UA01
Department of the Environment – Capital

Capital Budget Summary

Grant and Loan *Capital Improvement Program*
($ in Millions)

Program	2015 Approp.	2016 Approp.	2017 Request	2018 Est.	2019 Est.	2020 Est.	2021 Est.
MD Water Quality Revolving Loan Fund	$130.000	$130.000	$130.000	$130.000	$130.000	$130.000	$130.000
MD Drinking Water Revolving Loan Fund	22.000	24.000	24.000	26.000	28.000	30.000	32.000
Bay Restoration Fund – Wastewater Projects	81.000	80.000	80.000	40.000	60.000	60.000	65.000
Septic System Upgrade Program	15.000	14.000	14.000	14.000	14.000	14.000	14.000
Biological Nutrient Removal Program	21.200	26.500	25.000	41.000	10.000	10.000	10.000
Supplemental Assistance Program	5.864	4.157	0.000	0.000	0.000	0.000	0.000
Water Supply Financial Assistance Program	4.357	2.661	2.480	2.500	2.500	2.500	2.500
Hazardous Substance Clean-Up Program	1.000	0.400	0.200	1.000	1.000	1.000	1.000
Mining Remediation Program	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Energy-Water Infrastructure Program	0.000	0.000	16.200	0.000	0.000	0.000	0.000
Total	**$280.921**	**$282.218**	**$292.380**	**$255.000**	**$246.000**	**$248.000**	**$255.000**

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Fund Source	2015 Approp.	2016 Request	2017 Estimate	2018 Estimate	2019 Estimate	2020 Estimate	2021 Estimate
PAYGO GF	$1.000	$0.400	$0.200	$1.000	$1.000	$1.000	$1.000
PAYGO SF	197.620	193.346	210.086	168.990	190.990	192.990	199.990
PAYGO FF	41.307	44.869	44.319	33.500	33.500	33.500	33.500
GO Bonds	40.994	43.603	37.775	51.510	20.510	20.510	20.510
Total	**$280.921**	**$282.218**	**$292.380**	**$255.000**	**$246.000**	**$248.000**	**$255.000**

FF: federal funds
GF: general funds
GO: general obligation
PAYGO: pay-as-you-go
SF: special funds

Summary of Issues

Number of Septic Systems Unclear: There appears to be at least 3 different estimates of the number of septic systems in Maryland. There is the 421,766 estimate reflected in last year's analysis, which the Maryland Department of the Environment (MDE) notes is still a valid estimate; a 370,110 estimate cited by the Chesapeake Bay Program's Land Use Workgroup; and an approximately 388,000 estimate being considered by the Maryland Department of Planning (MDP). An accurate or at least agreed upon estimate for septic systems is important for determining policy goals. **The Department of Legislative Services (DLS) recommends that MDE comment on if and when the septic system estimate will be formally updated.**

Bay Restoration Fund Stretched Thin: Chapter 428 of 2004 established the Bay Restoration Fund (BRF) to provide grants to owners of wastewater treatment plants (WWTP) to reduce nutrient pollution to the Chesapeake Bay by upgrading the systems with enhanced nutrient removal (ENR) technology. The fund is also used to support septic system upgrades and the planting of cover crops and through fiscal 2009 was authorized to provide funding for stormwater management. In recent years legislation has expanded the use of the BRF and in the 2016 legislative session additional legislation is being proposed to allow the BRF to be used for purchasing nutrient credits. **DLS recommends that MDE comment on the proposed fiscal 2017 and future year allocation plan for the BRF and whether it will continue to be an effective source of funding even though spread across so many diverse uses.**

Summary of Updates

Wastewater Collection and Conveyance Funding Needs Identified: The four-year 2012 U.S. Environmental Protection Agency (EPA) Clean Water Needs Survey was released in January 2016. The survey reflects $271 billion in need for the United States as a whole, of which Maryland's needs are $9.9 billion. Between the 2008 and 2012 surveys, there is a $2.7 billion increase in wastewater conveyance and collection systems funding needed due to the need to address aging sewer infrastructure and new growth.

Supplemental Assistance Program Project Update: The fiscal 2015 authorization of $5,864,000 in general obligation (GO) bonds for the Supplemental Assistance Program included the restriction of $550,000 for a grant to the Town of Federalsburg for the design and construction of improvements to the Town of Federalsburg Railroad Avenue Combined Sewer Overflow Removal and Water Main Replacement Project. MDE notes that the project is completed and is in the close-out phase.

Summary of Recommended PAYGO Actions

1. Restrict funding for the Energy-Water Infrastructure Program pending the submission of reports.

2. Concur with Governor's allowance for the Water Quality Revolving Loan Fund.

3. Concur with Governor's allowance for the Hazardous Substance Clean-Up Program.

4. Concur with Governor's allowance for the Drinking Water Revolving Loan Fund.

5. Concur with Governor's allowance for the Bay Restoration Fund – Wastewater Projects.

6. Concur with Governor's allowance for the Bay Restoration Fund – Septic Systems.

Summary of Recommended Bond Actions

		Funds
1.	Biological Nutrient Removal Program Approve the Biological Nutrient Removal Program authorization.	
2.	Maryland Drinking Water Revolving Loan Fund Delete the Drinking Water Revolving Loan Fund authorization.	$3,003,000 GO
3.	Maryland Water Quality Revolving Loan Fund Delete the Water Quality Revolving Loan Fund authorization.	$6,792,000 GO
4.	Mining Remediation Program Approve the Mining Remediation Program authorization.	
5.	Water Supply Financial Assistance Program Approve the Water Supply Financial Assistance Program authorization.	
	Total Reductions	**$9,795,000 GO**

Program Description

The MDE capital program is comprised of the Water Quality Revolving Loan Fund (WQRLF), the Drinking Water Revolving Loan Fund (DWRLF), the Bay Restoration Fund – Wastewater Projects, the Bay Restoration Fund – Septic System Projects, the Biological Nutrient Removal (BNR) Program, the Water Supply Financial Assistance Program, the Hazardous Substance Clean-Up Program, the Mining Remediation Program, and a new program for fiscal 2017 – the Energy-Water Infrastructure Program. No funding is included in the fiscal 2017 capital budget or the 2016 *Capital Improvement Program* (CIP) for the Supplemental Assistance Program because the allowed uses have largely been assumed by the Bay Restoration Fund – Wastewater Projects program. The programs in MDE's fiscal 2017 allowance address MDE's goals of protecting water resources and ensuring safe and adequate drinking water, managing air quality and emissions for maximum protection of human health and the environment, and reducing Maryland citizens' exposure to hazards. Descriptions of MDE's eight current programs and one former program follow.

- **Water Quality Revolving Loan Fund** – The WQRLF was created to provide low-interest loans to counties and municipalities to finance water quality improvement projects. The fund was established by the federal government in the Clean Water Act of 1987 and by the State of Maryland in Sections 9-204 and 9-1604 of the Environment Article to replace the federal construction grants program that was phased out. Projects eligible for funding include WWTPs; failing septic systems; and nonpoint source projects, such as urban stormwater control projects. The federal Act requires a 20% State match. For fiscal 2017, at least 10% of the federal funding must be used for Green Reserve projects – water efficiency, energy efficiency, green infrastructure, and environmentally innovative projects – and no more than $10.188 million may be used for loan forgiveness/grants. WQRLF projects are prioritized based on a EPA-approved Integrated Project Priority System. The priority system for WQRLF projects consists of a system for evaluating, rating, and ranking of both point source and nonpoint source water quality projects. The Integrated Project Priority System was revised by MDE and approved by EPA in 2010 to target financial assistance to projects that help meet Maryland's Phase I Watershed Implementation Plan (WIP) to address the Chesapeake Bay Total Maximum Daily Load (TMDL). The Integrated Project Priority System focuses on compliance, documented public health concerns, relative effectiveness of projects to the Chesapeake Bay, sustainability criteria, and water quality restoration. In accordance with this system, the projects are rated and ranked by MDE's Water Quality Financing Administration and are listed in ascending ranking order on the Project Priority List. Through January 1, 2016, the program has executed $2.195 billion in loans, loan forgiveness, and grants, including American Recovery and Reinvestment Act of 2009 (ARRA) funding.

- **Drinking Water Revolving Loan Fund** – The DWRLF was established in accordance with a federal capitalization grant approved by Congress in 1996 in anticipation of future federal capitalization grants. This program was authorized by the General Assembly in 1993 to provide loans to counties and municipalities to finance water supply improvements and upgrades. In

accordance with the federal legislation, these funds may also be loaned to private parties. The federal Act requires that a minimum of 20% of State matching funds for each year's federal capitalization grant be deposited into the fund. For fiscal 2017, no more than $4.5 million of the federal funding may be used for grants or loan forgiveness. Similar to the WQRLF, DWRLF projects are prioritized based on an EPA-approved Drinking Water Project Priority System that focuses on many criteria, the most important being public health benefit. Through January 1, 2016, the program has executed approximately $298.3 million in loans, loan forgiveness, and grants including ARRA funding.

- **Bay Restoration Fund – Wastewater Projects** – The BRF (Chapter 428 of 2004) was created to address the significant decline in Chesapeake Bay water quality due to overenrichment of nutrients such as phosphorus and nitrogen. This dedicated fund, financed in large part by WWTP users, initially was used to provide grants to local governments to upgrade Maryland's 67 major WWTPs with ENR technology as part of reducing an additional 7.5 million pounds of nitrogen per year in order to reach Maryland's commitment under the TMDL as implemented by the WIP. Chapter 150 of 2012 increased the BRF fee beginning July 1, 2012, in order to address a funding shortfall that would have made it very difficult to complete the upgrades to the 67 major publicly owned WWTPs by calendar 2017, as required by the WIP. Chapter 150 also made several other changes such as establishing additional uses for the fund beginning in fiscal 2018. As a result, the State will be better positioned to complete the WWTP upgrades by calendar 2017. Chapter 153 of 2015 (Environment – Bay Restoration Fund – Use of Funds) added to the authorized uses of the BRF, beginning in fiscal 2016, by providing funding for up to 87.5% of the cost of projects relating to combined sewer overflows (CSO) abatement, rehabilitation of existing sewers, and upgrading conveyance systems, including pumping stations; this funding authority previously existed between fiscal 2005 and 2009, capped at $5 million annually. The bill also altered the priority of BRF funding beginning in fiscal 2018 by making grants for septic system upgrades, stormwater management, and CSO and sewer abatement projects of equal priority, with funding decisions made on a project-specific basis. ENR takes water that has gone through the BNR process and further refines the effluent physically, biochemically, or chemically to an average level of 3.0 milligrams per liter (mg/L) nitrogen and 0.3 mg/L phosphorus. Revenue from this fund also supports upgrades to septic systems. A portion of the funding ($5 million in the fiscal 2017 allowance) is budgeted in the MDE operating budget for operations and maintenance of WWTPs upgraded to ENR status.

