonds are 11% less expensive than the average AA-rated bonds. The analysis also estimates that Maryland's interest rate has been reduced an additional 0.80% (80 basis points) since the Great Recession. This is consistent with a "flight to quality" since the Great Recession. Investors want more higher-grade bonds in their portfolios and are thus bidding down interest rates of higher-rated bonds. Should investors or credit rating agencies lose confidence in Maryland bonds, the State's GO bonds would no longer benefit from its high rating and enjoying flight to quality.[6]

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[5] The index includes 20 bonds with an average rating of AA. It includes five AAA-rated states from all three rating agencies (Florida, Georgia, Maryland, North Carolina, and Texas) and two AAA-rated municipalities (Denver and Seattle). The lowest rated municipality has a rating of A1 (Milwaukee).

[6] Since the State has always had the AAA rating, there is no analysis of the cost of losing the AAA rating. However, there is an example of when the State was put on credit watch. Two days before the July 2011 bond sale totaling $512.3 million, Moody's announced that it would review the credit ratings of five AAA-rated states, including Maryland. Moody's believed these states to be especially vulnerable to a downgrade of the U.S. government's credit (or actions possibly taken to preserve it). At the time, there was uncertainty about the federal government passing a budget, and there were concerns that the federal government could default on its debt. The regression analysis provided evidence that Moody's action did have an effect on the bonds' TIC. It estimated that credit review added 0.23% (23 basis points) to the TIC. Based on these results, DLS calculated that being under credit watch added $11.1 million to debt service costs, assuming similar maturities and retail bond issuances. From fiscal 2015 to 2026, being on credit watch is estimated to add an average of a little over $800,000 to annual debt service costs.

From this review of the State's long-term liabilities and credit rating compared to other states, the following conclusions can be drawn:

- ***All Long-term Liabilities Matter:*** Investors and rating agencies are aware of nondebt liabilities, such as pension and OPEB liabilities. The rating agencies definition of state debt is also broader than Maryland's definition. For example, Maryland excludes certain debt supported by lottery revenues, while Moody's includes these in State debt calculations. When authorizing new debt, the State should consider all liabilities.

- ***Most AAA-rated States Have Debt Levels Below the Median:*** While high debt levels do not disqualify states from receiving the AAA rating, most AAA-rated states have debt levels below the median on two key measures. Only 2 of 13 (15%) states with AAA ratings from the three major rating agencies have debt outstanding ratios above the median, and 5 of 13 (38%) have debt service ratios above the median. It is clear that AAA-rated states are not authorizing and issuing as much debt as lower rated states.

- ***Maryland's Affordability Process Is a Credit Strength:*** All three rating agencies comment favorably about Maryland's affordability process. The agencies consider Maryland's financial and debt management processes to be strong, well-embedded, and sustainable. The agencies recognize that the State develops long-term forecasts through a collaborative approach. The process is proactive as the State addresses budget shortfalls quickly and is prepared to make mid-year adjustments. Maryland has also taken actions to reduce long-term liabilities.

- ***Process Matters More:*** As a high-debt, AAA-rated State, process matters more for Maryland than other states. Each of the three major rating agencies is concerned about the high levels of long-term liabilities. If ratings were only about debt levels, Maryland would not get the AAA-rating from all three agencies. Fortunately, the agencies also consider Maryland's financial and debt management processes. These have an excellent reputation for being thorough and adhered to consistently. Rating agency comments suggest that Maryland will need to maintain these high standards to keep the highest ratings for Maryland debt.

2.   A More Cautious Affordability Analysis

Although State debt policies are strong, well-embedded, and sustainable, policies can be improved. This issue expresses concerns that the current affordability process understates the cost of increasing authorizations and recommends a change in policy to address this concern.

CDAC has two affordability criteria: State debt outstanding cannot exceed 4% of State personal income; and State debt service cannot exceed 8% of State revenues. CDAC prepares estimates of debt authorizations and issuances each fall when the committee evaluates affordability. Debt is issued when capital projects or grants require funding. As such, there is a lag between authorizations and issuances. At the end of fiscal 2019, the State had $9.6 billion in GO bond debt outstanding. The Comptroller's

Office advises that another $2.5 billion had been authorized but unissued. This includes $1,085 million authorized during the 2019 session, and another $1,398 million authorized in prior years.

Why Bond Issuances Lag Authorizations

Two factors are responsible for the lag between bond authorizations and debt service payments:

- *Capital Projects and Programs Do Not Need the Complete Authorization in the First Year:* State bonds support various programs and projects, many of which have payments that stretch over a number of years. To manage the cash flow efficiently, bonds are sold when payments are due. On average, only 31% of authorized bonds are issued in the first year. The remaining 69% is spread over four years.

- *Bonds Do Not Pay Principal Until the Third Year:* The State issues 15-year bonds that pay interest only for the first 2 years and pay interest and principal for the final 13 years. For example, selling $100 million in bonds with a 5% interest rate would result in $5 million annually in interest in the first 2 years and $11 million in total debt service annually in the following 13 years. As result, examining debt service costs in the first two years understates the cost of debt and could lead to the conclusion that an issuance is less expensive than it actually is.

