



Bay Restoration Fund Advisory Committee

Gregory B. Murray, Chairman

Annual Status Report January 2019 (14th Report)

Report to:

Governor Larry Hogan

President of the Senate

Speaker of the House

Senate Education, Health, and Environmental Affairs Committee

Senate Budget and Taxation Committee

House Environment and Transportation Committee

House Appropriations Committee

Bay Restoration Fund Advisory Committee Members

Committee Members	Affiliation
Gregory B. Murray	Committee Chairman
Ben Grumbles	Maryland Department of the Environment
Joseph Bartenfelder	Maryland Department of Agriculture
Robert S. McCord	Maryland Department of Planning
Mark J. Belton	Maryland Department of Natural Resources
David R. Brinkley	Maryland Department of Budget & Management
Bob Buglass	Washington Suburban Sanitary Commission
Beth Lynn McGee, Ph.D.	Chesapeake Bay Foundation
Christopher P. Murphy	Anne Arundel County Department of Public Works
Cheryl A. Lewis	Town of Oxford
John Dinkel	DBD, LLC
Julie Mackert	Harford County Health Department
Sara L. Trescott	Washington County Health Department
William P. Ball, Ph.D.	Johns Hopkins University

PURPOSE OF THIS REPORT

Section 1605.2 of Chapter 9 of the Environment Article requires that, beginning January 2006, and every year thereafter, the Bay Restoration Fund (BRF) Advisory Committee (BRFAC) provide an update to the Governor and the General Assembly on the implementation of the BRF program, and report on its findings and recommendations.

EXECUTIVE SUMMARY

The BRFAC is pleased to present to Governor Larry Hogan and the Maryland General Assembly its 14th annual Legislative Update Report. Great strides have been made in implementing this historic BRF, but many challenges remain as we continue with the multi-year task of upgrading the state's wastewater treatment plants (WWTPs) and onsite sewage disposal systems (OSDS), and planting cover crops to reduce nitrogen and phosphorus pollution in the Chesapeake Bay.

Accomplishments

- As of June 30, 2018, the Comptroller of Maryland has deposited approximately \$1.086 billion in the Maryland Department of the Environment (MDE) Wastewater Treatment Plant fund, \$153 million in the MDE Septic Systems Upgrade fund, and \$111 million in the Maryland Department of Agriculture (MDA) Cover Crop Program fund, for a total of \$1.350 billion in BRF fees from wastewater and septic users.
- Enhanced Nutrient Removal (ENR) upgrades of the state's major sewage treatment plants are currently underway. Upgrades to 59 major facilities have been completed and are in operation. Upgrades to five other facilities are under construction, two are in design, and one is in planning.
- Upgrades are underway for some minor sewage treatment plants (less than 0.5 million gallons per day). The goal to complete the upgrade of at least five minor plants by 2017 has been achieved. This goal was set by the Maryland Watershed Implementation Plan (WIP) for the Chesapeake Bay Total Maximum Daily Loading (TMDL). To date, eight minor facilities have completed the ENR upgrade and are in operation. Three more are under construction, and 11 additional plants have signed the funding agreement, and have progressed into planning or design.
- MDE is also using BRF funds to upgrade septic systems with the Best Available Technology (BAT) for nitrogen removal. As of June 30, 2018, the BRF has funded 9,722 BAT upgrades throughout Maryland, of which 5,951 BAT upgrades were completed within Maryland's Critical Areas. In addition, 415 homes have been connected to public sewer using BRF.
- In April 2018, MDE adopted regulations to implement the State Clean Water Commerce Act of 2017, which authorizes the use of the BRF to purchase nitrogen, phosphorus and sediment reductions. Subsequent to the adoption of the regulations, MDE solicited for proposals to purchase these reductions achieved through environmental practices. Of the two submitted proposals, one was selected and will be presented for the Board of Public Works approval.

- MDA dedicates its portion of BRF funds for the implementation of the statewide Cover Crop Program.
- In FY18, Maryland farmers applied to plant 617,269 acres of cover crops, which is a successful signup, although farmers typically enroll more acreage than they plant. Farmers planted 395,862 acres attaining an estimated nutrient reduction of 2.4 million pounds of nitrogen, and 80,000 pounds of phosphorus.
- The extreme weather conditions in 2018 resulted in fewer acres planted compared to previous years. The rainfall was unprecedented, and fields were inundated with water, frequently preventing planting activities.
- Cover crops are planted in the fall to prevent excess nitrogen runoff from the soil after crop harvest. It is one of the Best Management Practices (BMPs) within Maryland's WIP to meet TMDL nutrient reductions. The practice is recognized as one of the state's most cost effective BMPs available to prevent nitrogen movement to groundwater, and subsequently the Bay. Cover crops also prevent soil erosion and improve soil quality.
- Expenditures for FY18 utilized appropriations of \$11.4 million from BRF, and \$11.25 million from Chesapeake and Atlantic Coastal Bays Trust Fund (Trust Fund).
- This summer 637,000 acres were enrolled in next years' Cover Crop program. As with last year's program, commodity acres were removed making the program a totally traditional Cover Crop program. The traditional planted acres along with commodity acres reported by U.S. Department of Agriculture Farm Service Agency should allow Maryland farmers to reach Chesapeake Bay goals.
- MDE and Maryland Department of Planning (MDP) are continuing their efforts to implement the requirements of Chapter 257 of the 2007 Acts, which requires MDE and MDP, in concert with the BRAC, and in consultation with local governments, to report on the growth influences that ENR upgraded WWTPs may be having in the jurisdiction served. As part of this report, MDP is continuing its analysis, and is reporting on all qualifying WWTPs, grouped by region, found in Tables 1 of this report.

Challenges

The U.S. Environmental Protection Agency (EPA), in coordination with the Bay watershed jurisdictions of Maryland, Virginia, Pennsylvania, Delaware, West Virginia, New York, and Washington, DC, developed and established the TMDL, and a nutrient and sediment pollution diet for the Chesapeake Bay, consistent with Clean Water Act requirements. The Maryland WIP calls for specific strategies to achieve 60% by 2017 as an interim target reduction, and ultimately achieving 100% by 2025. MDE will continue to use its Water Quality Integrated Project Priority System (IPPS) to prioritize/allocate future funding to the different sectors. The BRAC will monitor the project selections under this process and recommend changes to the process as needed. All the following sectors, except Agriculture, are funded through MDE:

- Point Source: Point Sources include major and minor municipal sewage treatment plants. Most major plants (close to 90%) and eight additional minor plants have been upgraded to ENR in order to achieve the interim target reduction of 60%. The ENR upgrades to date have been successful in exceeding the interim target for the wastewater sector. However, construction delays at some of the largest plants prevented further reductions originally planned to be used to offset the shortfall of other sectors.
- Septic Systems: BRF funding will continue to be provided before and after 2017 for BAT septic systems to support local TMDL and MDE strategies.
- Stormwater: BRF funding can be provided starting July 2017 for stormwater BMPs to support local initiatives, MS4 permit compliance, and MDE strategies.
- Agriculture: Annual agricultural BMPs are set at about the same level in the interim as in the Final Target. Cover Crop activities being funded by BRF are essential to the success of the agricultural strategy.

Conclusions

- MDE will continue to use the Bay Cabinet process to improve its benchmarks, and tracking of implementation efforts to ensure that BRF funded projects remain on schedule to assist the state in meeting both the interim and final 2025 nutrient reduction targets.
- MDE and MDP, in consultation with the BRFAC have developed a priority system for the selection of minor WWTPs for ENR upgrades. In addition to funding ENR at minor WWTPs, MDE is using its updated (November 2016) IPPS for the selection of BRF funded expanded use projects.

Programs and Administrative Functions

Comptroller's Office:

The role of the Comptroller of Maryland (CoM) is to act as the collection agent for the BRF and make distributions to the MDE and MDA as required.

In the third year of administering the BRF, the CoM began the compliance phase of the fee administration. The law specifies that the BRF shall be administered under the same provisions allocable to administering the sales and use tax. Granted that authority, the CoM began the audit process for both filers and non-filers of BRF quarterly reports.

For non-filers, CoM began contacting the billing authorities and users who have failed to file or pay the BRF, and is obtaining sufficient documentation to make an assessment and begin collection activity. Federal government billing authorities and users have, to date, refused to participate in the BRF process. MDE secured an agreement with the U.S. Department of Defense (DoD) to have wastewater treatment plants upgrade their systems over a defined period of time to exempt them from the BRF. A copy of the agreement was provided by MDE to CoM, and those BRF accounts were subsequently placed on inactive status.

The CoM is continuing its audits of billing authorities to ensure fees are calculated correctly, and are being collected.

Maryland Department of the Environment:

Three units within MDE are involved in the implementation of the BRF.

1. *Maryland Water Quality Financing Administration:*

The Maryland Water Quality Financing Administration (MWQFA) was established under Title 9, Subtitle 16 of the Maryland Code. It has primary responsibility for the capital budget development, financial management, and fund accounting of the Water Quality Revolving Loan Fund, the Drinking Water Revolving Loan Fund and the BRF. Specifically for the BRF, the MWQFA is responsible for the issuance of revenue bonds, payment disbursements, and the overall financial accounting, including audited financial statements.

