

UB00
Maryland Environmental Service

Capital Budget Summary

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

<i>Description</i>	<i>2014 Approp.</i>	<i>2015 Approp.</i>	<i>2016 Request</i>	<i>2017 Estimate</i>	<i>2018 Estimate</i>	<i>2019 Estimate</i>	<i>2020 Estimate</i>
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State Water and Sewer Infrastructure Improvement Fund	\$5.200	\$9.079	\$16.471	\$25.250	\$25.500	\$11.950	\$23.850
Total	\$5.200	\$9.079	\$16.471	\$25.250	\$25.500	\$11.950	\$23.850

<i>Description</i>	<i>2014 Approp.</i>	<i>2015 Approp.</i>	<i>2016 Request</i>	<i>2017 Estimate</i>	<i>2018 Estimate</i>	<i>2019 Estimate</i>	<i>2020 Estimate</i>
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GO Bonds	\$5.200	\$9.079	\$16.471	\$25.250	\$25.500	\$11.950	\$23.850
Total	\$5.200	\$9.079	\$16.471	\$25.250	\$25.500	\$11.950	\$23.850

CIP: *Capital Improvement Program*

GO: general obligation

Summary of Issues

Capital Improvement Program Changes Challenge Project Completion: The Maryland Environmental Service's (MES) five-year *Capital Improvement Program* (CIP) may change substantially from year to year depending on project readiness, funding availability, and overall capital budget priorities. The overall funding change between the funding plan provided by MES for the 2014 session analysis and the 2015 CIP is \$31,016,000, which reflects the following: new funding amounts for both existing and new projects and funding being shifted both into and out of the five-year CIP timeframe. In addition to CIP changes, there is a change in the timing for the New Female Detention Center – Construction of Water and Sewer Utilities project funding. **The Department of Legislative Services (DLS) recommends that MES comment on the impact of CIP changes on its ability to complete capital projects in a timely manner within budget.**

Summary of Updates

Master Plan Update: MES completed a revision of its Water and Wastewater Master Plan in September 2011. Staff was planning to complete an update and distribute a revised plan in January 2014. MES now notes that the 2014 Master Plan update is in final review and that there are no major changes. Instead, the 2014 Master Plan enumerates and validates improvement needs presented in the previous Master Plan.

Summary of Recommended Bond Actions

1. Infrastructure Improvement Fund

Approve the \$16,471,000 general obligation bond authorization in fiscal 2016 for the Infrastructure Improvement Fund.

2. Section 2 – Maryland Environmental Service – Infrastructure Improvement Fund

Approve the modification of Chapter 432 of 2004, as amended by Chapter 483 of 2010, to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.

3. Section 2 – Maryland Environmental Service – Infrastructure Improvement Fund

Approve the modification of Chapter 445 of 2005, as amended by Chapter 483 of 2010, Chapter 444 of 2012, and Chapter 424 of 2013, to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.

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4. Section 2 – Maryland Environmental Service – Infrastructure Improvement Fund
Approve the modification of Chapter 336 of 2008 to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
5. Section 2 – Maryland Environmental Service – Infrastructure Improvement Fund
Approve the modification of Chapter 485 of 2009 to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
6. Section 2 – Maryland Environmental Service – Infrastructure Improvement Fund
Approve the modification of Chapter 424 of 2013 to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
7. Section 2 – Maryland Environmental Service
Approve the modification of Chapter 463 of 2014 to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
8. Section 12 – Maryland Environmental Service – Infrastructure Improvement Fund
Approve the \$14,058,000 general obligation bond pre-authorization in fiscal 2017 for construction of split-funded projects.
9. Section 13 – Maryland Environmental Service – Infrastructure Improvement Fund
Approve \$4,366,000 general obligation bond pre-authorization in fiscal 2018 to fund construction of split-funded projects.
10. Section 14 – Maryland Environmental Service – Infrastructure Improvement Fund
Approve the \$403,000 general obligation bond pre-authorization in fiscal 2019 for construction of a split-funded project.

Program Description

MES was created by statute (Chapter 240 of 1970) as an independent agency. Executive Order 01.01.1971.11 stipulated that MES has responsibility for the operation and maintenance of all State-owned sewage treatment and solid waste disposal facilities. MES then became incorporated into the Department of Natural Resources (DNR) in 1972. During the 1993 session, the General Assembly adopted legislation (Chapter 196 of 1993) that created MES as an instrumentality of the State and a public corporation independent of DNR. MES provides technical services including engineering,

design, financing, construction, and operation of water supply and wastewater treatment facilities, among other activities.

The State Water and Sewer Infrastructure Improvement Fund was established to provide for capital improvements of State-owned and operated water treatment and wastewater treatment plants (WWTP); water distribution and sewer collection systems; and water towers. Since fiscal 1999, funding for capital maintenance projects relating to water and WWTPs has been budgeted under MES. Prior to this, the State budgeted capital maintenance funds for these projects in the Department of General Services' Facilities Renewal Program. Facilities renewal funds pay for major rehabilitation activities at State-owned facilities. This change was made in order to display more clearly the capital cost of MES-operated State facilities. As of February 2, 2015, MES operated and maintained 762 projects, of which 261 were State-owned facilities, such as the Poplar Island Environmental Restoration Project, the Hart-Miller Island Dredged Material Containment Facility, Cox Creek Dredged Material Containment Facility, and a regional yard debris composting facility.

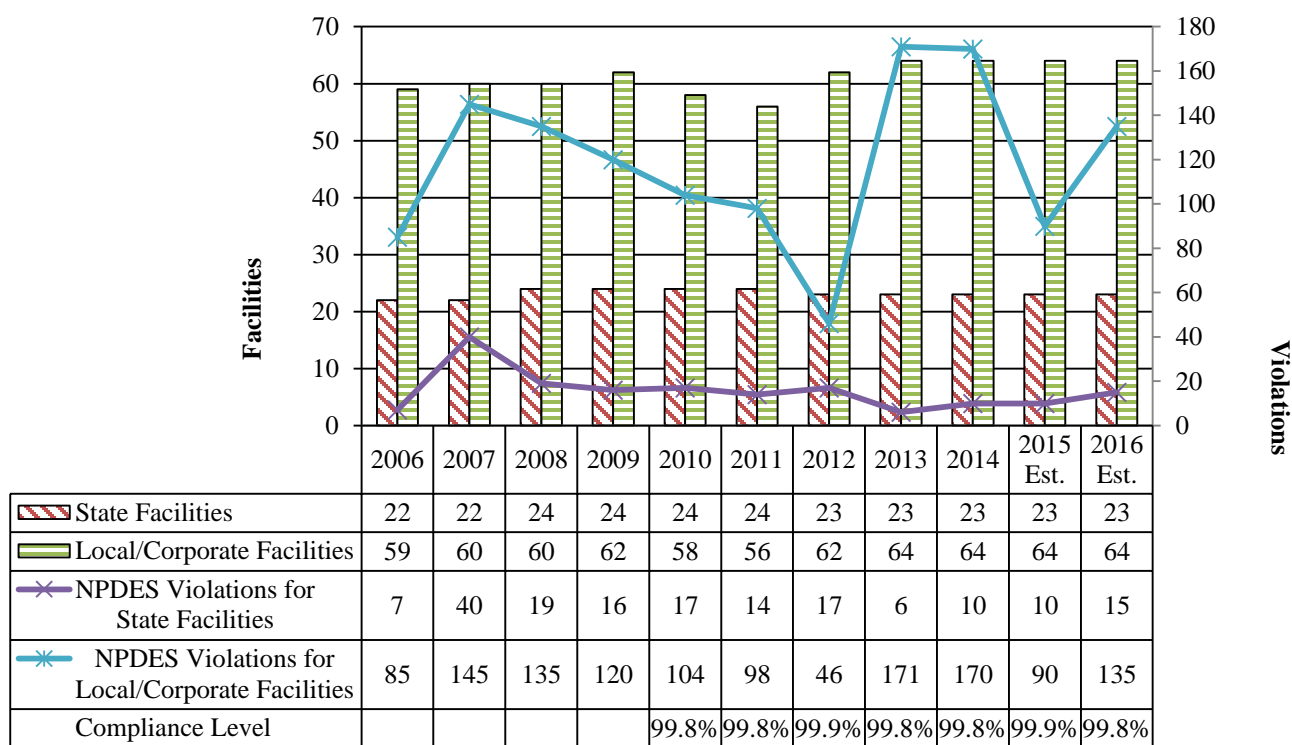
Performance Measures and Outputs

The MES performance measures relate to three goals, one of which is to improve the environment through MES activities. One output for this goal is a reduction in the number of local/corporate and State National Pollutant Discharge Elimination System violations. In addition, while not necessarily a performance measure, the discharge permits for the WWTPs MES operates is a critical factor in its capital budget plan.