The Debt Affordability Process Understates the Cost of Increasing Authorizations

CDAC has been successful at constraining State debt. When CDAC first introduced its affordability criteria in fiscal 1979, State debt outstanding was 5.4% of personal income, and debt service was 11.3% of revenues. These ratios were steadily reduced by fiscal 1987, when debt outstanding was 3.2% of income, and debt service was less than 8.0% of revenues. The State has also reduced authorizations after declines in revenue. During the Great Recession for example, State general fund revenue declined as much as 5.0% in fiscal 2009. Realizing that revenues were insufficient to meet the debt service to revenue criterion, CDAC reduced the fiscal 2011 to 2015 capital program by $400 million.

Although the affordability process is generally cautious and has been successful in restraining debt service costs, the process tends to undervalue the cost of expanding the capital program. The affordability process does not recognize debt service costs until the bonds are issued and, even then, the process recognizes only a fraction of the costs that are imminent. Once a bond is authorized, the bonds will be issued, and then, typically, the State will be paying the authorization's debt service cost for 20 years.[7] It usually takes 8 years until the full annual debt service cost is appropriated, which is over $10 million for a $100 million authorization. Over the life of the debt, the authorization's debt

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[7] It takes each authorization an average of 5 years to issue all the authorized bonds. Each bond sold has a maturity of 15 years, so it takes about 20 years to retire the full amount of debt that is authorized.

service costs will total $148 million but less than $1 million is booked in the first year, which understates the cost of increasing GO bond authorizations.

Recognizing the full cost of increased authorizations provides a short-term hedge against declining, or even slowing, revenues. When CDAC calculates the debt service to revenue ratio, it assumes that revenues increase as projected by the Board of Revenue Estimates. Should these revenues underperform, the ratio could be breached. Computing ratios with the full cost of increased authorizations allows the State time to absorb the increased spending in the ratios, while the capital program is ramped up.

To estimate the cost of increased authorizations more cautiously, DLS calculates the maximum annual debt service cost of the additional authorizations when evaluating the cost of increased debt authorization. **DLS recommends that CDAC also consider developing a more cautious approach when evaluating the cost of additional GO bond authorizations.**

3. Maryland Should Reduce Its Reliance on the Use of Bond Premiums to Support Debt Service

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, STO determines how many bonds are sold (par value of the bonds) and when the bonds mature.[8] The underwriter determines the coupon rate (interest rate that the issuer pays) and the sale price of the bonds, which is awarded to the underwriter with the lowest interest cost. If the coupon rate is 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 2019, the State issued $500 million in tax-exempt GO bonds (par value). The average coupon was 3.94%, and the TIC (market interest rate) was 1.65%. Since the coupon rate exceeded the market interest rate, the bonds sold at a premium, and total bond proceeds totaled $591 million (after deducting the underwriters discount and cost of issuance expenses). This additional $91 million is the bond premium.

Why Bonds Sell at a Premium

Economic theory suggests that in a world without uncertainty, there would 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 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.

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[8] Section 34 of Article III of the Constitution of Maryland limits State debt to 15 years.

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 Wednesday, August 14, 2019 (the time of the most recent bond sale), was among the lowest since January 2, 1962. In fact, only 75 out of 15,032 weekdays had lower interest costs; 99.5% 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.

Exhibit 14 examines a tranche of bonds sold with an eight-year maturity in the July 2015 bond sale. The top half of the exhibit compares the return on a $5,000 bond if you buy the bond 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 14
Effect of Higher Interest Rate on the Value of Bonds
Data from July 2015 Bond Sale

Description	Premium Bonds	Sold at Par	Explanation
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%

Description	Premium Bonds	Sold at Par	Explanation
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.

Interest Rates Are Difficult to Predict, So Bond Sale Premium Estimates Are Inherently Unreliable

In recent years, bond premiums have been substantial. In every year since fiscal 2012, premiums have generated over $100 million in ABF revenues except fiscal 2017, which had only one bond sale instead of two. Although premiums are expected to diminish, DLS anticipates that bond sales will continue to generate premiums in fiscal 2021.

A concern with budgeting premiums is that small changes in interest rates can generate substantial changes in the amount of premiums realized. Interest rates can be highly volatile. 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.[9] 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 DBM projected and $12.5 million more than the DLS estimate. The reason for this difference was a sudden decline in interest rates.

Interest rate volatility can also work the other way. Thus, if premiums are budgeted, they should be budgeted carefully. 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.

Managing 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 only 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.

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[9] In the *Effect of Long-term Debt on the Financial Condition of the State*, DLS estimates the factors that influence the true interest cost of Maryland's GO bonds. This estimate is used when DLS estimate GO bond's interest rates.

With respect to the use of premiums, three options are available:

- ***Deposit Premiums in the ABF to Pay Debt Service Costs:*** This approach has been taken with most of the premiums realized. The State is paying higher debt service costs for these premiums because the State is selling more debt than is needed for capital projects. 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 be 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 and modify Sections 8-125 and 8-132 of the State Finance and Procurement Article. This approach minimizes total costs but does not provide any short-term cost relief.