2. *Engineering and Capital Projects Program:*

The Engineering and Capital Projects Program (ECPP) manages the engineering and project management of federal capital funds consisting of special federal appropriation grants, and state revolving loan funds for water quality and drinking water projects. Also manages projects funded by state grant programs, including BRF, Special Water Quality/Health, Small Creeks and Estuaries Restoration, Stormwater, Biological Nutrient Removal, and Water Supply Financial Assistance. There may be as many as 250 active capital projects ranging in levels of complexity at any given time. Individual projects range in value from \$10,000 to \$500 million. A single project may involve as many as eight different funding sources and multiple construction and engineering contracts over a period of three to 10 years. ECPP is responsible for assuring compliance with the requirements for each funding

source while achieving the maximum benefit of funds to the recipient and timely completion of the individual projects.

3. . *Wastewater Permits Program:*

The Wastewater Permits Program (WWPP) issues permits for surface and groundwater discharges from municipal and industrial sources, and oversees onsite sewage disposal and well construction programs delegated to local approving authorities. Large municipal and industrial discharges to the groundwater are regulated through individual groundwater discharge permits. All surface water discharges are regulated through combined state and federal permits under the National Pollutant Discharge Elimination System. These permits are issued for sewage treatment plants, some water treatment plants and industrial facilities that discharge to state surface waters. These permits are designed to protect the quality of the body of water receiving the discharge.

Anyone who discharges wastewater to surface waters needs a surface water discharge permit. Applicants include industrial facilities, municipalities, counties, federal facilities, schools, and commercial water and wastewater treatment plants, as well as treatment systems for private residences that discharge to surface waters.

WWPP will ensure that the enhanced nutrient removal goals and/or limits are included in the discharge permits of facilities upgraded under the BRF. To accommodate the implementation of the OSDS portion of the BRF, the WWPP deputy program manager has been designated as the lead for the OSDS upgrade program.

Maryland Department of Agriculture:

MDA delivers soil conservation and water quality programs to agricultural landowners and operators using a number of mechanisms to promote and support the implementation of BMPs. Programs include information, outreach, technical assistance, financial assistance and regulatory programs such as Nutrient Management. Soil Conservation Districts are the local delivery system for many of these programs.

The BRF provides a dedicated funding source for the Cover Crop Program. In prior years, funding fluctuated and program guidelines were modified accordingly to try to get the best return on public investment. Results from past surveys of farm operators conducted by the Schaeffer Center of Public Policy at the University of Baltimore indicated that changing Cover Crop Program eligibility guidelines and funding uncertainty discouraged participation.

For FY18 incentive payments were adjusted. A maximum payment could have reached \$75/acre for those meeting all of the incentive criteria.

MDA is projected to receive \$11.2 million in BRF support in FY19. It is projected that BRF will provide financial assistance for approximately 228,000 acres of cover crops.

Over the past 7 years, funding gaps for the Cover Crop Program have been addressed with funding from the Trust Fund to support the increased level of farmer participation.

MDA's outreach for the program included news releases, print ads, direct mail, posters, 25 foot outdoor banners at commercial grain facilities and equipment dealer facilities, cover crop field signs, seed testing bags, bumper stickers, and educational displays targeted toward farmers. MDA administers the Cover Crop Program through the Maryland Agricultural Water Quality Cost Share (MACS) Program. MACS offers several incentive programs and provides financial assistance to farm operators to help them implement over 30 BMPs. Cover crops are one of the most cost effective methods for tying up excess nitrogen from the soil following the fall harvest of crops. They minimize nitrogen leaching, prevent soil erosion, and improve soil quality.

Maryland Department of Planning:

MDP is a statutory member of the BRFA. Chapter 80 of the Acts of 2014 allows for the use of BRF monies for the remediation of failing septic systems, outside of the Priority Funding Area (PFA), connecting to the qualified WWTPs. Such cases must meet certain conditions and gain approval from the Smart Growth Coordinating Committee prior to using the BRF. MDP works with local governments to ensure that land use plans maintain consistency with both local development goals and state growth policies, in light of these external PFA sewer extensions to remediate failing septic systems.

Specific functions that MDP carries out that relate directly or indirectly to the BRF are summarized below. HB 893 enacted by the 2007 session, added an additional BRF reporting responsibility which is discussed later in this report.

State Clearinghouse Review

All state and federal financial assistance applications, including those for BRF funds are required to be submitted for review through the State Clearinghouse, which is part of MDP. The Clearinghouse solicits comments on these applications from all relevant state agencies and local jurisdictions. The applicant and funding agency are subsequently notified of any comments received. This review ensures that the interests of all reviewing parties are considered before a project is sent forward for final federal or state approval.

County Water and Sewerage Plans and Amendments

MDP assists local governments in the preparation of amendments and revisions to the water and sewer planning document; when requested by the local governments.

MDP is directed by law to advise MDE regarding the consistency of County Water and Sewerage Plans and amendments with regard to the "local master plan and other appropriate matters" (Environment Article § 9-507 (b)(2)).

The law requires that County Water and Sewerage Plans and amendments be consistent with the local comprehensive plans. If a plan or amendment is not consistent, it is subject to disapproval, in whole or in part, by MDE.

Priority Funding Areas

PFAs are delineated by local governments in accordance with statutory criteria that focus on concentrating high density growth in and near existing communities. If the local PFA designations do not meet the legal requirements in the law, MDP indicates those portions as “comment areas” to indicate that not all requirements of the §5-7B-02 and 03 State Finance and Procurement Article (SFPA) are met. In these areas “growth-related projects” are not eligible for certain state funding until SFPA requirements are met or unless an exception is granted by the Maryland Smart Growth Coordinating Committee. The PFA statute lists the specific state financial assistance programs that are required to focus their funding on projects inside the PFA, with certain specified exceptions.

The BRF was enacted after the PFA law, and is not included in the list of state financial programs subject to the PFA funding restrictions, but is monitored so not to negatively affect the efforts of Smart Growth policies, namely support to new development at lower densities, especially outside of designated growth areas. Even though PFA law is not directly applicable to this capacity, as highlighted in Table 1 on Page 26 of this report, it appears that treatment capacity has been consistently used for service connections within the PFA. MDP will continue to monitor this activity, especially in areas where major failing septic systems are increasing in numbers, and other jurisdictions where the remediation of failing septic systems for public health and safety reasons is on the rise. Where BRF septic funds are provided for these types of connections, local governments are guided and advised by MDE and MDP.

Local Comprehensive Plan Review and Comment

Local Comprehensive Plans must be prepared by every county and municipality in Maryland, pursuant to the Land Use Article of the Annotated Code. MDP provides comments on draft local comprehensive plans and amendments. Through the Clearinghouse review process, MDP coordinates other state agency comments prior to being adopted by local governing bodies. While these plans are not subject to state approval and comments provided are advisory only, local governing bodies provide full consideration to the state advisory comments since state funds may later be needed to implement specific recommendations of the local plans.

MDP works closely with, and provides technical assistance to local governments in the processes leading to the adoption of local comprehensive plans. MDP ensures coordination with state policies including the plans, policies, and programs of the Governor’s Smart Growth Subcabinet.

Bay Restoration Fund Status

BRF fees collected from WWTP users are identified as “Wastewater” fees, and those collected from users on individual onsite septic systems are identified as “Septic” fees. These fees are collected by the State Comptroller’s Office and deposited as follows:

- Wastewater fees (net of local administrative expenses) are deposited into MDE’s “Wastewater Fund.”
- Sixty percent (60%) of the Septic fees (net of local administrative expenses) are deposited into MDE’s “Septic Fund.”
- Forty percent (40%) of the Septic fees (net of local administrative expenses) are deposited into MDA’s “Septic Fund.”

The status of the deposits from the State Comptroller’s Office to MDE and MDA for each of the sub-funds identified above, as of June 30, 2018, is as follows:

Wastewater Fund (MDE 100% - FY18):

Sources:	\$ Million	Uses:	\$ Million
Cash Deposits	\$ 115	Grant Awards	\$ 83
Cash Interest Earnings	\$ 2	Admin. Expense Allowance	\$ 2
Net Bond Proceeds	<u>\$ 0</u>	Bond DS Payments	<u>\$ 32</u>
Total	\$ 117	Total	\$ 117

Wastewater Fund (MDE 100% - cumulative since inception 2004):

Sources:	\$ Million	Uses:	\$ Million
Cash Deposits	\$ 1,086	Grant Awards	\$1,378*
Cash Interest Earnings	\$ 31	Admin. Expense Allowance	\$ 16
Net Bond Proceeds	<u>\$ 362</u>	Bond DS Payments	<u>\$ 106</u>
Total	\$ 1,479	Total	\$1,500

** Funds are awarded after construction bids have opened (except for planning/design), and payment disbursements are made as expenses are incurred; \$100 million in additional revenue bonds issuance is projected for FY22.*

As of June 30, 2018, the grants under the Wastewater Fund were awarded as follows:

ENR MAJOR WWTP PROJECTS

Aberdeen ENR	\$14,581,773.
Allegany Co/ Georges Creek ENR	9,875,136.