State National Pollutant Discharge Elimination System Violations

Exhibit 1 shows that MES has a greater number of local/corporate clients than State clients and that, in general, local/corporate violations are a higher percentage of overall violations than would be indicated by their share of the total number of facilities. The number of local/corporate facility violations increased substantially between fiscal 2012 (46) and 2013 (171) and decreased minimally in fiscal 2014 (170). MES indicates that the increase in the number of local/corporate facility violations in recent years is primarily due to two troublesome facilities.

Exhibit 1
Local/Corporate and State NPDES Violations
Fiscal 2006-2016



NPDES: National Pollutant Discharge Elimination System

Source: Governor's Budget Books, Fiscal 2007-2016; Maryland Environmental Service

Between fiscal 2006 and the 2016 estimate, State facilities have averaged 12% of the total violations while accounting for 28% of the facilities handled by MES. MES has indicated in the past that the reason for this low percentage of violations at State facilities is MES's ability to use State funding to make improvements at State treatment facilities. In contrast, MES is dependent upon its corporate clients, including small municipalities, to fund improvements, which they may not always have the resources to do.

In terms of the two troublesome facilities, MES noted in its fiscal 2016 operating budget testimony that one is a small town in Southern Maryland and the other is a privately owned plant. The WWTP in a small town in Southern Maryland is responsible for nearly 50% of the violations reported, which are due to various plant components being inoperable or bypassed in order to complete repairs. The increased stress on the rest of the plant led to permit violations although there is a Consent Order in place for the plant, and it has been meeting the limitations associated with the Consent Order even if it has not been meeting the original permit limitations. The privately owned plant is a relatively recent inclusion in MES's operational portfolio – August 2012. While MES has worked with the owner to address mechanical upgrades and repairs, there are still a number of failing components that limit the plant's ability to meet its permitted discharge levels and thus are not considered operator errors.

Budget Overview

The CIP has changed between the 2014 and 2015 editions, as shown in **Exhibit 2**. The 2014 CIP amount programmed for fiscal 2016 was \$18.050 million, which has been reduced to \$16.471 million in the 2015 CIP. This is due to the overall constraints in the fiscal 2016 capital budget and the ability to fund construction projects over multiple years using pre-authorizations. For the out-years, the revised CIP reflects both split-funding of construction projects and outright deferment of projects. The detailed five-year project list for the 2015 CIP is shown in **Appendix 1** and is contrasted with the five-year project list in the 2014 CIP as an issue in this analysis.

Exhibit 2
2014 and 2015 Capital Improvement Program Comparison
(\$ in Millions)

<u>Projects</u>	<u>2016 Request</u>	<u>2017 Est.</u>	<u>2018 Est.</u>	<u>2019 Est.</u>	<u>2020 Est.</u>
2015 CIP	\$16.471	\$25.250	\$25.500	\$11.950	\$23.850
2014 CIP	18.050	12.850	12.700	15.550	
Difference	-\$1.579	\$12.400	\$12.800	-\$3.600	\$23.850

CIP: *Capital Improvement Program*

Note: The State Water and Sewer Infrastructure Improvement Fund is funded by general obligation bonds. No funding is reflected beyond the CIP because that is the five-year planning period used by the Administration. Estimates for programmed funding for fiscal 2020 for the 2014 CIP are outside the five-year planning period.

Source: *Capital Improvement Program*, 2014 and 2015

Fiscal 2015 Projects

MES's plan is to encumber \$16,167,453 in fiscal 2015, which consists of \$56,863 from before fiscal 2011, \$3,486,586 from fiscal 2013, \$3,545,004 from fiscal 2014, and \$9,079,000 from fiscal 2015. The current encumbrance status is shown in **Exhibit 3** and reflects the expectation that \$13,031,061 will be encumbered in fiscal 2015, although MES notes that all fiscal 2015 projects have either been awarded, bid, or are in procurement for bidding. There are some potential caveats to the fiscal 2015 encumbrance update. For instance, MES notes that it is possible the Maryland Correctional Institution (MCI) – Hagerstown WWTP enhanced nutrient removal (ENR) upgrade and Cheltenham – Interim Improvements projects could be encumbered by the end of fiscal 2015, which in combination would increase the encumbrance level to \$15,757,061, or 97%, of its planned \$16,167,453 encumbrance level. However, MES notes that the MCI – Hagerstown project is ready to go to bid and then go to the Board of Public Works (BPW) for approval but cannot proceed beyond that step until MDE reviews the bid documents and takes its share of the ENR grant to BPW. Therefore, the project funding may not be encumbered until early fiscal 2016. Coordination is also necessary for the Cheltenham – Interim Improvements project, for which MES indicates that MDE has had the plans and specifications for weeks, but since there is no ENR involved, MES is able to proceed once the construction permit is issued. Finally, MES notes that there is a bid protest for the Southern Pre-release WWTP, which it hopes to resolve in time to go to the April 1, 2015 BPW meeting.

Exhibit 3 Status of Encumbering Funding in Fiscal 2015

<u>Project</u>	<u>Current Activity</u>	2015		<u>Status</u>
		<u>(Planned)</u>	<u>Actual Cost</u>	
Rocky Gap New WTP	Construction	\$3,215,239	\$4,314,615	Awarded, construction underway on the intake structures, plant site work and plant building, project is approximately 50% complete.
Rocky Gap WWTP	Construction – Phase I	1,203,205	0	Money used for Rocky Gap WTP; prior year funding is being used to construct equalization tanks and new screens, which are 90% complete; design of Phase II of the facility is at approximately 30%; for design to progress need to select the membrane bioreactor technology, which is in the procurement process with proposals due 3/3/2015.
Western MCI	Design	150,000	146,524	Awarded, 30% design completed.