- **Bay Restoration Fund – Septic System Projects** – The BRF includes a separate program to fund replacement of failing septic systems. This program is funded as part of the BRF legislation by a fee on users of septic systems and sewage holding tanks, of which 60% of the revenue is allocated to MDE for the septic system upgrade program and 40% to the Maryland Department of Agriculture for the Cover Crop Program. While Chapter 280 of 2009 (Chesapeake Bay Nitrogen Reduction Act of 2009) already required best available technology for new and replacement systems in the Chesapeake Bay Critical Area or the Atlantic Coastal Bays Critical Area, new regulations finalized in September 2012 expand septic system upgrade requirements to include the best available technology for all septic systems serving new construction in the Chesapeake and Atlantic Coastal Bays watersheds and in the watershed of any nitrogen impaired water body. MDE provides grants to upgrade failing systems and holding

tanks with the best available technology for nitrogen removal. Overall, the program gives priority to projects that involve failing systems in environmentally sensitive areas that are ready to proceed. The program is administered by county governments or other parties; contractors conducting the septic system upgrades are directly reimbursed for their work. Applications are prioritized as follows: (1) failing septic systems or holding tanks in the Critical Areas; (2) failing septic systems or holding tanks outside the Critical Areas; (3) nonconforming septic systems in the Critical Areas; (4) nonconforming septic systems outside of the Critical Areas; (5) other septic systems in the Critical Areas, including new construction; and (6) other septic systems outside the Critical Areas, including new construction. Homeowners with household income less than or equal to $300,000 per year are eligible for 100% grants of the best available technology cost, and all other homeowners are eligible for grants covering 50% of the cost. Nonprofit entities are eligible for 100% grants. For-profit businesses are eligible for 50% grants. Chapter 379 of 2014 (Bay Restoration Fund – Authorized Uses – Local Entities) required that up to 10% of the funds in the Septics Account of the BRF be distributed to a local public entity delegated by MDE – local health departments – to cover reasonable costs associated with implementation of MDE regulations pertaining to septic systems that use the best available technology for nitrogen removal.

- **Biological Nutrient Removal Program** – This program provides cost-share grant funds to local governments to retrofit or upgrade WWTPs to remove a greater portion of nutrients (nitrogen and phosphorus) from discharges. The goal of the program is to support the WIP implementation of the Chesapeake Bay TMDL point source nutrient reduction strategy. The State provides up to 50% of the total eligible project cost, with the ability to provide 100% of the project cost, as provided under Title 9, Sections 9-348 of the Environment Article. BNR biologically removes the total nitrogen to an average level of 8 mg/L and the total phosphorus to an average level of 2 mg/L prior to discharging the water into the receiving waters. The next level of treatment is provided by an upgrade to ENR technology. All WWTPs upgraded to BNR by MDE will have the capacity to accommodate ENR upgrades in the future.

- **Water Supply Financial Assistance Program** – The General Assembly created the Water Supply Financial Assistance Program in 1982 to address the deteriorating condition of the State's water supply infrastructure and the lack of adequate financing available to local governments to upgrade water supply systems. This program provides grants to assist small communities in the acquisition, construction, equipping, rehabilitation, and improvement of publicly owned water supply facilities. The State may provide up to 87.5% of total eligible project costs (not to exceed $1.5 million per project), and a minimum 12.5% local match is required. In recent years, all assistance has been in the form of grants rather than loans. This program is often used in conjunction with other sources of federal and State financial assistance (such as the DWRLF) to achieve project affordability.

- **Hazardous Substance Clean-Up Program** – The Hazardous Substance Clean-Up program provides funds for cleaning up uncontrolled waste sites listed on the federal National Priorities List (Superfund) and other uncontrolled waste sites within the State that do not qualify for federal funding through the Superfund program. The State provides up to 100% of the costs of cleanup for the projects not included on the National Priorities List. At orphan sites, sites

lacking a financially viable responsible party to pay for the cleanup, the State provides 100% of the cost of the preliminary site assessment. In all cases, the program seeks cost recovery when possible from responsible parties. The program also provides the State's share (10%) of remediation costs for federal Superfund orphan sites with the remainder provided through the federal share (90%).

- **Mining Remediation Program** – The Mining Remediation Program was a new addition to MDE's capital program for fiscal 2015. Where there is no financially viable responsible party, the program provides funding for remediation of abandoned lands and waters impacted by inadequate coal mining reclamation practices prior to the passage of the federal Surface Mine Control and Reclamation Act of 1977. The program works through the Maryland Abandoned Mine Land Division. Projects include reclamation of surface mine high walls and pits, stabilization of landslides, restoration of stream banks to address flooding, extinguishing underground coal mine and coal refuse fires, stabilization of coal refuse piles, water supply replacement, stabilizing buildings and roads that are impacted by underground mine subsidence, and acid mine drainage treatment projects.

Performance Measures and Outputs

In January of each year, MDE solicits interest for funding from the WQRLF and the DWRLF. The solicitation of interest is available to local governments and private drinking water providers. MDE's funding solicitation in January 2015 for fiscal 2017 funding is reflected in **Exhibit 1.** MDE's solicitation distinguishes between clean water and drinking water type projects with the majority of funding solicited for clean water projects. As reflected in the exhibit, the funding demand of $938.7 million exceeds the $154.0 million in the fiscal 2017 allowance.

Exhibit 1
MDE Capital Program Funding Solicitation for Revolving Loan Funds
Fiscal 2017

Project Type	Applications	Total Project Cost	Funding Requested from MDE
Clean Water			
Advanced Treatment	15	$578,825,175	$514,585,589
Sewerage (inc. I/I & CSO)	51	233,771,583	12,410,637
Stormwater	5	5,068,945	4,501,612
Small Creeks and Estuaries	4	4,383,577	4,305,855
Landfills	0	0	0
Other	2	503,689,177	9,700,000
Subtotal	***77***	***$1,325,738,457***	***$645,776,693***

Project Type	Applications	Total Project Cost	Funding Requested from MDE
Drinking Water			
Source Water Development	3	$33,055,000	$5,307,500
Water Treatment Plant	3	6,844,400	6,524,400
Transmission/Distribution Mains	32	34,185,399	31,637,972
Water Storage	11	369,531,450	249,492,393
Other	0	0	0
Subtotal	***49***	***$443,616,249***	***$292,962,265***
Total	**126**	**$1,769,354,734**	**$938,738,958**

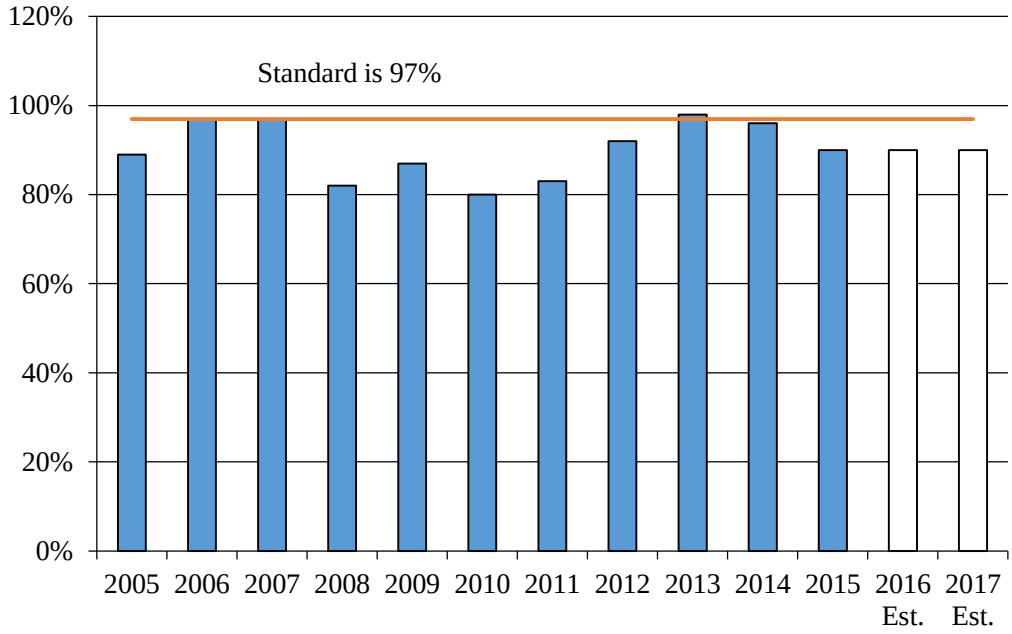
CSO: combined sewer overflow
I/I: infiltration or inflow
MDE: Maryland Department of the Environment

Source: Maryland Department of the Environment

Drinking Water Revolving Loan Fund

Exhibit 2 shows that due to the changing nature of the underlying standards to which MDE applies a 97% significant compliance goal, it is difficult to see long-term trends in public water system compliance with rules. Instead, there appears to be a trend toward increasing compliance with a standard for a couple of years after the standard is created until a new standard is developed and the process starts over. For instance, Maryland met the standard for complying with the 2002 rules in fiscal 2006, but then new rules were developed, and the compliance dropped to 82% in fiscal 2008. Five new federal regulations required new State rules in fiscal 2010. As of October 2013, MDE notes that monitoring requirements for two new contaminant levels have reduced the fiscal 2015 and 2016 compliance levels. These two new contaminant levels are the Long Term Enhanced Surface Water Treatment Rule, which became effective on September 30, 2014, for targeted systems serving less than 10,000 people, and the Stage 2 Disinfections By-Products Rule, which required a second round of monitoring in October 2013 and reporting by October 2014. In addition, MDE has noted that it was anticipating the Revised Total Coliform Rule to be adopted in fiscal 2015, but this has since been pushed back to fiscal 2016. However, as noted previously, the overall trend is toward a cleaner public water system in Maryland.

