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



DEPARTMENT OF LEGISLATIVE SERVICES 2015

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

Department of Legislative Services
Office of Policy Analysis
Annapolis, Maryland

December 2015

Contributing Staff

Writers
Patrick S. Frank
Andrew D. Gray
Garret T. Halbach
Matthew B. Jackson
Matthew D. Klein
Jason A. Kramer
Steven D. McCulloch
Jody J. Sprinkle

Reviewer
Patrick S. Frank

For further information concerning this document contact:

Library and Information Services
Office of Policy Analysis
Department of Legislative Services
90 State Circle
Annapolis, Maryland 21401

Baltimore Area: 410-946-5400 ● Washington Area: 301-970-5400
Other Areas: 1-800-492-7122, Extension 5400
TTY: 410-946-5401 ● 301-970-5401
TTY users may also use the Maryland Relay Service
to contact the General Assembly.

Email: libr@mlis.state.md.us
Home Page: http://mgaleg.maryland.gov

Department of Legislative Services
Office of the Executive Director
Maryland General Assembly

Warren G. Deschenaux
Executive Director

December 2015

The Honorable Roger P. 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, created by an Act of the 1978 General Assembly, 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 legislature.

The statistical analysis and data used in developing the recommendations were prepared by Patrick Frank with assistance from Andrew Gray, Garret Halbach, Matthew Klein, Jason Kramer, Steven McCulloch, Robert Rehrmann, and Jody Sprinkle. The manuscript was prepared by Maureen Merzlak.

Respectfully submitted,

Warren G. Deschenaux
Executive Director

WGD/mrm

Legislative Services Building · 90 State Circle · Annapolis, Maryland 21401-1991
410-946-5500 · FAX 410-946-5508 · TTY 410-946-5401
301-970-5500 · FAX 301-970-5508 · TTY 301-970-5401
Other areas in Maryland 1-800-492-7122

Contents

Letter of Transmittal iii

Chapter 1 Recommendations of the Department of Legislative Services 1

New General Obligation Bond Authorization 1

Issuance of Taxable Debt 2

Authorization of Transportation Debt 2

Authorization of Bay Restoration Bond Debt 2

Higher Education Academic Debt 3

Chapter 2 Recommendations of the Capital Debt Affordability Committee 5

New General Obligation Debt Authorization 5

Higher Education Academic Debt 6

Chapter 3 State Debt 7

General Obligation Bonds 7

New General Obligation Bond Authorizations: Reduced Levels of Authorizations Recommended 8

General Obligation Bond Issuance Stream 9

General Obligation Bond Debt Service Costs 10

General Obligation Bond Refunding 11

Program Open Space Debt Service Payments 12

Federal Tax Credit and Direct Payment Bonds 14

Transportation Debt 19

Consolidated Transportation Bonds 19

Future Debt Issuance 22

Debt Outstanding 23

Debt Service 24

Conclusions and Recommendations on Transportation Debt 24

Grant Anticipation Revenue Vehicles 24

Capital Leases Supported by State Revenues 25

Energy Performance Contracts 28

Changes to Lease Accounting Rules Are Being Examined 28

Bay Restoration Bonds 29
Fee and Uses Modified 29
Maryland Stadium Authority 31
Camden Yards Sports Complex 32
Baltimore and Ocean City Convention Centers 32
Montgomery County Conference Center 33
Hippodrome Performing Arts Center 33
Camden Station 34
Local Project Assistance and Feasibility Studies 34
Baltimore City School Revitalization Program 35
Chapter 4 Economic Factors and Affordability Analysis 37
Personal Income 37
Revenue Projections 38
Affordability Analysis 40
Chapter 5 General Obligation Bonds' Long-term Costs 45
General Fund Appropriation Necessary to Support Debt Service 45
General Fund Appropriations for Debt Service 50
Effect of Long-term Liabilities on the State Budget 52
Pension and Capital Costs Contained in Response to Increasing Liabilities 53
Total Debt and Pension Cost Outlook 53
Chapter 6 Analysis of Factors Influencing Bonds' Interest Cost 55
Financial Theory and Research Identifies Factors That Influence the True Interest Cost 55
The Equation Identifies Statistically Significant Factors Influencing Interest Costs 56
Statistical Analysis Suggests That the Equation Explains the TIC Extremely Well 58
Examining the Effectiveness of the Regression Equation – An Intuitive Approach 59
Chapter 7 Nontax-supported Debt 63
Revenue and Private Activity Bonds 63
Reporting of Bond Activity 64

Allocation of Private Activity Bonds 65
Debt Outstanding 67
Debt Service on University Academic and Auxiliary Revenue Bonds 68
University System of Maryland 68
University System of Maryland Academic Revenue Bonds 71
St. Mary's College of Maryland 71
Baltimore City Community College 72
Morgan State University 73
Baltimore City Public Schools Construction and Revitalization Program 74
Financing Plan 75
Chapter 8 Issues 79
Summary of GO Bond Authorizations Since 1995 79
Moderate and Steady Increases in Authorizations: Fiscal 1995 to 2000 79
Increasing Authorizations: Fiscal 2001 to 2010 80
Managing Authorizations: Fiscal 2011 to 2015 81
Differing SAC and CDAC Recommendations in Fiscal 2013 and 2014 82
New Administration Implements Policy Shift to Keep the Capital Program Spending Flat 82
Capital Program Size with Respect to Inflation and Population Growth 82
Savings Attributable to Limiting the Capital Program to $995 Million 84
Analysis of Other Affordable Capital Program Options 85
Analysis of December 2014 SAC Recommendations 87
Analysis of 3% Annual Growth Added to the Fiscal 2016 Authorization 88
Analysis of 1% Annual Growth Added to the Fiscal 2016 Authorization 89
Summary of Capital Program Options 90
Bond Sale Premiums: Why We Get Them, Why We Must Be Careful, and What We Can Do with Them 95
Why Do Bonds Sell at a Premium? 95
Why Should We Budget Premiums Carefully? 97
What Can We Do with the Bond Sale Premiums? 99
Reducing Taxable Debt Authorizations Reduces Interest Payments 99

Taxable Bonds Cost More and Taxable Bonds' Costs Are Expected to Increase..... 101

Reliance on GO Bonds for Private Use and Activities Continues After Budget Improves..... 101

Appendix 1 General Obligation Bond Requests: Fiscal 2017-2021..... 103

Appendix 2 Estimated General Obligation Issuances..... 105

Appendix 3 Maryland General Obligation Bond Debt True Interest Cost Analysis..... 106

Appendix 4 Agency Debt Outstanding..... 108

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 2016 session. This recommendation is substantially less than previous recommendations. In its 2014 report, CDAC proposed to limit GO bond authorizations to $1,160 million in fiscal 2016 and $1,170 million in fiscal 2017 (2016 session). In December 2014, the Board of Revenue Estimates reduced the State's general fund revenue estimates. The revenue reduction was sufficient to increase the debt service to revenue ratio above 8% in the out-years, making the debt limit proposed by CDAC unaffordable. In response, the Spending Affordability Committee (SAC) reduced the fiscal 2016 GO bond debt limit to $1,095 million. The General Assembly authorized $1,045 million in fiscal 2016.

Limiting GO bond authorizations to $995 million through fiscal 2025 does not provide for inflationary increases. This deviates from previous policies to provide 3% annual increases, 2% to recognize inflationary pressures, and 1% to recognize increased demand through population growth.

The Administration's objectives are to limit increases in debt service costs and reduce the debt service to revenue ratio. As discussed in Chapter 8, recent increases in debt service costs are primarily attributable to increasing authorizations beyond previously planned levels. The Administration's objectives can be realized by moderately increasing authorizations. Current estimates have general fund revenues increasing 4% annually. To restrain debt service costs and provide capacity, annual increases in authorizations should not exceed projected increases in revenues.

In recent years, debt limits recommended by SAC differed from limits recommended by CDAC. In 2013, SAC recommended that out-year authorizations not be increased and in 2014, SAC recommended that the authorizations in the upcoming session's capital budget bill be $75 million less than level the recommended by CDAC in September 2014. In its 2015 report, CDAC recommends limiting GO bond authorizations to $995 million each year through fiscal 2025. This is done to slow the growth in debt service payments and provide additional capacity in the out-years. 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 2016 authorization, which totaled $1,045 million. **DLS recommends that SAC limit the fiscal 2017 GO bond authorization to $1,055 million. DLS also recommends that, for planning purposes, out-year annual authorizations be limited to 1%. This limits authorizations to the projected increase in State property tax revenues, which is the primary revenue source supporting debt service.**

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, 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 8. **To reduce debt service cost, DLS recommends that the Department of Budget and Management reduce private activity authorizations for fiscal 2017.**

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 $22.0 million for the 2016 legislative session. This amount reflects a $10.0 million reduction from the $32.0 million programmed by the committee for the 2016 legislative session in its 2014 report. The lower authorization level results from language added to Chapter 471 of 2015, which increased authorization levels by $20.0 million for the 2015 session, for a total of $54.5 million, to support the overall funding plan for the New Bioengineering Building at the University of Maryland, College Park. The language stipulated that the additional $20.0 million authorized in the 2015 session should be deducted from the 2016 and 2017 session authorizations by $10.0 million each year, thereby keeping the total amount of ARB authorizations for the five-year *Capital Improvement Program* (CIP) consistent with what was programmed in the 2015 session CIP. Academic bond issuances are discussed in Chapter 7. **DLS concurs with the committee's assessment that issuing $22.0 million in new USM ARBs is affordable.**

Although the CDAC recommendation is consistent with the intent of Chapter 471, DLS notes that the 2014 CIP level, programmed at $32.0 million for the 2016 session, did not factor in an increase of $2.5 million proposed by the budget committees through committee narrative included in the 2014 *Joint Chairmen's Report*. The committee narrative expressed the intent that during the 2014 interim, CDAC includes an evaluation of the capacity to increase the amount of USM ARBs by $2.5 million for 2015 and 2016 legislative sessions for the purposes of providing additional authorizations to support USM capital projects. While the additional $2.5 million of debt was included in the 2015 session authorization, because the Governor's 2014 session CIP failed to program the additional authorization level for the 2016 session, CDAC's recommended level is likewise $2.5 million below what the budget committee's proposed in the 2014 session, as expressed in the adopted committee narrative. **To the extent that this appears to be an oversight, DLS accordingly recommends that SAC consider increasing the level of USM ARBs by $2.5 million above the CDAC recommendation for the 2016 legislative session.**

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 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 (USM) 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 2016 session, which is below the planning amount proposed for fiscal 2017 by CDAC and the Spending Affordability Committee (SAC) in their respective 2014 reports, and below the level included in the Governor's 2014 session *Capital Improvement Program* (CIP) for fiscal 2017. The CDAC's long-range plan recommends keeping annual new GO debt authorizations at $995 million for fiscal 2018 through 2025. The committee's long-range plan also reflects GO debt levels below amounts proposed by CDAC and SAC in 2014 and below levels proposed in the 2014 CIP.

The reduction was proposed by the Secretary of Budget and Management and reflects the new Administration's policy to reduce the authorization of State debt. To support this proposal, the budget Secretary noted that debt service is too high and will require increased levels of general fund appropriation, and immediate action is, therefore, required to reduce authorizations and lower out-year debt service expenditures. The new policy will also lower the risk that a revenue write-down will result in the State breeching the affordability limits.

Exhibit 2.1 shows that CDAC's planned annual authorizations remain at $995 million throughout the forecast period and are below levels recommended by CDAC in its 2014 report.

Exhibit 2.1
Effect of Proposed Capital Debt Affordability Committee General Obligation Bond Authorizations
2017-2024 Legislative Sessions
($ in Millions)

Session	Proposed GO Authorizations 2014 CDAC	Proposed GO Authorizations 2015 CDAC	Change from 2014 CDAC Authorizations
2017	$1,180	$995	-$185
2018	1,275	995	-280
2019	1,315	995	-320
2020	1,355	995	-360
2021	1,320	995	-325
2022	1,360	995	-365
2023	1,400	995	-405
2024	1,440	995	-445
Total	**$10,645**	**$7,960**	**-$2,685**

CDAC: Capital Debt Affordability Committee
GO: general obligation

Source: *Affordability Analysis: September Baseline*, Capital Debt Affordability Committee, October 2015

Higher Education Academic Debt

CDAC recommends limiting new debt authorization of academic revenue bonds (ARB) to $22.0 million beginning in the 2016 legislative session. This amount reflects a $10.0 million reduction from the $32.0 million programmed by the committee for the 2016 legislative session in its 2014 report. The lower authorization level results from language added to Chapter 471 of 2015, which increased authorization levels by $20.0 million for a total of $54.5 million of USM academic facilities bonds for fiscal 2016 to support the overall funding plan for the New Bioengineering Building at the University of Maryland, College Park but also expressed the intent that the additional $20.0 million authorized in the 2015 session be deducted from the 2016 and 2017 session authorizations by $10.0 million each year, thereby keeping the total amount of ARB authorizations for the five-year CIP planning level consistent with what was programmed in the 2015 session 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; 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 2017 through 2021.

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 2016 session. The committee's recommendation is below the level proposed by both CDAC and the Spending Affordability Committee (SAC) in their respective 2014 reports and below the level included in the Governor's 2015 session *Capital Improvement Program* (CIP). In addition, CDAC's long-range plan recommends keeping annual new GO debt authorizations at $995 million for the 2017 through 2020 sessions (fiscal 2018 through 2021), which is also below the planning levels proposed by CDAC and SAC in 2014 and below the levels proposed in the 2015 CIP. It is also noteworthy that the CDAC out-year planning assumption no longer includes annual incremental increases to account for inflation in the construction market. The committee's policy previously included annual inflationary increases.

Exhibit 3.1 shows CDAC's long-term forecast recommends a total of $4,975 million in new GO bond authorizations for the 2016 through 2020 sessions. CDAC's currently recommended 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.

The exhibit also illustrates the differences between CDAC's 2015 recommended authorization levels as compared to what the committee programmed and SAC recommended in their respective 2014 reports. CDAC's 2015 recommendation is $1,395 million below the committee's October 2014 recommendation, which after the Board of Revenue Estimates reduced the State's general fund revenue estimate in December 2014 was determined to be unaffordable under the State's debt service to revenue criteria. The committee's 2015 recommendation is also $1,170 million below what SAC recommended for the planning period in its 2014 report, which was estimated to be affordable under the State's affordability criteria.

Although there are multiple annual authorization levels and patterns that would result in adherence to the affordability benchmarks, depending upon future levels of personal income and State revenue, the committee's 2015 forecasted authorization levels reflect a policy of reduced authorizations. The reduction was proposed by the Secretary of Budget and Management and reflects the new Administration's policy to reduce the authorization of State debt. To support this proposal, the budget Secretary noted that debt service is too high and will require increased levels of general fund appropriation to support, and immediate action is therefore required to reduce authorizations and lower out-year debt service expenditures. The new policy will also lower the risk that a revenue write-down will result in the State breeching the affordability limits.

Exhibit 3.1
CDAC Recommended Authorizations and SAC Action
2016-2020 Legislative Sessions
($ in Millions)

Session	December 2014 CDAC	2014 SAC	2015 CDAC	Difference 2014/2015 CDAC	Difference 2014 SAC/2015 CDAC
2016	$1,180	$1,105	$995	-$185	-$110
2017	1,275	1,200	995	-280	-205
2018	1,315	1,240	995	-320	-245
2019	1,280	1,280	995	-285	-285
2020	1,320	1,320	995	-325	-325
Total	**$6,370**	**$6,146**	**$4,975**	**-$1,395**	**-$1,170**

CDAC: Capital Debt Affordability Committee
SAC: Spending Affordability Committee

Note: The Governor's 2015 *Capital Improvement Program* (CIP) programmed a total of $4,189.7 million of new general obligation bond authorizations for the 2016 through 2019 sessions as compared to $3,980.0 million recommended by the 2015 CDAC for a total difference of $209.7 million over the four-year period (the CIP only programs funding levels for a five-year period, so the comparison does not include funding levels for the 2020 session, which are not programmed in the 2014 CIP).

Source: *Report of the Capital Debt Affordability Committee on Recommended Debt Authorizations*, 2014 and 2015; *Spending Affordability Committee 2014 Interim Report*, December 2014, and Governor's 2015 *Capital Improvement Program*

General Obligation Bond Issuance Stream

GO bonds authorized in a given year are not issued the year in which they are authorized. The State Treasurer's Office 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.

Appendix 2 shows how the proposed authorizations for fiscal 2017 through 2025 would be issued. **Exhibit 3.2** compares the issuance stream projected by the Department of Legislative Services (DLS) based on the CDAC authorization levels in its December 2014 analysis and the 2015 DLS estimate based on the recommended reduction over the planning period. The 2015 DLS

projections show the State issuing $2,166 million less through fiscal 2024. The difference between the two projected issuance streams reflects the impact of the reduction in GO bond authorizations recommended by CDAC from fiscal 2017 through 2024, as well as changes in issuance patterns attributable to capital project spending needs.

Exhibit 3.2
Proposed Issuance Stream
Fiscal 2017-2024
($ in Millions)

Year	2014 Estimate	2015 Estimate	Difference
2017	$1,126	$1,030	-$96
2018	1,193	1,025	-168
2019	1,240	1,015	-225
2020	1,284	998	-286
2021	1,307	995	-312
2022	1,333	995	-338
2023	1,351	995	-356
2024	1,380	995	-385
Total	**$10,214**	**$8,048**	**-$2,166**

Source: *Effect of Long-term Debt on the Financial Condition of the State*, November 2014; Department of Legislative Services, October 2015

General Obligation Bond Debt Service Costs

Exhibit 3.3 shows that, from fiscal 2017 through 2024, debt service costs are expected to be $562 million less than DLS projected in the 2015 session. Debt service costs are attributable to interest rate assumptions and issuance amounts. The forecast assumes that the interest rate on bonds issued in the out-years is 5%, which is the same assumption made in the 2014 report. Differences in projected debt service costs are attributable to refunding previously issued bonds in August 2014 and March 2015 (which resulted in approximately $81 million in debt service savings over the remaining life of the bonds on a net present value basis), a reduced issuance stream, and changes in capital project cash flow needs.

Exhibit 3.3
Projected Debt Service Costs
Fiscal 2017-2024
($ in Millions)

Year	2014 Estimate	2015 Estimate	Difference
2017	$1,200	$1,187	-$13
2018	1,270	1,253	-17
2019	1,310	1,283	-27
2020	1,380	1,337	-43
2021	1,423	1,354	-69
2022	1,489	1,392	-97
2023	1,562	1,431	-131
2024	1,622	1,457	-165
Total	**$11,256**	**$10,694**	**-$562**

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

Source: Department of Legislative Services, October 2015

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 3.4** shows that refunding reduced debt service costs by over $200 million since December 2009.

Exhibit 3.4
Debt Service Cost Savings Attributable to Bond Refunding
($ in Millions)

Date of Sale	Amount Issued	Amount Retired	Savings	Net Present Value of Savings
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
Total	**$2,792.2**	**$2,885.8**	**$201.5**	**$171.7**

Source: Public Financial Management, Inc.

The State Treasurer's Office, with advice from its financial advisor, is continually monitoring 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. The U.S. Federal Reserve Board's Federal Open Market Committee has stated that it expects to increase interest rates before the end of 2016. Increasing short-term rates could result in higher rates for longer-term debt. This would reduce future refunding opportunities.

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 legislation enacted in 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 of 2009 (Chapter 487). 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 3.5.** By statute, the bond issuance had to occur before the first expenditures of general fund advances for property purchases. The first purchases were in August 2010. The Department of Natural Resources (DNR) received $65 million, and the Maryland Department of Agriculture (MDA) received $5 million of the $70 million issuance. 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 3.5
Program Open Space GO Bond Issuances
($ in Thousands)

Issue Date	GO Bond Issuance	Principal
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, January 2011

Exhibit 3.6 shows that debt service costs are $6.6 million in 2017. 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 3.6
Program Open Space GO Bonds Debt Service Payment Schedule
Fiscal 2016-2021
($ in Millions)

	2016	2017	2018	2019	2020	2021
Debt Outstanding	$55.7	$50.5	$45.1	$42.3	$36.6	$30.7
Debt Service	6.4	6.6	6.7	7.1	6.9	6.9

GO: general obligation

Source: Department of Budget and Management, January 2011

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 QECBs have been issued to support education capital projects. BABs support the same projects that tax-exempt bonds support.

To date, the State has issued $194 million in QZABs, QSCBs, and QECBs, most of which support education construction projects. **Exhibit 3.7** shows that DLS estimates that the lower costs associated with these bonds reduced total debt service payments by $61 million. However, some of these bonds are affected by federal sequestration reductions, which reduces the savings by $3 million.

Effect of Sequestration on Direct Payment Bonds

The federal Budget Control Act of 2011 imposes caps on federal discretionary spending from federal fiscal 2013 to 2021. The Act also created a Joint Select Committee to further reduce the federal deficit by at least $1.2 billion over 10 years. The committee could substitute reductions for the mandatory spending reductions required through sequestration. The committee did not reach any agreement on reductions, and mandatory reductions are now in place. In 2013, sequestration reductions to federal fiscal 2014 and 2015 were reduced and the period was extended to federal fiscal 2023.