Allegany Co/ Celanese ENR	2,333,382.00
Anne Arundel Co/ Annapolis WRF ENR	14,683,515.00
Anne Arundel Co/ Broadneck WRF	7,851,000.00
Anne Arundel Co/ Broadwater ENR	6,044,053.00
Anne Arundel Co/ Cox Creek WRF ENR Up	88,600,000.00
Anne Arundel Co/ MD City Facility ENR	3,473,000.00
Anne Arundel Co/ Mayo WRF BNR ENR	8,854,528.00
Anne Arundel Co/ Patuxent WRF ENR	3,713,000.00
Baltimore City/Back River WWTP ENR	347,104,489.00
Baltimore City/Patapsco ENR	158,922,000.00
Bowie ENR	8,668,492.00
Brunswick, City of/ WWTP ENR	8,263,000.00
Cambridge ENR	8,618,255.00
Cecil Co./Northeast River WWTP ENR	10,977,120.00
Chesapeake Beach WWTP ENR	7,099,652.00
Chestertown ENR	1,490,854.14
Crisfield WWTP ENR	4,230,766.00
Cumberland WWTP ENR	25,654,866.00
Delmar WWTP ENR	2,369,464.00
Denton WWTP ENR	4,462,909.00
Easton WWTP ENR	7,788,021.00
Elkton ENR	7,403,154.00
Emmitsburg WWTP ENR	5,517,848.00
Federalsburg ENR	2,900,000.00
Frederick, City of /Frederick Gas House	16,060,521.00
Fred. Co./ Ballenger McKinney WWTP	31,000,000.00
Fruitland WWTP ENR Up	4,809,000.00

Hagerstown, City of /WWTP ENR II	10,191,836.00
Harford Co./ Joppatowne ENR	3,399,778.00
Harford Co./ Sod Run ENR	36,640,567.00
Havre de Grace WWTP ENR	10,474,820.00
Howard County/Little Patuxent ENR	35,493,172.00
Hurlock WWTP ENR	941,147.75
Indian Head ENR	5,822,098.00
La Plata ENR Upgrade	9,367,610.00
Leonardtown WWTP ENR	8,996,527.00
MES/Freedom District WWTP ENR	7,716,359.00
MES/Correctional Instit. WWTP ENR	6,504,691.00
MES/Dorsey Run WWTP ENR	47,986.00
Mt Airy WWTP/ENR	3,354,144.00
Perryville ENR	3,888,168.00
Pocomoke WWTP ENR	3,214,878.00
Poolesville WWTP ENR	223,132.00
Queen Anne's Co/Kent Island ENR	6,380,645.09
Salisbury WWTP ENR	2,553,876.86
Salisbury WWTP BNR ENR	11,435,411.00
Snow Hill/BNR ENR	3,275,455.00
St. Mary's Co./Marlay Taylor ENR	9,896,000.00
Talbot Co/St Michaels ENR	1,978,698.78
Taneytown/WWTP ENR	5,381,998.00
Thurmont WWTP ENR	6,680,679.00
Washington Co./Winebrenner	2,990,607.00
Washington Co./Conococheague	19,271,609.00
Westminster WWTP ENR	1,020,000.00

WSSC/Blue Plains WWTP ENR	138,036,769.00
WSSC/Damascus WWTP ENR	5,053,399.00
WSSC/Parkway WWTP ENR	14,271,803.00
WSSC/Piscataway WWTP ENR	6,324,000.00
WSSC/Seneca WWTP ENR	6,221,000.00
WSSC/Western Branch WWTP ENR	39,109,000.00
MAJOR WWTP-ENR SUBTOTAL	\$1,249,507,662.62

BRF EXPANDED USES (POST FY16)

Betterton WWTP ENR (Minor)	\$5,905,336.00
Boonsboro WWTP ENR (Minor)	2,000,000.00
Galena WWTP ENR (Minor)	1,847,832.00
Greensboro WWTP ENR (Minor)	2,581,838.00
MES/Elk Neck St Park WWTP (Minor)	80,683.00
Oxford WWTP ENR (Minor)	2,989,477.00
Preston WWTP ENR (Minor)	360,762.00
Queenstown WWTP ENR (Minor)	880,929.00
Rising Sun, Town of/ENR WWTP (Minor)	1,099,268.00
Secretary ,Town of/Twin Cities ENR (Minor)	317,185.00
Somerset Co/Smith Island (Minor)	375,000.00
<u>Sudlersville, Town of/ BNR ENR Up (Minor)</u>	<u>2,299,722.00</u>
Balto. City/Patapsco SSI (SC-903)	19,869,452.00
Balto. City/Herring Run SSI (SC-937)	5,145,588.00
Balto. City/Low Level SSI (SC-914)	12,566,952.00
Cumberland CSO Storage Facility Ph I	27,241,372.00

Frostburg CSO Ph VII-B	2,135,875.00
Greensboro/Goldsboro WW. Ph V	2,520,000.00
LaVale Manhole Rehab Ph II	714,855.00

<u>TOTAL EXPANDED USE PROJECTS</u>	<u>\$90,932,126.00</u>
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SEWER PROJECTS (PRE FY10)

Allegany Co/ Braddock Run Interceptor	\$499,748.00
Balto City Gwynns Run Sewer	1,575,000.00
Balto. City Greenmount Br Sewer Interc.	2,300,000.00
Balto. City Greenmount Br Sewer Interc. II	1,000,000.00
Cumberland / CSO Elimination-Evitts Creek	1,319,889.00
Denton - Lockerman St. Lift Station	100,000.00
Emmitsburg/South Seton Ave Sewer Line	600,000.00
Federalsburg/Maple Ave Sewer	600,000.00
Frostburg Combined Sewer Overflow Ph-IV	1,000,000.00
Frostburg CSO - Phase V	800,000.00
Frostburg CSO - Phase VI Elimination	1,100,000.00
Fruitland, City of Infiltration & Inflow Sewer	800,000.00
Hagerstown/ Collection System Rehab	800,000.00
Havre de Grace/ I&I Sewer Reduction	166,500.00
Mountain Lake Park - Sewer Rehab III	731,884.00
Port Deposit Inflow & Infiltration Reduction	178,199.00
Secretary/Gordon Street Lift Station	150,000.00
Secretary Infiltration/Inflow Reduction	172,068.00
St. Mary's METCOM/Evergreen Park Sewer	203,714.00
St. Mary's METCOM/Piney Pt. Sewers	465,559.00
Talbot/St Michaels Sewer & Upgrade	1,000,000.00

Talbot/St Michaels Reg.II Sewer & Upgrade	450,000.00
Taneytown, City of /Balt St Water Main	200,000.00
Thurmont / Sewer Line Rehab	947,000.00
Washington Co. Halfway Inflow/Infiltration	200,000.00
Westernport CSO	936,000.00
Westernport CSO/ Elim Philos Ave Area	1,032,519.00
Williamsport, Town of /Inflow & Infiltration	383,226.00
SEWER SUBTOTAL (PRE FY10)	<u>\$19,711,306.00</u>

<u>O&M PROJECTS</u>

Allegany Co./ North Celanese	\$372,000.00
Allegany Co./ George's Creek	70,800.00
AA Co./Annapolis	600,000.00
AA Co./ Broadneck	495,000.00
AA Co./Broadwater	80,000.00
AA Co./ MD City	200,000.00
AA Co./ Patuxent	675,000.00
Boonsboro, Town of	99,540.00
Bowie, City of	158,400.00
Brunswick, City of	243,600.00
Cambridge, City of	546,750.00
Cecil Co./NE River	15,000.00
Charles Co./ Mattawoman	816,000.00
Chestertown, Town of	145,650.00
Crisfield, City of	18,000.00
Cumberland, City of	1,398,000.00

Delmar, Town of	70,000.00
Denton, Town of	110,000.00
Easton, Easton Utilities	744,000.00
Elkton, Town of	512,400.00
Federalsburg, Town of	133,500.00
Frederick Co./Ballenger	550,000.00
Hagerstown, City of	1,344,000.00
Harford Co./ Aberdeen	360,000.00
Harford Co./Joppatowne	107,500.00
Harford Co./ Sod Run	825,000.00
Havre de Grace, City of	427,500.00
Howard Co./Little Patuxent	1,300,000.00
Hurlock, Town of	306,900.00
Indian Head, Town of	129,000.00
La Plata, Town of	127,500.00
MD Environmental Service/ Dorsey Run	240,000.00
MD Environmental Service/ ECI	90,000.00
Mt. Airy, Town of	165,600.00
Perryville, Town of	89,700.00
Pocomoke City, City of	52,920.00
Poolesville, Town of	13,500.00
Queen Anne Co./Kent Island	468,000.00
Rising Sun, Town of	12,500.00
Saint Mary's METCOM/Marlay Taylor	75,000.00
Snow Hill, Town of	100,000.00
Talbot Co. / Region II	164,850.00
Thurmont, Town of	120,000.00

WSSC, Blue Plains	300,000.00
WSSC, Damascus	180,000.00
WSSC, Parkway	806,250.00
WSSC, Piscataway	1,200,000.00
WSSC, Seneca	600,000.00
WSSC, Western Branch	600,000.00
O&M PROJECT SUBTOTAL	<u>\$18,259,360.00</u>

TOTAL BRF WW Grant Awards	\$1,378,410,454.62
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Septic Fund (MDE 60% for Onsite Disposal System upgrades FY18):

Sources:	\$ Million	Uses:	\$ Million
Cash Deposits	\$ 18	Capital Grant Awards	\$ 15
Cash Interest Earnings	\$ 0	Admin. Expense Allowance	\$ 1
		HB-12 Local Admin Grant	\$ 1
<u>Total</u>	<u>\$ 18</u>	<u>Total</u>	<u>\$ 17</u>

Septic Fund (MDE 60% for Onsite Disposal System upgrades except 22.4% in FY10 - cumulative since inception 2004):

Sources:	\$ Million	Uses:	\$ Million
Cash Deposits	\$153	Capital Grant Awards	\$ 137*
Cash Interest Earnings	\$ 3	Admin. Expense Allowance	\$ 12
		HB-12 Local Admin Grant	\$ 5 **
<u>Total</u>	<u>\$158</u>	<u>Total</u>	<u>\$154</u>

* Does not include \$15 million of FY19 grant awarded in June 2018. Payment disbursements are made as BATs are installed and expenses are incurred.