Exhibit 2
Marylanders Served by Public Water Systems In Significant Compliance
Fiscal 2005-2017 Est.



Note: Up to fiscal 2008, the basis for significant compliance with public water systems rules was 97% of the rules adopted in 2002. For fiscal 2008, the basis for significant compliance is 97% of the rules adopted since fiscal 2002. For fiscal 2009 and onward, significant compliance is measured as 97% of the rules adopted as of fiscal 2009. In fiscal 2010, State regulations were adopted to reflect five new federal regulations: arsenic, radionuclide, Stage 2 Disinfection Byproduct, Long Term Enhanced Surface Water Treatment, and revised lead and copper. MDE notes that fiscal 2015 and 2016 estimates have been adjusted to reflect short-term compliance issues from more than 500 water systems implementing new monitoring requirements, as of October 2013, for two new maximum contaminant levels. The fiscal 2015 data is only available through April 1, 2015, due to a database conversion.

Source: Governor's Budget Books, Fiscal 2008-2016; Department of Budget and Management

Bay Restoration Fund – Wastewater Projects

Exhibit 3 shows the status of efforts to install BNR and ENR technology at the 67 major WWTPs. BNR technology allows WWTPs to achieve wastewater effluent quality of 8 mg/L total nitrogen and 3 mg/L total phosphorus. As of January 2016, of the 67 major WWTPs, 93% are operating at the BNR level (equal to the 93% as of January 2015), and 61% are operating at the ENR level (up from 54% as of January 2015).

Exhibit 3
Status of BNR and ENR Construction
Through January 2016

	BNR	ENR
Pre-planning	0	0
Planning	0	1
Design	1	3
Construction	4	22
Under Operation	62	41
Total	**67**	**67**

BNR: biological nutrient removal
ENR: enhanced nutrient removal

Note: The Bay Restoration Fund Advisory Committee added the Hampstead wastewater treatment plant, increasing the major plants to 67.

Source: Maryland Department of the Environment

The EPA issued its *Interim Evaluation of Maryland's 2014-2015 Milestones and WIP Progress* on June 10, 2015. Maryland is not on track to meet the calendar 2017 target due to agricultural production changes, including greater corn production and slower than anticipated stormwater load reductions. However, it is recognized that upgrades to WWTPs are in progress, and other efforts continue to accelerate implementation across all other sectors. MDE indicates that there are 6 WWTPs that may not meet the deadline to fully complete the upgrade of the 67 major WWTPs to ENR technology by June 30, 2017. The status of the 6 WWTPs is as follows.

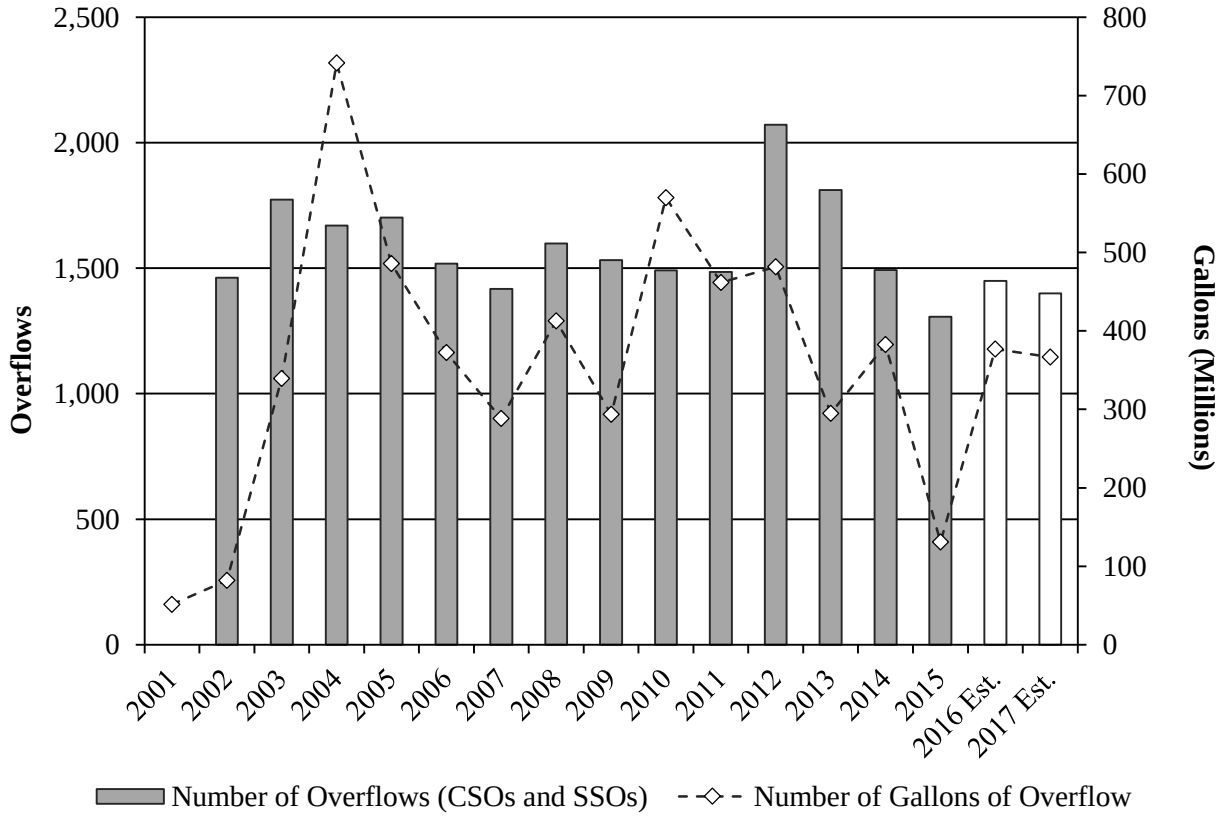
- **Mayo** – started construction in November 2015;
- **Maryland Correctional Institution** – started construction in December 2015;
- **Westminster** – under design, scheduled to start construction in June 2016;
- **Conococheague** – under design, scheduled to start construction in June 2016;
- **Hampstead** – under design, scheduled to start construction in September 2016; and
- **Princess Anne** – in planning, may start construction in calendar 2017.

A number of Maryland's jurisdictions have signed consent decrees, requiring the upgrade of their sewer systems due to the release of untreated sewage from facilities with National Pollutant

Discharge Elimination System permits. These releases are called CSOs if a jurisdiction has a single system carrying both storm and sanitary sewer water, and it is called a SSO if the two systems are separated.

As illustrated in **Exhibit 4,** the number of sewage overflows and number of gallons of overflow have shown a decreasing trend between fiscal 2012 and 2015. Over the fiscal 2001 through 2015 period, it appears very little progress has been made to reduce the number of overflows or gallons of sewage released. MDE has noted previously that funding for sewer rehabilitation and the amount of rainfall will determine future sewer overflow reductions and that it has very little control over either the number of overflows or the associated gallons. For instance, while not necessarily reflected in Exhibit 4, MDE notes that predictions about more substantial storms due to global warming have led to higher overflow estimates for future years. MDE notes that it can ensure that the systems have Long-term Control Plans and/or consent decrees or other enforcement actions to control overflows, but that remedying these shortcomings can be expensive, long-term projects; therefore, only slow progress toward the objective of a 50% reduction from the baseline amount of overflow gallons can be made. In terms of progress, MDE notes that Baltimore County and the Washington Suburban Sanitary Commission have made system upgrade progress under their consent orders and that Cambridge completed its sewer separation project to eliminate CSOs and their consent order was terminated in 2014. Furthermore, Frostburg and other communities continue to make progress in improving their systems in accordance with their consent orders for improvements. The $80.0 million provided for sewer system projects in fiscal 2017, including $27.2 million for the Cumberland CSO Storage Facility, is intended to reduce CSOs.

Exhibit 4
CSO and SSO Overflows
Fiscal 2001-2017 Est.



CSO: combined sewer overflow
SSO: sanitary sewer overflow

Note: The number of gallons of overflow is calculated by the annual net change in number of gallons of overflows from the 2003 to 2005 average.

Source: Governor's Budget Books, Fiscal 2005 and 2016; Department of Budget and Management, Fiscal 2015 to 2017

Bay Restoration Fund – Septic System Projects

The septic system data provided in **Exhibit 5** reflects the large numbers of septic systems to be upgraded by the program. The greatest number of both the State's septic systems in the Critical Area and upgrades funded by the BRF are in Anne Arundel County. Between February 2015 and February 2016, 1,434 septic systems in total have been upgraded with BRF funding, which includes 543 in the Critical Area. Since the program's inception, a total of 2,321 systems have been upgraded using non-BRF funding with the greatest number of upgrades in Anne Arundel County.