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<u>Project</u>	<u>Current Activity</u>	<u>2015</u>		<u>Status</u>
		<u>(Planned)</u>	<u>Actual Cost</u>	
Camp Fretterd W & WW Improvements	Design	197,000	180,035	Fee negotiated with A/E; plan to go to BPW 4/1/2014.
Freedom WWTP ENR Upgrade	Construction	2,237,415	2,237,415	Awarded to Norair; BPW approved 2/18/15.
Cunningham Falls Collection and Distribution	Design	575,022	288,900	Awarded, 100% design completed and in review.
Cheltenham – Interim Improvements	Design	600,000	0	Design 100% complete/under review by MDE for construction permit; operating budget funds used for this work (cost \$96,000).
ECI WWTP ENR Upgrade	Design – Phase 4	21,924	21,924	Awarded, 30% design completed; membrane bioreactor pre-selection in progress.
Charlotte Hall WWTP Upgrade	Construction	2,841,648	2,841,648	Bid accepted – plan to go to BPW 3/18/15.
Southern Pre-release WWTP	Construction	3,000,000	3,000,000	Bid accepted, also using \$200,000 from contingency reserve; plan to go to BPW 4/1/15 as long as bid protest can be resolved in time.
MCI – Hagerstown WWTP ENR Upgrade	Construction	2,126,000	0	In procurement for bidding; estimated cost \$2,126,000.
Total		\$16,167,453	\$13,031,061	

A/E: architect/engineer
BPW: Board of Public Works
ECI: Eastern Correctional Institution
ENR: enhanced nutrient removal
MCI: Maryland Correctional Institution

MDE: Maryland Department of the Environment
WTP: water treatment plant
WWTP: wastewater treatment plant
W & WW: water and wastewater

Source: Maryland Environmental Service

One other project stands out in Exhibit 3 – the Rocky Gap State Park WWTP. Work on the WWTP during fiscal 2015 is being funded by approximately \$1,600,000 of the WWTP's \$2,000,000 fiscal 2014 funding. The remaining \$400,000 of fiscal 2014 funding and all of the WWTP's fiscal 2015 funding of \$712,000 has been shifted to fund the water treatment plant (WTP) project at the same park. The funding shift is necessitated by WTP construction bids that came in higher than was estimated.

Fiscal 2016 Funding and Projects

The MES fiscal 2016 authorization includes \$16.5 million in general obligation (GO) bond authorization for 15 projects, including State well upgrades, and a \$2.8 million negative cash flow adjustment, which reflects the likelihood that not all funding for projects will be needed in fiscal 2016. In addition, the fiscal 2016 capital budget bill adds the authorization for MES to use fiscal 2016 funding on future authorized projects, in addition to existing authority to use funding for prior authorized projects. This additional flexibility is discussed further in the pre-authorizations and de-authorizations section of this analysis. Finally, there are pre-authorizations of funding for fiscal 2016 through 2019. The 15 projects included in the fiscal 2016 allowance, as well as the \$2,800,000 negative adjustment, are shown in **Exhibit 4**.

Exhibit 4 Fiscal 2016 Project Funding

<u>State Unit</u>	<u>Project</u>	<u>Jurisdiction</u>	<u>Prior Approp.</u>	<u>2016 Request</u>	<u>Future Request</u>
Rocky Gap State Park	New water treatment plant (WTP)	Allegany	\$4,373,000	\$1,800,000	\$0
Rocky Gap State Park	WWTP improvements	Allegany	3,053,000	1,461,000	0
Western Correctional Institution	Wastewater pump station improvements	Allegany	150,000	750,000 ¹	830,000
Freedom District (Springfield Hospital Center and other State facilities)	WWTP upgrade	Carroll	2,414,000	1,131,000	0
New Department of Juvenile Services Detention Center	Water and sewer utilities	Carroll	100,000	400,000	4,100,000
Southern Maryland Pre-release Unit	WWTP improvements	Charles	3,198,000	715,000 ¹	285,000
Cunningham Falls State Park	Wastewater collection and water distribution system	Frederick	775,000	463,000	0
Cunningham Falls State Park	WTP	Frederick	0	350,000	3,650,000

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Cheltenham Youth Center	WWTP	Prince George's	0	400,000	6,650,000
Eastern Pre-release	WWTP	Queen Anne's	0	350,000	4,100,000
Eastern Correctional Institution	Co-generation plant upgrades	Somerset	0	1,681,000 ²	19,664,000
Eastern Correctional Institution	WWTP upgrade	Somerset	8,744,000	6,271,000 ³	12,118,000
Charlotte Hall Veterans Home	WWTP improvements	St. Mary's	3,100,000	1,000,000	0
Maryland Correctional Institution – Hagerstown	WWTP upgrade	Washington	2,641,000	2,449,000 ¹	2,000,000
	State well upgrades	Regional	0	50,000	450,000
	Cash flow adjustments	Statewide	0	-2,800,000	0
Total			\$28,548,000	\$16,471,000	\$53,847,000

WWTP: wastewater treatment plant

¹ The construction portion of the Western Correctional Institution, Southern Maryland Pre-release Unit, and Maryland Correctional Institution – Hagerstown projects is split funded over fiscal 2016 and 2017 as reflected in pre-authorization of funding for fiscal 2017.

² The planning and construction portion of the Eastern Correctional Institution – Co-generation plant upgrades project is split funded over fiscal 2016, 2017, and 2018 as reflected in pre-authorization of funding for fiscal 2017 and 2018. Additional funding will be requested in future years but has not been pre-authorized.

³ The construction portion of the Eastern Correctional Institution – WWTP project is split funded over fiscal 2016, 2017, 2018, and 2019 as reflected in pre-authorization of funding for fiscal 2017 through 2019.

Source: Department of Budget and Management Capital Budget Worksheets

Exhibit 5 reflects the pre-authorizations and additional funding needed for projects funded in fiscal 2016. There are two things to note in Exhibit 6 – there is \$16.1 million needed beyond the pre-authorized amounts for the Eastern Correctional Institution – Co-generation plant upgrades and there is funding needed for the following projects that receive fiscal 2016 planning funding and thus are not tied to a construction schedule: Cheltenham Youth Center – WWTP, New Department of Juvenile Services (DJS) Detention Center – Water and Sewer Utilities, Eastern Pre-Release – WWTP, Cunningham Falls State Park – WTP, and State well upgrades.

Exhibit 5
Pre-authorizations and Additional Funding Needed for Projects

<u>State Unit</u>	<u>Project</u>	<u>Jurisdiction</u>	<u>FY 2017 Pre- Auth.</u>	<u>FY 2018 Pre- Auth.</u>	<u>FY 2019 Pre- Auth.</u>	<u>Indeterminate</u>
Maryland Correctional Institution – Hagerstown	WWTP upgrade	Washington	\$2,000,000	\$0	\$0	\$0
Western Correctional Institution	Wastewater pump station improvements	Allegany	830,000	0	0	0
Southern Maryland Pre-release Unit	WWTP improvements	Charles	285,000	0	0	0
Eastern Correctional Institution	Co-generation plant upgrades	Somerset	2,000,000	1,594,000	0	16,070,000
Eastern Correctional Institution	WWTP upgrade	Somerset	8,943,000	2,772,000	403,000	0
Cheltenham Youth Center	Wastewater treatment plant	Prince George's	0	0	0	6,650,000
New Department of Juvenile Services Detention Center	Water and sewer utilities	Carroll	0	0	0	4,100,000
Eastern Pre-release	WWTP	Queen Anne's	0	0	0	4,100,000
Cunningham Falls State Park	Water treatment plant	Frederick	0	0	0	3,650,000
	State well upgrades	Regional	0	0	0	450,000
Total			\$14,058,000	\$4,366,000	\$403,000	\$35,020,000