Exhibit 3.7
Summary of Special Purpose Issuances
($ in Thousands)

Type	Date Issued	Amount Issued	Debt Service Payments	Similar GO Payments	Savings	Sequestration Reduction	Net Savings	Savings Per $ Issued
QZAB	Nov-01	$18,098	$12,432[1]	$27,182	$14,750	$0	$14,750	$0.82
QZAB	Nov-04	9,043	7,356[1]	12,393	5,038	0	5,038	0.56
QZAB	Dec-06	4,378	3,609[1]	6,132	2,523	0	2,523	0.58
QZAB	Dec-07	4,986	4,089[1]	6,967	2,877	0	2,877	0.58
QZAB	Dec-08	5,563	6,142	7,606	1,464	0	1,464	0.26
QZAB	Dec-09	5,563	6,275	7,052	778	0	778	0.14
QSCB	Dec-09	50,320	49,964[1]	63,791	13,827	0	13,827	0.27
QSCB	Aug-10	45,175	44,663	52,731	8,068	-1,665	6,403	0.18
QZAB	Dec-10	4,543	4,543	5,302	759	-193	566	0.17
QZAB	Aug-11	15,900	15,900	20,267	4,367	-559	3,808	0.27
QECB	Aug-11	6,500	7,080	8,285	1,206	-199	1,007	0.19
QZAB	Aug-12	15,230	15,230	18,303	3,073	-360	2,713	0.20
QZAB	Dec-13	4,549	4,549[1]	5,875	1,326	0	1,326	0.29
QZAB	Dec-14	4,625	4,625[1]	5,971	1,346	0	1,346	0.29
Total		**$194,473**	**$186,455**	**$247,858**	**$61,403**	**-$2,977**	**$58,426**	**$0.32**

[1]Sinking Fund payment

GO: general obligation
QECB: Qualified Energy Conservation Bonds
QSCB: Qualified School Construction Bonds
QZAB: Qualified Zone Academy Bonds

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

Source: Comptroller of Maryland; State Treasurer's Office; Department of Legislative Services, October 2015

Direct pay bonds are affected by mandatory reductions required through sequestration. The State Treasurer's Office advises that this reduces federal fund reimbursements for these bonds. Initially, in fiscal 2013, reimbursements were reduced by approximately $51,000. **Exhibit 3.8** shows that by fiscal 2016, federal funds could be reduced by $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.

Exhibit 3.8
Effect of Sequestration on Federal Fund Revenues
Fiscal 2016-2021
($ in Thousands)

Fiscal Year	2016	2017	2018	2019	2020	2021
July 2009 BAB	$796	$796	$796	$796	$796	$796
October 2009 BAB	942	942	942	942	942	942
February 2010 BAB	6,036	6,036	6,036	6,036	5,302	4,528
August 2010 BABs	1,094	1,094	1,094	1,094	1,094	1,094
August 2010 QSCBs	1,965	1,965	1,965	1,965	1,965	1,965
December 2010 QZABs	228	228	228	228	228	228
August 2011 QZAB	660	660	660	660	660	660
August 2011 QECB	234	234	234	234	234	234
August 2012 QZAB	426	426	426	426	426	426
Less Sequestration	*-904*	*-904*	*-904*	*-904*	*-850*	*-794*
Total	**$11,477**	**$11,477**	**$11,477**	**$11,477**	**$10,797**	**$10,079**

BAB: Build America Bonds
QECB: Qualified Energy Conservation Bond
QSCB: Qualified School Construction Bond
QZAB: Qualified Zone Academy Bond

Source: State Treasurer's Office, October 2015

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 receive a federal income tax credit for each year that the bond is held. The State is not required to make payments on the principal until the bonds are redeemed. For example, under its 2001 agreement with Bank of America, the State, through the State Treasurer's Office, makes annual payments into a sinking fund invested into a guaranteed rate of interest. Since the funds

are invested in interest-bearing accounts, the repayment of the principal by the State is less than the par value of QZABs, making QZABs less expensive than GO bonds.

The Treasurer's Office 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 1.60% supplemental coupon. As Exhibit 3.7 shows, even with a supplemental coupon, QZABs are still less expensive than GO bonds.

For a while, 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.

The State has received additional QZAB allotments. The State can issue $4.6 million by December 2015, $4.7 million by December 2016, and $4.7 million by December 2017. The DLS debt service calculations assume that this debt will be issued as direct pay debt and that federal payments will be sufficient to support interest costs. As such, the payments represent State principal payments from fiscal 2015 to 2033.

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 QECBs, 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. The 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 issues debt referred to as nontraditional debt. Nontraditional debt currently includes Certificates of Participation, Maryland Economic Development Corporation debt, and debt sold on MDOT's behalf by MDTA. Of the 10 outstanding issuances of nontraditional debt, 2 are tax-supported and are included in the State debt affordability analysis in the Capital Lease section. 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 2016 budget bill set the maximum ceiling for June 30, 2016, at $2,855,105,000. DLS estimates that as of June 30, 2016, debt outstanding will total $2,546,085,000.

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, 2016, MDOT will have net income coverage of 3.3 and pledged taxes coverage of 5.5.

As shown in **Exhibit 3.9**, MDOT has issued new (*e.g.*, nonrefunding) consolidated transportation bonds in 19 of the past 25 years.

Exhibit 3.9
Consolidated Transportation Bond Issuance*
($ in Millions)

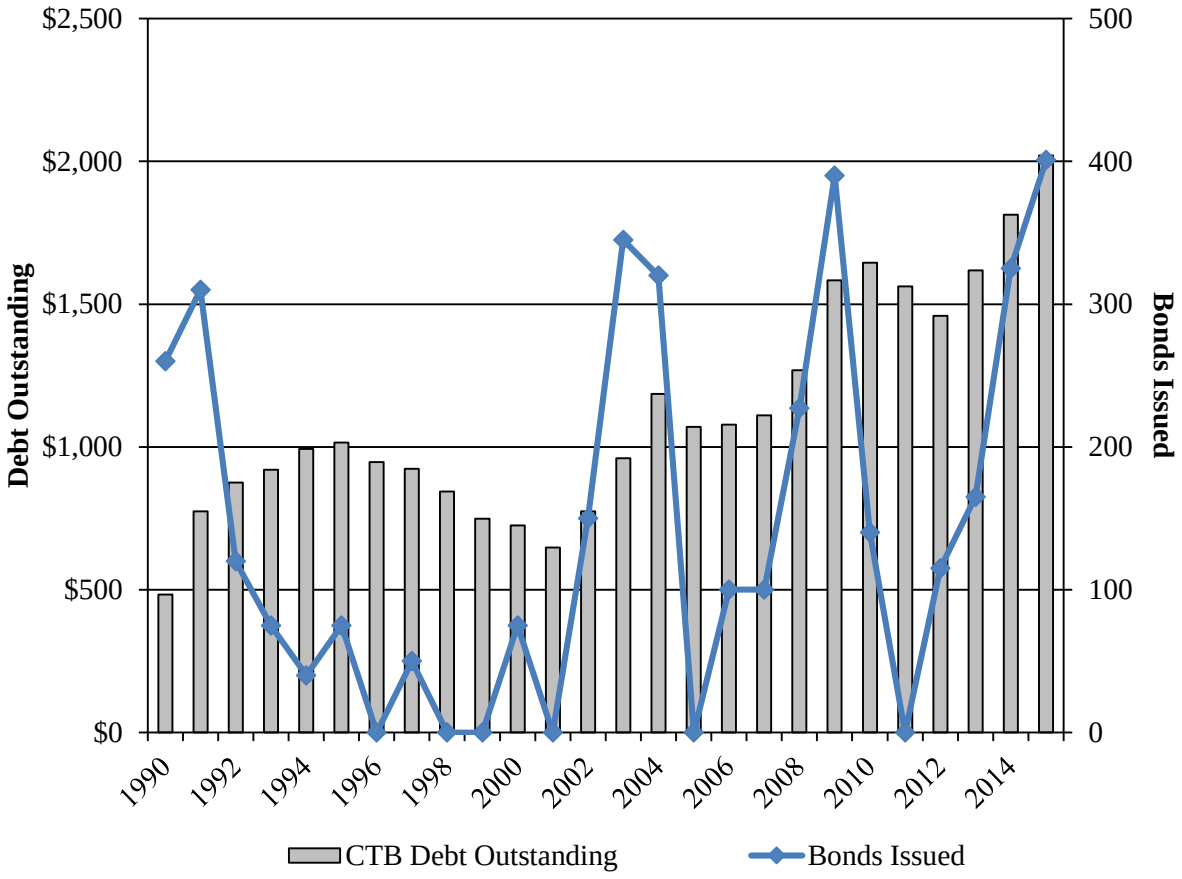
Fiscal Year	Bonds Issued
1991	$310
1992	120
1993	75
1994	40
1995	75
1996	0
1997	50
1998	0
1999	0
2000	75
2001	0
2002	150
2003	345
2004	320
2005	0
2006	100
2007	100
2008	227
2009	390
2010	140
2011	0
2012	115
2013	165
2014	325
2015	401
Total	**$3,137**

*Exclusive of refunding. Six refunding issuances were made from fiscal 1990 through 2015, including most recently in fiscal 2015, when refunding bonds totaling $259.7 million were issued and used in conjunction with bond premiums and cash to refund $331.8 million in previously issued debt.

Source: Maryland Department of Transportation, September 2015

Exhibit 3.10 illustrates annual bond sales and changes in debt outstanding from fiscal 1990 to 2015. In fiscal 2015, MDOT's net debt outstanding was $2.0 billion, well under the $4.5 billion debt outstanding debt limit.

Exhibit 3.10
Maryland Department of Transportation
Bonds Issued and Net Debt Outstanding
Fiscal 1990-2015
($ in Millions)



CTB: consolidated transportation bond

Source: Maryland Department of Transportation

Future Debt Issuance

Every fall, DLS prepares a TTF forecast. The forecast projects revenues and expenditures and adjusts debt issuances accordingly. Three key revenue assumptions included in the DLS forecast that differ from the MDOT draft forecast:

- No general fund nor general obligation bond support for the Watershed Implementation Program in fiscal 2018 and 2019. This reduces TTF funding by $200 million. Neither the State CIP nor the Administration's past general fund forecasts have included these transfers to the TTF, so the TTF forecast should not anticipate receiving this funding.

- Continuation of a revenue change reserve equal to approximately 1% of anticipated revenues. The MDOT draft forecast does not include this reserve for the first time in 20 years. This lowers the 6-year revenue estimate by $197 million.

- No increase in the local share of Highway User Revenues (HUR). The MDOT draft forecast assumes a total of $743 million more than the current statutory requirement will be allocated to local governments. Increasing the local share of HUR would require passage of legislation.

DLS estimates that revenues will grow 3.2% and 4.5% in fiscal 2016 and 2017, respectively, reflecting the full phase-in of motor fuel tax rates for fiscal 2017 coupled with per gallon prices for gasoline, net of State and federal taxes, of less than $3.00 until the final year of the forecast. The DLS forecast assumes an average annual rate of growth in revenues of 3.7% from fiscal 2016 to 2021.

The TTF forecast assumes that capital funds are available after operating needs have been met. The DLS TTF forecast assumes greater operating expenditures than shown in the MDOT forecast, which reduces the amount available for capital. In the DLS forecast, operating expenditures are assumed to grow at a rate of 4.7%, which is the five-year average annual rate experienced by MDOT through fiscal 2015, the most recent year for which actual expenditures are available. This adds $685 million in spending over the amount assumed in the MDOT draft forecast.

Finally, the DLS forecast assumes the level of capital program spending proposed in the Draft *Consolidated Transportation Program*. Due to the lower revenues and higher operating expenditures, bond issuances must be increased by $238 million over the level included in the MDOT draft forecast. This increased level of debt is still affordable under the net income coverage ratio test, which remains above 2.5 through the forecast period. **Exhibit 3.11** shows the DLS estimate for bond issuance levels for fiscal 2016 to 2021.

Exhibit 3.11
Department of Legislative Services' Estimate
Consolidated Transportation Bonds – MDOT Projected Issuances
Fiscal 2016-2021
($ in Millions)

Year	Amount
2016	$700
2017	849
2018	721
2019	571
2020	449
2021	438
Total	**$3,728**

MDOT: Maryland Department of Transportation

Source: Department of Legislative Services

Debt Outstanding

Exhibit 3.12 shows the amount of estimated debt outstanding from fiscal 2016 to 2021. From fiscal 2016 to 2021, debt outstanding is estimated to increase by $1.8 billion. This increase is tied to the cash flow needs of projects and is affordable under the department's coverage ratios and statutory debt outstanding limit.

Exhibit 3.12
Consolidated Transportation Bonds – MDOT Projected Debt Outstanding
Fiscal 2016-2021
($ in Millions)

Year	Amount
2016	$2,546
2017	3,188
2018	3,641
2019	3,980
2020	4,216
2021	4,387

MDOT: Maryland Department of Transportation

Source: Department of Legislative Services

Debt Service

Exhibit 3.13 shows that debt service costs are projected to increase steadily from $265 million in fiscal 2016 to $427 million in fiscal 2021. The growth is attributable to increased principal payments from prior issuances and the costs associated with issuing the debt from fiscal 2016 to 2021.

Exhibit 3.13
Projected Transportation Debt Service
Fiscal 2016-2021
($ in Millions)

Year	Projected Debt Service
2016	$265
2017	323
2018	371
2019	362
2020	361
2021	427
Total	**$2,110**

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 authorizes 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. GARVEE debt service payments are $87.5 million from fiscal 2010 to 2019 and $51.4 million in fiscal 2020, the last year of debt service 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. Beginning in fiscal 1994, the State instituted 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 Section 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 high technology equipment, such as 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 3.14 shows that projected tax-supported capital lease debt outstanding totals $237.5 million as of June 30, 2015. Debt outstanding is projected to decrease to $234.5 million on June 30, 2016. Most of the $25.5 million decline in the amount outstanding on current leases is expected to be offset by $22.6 million in new equipment leases.

Exhibit 3.14
Tax-supported Capital Lease Debt Outstanding
As of June 30, 2015 and Projected June 30, 2016
($ in Millions)

State Agency/Facility	Amount Outstanding June 2015	Projected Amount Outstanding June 2016	Difference
State Treasurer's Office			
Capital Equipment Leases	$12.0	$8.5	-$3.5
Energy Performance Projects	4.1	1.8	-2.3
Maryland Department of Transportation			
Headquarters Office Building	16.7	14.6	-2.1
Maryland Aviation Administration Shuttle Buses	2.5	1.2	-1.3
Department of General Services			
Hilton Street Facility	0.7	0.5	-0.2
Prince George's County Justice Center	16.9	16.0	-0.9
Maryland State Lottery			
Ocean Downs and Perryville Video Lottery Equipment	8.6	0	-8.6
Maryland Transportation Authority			
Annapolis State Office Parking Garage[1]	17.8	18.0	0.2
Department of Health and Mental Hygiene			
Public Health Laboratory	158.2	151.4	-6.8
Subtotal – Current Leases	***$237.5***	***$211.9***	***-$25.5***
Proposed Leases			
New Capital Equipment Leases	$0.0	$22.6	$22.6
Total	**$237.5**	**$234.5**	**-$3.0**

[1] Refunding capitalized issuance costs and skipped principal payment, which resulted in increased debt outstanding.

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

Source: State Treasurer's Office, September 2015

In 2015, the Certificate of Participation for the Calvert Street Garage was refinanced. Total debt service costs are reduced by $2.5 million, which has a net present value of $2.1 million. These savings are realized in the out-years. In addition to providing out-year savings, the transaction was structured to minimize fiscal 2016 costs. The State Treasurer's Office advises that this added $166,000 to fiscal 2016 debt outstanding. This increase is attributable to capitalizing the issuance costs and amortizing the payment of these costs of the remaining 17 years of the lease. Also, the fiscal 2016 debt service payment is interest only, so the State skips the principal payment. This allowed the Administration to include $827,623 in fiscal 2016 debt service costs as part of an across-the-board 2% reduction to general fund expenditures.

Energy Performance Contracts

Chapter 163 of 2011 changed how the State classifies EPCs. Prior to the enactment of the legislation, Section 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. The State Treasurer's Office 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. The Treasurer's Office advises that 19 EPCs can be excluded from CDAC's debt affordability calculation. Six projects, whose fiscal 2014 debt service costs total $2.3 million, cannot be excluded and are included in the affordability calculation. Fiscal 2015 data has not been provided.

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.

Currently, 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 is to examine whether operating leases can meet the definitions of assets or liabilities, which could result in new standards for capital leases. A concern is 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.

An exposure draft is expected to be issued in January 2016. This is followed by a comment period that is scheduled to end in May 2016. The final statement should be issued in November 2016. This project is being performed in concert with the Financial Accounting Standards Board and the International Accounting Standards Board.

If GASB proposes changes to leasing standards, the new standards could substantially increase the amount of leases included in the debt affordability calculation. DLS will continue to monitor this issue and report if there are any changes to leasing standards.

Bay Restoration Bonds

The Bay Restoration Fund was created in 2004 primarily 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 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 in 2012. The fund has several revenue sources and expends funds for both operating and capital purposes.

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.

Fee and Uses Modified

Chapter 153 of 2015 (Environment – Bay Restoration Fund – Use of Funds) authorized the Bay Restoration Fund, beginning in fiscal 2016, to be used for funding up to 87.5% of the cost for the following types of projects: combined sewer overflows abatement, rehabilitation of existing sewers, and upgrading conveyance systems, including pumping stations.

Chapter 153 also modified the provisions in Chapter 150 of 2012 (Environment – Bay Restoration Fund – Fees and Uses). Chapter 150 originally established that, after the payment of debt service on outstanding bonds and the allocation of funds to other required uses, the Bay Restoration Fund may be used for additional authorized uses beginning in fiscal 2018. Chapter 153 of 2015 alters the priority of funding in fiscal 2018 for those additional authorized

uses by making grants for septic system upgrades, stormwater management, and combined sewer overflows and sewer abatement projects of equal priority with funding decisions made on a project-specific basis. Therefore, the new fiscal 2018 funding prioritization schedule, in order of priority, is as follows:

- funding an upgrade of a wastewater facility with a design capacity of 500,000 gallons or more per day to ENR;

- funding for the most cost-effective ENR upgrades at WWTP with a design capacity of less than 500,000 gallons per day;

- 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 funding up to 87.5% of the cost for combined sewer overflows abatement, rehabilitation of existing sewers, and upgrading conveyance systems, including pumping stations.

Based on the current priority list and estimated capital cost of ENR upgrades, **Exhibit 3.15** shows that the program anticipates issuing $180 million[1] of revenue bonds in fiscal 2016 (November) and $100 million in fiscal 2017. Of note, the overall projected need has decreased from $530 million to $430 million. The debt outstanding will peak at $393 million in fiscal 2017. Debt service costs increase to $44 million in fiscal 2020. These issuances are limited by the revenues generated by the WWTP Fund, overall State debt considerations, and the spending on additional uses allowed under Chapter 150, as modified by Chapter 153, beginning in fiscal 2018.

Exhibit 3.15
Bay Restoration Fund
Fiscal 2015-2021
($ in Millions)

	2015	2016	2017	2018	2019	2020	2021
Revenue Bonds Issued	$0.0	$180.0	$100.0	$0.0	$0.0	$0.0	$0.0
Debt Outstanding	130.0	301.6	392.9	368.1	342.0	314.4	285.3
Debt Service	8.2	14.3	25.5	43.4	43.4	43.5	43.5

Note: In fiscal 2008, $50 million in revenue bond debt was issued, and in fiscal 2014, $100 million was issued.

Source: Maryland Department of the Environment; Department of Legislative Services; October 2015

[1] Under current market conditions, MDE advises that the bond could sell at a premium, which could generate up to $20 million in additional proceeds for capital projects. If this is the case, the department may reduce the issuance to account for additional proceeds. This would reduce debt service costs and debt outstanding. However, if MDE determines that additional proceeds can be spent without incurring any arbitrage penalties, the department may use these additional proceeds to support capital projects.

The debt issuances for the WWTP Fund appear to be more certain as there has been no change in the schedule relative to what was identified in last year's report. The Septic Fund is operated on a pay-as-you-go basis and does not involve revenue bond proceeds.

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.

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. **Exhibit 3.16** lists MSA's current tax-supported authorized debt, debt outstanding, and annual debt service.

Exhibit 3.16
Maryland Stadium Authority
Revenue Debt Authorizations, Debt Outstanding, and Debt Service
($ in Millions)

Project	Authorized	Outstanding as of July 2015	Debt Service Fiscal 2016
Baseball and Football Stadiums	$235.0	$136.9	$23.4
Baltimore City Convention Center	55.0	0.0	0.0
Montgomery County Conference Center	23.2	11.0	1.6
Hippodrome Performing Arts Center	20.3	10.2	1.6
Ocean City Convention Center	17.3	1.4	1.4
Camden Station	8.7	6.0	0.7
Equipment Leases	n/a	3.6	1.0
Total	**$359.5**	**$169.1**	**$29.7**

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

Source: Maryland Stadium Authority

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.

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.

Baltimore and Ocean City Convention Centers

MSA issued $55 million in revenue bonds for the Baltimore City Convention Center (BCCC) as authorized by 1993 legislation. Baltimore City issued $50 million in city bonds, and the State contributed another $58 million in GO bond funding toward the construction cost of the project, which was completed in 1997. Fiscal 2015 was the final year of debt service payments for BCCC. However, Chapter 286 of 2013 extended the date by which MSA is obligated to contribute two-thirds of the operating deficits of BCCC to December 31, 2019. The State is also statutorily required to contribute $200,000 annually to a capital improvement fund.

MSA issued $17.3 million in revenue bonds for the Ocean City Convention Center (OCCC), which was authorized in 1995 and matched by a contribution from the Town of Ocean City. The fiscal 2016 debt service cost for these revenue bonds is $1.4 million and subject to State appropriation. As amended by Chapter 630 of 2012, the State is also statutorily required

to contribute one-half toward OCCC's annual operating deficit through fiscal 2036 and $50,000 annually to a capital improvement fund.

In December 2008, MSA and the Town of Ocean City released a feasibility study on the proposed expansion of OCCC. The study recommended a moderate expansion and remodeling to the convention center to modernize audiovisual and technical amenities, provide more function space, and increase prime exhibit space. In December 2009, MSA submitted an Amended Comprehensive Plan of Financing for the OCCC expansion. The plan called for MSA to issue tax-exempt lease-revenue bonds to pay for the project. However, in order to realize a lower cost of capital, the expansion was ultimately funded with GO bonds through the capital budget bill. Construction was completed in fall 2012. A second phase of construction was completed in winter 2015.

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. The fiscal 2016 debt service costs for these revenue bonds are $1.6 million, a savings of over $200,000. MSA is currently serving as the construction manager for a new parking garage for the center, to be paid for by the county.