Exhibit 5
Septic System Data
January 2016

County	Systems	Systems in Critical Area	Systems Not in Critical Area	BRF Upgraded Septic Systems	Critical Area BRF Upgraded Septic Systems	Septic Systems Upgraded without BRF Funding	Total BAT Systems
Allegany	4,169	0	4,169	14	0	25	39
Anne Arundel	40,538	12,911	27,627	1,181	899	470	1,651
Baltimore City	0	0	0	0	n/a	0	0
Baltimore County	28,000	2,130	25,870	257	51	150	407
Calvert	25,341	4,832	20,509	607	474	230	837
Caroline	8,463	1,135	7,328	225	115	25	250
Carroll	33,441	0	33,441	140	n/a	184	324
Cecil	20,209	3,503	16,706	364	222	83	447
Charles	22,067	1,132	20,935	193	89	24	217
Dorchester	6,883	3,321	3,562	437	351	2	439
Frederick	31,031	0	31,031	192	n/a	234	426
Garrett	11,897	0	11,897	54	n/a	13	67
Harford	33,568	182	33,386	235	37	159	394
Howard	17,131	0	17,131	89	n/a	240	329
Kent	4,850	1,914	2,936	305	182	31	336
Montgomery	32,800	0	32,800	155	n/a	96	251
Prince George's	10,348	209	10,139	23	1	41	64
Queen Anne's	9,074	4,525	4,549	643	434	10	653
Somerset	6,058	2,529	3,529	703	343	32	735
St. Mary's	21,882	5,994	15,888	658	477	71	729
Talbot	7,732	4,045	3,687	399	361	38	437
Washington	18,626	0	18,626	182	n/a	92	274
Wicomico	20,619	1,589	19,030	440	138	32	472
Worcester	7,039	1,520	5,519	233	149	39	272
Total	**421,766**	**51,471**	**370,295**	**7,729**	**4,323**	**2,321**	**10,050**

BAT: best available technology
BRF: Bay Restoration Fund

Note: The information on the total number of septic systems is based on 2009 Maryland Department of Planning (MDP) data, while the number of systems in the Critical Area is based on 2004 MDP data. Certain counties have no septic systems in the Critical Area. In the column "Critical Area BRF Upgraded Septic Systems," the information for these counties is designated as not applicable, or "n/a."

Source: Maryland Department of the Environment

The Phase II WIP strategy for septic system upgrades is 43,181 additional septic systems not planned for connection to WWTPs. This figure is comprised of 15,141 systems in the Critical Area, 15,498 systems outside the Critical Area but within 1,000 feet of a perennial stream, and 12,542 additional systems outside the Critical Area and beyond 1,000 feet of a perennial stream. MDE has noted in the past that along with the approximately 1,200 septic systems upgraded per year with BRF funding, the new regulations requiring best available technology for new construction and repairs to existing homes in the Chesapeake Bay watershed, paid for by homeowners, will help convert most septic systems to best available technology over the septic systems 30-year life cycle. However, it was noted in the report *Historical and Projected Chesapeake Bay Restoration Spending*, submitted by the Administration in response to budget bill language in the fiscal 2016 operating budget bill, that current nutrient reductions due to septic system upgrades and connections to WWTPs will not meet the septic reductions specified in the WIP by 2025.

Exhibit 6 shows the septic systems upgraded by county for fiscal 2008 to 2015. Between fiscal 2008 and 2010, MDE implemented a concurrent program with the county reimbursable program. In last year's analysis, the MDE program data was reflected under the label "statewide," but this year's analysis reflects the data being allocated among the local jurisdictions. The average number of septic systems upgraded over the time period shown is 1,090, which is greater than the 933 in last year's analysis. The increase in septic systems upgraded between fiscal 2012 and 2013 and then again between fiscal 2013 and 2014 reflects the additional revenue generated by doubling the BRF fee by Chapter 151 of 2012.

Exhibit 6
Septic System Best Available Technology Installations
Fiscal 2008-2015

Jurisdiction	2008	2009	2010	2011	2012	2013	2014	2015	BATs in Critical Area 2015
Allegany	0	2	1	1	2	2	11	12	0
Anne Arundel	54	86	107	200	214	249	283	336	163
Baltimore	5	32	62	17	18	17	43	108	9
Calvert	37	53	65	95	76	114	109	186	55
Caroline	8	20	18	13	30	26	57	34	10
Carroll	2	20	28	3	3	5	60	96	0
Cecil	0	1	27	41	41	60	127	111	43
Charles	19	20	54	1	8	10	18	40	9
Dorchester	9	27	53	69	67	36	83	51	31
Frederick	13	17	4	13	15	41	84	131	0
Garrett	0	2	1	8	7	9	18	14	0
Harford	0	30	82	3	8	24	79	81	1
Howard	4	13	22	4	8	14	58	144	0
Kent	12	34	35	46	59	61	74	54	14
Montgomery	11	41	38	4	6	14	32	72	0
Prince George's	0	2	7	0	1	2	14	22	0
Queen Anne's	13	51	81	73	61	77	121	108	50
St. Mary's	4	29	59	58	50	118	158	108	63
Somerset	4	317	248	23	28	40	31	37	23
Talbot	49	50	24	30	25	44	89	43	34
Washington	0	28	31	17	18	48	48	57	0
Wicomico	48	17	77	52	28	36	86	73	6
Worcester	8	34	63	26	9	12	29	40	20
Total Upgrades	**300**	**926**	**1,187**	**797**	**782**	**1,059**	**1,712**	**1,958**	**531**
Subset of Total Upgrades: Critical Area BAT Upgrades	***188***	***444***	***575***	***618***	***576***	***635***	***743***	***531***	

BAT: best available technology

Source: Maryland Department of the Environment

Hazardous Substance Clean-Up Program

The previous performance measure for the Hazardous Substance Clean-Up Program was the number of properties on the State Master and Non-Master Lists that are given a "No Further Action" determination and moved to the formerly investigated sites category or archived. The State Master List identified potential hazardous waste sites in Maryland and included sites identified under the EPA's Superfund Program. The Non-Master List was comprised of sites under investigation or that had previously been investigated but were not on the State Master List. However, beginning in 2014, MDE notes that it combined all the sites into a single list called the Brownfield Master Inventory (BMI), which was an amalgamation of the State Master List, the Non-Master List, a Federal Facilities list, a Voluntary Cleanup Program list, a Formerly Used Defense Site list, and a Brownfield list.

The Department of Budget and Management notes that as of May 2015, there were 962 active BMI sites and 911 archived sites. In last year's analysis, it was reported that there were 1,014 active sites and 804 archived sites on the BMI, which reflects a decrease in the number of active sites and an increase in the number of archived sites. However, MDE notes that sites can move between the "active" and "archived" list based on whether a prospective property purchaser enrolls the property in the Voluntary Cleanup Program or new environmental data suggests inclusion. In addition to time series data on how many projects are on the BMI, it would be helpful to know the value of the land improvements generated by the Hazardous Substance Clean-Up Program in terms of increased taxes, new development, jobs, and the saving of valuable undeveloped land, but this information is not currently collected.

Budget Overview

Fiscal 2016 Budget Cost Containment

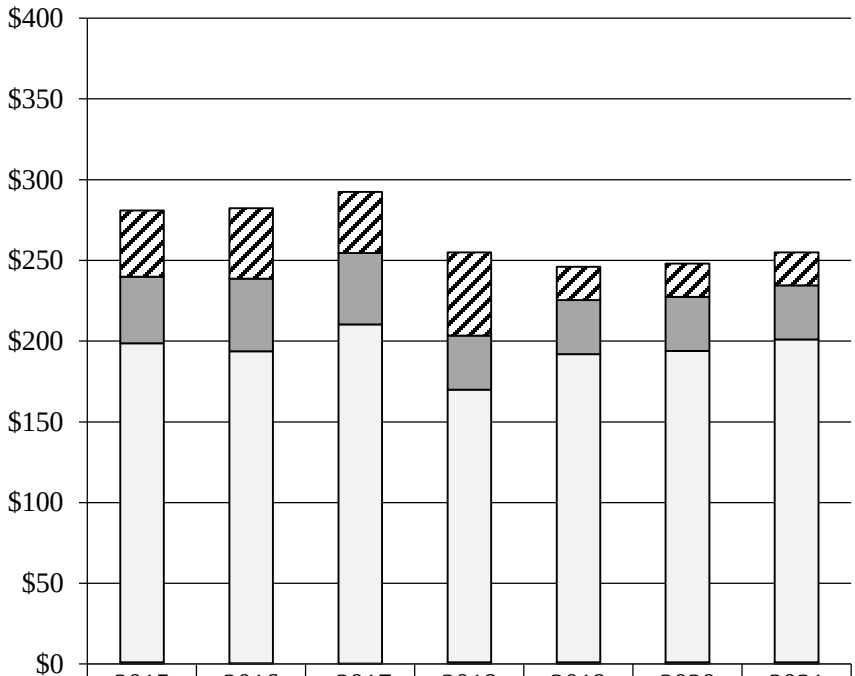
The fiscal 2016 appropriation of $700,000 in general funds for the Hazardous Substance Clean-Up Program was reduced by $300,000 by budget amendment. This reflected the reallocation of a portion of the 2% cost containment reductions in Section 19 of the fiscal 2016 budget from the operating budget to the Hazardous Substance Clean-Up Program pay-as-you-go (PAYGO) capital program.

Fiscal 2017 Budget

MDE's fiscal 2017 capital program includes $0.2 million in general funds, $210.1 million in special funds, $44.3 million in federal funds, and $37.8 million in GO bonds for a total of $292.4 million. The overall change between fiscal 2016 and 2017 is a $10.2 million increase, as shown in **Exhibit 7**. The increase in funding between fiscal 2016 and 2017 is attributable to the $16.2 million in new one-time funding for the Energy-Water Infrastructure Program, which is offset partially by a $4.2 million reduction for the Supplemental Assistance Program, since it is no longer receiving funding, and reduction of $1.5 million for the BNR program. For the out-years, the reduction in funding reflects

the one-time nature of the Energy-Water Infrastructure Program and reductions in both BRF – Wastewater Projects funding and BNR funding as WWTPs complete the upgrades to ENR and BNR technology.