WWTP: wastewater treatment plant

Source: Department of Budget and Management Capital Budget Worksheets

Projects

- **Rocky Gap State Park – New WTP:** The current water treatment plant was constructed in 1973 and is difficult to repair. MES last received funding for the project in fiscal 2013, but design delays and high construction bids delayed the project; uncertainty about the capacity needed to handle the addition of video lottery terminals (VLT) at the park's casino caused the design delays. Fiscal 2016 funding of \$1,800,000 will complete the construction of a new, expanded WTP to meet the U.S. Environmental Protection Agency drinking water standards for disinfection byproducts and to meet the increased demand for water due to the addition of VLTs. Disinfection byproducts form when disinfectants used to kill pathogens react with naturally occurring materials. Examples of disinfection byproducts include trihalomethanes and haloacetic acids. As noted above, fiscal 2015 funding has been shifted to the WTP project from the WWTP project due to bids being \$1,317,000 higher than were estimated.
- **Rocky Gap State Park – WWTP Improvements:** The current WWTP was constructed in 1973 and is difficult to repair. In addition, wastewater flows have increased at Rocky Gap Casino Resort as a result of increased attendance from the introduction of VLTs, and the water collection system pipes are old. In combination, these issues support the following improvements: construct a new flow equalization tank, headworks system, and treatment process; and upgrade the existing filters and collection and distribution system. The overall capacity of the plant will expand from 120,000 gallons per day to 150,000 to gallons per day. It was noted in last year's analysis that the Rocky Gap Casino Resort would not pay for the upgrade, but will pay for its share of the operating costs. Fiscal 2016 construction funding for the project is \$1,461,000.
- **Western Correctional Institution – Wastewater Pump Station Improvements:** The age and overall condition of the wastewater pump station support the following improvements: install two climber screens and two compactors to address large debris; build a 12 foot by 12 foot headworks building extension to house the new screen system; upgrade the control system and relocate it above ground; rehabilitate and retrofit the existing concrete wet well in order to address hydrogen sulfide corrosion; install new submersible pumps to replace the dry pit submersible vacuum pumps; and install necessary valves and connection fittings to provide for a bypass pump in case of an emergency. The overall project cost has increased by \$80,000 due to the schedule extension and additional cost escalations. The fiscal 2016 authorization is \$750,000 for construction.
- **Freedom WWTP Upgrade:** The requirement to upgrade to ENR technology by August 2016 under a consent decree supports the following improvements: construct biological nutrient removal (BNR) and ENR modifications. The plant is 1 of the 67 major WWTPs, and currently, is only designed to meet seasonal BNR standards. The plant serves several State facilities at the Springfield Hospital Center and a large portion of Carroll County. Therefore, the overall project cost is shared between the State and Carroll County. The fiscal 2016 request is \$1,131,000 in GO bonds for construction funding as part of an overall project cost of \$25,661,000. The total project cost has increased by \$7,288,000, which will be funded as follows: State ENR – \$3,316,000; State MES – \$1,131,000; and Carroll County – \$2,841,999.

The increased total project cost is due to the following adjustments: new generator, increased depth of two ENR treatment tanks, change orders, and architecture/engineer (A/E) and inspection fee increases. Additional State funding is needed – beyond the BNR and ENR matching funding from MDE – because not all project costs are grant-eligible, such as a portion of the solids handling improvements. This funding will need to be included in the fiscal 2017 funding request. MES indicates that the ENR grant funding from MDE is \$12,297,679, as a February 18, 2015 BPW approved item. MES further indicates that the consent decree timeline of beginning construction by August 2014 and substantially completing the upgrade by August 2016 can still be met because construction can be divided into two phases of 15 months each. During the first phase, the new carousel and other upgrades can be placed into service and all flow diverted to be treated by them allowing for the completion of the second phase – convert the existing tanks into a carousel configuration and update equipment. Should MES not be able to complete the upgrades in time, the usual fines for not complying with permit requirements will be levied.

- **New DJS Detention Center – WWTP Improvements:** DJS is constructing a new detention center on the site of the former Thomas O’Farrell Youth Center in Carroll County. New water and sewer utilities are needed because the previous service deteriorated to the point that it needed to be abandoned. For fiscal 2016, \$400,000 in planning funding is requested. This funding would be used to complete the design of the project, which is currently being evaluated according to five options shown in **Exhibit 6**. MES prefers an onsite water and wastewater treatment system solution if it is feasible and cost-effective. MES notes that the A/E basic services for the project are 12.7%, or \$500,147, because of the need to do one of the following, depending on the option chosen: perform additional field testing to site wells, test soils for percolation rates, and other requirements for onsite systems; or develop and chart the piping alignment and prepare plats for easements. The A/E was given a notice to proceed on January 28, 2015, with a contract end date of June 30, 2015. The A/E contract scope includes evaluation of all five options in terms of costs and feasibility, and recommendation of a solution.
- **Southern Maryland Pre-release Unit – WWTP Improvements:** Several wastewater treatment process problems identified in a recent field assessment and a new discharge permit support the following improvements: rehabilitate and upgrade the extended aeration package treatment plant; install an ultraviolet disinfection system; and replace pumping and piping equipment. As noted in last year’s analysis, the original scope has changed: more stringent WWTP standards are needed because the decision has been made to discharge to a stream all-year round instead of to a spray field from spring through fall. This change was necessitated by interference with the Charles County Police Department shooting range operations. MES notes that discharge limits were revised on January 16, 2014, and the final permit issuance is still to be determined. As a result of the updated discharge limits, the project timeline appears to have slipped by approximately 10 months from a January 2016 construction completion to a November 2016 completion date. The overall project cost has increased \$1.0 million. The fiscal 2016 allowance includes \$715,000 in GO bonds for completing construction.

Exhibit 6
New Department of Juvenile Services Detention Center –
Wastewater Treatment Plant Improvements Options

<u>Option</u>	<u>Description</u>	<u>Comment</u>	<u>Cost</u>
Option A	Run water and sewer traveling through roadway to the nearest water and sewer connections.	Requires 19 easements from private property owners.	\$2,521,675
Option B	Run water and sewer along the alignment of the abandoned water main.	Difficult to maintain.	2,712,645
Option C	Run the sewer along the same route as the existing abandoned force main and run water main the same as Option B.	Difficult to maintain.	2,528,370
Option D	Run water main the same as Option A and the sewer the same as Option C.	Difficult to maintain.	2,349,425
Option E	Construct onsite water and wastewater treatment systems.	Preferred option if feasible and cost-effective.	To be determined.

Source: Maryland Environmental Service

- Cunningham Falls State Park – Wastewater Collection and Water Distribution System:** Excessive inflow and infiltration entering the sanitary sewer collection system (closed-circuit television imaging found approximately 3,900 linear feet of pipe and approximately 15 manholes to be defective) and failure of water distribution system piping support the following improvements: design and construct sanitary sewer and water distribution system improvements to reduce inflow and infiltration; reduce operating expenses from higher treatment costs at the Thurmont WWTP; and increase reliability in the water system. The fiscal 2016 allowance includes \$463,000 GO bonds for completing construction that was split-funded over fiscal 2015 and 2016. MES notes that A/E basic services are 20.1%, or \$199,788, because they included the closed-circuit television imaging noted above.
- Cunningham Fall State Park – WTP:** The deteriorated condition of the existing WTP has required the purchase of water; between June 16, 2014, and July 12, 2014, water purchase costs were \$11,784. In order to resolve the unreliable system, MES intends to install a WTP system, upgrade the electrical system and controls, modify piping and valves to allow flexible operation, and install an appropriately sized clear well to ensure sufficient water to clear the filter of particles through a process called backwashing. The fiscal 2016 funding is \$350,000 in GO bonds for planning.