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 $63.0 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 MSA's

financing fund. Accordingly, in 2012, MSA submitted an Amended Comprehensive Plan of Financing for the center to refund the existing issuance at a lower rate in order to lower the State's contribution to debt service. The fiscal 2016 debt service is $1.6 million.

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, $8.0 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. The fiscal 2014 debt service costs for the authority's revenue bonds are about $740,000 subject to State appropriation.

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. MSA recently released a market and economic study that examined the concept of a Maryland Horse Park System that incorporates various assets of the horse industry across the State. Other studies to be conducted include an examination of an additional expansion for OCCC and a potential multi-purpose civic center in Charles County.

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 was 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 House Bill 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. In October 2015, MSA submitted its Comprehensive Plan of Financing to the fiscal committees and plans to seek BPW approval in November 2015. 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's 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 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.

Chapter 4. Economic Factors and 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.

- 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. For example, 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 CDAC's recommendation to determine affordability.

Personal Income

Exhibit 4.l shows that the Department of Legislative Services' (DLS) estimates of personal income are less than those of CDAC. CDAC is using the Board of Revenue Estimates' (BRE) September 2015 personal income estimates. Since BRE updated its estimates, the Federal Bureau of Economic Analysis (BEA) has revised its second quarter State personal income data and revised historical data back to 1976. DLS' estimates are less than CDAC because they are based on BEA's lower estimates.

Exhibit 4.1
Maryland Personnel Income
Comparison of Department of Legislative Services and Capital Debt Affordability Committee Projections
Calendar 2015-2021
($ in Millions)

Year	DLS Personal Income Estimate	% Change	CDAC Personal Income Estimate	% Change	Difference
2015	$337,521	4.24%	$344,601	4.68%	-$7,080
2016	353,306	4.68%	360,717	4.68%	-7,411
2017	371,459	5.14%	379,251	5.14%	-7,792
2018	388,090	4.48%	396,230	4.48%	-8,141
2019	404,421	4.21%	412,904	4.21%	-8,483
2020	420,769	4.04%	427,556	3.55%	-6,788
2021	436,805	3.81%	442,556	3.51%	-5,751

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

Source: Capital Debt Affordability Committee, October 2015; Department of Legislative Services, November 2015

Revenue Projections

Exhibit 4.2 shows that DLS' out-year revenue projections are greater than CDAC's through fiscal 2021. The differences primarily relate to the DLS estimate of out-year transportation revenues.

Exhibit 4.2
Comparison of DLS and CDAC Revenue Projections
Fiscal 2016-2021
($ in Millions)

Year	General Funds	Property Tax	Other ABF	ETF Slots	Transfer Taxes	TTF	GARVEE	Stadium	BRF	DLS Total	CDAC Estimate	Diff.
2016	$16,289	$750	$15	$394	$97	$3,061	$466	$22	$113	$21,206	$21,296	-$90
2017	16,939	757	15	511	99	3,203	466	22	114	22,126	22,152	-27
2018	17,631	768	15	538	98	3,324	466	22	115	22,976	23,013	-37
2019	18,313	779	15	546	191	3,437	466	21	116	23,884	23,775	109
2020	19,019	791	14	554	198	3,504	466	21	118	24,683	24,533	150
2021	19,744	802	13	562	205	3,664	0	7	119	25,117	24,897	219

ABF: Annuity Bond Fund
BRF: Bay Restoration Fund
CDAC: Capital Debt Affordability Committee
Diff: Difference
DLS: Department of Legislative Services
ETF: Education Trust Fund (supported by video lottery terminals)
GARVEE: Grant Anticipation Revenue Vehicle
TTF: Transportation Trust Fund

Source: General Fund, Other Annuity Bond Fund, and Maryland Department of Transportation: Department of Legislative Services, November 2015; State Property Tax, Federal Funds, Education Trust Fund Slots, Transfer Taxes, Stadium Authority, Grant Anticipation Revenue Vehicle, Bay Restoration Fund, and Capital Debt Affordability Committee Revenues: Capital Debt Affordability Committee, October 2015

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 DLS' debt issuance assumptions. The general obligation bond, Grant Anticipation Revenue Vehicle, Stadium Authority, and bay restoration bond issuances are consistent with CDAC estimates. There are differences with respect to Qualified Zone Academy Bonds (QZABs) and Maryland Department of Transportation (MDOT) bonds. With respect to QZABs, DLS is assuming that the State will issue the federal authorizations provided through December 2017. DLS anticipates additional transportation bond issuances to maintain the transportation capital program. DLS projects operating expenditures and other transportation commitments will require more transportation revenues than the administration does; MDOT will need to issue additional bonds to support its capital program.

Exhibit 4.3
Projected New Debt Issuances
Fiscal 2016-2021
($ in Millions)

Year	GO Bond Auth.	GO Bond Issuances	QZABs	Trans. Bonds	GARVEE	Capital Leases	Stadium Authority Bonds	Bay Restoration Bonds
2016	$1,045	$1,018	$5	$700	$0	$19	$0	$180
2017	995	1,030	5	849	0	69	0	100
2018	995	1,025	5	721	0	5	0	0
2019	995	1,015	0	571	0	5	0	0
2020	995	998	0	449	0	5	0	0
2021	995	995	0	438	0	5	0	0

GARVEE: Grant Anticipation Revenue Vehicle
GO: general obligation
QZAB: Qualified Zone Academy Bond

Source: General Obligation, Maryland Department of Transportation Bonds, Qualified Zone Academy Bond, and Capital Leases: Department of Legislative Services, November 2015; Stadium Authority, Grant Anticipation Revenue Vehicle, and Bay Restoration Bonds: Capital Debt Affordability Committee, October 2015

Exhibit 4.4 shows that, for the forecast period, debt outstanding as a percent of personal income peaks at 3.59% in fiscal 2017.

Exhibit 4.4
State Tax-supported Debt Outstanding
Components and Relationship to Personal Income
Fiscal 2015-2021
($ in Millions)

Year	General Obligation Bonds	MDOT Bonds	GARVEE	Capital Leases	Stadium Authority Bonds	Bay Restoration Bonds	Total Tax Supported Debt
2015	$8,677	$2,020	$349	$238	$145	$130	$11,560
2016	8,947	2,546	280	235	125	302	12,434
2017	9,196	3,188	207	257	106	393	13,346
2018	9,390	3,641	130	240	86	366	13,853
2019	9,552	3,980	49	220	65	342	14,208
2020	9,642	4,216	0	200	44	314	14,417
2021	9,731	4,387	0	181	36	285	14,620

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

2015	2.57	0.60	0.10	0.07	0.04	0.04	3.42
2016	2.53	0.72	0.08	0.07	0.04	0.09	3.52
2017	2.48	0.86	0.06	0.07	0.03	0.11	3.59
2018	2.42	0.94	0.03	0.06	0.02	0.09	3.57
2019	2.36	0.98	0.01	0.05	0.02	0.08	3.51
2020	2.29	1.00	0.00	0.05	0.01	0.07	3.43
2021	2.23	1.00	0.00	0.04	0.01	0.07	3.35

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

Source: General Obligation, Maryland Department of Transportation Bonds, and Capital Leases: Department of Legislative Services, November 2015; Stadium Authority, Grant Anticipation Revenue Vehicle, and Bay Restoration Bonds: Capital Debt Affordability Committee, October 2015

Exhibit 4.5 shows that the debt service as a percent of revenues increases until fiscal 2018 as it reaches 7.89% and then declines.

Exhibit 4.5
State Tax-supported Debt Service
Components and Relationship to Revenues
Fiscal 2015-2021
($ in Millions)

Year	General Obligation	MDOT Bonds	GARVEE	Capital Leases	Stadium Authority	Bay Restoration Bonds	Total Tax-supported Debt Service
2015	$1,018	$250	$87	$38	$31	$8	$1,434
2016	1,121	265	87	36	26	14	1,549
2017	1,187	323	87	31	25	23	1,677
2018	1,253	371	87	33	25	43	1,813
2019	1,283	362	87	34	24	43	1,835
2020	1,337	361	87	33	24	44	1,886
2021	1,354	427	51	30	10	44	1,917
			State Tax Supported Debt Service as a Percent of Revenues (Affordability Criteria = 8.0%)				
2015	4.95	1.22	0.42	0.18	0.15	0.04	6.97
2016	5.29	1.25	0.41	0.17	0.12	0.07	7.31
2017	5.37	1.46	0.40	0.14	0.11	0.10	7.58
2018	5.46	1.61	0.38	0.15	0.11	0.19	7.89
2019	5.37	1.52	0.37	0.14	0.10	0.18	7.68
2020	5.41	1.46	0.35	0.13	0.10	0.18	7.64
2021	5.39	1.70	0.20	0.12	0.04	0.17	7.63

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

Source: General Obligation, Maryland Department of Transportation Bonds, and Capital Leases: Department of Legislative Services, November 2015; Stadium Authority, Grant Anticipation Revenue Vehicle, and Bay Restoration Bonds: Capital Debt Affordability Committee, October 2015

Exhibit 4.6 shows that debt outstanding ratios based on DLS' personal income estimates are higher than those estimated by CDAC from fiscal 2016 to 2021. The difference between the two ratios is primarily attributable to the federal BEA reducing its estimate of State personal income.

Exhibit 4.6
State Debt to Personal Income
Comparison of DLS and CDAC Estimates
Fiscal 2016-2021

Year	DLS	CDAC
2016	3.46%	3.45%
2017	3.53%	3.51%
2018	3.51%	3.49%
2019	3.46%	3.44%
2020	3.39%	3.37%
2021	3.32%	3.30%

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

Source: Capital Debt Affordability Committee, October 2015; Department of Legislative Services, November 2015

Similarly, **Exhibit 4.7** shows the debt service ratios based on the DLS forecast of revenues and those estimated by CDAC from fiscal 2016 to 2021. The difference between the two ratios relate to both revenues and debt issuances. DLS estimates higher transportation revenues than CDAC, which tends to reduce DLS' ratio. On the other hand, DLS anticipates additional transportation bond issuances and higher debt service costs, which tends to increase DLS' ratio.

Exhibit 4.7
State Debt Service to State Revenues
Comparison of DLS and CDAC Estimates
Fiscal 2016-2021

Year	DLS	CDAC
2016	7.31%	7.28%
2017	7.58%	7.56%
2018	7.89%	7.84%
2019	7.68%	7.71%
2020	7.64%	7.53%
2021	7.63%	7.48%

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

Source: Capital Debt Affordability Committee, October 2015; Department of Legislative Services, November 2015

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 (CDAC) debt affordability criteria. The committee compares debt outstanding to personal income and debt service costs to revenues.

While this debt affordability approach is helpful, 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
- a comparison of debt service and pension costs (the State's other large long-term liability) to general fund revenues.

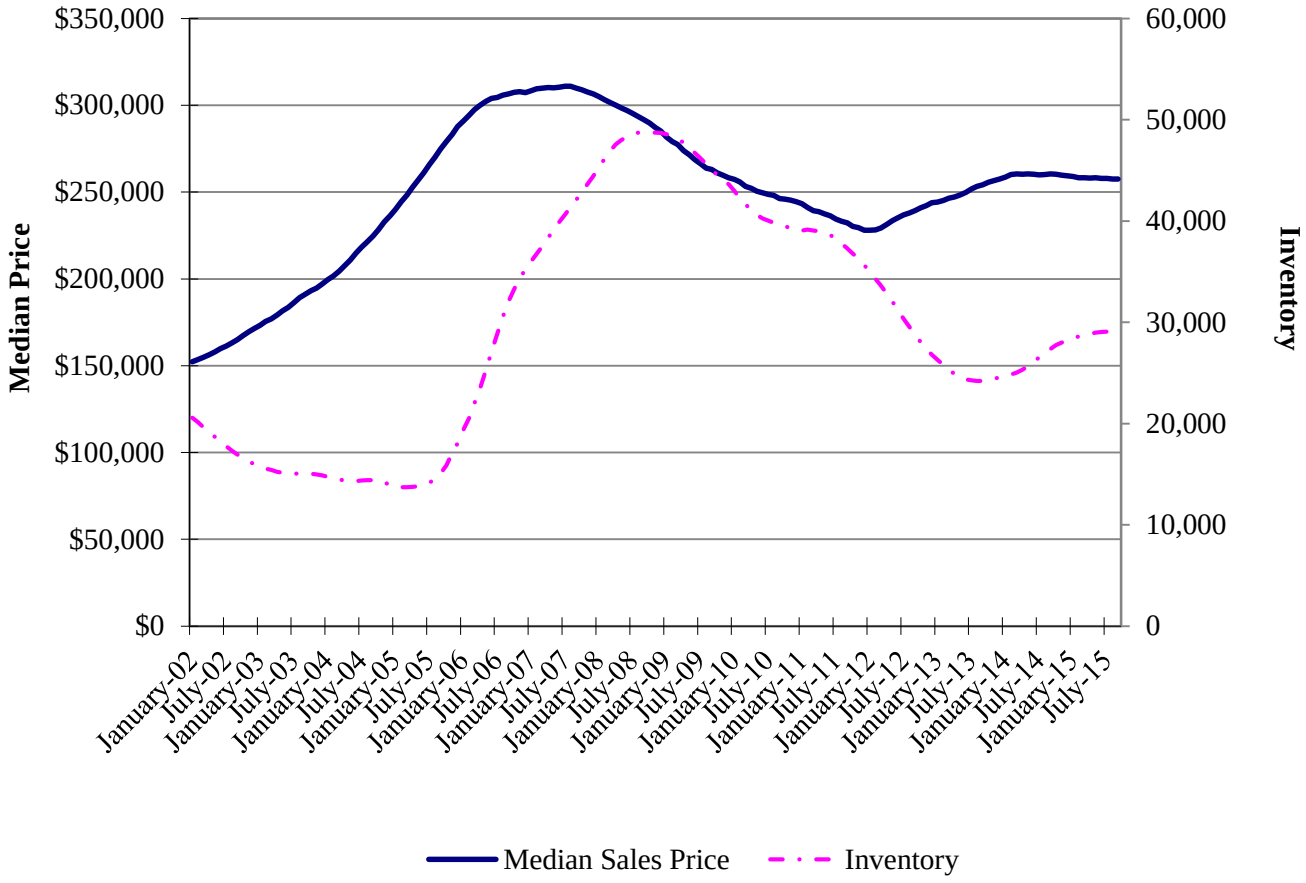
General Fund Appropriations Necessary to Support Debt Service

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 is 55 straight months of year-over-year declines in median home values. From February 2012 to March 2014, year-over-year prices increased. Since April 2014, results have been mixed with some months seeing increases in values and others realizing decreases.

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 and reached a nadir of approximately 21,300. In September 2015, inventories increased to approximately 32,100.

Exhibit 5.1
Maryland Housing – Median Prices and Inventory
12-month Moving Average
January 2002 to September 2015

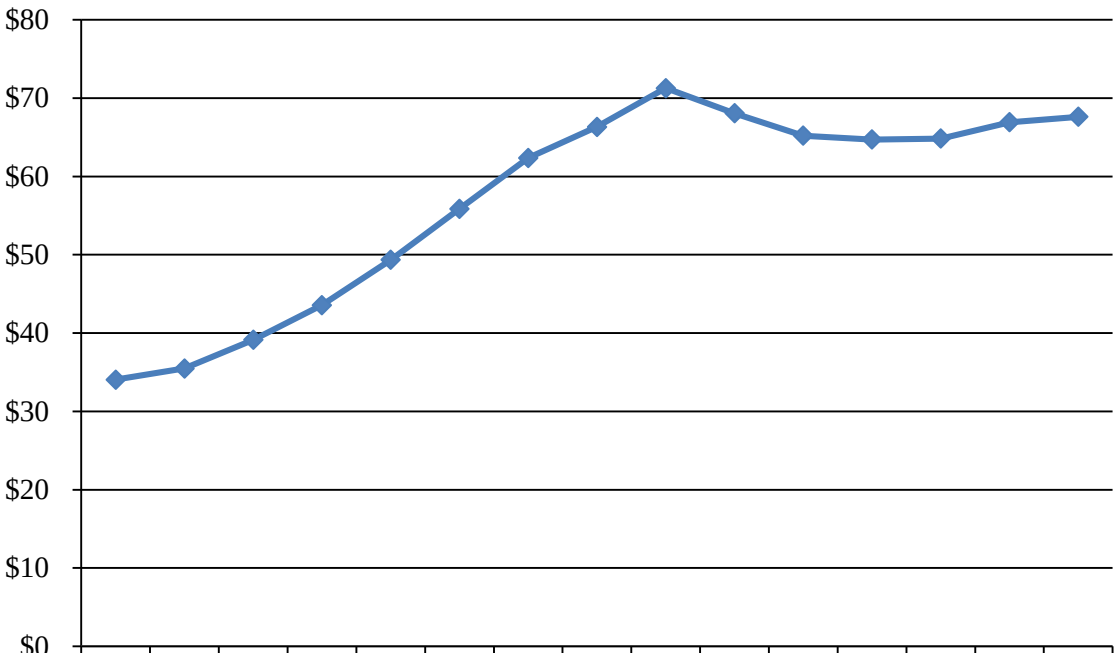


Note: Inventory represents housing units for sale according to Metropolitan Regional Information Systems, Inc. and Coastal Association of Realtors

Source: Maryland Association of Realtors; Department of Legislative Services

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 2003. In fiscal 2003, there was a modest increase, and 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 increase about 1% in the out-years.

Exhibit 5.2
Revenues Generated by One Cent of State Property Taxes
Fiscal 2003-2017
($ in Millions)



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Revenues	$34	$35	$39	$44	$49	$56	$62	$66	$71	$68	$65	$65	$65	$67	$68

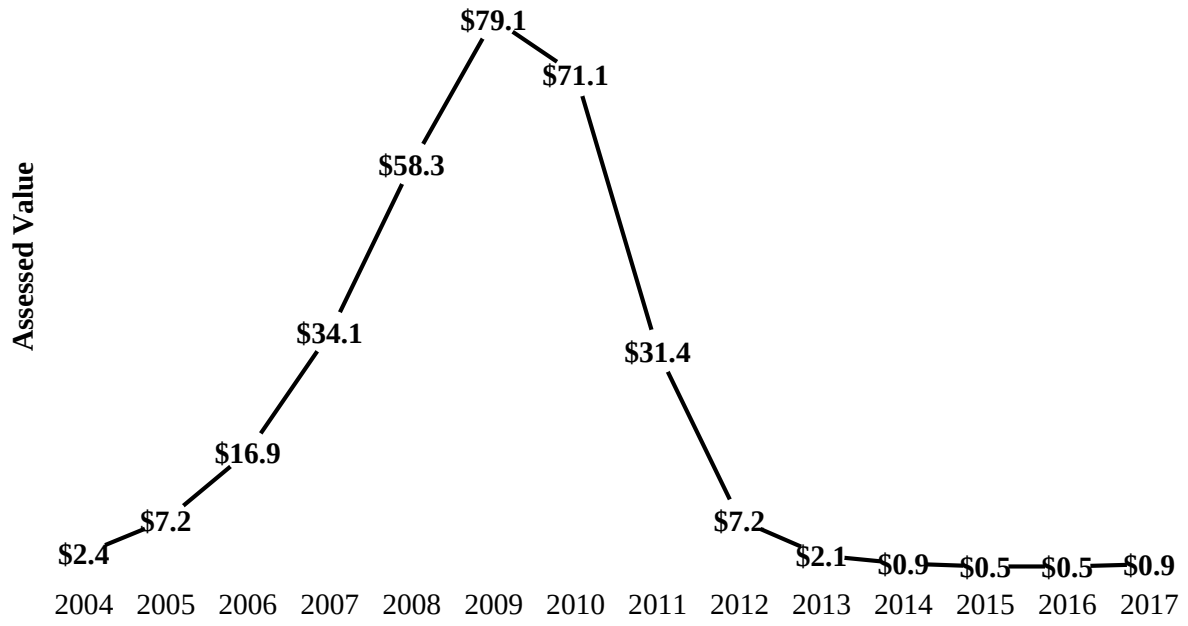
Source: State Department of Assessments and Taxation; Department of Budget and Management; Department of Legislative Services

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 and delayed the peak until after the decline in property values.

The homestead credit also provides the State a hedge against declining property values. As home values declined, the homestead credit declined, and revenues continued to slowly increase. 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. Since fiscal 2014, the aggregate homestead credits are projected to be under $1 billion each year.

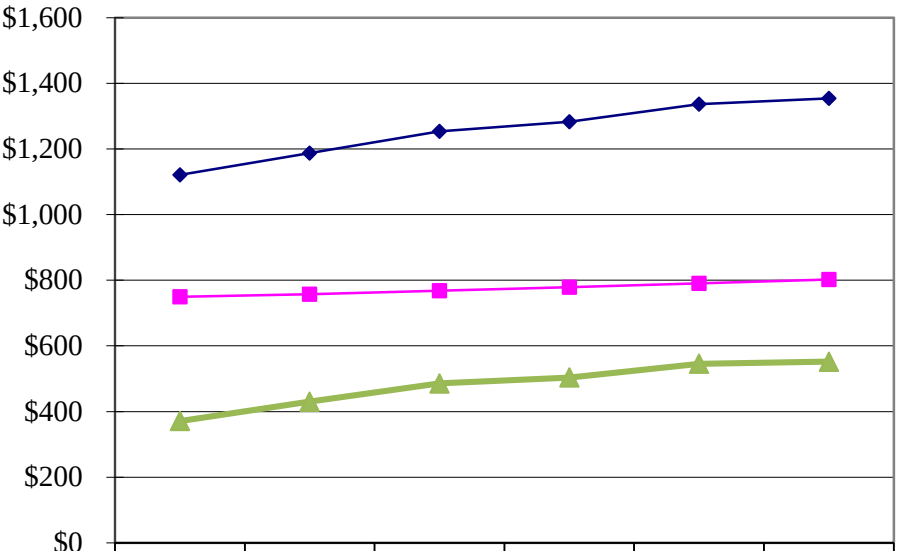
Exhibit 5.3
State Property Tax Homestead Tax Credits
Fiscal 2004-2017
($ in Billions)



Source: State Department of Assessments and Taxation

Over the next few years, State property tax revenues are estimated to remain fairly flat, increasing at a rate of 1.4% annually from fiscal 2016 to 2021. This contrasts with debt service costs, which are expected to increase at a rate of 3.9% over the same period. **Exhibit 5.4** shows how State property tax revenues, which are $371 million less than debt service costs in fiscal 2016, are expected to be $552 million less than debt service costs in fiscal 2020.