Exhibit 7
MDE Capital Programs Funding
Fiscal 2015-2021 Est.
($ in Millions)



	2015 Approp.	2016 Approp.	2017 Request	2018 Est.	2019 Est.	2020 Est.	2021 Est.
Total	$280.9	$282.2	$292.4	$255.0	$246.0	$248.0	$255.0
GO Bonds	41.0	43.6	37.8	51.5	20.5	20.5	20.5
PAYGO FF	41.3	44.9	44.3	33.5	33.5	33.5	33.5
PAYGO SF	197.6	193.3	210.1	169.0	191.0	193.0	200.0
PAYGO GF	1.0	0.4	0.2	1.0	1.0	1.0	1.0

FF: federal funds
GF: general funds
GO: general obligation
MDE: Maryland Department of the Environment
PAYGO: pay-as-you-go
SF: special funds

Source: Governor's Capital Budget, Fiscal 2017; Department of Budget and Management Capital Budget Worksheets

Multiple Sources of Funding

Exhibit 8 shows water quality-related project funding across programs. There are four projects receiving multiple sources of funding in fiscal 2017: LaVale Sanitary Commission Manhole Rehab Phase 2, Frostburg CSO Elimination Phase VIII-B, and Evitts Creek CSO Upgrades all receive both WQRLF and BRF funding; and Betterton WWTP BNR/ENR Upgrade receives both WQRLF and BNR funding. **Exhibit 9** shows drinking water-related project funding across programs, for which there is one project receiving multiple sources of funding in fiscal 2017: R.C. Willson Water Treatment Plant Traveling Screen Replacement and Water Storage Tank IV-C receives both DWRLF and Water Supply Financial Assistance Program funding.

Exhibit 8
Water Quality-related Project Funding Across Programs
Fiscal 2017
($ in Thousands)

Subdivision	LD	Project Title	Estimated Cost	WQRLF	BNR	BRF	Total
Allegany	1B	LaVale Sanitary Commission Manhole Rehab Phase 2*	$1,142	$143		$999	$1,142
Allegany	1B	Frostburg CSO Elimination Phase VIII-B, Grant Street Corridor	2,441			2,136	2,136
Allegany	1C	Cumberland CSO Storage Facility*	32,629	3,892		27,241	31,133
Allegany	1	Evitts Creek CSO Upgrades, Phase 3 – Gravity Sewer through CSX Railyard*	1,415	177		1,238	1,415
Allegany	1C	LaVale Mechanic Street Relief Sewer Improvements	1,388	738			738
Baltimore City	41	Gwynns Falls Sewershed Collection System Area B	23,270			14,175	14,175
Baltimore City	45	Herring Run Sewershed Sewer Improvements, Basin HR07A	8,270			3,258	3,258
Baltimore City	43	Herring Run Sewershed Sewer Improvements, Chinquapin Run	24,480			7,875	7,875
Baltimore City	41	High Level Sewershed Sewer Improvements, Phase I	18,259			5,753	5,753
Baltimore City	46	Low Level Sewershed Sewer Improvements, Phase I	23,140			7,481	7,481
Baltimore City	46	Patapsco Sewershed Sewer Improvements, Phase I	31,100			9,844	9,844
Baltimore City	98	Masonville Cove Watershed Environmental Site Design	915	571			571
Baltimore City	6	Back River Headworks Improvement	357,885	36,001			36,001
Baltimore County	6	Back River Headworks Improvement	357,885	35,000			35,000

Subdivision	LD	Project Title	Estimated Cost	WQRLF	BNR	BRF	Total
Baltimore City/ Baltimore County	6	Back River WWTP BNR/ENR Upgrade and Misc. Improvements	657,616		10,984		10,984
Carroll	5	Hampstead WWTP Upgrade	14,016		2,592		2,592
Cecil	36	Harbour View WWTP Upgrade	4,900		900		900
Cecil	36	Chesapeake City WWTP Upgrade	10,480		1,590		1,590
Dorchester	37B	Twin Cities WWTP Upgrade	14,365		3,085		3,085
Frederick	98	Frederick County Reforestation Program	1,408	1,408			1,408
Frederick	4	Little Hunting Creek Stream Restoration	1,698	1,620			1,620
Kent	36	Betterton WWTP BNR/ENR Upgrade*	6,755	250	750		1,000
Kent	36	Galena WWTP Upgrade	8,689		1,395		1,395
Somerset	38A	Princess Anne WWTP Upgrade	4,935	200			200
Somerset	38A	Smith Island BNR Upgrade	7,684		1,694		1,694
Talbot	37B	Oxford WWTP Upgrade	10,749		2,010		2,010
Regional	98	Blue Plains WWTP ENR Upgrade ECF and TDPS	1,116,691	50,000			50,000
Total			**$2,744,204**	**$130,000**	**$25,000**	**$80,000**	**$235,000**

BNR: Biological Nutrient Removal Program
BRF: Bay Restoration Fund
CSO: combined sewer overflows
ECF: enhanced clarification facility
ENR: enhanced nutrient removal
LD: legislative district
TDPS: tunnel dewatering pump station
WQRLF: Water Quality Revolving Loan Fund
WWTP: wastewater treatment plants

*Applicant is financing a percentage of costs not eligible for the BRF.

Source: Maryland Department of the Environment

Exhibit 9

Drinking Water Quality-related Project Funding Across Programs

Fiscal 2017

($ in Thousands)

Subdivision	LD	Project Title	Estimated Cost	DWRLF	WSFA	Total
Allegany	1B	Barrelville Route 47 Section Water Project	$500	$200	$0	$200
Allegany	1A	Lonaconing Water Station Run and Potomac Hollow Road Water Line Extension	1,860	1,500	0	1,500
Allegany	1A	Westernport Luke (Mill) Bloomington Water Line	3,200	0	1,500	1,500
Allegany	1B	Sunnyside Water	940	400	0	400
Allegany	1B	Pond Circle Road Water	275		138	138
Baltimore City	41	Ashburton Reservoir Improvements WC-1211	147,278	19,730	0	19,730
Dorchester	37B	North Dorchester High/Middle Schools Well and Storage Tank	303		151	151
Garrett	1A	Bloomington Water Tank Replacement and Line Extension to Westernport	1,479	1,479	0	1,479
Washington	2B	R. C Willson Water Treatment Plant Traveling Screen Replacement and Water Storage Tank IV-C*	1,383	691	691	1,383
Total			**$157,217**	**$24,000**	**$2,480**	**$26,480**

DWRLF: Drinking Water Revolving Loan Fund
WSFA: Water Supply Financial Assistance Program

*Applicant is financing a percentage of costs not eligible for the Water Supply Financial Assistance Program grant.

Source: Maryland Department of the Environment

Highlights

The changes in funding between fiscal 2016 and 2017 are reflected in terms of the program overall difference in **Exhibit 10.**

Exhibit 10
MDE Capital Funding Changes
Fiscal 2016-2017
($ in Millions)

Program	Approp. 2016	Request 2017	Difference
Energy-Water Infrastructure Program	$0.000	$16.200	$16.200
Maryland Water Quality Revolving Loan Fund	130.000	130.000	0.000
Maryland Drinking Water Revolving Loan Fund	24.000	24.000	0.000
Bay Restoration Fund – Wastewater Projects	80.000	80.000	0.000
Septic System Upgrade Program	14.000	14.000	0.000
Mining Remediation Program	0.500	0.500	0.000
Water Supply Financial Assistance Program	2.661	2.480	-0.181
Hazardous Substance Clean-Up Program	0.400	0.200	-0.200
Biological Nutrient Removal Program	26.500	25.000	-1.500
Supplemental Assistance Program	4.157	0.000	-4.157
Total	**$282.218**	**$292.380**	**$10.162**

MDE: Maryland Department of the Environment

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

The highlighted changes in funding for fiscal 2017 are as follows.

- **Energy-Water Infrastructure Program –** The fiscal 2017 allowance includes new one-time funding for the Energy-Water Infrastructure Program. The program is funded with $16.2 million from the agreement by which, under Public Service Commission Order 86372, Dominion Cove Point is allowed to construct a 130-megawatt nameplate capacity electric generating station at the existing liquefied natural gas terminal site in Calvert County near Cove Point. A total of $40.0 million was made available as a result of Public Service Commission Order 86372, of which the Energy-Water Infrastructure Program represents the majority of the $24.0 million budgeted in fiscal 2017. As part of the agreement, $16.2 million is being used –

per the right to fund cost-effective energy efficiency and conservation programs, projects, or activities – to provide grants to water and wastewater treatment plant owners to develop energy efficient and resilient projects in order to reduce operating costs and ultimately pass savings on to consumers by lowering the rate of future user fee increases. Project selection will be based on ready-to-construct project applications received. Funding will be provided as 100% grants not to exceed $1.0 million per project for energy efficient equipment (such as replacement of aging pumps with new energy efficient ones) and $3.0 million per project for combined heat and power projects (such as using methane from digesters to generate heat/power or by developing wind power to generate power). The goal is to achieve energy efficiency/reduction levels of 20% relative to the old equipment being replaced as tracked through an energy audit. An example type of project is the Blue Plains WWTP – New Digestion Facilities and Combined Heat and Power project on the February 10, 2016 Board of Public Works agenda. **DLS recommends that $100,000 in funding be restricted pending the submission of two reports: on the criteria for allocation of the funding and the actual allocation of the funding.**

- **Maryland Water Quality Revolving Loan Fund** – MDE's fiscal 2017 allowance for the WQRLF is even with the fiscal 2016 appropriation, although it reflects an increase of $10.0 million relative to the 2015 CIP, which requires a greater match. The funding increase is due to an increase in the federal capitalization amount as part of federal continuing resolutions. The fiscal 2017 allowance includes $89.2 million in special funds, $34.0 million in federal funds, and $6.8 million in GO bonds used for the 20% match to the federal funds. This funding would provide for 12 projects in six jurisdictions and the national capital region. The two largest projects are as follows: Back River Headworks Improvement receives $71.0 million in total from separate allocations to Baltimore City and Baltimore County; and Blue Plains WWTP Enhanced Clarification and Tunnel Dewatering Pump Station – Miscellaneous Improvements receives $50.0 million. Local government stormwater funding needs under the 20% impervious surface retrofit requirement for the State's WIP for Chesapeake Bay restoration are expected to increase substantially in the next couple of years. Therefore, the approximately $0.5 million estimated closing balance in fiscal 2020 may lead MDE to issue revenue bonds under the WQRLF that would in turn increase the available funding for stormwater retrofits. **DLS recommends that the $6.8 million GO bond authorization matching the federal funding be deleted. The Governor should provide general funds in a supplemental budget which will avoid the need to issue taxable GO bonds. Consistent with the recommendation of the Spending Affordability Committee, the State should end the use of GO bonds to support programs that cannot be funded with tax-exempt financing and instead use general funds.**