- **Cheltenham Youth Center – WWTP:** A new DJS detention center is anticipated to begin design in fiscal 2017, and the existing WWTP is anticipated to have elevated ammonia levels due to concentration of urine in low-flow water fixtures. This supports the following improvements: replace the existing rotating biological contactors; upgrade the chemical storage and feed system; upgrade the sanitary collection system; upgrade the electrical, communication, and supervisory control and data acquisition systems; and upgrade the control building to provide adequate office space, laboratory space, and lockers in accordance with the latest building codes. The fiscal 2016 allowance includes \$400,000 in GO bonds for planning.
- **Eastern Pre-release – WWTP:** The Eastern Pre-release WWTP is not capable of meeting its discharge permit, issued in November 2013, and so \$350,000 in planning funding is requested in fiscal 2016. The funding would be used to plan the following: decommission and restore the existing 1.5-acre lagoon to its pre-existing condition; add a new facility consisting of an equalization tank, wastewater screens, new treatment process, and a new ultraviolet disinfection system; and expand the treatment capacity. The replacement of the lagoon is intended to protect groundwater, which would need to be pumped and treated if contaminated.
- **Eastern Correctional Institution – Co-generation Plant Upgrades:** The upgrade is necessitated by the wear-and-tear on the co-generation plant and the frequent power lapses because the plant is only able to generate 78% of the Eastern Correctional Institution's electricity needs. This multi-phase \$21,345,000 project involves (1) \$12,345,000 between fiscal 2016 and 2019 for routine upgrades to the co-generation plant needed due to the effects of operating the plant continuously since 1987; and (2) \$9,000,000 in fiscal 2020 for expansion of the steam generation capacity of the plant. Fiscal 2016 funding of \$1,681,000 is comprised of \$681,000 for planning and \$1,000,000 for construction. Of note, the construction is not scheduled to begin until fiscal 2017. The first phase, to which fiscal 2016 funding would be applied, replaces the four main boiler feed pumps and recoats the structural steel associated with the bulk fuel handling system in order to prevent corrosion. When completed, it is anticipated that the project will increase energy production from 78% to 100% of the Eastern Correctional Institution's needs. This is because a portion of the high-pressure/high-temperature steam from the two D-type high-pressure water tube boilers is currently being siphoned off for use in low-temperature and pressure applications, such as cleaning, cooking, and domestic hot water production, which is an inefficient use of the energy from this steam. As a result of this diversion, the two custom built Turbodyne condensing steam turbine generators are only operating at 66% of their rated capacity. MES anticipates that the addition of the proposed low-pressure steam boiler in fiscal 2020, at a cost of \$7,700,000, will address the low-pressure/low-temperature steam needs and allow the high-pressure/high-temperature steam to be used for power generation. MES notes that the combined heat and power generation facility's benefits outweigh those of the utility grid even though a cost-benefit analysis comparing the power cost from the electrical grid and the co-generation plant has not been conducted in years. **DLS recommends that MES prepare and deliver to the Department of Budget and Management (DBM) a cost-benefit analysis on the proposed fiscal 2020 low-pressure steam boiler procurement as part of MES's fiscal 2017 request package.**

- **Eastern Correctional Institution – WWTP Upgrade:** The Eastern Correctional Institution WWTP upgrade project is required by a consent order and has been divided into four phases. To date, the project has received funding as follows: \$269,000 in fiscal 2008, \$6,961,000 in fiscal 2009, and \$1,514,000 in fiscal 2013. The fiscal 2008 and 2009 funding provided for the completion of the first phase – design and construction of a new equalization tank, which was completed in December 2010 – and second phase – the design and construction of a new headworks, the area for the screening out of debris that can cause problems for equipment in later stages of treatment. The fiscal 2013 funding provided for design of the third and fourth phase of the improvements, and the \$6,271,000 in fiscal 2016 funding provides for construction of those two phases. Funding is needed now in order to meet a discharge permit issued on March 1, 2012, that will be effective on January 1, 2018. The third and fourth phase consist of construction of a new membrane bioreactor WWTP and include the following specific activities: replacement of the existing Carrousel plant with the membrane bioreactor; construction of postmembrane bioreactor denitrification and effluent filtration phosphorus removal; refurbishment of the ultraviolet disinfection system; improvement of the biosolids handling systems; upgrade of the electrical and process control systems; and upgrade of the reclaimed water use system. The final plant is designed to treat 1,140,000 gallons per day, which consists of 720,000 gallons per day for treatment of wastewater and 420,000 gallons per day for treatment of ammonia and phosphorus in the rejected water from the reverse osmosis drinking water process that has to be treated before it can be discharged. MES notes that 1,140,000 gallons per day is the build-out capacity permitted by MDE. DLS notes that the cost estimate worksheet for the project reflects a regional construction factor of 90%, which appears to be outdated. Construction is not anticipated to begin until October 2015 and thus should be informed by the most recent factor, which is 95%. As a result, it appears that the project cost may be approximately \$1.1 million greater than currently estimated. **DLS recommends that MES comment on whether it used a 90% or 95% regional construction factor for the construction work anticipated to begin in October 2015 and how it will value engineer the project to absorb the cost increase if it used a 90% regional construction factor.**
- **Charlotte Hall Veterans Home – WWTP Improvements:** Several wastewater treatment process problems identified in a recent field assessment and a new permit requiring the plant to meet nitrogen limits support the following improvements: rehabilitate and upgrade the pump stations; upgrade the storage and treatment pond by dredging the sludge and repairing or replacing the liner; upgrade the rapid infiltration basins and spray irrigation fields; replace the Biolac treatment system with an advanced wastewater treatment system; and renovate mechanical, electrical, and control systems. The fiscal 2016 allowance includes \$1,000,000 in construction funding reflecting the third year of split funding for the project, which is necessary due to a delay in awarding the construction contract and the need to revise bid documents. MES notes that delays were caused by Minority Business Enterprise goals not being met by the low construction bid, which necessitated a second round of bids that were too high. Subsequently, MES notes that the lowest bid received in the latest bidding round was recommended for award in February 2015 and will be taken to BPW on March 18. Previously, the contract was delayed due to the failure of a pilot study for a new treatment option. The construction completion date has shifted from January to September 2016. As a result, MES notes that it will have difficulty meeting the new September 1, 2015 discharge permit deadline, given that construction cannot

start until March 2015, at the earliest. As a result, MES will request MDE to extend the compliance date by 12 months, which may require a consent agreement for the compliance date to be met.

- **Maryland Correctional Institution-Hagerstown – WWTP Upgrade:** The requirement to upgrade to ENR technology as 1 of the 67 major WWTPs and the need to provide for other upgrades support the following improvements: install denitrification filters, an ultraviolet disinfection system, a plant effluent supply line to the press building, a carbon source for further denitrification, a lime silo, an automated control system, and a new belt filter press; rehabilitate the headworks; and upgrade two clarifiers and launder covers for the remaining two clarifiers. The fiscal 2016 allowance includes \$6,614,000 in GO bonds for construction for the second year of what will now be three years of split funding. MES notes that shifting funding into fiscal 2017 is of concern due to the timeframe to meet the calendar 2017 Watershed Implementation Plan commitment to upgrade all 67 major WWTPs to enhanced removal technology, although this looks like it could still be accomplished by the June 30, 2017 deadline since construction is estimated to end in January 2017. The overall project cost has increased from \$11,000,000 to \$13,614,000, or \$2,614,000. The \$2,614,000 increase will be funded as follows: tentative State ENR – \$1,253,000; and State MES – \$1,361,000. MES notes that the final ENR upgrade funding from MDE will be determined after the construction is bid.
- **State Well Upgrades:** Fiscal 2016 funding of \$50,000 in GO bonds is programmed for the planning associated with the development and construction of new water supply wells at Dan's Mountain State Park and Savage Mountain Youth Center in Western Maryland. The current wells are either inadequate or inoperable relative to the goal of meeting the demand for potable water. The project includes the review of hydrogeological data, performance of hydrogeological surveys, implementation of test borings and possible surface geophysical methods to find water bearing fracture zones, and construction of two complete potable water wells at each park. MES notes that A/E basic services are 12.1%, or \$49,997, because more technical capacity than is offered by a hydrogeologist may be needed to site the well at Savage Mountain Youth Center and help design a system that minimizes well drawdown. Three of the Savage Mountain Youth Center's original seven wells have failed, which appears to suggest a higher chance of failure than might otherwise be the case for area wells. The high local well failure rate will be a challenge for MES as will be the potential for iron bacteria to form in the wells. MES notes that a high producing well can help avoid well failure but that it will have plans in place to provide water should there be a well failure. In addition, MES notes that good sanitary conditions during drilling, disinfection afterwards, and ongoing oxygen-free conditions will help to reduce the likelihood of iron bacteria forming in the wells.