Exhibit 5.4
GO Bond Debt Service Costs and State Property Tax Revenue Collections
Fiscal 2016-2021
($ in Millions)



	2016	2017	2018	2019	2020	2021
State Property Tax Receipts	$750	$757	$768	$779	$791	$802
GO Bond Debt Service Costs	$1,121	$1,187	$1,253	$1,283	$1,337	$1,354
Difference	$371	$430	$486	$504	$546	$552

GO: general obligation

Source: Department of Legislative Services, October 2015

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 in fiscal 2016 and 2017. General fund appropriations are required despite the availability of $139 million in fund balance at the beginning of fiscal 2018 and an estimated $40 million in premiums from the March 2016 bond sale. The first $5 million of the premium supports capital projects and the remaining $35 million will be deposited into the ABF. By fiscal 2018, debt service is supported almost entirely by State property taxes and general funds. At that time, the annual increase in general fund appropriations will moderate.

Exhibit 5.5
Revenues Supporting Debt Service
Fiscal 2016-2021
($ in Millions)

	2016	2017	2018	2019	2020	2021
Special Fund Revenues						
State Property Tax Receipts	$750	$757	$768	$779	$791	$802
Bond Sale Premiums[1]	35	0	0	0	0	0
Other Revenues	3	3	3	3	3	3
Prior Year Balance	139	76	2	1	1	1
Subtotal Special Fund Revenues	***$927***	***$837***	***$772***	***$784***	***$795***	***$806***
General Funds	$252	$334	$464	$482	$525	$532
Transfer Tax Special Funds[2]	6	7	7	7	7	7
Federal Funds[3]	11	11	11	11	11	10
Total Revenues	**$1,197**	**$1,189**	**$1,255**	**$1,284**	**$1,338**	**$1,355**
Debt Service Expenditures	**$1,121**	**$1,187**	**$1,253**	**$1,283**	**$1,337**	**$1,354**
ABF End-of-year Fund Balance	**$76**	**$2**	**$1**	**$1**	**$1**	**$1**
Property Tax Rate per $100 of Assessable Base	$0.112	$0.112	$0.112	$0.112	$0.112	$0.112

ABF: Annuity Bond Fund

[1] Estimated March 2016 bond sale premium totals $39.8 million. Chapter 495 of 2015 (fiscal 2016 capital budget) provided that $48.4 million on bond sale premiums support capital projects. To satisfy this requirement, another $4.6 million from the March bond sale premium will support capital projects, with the remaining premium supporting debt service.
[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.

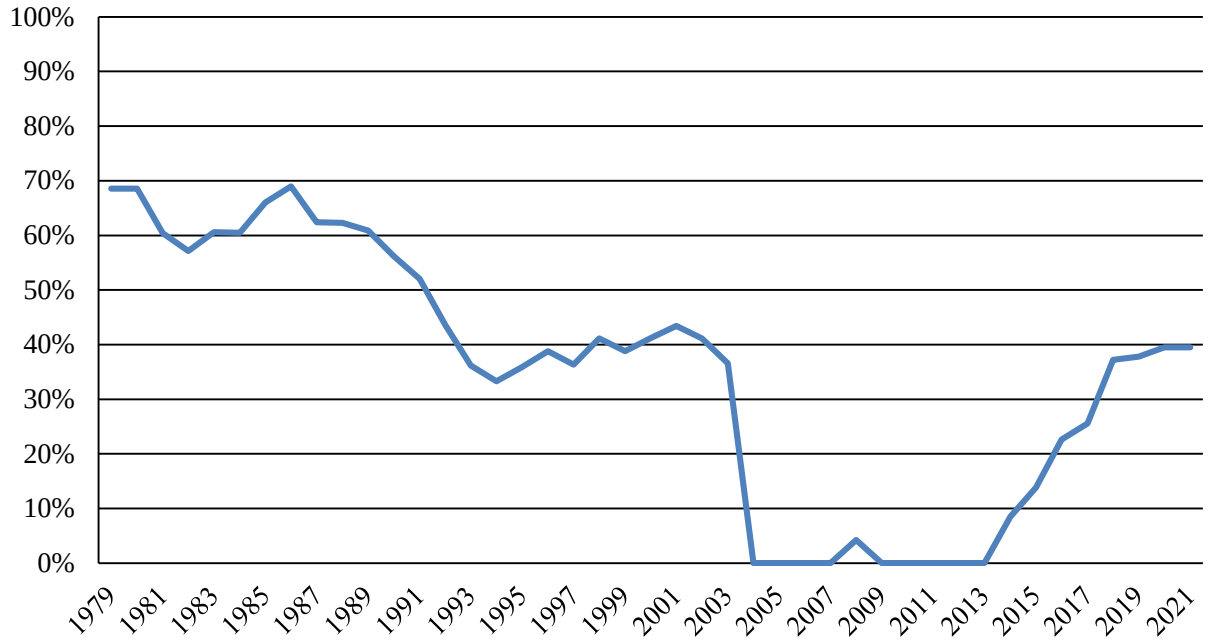
Source: Department of Legislative Services, October 2015

General Fund Appropriations for Debt Service

GO bond debt service costs are supported by the ABF. Currently, the fund's primary revenue source is State property tax revenues. When these revenues are insufficient, the State appropriates general funds. Prior to fiscal 2004, reimbursable funds were also appropriated into the fund. The source of these funds was general funds appropriated into the Maryland State Department of Education budget to support local school construction debt service.

Exhibit 5.6 shows that DLS projects that general fund appropriations for debt service will approach 40% of debt service appropriations by fiscal 2020. Since the affordability process begun 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. From fiscal 1979 to 1989, general fund support exceeded 60% in all but one year. From fiscal 1992 to until the State property tax rate was increased in fiscal 2004, the general fund share hovered around 40%. Insofar as there is little support to increase property tax rates again, the State appears to be heading into a period in which general fund support will again be 40% of GO bond debt service appropriations.

Exhibit 5.6
General Funds as a Percent of Debt Service Appropriations
Fiscal 1979 to 2021



Note: Fiscal 1985 to 2003 includes general funds appropriated in the 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

Effect of Long-term Liabilities on the State Budget

The State budget supports two substantial long-term liabilities: a large capital construction program and pension benefits for State employees as well as local community college staff, library staff, and teachers. State capital construction projects are supported by various bonds, including GO, transportation, stadium authority, and bay restoration bonds. These bonds are long-term liabilities that require debt service payments for up to 15 years.

In recent years, the State has been expanding the GO bond program. From fiscal 2000 to 2016, annual GO bond authorizations increased from $460 million to $1,045 million. Debt service costs have increased from $459 million to $1,121 million. GO debt outstanding has increased from $3,349 million to $8,947 million.

The State also provides a defined benefit pension plan for State employees and certain local employees, like teachers. By offering these plans, the State is required 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 also a long-term liability.

State pension costs have also 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 policy for the Governor to propose and the General Assembly to appropriate the amount certified by the State Retirement and Pension System Board.

Pension and Capital Costs Contained in Response to Increasing Liabilities

In response to increasing liabilities, the State has made efforts to slow the cost growth. A number of pension changes were enacted, and the Administration is proposing to contain capital spending by keeping GO bond authorizations flat through fiscal 2025.

The most significant pension change was enacted in 2011. The State reduced pension benefits earned beginning in fiscal 2012 and increased employee contributions from 5% to 7% for most employees (judges, for example, were excluded). The State also required local governments to begin sharing costs in fiscal 2013. The funding approach was also modified beginning in fiscal 2017 as the State phases out of the corridor method and adopts an actuarial approach. Taken together, these changes reduce the State's out-year liabilities.

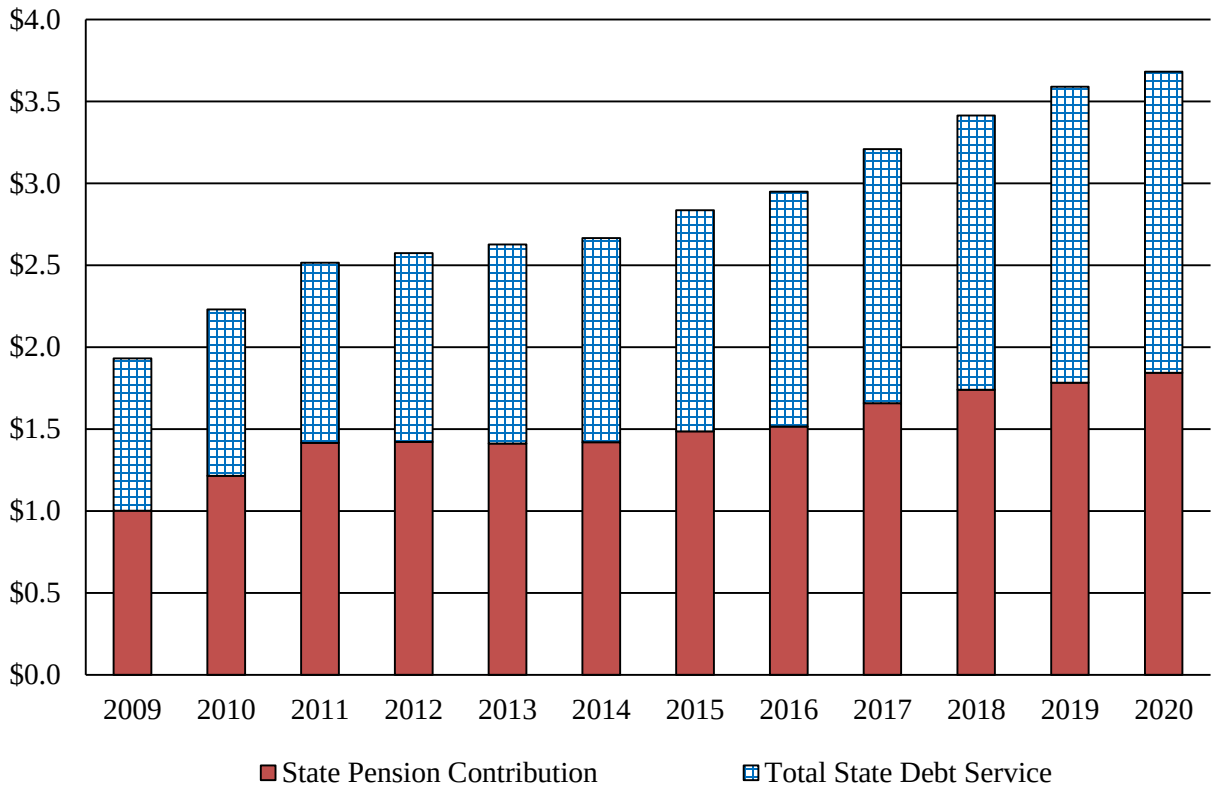
CDAC is required to review State debt policies and practices to set a debt limit on GO bond debt. The committee is chaired by the State Treasurer and includes the State Comptroller, the Secretary of Budget and Management, the Secretary of Transportation, and a public member appointed by the Governor. To contain debt service costs, the Administration proposed, and the

committee recommended on September 30, 2015, limiting annual GO bond authorizations to $995 million through fiscal 2025.

Total Debt and Pension Cost Outlook

Exhibit 5.7 shows that total debt service and pension costs are expected to increase from $1.9 billion in fiscal 2009 to $3.7 billion in fiscal 2020. This is an annual increase of 6.0%. Debt service increases at an annual rate of 5.7%, while pension costs increase at 6.4% rate.

Exhibit 5.7
Cumulative Debt Service and Pension Costs
Fiscal 2009-2020
($ in Billions)

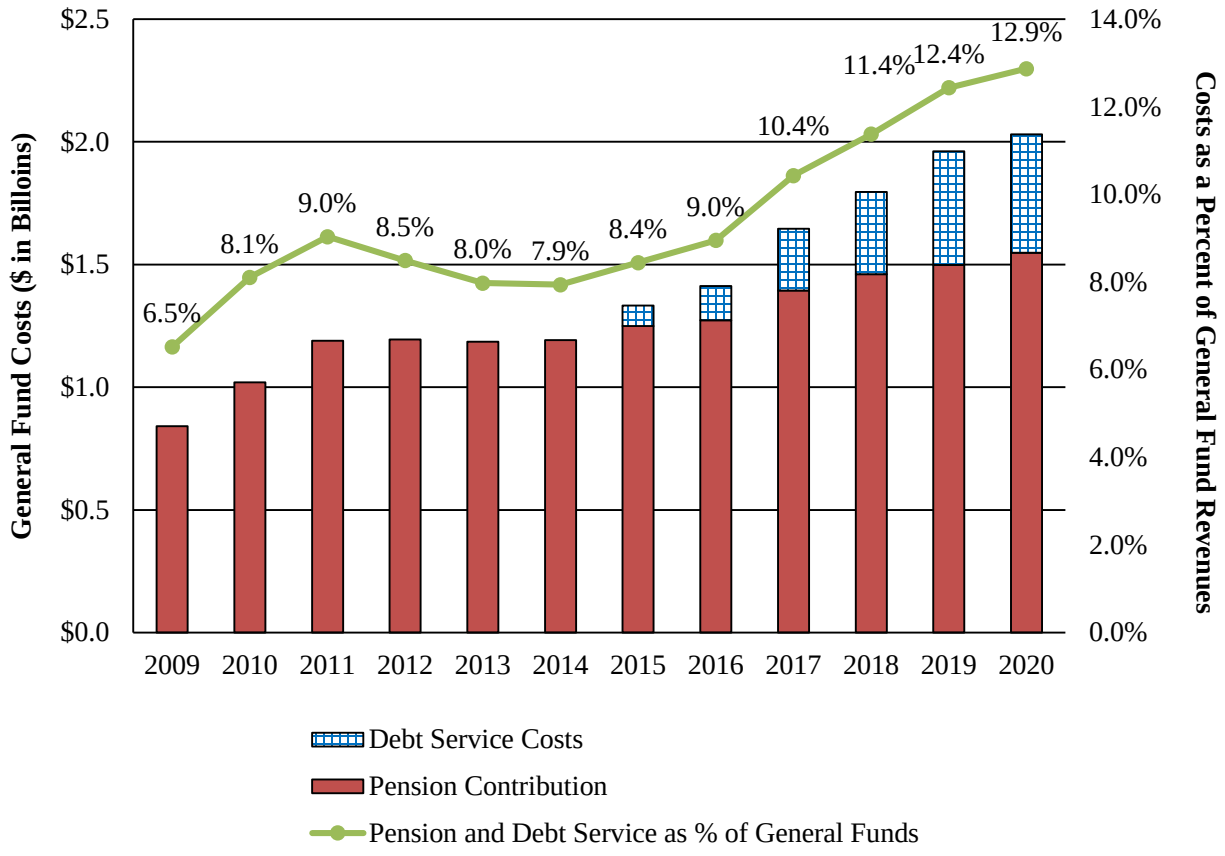


Note: Total State debt service includes transportation, bay restoration, capital leases, and stadium authority debt. State pension contribution excludes local teacher pension cost sharing.

Source: Gabriel Roeder Smith and Company; Cheiron, Inc.; Segal Consulting; State Treasurer's Office; Department of Legislative Services, October 2015

Moreover, these costs require an increasing share of general fund revenues. **Exhibit 5.8** shows that costs are less than 7% of general funds in fiscal 2009 but increase to more than 10% of general fund revenues by fiscal 2017. Before the State pension changes, costs were expected to be $407 million higher in fiscal 2016 and $435 million higher in fiscal 2017.

Exhibit 5.8
General Fund Debt Service and Pension Costs As a Percentage of General Fund Revenues
Fiscal 2009-2020



Source: Gabriel Roeder Smith and Company; Cheiron, Inc.; Segal Consulting; State Treasurer's Office; Department of Legislative Services, October 2015

Chapter 6. Analysis of Factors Influencing Bonds' Interest Cost

The interest rate that Maryland pays for the bonds 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 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 bond's 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 63 bond issuances since March 1991 (refunding sales are excluded): 51 competitively bid, tax-exempt bond issuances; 8 negotiated, retail bond issuances; and 4 Build America Bond issuances. The data collected includes:

- TIC;
- *The Bond Buyer* 20-bond Index[1];
- date of the bond sale, fiscal year, and calendar years 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 and 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 (TIC). The regression equation examines the variables previously listed and identifies five 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 is an estimate of the market rate for 20-year, AA-rated State and municipal bonds. DLS has collected the estimated yields since 1991.
- ***Ratio of Maryland Total Personal Income to the 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 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 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.
- ***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 0.26% (26 basis points) to the TIC.
- ***Post-financial Crisis:*** This is a variable that indicates if a bond was sold before or after Lehman Brothers collapsed in September 2008. The equation estimates that Maryland bond yields are 0.62% (62 basis points) less since September 2008. This is consistent with the "flight to quality" that some believe has resulted since the financial crisis of 2008. The average bond in the index is a lower quality bond than Maryland bonds. The negative coefficient projects that the yield on higher rated bonds has been reduced when compared to AA-rated bonds. This variable was not necessary in previous years. The analysis used an index of AAA-rated bonds which would not identify an increasing spread between higher and lower rated bonds. Now that an AA-rated index is used, a variable measuring the increasing spread between AAA and AA bonds results in an improved equation.

Exhibit 6.1
TIC Regression Equation – Evaluating the Independent Variables

Ind. Variable	Coefficient	Std. Error	Beta	t-test	Sig.	Tol.	Comment
The Bond Buyer 20-bond Index	0.871	0.044	0.62	19.620	0.000	0.58	Highest t-test suggests with confidence that the index is significant.
MD PI/US PI	-1.859	0.771	-0.08	-2.413	0.019	0.52	Negative coefficient suggests that as the Maryland economy strengthens, compared to the United States, the TIC declines.
Years to Maturity	0.259	0.027	0.34	9.697	0.000	0.46	Positive coefficient means that longer maturities tend to have higher TICs.
Post-financial Crisis	-0.639	0.099	-0.27	-6.435	0.000	0.34	Maryland bonds' yields are reduced since the crisis.
BABs	-1.111	0.180	-0.23	-6.168	0.000	0.42	Negative coefficient suggests BABs are less expensive.
Constant	1.528						

BABs: Build America Bonds
Ind.: independent
MD PI/US PI: Maryland Total Personal Income to U.S. Personal Income
Sig.: significance or confidence interval
Std.: standard
TIC: true interest cost
Tol. tolerance, a test of multicollinearity

Source: Department of Legislative Services, October 2015

- ***Build America Bonds:*** In February 2009, the American Recovery and Reinvestment Act authorized the issuance of Build America Bonds (BAB). The bonds are taxable bonds that support the same types of projects that traditional tax-exempt bonds support. The difference is that the buyers do not receive any federal tax credits or deductions so that the interest earnings are subject to federal taxes. Instead, Maryland receives a subsidy equal to 35% of the interest costs from the federal government. In concept, the bonds expand the number of buyers of State and municipal debt since the bonds are also attractive to individuals and institutions that do not pay federal taxes. Because the tax-exempt bonds' benefit is greater for shorter maturities, the State issued tax-exempt bonds with shorter maturities and BABs with longer maturities.

Statistical Analysis Suggests That the Equation Explains the TIC 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

What Is Measured	Statistic Used to Measure	Value of Statistic	Explanation
Confidence in the equation	F Statistic	331.5	We are over 99.9% confident that the independent variables influence the dependent variable.
Margin of error	Standard error of the estimate	0.227	We expect the actual TIC to be within 0.23% (23 basis points) of the estimate.
Estimate in relation to actual data	Adjusted R Square	0.964	The model's estimates explain 96.4% of the actual data.
Serial or autocorrelation	Durbin-Watson	1.537	The ideal value is 2.0. If the number deviates too far from 2.0, it suggests that there are patterns in the errors, and a key independent variable is missing.

TIC: true interest cost

Source: Department of Legislative Services, October 2015

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 strength of the economy or the length of issuance).

Exhibit 6.3 compares the DLS regression equation and the 20-bond index to the actual TIC and shows that the DLS regression equation is more often closer to the TIC than the 20-bond index. Of the 63 bond sales analyzed, the DLS estimate is closer to the actual TIC than the 20-bond index 61 times (97% of bond sales). The 20-bond index is closer than the DLS equation 2 times (3% of bond sales). The total error of the DLS regression equation is 1,727 basis points, compared to 7,042 basis points for the 20-bond index.

This comparison shows that including variables, such as Maryland personal income to U.S. personal income, provides an estimate that is quite close to the actual TIC and provides an estimate that is usually closer than a general index of tax-exempt interest rates.