** HB12 passed during the 2014 session allows for up to 10% of the MDE septic fee allocation to be used for grants to local health departments to implement and enforce the septic regulations requiring BAT for nitrogen reduction from septic systems.

As of June 30, 2018 , the grants under the Wastewater Fund were awarded as follows:

BRF: SEPTIC CAPITAL GRANTS	
Allegany Co.- Canaan Val Institute	\$516,116.85
Anne Arundel Co.	23,706,865.20
Baltimore Co.	3,511,258.81

Calvert Co.	11,672,729.94
Caroline Co.	3,254,856.40
Carroll Co.	1,987,811.88
Cecil Co.	6,785,845.09
Charles Co.	3,567,344.60
Dorchester Co.	6,513,808.55
Frederick Co (Canaan Valley Institute)	3,490,306.55
Garrett Co.	1,034,038.34
Harford Co.	3,257,200.87
Howard Co (Canaan Valley Institute)	1,203,319.25
Kent Co.	5,268,184.89
Montgomery Co (Canaan Valley Inst.)	1,849,354.00
Prince George's Co.	412,262.50
Queen Anne's Co.	8,042,095.89
Somerset Co.	2,808,014.58
St. Mary's Co.	10,42,627.94
Talbot Co.	7,268,976.13
Washington Co (Canaan Valley Institute)	3,183,895.05
Wicomico Co.	6,549,515.75
Worcester Co.	3,156,669.76
SEPTIC County Grants Total	\$119,443,098.82

DIRECT SEPTIC GRANTS:

Individual-Direct Grant	\$17,725,266.58
Total BRF Septic Capital Grants	\$137,168,365.40

HB 12 GRANT AWARDS:

Allegany Co.	\$75,000.00
Anne Arundel Co.	155,000.00
Baltimore Co.	310,000.00
Calvert Co.	440,000.00

Caroline Co.	440,000.00
Carroll Co.	115,000.00
Cecil Co.	155,000.00
Charles Co.	310,000.00
Dorchester Co.	440,000.00
Frederick Co.	260,000.00
Garrett Co.	165,000.00
Harford Co.	260,000.00
Howard Co.	115,000.00
Kent Co.	440,000.00
Montgomery Co.	90,000.00
Prince George's Co.	15,000.00
Queen Anne's Co.	155,000.00
St. Mary's Co.	440,000.00
Somerset Co.	155,000.00
Talbot Co.	440,000.00
Washington Co.	145,000.00
Wicomico Co.	155,000.00
Worcester Co.	85,000.00

Total HB 12 Grant Awards	\$5,360,000.00
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TOTAL SEPTIC GRANTS	<u>\$142,528,365.40</u>
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Septic Fund (MDA 40% for Cover Crops)

Sources:

Cash Deposits* \$110,762,610

Uses:

Grant Awards \$102,996,246

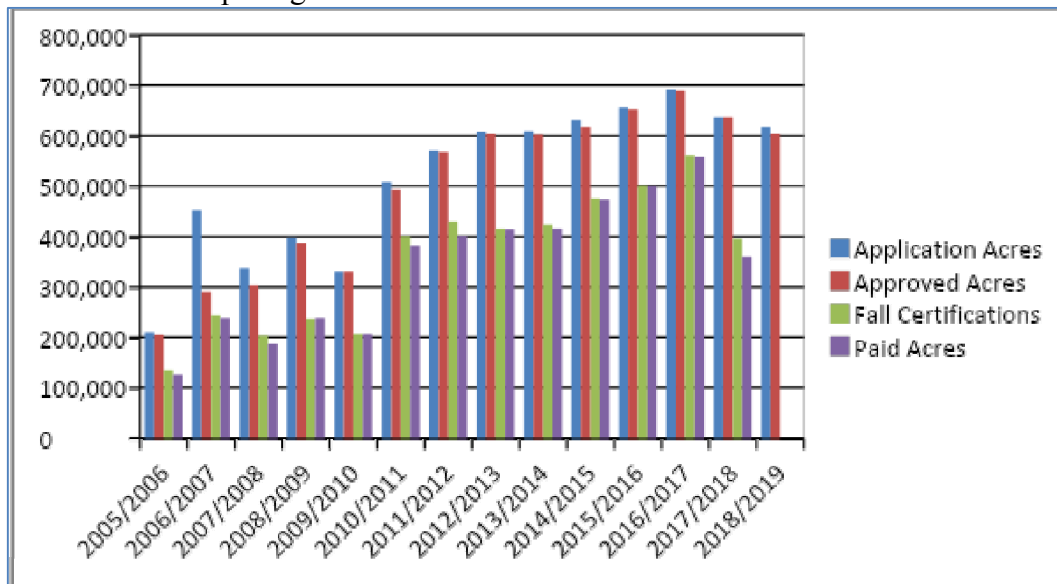
Admin. Expense \$ 2,459,294

Total \$105,455,540

*Cumulative revenue and expenditures as of June 30, 2018

Historically there is attrition between acres enrolled and actual payments for cover crops planted under the MACS Program. The main cause of reduced acreage is one of time and labor availability in the fall planting of cover crops after harvest. Other causes include delays due to weather and other uncontrolled factors. There is also a smaller reduction in acres planted and those paid due to conversions from traditional to commodity cover crops or removal of acres from the program. The chart below illustrates the “typical” program attrition profile.

MDA Cover Crop Program 1 - Acres



Clean Water Commerce Act of 2017:

The Maryland Clean Water Commerce Act of 2017 authorizes MDE to use the BRF to purchase nitrogen, phosphorus, and sediment reductions if they are determined to be cost effective.

In April 2018, MDE adopted regulations, as required by the act, to implement the program. Shortly after the adoption of the regulations solicitation for proposals was forwarded to all known potential sellers. Proposals/applications were due at MDE on Aug. 3, 2018.

Two proposals were received. The following summarizes the two proposals:

I. Tributaries to Winters Run Stream Restoration by HGS, LLC (a RES company):

HGS proposed the full delivery of 6,236 linear feet of stream restoration located on the Winters Run Golf Course in Harford County.

The following were the proposed prices and budget:

Reduction Type	Units/Year		Delivery Factor	Unit/Year Delivered	Price per Unit/Year	Total Price/Year
Nitrogen	1,626.00	Lbs/yr	0.43	699.18	\$ 105.12	\$ 73,497.80
Phosphorus	749.00	Lbs/yr	0.68	509.32	\$ 144.34	\$ 73,515.25
Sediment	129.00	Tons/yr	1.03	132.87	\$ 552.80	\$ 73,450.54

Total Annual Price \$ 220,463.59
 Practice Useful Life (years) 20
 Total Over 20 Years \$ 4,409,271.73

II. Continuous Monitoring and Adaptive Control by OptiRTC, Inc:

OptiRTC proposed Continuous Monitoring and Adaptive Control (CMAC) services for existing BMPs at various locations.

The following were the proposed prices and budget:

Reduction Type	Units/Year		Delivery Factor	Unit/Year Delivered	Price per Unit/Year	Total Price/Year
Nitrogen	565.00	Lbs/yr	0.86	485.90	\$ 265.00	\$ 128,763.50
Phosphorus	85.00	Lbs/yr	0.74	62.90	\$ 1,535.00	\$ 96,551.50
Sediment	26.00	Tons/yr	1.30	33.80	\$ 1,995.00	\$ 67,431.00

Total Annual Price \$ 292,746.00
 Practice Useful Life (years) 20
 Total Over 20 Years \$ 5,854,920.00

Based on the above prices and other factors specified in the regulations (sustainability and added value benefits), HGS’s proposal was selected as the most cost-effective proposal for all three reductions.