- **Maryland Drinking Water Revolving Loan Fund** – The DWRLF allowance for fiscal 2017 is level with both the fiscal 2016 appropriation and the 2015 CIP. The federal allocation to Maryland has increased from 1.55% to 1.7% to reflect the ratio of Maryland drinking water needs as a percentage of the national drinking water needs based on the 2011 U.S. EPA National Drinking Water Needs Survey. MDE has attributed the increase in need to new drinking water treatment rules and aging infrastructure and Maryland's utilities being diligent in completing the needs survey. The fiscal 2017 allowance includes $10.6 million in special funds, $10.4 million in federal funds, and $3.0 million in GO bond authorizations used as matching funding. The largest project in fiscal 2017 is the Ashburton Reservoir Improvements project,

which receives $19.7 million and reflects new State funding. **DLS recommends that the $3.0 million GO bond authorization matching the federal funding be deleted. The Governor should provide general funds in a supplemental budget which will avoid the need to issue taxable GO bonds. Consistent with the recommendation of the Spending Affordability Committee, the State should end the use of GO bonds to support programs that cannot be funded with tax-exempt financing and instead use general funds.**

- **Bay Restoration Fund – Wastewater Projects** – Funding for the Bay Restoration Fund – Wastewater Projects is level with the fiscal 2016 appropriation but increases by $40.0 million in special funds relative to the 2015 CIP based on available funding and the demand for sewer projects authorized by Chapter 153 of 2015. For fiscal 2017, $80.0 million is programmed for sewer projects, as shown in **Exhibit 11**, since major-minor WWTPs received funding in fiscal 2016 and since there is low demand from the 67 major WWTPs. Chapter 153 of 2015 established that, starting in fiscal 2018, grants for septic system upgrades, stormwater management, and CSO and sewer abatement projects are of equal priority. For projection purposes, MDE is allocating $40.0 million for the three purposes in fiscal 2018, $60.0 million for fiscal 2019 and 2020, and $65.0 million in fiscal 2021. As noted previously, local government stormwater costs are expected to increase substantially in the next couple of years. **DLS recommends that MDE comment on projected breakdown for each of major-minor WWTPs, sewer infrastructure, septic systems, and stormwater best management practices in fiscal 2018 through 2021.**

Exhibit 11
Bay Restoration Fund Wastewater Program Projects
Fiscal 2017

Jurisdiction	Project	Amount
Allegany	Cumberland Combined Sewer Overflow Storage Facility	$27,241,372
Allegany	Evitts Creek Combined Sewer Overflow Upgrades, Phase 3 – Gravity Sewer through CSX Railyard	1,238,081
Allegany	Frostburg Combined Sewer Overflow Elimination, Phase VIII-B – Grant Street Corridor	2,135,875
Allegany	LaVale Sanitary Commission Manhole Rehab, Phase 2	999,250
Baltimore City	Gwynns Falls Sewershed Collection System Area B	14,175,000
Baltimore City	Herring Run Sewershed Sewer Improvements – Basin HR07A	3,257,734
Baltimore City	Herring Run Sewershed Sewer Improvements – Chinquapin Run	7,875,000
Baltimore City	High Level Sewershed Sewer Improvements, Phase I	5,752,688
Baltimore City	Low Level Sewershed Sewer Improvements, Phase I	7,481,250

Jurisdiction	Project	Amount
Baltimore City	Patapsco Sewershed Sewer Improvements, Phase I	9,843,750
Total		**$80,000,000**

Source: Department of Budget and Management

- **Septic System Upgrade Program** – The fiscal 2017 appropriation of $14.0 million in special funds for the Septic System Upgrade Program is level with both the fiscal 2016 appropriation and the 2015 CIP. As noted in last year's analysis, the remaining $1.0 million in revenue is programmed by Chapter 379 of 2014 (Bay Restoration Fund – Authorized Uses – Local Entities), which requires that up to 10% of the funds in the septic account of the BRF be distributed to a local public entity delegated by MDE – local health departments – to cover reasonable costs associated with implementation of MDE regulations pertaining to septic systems that use the best available technology for nitrogen removal. MDE notes that it has allocated funding for the following approved purposes: (1) connect onsite sewage disposal systems to an existing BNR or ENR WWTP – 128 sewer connections for $1.34 million, all of which was within a Priority Funding Area (PFA); (2) pay for the principal over time if the sewer extension cost is financed – $0.0 spent on this purpose; and (3) sewer connect opportunities outside the PFA after a public notice/hearing and exception approval from the smart growth coordinating committee – $0.0 spent on this purpose, although 1,518 homes have been approved for PFA exceptions on Southern Kent Island in Queen Anne's County and 2 churches have been approved in Worcester County. The program anticipates upgrading 1,100 systems in fiscal 2017.

- **Mining Remediation Program** – The Mining Remediation Program receives its third year of funding in fiscal 2017 – $500,000 in GO bonds – which is equal to both the fiscal 2016 authorization and the 2015 CIP. The funding provides for third-year funding of the Upper George's Creek Stream Sealing Project ($198,052), and second-year funding of the Matthew Run Acid Mine Drainage Remediation Project ($301,948). MDE notes that the Matthew Run Acid Mine Drainage Remediation Project construction begins in July 2016, while the design will not be complete until June 2017, because this is a complicated project requiring a design/build approach to handle differences between separate areas within the site. Overall, MDE estimates a total Mining Remediation Program need of approximately $60 million – split evenly between the federal government and the State. However, MDE notes that the federal funding is scheduled to end in 2022.

- **Water Supply Financial Assistance Program** – The Water Supply Financial Assistance Program funding of $2.48 million in GO bonds reflects a $181,000 reduction relative to the fiscal 2016 appropriation and is essentially level with the 2015 CIP. The Westernport Luke (Mill) Bloomington Water Line project in Allegany County is the largest project in the fiscal 2017 allowance and receives $1.5 million.

- **Hazardous Substance Clean-Up Program** – The fiscal 2017 allowance includes $0.2 million in general funds for the Hazardous Substance Clean-Up Program, which is a decrease of $0.2 million relative to the fiscal 2016 appropriation and a reduction of $0.8 million relative to the 2015 CIP. The Hazardous Substance Clean-Up Program's fiscal 2016 appropriation was reduced by $0.3 million as part of the 2% across-the-board reduction implemented for all State agencies. The $0.2 million in fiscal 2017 will allow for investigation of contamination via site assessments across the State.

- **Biological Nutrient Removal** – The BNR Program funding is $25.0 million in the fiscal 2017 allowance, which reflects a reduction of $1.5 million relative to the fiscal 2016 appropriation and a reduction of $8.5 million relative to the 2015 CIP. The proposed level of funding reflects a recalibration of the funding needed to complete the BNR upgrades at the Back River WWTP. The total remaining funding remains at $66.0 million, but the proposed budget reduces the fiscal 2017 amount and programs a corresponding increase in fiscal 2018 reflecting revised cash flow needs of the project. The Back River WWTP upgrade receives $11.0 million in fiscal 2017 and is expected to be completed in August 2017. After the $41.0 million authorization in fiscal 2018, the BNR funding level is steady at $10.0 million per year through the five-year 2016 CIP to reflect the funding planned for upgrading selected major-minor WWTPs to BNR technology.

Issues

1. Number of Septic Systems Unclear

There appears to be at least 3 different estimates of the number of septic systems in Maryland. There is the 421,766 estimate reflected in last year's analysis, which MDE notes is still a valid estimate; a 370,110 estimate cited by the Chesapeake Bay Program's Land Use Workgroup; and an approximately 388,000 estimate being considered by MDP. An accurate or at least agreed upon number for septic systems is important for determining policy goals.

MDP notes the reasons for and implications of the reduction in the estimated number of septic systems as follows.

- **Reason for Change –** The estimated number of septic systems changes due to the following: (1) more development on septic systems continues to occur, while at the same time sewer service continues to be extended to more parcels that were formerly on septic systems; (2) the numbers are counted differently by different groups, using different sources of information such as wastewater billing records, geographic data, and sewer service boundaries for each county; and (3) all of the data sources continue to change as the landscape changes, and as responsible local and State agencies improve the databases they use for these purposes and try to share and reconcile their data with each other.

- **Current Number –** There is no single new number being used by everyone. The most recent statewide septic systems estimate that MDP can calculate from its geographic data is approximately 388,000. This differs from MDP's 2009 estimate because in some counties relatively small parcels developed since 1990 were being counted as being on septic systems based on available local sewer service maps, which showed them to be outside sewer service areas. This information was checked and changes have been made.

- **Implications** – There may be roughly 30,000 fewer septic systems loading at the relatively high rates for nitrogen, compared to parcels on sewer service, than was estimated in 2009. Overall, it does not substantially change the effort and investment needed to reduce loads from any source sector, or the amount of time that will likely be needed to do it.

DLS recommends that MDE comment on if and when the septic system estimate will be formally updated.

2. Bay Restoration Fund Stretched Thin

Chapter 428 of 2004 established the BRF to provide grants to owners of WWTPs to reduce nutrient pollution to the Chesapeake Bay by upgrading the systems with ENR technology. The fund is also used to support septic system upgrades and the planting of cover crops and through fiscal 2009

was authorized to provide funding for stormwater management, which was phased out and instead provided to local jurisdictions for operations and maintenance of upgraded WWTPs that met permit limits. In recent years, legislation has expanded the use of the BRF and in the 2016 legislative session additional legislation is being proposed to allow the BRF to be used for purchasing nutrient credits. All of these changes raise the question of whether the BRF is being stretched too thin to be effective.