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	6.25	7.32	0.06	1.01	DLS Equation
07/10/91	6.37	6.19	7.21	0.18	0.84	DLS Equation
10/09/91	5.80	5.72	6.66	0.08	0.86	DLS Equation
05/13/92	5.80	5.64	6.54	0.16	0.74	DLS Equation
01/13/93	5.38	5.31	6.19	0.07	0.81	DLS Equation
05/19/93	5.10	4.96	5.77	0.14	0.67	DLS Equation
10/06/93	4.45	4.56	5.30	0.11	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	5.38	6.18	0.13	0.67	DLS Equation
10/11/95	4.95	5.08	5.82	0.13	0.87	DLS Equation
02/14/96	4.51	4.66	5.33	0.15	0.82	DLS Equation
06/05/96	5.30	5.23	5.94	0.07	0.64	DLS Equation
10/09/96	4.97	5.05	5.73	0.08	0.76	DLS Equation
02/26/97	4.90	4.99	5.65	0.09	0.75	DLS Equation
07/30/97	4.64	4.62	5.23	0.02	0.59	DLS Equation
02/18/98	4.43	4.51	5.07	0.08	0.64	DLS Equation
07/08/98	4.57	4.54	5.12	0.03	0.55	DLS Equation
02/24/99	4.26	4.47	5.08	0.21	0.82	DLS Equation
07/14/99	4.83	4.69	5.36	0.14	0.53	DLS Equation
07/19/00	5.05	4.91	5.60	0.14	0.55	DLS Equation
02/21/01	4.37	4.53	5.21	0.16	0.84	DLS Equation
07/11/01	4.41	4.49	5.22	0.08	0.81	DLS Equation
03/06/02	4.23	4.39	5.19	0.16	0.96	DLS Equation
07/31/02	3.86	4.22	5.00	0.36	1.14	DLS Equation
02/19/03	3.69	4.03	4.79	0.34	1.10	DLS Equation
07/16/03	3.71	3.95	4.71	0.24	1.00	DLS Equation
07/21/04	3.89	4.07	4.84	0.18	0.95	DLS Equation
03/02/05	3.81	3.76	4.50	0.05	0.69	DLS Equation
07/20/05	3.79	3.62	4.36	0.17	0.57	DLS Equation
03/01/06	3.87	3.69	4.39	0.18	0.52	DLS Equation

Bond Sale Date	TIC	DLS Model	20-Bond Index	Difference Between TIC and DLS	Difference Between TIC and 20-Bond	Closer Estimate
07/26/06	4.18	3.83	4.55	0.35	0.37	DLS Equation
02/28/07	3.86	3.45	4.10	0.41	0.24	20-bond Index
08/01/07	4.15	3.83	4.51	0.32	0.36	DLS Equation
02/27/08	4.14	4.37	5.11	0.23	0.97	DLS Equation
07/16/08	3.86	2.84	4.65	1.02	0.79	20-bond Index
03/04/09	3.39	2.82	4.96	0.57	1.57	DLS Equation
03/02/09	3.63	3.01	4.87	0.62	1.24	DLS Equation
08/05/09	2.93	2.51	4.65	0.42	1.72	DLS Equation
08/03/09	3.20	2.55	4.69	0.65	1.49	DLS Equation
08/05/09	3.02	3.43	4.65	0.41	1.63	DLS Equation
10/21/09	2.93	2.05	4.31	0.88	1.38	DLS Equation
10/21/09	3.06	3.00	4.31	0.06	1.25	DLS Equation
02/24/10	2.85	2.50	4.36	0.35	1.51	DLS Equation
07/28/10	1.64	1.27	4.21	0.37	2.57	DLS Equation
07/28/10	1.91	1.49	4.21	0.42	2.30	DLS Equation
07/28/10	2.74	2.74	4.21	0.00	1.47	DLS Equation
03/07/11	2.69	2.21	4.90	0.48	2.21	DLS Equation
03/09/11	3.49	3.17	4.91	0.32	1.42	DLS Equation
07/25/11	1.99	1.49	4.46	0.50	2.47	DLS Equation
07/27/11	3.08	2.64	4.47	0.44	1.39	DLS Equation
03/02/12	2.18	1.53	3.72	0.65	1.54	DLS Equation
03/07/12	2.42	1.99	3.84	0.43	1.42	DLS Equation
07/27/12	2.52	1.69	3.61	0.83	1.09	DLS Equation
08/01/12	2.17	1.89	3.66	0.28	1.49	DLS Equation
03/06/13	2.35	2.01	3.86	0.34	1.51	DLS Equation
07/24/13	3.15	2.97	4.77	0.18	1.62	DLS Equation
03/05/14	2.84	2.67	4.41	0.17	1.57	DLS Equation
07/18/14	1.27	1.27	4.36	0.00	3.09	DLS Equation
07/23/14	2.65	2.62	4.29	0.03	1.64	DLS Equation
03/05/15	2.65	1.97	3.68	0.68	1.03	DLS Equation
07/16/15	2.83	2.26	3.82	0.57	0.99	DLS Equation
Total Error				**17.27**	**70.42**	
Average Error				**0.27**	**1.12**	

DLS: Department of Legislative Services
TIC: true interest cost

Source: Department of Legislative Services, October 2015

Chapter 7. 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 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, Maryland Economic Development Corporation (MEDCO), the Maryland Health and Higher Educational Facilities Authority, and the Maryland Industrial Development Financing Authority.

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 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 2015 allocation totaled $597.6 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 Sections 13-801 through 13-807 of the Financial Institutions Article. The Secretary of Economic Competitiveness and 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 Economic Competitiveness and Commerce and pursuant to the goals listed under Section 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 the Maryland Industrial Development Financing Authority 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 Economic Competitiveness and Commerce (DECC) on September 30 of each year. DECC 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, DECC 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 DECC 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 DECC, it does not set forth a reporting requirement from DECC to the Spending Affordability Committee (SAC) or any other State entity. Instead, State Government Article Section 2-1010 requires any State agency with private activity bond issuance authority to annually submit to SAC a report 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, DECC 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 (DBM) required under Executive Order 01.01.1998.07 that provides information on the financing transactions and 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 7.1 provides the calendar 2011 through 2015 figures for the amount of available tax-exempt bond authority and the level of issuances made under the volume cap limits. Total carry forward continues to grow 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 7.1
Allocation of Private Activity Bonds
Calendar 2010-2015
($ in Millions)

	2011	2012	2013	2014	YTD 2015
Fund Sources					
Annual Cap	$548.5	$553.7	$559.0	$592.9	$597.6
Carry Forward from Prior Years	$1,218.4	$1,193.0	$1,461.2	$1,528.6	$1,576.4
Total Capacity Available	**$1,766.9**	**$1,746.7**	**$2,020.2**	**$2,121.5**	**$2,174.1**
Issuances					
Single-family Housing	$350.9	$0.0	$306.0	$343.7	$0.0
Multifamily Housing	$72.4	$31.0	$130.8	$170.4	$121.2
Housing – Other	$19.4	$18.0	$22.6	$16.5	$61.4
Industrial Development Bonds	$0.0	$0.0	$0.0	$14.5	$1.6
Nonhousing County	$0.0	$8.6	$0.0	$0.0	$0.0
Total Issuances	**$442.7**	**$57.6**	**$459.4**	**$545.1**	**$184.2**
Prior Year Carry Forward Abandoned[1]	$100.0	$258.9	$32.3	$0.2	n/a
Carry Forward	$1,124.2	$1,461.2	$1,528.5	$1,576.4	n/a

YTD: year-to-date

[1]State can carry forward allocations for three years.

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

Source: Department of Business and Economic Development; Department of Housing and Community Development

To date in 2015, CDA has not issued any bonds for its single-family housing program. The current mortgage market has made the issuance of bonds in the single-family program unattractive, as rates in the private market are competitive with what CDA can offer when the added administrative burden on the bond buyer is considered. However, the Maryland Mortgage Program (MMP), which provides mortgages to first-time homebuyers and other qualified homebuyers, continues to operate. MMP mortgages represent between 5% and 10% of single-family home sales in the State within the Department of Housing and Community Development's (DHCD) 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. Under these market conditions, the State may be forced to abandon some private activity allocations.

Multifamily issuances continue an upward trend, primarily due to increased State general obligation bond funding available in DHCD's primary multifamily housing program, Rental Housing Works, which aims to increase the supply of affordable rental housing in the State. Other housing issuances, comprised mainly of county deals, are about three times their typical level due to an approximately $60 million issuance by Montgomery County.

A portion of CDA's debt also represents refinancing prior issuances and issuing taxable bonds. Debt issued for these purposes are not subject to the federal volume cap. Total issuance remain volatile primarily due to the alternative funding option available for the single-family program, which limits the amount of debt issued.

Debt Outstanding

During the 1997 interim, a workgroup comprised of DBM staff and staff from agencies that issue revenue bonds met to review and improve the system for monitoring agency revenue-supported debt. The workgroup recommended removing higher education institutions from the process because their levels of debt are already limited by statute. Additionally, the CDA Infrastructure Program was recommended for removal from the process because the program's debt is issued on behalf of local governments and is not a debt of the State. Finally, the workgroup recommended changes in reporting dates and notification requirements. It was decided that prior notification of issuances need to be made only for issuances of $25 million or more. In February 1998, the Governor instituted the recommendations of the workgroup by signing Executive Order 01.01.1998.07.

Exhibit 7.2 summarizes the increase in debt outstanding for different types of debt between fiscal 2005 and 2015:

- ***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; and

- ***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 7.2
Debt Outstanding as of June 30
Fiscal 2005 and 2015
($ in Millions)

	2005	2015	Total Change	Annual % Change
Agency Debt Subject to State Regulatory Cap	$882	$3,236	$2,354	13.9%
Agency Debt Not Subject to State Regulatory Cap	3,917	4,370	453	1.1%
Tax-supported Debt	6,067	11,560	6,147	6.7%
Authorities and Corporations without Caps	7,187	10,972	3,785	4.3%
Total	**$18,053**	**$30,137**	**$12,739**	**5.3%**

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

Source: Department of Budget and Management; Maryland State Treasurer

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 instruction of students, while auxiliary facilities are those that produce income from fees charged for 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. USM aims for debt service to be less than 4.5% 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. With a strong debt management policy, 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 (assigned a negative outlook in February 2015). All three ratings were reviewed in February 2015.

Exhibit 7.3 shows that USM will be under the 4.5% debt service goal for fiscal 2015 to 2021. Including debt issued in fiscal 2016, total debt service will be approximately $138 million, or 3.0%, of fiscal 2016 operating revenues plus State appropriations including grants and contracts. The forecast indicates that the ratio will stay between 3.0% and 3.2% over the next five years, with fiscal 2021 projected to be 3.2%. This is higher than fiscal 2014 to 2019 but still below the 4.5% target maximum.

Exhibit 7.3
University System of Maryland Debt Service as Related to Operating Funds Plus State Appropriations
Fiscal 2009-2021
($ in Millions)

Year	Total Debt Outstanding	Total Debt Service	Operating Revenues Plus State Appropriations	Ratio of Debt Service to Operating Revenues Plus State Appropriations
2009	$1,029	$111	$3,730	3.0%
2010	1,083	116	3,788	3.1%
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 Estimated	1,242	138	4,659	3.0%
2017 Estimated	1,264	144	4,752	3.0%
2018 Estimated	1,284	150	4,847	3.1%
2019 Estimated	1,301	155	4,944	3.1%
2020 Estimated	1,318	158	5,043	3.1%
2021 Estimated	1,271	137	4,283	3.2%

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 55% of total debt outstanding. This goal was established a decade ago when the ratings that USM held at the time were at a lower rating level, and at risk of downgrade. Subsequently, the system improved its financial strength and received rating upgrades, which it manages resources and spending to protect. **Exhibit 7.4** shows USM's expendable resources to debt outstanding ratio for fiscal 2009 to 2021. It has exceeded the target minimum throughout the entire period, and the ratio has grown in recent years, indicating capacity to issue more debt under the criterion. Beginning in fiscal 2013, USM began to request $5.0 million more in ARBs than it had been authorized each year previously. This additional money is targeted for facility renewal needs at the University of Maryland, College Park and is expected to continue for several years. In fiscal 2017, the system will seek an additional $2.5 million in ARBs to provide additional facility renewal funding for other USM institutions.

Exhibit 7.4
Summary of Expendable Resources to Debt Outstanding for the University System of Maryland
Fiscal 2009-2021
($ in Millions)

Year	Available Resources	Debt Outstanding	Ratio of Available Resources to Debt Outstanding
2009	$1,130	$1,029	109.9%
2010	1,188	1,083	109.7%
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 Estimated	1,596	1,213	131.6%
2017 Estimated	1,592	1,242	128.2%
2018 Estimated	1,550	1,271	122.0%
2019 Estimated	1,536	1,284	119.6%
2020 Estimated	1,552	1,301	119.3%
2021 Estimated	1,599	1,317	121.4%

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

Source: University System of Maryland

University System of Maryland Academic Revenue Bonds

The Capital Debt Affordability Committee (CDAC) recommends limiting new debt authorization of USM academic revenue bonds to $22.0 million for the 2016 legislative session. This amount reflects a $10.0 million reduction from the $32.0 million programmed by the committee for the 2016 legislative session in its 2014 report. The lower authorization level results from language added to Chapter 471 of 2015, which increased authorization levels by $20.0 million for the 2015 session, for a total of $54.5 million, to support the overall funding plan for the New Bioengineering Building at the University of Maryland, College Park. The language stipulated that the additional $20.0 million authorized in the 2015 session should be deducted from the 2016 and 2017 session authorizations by $10.0 million each year, thereby keeping the total amount of ARB authorizations for the five-year *Capital Improvement Program* (CIP) planning level consistent with what was programmed in the 2015 session CIP.

Although the CDAC recommendation is consistent with the intent of Chapter 471, the Department of Legislative Services (DLS) notes that the 2014 CIP level, programmed at $32.0 million for the 2016 session, did not factor in an increase of $2.5 million proposed by the budget committees through committee narrative included in the 2014 *Joint Chairmen's Report*. The committee narrative expressed the intent that during the 2014 interim, CDAC include an evaluation of the capacity to increase the amount of the USM ARB by $2.5 million for each for the 2015 and 2016 legislative sessions for the purposes of providing additional authorizations to support USM capital projects. While the additional $2.5 million of debt was included in the 2015 session authorization, because the Governor's 2014 session CIP failed to program the additional authorization level for the 2016 session, the CDAC's recommended level is likewise $2.5 million below what the budget committee proposed in the 2014 session, as expressed in the adopted committee narrative. **To the extent that this appears to be an oversight, DLS accordingly recommends that SAC consider increasing the level of the USM ARB by $2.5 million above the CDAC recommendation for the 2016 legislative session.**

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 2016 is estimated to be $36.5 million and is expected to decrease to $24.5 million by fiscal 2021. As shown in **Exhibit 7.5**, the college's ratio of debt service to unrestricted expenditures is also expected to decline from an estimated 5.2% in fiscal 2016 to 4.4% in fiscal 2021. From fiscal 2009 to 2010, SMCM exceeded the 5.5% debt ratio goal in order to construct additional residential buildings to house increasing enrollment. In September 2015, SMCM's bond rating was affirmed by Moody's at A2 given a history of strong State support to the college, and because the college's bonds are issued at a fixed rate, there is no effect on existing bonds.

Also, in fiscal 2015, SMCM issued $4 million in auxiliary revenue bonds to renovate residence halls. The bonds are in the form of a drawdown arrangement with interest only for 1 year followed by a 10-year amortization period.

Exhibit 7.5
St. Mary's College of Maryland Debt Service Related to Unrestricted Funds
Fiscal 2009-2021
($ in Thousands)

Year	Total Debt Outstanding	Total Debt Service	Unrestricted Expenditures	Ratio of Debt Service to Unrestricted Expenditures
2009	$46,790	$3,517	$62,787	5.6%
2010	45,333	3,522	63,883	5.5%
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	3,206	65,858	4.9%
2016 Estimated	36,457	3,557	68,934	5.2%
2017 Estimated	34,186	3,634	69,719	5.2%
2018 Estimated	31,852	3,641	71,462	5.1%
2019 Estimated	29,542	3,463	73,249	4.7%
2020 Estimated	27,254	3,362	75,080	4.5%
2021 Estimated	24,525	3,355	76,957	4.4%

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

Baltimore City Community College

BCCC has not taken advantage of its ability to issue auxiliary or academic debt but is authorized to issue up to $65 million. According to a previous report submitted by the college to CDAC, possible uses of debt could include the financing of a new parking garage or a capital lease for an academic facility elsewhere within Baltimore City.

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. At one point, BCCC reported that it expected to initiate the bond rating process in fiscal 2013 with the intent of issuing debt the following year. However, the college has more recently decided not to pursue the rating process and has no plans to issue debt in the foreseeable future. With a new President, vice president of business and finance, and chief budget officer in 2014, this has

the potential to change. By comparison, both USM and MSU have used ARBs to finance the construction and renovation of academic facilities, and USM regularly allocates a portion of its annual ARB authorization to academic projects in conjunction with general obligation bond funds as a means to advance system priority projects.

Use of BCCC's debt capacity could advance capital projects that the college deems a priority. However, the interest rate that BCCC-issued bonds would receive from the rating agencies would be a concern. For example, MSU, the closest State institution in terms of size, is rated as A+ by Standard & Poor's and AA3 according to Moody's, which is lower than the State's AAA bond rating. This results in higher interest rates and debt service on MSU-issued debt. Given other budget constraints at BCCC associated with a decline in student enrollment, it is unlikely that BCCC would wish to pursue its own debt issuance without further discussion of a plan.

In order to support any potential future debt payments, BCCC would likely need to increase its capital reserve. The capital reserve is funded by a Facilities Capital Fee charged to students and generates almost $0.2 million annually. As of June 30, 2015, the capital reserve has $1.6 million. BCCC's capital reserve is held in the college's unrestricted fund balance, which totaled $5.2 million at the end of fiscal 2014. The fund balances of USM, MSU, and SMCM support each institution's bond rating. Any consideration of future BCCC academic revenue bond issuances needs to include provisions for funding debt service since current annual revenue to BCCC's capital reserve fund would not support significant issuances.

Morgan State University

As shown in **Exhibit 7.6**, MSU estimates $58.7 million of debt in fiscal 2016. This figure includes academic, auxiliary, and capital lease debt. Auxiliary debt is the largest of the three, totaling $32.1 million. The ratio of debt service to unrestricted expenditures is estimated to be 3.7% in fiscal 2016, below the State'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 3.4% and 4.0% through fiscal 2021. 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 by Moody's in February 2014 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 7.6
Morgan State University Debt Service as Related to Unrestricted Funds
Fiscal 2009-2021
($ in Thousands)

Year	Total Debt Outstanding	Total Debt Service	Unrestricted Expenditures	Ratio of Debt Service to Unrestricted Expenditures
2009	$67,825	$7,700	$148,538	5.2%
2010	64,354	8,015	146,641	5.5%
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 Estimated	58,763	6,774	181,568	3.7%
2017 Estimated	53,093	8,069	186,568	4.3%
2018 Estimated	47,093	8,089	191,568	4.2%
2019 Estimated	40,773	8,086	196,568	4.1%
2020 Estimated	34,133	8,071	201,568	4.0%
2021 Estimated	30,338	4,962	206,568	2.4%

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

Source: Morgan State University

Baltimore City Public Schools Construction and Revitalization Program

Chapter 647 of 2013 (Baltimore City Public Schools Construction and Revitalization Act) established a new partnership among the State, Baltimore City, and Baltimore City Public Schools (BCPS) to fund up to $1.1 billion in public school facility improvements through revenue bonds to be issued by the Maryland Stadium Authority (MSA). Under the program, MSA is managing new construction and renovation projects, and BCPS is responsible for some of the renovation projects. Current estimates put the number of schools to be replaced or renovated at between 23 to 28 schools.

A total of 11 schools have been identified for financing in the first phase, or Year 1 schools. Year 1 schools are expected to be completed by summer 2018. **Exhibit 7.7** shows the schools that are scheduled for replacement, renovation, or renovation plus additions in Phase 1.

Exhibit 7.7
Year 1 Schools

School	Project Type	Costs Funded with Series 2015	Costs Funded with Series 2016	Total
Arlington PreK-5	Renovation, Addition	$27,541,865	$13,718,777	$41,260,642
Arundel PreK-8	Replacement	30,277,638	13,975,879	44,253,517
Cherry Hill	Renovation, Addition	33,030,231	15,251,608	48,281,839
Forest Park	Renovation	36,821,205	33,301,693	70,122,898
Fort Washington PreK-8	Replacement	36,429,137	943,180	37,372,317
Frederick Elementary	Renovation, Addition	26,529,048	685,049	27,214,097
John Eager Howard Elementary	Renovation, Addition	31,614,334	1,925,645	33,539,979
Lyndhurst PreK-8	Renovation, Addition	37,448,395	2,489,969	39,938,364
Pimlico PreK-8	Renovation, Addition	32,975,311	12,304,076	45,279,387
Robert Poole Building	Renovation, Addition	49,346,851	3,428,912	52,775,763
Patterson High School	Renovation, Addition	15,000,000		15,000,000
Total		**$357,014,015**	**$98,024,788**	**$455,038,803**

Source: Maryland Stadium Authority

Financing Plan

The legislation established the means by which the revitalization program would be financed by enabling MSA to issue up to $1.16 billion in debt with a debt service cap of $60 million annually. As required by Section 10-645 of the Economic Development Article, in September 2015, MSA forwarded to the fiscal committees of the General Assembly, a *Comprehensive Plan of Financing* for the Baltimore City Public Schools Construction and Revitalization Program. The financing plan supports MSA's request for approval to issue $320.0 million in tax-exempt revenue bonds in 2015. The issuance is estimated to generate a bond premium of $50.5 million for total cash available of $370.8 million for the renovation or replacement of 11 BCPS facilities representing Year 1 projects.

Exhibit 7.8 shows the 30-year amortization plan for the debt issuance proposed November or December 2015. The estimated annual debt service payment is approximately $20.6 million. Again, this represents the debt service payments for the Year 1 projects only.