Wastewater Treatment Plant Upgrades With Enhanced Nutrient Removal (ENR)

Status of Upgrades:

MDE has implemented a strategy known as ENR, and is providing financial assistance to upgrade wastewater treatment facilities in order to achieve ENR. The ENR Strategy and the BRF set forth annual average nutrient goals of WWTP effluent quality of Total Nitrogen (TN) at 3 mg/l and Total Phosphorus (TP) at 0.3 mg/l, where feasible, for all major wastewater treatment plants with a design capacity of 0.5 million gallons per day (MGD) or greater. Other smaller WWTPs are currently being selected by MDE for upgrade on a case-by-case basis, based on the cost effectiveness of the upgrade, environmental benefits, and land use factors. Primarily, Maryland's 67 major sewage treatment facilities are targeted for the initial upgrades.

Major WWTPs:

ENR upgrades are underway at many plants, and to date, upgrades to 59 major facilities have been completed, and are successfully in operation. Five other facilities are under construction, two are in the design stage, and one is in the planning stage.

Minor WWTPs:

ENR upgrades are also underway at some minor WWTPs in order to meet Maryland's WIP requirement to upgrade at least five minor WWTPs before FY18. MDE and MDP have been assisting local governments in applying for BRF grants. Currently, eight minor plants are ENR operational, three are under construction, and 11 are in design or planning phases.

As an estimate of the total benefit of the completed projects, the following load reductions were determined based on the difference between what would be the facility's load without the upgrade versus the load with the upgrade at the ultimate design capacity. These load reductions would allow the upgraded facilities to maintain their loading caps of nitrogen and phosphorus even after reaching their design capacity with the 20-year projected growth.

The following are the major facilities that have completed the upgrade and are in operation:

#	Major Facility	Design Flow In Million Gallons Per Day (MGD)	Date Completed	Nitrogen Load Reduction At Design Flow (Lbs/year)	Phosphorus Load Reduction At Design Flow (Lbs/year)
1	Hurlock	1.65	May 2006	70,000	8,500
2	North Branch	2.00	Nov 2006	85,000	10,300
3	Easton	4.00	June 2007	170,000	20,700
4	Kent Narrows	3.00	Aug 2007	128,000	15,500
5	APG-Aberdeen (Federal) ¹	2.80	Mar. 2006	119,000	14,500
6	Swan Point ¹	0.60	May 2007	25,000	3,100
8	Mattawoman ¹	20.00	Nov 2007	853,000	0

#	Major Facility	Design Flow In Million Gallons Per Day (MGD)	Date Completed	Nitrogen Load Reduction At Design Flow (Lbs/year)	Phosphorus Load Reduction At Design Flow (Lbs/year)
7	Chestertown	0.90	June 2008	64,000	7,800
9	Brunswick	1.40	Sept 2008	60,000	7,200
10	Talbot Region II	0.66	Oct 2008	28,000	3,400
11	Indian Head	0.50	Jan 2009	21,000	2,600
12	Elkton	3.05	Dec 2009	130,000	15,800
13	Havre De Grace	2.275	May 2010	28,000	11,800
14	Poolesville	0.75	Jul 2010	9,000	3,900
15	Federalsburg	0.75	Aug 2010	32,000	3,900
16	Crisfield	1.00	Aug 2010	43,000	5,200
17	George's Creek	0.60	Nov 2010	25,000	3,100
18	Mount Airy	1.20	Nov 2010	15,000	6,200
19	Perryville	1.65	Dec 2010	70,000	8,500
20	Hagerstown	8.00	Dec 2010	97,000	41,400
21	Cumberland	15.0	Feb 2011	183,000	77,700
22	Bowie	3.30	Feb 2011	40,000	7,000
23	Delmar	0.85	Sept 2011	36,000	4,400
24	Pocomoke City	1.47	Oct 2011	18,000	7,600
25	Denton	0.80	May 2012	10,000	4,100
26	Little Patuxent	25.00	Sept 2012	304,000	53,200
27	Damascus (WSSC)	1.50	Feb 2013	18,000	7,700
28	Thurmont	1.00	April 2013	12,000	5,100
29	Piscataway (WSSC)	30.00	May 2013	365,000	0
30	Centreville	0.50	July 2013	6,000	2,500
31	Parkway (WSSC)	7.50	July 2013	91,000	15,900
32	Dorsey Run ¹	2.00	Oct 2013	24,000	4,200
33	Joppatowne	0.95	Nov 2013	11,000	4,900
34	Cambridge	8.1	Dec 2013	98,000	41,900
35	Snow Hill	0.5	June 2014	21,000	2,500
36	La Plata	1.5	Dec 2014	18,000	7,700
37	Sod Run	20.0	Feb 2015	243,000	103,500
38	Aberdeen	4.0	March 2015	48,000	20,700
39	Patuxent	7.5	March 2015	91,000	15,900
40	Maryland City	2.5	March 2015	30,000	5,300
41	Broadneck	6.0	May 2015	73,000	31,000
42	Emmitsburg	0.75	March 2016	31,000	3,800
43	Annapolis	13.0	April 2016	158,000	67,300
44	Seneca (WSSC)	20.0	April 2016	243,000	0
45	Broadwater	2.0	April 2016	24,000	10,300
46	Western Branch (WSSC)	30.0	April 2016	365,000	63,900
47	Blue Plains (MD)	169.6	April 2016	7,230,000	0

#	Major Facility	Design Flow In Million Gallons Per Day (MGD)	Date Completed	Nitrogen Load Reduction At Design Flow (Lbs/year)	Phosphorus Load Reduction At Design Flow (Lbs/year)
	Portion)				
48	Ballenger Creek	6.0	April 2016	73,000	31,000
49	Taneytown	1.1	July 2016	13,000	5,600
50	Marlay Taylor	6.0	August 2016	73,000	31,000
51	North East River	2.0	October 2016	24,000	0
52	Fruitland	0.8	November 2016	9,700	4,100
53	Winebrenner	0.6	February 2017	42,600	5,100
54	Leonardtown	0.68	August 2017	8,300	3,500
55	Back River	180	September 2017	2,193,000	0
56	Mayo	0.82	October 2017	35,000	4,200
57	Chesapeake Beach	1.5	November 2017	18,300	7,800
58	Cox Creek	15	January 2018	182,700	77,700
59	Salisbury	8.5	January 2018	362,400	44,000

The following are the minor facilities that have completed the upgrade and are in operation:

No.	Minor Facility	Design Flow In Million Gallons Per Day (MGD)	Date Completed	Nitrogen Load Reduction At Design Flow (Lbs/year)	Phosphorus Load Reduction At Design Flow (Lbs/year)
1	Boonsboro	0.53	Oct 2009	22,000	2,700
2	Worton ¹	0.25	Dec 2012	10,000	1,200
3	Eastern Correctional Facility ¹	0.50	May 2015	21,000	2,500
4	Rising Sun	0.50	April 2016	21,000	2,500
5	Queenstown	0.085	October 2016	3,800	400
6	Southern MD Pre-Release ¹	0.02	February 2017	900	100
7	Greensboro	0.28	June 2017	12,700	1,400
8	Sudlersville	0.2	March 2018	9,100	1,000

¹ No BRF funding was provided

Chesapeake Bay TMDL Implications:

In early November 2009, the EPA officially transmitted the WIP) guidance. EPA, in coordination with the Bay watershed jurisdictions of Maryland, Virginia, Pennsylvania, Delaware, West Virginia, New York, and Washington, DC, developed and, on Dec. 29, 2010, established the TMDL, and a nutrient and sediment pollution diet for the Chesapeake Bay, consistent with Clean Water Act requirements. Current model estimates are that the states' Bay water quality standards can be met at basin-wide loading levels of 200 million pounds of nitrogen per year, and 15 million pounds of phosphorus per year. Maryland's current target loads are 41 million pounds of nitrogen per year, and 3 million pounds of phosphorus per year by 2025.

To meet the established Chesapeake Bay TMDL, Maryland developed its WIP (dated Oct. 26, 2012). The WIP provides detailed proposed strategies that could help Maryland meet and exceed our 2017 midpoint target (60% of the needed total implementation). Significant local input was part of the plan, thereby providing additional detail at the local level, and increased reasonable assurance of successful implementation.

Annual Operation and Maintenance Grants for the Upgraded Facilities:

Starting in FY10, the BRF legislation allows up to 10% of the annual fee generated from users of wastewater treatment facilities to be earmarked for grants for the operation and maintenance (O&M) costs of enhanced nutrient removal technology. To ensure that each upgraded facility receives a reasonable and fair amount of grant, MDE, in consultation with BRFAC, is allocating the grants at the following rates:

- Minimum annual allocation per facility (for design capacity \leq 1 MGD) = \$30,000
- For facility with design capacity between 1 and 10 MGD = \$30,000 per MGD
- Maximum allocation per facility (for design capacity \geq 10 MGD) = \$300,000

On June 20, 2018, the Maryland Board of Public Works approved \$5,327,250 (under FY19 authorization) for facilities that achieved ENR level of treatment during CY17.

MDE is requesting authorization for \$7 million in FY20. The upgraded facilities listed above that achieved ENR level of treatment in CY18 will be receiving O&M grants based above rates.