Issues

1. CIP Changes Challenge Project Completion

MES's five-year CIP may change substantially from year to year depending on project readiness, funding availability, and overall capital budget priorities. **Exhibit 7** shows the difference between the funding plan provided by MES for the 2014 session analysis and the 2015 CIP. As can be seen, the overall funding change is \$31,016,000, which reflects the following: new funding amounts for both existing and new projects, and funding being shifted both into and out of the five-year CIP timeframe. The major funding changes include \$7,331,000 for the Swallow Falls State Park – WWTP and WTP projects, which is moved forward to fiscal 2019 and 2020 from beyond the CIP and appears to include a new WTP component. There is also additional funding for Eastern Correction Institution (ECI) Co-generation Plant upgrades of \$6,615,000. New projects funding of \$4,850,000 includes a number of projects reflected in the fiscal 2019 to 2020 time period and lumped together for ease of presentation.

Another change noted in Exhibit 7 is the timing of projects. For instance, funding for the ECI WWTP and Reverse Osmosis Reject System project is moved back from fiscal 2016 to 2018; the fiscal 2017 funding remains unchanged and thus is not reflected in Exhibit 7. In contrast, the Eastern Pre-release WWTP project is moved forward from fiscal 2018 to 2016 and 2017, and the Fair Hill Natural Resources Management Area WTP and water distribution project funding is shifted from fiscal 2019 to 2017 and 2018.

In addition, while not reflected in Exhibit 7, there are changes between the timing of funding requested by MES and the timing of funding actually authorized. The one project highlighted is the New Female Detention Center Construction of Water and Sewer Utilities project. MES requested \$3,938,000 in construction funding for fiscal 2017. However, due to funding constraints and a question about timing, the project has been moved back to fiscal 2018, and the amount programmed for fiscal 2018 has increased by \$162,000 to \$4,100,000. DBM notes that it is unclear which option will be chosen for the water and sewer utilities for the project, and MES concurs that either permitting or easement purchases will likely consume the time available between fiscal 2017 and 2018, when construction funding becomes available. **DLS recommends that MES comment on the impact of CIP changes on its ability to complete capital projects in a timely manner within budget.**

Exhibit 7
Project Timing and Funding Changes
2016-2020 Capital Improvement Program

<u>Project</u>	<u>Description</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>Change</u>
Swallow Falls SP – WWTP and WTP	Moved forward to fiscal 2019 and 2020 from beyond the CIP and apparent scope increase to include new WTP.				\$700,000	\$6,631,000	\$7,331,000
ECI – Cogeneration Plant Upgrades	Moved forward to fiscal 2016 and additional \$6,615,000.	\$1,681,000	\$1,394,000	\$860,000	3,430,000	-750,000	6,615,000
New Female Detention Center – Construction of Water and Sewer Utilities	New project not included in 2014 CIP, first funding in fiscal 2016.	400,000		4,100,000			4,500,000
Rocky Gap SP – New WTP	Additional \$1,800,000 in fiscal 2016.	1,800,000					1,800,000
Victor Cullen Youth Center – WWTP Upgrade	Additional \$1,750,000 in fiscal 2019.				1,750,000		1,750,000
MCI – Hagerstown – WWTP	Funding partially shifted from fiscal 2016 to 2017 and additional \$1,361,000.	-639,000	2,000,000				1,361,000
Eastern Pre-release – WWTP	Moved forward from fiscal 2018 to 2016 and 2017 and additional \$1,290,000.	350,000	2,684,000	-1,744,000			1,290,000
Freedom – WWTP	Additional \$1,131,000 in fiscal 2016.	1,131,000					1,131,000
Charlotte Hall Veterans Home – WW Collection System and WWTP Improvements	Funding partially shifted from fiscal 2015 to 2016.	1,000,000					1,000,000

<u>Project</u>	<u>Description</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>Change</u>
Southern Maryland Pre-release – WTP	Additional \$1,000,000 over fiscal 2016 and 2017.	715,000	285,000				1,000,000
Cunningham Falls SP – WTP	Moved forward from fiscal 2018 and 2019 to fiscal 2016 and 2017 and additional \$1,000,000.	350,000	3,650,000	-420,000	-2,580,000		1,000,000
ECI WWTP and RO Reject System	Moved back from fiscal 2016 to 2018 and additional \$403,000.	-2,772,000		2,772,000	403,000		403,000
Fair Hill NRMA – WTP & WD	Funding partially shifted from fiscal 2019 to 2017 and 2018 and additional \$175,000.		180,000	1,533,000	-1,538,000		175,000
WCI – Wastewater Pump Station Improvements	Funding partially shifted from fiscal 2016 to 2017 and additional \$80,000.	-750,000	830,000				80,000
Camp Fretterd – WTP, WWTP, WD	Moved back from fiscal 2016 to 2017 and 2018.	-2,473,000	1,000,000	1,473,000			0
St. Mary’s College – WTP and Distribution System Improvements	Moved back from fiscal 2018 to 2019.			-636,000	636,000		0
Cheltenham Youth Center – WWTP Upgrade	Funding partially shifted from fiscal 2017 to 2016 and from fiscal 2019 and 2020 to fiscal 2018.	400,000	-400,000	6,345,000	-3,173,000	-3,172,000	0
State Well Upgrades	Funding partially shifted from fiscal 2019 to 2016, 2017, and 2018 and also beyond the CIP.	50,000	285,000	225,000	-1,750,000	310,000	-880,000
State Water Towers	Project list reduced and funding shifted beyond the CIP.		430,000	-1,745,000	-1,655,000	580,000	-2,390,000
New projects	New projects not included in 2014 CIP, first funding in fiscal 2019.				150,000	4,700,000	4,850,000
Total		\$1,243,000	\$12,338,000	\$12,763,000	-\$3,627,000	\$8,299,000	\$31,016,000

CIP: *Capital Improvement Program*
 ECI: Eastern Correctional Institution
 MCI: Maryland Correctional Institution
 NRMA: Natural Resources Management Area
 RO: reverse osmosis
 SP: State Park
 WD: water distribution
 WTP: water treatment plant
 WW: wastewater
 WWTP: wastewater treatment plant

Note: The changes noted for the ECI Cogeneration Plant Upgrades are reflected in the 2015 CIP but do not reflect the most recent project cost estimate. The new changes in funding are as follows: fiscal 2017 – \$394,000; fiscal 2018 – \$140,000; fiscal 2019 – \$3,130,000; and fiscal 2020 – \$1,000,000.

Source: Department of Budget and Management; Maryland Environmental Service; Department of Legislative Services

Updates

1. Master Plan Update

MES completed a revision of its Water and Wastewater Master Plan in September 2011. Staff was planning to complete an update and distribute a revised plan in January 2014. MES now notes that the 2014 Master Plan update is in final review and that there are no major changes. Instead, the 2014 Master Plan enumerates and validates improvement needs presented in the previous Master Plan.