The recent legislation impacting the BRF is as follows.

- **Chapter 150 of 2012 (Environment – Bay Restoration Fund – Fees and Uses)** – Chapter 150 increased the BRF fee beginning July 1, 2012, in order to address a funding shortfall that would have made it very difficult to complete the upgrades to the 67 major publicly owned WWTPs by calendar 2017, as required by the WIP. Chapter 150 also established additional uses for the fund beginning in fiscal 2018 as follows in order of priority: (1) funding an upgrade of a wastewater facility with a design capacity of 500,000 gallons or more per day to ENR technology; (2) funding for the most cost-effective ENR upgrades at wastewater facilities with a design capacity of less than 500,000 gallons per day; (3) costs associated with upgrading septic systems and sewage holding tanks; and (4) grants for local government stormwater control measures for jurisdictions that have implemented a specified system of charges under current authority.

- **Chapter 153 of 2015 (Environment – Bay Restoration Fund – Use of Funds)** – Beginning in fiscal 2016, Chapter 153 added to the authorized uses of the BRF by providing funding for up to 87.5% of the cost of projects relating to CSO abatement, rehabilitation of existing sewers, and upgrading conveyance systems, including pumping stations. This effectively ended the need for the Supplemental Assistance Program and thus reduced the need for the $5 million programmed each year between fiscal 2017 and 2020 in the 2015 CIP. The bill also altered the priority of BRF funding beginning in fiscal 2018 by making grants for septic system upgrades, stormwater management, and CSO and sewer abatement projects of equal priority, with funding decisions made on a project-specific basis.

- **HB 325 (Environment – Bay Restoration Fund – Use of Funds – Nutrient Credit Purchases)** – HB 325 has been introduced in the 2016 legislative session to authorize MDE to purchase cost-effective nitrogen and phosphorus nutrient credits in support of State efforts to restore the Chesapeake Bay using the BRF. MDE notes that the modifications proposed in the bill should promote a nutrient credit market by creating a modest, yet reliable, level of demand for the generation of credits and that this should reduce the long-term costs of compliance with nutrient load reduction requirements. The bill is also intended to help resolve the issue of achieving nutrient reductions from nonregulated urban sectors (such as septic systems) for which no permitting instrument exists to require reductions. MDE notes that initially the financial impact to the BRF is expected to be less than $5 million annually since the market for nutrient trading has not yet developed.

While it is acknowledged that the original goal of the BRF to upgrade the 67 major WWTPs to ENR technology almost has been met, the uses of the BRF have been expanded to include septic system

upgrades, stormwater management, CSO and sewer abatement projects, and possibly nutrient credit purchases. **DLS recommends that MDE comment on the proposed fiscal 2017 and future year allocation plan for the BRF and whether it will continue to be an effective source of funding even though spread across so many diverse uses.**

Updates

1. Wastewater Collection and Conveyance Funding Needs Identified

The four-year 2012 EPA Clean Water Needs Survey was released in January 2016. The survey reflects $271 billion in need for the United States as a whole, of which Maryland's needs are $9.9 billion. This reflects a national per capita need of $868. The top jurisdictions in terms of per capita need are as follows: District of Columbia ($4,472), Guam ($2,497), New Jersey ($1,975), Rhode Island ($1,829), West Virginia ($1,756), Maryland ($1,693), New York ($1,609), Missouri ($1,598), and Hawaii ($1,564).

As shown in **Exhibit 12**, Maryland's needs are spread across seven categories, and the highest need is reflected in the stormwater management program. However, a couple of the larger categories can be combined, which gives the following breakdown of need: conveyance systems ($4.1 billion), stormwater management ($3.2 billion), secondary and advanced wastewater treatment ($2.3 billion), combined sewer overflow correction ($345 million), and recycled water distribution ($19 million).

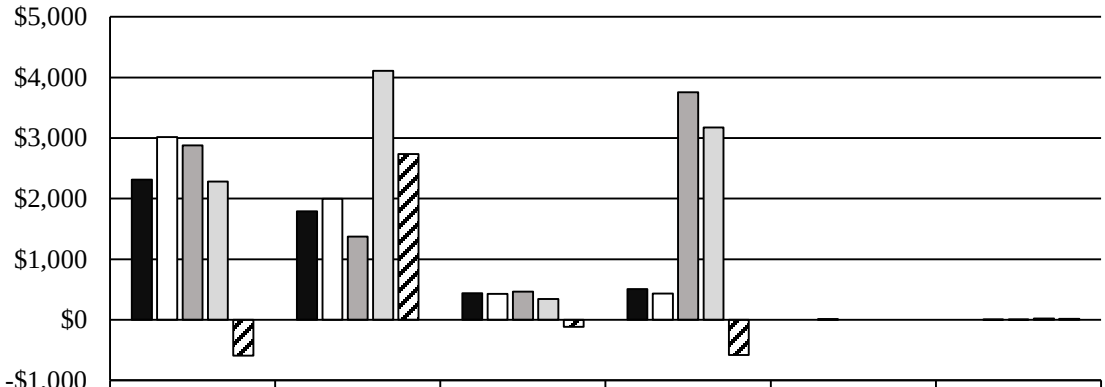
Exhibit 12
Maryland's 2012 Clean Water Needs Survey Responses
($ in Millions)

Category	Funding	Percent
I. Secondary Wastewater Treatment	$997	10.0%
II. Advanced Wastewater Treatment	1,286	13.0%
III. Conveyance System Repair	2,492	25.1%
IV. New Conveyance Systems	1,616	16.3%
V. Combined Sewer Overflow Correction	345	3.5%
VI. Stormwater Management Program	3,173	32.0%
X. Recycled Water Distribution	19	0.2%
Total	**$9,928**	**100.0%**

Source: U.S. Environmental Protection Agency

Exhibit 13 reflects the changes in Maryland's Clean Water Needs Survey responses between the 2000 survey and the 2012 survey. In order to show comparable information, categories have been combined. The following changes can be seen between the 2008 and 2012 survey responses.

Exhibit 13
2000-2012 Clean Water Needs Survey
($ in Millions)



	Wastewater Treatment Plant Improvements	Wastewater Collection and Conveyance Improvements	Combined Sewer Overflow Correction	Stormwater Management Controls	Home Sewage Treatment System Improvements	Recycled Wastewater Distribution
■2000	$2,311	$1,791	$440	$508	$0	$0
□2004	3,016	1,994	430	431	8	1
▩2008	2,876	1,374	463	3,755	0	2
□2012	2,283	4,108	345	3,173	0	19
▨Difference 2008-2012	-593	2,734	-118	-582	0	17

Source: U.S. Environmental Protection Agency

- **Wastewater Conveyance and Collection Systems –** There is a $2.7 billion increase in wastewater conveyance and collection systems funding needed. MDE notes that, in combination with combined sewer overflow correction, this reflects the need to address aging sewer infrastructure and new growth.

- **Stormwater Management Controls –** There is a $582 million decrease in stormwater management control funding needed. MDE notes that the 2008 survey may not be accurate and points out that there is a footnote that says "difficult to document needs." In contrast, the 2012 survey used WIP documentation to determine the need. MDE also notes that the $3.2 billion identified in the 2012 survey is still substantial.

- **Wastewater Treatment Plant Improvements –** There is a $593 million decrease in WWTP improvements funding needed. MDE notes that this reflects the upgrade of WWTPs to ENR technology through the BRF.

- **Combined Sewer Overflow Correction** – There is a $118 million decrease in combined sewer overflow correction funding needed. However, when combined with wastewater conveyance and collection systems, there is an overall increase in need that reflects aging sewer infrastructure and new growth.

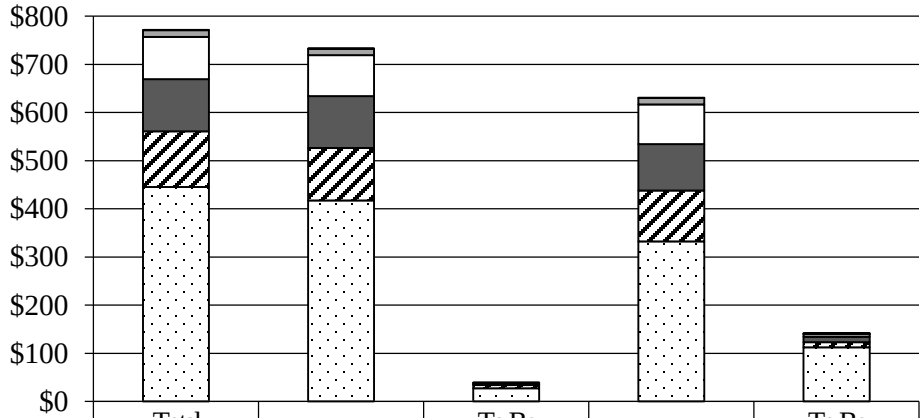
2. Supplemental Assistance Program Project Update

The fiscal 2015 authorization of $5,864,000 in GO bonds for the Supplemental Assistance Program included the restriction of $550,000 for a grant to the Town of Federalsburg for the design and construction of improvements to the Town of Federalsburg Railroad Avenue Combined Sewer Overflow Removal and Water Main Replacement Project. MDE notes that the project is completed and is in the close-out phase.

Encumbrances and Expenditures

Exhibit 14 reflects the encumbrance and expenditure levels for the BNR, Supplemental Assistance, Septic System Upgrade, Water Supply Financial Assistance, Hazardous Substance Clean-Up, and Mining Remediation programs. In general, the exhibit reflects expenditure levels being proportionate to the total authorization for the program, with the exception of the BNR program. The largest authorization reflected is for the BNR Program, which has $445.4 million authorized. Of this amount, $27.6 million remains to be encumbered, although the department's project list for the current fiscal year reflects full utilization and encumbrance of these funds in fiscal 2016. The $112.6 million that remains to be expended typically reflects the delays in reimbursement requests from local governments that are responsible for project procurement and implementation.