Update on Department of Defense (DoD) Facilities

On July 19, 2006, the State of Maryland and the U.S. Department of Defense (DoD) signed a Memorandum of Understanding (MOU) to resolve a dispute regarding the applicability of the BRF to DoD. The state’s legal position is that the federal government is not exempt from paying the BRF fee; however, the DoD asserts that the BRF fee is a tax and that the state may not tax the federal government. With the advice of counsel, the state chose to settle the matter with DoD rather than to litigate. In the MOU, neither party concedes any legal position with respect to the BRF fee. MDE has agreed to accept DoD’s proposal to undertake nutrient removal upgrades at certain DoD-owned wastewater treatment plants at its own expense in lieu of paying the fee. No other federal agency is exempt from paying the BRF fee under this MOU, and most of which are paying the fee.

MDE continues to work with DoD to upgrade the targeted DoD facilities as specified in the MOU. Specifically, the following are the targeted DoD facilities with their current ENR upgrade status:

DoD Facility	Status	Remark
Aberdeen Proving Ground – Aberdeen	Operation	Construction was completed in March 2006. ENR upgrade is fully operational.
Aberdeen Proving Ground – Edgewood	Operation	Construction was completed in March 2016. ENR upgrade is fully operational.
Fort Detrick	Operation	Construction was completed in June 2012. ENR upgrade is fully operational.
Naval Station – Indian Head	Operation	Construction was completed in September 2011. ENR upgrade is fully operational.
Fort Meade	Under Construction	American Water Group has assumed ownership of the plant. ENR upgrade is underway using the design-build project delivery process.
Naval Support Activity – Annapolis	Design Complete with No Construction	MDE approved the design for Phase I of the project (Denitrification Filter) on Sept. 9, 2013. The project did not proceed to construction and is on hold due to federal budgetary issues.

Chapter 257 Implementation

Chapter 257 (HB 893) of 2007 - *Bay Restoration Fund - Wastewater Treatment Facilities Upgrades - Reporting Requirements* requires that “Beginning January 1, 2009, and every year thereafter, MDE and MDP shall jointly report on the impact that a wastewater treatment facility that was upgraded to enhanced nutrient removal during the calendar year before the previous calendar year with funds from the Bay Restoration Fund had on growth within the municipality or county in which the wastewater treatment facility is located.”

As required by this law, MDP and MDE have advised the BRFAC with the best available information and data analysis to address this mandate.

Available Capacity

This report addresses the following financed facilities that were upgraded to ENR with the BRF, that were completed prior to Jan. 1, 2018 and operational for one calendar year:

Facility	County	Design Capacity (MGD)		Flow in CY 2017 (MGD)
		Original	At Upgrade	
Cumberland	Allegany	15.0	15.0	10.515
George’s Creek	Allegany	0.6	0.6	0.929
North Branch	Allegany	2.0	2.0	1.444
Annapolis	Anne Arundel	13.0	13.0	7.444
Broadneck	Anne Arundel	6.0	6.0	4.252
Broadwater	Anne Arundel	2.0	2.0	0.939
Maryland City	Anne Arundel	2.5	2.5	1.204
Patuxent	Anne Arundel	7.5	7.5	5.044
Back River	Baltimore City	180	180	127.083
Chesapeake Beach	Calvert	1.32	1.5	0.736
Denton	Caroline	0.8	0.8	0.386
Federalburg	Caroline	0.75	0.75	0.233
Greensboro	Caroline	0.28	0.332	0.161
Mount Airy	Carroll	1.2	1.2	0.642
Taneytown	Carroll	1.1	1.1	0.665
Elkton	Cecil	2.7	3.05	1.745
North East River	Cecil	2.0	2.0	1.084
Perryville	Cecil	1.65	2.0	0.641
Rising Sun	Cecil	0.275	0.50	0.192
Indian Head	Charles	0.5	0.5	0.324
La Plata	Charles	1.5	1.5	1.083

Facility	County	Design Capacity (MGD)		Flow in CY 2017 (MGD)
		Original	At Upgrade	
Cambridge	Dorchester	8.1	8.1	2.649
Hurlock	Dorchester	2.0	1.65	1.229
Ballenger Creek	Frederick	6.0	15.0	6.459
Brunswick	Frederick	0.7	1.4	0.473
Emmitsburg	Frederick	0.75	0.75	0.447
Thurmont	Frederick	1.0	1.0	0.576
Aberdeen	Harford	4.0	4.0	1.602
Havre De Grace	Harford	1.89	3.03	1.918
Joppatowne	Harford	0.95	0.95	0.830
Sod Run	Harford	20.0	20.0	9.780
Little Patuxent	Howard	25.0	29.0	17.178
Chestertown	Kent	0.9	0.9	0.628
Damascus (WSSC)	Montgomery	1.5	1.5	0.705
Poolesville	Montgomery	0.75	0.75	0.487
Seneca (WSSC)	Montgomery	26.0	26.0	13.617
Blue Plains	Prince George's Montgomery	169.6	169.6	112.800
Bowie	Princes George's	3.3	3.3	1.420
Parkway (WSSC)	Prince George's	7.5	7.5	6.265
Piscataway (WSSC)	Prince George's	30.0	30.0	21.838
Western Branch (WSSC)	Prince George's	30.0	30.0	19.723
Kent Narrows	Queen Anne's	2.0	3.0	1.847
Queenstown	Queen Anne's	0.085	0.20	0.085
Crisfield	Somerset	1.0	1.0	0.502
Leonardtown	St. Mary's	0.68	0.68	0.543
Marlay Taylor	St. Mary's	6.0	6.0	3.471
Easton	Talbot	2.35	4.0	2.549
Talbot Region II	Talbot	0.5	0.66	0.351
Boonsboro	Washington	0.46	0.53	0.248
Hagerstown	Washington	8.0	8.0	6.482
Winebrenner	Washington	1.0	0.6	0.198
Delmar	Wicomico	0.65	0.85	0.600
Fruitland	Wicomico	0.8	0.8	0.580
Pocomoke City	Worcester	1.47	1.47	0.859
Snow Hill	Worcester	0.5	0.5	0.314

2019 BRF Analysis Findings

Methodology

MDP conducts a BRF Analysis for each calendar year as directed by Chapter 257 (HB 893) of 2007 - *Bay Restoration Fund - Wastewater Treatment Facilities Upgrades - Reporting Requirements*. The purpose is to provide the BRAC and Maryland's legislature with information on the impact that an ENR upgraded wastewater treatment facility may have on growth in the municipalities and counties in which the facility is located.

Growth is measured before and after ENR upgrades within existing and planned sewer service area boundaries and PFAs, using Geographical Information System (GIS) mapping software. These findings help assess changes in growth patterns, the capacity of the upgraded facility to meet the demands of current and future users, and possible changes in development patterns that could be influenced by upgrades.

MDP works with every county and many municipalities to maintain and annually update the Statewide Sewer Service Data layer to ensure as accurate a representation as possible. MDP has successfully conducted the BRF Analysis each year since 2009 by utilizing the most recently published data from Maryland Property View and our sewer service data layers. It should be noted that data vintage for each of these datasets affects the annual BRF Analysis Findings.

Last year, MDP updated the BRF Analysis methodology to confirm data boundary discrepancies within the existing sewer service areas both before and after ENR technology implementation, resulting in improved data outputs. MDP is committed to continuous improvement to its processes, contributing to the overarching goal of restoring water quality in the Chesapeake Bay.

Available Capacity

An ENR upgrade can create the possibility for capacity expansion beyond the original design capacity. However, the limitations of the WWTP nutrient discharge caps established by Maryland's Point Source Policy for the Bay¹ heavily influence whether that possibility can become reality, notwithstanding new treatment technologies or the use of multiple discharge means or wastewater reuse. As required by state regulations that guide county water and sewer plans, to date, all ENR upgrades and plant expansions have been found to be consistent with locally adopted and approved comprehensive plans. Also, our analyses show that the nutrient discharge caps following the ENR upgrades have not had any noted compromising effects on development.

¹ Annual nutrient load caps for major WWTPs were based on an annual average concentration of 3 mg/l total nitrogen and 0.3 mg/l total phosphorus, at the approved design capacity of the plant. Design capacity for major WWTPs met both of the following two conditions: (1) A discharge permit was issued based on the plant capacity, or MDE issued a letter to the jurisdiction with design effluent limits based on the new capacity as of April 30, 2003; (2) Planned capacity was either consistent with the MDE-approved County Water and Sewer Plan as of April 30, 2003, or shown in the locally-adopted Water and Sewer Plan Update or Amendment to the County Water and Sewer Plan, which was under review by MDE as of April 30, 2003 and subsequently approved by MDE.

Planning's Findings

For the 2019 reporting period, MDP reviewed development served by 48 WWTPs with ENR upgrades completed within the timeframe specified in Chapter 257 (HB 893) of 2007 - *Bay Restoration Fund - Wastewater Treatment Facilities Upgrades - Reporting Requirements*. The selection of ENR upgrades to be analyzed in the annual report is based on the following criteria: (1) ENR upgrades completed before Jan. 1, 2017 and (2) operational for one calendar year. Six new ENR upgrades are included in this year's report. The upper Eastern Shore had the most upgrades with two, North East River and Queenstown while the Lower Eastern Shore had an upgrade of the Fruitland facility. The Washington Region saw an upgrade of the Emmitsburg WWTP while Taneytown was upgraded in the Baltimore Region. Southern Maryland had an upgrade of the Marlay Taylor WWTP.