Consolidated Administrative Expenses – All Programs (\$ in Millions)

	FY 2014 Actual	FY 2015 Estimated	FY 2016 Estimated
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Sources:			
Special Funds			
DNR – Maryland Park Service	\$0.135	\$0.157	\$0.162
Subtotal – Special Funds	\$0.135	\$0.157	\$0.162
General Funds (Other State Reimbursable Projects)	0.490	0.567	0.614
Total Funds	\$0.625	\$0.724	\$0.776

Uses:			
Direct Expenses	\$0.601	\$0.706	\$0.757
Indirect Expenses (Legal, Marketing, Asset Management)	0.023	0.019	0.019
Total Direct and Indirect Expenses	\$0.625	\$0.724	\$0.776

DNR: Department of Natural Resources

MES reflects an increase in administrative expenses from \$624,723 in fiscal 2014, to \$724,481 in fiscal 2015, and then an increase again to \$776,071 in fiscal 2016. This may reflect the authorizations it has received and thus the available funding for oversight of project planning, design, and construction. Fiscal 2014 project funding was \$5.2 million, which increased to \$9.1 million in fiscal 2015, and then is requested to increase to \$16.5 million in fiscal 2016.

Pre-authorizations and De-authorizations

The fiscal 2016 capital budget bill includes the pre-authorization of \$14,058,000 for fiscal 2017, \$4,366,000 for fiscal 2018, and \$403,000 for fiscal 2019 as reflected in **Exhibit 8**. In addition, the fiscal 2016 capital budget bill includes language authorizing prior year funding to be used for future authorized projects. MES notes that the provisions give it more flexibility by allowing funds from prior years to be used for more recent projects that are ready for implementation. Alongside the decision to provide a lump sum authorization in fiscal 2016 as opposed to itemizing individual projects, this provision allowing for projects to use future funding will mean fewer amendments will be needed when project lists or funding amounts change. **DLS recommends that the pre-authorization of \$14,058,000 for fiscal 2017, \$4,366,000 for fiscal 2018, and \$403,000 for fiscal 2019 be approved. DLS also recommends approval of the language authorizing prior year funding to be used for future authorized projects.**

Exhibit 8 Pre-authorizations and De-authorizations

Pre-authorizations				
<u>Project</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>Reason</u>
Maryland Correctional Institution – Hagerstown – WWTP Upgrade	\$2,000,000	\$0	\$0	Allow for split funding over fiscal 2016 and 2017 by enabling MES to sign contracts for projects without tying up funds unnecessarily for an extended period of time.
Western Correctional Institution – Wastewater Pump Station Improvements	830,000	0	0	Allow for split funding over fiscal 2016 and 2017 by enabling MES to sign contracts for projects without tying up funds unnecessarily for an extended period of time.
Southern Maryland Pre-release Unit – WTP Improvements	285,000	0	0	Allow for split funding over fiscal 2016 and 2017 by enabling MES to sign contracts for projects without tying up funds unnecessarily for an extended period of time.
Eastern Correctional Institution – Co-generation Plant Upgrades	2,000,000	1,549,000		Allow for split funding over fiscal 2016, 2017, and 2018 by enabling MES to sign contracts for projects without tying up funds unnecessarily for an extended period of time.
Eastern Correctional Institution – WWTP Upgrade	8,943,000	2,772,000	403,000	Allow for split funding over fiscal 2016, 2017, 2018, and 2019 by enabling MES to sign contracts for projects without tying up funds unnecessarily for an extended period of time.

Modifications	
<u>MCCBL</u>	<u>Reason</u>
2004	Allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
2005	Allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
2008	Allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
2009	Allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
2013	Allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
2014	Allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.

MCCBL: Maryland Consolidated Capital Bond Loan

MES: Maryland Environmental Services

WTP: water treatment plant

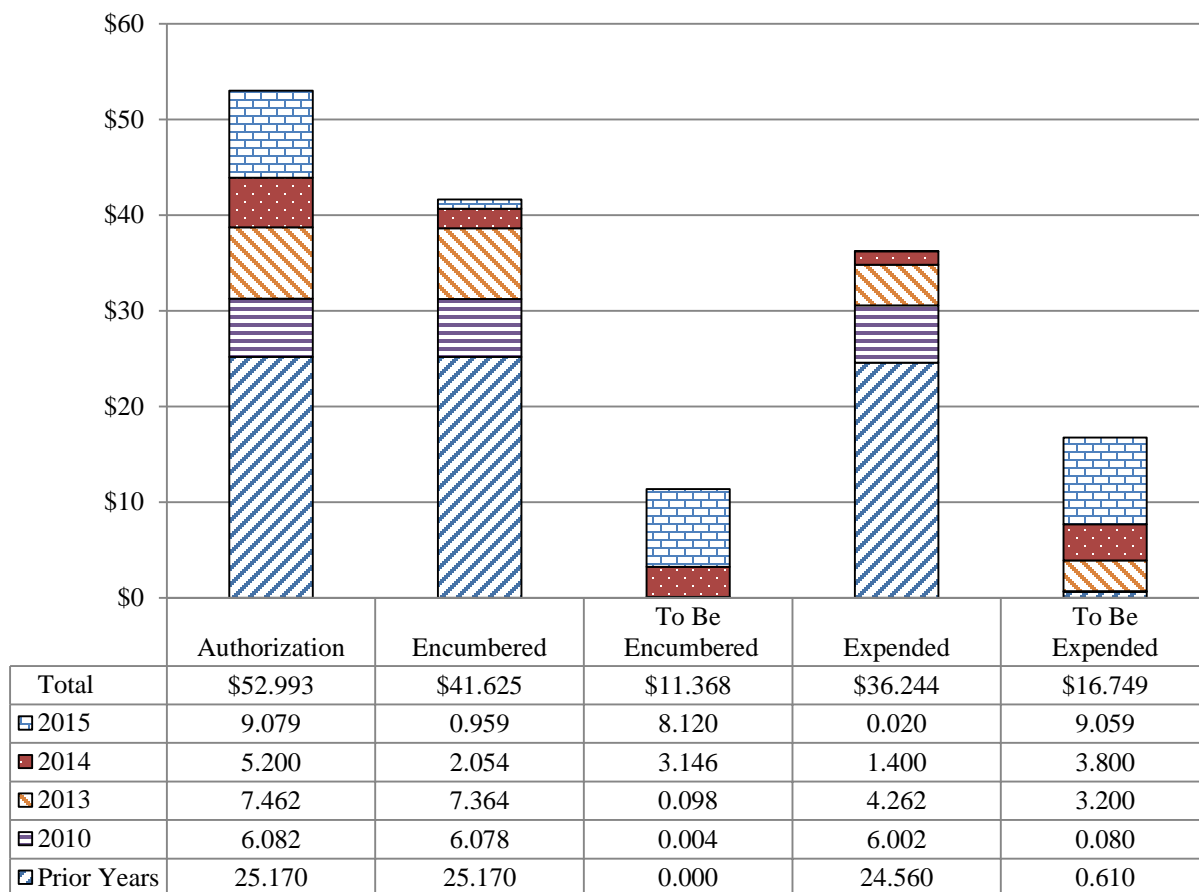
WWTP: wastewater treatment plant

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

Encumbrances and Expenditures

The MES encumbrance and expenditure history for the State Water and Sewer Infrastructure Improvement Fund is shown in **Exhibit 9**. Overall, \$53.0 million in GO bonds have been authorized. Of this amount, MES has encumbered \$41.6 million; \$11.4 million remains to be encumbered. The majority of the funding remaining to be encumbered was authorized in fiscal 2014 and 2015.

Exhibit 9
Infrastructure Improvement Fund Encumbrances and Expenditures
Program Inception through January 2015
(\$ in Millions)



Note: No funding was provided in either fiscal 2011 or 2012.