Exhibit 7.8
30-year Amortization Schedule – Tax-exempt Revenue Bonds
Baltimore City School Construction and Revitalization Program
Fiscal 2016-2046

Fiscal Year	Principal	Interest	Annual Payment
2016	$0	$8,007,125	$8,007,125
2017	4,715,000	15,896,375	20,611,375
2018	4,960,000	15,654,500	20,614,500
2019	5,210,000	15,400,250	20,610,250
2020	5,480,000	15,133,000	20,613,000
2021	5,760,000	14,852,000	20,612,000
2022	6,055,000	14,556,625	20,611,625
2023	6,365,000	14,246,125	20,611,125
2024	6,690,000	13,919,750	20,609,750
2025	7,035,000	13,576,625	20,611,625
2026	7,395,000	13,215,875	20,610,875
2027	7,775,000	12,836,625	20,611,625
2028	8,175,000	12,437,875	20,612,875
2029	8,595,000	12,018,625	20,613,625
2030	9,035,000	11,577,875	20,612,875
2031	9,495,000	11,114,625	20,609,625
2032	9,985,000	10,627,625	20,612,625
2033	10,495,000	10,115,625	20,610,625
2034	11,035,000	9,577,375	20,612,375
2035	11,600,000	9,011,500	20,611,500
2036	12,195,000	8,416,625	20,611,625
2037	12,820,000	7,791,250	20,611,250
2038	13,480,000	7,133,750	20,613,750
2039	14,170,000	6,442,500	20,612,500
2040	14,895,000	5,715,875	20,610,875
2041	15,660,000	4,952,000	20,612,000
2042	16,465,000	4,148,875	20,613,875
2043	17,310,000	3,304,500	20,614,500
2044	18,195,000	2,416,875	20,611,875
2045	19,130,000	1,483,750	20,613,750
2046	20,110,000	502,750	20,612,750
Total	**$320,285,000**	**$306,084,750**	**$626,369,750**

Source: Maryland Stadium Authority 2015 *Comprehensive Plan of Financing for the Baltimore City Schools Construction and Revitalization Program*

The financing for Year 1 projects will span fiscal 2016 and 2017, in amounts that reflect the cash flow needs. The current series structure is based on a 5% coupon on every maturity for 30 years and would require an estimated $21 million annually through the term of the bonds for debt service payment. MSA recently received an indicative rating from Moody's of Aa3. A second issuance for Year 1 schools would occur in calendar 2016 for about $85.0 million. The financing for the Year 2 schools is also estimated to occur in calendar 2016, however costs and actual timing of the issuance have not been fully determined. Preliminary cash flows for Year 2 schools are estimated to require additional issuance in the aggregate amount of $730 million to be issued in separate series based on cash flow needs of the projects. In the aggregate total debt issuances will be structured such that debt service will not exceed $60 million annually.

Chapter 8. Issues

Key issues examined in this chapter are:

- debt authorization policies since 1995;
- the effect of the Administration capital program funding policy shift on capital spending and debt service costs;
- three different affordable levels of general obligation (GO) bond authorizations;
- bond sale premiums, why the State realizes them and what can be done with them; and
- data from recent bond sales that show that taxable debt is more expensive than tax-exempt debt.

Summary of GO Bond Authorizations Since 1995

With respect to State GO bond authorizations policies, there have been four trends since 1995. They are:

- from fiscal 1995 to 2000, the State increased authorizations at a moderate level and did not deviate from its rule to provide for moderate growth each year;
- from fiscal 2001 to 2009, the State regularly increased authorizations in excess of what was previously planned;
- since fiscal 2009, the State has attempted to maximize authorizations and keep debt service under 8% of revenues; and
- in December 2013 and December 2014, the legislature's Spending Affordability Committee (SAC) recommended debt limits that differed from the limits recommended by the Capital Debt Affordability Committee (CDAC).

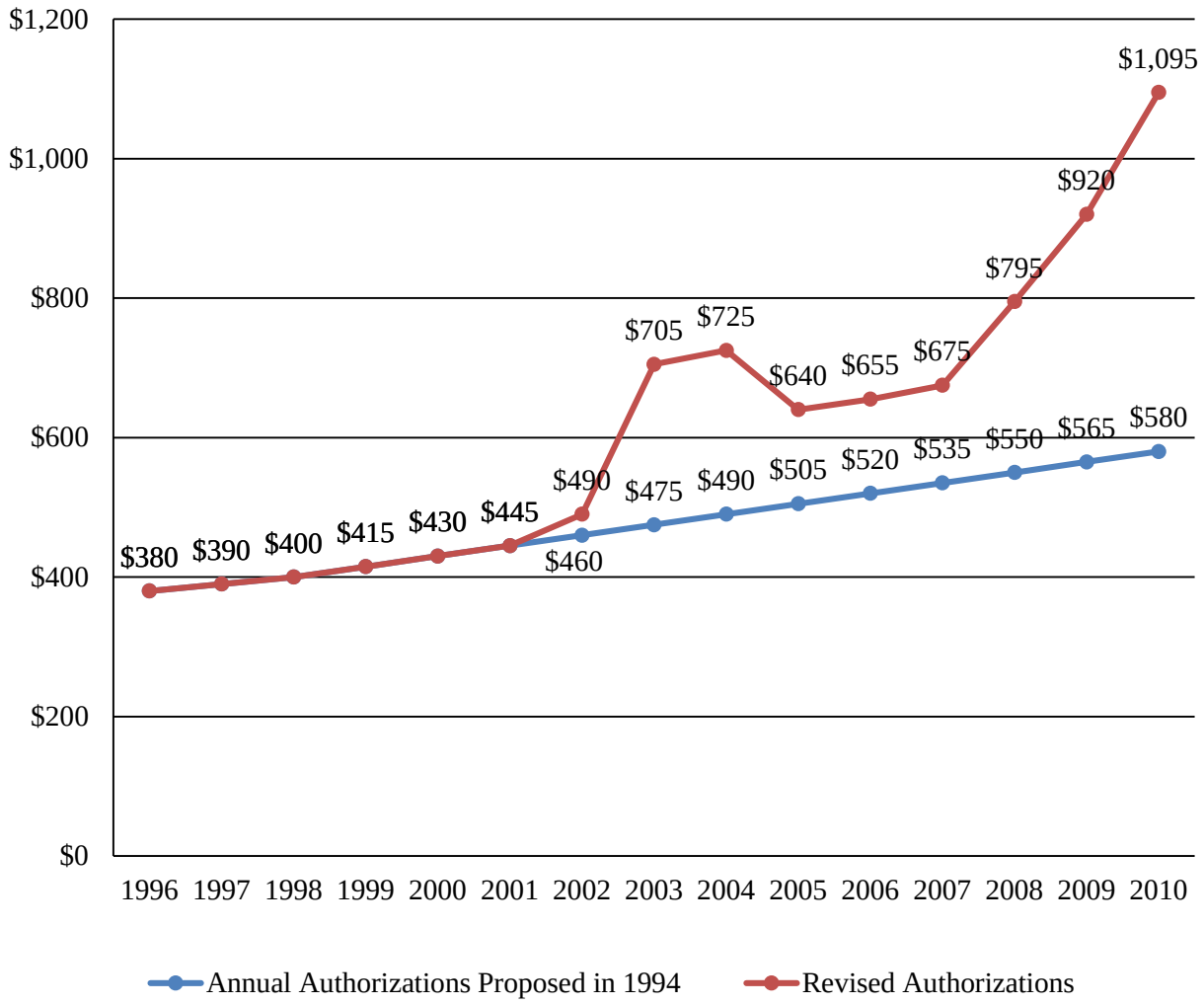
Moderate and Steady Increases in Authorizations: Fiscal 1995 to 2000

In the 1990s, the annual debt limit increased $10 million to $15 million each year. The fiscal 1996 debt limit was $380 million. This increased to $430 million in fiscal 2000. The affordability ratios were also well below their limits. In fiscal 1996, debt service was 6.35% of revenues. Fiscal 2000 debt service was 6.25% of revenues.

Increasing Authorizations: Fiscal 2001 to 2010

The State began deviating from slow and steady increases in GO bond authorizations in the 2001 legislative session. **Exhibit 8.1** shows that after fiscal 2001 all authorizations exceeded the 1990s trend.

Exhibit 8.1
General Obligation Bond Authorizations
Fiscal 1996-2010
($ in Millions)



Source: *Report of the Capital Debt Affordability Committee on Recommended Debt Authorizations*

Examples of specific increases in authorizations from fiscal 2001 to 2009 include:

- increasing the State capital program by $30 million annually beginning in fiscal 2002;
- adding a one-time $200 million increase to fiscal 2003 and again in fiscal 2004 to support pay-as-you-go (PAYGO) projects that had lost general fund support;
- increasing authorizations by $100 million a year for five years beginning in fiscal 2005, which became permanent in fiscal 2007;
- increasing the annual escalation from a fixed $15 million per year to 3% per year by CDAC in their 2005 report;
- adding $100 million to each year beginning in fiscal 2008; and
- adding $100 million to each year beginning in fiscal 2009.

The cumulative effect of increasing authorizations before 2009 was to increase the debt service to revenue ratio from 5.43% in fiscal 2001 to the limit by September 2009.

Managing Authorizations: Fiscal 2011 to 2015

The third trend begins with the Great Recession. The State was about to exceed debt limits, so CDAC reduced out-year authorizations. Since December 2009, CDAC has been managing debt authorizations to maximize them without exceeding the limit.

The Great Recession's impact on Maryland's bonds was considerable. General fund revenues declined in fiscal 2009 and 2010 and did not reach fiscal 2008 levels until fiscal 2012. In response to the Great Recession, the Board of Revenues Estimates (BRE) reduced general fund revenue projections in December 2009. Consequently, the level of bond authorizations recommended by CDAC two months earlier would have pushed out-year debt service costs in excess of 8% of revenues. To avoid breeching this criterion, CDAC removed $960 million in authorizations from fiscal 2012 to 2017. No changes were proposed to authorizations beginning in fiscal 2018. Consequently, CDAC plans included a substantial increase in fiscal 2018.

By fiscal 2012, general fund revenues were improving, and additional debt capacity was available. CDAC responded by increasing authorizations. For example, the capital program was increased by $150 annually from fiscal 2014 to 2018 by CDAC in September 2012.

In September 2013, CDAC again recommended increasing GO bond authorizations. The recommendation was to increase the program by $75 million annually from fiscal 2015 to 2019. SAC did not concur with this recommendation. Though SAC did support the additional

$75 million in fiscal 2015, the committee recommended that no additional authorizations be provided from fiscal 2016 to 2019.

Differing SAC and CDAC Recommendations in Fiscal 2013 and 2014

The fourth trend is that SAC and CDAC have had differing recommendations. As mentioned in the previous section, SAC did not concur with CDAC's recommendation to increase fiscal 2016 to 2019 GO bond authorizations by $75 million annually.

CDAC proposed increasing annual authorizations again in October 2014. Their recommendation proposed to incorporate the additional $75 million in annual increases. In December 2014, SAC rejected this increase and instead recommended the same level of debt it had recommended in December 2013.

SAC was concerned that the level of debt was not affordable. In December 2014, BRE reduced general fund revenue projections. At that time, the State Treasurer advised SAC that the size of the capital program that was proposed was no longer affordable. SAC was concerned about exceeding the debt limits. SAC recommended that the fiscal 2016 GO bond program be limited to $1,095 million instead of $1,170 million recommended by CDAC.

New Administration Implements Policy Shift to Keep the Capital Program Spending Flat

On September 30, 2015, CDAC recommended that fiscal 2017 GO debt authorizations be limited to $995 million and that this level of authorizations be maintained through fiscal 2025. This fiscal 2017 authorization is $110 million less than the maximum amount that was affordable in December 2014. Over the five-year planning period (fiscal 2017 to 2021), this reduces capital spending by $1,170 million.

The reduction was proposed by the Secretary of Budget and Management and reflects the new Administration's policy to reduce State debt authorizations. The Secretary noted that debt service is too high; therefore, the State needs to reduce planned GO bond authorizations. The Secretary also expressed concerns that the debt service to revenue ratio is too close to the limit and that the State could breech this limit if revenues were to underattain and out-year revenues were to be revised downward.

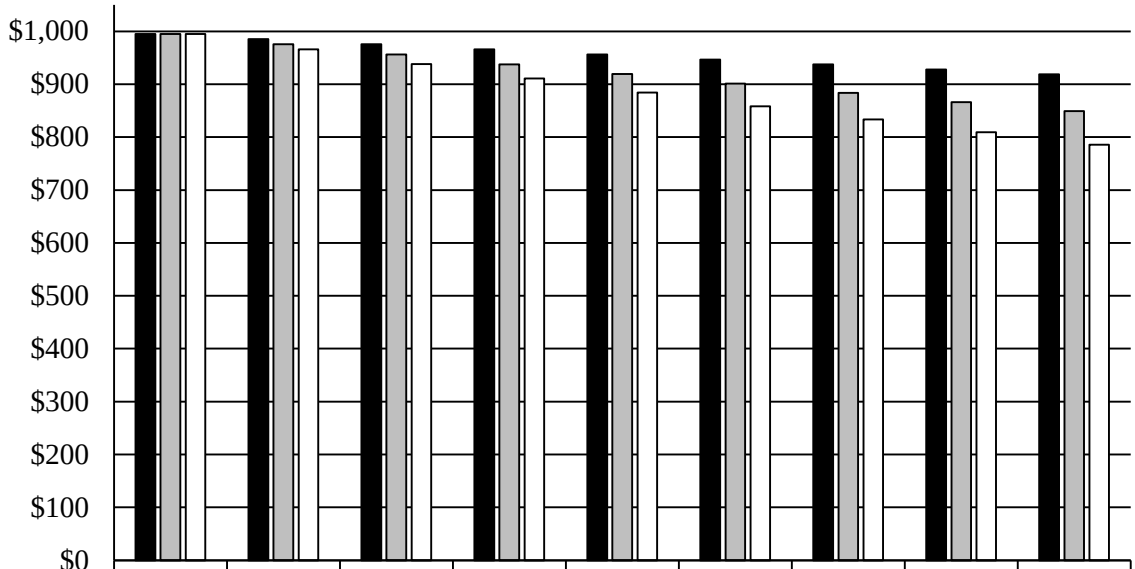
Capital Program Size with Respect to Inflation and Population Growth

Past capital budgets have recognized that capital projects are subject to mild inflationary pressures and that the population of Maryland tends to increase over time. The inflationary pressures can erode capital spending while additional population tends to increase the demand for projects. When CDAC increased the capital program's annual escalation to 3% in its 2006 report,

it did so to recognize a 2% increase to offset inflation and a 1% increase to provide for increased demand attributable to population growth.

If annual capital budget authorizations remain constant, inflation will erode the program's spending power. **Exhibit 8.2** shows that a 1% inflation reduces the purchasing power of $995 million to $919 million by fiscal 2025. This reduces purchasing power by 8% from fiscal 2017 to 2025. A 2% inflation reduces purchasing power by 15%, and a 3% inflation reduces purchasing power by 21%.

Exhibit 8.2
Effect of Inflation on Capital Spending
Fiscal 2017-2025
($ in Millions)



	2017	2018	2019	2020	2021	2022	2023	2024	2025
1% Inflation	$995	$985	$975	$966	$956	$947	$937	$928	$919
2% Inflation	995	975	956	938	919	901	884	866	849
3% Inflation	995	966	938	911	884	858	833	809	785

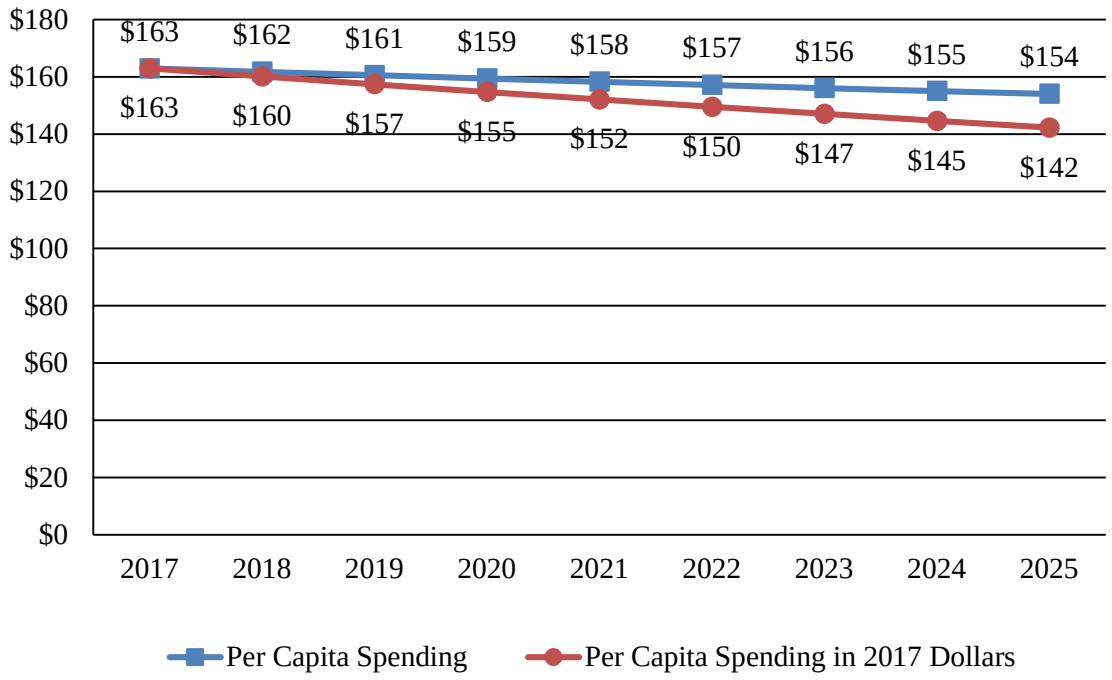
Source: State Treasurer's Office; Department of Legislative Services, October 2015

The Department of Legislative Services (DLS) has reviewed recent inflation data and notes that the producer price index for materials and components of construction increased 3.0% annually over the last five years. Regionally, this same index increased 3.18%. However, during the Great Recession, there was deflation. This suggests that inflationary pressures can be uneven and difficult to predict. For this analysis, DLS will use a 2.0% inflation rate. That is a rate that

CDAC has used in the past. Also, that is the target inflation rate for the Federal Reserve, which is responsible for maintaining price stability.

Past capital programs have also recognized increased demand for capital projects attributable to growth in population. Holding the capital budget constant results in a capital budget that decreases in per capita terms. **Exhibit 8.3** shows that per capita spending declines from $163 in fiscal 2017 to $154 in fiscal 2025. This is a 5% reduction in per capita spending. Assuming 2% inflation, per capita is reduced to $142 in fiscal 2025, a 13% reduction.

Exhibit 8.3
Effect of Population Growth and Inflation on Per Capita Capital Spending
Fiscal 2017-2025

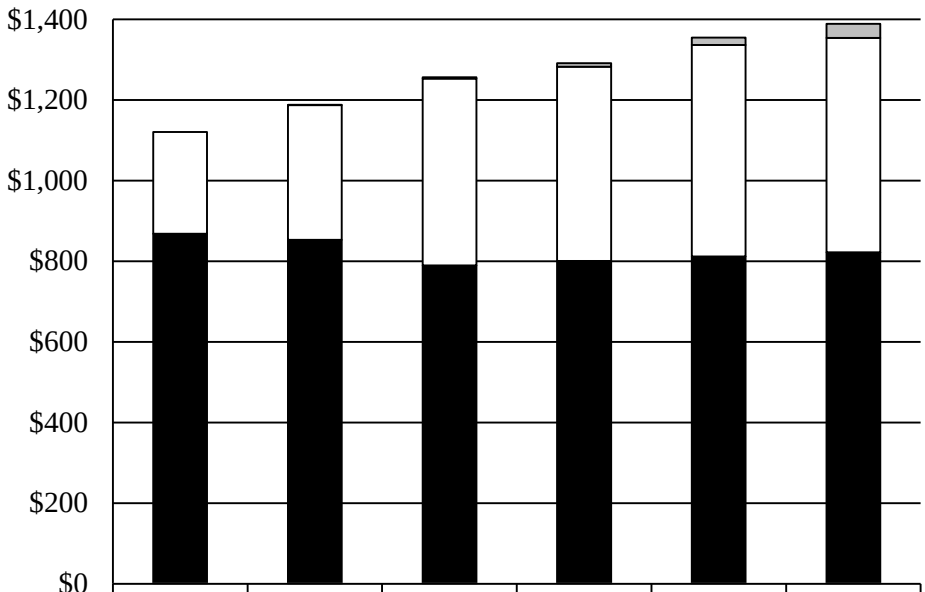


Source: State Treasurer's Office; Department of Legislative Services, October 2015

Savings Attributable to Limiting the Capital Program to $995 Million

The effect of limiting the GO bond capital program to $995 million is initially modest. **Exhibit 8.4** shows that the effect in fiscal 2017 is less than $1 million. However, larger savings are realized in the out-years. Fiscal 2021 savings are projected to be $34 million, and annual savings should exceed $100 million by fiscal 2025.

Exhibit 8.4
Total General Obligation Bond Debt Service Cost and General Fund Expenditures Avoided by Reducing Capital Program
Fiscal 2016-2021
($ in Millions)



	2016	2017	2018	2019	2020	2021
Debt Service Avoided	$0.0	$0.3	$3.0	$8.1	$18.2	$34.4
General Funds	252.4	334.0	464.0	482.0	525.0	532.0
Special and Federal Funds	868.6	853.4	789.4	801.0	811.6	822.4

Source: State Treasurer's Office; Department of Legislative Services, October 2015

The plan proposed by the Administration is affordable. Debt service to revenue peaks in fiscal 2018 at 7.86%, and debt outstanding to personal income peaks in fiscal 2017 at 3.53%.

Analysis of Other Affordable Capital Program Options

When justifying its plan to maintain GO bond authorizations at $995 million, the Administration articulated the goals of slowing increases in debt service costs and reducing the ratio of debt service to revenues. A lower ratio reduces the likelihood that revenue underattainment will force sudden drops in GO bond authorizations. Examples of this are actions taken in December 2009 and 2014.

Affordability ratios can be reduced over time if growth is moderated. The increase in the debt service to revenue ratio between fiscal 2000 and 2010 is not primarily attributable to 3% annual growth in authorizations; rather, the increase is attributable to regularly increasing annual authorizations above previously planned levels. In fact, the current long-term growth rate for State revenues exceeds 3%. Consequently, the growth in the debt service ratio and debt service costs can be moderated by adopting a policy that allows very modest increases in authorizations every year. This is the approach that the State took in the 1990s. At the time, CDAC routinely recommended increasing authorizations $15 million per year (approximately 3%).

In this section, DLS will review the following moderate growth options:

- adopting the authorization limits proposed by SAC in December 2014;
- increasing GO bond authorizations 3% annually with the fiscal 2016 authorization as the base; and
- increasing GO bond authorizations 1% annually with fiscal 2016 authorizations as the base.

Exhibit 8.5 shows GO bond authorizations under these three options.