Table 1 summarizes all the ENR upgrades that MDP is advised to report on by MDE (see list on page 28). These ENR upgrades are completed, operational and meet the criteria above. Table 1 also distinguishes new ENR upgrades since the last reporting period. The table depicts growth activity by the number of connections before and after an ENR upgrade within a particular municipality or county. The starting point for each plant's reporting is the calendar year prior to the start of ENR funding; the table also shows the year in which the upgrade was completed and became operational. It then summarizes information on a) number of connections before ENR Funding, and b) the current number of connections, which includes connections to new development on sewer as well as connections of existing septic systems to sewer. The table compares development in and outside PFAs. PFAs are designated by local governments and recognized by the state as areas in which to concentrate growth and development due to the presence of existing or planned infrastructure. BRF funding is not restricted to PFAs, but PFAs provide a useful geographic frame of reference for reviewing possible effects of BRF upgrades on growth. The table also shows that for each WWTP, the percentages of connections of improved parcels inside PFAs before and after ENR upgrades are very similar, within a few percentage points in every case.

Table 1. Connections to Wastewater Treatment Facilities Upgraded to ENR

ENR WWTP	County	ENR Upgrade Completed and Operational (Month-Year)	Connections Before ENR Funding					Current Number of Total Connections			
			Column A: Reporting Year before ENR Funding	Column B: Number of Improved Parcels in the Sewershed	Column C: Number of Improved Parcels in Existing Service Area ("S1")	Column D: Number of Improved Parcels in "S1" within PFA	Column E: % of Connections Located in "S1" & PFA (Column D + C)	Column F: Total Improved Parcels in S1	Column G: Total Improved Parcels in S1 & PFA	Column H: % Total Improved Parcels Located in "S1" within PFA (Column G ÷ F)	Column I: Total Increase Improved Parcels in S1 (Total Number New Connections)
Western Region											
North Branch	ALLE	Nov-06	2005	1,913	1,801	1,794	99.6%	1,835	1,817	99.0%	34
George's Creek	ALLE	Nov-10	2009	2,069	1,938	1,876	96.8%	1,974	1,920	97.3%	36
City of Cumberland	ALLE	Feb-11	2010	17,656	16,412	16,243	99.0%	16,779	16,629	99.1%	367
City of Hagerstown	WASH	Dec-10	2009	21,975	18,825	17,769	94.4%	20,106	19,832	98.6%	1,281
Western Region Total				43,613	38,976	37,682	97%	40,694	40,198	99%	1,718
Washington Region											
City of Brunswick	FRED	Sep-08	2007	2,446	1,957	1,957	100.0%	2,327	2,327	100.0%	370
Town of Thurmont	FRED	Apr-13	2012	2,385	2,345	2,204	94.0%	2,340	2,217	94.7%	-5
Town of Poolesville	MONT	Jul-10	2009	1,742	1,719	1,651	96.0%	1,741	1,672	96.0%	22
Damascus	MONT	Feb-13	2012	3,997	3,793	3,437	90.6%	3,796	3,440	90.6%	3
City of Bowie	PRIN	Feb-11	2010	20,712	20,559	20,269	98.6%	20,952	20,455	97.6%	393
Parkway	PRIN	Jul-13	2012	15,470	15,394	15,383	99.9%	15,515	15,440	99.5%	121
Piscataway	PRIN	May-13	2012	56,296	55,007	51,954	94.4%	56,308	52,570	93.4%	1,301
Western Branch (WSSC)	PRIN	Apr-16	2015	45,533	43,438	38,554	88.8%	44,211	38,767	87.7%	773
Blue Plains	PRIN/MONT	Apr-16	2015	330,121	327,437	319,529	97.6%	330,198	322,208	97.6%	2,761
Seneca (WSSC)	MONT	Apr-16	2015	60,161	57,387	56,911	99.2%	57,512	57,036	99.2%	125
Ballenger Creek	FRED	Apr-16	2015	21,554	17,110	17,105	100.0%	17,256	17,251	100.0%	146
Town of Emmitsburg (new)	FRED	Mar-16	2015	927	824	791	96.0%	825	792	96.0%	1
Facilities Upgraded During Reporting Period				927	824	791	96.0%	825	792	96.0%	1
Washington Region Total				561,344	546,970	529,745	97%	552,981	534,175	97%	6,011
Upper Eastern Shore Region											
Town of Elkton	CECI	Dec-09	2008	6,000	4,926	4,925	100.0%	5,067	5,065	100.0%	141
Town of Perryville	CECI	Dec-10	2009	1,704	1,508	1,508	100.0%	1,553	1,552	99.9%	45
Rising Sun	CECI	Apr-16	2015	1,052	856	846	98.8%	857	847	98.8%	1
Town of Chestertown	KENT	Jun-08	2007	1,772	1,742	1,562	89.7%	1,898	1,706	89.9%	156
Kent Island (KNSG)	QUEE	Aug-07	2006	6,590	6,401	5,974	93.3%	7,183	6,797	94.6%	782
Town of Denton	CARO	May-12	2011	1,508	1,097	1,095	99.8%	1,507	1,500	99.5%	410
Town of Federalsburg	CARO	Aug-10	2009	881	827	817	98.8%	829	818	98.7%	2
Town of Easton	TALB	Jun-07	2006	5,810	5,831	5,822	99.8%	6,490	6,479	99.8%	659
Talbot Region II	TALB	Oct-08	2007	2,289	2,214	1,981	89.5%	2,416	2,154	89.2%	202
Northeast River (new)	CECI	Oct-16	2015	5,714	4,459	3,931	88.2%	4,568	4,024	88.1%	109
Town of Queenstown (new)	QUEE	Oct-16	2015	333	300	299	99.7%	307	306	99.7%	7
Facilities Upgraded During Reporting Period				6,047	4,759	4,230	88.9%	4,875	4,330	88.8%	116
Upper Eastern Shore Total				33,653	30,161	28,760	95%	32,675	31,248	96%	2,514
Lower Eastern Shore Region											
City of Cambridge	DORC	Dec-13	2012	5,861	5,418	5,293	97.7%	5,423	5,298	97.7%	5
Town of Hurlock	DORC	May-06	2005	769	703	703	100.0%	797	797	100.0%	94
Town of Delmar	WICO	Sep-11	2010	1,107	932	824	88.4%	961	847	88.1%	29
City of Pocomoke	WORC	Oct-11	2010	1,893	1,607	1,585	98.6%	1,624	1,603	98.7%	17
City of Crisfield	SOME	Aug-10	2009	2,495	2,044	1,735	84.9%	2,081	1,839	88.4%	37
Town of Snow Hill	WORC	Jun-14	2013	900	930	882	94.8%	926	879	94.9%	-4
City of Fruitland (new)	WICO	Nov-16	2015	2,237	1,847	1,788	96.8%	1,904	1,836	96.4%	57
Facilities Upgraded During Reporting Period				2,237	1,847	1,788	96.8%	1,904	1,836	96.4%	57
Lower Eastern Shore Total				15,262	13,481	12,810	95%	13,716	13,099	96%	235
Baltimore Region											
Town of Mount Airy	CARR/FRED	Nov-10	2009	3,336	3,145	3,145	100.0%	3,423	3,421	99.9%	278
Joppatowns/Sod Run	HARF	Nov-13	2012	51,174	48,459	48,195	99.5%	48,861	48,598	99.5%	402
City of Havre De Grace	HARF	May-10	2009	5,098	4,898	4,782	97.6%	5,365	5,362	99.9%	467
Little Patuxent	HOWA	Sep-12	2011	56,997	50,848	50,833	100.0%	57,998	57,928	99.9%	7,150
City of Aberdeen	HARF	Mar-15	2014	5,098	4,524	4,443	98.2%	4,526	4,445	98.2%	2
Broadneck	ANNE	May-15	2014	30,847	21,172	20,454	96.6%	21,638	20,885	96.5%	466
Maryland City	ANNE	Mar-15	2014	4,522	4,394	4,376	99.6%	4,476	4,468	99.8%	82
Patuxent	ANNE	Mar-15	2014	24,037	22,886	22,440	98.1%	23,644	23,189	98.1%	758
City of Annapolis	ANNE	Apr-16	2015	31,823	28,384	27,466	96.8%	28,461	27,542	96.8%	77
Broadwater	ANNE	Apr-16	2015	4,919	4,694	3,902	83.1%	4,717	3,921	83.1%	23
City of Taneytown (new)	CARR	Jul-16	2015	2,647	2,486	2,485	100%	2,486	2,485	100.0%	0
Facilities Upgraded During Reporting Period				2,647	2,486	2,485	100%	2,486	2,485	100.0%	0
Baltimore Region Total				220,498	195,890	192,521	98%	205,595	202,244	98%	9,705
Southern Maryland Region											
Town of Indian Head	CHAR	Jan-09	2008	1,409	1,317	1,317	100.0%	1,404	1,404	100.0%	87
Town of La Plata	CHAR	Dec-14	2013	3,164	3,213	3,132	97.5%	3,380	3,299	97.6%	167
Marylay Taylor (new)	STMA	Aug-16	2015	12,420	7,996	7,984	99.8%	8,128	8,116	99.9%	132
Facilities Upgraded During Reporting Period				12,420	7,996	7,984	99.8%	8,128	8,116	99.9%	132
Southern Maryland Total				16,993	12,526	12,433	99%	12,912	12,819	99%	386
Statewide											
Facilities Upgraded During Reporting Period				24,278	17,912	17,278	96%	18,218	17,559	96%	306
Statewide Totals				891,363	838,004	813,951	97%	858,573	833,783	97%	20,569

Notes:

(new) = Facilities upgraded to ENR during the 2019 reporting period.