Out-year Cost of Bond Sale Premiums

As discussed above, generating a high premium provides short-term budget relief at the expense of higher out-year costs. In August 2019, the State issued $500 million in new tax-exempt GO bonds. The bonds generated a $99 million premium. **Exhibit 15** estimates how a resized bond sale would have performed and compares this to the actual bond sale. Instead of issuing the full $500 million, the resized bond sale issues $420 million. Assuming the same TIC as the actual sale, the resized issuance generates an $82 million premium so that proceeds total $502 million. If $500 million of the sale supports the capital program, another $2 million is available to reduce fiscal 2021 general fund appropriations for debt service costs.

Exhibit 15
Comparing the Sources and Uses of Actual and Resized Bond Sale
August 2019
($ in Millions)

	Actual Bond Sale	**Resized Bond Sale**	**Difference**
Sources of Proceeds			
Principal Issued	$500.0	$420.0	-$80.0
Bond Sale Premium[1]	99.1	82.4	-16.7
Total Sources	**$599.1**	**$502.4**	**-$96.7**
Uses of Proceeds			
Total Capital Program	$500.0	$500.0	$0.0
Premium Available for Debt Service	99.1	2.4	-96.7
Total Uses	**$599.1**	**$502.4**	**-$96.7**

[1] After deducting issuance costs.

Source: Public Resources Advisory Group; Department of Legislative Services

The larger $500 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 16** shows how the resized sale reduces costs. From fiscal 2020 to 2035, resizing reduces debt service costs by $110 million. In the peak debt service cost years, fiscal 2023 to 2035, resizing saves over $7 million annually.

Exhibit 16
Out-year Costs of August 2019 Bond Sale Premium
($ in Millions)

	Actual Bond Sale	**Resized Bond Sale**	**Difference**
Total Principal Payments	$500.0	$420.0	-$80.0
Total Interest Payments	187.9	157.8	-30.1
Total Debt Service Payments	**$687.9**	**$577.8**	**-$110.1**
Annual Peak Debt Service	$49.3	$41.9	-$7.4

Source: Public Resources Advisory Group; Department of Legislative Services

State Should Consider Resizing Go Bond Sales

In 2018, The Volcker Alliance released its *Truth and Integrity in State Budgeting* report. The report examined budgeting practices from all 50 states. With respect to "budget maneuvers," the report gave Maryland the grade of "C." The report noted that the State funds recurring expenditures with debt. This is a reference to using bond sale premiums, which is a debt, to pay debt service costs, which is a recurring expenditure.

The Administration, STO, and the General Assembly should consider options for reducing the reliance on bond proceeds to support GO bond debt service by resizing GO bond sales that generate large premiums. While the State's budgetary situation may make it difficult to eliminate all premiums in the short term, limiting premiums would reduce out-year debt service costs and reduce budget uncertainty. **DLS recommends the adoption of narrative that the Administration, STO, and the General Assembly study resizing bond sales.**

Operating Budget Recommended Actions

		Amount Reduction
1.	Reduce the debt service appropriation to reflect lower debt service costs than assumed in the budget bill. The budget bill assumes that fiscal 2021 debt service costs will be $1,350 million. The Department of Budget and Management advises that excess appropriations were added to provide a hedge. Reducing the appropriation $5 million still provides a $2.3 million hedge. Further, in recent years due to the State's cautious budgeting approach, actual spending has been lower than the appropriation.	$ 5,000,000 GF

2. Adopt the following narrative:

Review of Bond Sale Premiums: The State Treasurer's Office (STO), the Department of Budget and Management (DBM), and the Department of Legislative Services (DLS) should examine bond premiums that are realized at general obligation bond sales. This examination should include uses of bond premiums, costs of bond premiums, and options for reducing long-term debt service costs, such as resizing bond sales to reduce premiums.

Information Request	**Authors**	**Due Date**
Review of bond sale premiums	STO DBM DLS	October 30, 2020

Total General Fund Reductions	**$ 5,000,000**

Object/Fund	FY 19 Actual	FY 20 Working Appropriation	FY 21 Allowance	FY 20 - FY 21 Amount Change	Percent Change
Objects					
13 Fixed Charges	$ 1,298,317,506	$ 1,332,502,885	$ 1,350,000,000	$ 17,497,115	1.3%
Total Objects	**$ 1,298,317,506**	**$ 1,332,502,885**	**$ 1,350,000,000**	**$ 17,497,115**	**1.3%**
Funds					
01 General Fund	$ 286,000,000	$ 287,000,000	$ 226,000,000	-$ 61,000,000	-21.3%
03 Special Fund	1,000,726,473	1,033,970,021	1,113,000,000	79,029,979	7.6%
05 Federal Fund	11,591,033	11,532,864	11,000,000	-532,864	-4.6%
Total Funds	**$ 1,298,317,506**	**$ 1,332,502,885**	**$ 1,350,000,000**	**$ 17,497,115**	**1.3%**

Note: The fiscal 2020 appropriation does not include deficiencies, planned reversions, or general salary increases. The fiscal 2021 allowance does not include contingent reductions or general salary increases.