Exhibit 14
Non-BRF Programs
Encumbrances and Expenditures
Program Inception through February 2016
($ in Millions)



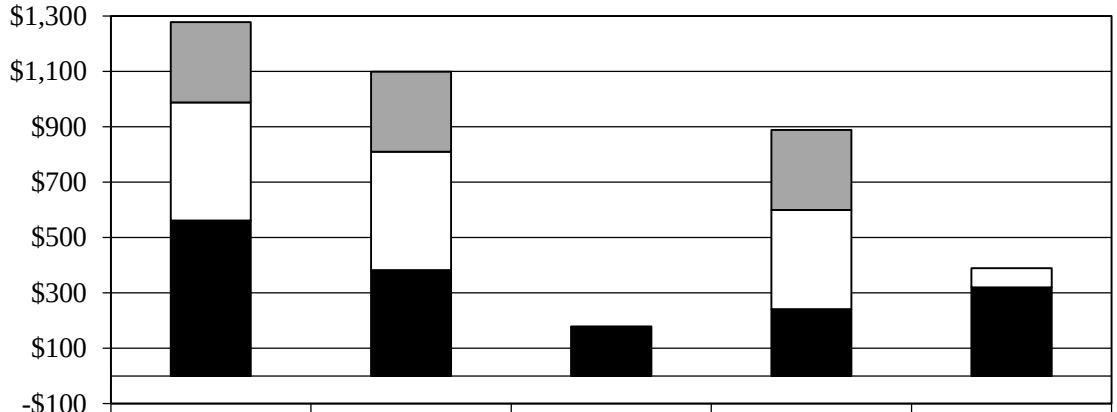
	Total Authorized	Encumbered	To Be Encumbered	Expended	To Be Expended
Total	$771.9	$733.0	$38.8	$630.4	$141.5
Mining Remediation Program	1.0	0.8	0.2	0.3	0.7
Hazardous Substance Clean-Up Program	13.8	13.2	0.6	13.0	0.8
Water Supply Financial Assistance	87.8	85.0	2.8	82.3	5.5
Septic System Upgrade	108.3	107.6	0.8	96.9	11.5
Supplemental Assistance	115.5	108.7	6.8	105.1	10.4
Biological Nutrient Removal	445.4	417.8	27.6	332.8	112.6

BRF: Bay Restoration Fund

Source: Maryland Department of the Environment

Exhibit 15 reflects the encumbrances and expenditures for the BRF – Wastewater Projects. The overall authorization is $1.3 billion, of which $178.8 million remains to be encumbered, and $389.2 million still remains to be expended. However, the entirety of the amount to be encumbered and the majority of the amount to be expended reflect MDE's authorization of $530.0 million in revenue bonds. MDE's plan is to hold the revenue bond issuances until the very end of the financing period. Since the revenue bonds will require debt service payments once they are issued, that will reduce available cash for reimbursement payments. To date, $330.0 million in revenue bonds have been issued – $50.0 million in fiscal 2008, $100.0 million in fiscal 2014, and $180.0 million in fiscal 2016 – based on cash flow needs for project reimbursements and MDE plans on issuing $100.0 million in fiscal 2017 in order to fund the approximately $1.25 billion cost of upgrading the 67 major WWTPs to ENR technology. Although only $330.0 million of the revenue bond authorization has been issued, MDE reflects the encumbrance or obligation of $383.0 million in authorization for projects in anticipation that the revenue bonds will be issued within the next couple of years. Due to the doubling of the BRF fee and project scheduling, the plan is to withdraw $100.0 million of revenue bond authorization in the fiscal 2018 budget.

Exhibit 15
Bay Restoration Fund – Wastewater Projects
Encumbrances and Expenditures
Program Inception through February 2016
($ in Millions)



	Total Authorization	Encumbered	To Be Encumbered	Expended	To Be Expended
Total	$1,278.5	$1,099.7	$178.8	$889.3	$389.2
GO Bonds	290.0	290.0	0.0	290.0	0.0
Special Funds	426.7	426.7	0.0	357.5	69.2
Revenue Bonds	561.8	383.0	178.8	241.8	320.0

GO: general obligation

Source: Maryland Department of the Environment

Programs Removed from the *Capital Improvement Program*

The Supplemental Assistance Program receives no funding in fiscal 2017 as the applicable projects have been funded through the BRF – Wastewater Projects program. This is reflected as a reduction of $4.2 million in GO bonds between fiscal 2016 and 2017 and further discussion is reflected in **Exhibit 16**.

Exhibit 16
Programs Removed from the *Capital Improvement Program*
Fiscal 2017

Project	Description	Reason for Removal
Supplemental Assistance Program	Provides grant assistance up to 87.5% of eligible costs for sewer projects and 25.0% of the BNR project costs for small, lower-income jurisdictions needing subsidies for planning, designing, and constructing WWTP improvements; for connection of older communities with failing septic systems; for correction of CSOs and SSOs; and for correction of excessive infiltration and inflow throughout the State.	Replaced by the expansion of eligible uses by the Bay Restoration Fund via Chapter 153 of 2015 and therefore there is no impact to MDE's capital programs.

BNR: Biological Nutrient Removal Program
CSO: combined sewer overflow
MDE: Maryland Department of the Environment
SSO: sanitary sewer overflow
WWTP: wastewater treatment plants

Source: Department of Budget and Management, 2016 *Capital Improvement Program*

PAYGO Recommended Actions

1. Add the following language to the special fund appropriation:

, provided that $100,000 of this appropriation made for the purpose of providing grants to water and wastewater treatment plant owners to develop energy efficient and resilient projects shall be restricted pending the submission of two reports. The first report shall be submitted by July 1, 2016, and specify the qualitative and quantitative criteria that will be used to evaluate and select projects to be funded by the Energy-Water Infrastructure Program under both the $1,000,000 per project allocation for energy efficient equipment and the $3,000,000 per project allocation for combined heat and power projects. The second report shall be submitted by January 1, 2017, and provide the following for each project selected for funding:

(1) an energy use baseline;

(2) a 20% energy reduction target;

(3) the expected payback period for the energy efficient equipment or combined heat and power project as if the project were to be funded as an energy performance contract; and

(4) the expected amount and timing of the modification of any user rates associated with the entity receiving funding as a result of the energy efficient equipment or combined heat and power project funded.

The budget committees shall have 45 days to review and comment. Funding shall be released in $50,000 increments pending submission of each report. Funds restricted pending the receipt of the reports may not be transferred by budget amendment or otherwise to any other purpose and shall be cancelled if the reports are not submitted to the budget committees.

Explanation: The fiscal 2017 allowance includes a $16,200,000 special fund appropriation for the new one-time Energy-Water Infrastructure Program pay-as-you-go capital program. This budget bill language restricts $100,000 of the funding pending the submission of reports on the criteria for the allocation of the Energy-Water Infrastructure Program funding and the actual allocation of funding including energy efficiency benchmarks and expected outcomes, including any user rate modifications.

Information Request	Author	Due Date
Report on the criteria for the allocation of Energy-Water Infrastructure Program funding	Maryland Department of the Environment (MDE)	July 1, 2016
Report on the actual allocation of Energy-Water Infrastructure Program funding, energy efficiency benchmarks, and user rate modifications	MDE	January 1, 2017

2. Concur with Governor's allowance of $89,248,000 in special funds and $33,960,000 in federal funds for the Water Quality Revolving Loan Fund.

3. Concur with Governor's allowance of $200,000 in general funds for the Hazardous Substance Clean-Up Program.

4. Concur with Governor's allowance of $10,638,000 in special funds and $10,359,000 in federal funds for the Drinking Water Revolving Loan Fund.

5. Concur with Governor's allowance of $80,000,000 in special funds for the Bay Restoration Fund – Wastewater Projects.

6. Concur with Governor's allowance of $14,000,000 in special funds for the Bay Restoration Fund – Septic Systems.

GO Bond Recommended Actions

1. Approve the Biological Nutrient Removal Program $25,000,000 general obligation bond authorization to provide funds to the Water Pollution Control Fund for projects to remove nutrients from discharges at publicly owned sewage treatment works.

2. Delete the Drinking Water Revolving Loan Fund authorization.

UA01B Maryland Drinking Water Revolving Loan Fund..... $ 0

Allowance	Change	Authorization
3,003,000	-3,003,000	0

Explanation: Delete the Drinking Water Revolving Loan Fund authorization of $3,003,000 in general obligation bonds. This funding reflects the match to the federal capitalization funding. The Governor should provide general funds in a supplemental budget which will avoid the need to issue taxable general obligation bonds. Consistent with the recommendation of the Spending Affordability Committee, the State should end the use of general obligation bonds to support programs that cannot be funded with tax-exempt financing and instead should use general funds.

3. Delete the Water Quality Revolving Loan Fund authorization.

UA01C Maryland Water Quality Revolving Loan Fund ..... $ 0

Allowance	Change	Authorization
6,792,000	-6,792,000	0

Explanation: Delete the Water Quality Revolving Loan Fund authorization of $6,792,000 in general obligation bonds. This funding reflects the match to the federal capitalization funding. The Governor should provide general funds in a supplemental budget which will avoid the need to issue taxable general obligation bonds. Consistent with the recommendation of the Spending Affordability Committee, the State should end the use of general obligation bonds to support programs that cannot be funded with tax-exempt financing and instead should use general funds.

4. Approve the Mining Remediation Program authorization of $500,000 in general obligation bonds to design, construct, and equip active and passive measures to remediate damage to water quality related to abandoned mining operations.

5. Approve the Water Supply Financial Assistance Program authorization of $2,480,000 in general obligation bonds to provide assistance to State and local government entities to acquire, design, construct, rehabilitate, equip, and improve water supply facilities.

Total General Obligation Bonds Reduction **$9,795,000**