Exhibit 8.5
Comparison of General Obligation Bond Authorizations
Fiscal 2017-2021
($ in Millions)

Year	1% Growth	3% Growth	December SAC
2017	$1,055	$1,075	$1,105
2018	1,065	1,110	1,200
2019	1,075	1,145	1,240
2020	1,085	1,180	1,280
2021	1,095	1,215	1,320

SAC: Spending Affordability Committee

Source: Department of Legislative Services, November 2015

Exhibit 8.6 shows that all options are affordable.

Exhibit 8.6
Debt Service to Revenue Ratios for Options
Fiscal 2017-2021

Year	1% Growth	3% Growth	December SAC
2017	7.58%	7.58%	7.58%
2018	7.90%	7.90%	7.91%
2019	7.70%	7.70%	7.72%
2020	7.67%	7.69%	7.73%
2021	7.68%	7.72%	7.77%

SAC: Spending Affordability Committee

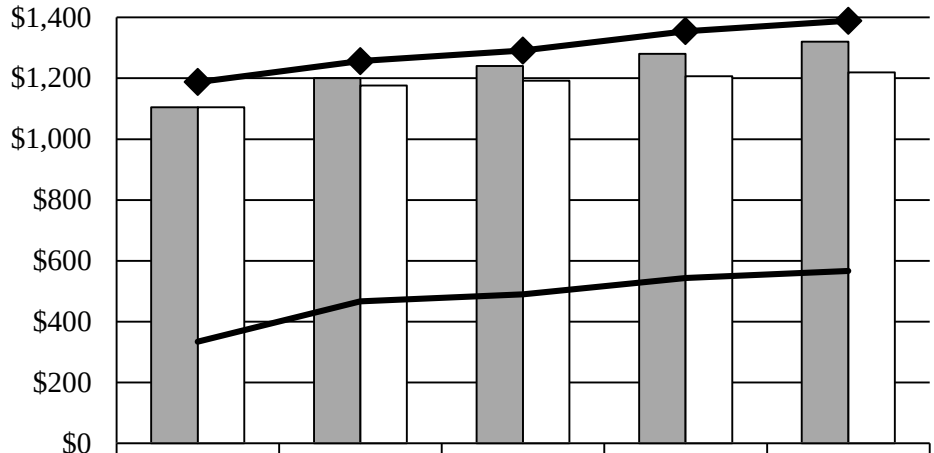
Source: Department of Legislative Services, November 2015

Analysis of December 2014 SAC Recommendations

The level of authorizations proposed by SAC in December is $1,105 million in fiscal 2017. In fiscal 2018, authorizations increase by almost 9%. This moves the capital program back to the level of authorizations recommended by CDAC for fiscal 2018 in September 2009. In December 2009, recommended fiscal 2012 to 2017 authorizations were reduced by $960 million. The fiscal years beginning in 2018 were unaffected by these reductions.

Exhibit 8.7 shows that this option provides $1,105 million in fiscal 2017, which increases to $1,320 million by fiscal 2021. The program keeps up with inflation and recognizes some increase in demand. The fiscal 2021 program is $1,219 million in fiscal 2017 dollars.

Exhibit 8.7
Bond Authorizations and Debt Service Costs for Spending Affordability Committee's Recommended Program
Fiscal 2017-2021
($ in Millions)



	2017	2018	2019	2020	2021
Program Size	$1,105	$1,200	$1,240	$1,280	$1,320
In 2017 Dollars	1,105	1,176	1,192	1,206	1,219
Debt Service	1,188	1,256	1,291	1,355	1,389
General Funds	334	467	490	543	566

Source: Department of Legislative Services, November 2015

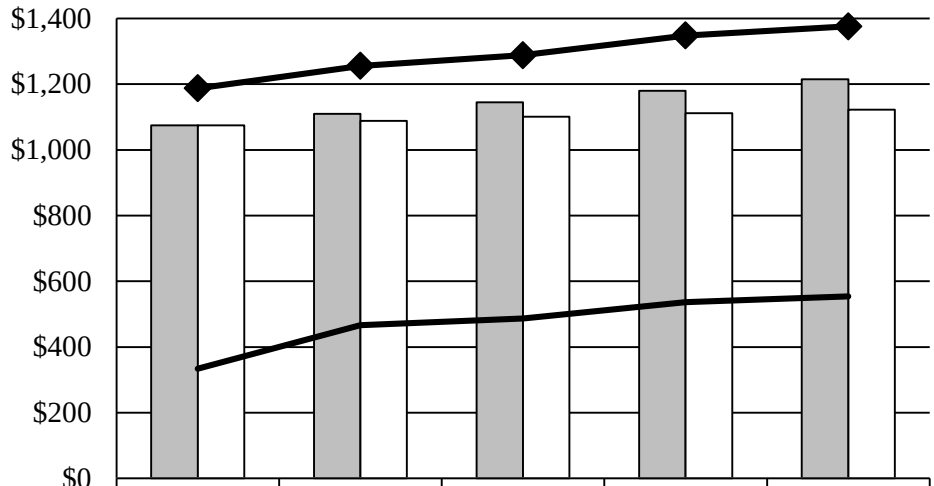
Debt service and general fund appropriations increase at a faster rate than the Administration's plan. While there is no noticeable increase in fiscal 2017, fiscal 2021 costs are $566 million, which is $34 million greater than the Administration's plan.

Analysis of 3% Annual Growth Added to the Fiscal 2016 Authorization

Another option is to begin with the legislature's fiscal 2016 appropriation and increase authorizations 3% each year. This is similar to what was done in the 1990s when capital program increases were quite moderate. This is also consistent with the annual growth policy that CDAC affirmed in 2005. This provides 2% growth for inflation and 1% population growth.

Exhibit 8.8 shows that this provides $1,075 million in fiscal 2017, which increases to $1,215 million by fiscal 2021. The program keeps up with inflation and recognizes some increase in demand. The fiscal 2021 program is $1,122 million in fiscal 2017 dollars.

Exhibit 8.8
Bond Authorizations and Debt Service Costs for 3% Annual Growth Program
Fiscal 2017-2021
($ in Millions)



	2017	2018	2019	2020	2021
Program Size	$1,075	$1,110	$1,145	$1,180	$1,215
In 2017 Dollars	1,075	1,088	1,101	1,112	1,122
Debt Service	1,188	1,255	1,288	1,348	1,376
General Funds	334	466	487	537	554

Source: Department of Legislative Services, November 2015

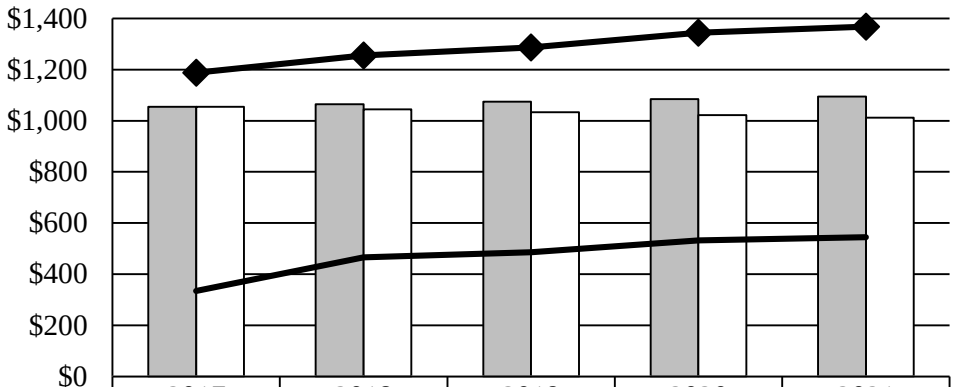
Debt service and general fund appropriations increase at a faster rate than the Administration's plan. While there is no noticeable increase in fiscal 2017, fiscal 2021 costs are $554 million, which is $22 million greater than the Administration's plan.

Analysis of 1% Annual Growth Added to the Fiscal 2016 Authorization

Another approach is to allow for growth but limit it to growth in the primary revenue source supporting spending. State property taxes are dedicated for GO bond debt service. Annual growth is expected to be 1% over the forecast period.

Exhibit 8.9 shows that this provides $1,055 million in fiscal 2017, which increases to $1,095 million by fiscal 2021. The program does not keep up with inflation but does lose ground slower than a no-growth option. The fiscal 2021 program is $1,012 million in fiscal 2017 dollars.

Exhibit 8.9
Bond Authorizations and Debt Service Costs for 1% Annual Growth Program
Fiscal 2017-2021
($ in Millions)



	2017	2018	2019	2020	2021
Program Size	$1,055	$1,065	$1,075	$1,085	$1,095
In 2017 Dollars	1,055	1,044	1,033	1,022	1,012
Debt Service	1,187	1,255	1,286	1,344	1,368
General Funds	334	465	485	532	545

Source: Department of Legislative Services, November 2015

Debt service and general fund appropriations increase at a faster rate than the Administration's plan. While there is no noticeable increase in fiscal 2017, fiscal 2021 costs are $545 million, which is $13 million greater than the Administration's plan.

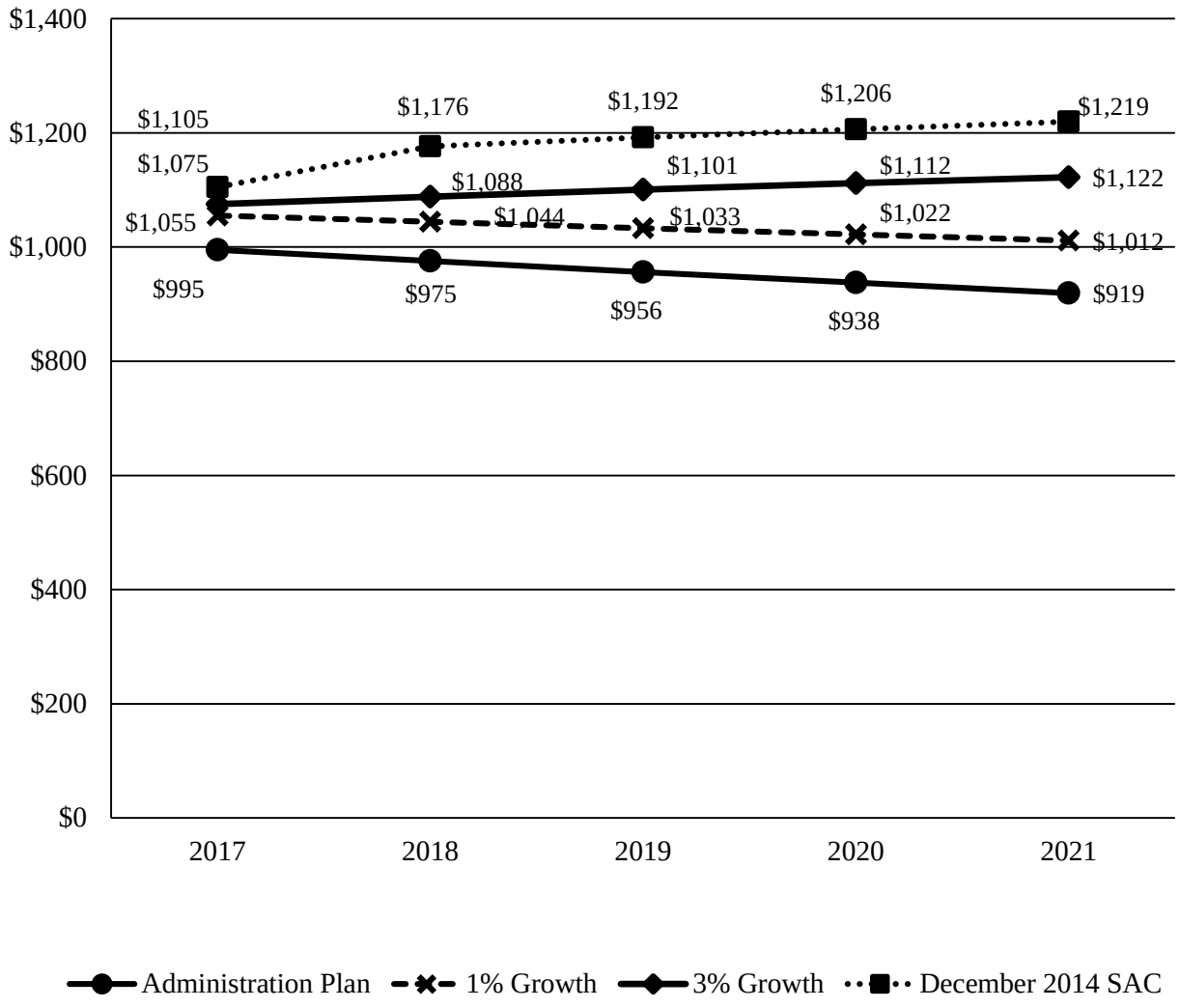
Summary of Capital Program Options

For the final evaluation of these four alternate GO bond authorization levels, DLS will examine three attributes:

- purchasing power;
- general fund expenditures; and
- the debt service to revenue affordability criterion.

Exhibit 8.10 shows that under two of the plans, the Administration's plan and a 1% annual growth, the capital program is not expected to keep up with inflation in the forecast period.

Exhibit 8.10
Comparison of Purchasing Power
Fiscal 2017-2021
($ in Millions)



SAC: Spending Affordability Committee

Source: Department of Legislative Services, November 2015

With respect to GO bond authorizations, the Administration has specifically identified moderating debt service costs as a key objective. In all the options, debt service costs increase after fiscal 2017. This is because it takes about six years for the bonds to be issued after they are authorized. Fiscal 2017 debt service cost increases are influenced by authorizations made since fiscal 2012.

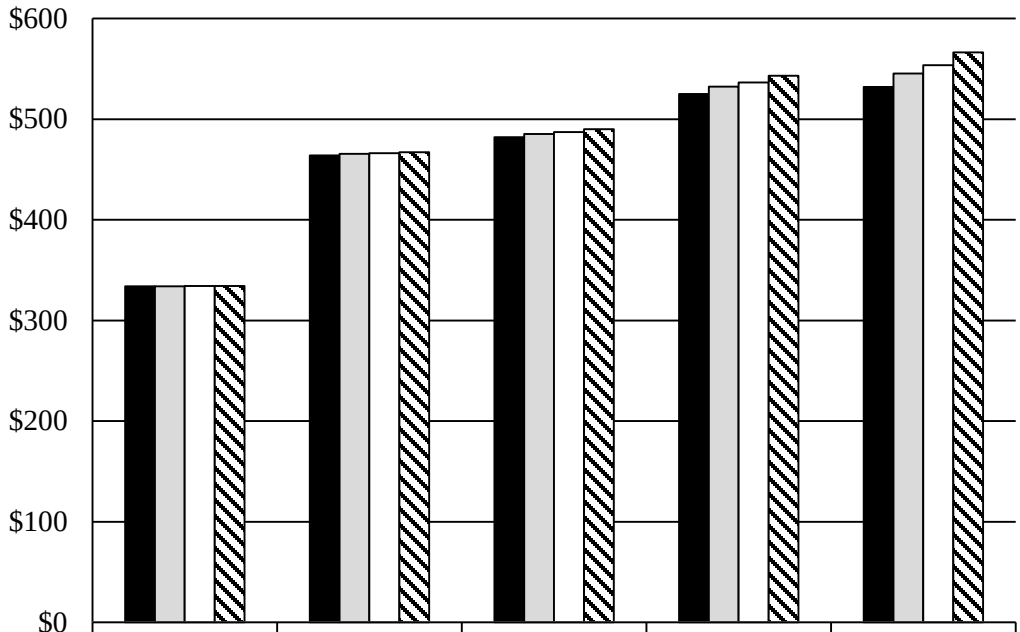
Fiscal 2018 increases are also affected by the Annuity Bond Fund (ABF) activity. Fiscal 2017 begins with a $76 million fund balance. Working down this fund balance reduces the fiscal 2017 general fund increase for debt service. After fiscal 2017, general fund debt service increases reflect increase in total GO bond debt service expenditures.

Exhibit 8.11 shows that even if the State does not increase the capital program, debt service costs increase. Under all four these options, debt service growth is moderate. The annual percent growth from fiscal 2017 to 2021 for these options are:

- 3.3% for the Administration's plan;
- 3.6% if authorizations are increased 1.0% annually;
- 3.8% if authorizations are increased 3.0% annually; and
- 4.0% under the December 2014 SAC recommendation.

Three of these options – the Administration's plan, a 1.0% growth, and a 3.0% growth – compare favorably to general fund revenue growth, which is expected to increase 3.9% annually from fiscal 2017 to 2021.

Exhibit 8.11
Comparison of General Fund Debt Service Costs
Fiscal 2017-2021
($ in Millions)



	2017	2018	2019	2020	2021
■ $995 Million	$334	$464	$482	$525	$532
▫ 1% Growth	334	465	485	532	545
□ 3% Growth	334	466	487	537	554
▨ December SAC	334	467	490	543	566

SAC: Spending Affordability Committee

Source: Department of Legislative Services, November 2015

Another of the Administration's stated objectives is to reduce the debt service to revenues affordability criterion. Because of the nature of capital program spending, this ratio increases in fiscal 2018 for all options. **Exhibit 8.12** shows that the smallest fiscal 2018 ratio of 7.89% is associated with the Administration's plan, while the largest ratio (7.91%) results from the December SAC recommendation. After fiscal 2018, all these ratios decline, albeit at different rates.

Exhibit 8.12
Comparison of Debt to Revenue Affordability Criterion
Fiscal 2017-2021
($ in Millions)

Year	Administration Plan	1% Growth	3% Growth	December SAC
2017	7.58%	7.58%	7.58%	7.58%
2018	7.89%	7.90%	7.90%	7.91%
2019	7.68%	7.70%	7.70%	7.72%
2020	7.64%	7.67%	7.69%	7.73%
2021	7.63%	7.68%	7.72%	7.77%

SAC: Spending Affordability Committee

Source: Department of Legislative Services, November 2015

As discussed in Chapter 4, the affordability criteria do not just incorporate GO bonds, they also include other State debt, most notably transportation bonds, of which over $2.5 billion will be outstanding at the end of fiscal 2016 at a cost of $265 million in fiscal 2016 debt service. Since transportation is a substantial share of State debt, reducing the affordability ratios will also require that the State limits its transportation capital program. To maintain the currently planned transportation capital spending, DLS estimates that the Maryland Department of Transportation (MDOT) will be issuing $700 million in fiscal 2016, $849 million in fiscal 2017, and $721 million in fiscal 2018. This puts pressure on debt service costs after fiscal 2017 when the State will begin paying principal and debt service costs on this transportation debt.

The bottom line is that GO bonds are not the only type of State debt; therefore, it is difficult to bring about reductions in the debt service to revenues ratio by only limiting GO debt. The issuance of other debt, especially transportation debt, may also need to be restrained.

In recent years, debt limits recommended by SAC have differed from limits recommended by CDAC. In 2013, SAC recommended that out-year authorizations not be increased, and in 2014, SAC recommended that the authorizations in the upcoming session's capital budget bill be $75 million less than the level recommended by CDAC in September 2014. In its 2015 report, CDAC recommended limiting GO bond authorizations to $995 million each year through fiscal 2025. This is done to slow the growth in debt service payments and provide additional capacity in the out-years. Based on DLS' estimates, the State can achieve these goals by moderately increasing authorizations by 1% annually off of the fiscal 2016 authorization, which totaled $1,045 million. **DLS recommends that SAC limit the fiscal 2017 GO bond authorization to**

$1,055 million. DLS also recommends that, for planning purposes, out-year annual authorizations be limited to 1%. This limits authorizations to the projected increase in State property tax revenues, which is the primary revenue source supporting debt service.

Bond Sale Premiums: Why We Get Them, Why We Must Be Careful, and What We Can Do with 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 Treasurer's Office determines how many bonds are sold (par value of the bonds) and when the bonds mature.[1] 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.[2] If the coupon rate is greater than the market rate, the bonds sell at a premium and the State's bonds proceeds exceed par value of the bonds.

For example, at the most recent bond sale in July 2015, the State issued $450 million tax-exempt GO bonds (par value). The average coupon was 3.92% and the true interest cost (TIC) (market interest rate) was 2.83%. Since the coupon rate exceeded the market interest rate, the bonds sold at a premium, and total bond proceeds totaled $494 million (after deducting the underwriters discount and cost of issuance expenses). This additional $44 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 low risk rates 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

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

[2] Chapter 6 includes a discussion of factors that influence the true interest cost of Maryland's GO bonds.

10-year treasury notes on the Friday, July 31, 2015 (the time of the most recent bond sale), was among the lowest since 1962. In fact, only 135 out of 2,796 weeks had lower interest costs; 96% 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 8.13** 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 8.13

Effect of Higher Interest Rates on the Value of Bonds

Data from Bond Sale from July 2015 Bond Sale

	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%

	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, July 2015; Department of Legislative Services, November 2015

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?

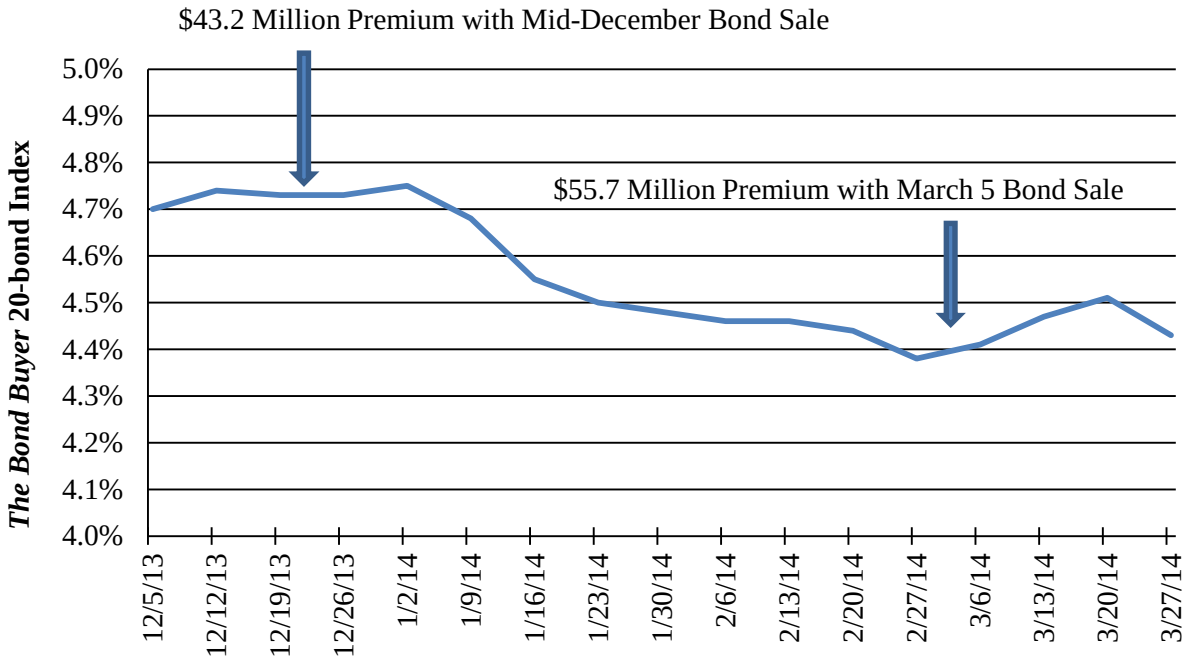
In recent years, bond premiums have been substantial. From fiscal 2012 to 2015, bond sale premiums have generated over $100 million annually. Although premiums are expected to diminish, DLS anticipates that bond sales will continue to generate premiums in fiscal 2017.