Source: Maryland Environmental Service

GO Bond Recommended Actions

1. Approve the \$16,471,000 general obligation bond authorization in fiscal 2016 for the Infrastructure Improvement Fund to design, construct, and equip water and wastewater facility improvements for State institutions.
2. Approve the modification of Chapter 432 of 2004, as amended by Chapter 483 of 2010, to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
3. Approve the modification of Chapter 445 of 2005, as amended by Chapter 483 of 2010, Chapter 444 of 2012, and Chapter 424 of 2013, to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
4. Approve the modification of Chapter 336 of 2008 to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
5. Approve the modification of Chapter 485 of 2009 to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
6. Approve the modification of Chapter 424 of 2013 to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
7. Approve the modification of Chapter 463 of 2014 to allow future authorized projects to use Infrastructure Improvement Fund general obligation bond authorizations.
8. Approve the \$14,058,000 general obligation bond pre-authorization in fiscal 2017 for construction of split-funded projects. The projects include the following: Eastern Correctional Institution – Wastewater Treatment Plant (\$8,943,000), Eastern Correctional Institution – Co-generation Plant Upgrades (\$2,000,000), Maryland Correctional Institution – Hagerstown – Wastewater Treatment Plant Upgrade (\$2,000,000), Southern Pre-release Unit – Wastewater Treatment Plant Improvements (\$285,000), and Western Correctional Institution – Wastewater Pump Station Improvements (\$830,000).
9. Approve the \$4,366,000 general obligation bond pre-authorization in fiscal 2018 to fund construction of split-funded projects. The projects include: Eastern Correctional Institution – Wastewater Treatment Plant (\$2,772,000), and Eastern Correctional Institution – Co-generation Plant Upgrades (\$1,594,000).
10. Approve the \$403,000 general obligation bond pre-authorization in fiscal 2019 for construction of a split-funded project: Eastern Correctional Institution – Wastewater Treatment Plant.

Fiscal 2016-2020 Capital Budget as Proposed

<u>Facility / Project</u>	<u>Prior Approp.</u>		<u>2016</u>		<u>2017</u>		<u>2018</u>		<u>2019</u>		<u>2020</u>		<u>Total</u>
Rocky Gap State Park – WTP Improvements	\$4,373,000	PC	\$1,800,000	C									\$6,173,000
Rocky Gap State Park – WWTP Improvements	3,053,000	PC	1,461,000	C									4,514,000
Southern Pre-release Unit – WWTP Improvements	3,198,000	PC	715,000	C	\$285,000	C							4,198,000
Charlotte Hall Veterans Home – WWTP Improvements	3,100,000	PC	1,000,000	C									4,100,000
Cunningham Falls SP – WWCS and WDS	775,000	PC	463,000	C									1,238,000
Freedom – WWTP Upgrade	2,414,000	PC	1,131,000	C									3,545,000
Eastern Correctional Institution – WWTP	8,744,000	PC	6,271,000	C	8,943,000	C	\$2,772,000	C	\$403,000				27,133,000
Eastern Correctional Institution – Co-generation Plant Improvement			1,681,000	PC	3,594,000	PC	3,160,000	C	3,930,000	C	\$9,250,000	C	21,615,000
Maryland Correctional Institution – Hagerstown – WWTP Upgrade	2,641,000	PC	2,449,000	C	2,000,000	C							7,090,000
Eastern Pre-release – Wastewater Treatment Plant Improvements			350,000	P	3,000,000	C	1,100,000	C					4,450,000

<u>Facility / Project</u>	<u>Prior Approp.</u>		<u>2016</u>		<u>2017</u>		<u>2018</u>		<u>2019</u>		<u>2020</u>		<u>Total</u>
Western Correctional Institution – Wastewater Pump Station Improvements	150,000	P	750,000	C	830,000	C							1,730,000
Cunningham Falls State Park – WTP Improvements			350,000	P	3,650,000	C							4,000,000
Cheltenham – WWTP Improvements			400,000	P	305,000	P	6,345,000	C					7,050,000
New Female Detention Center – Construction of Water and Sewer Utilities ¹	100,000	P	400,000	P			4,100,000	C					4,600,000
State Well Upgrades			50,000	P	285,000	PC	225,000	C	250,000	C	310,000	PC	1,120,000
1. Dan’s Mountain SP: (P – FY16) (C – FY17)													
2. Savage: (P – FY16) (C – FY18)													
3. Backbone: (P – FY17) (C – FY19)													
4. Meadow Mountain Youth Center: (P – FY17) (C – FY20)													
5. Cunningham Falls: (P – FY20) (C – FY21)													
6. Washington Monument: (P – FY20) (C – FY21)													

<u>Facility / Project</u>	<u>Prior Approp.</u>	<u>2016</u>	<u>2017</u>		<u>2018</u>		<u>2019</u>		<u>2020</u>		<u>Total</u>
Fair Hill NRMA – WTP and WD Upgrades			180,000	P	1,703,000	C					1,883,000
Woodstock – WWTP Improvements			350,000	P	2,000,000	C	1,500,000	C			3,850,000
Camp Fretterd – WTP, WWTP, WD	197,000	P	1,000,000	C	1,473,000	C					2,670,000
Victor Cullen – WWTP			350,000	P	1,750,000	C	1,750,000	C			3,850,000
State Water Towers			430,000	PC	430,000	PC	320,000	PC	580,000	PC	1,760,000
a. Crownsville Hospital Front Tower – Fiscal 2017											
b. ECI Front Tower – Fiscal 2018											
c. Crownsville Hospital Back Tower – Fiscal 2019											
d. Sandy Point State Park – Fiscal 2020											
e. Elk Neck State Park – Fiscal 2020											
St. Mary’s College – WDS and WTP							636,000	C			636,000
Elk Neck – WWTP					400,000	P	2,300,000	C	2,000,000	C	4,700,000
Swallow Falls SP – WWTP and WTP							700,000	P	7,000,000	C	7,700,000
Albert Powell – New EQ Tank							150,000	P	1,500,000	C	1,650,000
Point Lookout SP WWTP									600,000	P	600,000
Poplar Hill WWTP									350,000	P	350,000
UM Agriculture Center – WTP and WD									800,000	PC	800,000

<u>Facility / Project</u>	<u>Prior Approp.</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>		<u>Total</u>
New Germany SP – WWTP and WWCS						300,000	P	300,000
Gunpowder (MNG) – WTP						150,000	PC	150,000
Charlotte Hall VA Home – WTP						400,000	P	400,000
Greenbrier State Park - Sewer System Rehabilitation, WWTP						200,000	P	200,000
Point Lookout SP WTP, Water Storage System, Pump Station, Distribution System						400,000	P	400,000
Cash Flow Adjustment		-2,800,000						
Total GO Bonds Requested		\$16,471,000	\$25,202,000	\$25,458,000	\$11,939,000	\$23,840,000		\$102,910,000
(Rounded)		\$16,471,000	\$25,250,000	\$25,500,000	\$11,950,000	\$23,850,000		\$103,021,000
<div> <div> C: construction ECI: Eastern Correctional Institution EQ: equalization GO: general obligation MNG: Maryland National Guard NRMA: National Resources Management Area P: planning PC: planning and construction SP: State Park </div> <div> UM: University of Maryland VA: Veterans Administration WD: water distribution WDS: water distribution system WTP: water treatment plant WWCS: wastewater collection system WWTP: wastewater treatment plant </div> </div>								

¹ Prior funds for the New Female Detention Center were allocated to the Maryland Environmental Service from a separate source of funding – the Department of Juvenile Services’ New Female Detention Center project.

Note: The funding shown for the Eastern Correction Institution – Co-generation Plant upgrades is included in the 2015 *Capital Improvement Program* but does not reflect the most recent project cost estimate. The new project cost estimates are as follows: fiscal 2017 – \$2,594,000; fiscal 2018 – \$2,160,000; fiscal 2019 – \$3,630,000; and fiscal 2020 – \$9,000,000.

Source: Department of Budget and Management