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 0.25%, 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 is impossible to predict 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 used in the Governor's fiscal 2015 budget. Using interest rates from December 2013, DLS forecasted a $43.2 million premium. DLS' conclusion is 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 sale was $55.7 million. This is $14.9 million more than the Department of Budget and Management (DBM) projected. The reason for this difference is a sudden decline in interest rates. **Exhibit 8.14** shows that *The Bond Buyer* 20-bond Index declined from over 4.70% in December 2013 to approximately 4.40% in early March 2014. The State benefited from the change by receiving a larger premium.

Exhibit 8.14
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, November 2014

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, 2015, 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 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 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;

- ***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 2007 and 2016. 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; and

- ***Resize the Bond Sale:*** If the objective is to generate a specific level of bond proceeds, the amount of bond 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 MDOT as recently as its February 2015 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.

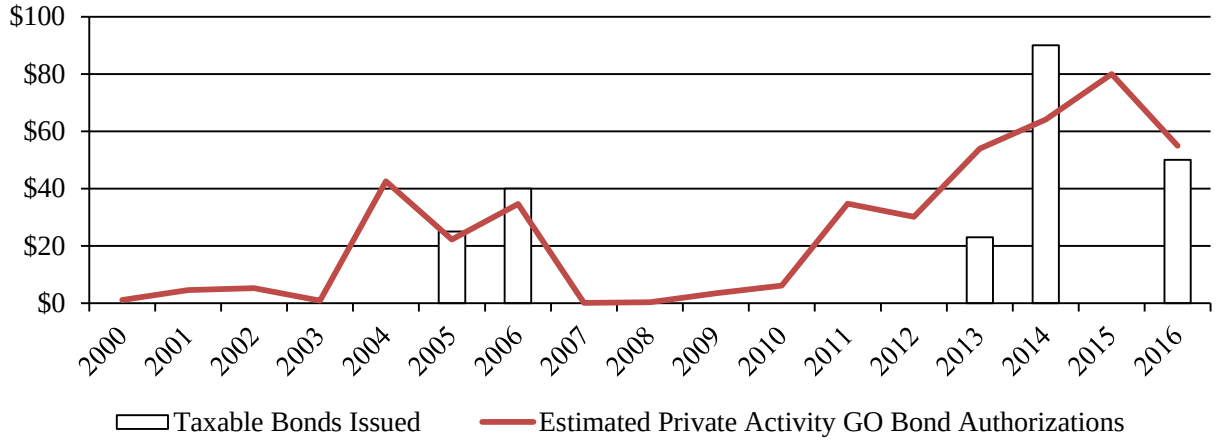
Reducing Taxable Debt Authorizations Reduces Interest Payments

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 (DHCD); the Hazardous Substance Cleanup Program of the Maryland Department of the Environment (MDE); the Public Safety Communications program of the Department of Information Technology; and the Physical Sciences Complex at the University of Maryland, College Park.

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 8.15** shows that the State has authorized over $300 million in private activity bonds since fiscal 2011. To support these projects, the State issued $23 million in taxable debt in fiscal 2013, $90 million in fiscal 2014, and $50 million in fiscal 2016. Insofar as the State has recently authorized private activity, projects exceed taxable debt issuance by over $150 million, and additional taxable bond sales are expected.

Exhibit 8.15
Private Activity Authorizations and Taxable Bond Issuances
Fiscal 2000-2016
($ 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 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.

Another factor that could add to the cost of taxable debt is increasing tax rates for higher income earners and corporations. The value of tax-exempt bonds is greatest when tax rates are highest. Recently enacted federal tax rate increases may well have an effect on the spread between taxable and tax-exempt bonds.

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

It is not unusual for the State to move PAYGO capital projects and programs into the GO bond program when State finances deteriorate. Usually, the projects and programs are moved back out of the GO bond program after finances have improved. For example, after the rise in private use authorizations from fiscal 2004 to 2006, in fiscal 2007, there is a decline in private activity authorizations.

This is not the case in the current *Capital Improvement Program*. The fiscal 2016 capital budget includes $55 million in private activity authorizations. **Exhibit 8.16** shows that out-year private activity authorizations range from $35 million in fiscal 2017 to $33 million in fiscal 2020. Though there is a decline in authorizations, there is still a substantial reliance on GO bond funds to support projects and programs that are traditionally supported in the PAYGO capital funding. It also appears as though there is no attempt to reduce the reliance of GO bonds and appropriate general funds instead for MDE or DHCD programs.

As previously mentioned, federal regulations allow for some private activity in tax-exempt bonds. This allows some flexibility if there are minor changes in the use of infrastructure built or if there are some projects or programs that have a limited private activity component. Most of the agencies that have some private activity in their projects have exposure that can be managed within the federal guidelines.

Exhibit 8.16
Private Activity Authorizations by Department
Fiscal 2016-2020
($ in Thousands)

	2016	2017	2018	2019	2020	Total
Private Business Use						
Department						
Department of Information Technology	$300	$285	$347	$0	$0	$932
University System of Maryland	457	0	0	0	0	457
Subtotal	***$757***	***$285***	***$347***	***$0***	***$0***	***$1,389***
Private Loans						
Department						
Department of Housing and Community Development	$44,430	$26,700	$25,800	$24,900	$25,100	$146,930
Maryland Department of the Environment	9,785	7,810	7,810	7,810	7,810	41,025
Department of Planning	0	150	150	150	150	600
Subtotal	***$54,215***	***$34,660***	***$33,760***	***$32,860***	***$33,060***	***$188,555***
Total	**$54,972**	**$34,945**	**$34,107**	**$32,860**	**$33,060**	**$189,944**

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

Source: Department of Budget and Management, *Capital Improvement Program*, January 2015

The concern is that there are large projections of private activity authorizations in MDE and DHCD. The Administration's capital plan assumes about $35 million annually for these programs. These large authorizations are likely to result in the issuance of taxable bonds in the out-years. **To reduce debt service cost, DLS recommends that DBM reduce the level of private activity authorizations for fiscal 2017.**

Appendix 1
General Obligation Bond Request
Fiscal 2017-2021
($ in Millions)

	2017	2018	2019	2020	2021	Total	Category Totals
State Facilities							**$636.8**
Board of Public Works	$64.1	$72.2	$104.5	$113.5	$141.8	$496.0	
Veterans Affairs	0.0	0.0	0.0	1.5	9.9	11.4	
Military	6.1	20.8	2.0	11.3	5.9	46.0	
Disabilities	1.6	1.6	1.6	1.6	1.6	8.0	
Maryland Public Broadcasting	0.2	1.0	6.5	4.6	0.0	12.2	
Information Technology	28.5	20.2	14.5	0.0	0.0	63.2	
Health and Social Services							**$395.7**
Health and Mental Hygiene	$9.6	$23.2	$37.0	$24.3	$10.0	$104.1	
University of Maryland Medical System	15.3	15.6	2.0	0.0	0.0	32.9	
Senior Citizen Activity Center	1.6	1.6	1.6	1.6	1.6	8.0	
Juvenile Services	33.0	32.0	0.5	9.7	13.3	88.5	
Private Hospital Grant Program	4.2	5.0	6.0	6.0	6.0	27.2	
Prince George's County Hospital	45.0	90.0	0.0	0.0	0.0	135.0	
Environment							**$391.4**
Natural Resources	$23.5	$24.0	$24.5	$19.9	$15.1	$107.0	
Agriculture	8.5	19.5	6.0	6.0	6.0	46.0	
Environment	47.8	41.5	20.5	20.5	20.5	150.8	
Maryland Environmental Service	22.6	24.6	12.4	14.6	13.4	87.6	
Education							**$3,329.4**
Education	$28.2	$30.3	$20.9	$7.0	$6.7	$93.0	
Maryland School for the Deaf	3.5	0.0	0.1	3.4	0.0	7.1	
Public School Construction	652.7	632.7	664.3	665.7	614.0	3,229.3	
Higher Education							**$3,135.7**
University System of Maryland*	$338.0	$366.4	$465.5	$368.9	$356.6	$1,895.3	
Baltimore City Community College	0.3	3.9	18.4	17.6	0.0	40.2	
St. Mary's College	2.7	8.7	9.6	34.5	35.0	90.5	
Morgan State University	45.4	63.7	68.1	74.6	141.0	392.8	
Community Colleges	123.6	106.7	139.5	171.5	117.6	658.8	
Private Facilities Grant Program	10.0	12.0	12.0	12.0	12.0	58.0	

	2017	2018	2019	2020	2021	Total	Category Totals
Public Safety							**$420.9**
Public Safety	$15.4	$46.8	$129.4	$115.9	$57.5	$365.1	
State Police	5.8	16.0	14.7	0.5	0.0	36.9	
Local Jails	2.9	6.0	5.0	5.0	0.0	18.9	
Housing and Economic Development							**$523.9**
Housing and Community Development	$97.1	$97.2	$97.3	$97.0	$96.8	$485.4	
Historic St. Mary's City	0.0	0.5	14.3	6.0	0.0	20.8	
Planning	7.5	4.6	1.8	2.2	1.8	17.8	
Transportation							**$285.0**
Transportation	$85.0	$100.0	$100.0	$0.0	$0.0	$285.0	
							$247.0
Legislative Initiatives**	$35.0	$35.0	$35.0	$35.0	$35.0	$175.0	
Miscellaneous	46.9	8.9	5.6	5.3	5.3	72.0	
Subtotal Request	***$1,811.6***	***$1,932.2***	***$2,040.8***	***$1,857.0***	***$1,724.2***	***$9,365.9***	***$9,365.9***
Debt Affordability Limits 2014 SAC	**$1,105.0**	**$1,200.0**	**$1,240.0**	**$1,280.0**	**$1,320.0**	**$6,145.0**	
Debt Affordability Limits 2015 CDAC	**$995.0**	**$995.0**	**$995.0**	**$995.0**	**$995.0**	**$4,975.0**	
Variance 2014 SAC	**$706.6**	**$732.2**	**$800.8**	**$577.0**	**$404.2**	**$3,220.9**	
Variance 2015 CDAC	**$816.6**	**$937.2**	**$1,045.8**	**$862.0**	**$729.2**	**$4,390.9**	

CDAC: Capital Spending Affordability Committee
SAC: Spending Affordability Committee

*In addition to the general obligation bond request, the University System of Maryland has requested academic revenue bond funding of $22 million in fiscal 2017 and 2018 and $32 million in fiscal 2019-2021.
**Figures represent an estimated average of the total funding requests received through legislative local bond bills.

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

Source: Department of Budget and Management

Appendix 2
Estimated General Obligation Issuances
($ in Thousands)

Fiscal Year	Proposed Auth.	Estimated Issuances During Fiscal Year (a) ====> 2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Post-2025	Total Issued
2017	$995,000	$0	$308,000	$249,000	$199,000	$149,000	$90,000						$995,000
2018	995,000		0	308,000	249,000	199,000	149,000	$90,000					995,000
2019	995,000			0	308,000	249,000	199,000	149,000	$90,000				995,000
2020	995,000				0	308,000	249,000	199,000	149,000	$90,000			995,000
2021	995,000					0	308,000	249,000	199,000	149,000	$90,000		995,000
2022	995,000						0	308,000	249,000	199,000	149,000	$90,000	995,000
2023	995,000							0	308,000	249,000	199,000	239,000	995,000
2024	995,000								0	308,000	249,000	438,000	995,000
2025	995,000									0	308,000	687,000	995,000
Total New Authorization		**$0**	**$308,000**	**$557,000**	**$756,000**	**$905,000**	**$995,000**	**$995,000**	**$995,000**	**$995,000**	**$995,000**	**$2,449,000**	
Previously Authorized GO Bonds:	$2,559,720	$1,018,000	$722,000	$468,000	$259.000	$92,720	$0	$0	$0	$0	$0	$0	$2,559,720
Total Issuances		**$1,018,000**	**$1,030,000**	**$1,025,000**	**$1,015,000**	**$997,720**	**$995,000**	**$995,000**	**$995,000**	**$995,000**	**$995,000**	**$2,449,,000**	

Percentage Issuance Assumptions by Fiscal Year

Fiscal Year Following Year of Authorization	1st	2nd	3rd	4th	5th
Percent of Authorization Issued	31.0%	25.0%	20.0%	15.0%	9.0%

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

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

Bond Sale Date	TIC	20-Bond Index	MD/US PI	YTM	BABs	Post-crisis
08/01/07	4.15%	4.51%	2.218	9.65	No	No
02/27/08	4.14%	5.11%	2.208	9.64	No	No
07/16/08	3.86%	4.65%	2.213	9.60	No	Yes
03/04/09	3.39%	4.96%	2.287	9.01	No	Yes
03/02/09	3.63%	4.87%	2.287	10.04	No	Yes
08/05/09	2.93%	4.65%	2.303	8.96	No	Yes
08/03/09	3.20%	4.69%	2.303	9.01	No	Yes
08/05/09	3.02%	4.65%	2.303	14.99	Yes	Yes
10/21/09	2.93%	4.31%	2.242	7.91	No	Yes
10/21/09	3.06%	4.31%	2.242	14.03	Yes	Yes
02/24/10	2.85%	4.36%	2.262	12.09	Yes	Yes
07/28/10	1.64%	4.21%	2.259	5.34	No	Yes
07/28/10	1.91%	4.21%	2.259	6.20	No	Yes
07/28/10	2.74%	4.21%	2.259	13.51	Yes	Yes
03/07/11	2.69%	4.90%	2.286	6.86	No	Yes
03/09/11	3.49%	4.91%	2.286	10.51	No	Yes
07/25/11	1.99%	4.46%	2.299	5.65	No	Yes
07/27/11	3.08%	4.47%	2.299	10.05	No	Yes
03/02/12	2.18%	3.72%	2.306	8.33	No	Yes
03/07/12	2.42%	3.84%	2.306	9.71	No	Yes
07/27/12	2.52%	3.61%	2.277	9.10	No	Yes
08/01/12	2.17%	3.66%	2.277	9.71	No	Yes
03/06/13	2.35%	3.86%	2.288	9.61	No	Yes
07/24/13	3.15%	4.77%	2.284	10.20	No	Yes
03/05/14	2.84%	4.41%	2.265	10.14	No	Yes
07/18/14	1.27%	4.36%	2.240	4.69	No	Yes
07/23/14	2.65%	4.29%	2.240	10.16	No	Yes
03/05/15	2.65%	3.68%	2.232	9.63	No	Yes
07/16/15	2.83%	3.82%	2.238	10.33	No	Yes

BAB: Build America Bonds
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 2005-2015
($ in Millions)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 2005-15	Average Annual % Change 2005-15
Agency Debt Subject to Ceiling and Allocation Caps													
Maryland Environmental Service	$30.5	$24.5	$19.6	$18.7	$19.8	$28.5	$31.2	$27.5	$25.2	$27.9	$26.4	-$4.1	-1.4%
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	763.6	765.1	1,055.3	1,877.4	2,247.1	2,708.2	3,292.9	3,292.9	3,303.2	3,179.3	3,176.4	2,412.8	15.3%
Maryland Water Quality Financing Administration[1]	88.2	73.9	65.7	104.9	140.0	126.3	112.0	57.7	47.2	36.7	33.2	-55.0	-9.3%
Revenue Cap Total	**$882.3**	**$863.5**	**$1,140.6**	**$2,001.0**	**$2,406.9**	**$2,863.0**	**$3,436.1**	**$3,378.1**	**$3,375.6**	**$3,243.9**	**$3,235.9**	**$2,353.6**	**13.9%**
% Change/Prior Year	**17.0%**	**-2.1%**	**32.1%**	**75.4%**	**20.3%**	**18.9%**	**20.0%**	**-1.7%**	**-0.1%**	**-3.9%**	**-0.2%**		
Agency Debt Not Subject to Ceiling and Allocation Caps													
Baltimore City Community College	$0.9	$0.8	$0.8	$0.7	$0.7	$0.7	$1.2	$1.0	$0.9	$0.0	$0.0	-$0.9	-100.0%
Department of Housing and Community Development[2]	2,194.6	2,248.1	3,204.3	3,259.4	3,177.5	3,345.9	3,238.7	3,106.5	2,979.0	2,783.2	2,557.0	362.4	1.5%
Local Government Infrastructure (CDA)	122.5	117.0	122.0	135.1	121.6	109.7	127.2	122.8	129.6	137.1	164.1	41.6	3.0%
Maryland Industrial Development Financing Authority	395.0	409.6	387.1	382.0	344.9	375.7	484.8	492.6	347.7	335.1	312.6	-82.4	-2.3%
MDOT – County Revenue Bonds	31.8	30.0	58.4	56.8	98.5	95.1	89.1	82.9	101.7	94.9	87.9	56.1	10.7%
MDOT – Nontax-supported Issuances	49.7	72.6	68.5	64.2	59.9	57.3	54.2	51.1	47.7	44.7	41.5	-8.2	-1.8%
Morgan State University	68.6	67.7	69.6	68.4	67.8	64.4	59.6	55.2	47.8	44.3	43.5	-25.1	-4.5%
St. Mary's College of Maryland	40.6	43.8	49.5	48.2	46.8	45.3	41.8	38.3	36.1	34.3	34.6	-6.0	-1.6%
University System of Maryland	1,012.8	934.8	954.8	969.9	1,028.5	1,082.9	1,129.2	1,170.0	1,195.0	1,269.0	1,128.5	115.7	1.1%
Noncap Total	**$3,916.5**	**$3,924.4**	**$4,915.0**	**$4,984.7**	**$4,946.2**	**$5,177.0**	**$5,225.8**	**$5,120.4**	**$4,885.5**	**$4,742.7**	**$4,369.7**	**$453.2**	**1.1%**
% Change/Prior Year	**-4.1%**	**0.2%**	**25.2%**	**1.4%**	**-0.8%**	**4.7%**	**0.9%**	**-2.0%**	**-4.6%**	**-2.9%**	**-7.9%**		

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Change 2005-15	Average Annual % Change 2005-15
Tax-supported Debt													
Transportation Debt	$1,070.8	$1,078.5	$1,111.1	$1,268.8	$1,582.6	$1,645.0	$1,561.8	$1,562.6	$1,618.0	$1,813.0	$2,020.3	$949.5	6.6%
Grant Anticipation Revenue Vehicles	0.0	0.0	325.0	300.7	704.4	651.8	596.9	539.4	479.0	415.8	349.4	349.4	n/a
Capital Leases	175.1	226.9	247.9	247.4	266.8	242.5	166.4	310.3	286.2	260.3	237.8	62.7	3.1%
Maryland Stadium Authority	309.2	296.8	283.1	271.6	256.0	243.6	225.7	218.3	193.0	168.9	145.0	-164.2	-7.3%
Bay Restoration Bonds	0.0	0.0	0.0	50.0	46.8	44.2	41.6	38.8	36.0	133.1	130.0	130.0	n/a
General Obligation Debt	4,511.8	4,868.5	5,142.2	5,493.8	5,873.6	6,523.2	6,982.8	7,541.1	8,005.8	8,362.3	8,677.2	4,165.4	6.8%
Tax-supported Debt Total	**$6,066.9**	**$6,470.7**	**$7,109.3**	**$7,632.3**	**$8,730.2**	**$9,350.3**	**$9,575.2**	**$10,210.5**	**$10,618.0**	**$11,153.4**	**$11,559.7**	**$6,147.2**	**6.7%**
% Change/Prior Year	**4.4%**	**6.7%**	**9.9%**	**7.4%**	**14.4%**	**7.1%**	**2.4%**	**6.6%**	**4.0%**	**5.0%**	**3.6%**		
Authorities and Corporations Not Subject to Ceiling and Allocation Caps													
Health/Higher Education Facilities Authority	$5,544.3	$6,181.1	$7,262.0	$8,204.8	$8,466.8	$8,660.7	$8,656.4	$8,913.1	$8,835.3	$8,837.2	$8,779.5	$3,235.2	4.7%
Maryland Economic Development Corporation	1,642.6	1,872.4	1,894.2	2,094.0	2,115.1	2,329.9	2,471.2	2,471.2	2,376.7	2,244.8	2,192.7	550.1	2.9%
Authorities and Corporations Total	**$7,186.9**	**$8,053.5**	**$9,156.2**	**$10,298.8**	**$10,581.9**	**$10,990.6**	**$11,127.6**	**$11,384.3**	**$11,212.0**	**$11,082.0**	**$10,972.2**	**$3,785.3**	**4.3%**
% Change/Prior Year	**4.0%**	**12.1%**	**13.7%**	**12.5%**	**2.7%**	**3.9%**	**1.2%**	**2.3%**	**-1.5%**	**-1.2%**	**-1.0%**		

CDA: Community Development Administration
MDOT: Maryland Department of Transportation

[1] Excludes bay restoration bonds.
[2] Excludes local government infrastructure.