There are a few instances since reporting began in 2009, where the total number of improved parcels in Column C varied slightly due to service boundary discrepancies. Planning has worked diligently to resolve this issue.

This year, MDP analysis shows Blue Plains had the largest increase of connections since 2018, with an increase of 2,654 connections. Overall, the southern Maryland had the largest increase of new connections since 2018, with 8,177. Statewide, there was an increase of 23,208 additional parcels included in the analysis in the last reporting year; newly upgraded plants accounted for 79% of those parcels.²

Although every effort is made to ensure data is current and correct, there may be significant increases or decreases of new connections. We re-evaluate the many factors that play a part in our findings as reported in the table, including MDProperty View's data production schedule, vintage of source data and the accuracy of GIS data from local governments. If need be, data is corrected through parcel point alignment and boundary corrections to ensure accuracy.

² In 2018, Blue Plains had 327,544 connections. 2018 was the first reporting year for Blue Plains. Southern Maryland had 4,735 new connections in 2018. Statewide, 2018 had 835,365 total connections to ENR plants; new plants accounting for 18,218 new connections.

Onsite Sewage Disposal System Upgrade Program

Program Implementation

The BRF Septic BAT upgrade program is being implemented locally at the county level with MDE oversight and technical assistance to the local health departments.

The Bay Restoration (Septic) Fund statute (Annotated Code of Maryland under 9-1605.2) requires that funding priority for BAT installations be “first given to failing septic systems and holding tanks in the Chesapeake and Atlantic Coastal Bays Critical Areas and then to failing septic systems that the Department (MDE) determines are a threat to public health or water quality”. Chapter 280 (SB 554) acts of 2009, requires new and replacement septic systems serving property in the Critical Areas to include the BAT for removing nitrogen . In addition, Code of Maryland Regulation (COMAR) 26.04.02.07 effective Jan. 1, 2013, requires all OSDS installed in the Chesapeake Bay and Coastal Bays watersheds for new construction to include BAT. All BAT must be inspected and have the necessary operation and maintenance performed by a certified service provider at a minimum of once per year for the life of the system. The regulations also require that both individuals that install BAT, and individuals that perform operation and maintenance complete a course of study approved by MDE.

On Nov. 14, 2016, MDE finalized a regulatory change to the COMAR 26.04.02.07. This regulatory change will reform the universal requirement that BAT units be installed outside of the Critical Area for all new construction, unless the local jurisdiction enacts a code in order to protect public health or waters of the state, or the system design is 5,000 gallons per day or greater.

Consistent with the above, MDE is requiring all new grant recipients to prioritize applications for financial assistance based on the following:

1. Failing OSDS or holding tanks in the Critical Areas
2. Failing OSDS or holding tanks not in the Critical Areas
3. Non-Conforming OSDS in the Critical Areas
4. Non-conforming OSDS outside the Critical Areas
5. Other OSDS in the Critical Areas, including new construction
6. Other OSDS outside the Critical Areas, including new construction

The program guidance and other information are available on the web site at: mde.maryland.gov/programs/Water/BayRestorationFund/OnsiteDisposalSystems/Pages/index.aspx

The webpage below (under Financial Reports) shows BRF funded BAT installations and sewer connections for FY18. During this fiscal year, 778 BAT installations were completed, and 105 septic systems were eliminated by connecting the dwellings to public sewer.

mde.maryland.gov/programs/Water/BayRestorationFund/Pages/annualreports.aspx

BEST AVAILABLE TECHNOLOGY CLASSIFICATION DEFINITIONS

Effective on July 1, 2015, there are five different classifications of BAT. Each of these classifications works in conjunction with Regulation 26.04.02 for the reduction of nitrogen through OSDS. This classification is intended only to classify the use of BAT systems on domestic wastewater usage. Domestic wastewater is defined by the BAT Technical Review Committee (BAT TRC) as having a TN influent concentration of 60 mg/L. Supporting documents that clearly and concisely define the methods in which each of these classifications can be used are on MDE's webpage for reference.

BAT Class I systems are standalone units that are approved through MDE protocols as BAT units capable of reducing TN to 30 mg/L or less. These units are currently on the approved BAT list and have successfully completed the Maryland field verification process. The flow chart for approval of BAT Class I units is available on MDE's website.

BAT Class II systems are standalone units that are undergoing field verification for BAT Class I. Upon successful completion of the field verification, they will become BAT Class I. All requirements and guidance for BAT Class I apply to BAT Class II technologies. Technologies that do not reduce the effluent nitrogen to 30 mg/l or less will be either removed from the BAT listing, enter a modified field verification process (contingent on prior approval from BAT TRC), or be classified as BAT Class III at the discretion of the BAT TRC and working with the manufacturer's representative.

BAT Class III systems are pretreatment technologies approved by MDE as capable of reducing nitrogen to 48 mg/L effluent. These technologies may only be installed as BAT when paired with a BAT Class IV soil disposal system. BAT Class III technologies must have one of the following certifications: NSF 245, NSF 40 Class I, CAN/BNQ 3680-600, CEN Standard 12566-3 or equivalent. Technologies proposed as BAT Class III, must first apply to MDE for BAT classification using the technology application found on the MDE website. The application needs to be accompanied by the final report of the verification organization. Once submitted to the BAT TRC, analysis of the data and the application will begin. The BAT TRC will analyze for the TN reduction capabilities of the unit. If the analysis of data concludes the unit will not reduce TN to 48 mg/L, the technology will be denied entry into the BAT program.

BAT Class IV systems are OSDS that are installed above, at, or just below (12-inch maximum depth) grade, and are thus capable of reducing effluent TN by 30%. For inclusion as a BAT in Maryland, these units are to be paired with a BAT Class III, Class II or Class I system. No modification of this is authorized unless applied for and approved by MDE on a case-by-case basis.

BAT Class IV systems, installed under the BAT classification, must be maintained on the same frequency as any BAT in accordance with COMAR Regulation 26.04.02.07. Since no specific manufacturer is tied to this type of system, the operation and maintenance provider of the BAT Class III, II, or I unit must successfully complete the MDE-approved course for the Installation and Operation and Maintenance of the specific system.

Sand Mound, At Grade Systems, and Low Pressure Dosing are addressed in COMAR 26.04.02.05. All practices and criteria listed in this regulation must be applied when installing these as BAT. All installation contractors of sand mounds must be certified by MDE. The MDE Design and Construction Manual for Sand Mound Systems and the Construction Manual for At Grade systems is to be utilized for the latest and best installation practices for these systems. Information sheets are available for each system type.

SAND MOUNDS – An elevated sand mound system is an OSDS that is elevated above the natural soil surface in a suitable sand fill material. Gravel-filled absorption trenches or beds are constructed in the sand fill, and the effluent is pumped into the absorption area through a pressure distribution network. Pretreatment of sewage occurs either in a septic tank or advanced pretreatment unit, and additional treatment occurs as the effluent moves downward through the sand fill and into the underlying natural soil. The sand mound must be installed over a natural surface, A or B horizon. No BAT credit is given to sand mounds installed over sand or loamy sand soils. Please refer to, “BAT Class IV: Sand Mound,” for exact details as to what is needed to qualify for BAT Classification.

AT-GRADE SYSTEMS – The at-grade system is an OSDS that utilizes a raised bed of gravel or stone over the natural soil surface with a pressure distribution system constructed to equally distribute the pre treated effluent along the length of the gravel bed. The purpose of the design is to overcome site limitations that prohibit the use of conventional trench or seepage pit OSDS. Please refer to, “BAT Class IV: At-Grade Mound Systems,” for exact details as to what is needed to qualify for BAT Classification.

SHALLOW PLACED LOW PRESSURE DISTRIBUTION – Shallow-placed pressure dosing allows for uniform distribution of effluent at a depth not to exceed 12 inches across the entire dispersal field. Dosing allows for the creation of fluctuating aerobic/anoxic environments, which sets up the conditions for nitrification and denitrification to occur. Please refer to, “BAT Class IV: Shallow-Placed Pressure-Dosed Dispersal,” for exact details as to what is needed to qualify for BAT Classification.

BAT Class V systems are technologies that mitigate the impact of TN on groundwater but do not fit into any of the above BAT classifications. As systems are identified that will apply for classification as BAT Class V, the BAT TRC will develop a concise plan for the unit to enter the BAT classification. Examples include, but are not limited to, waterless toilets, and individually engineered peat systems.

Septic Stewardship Program (HB 1765):

Passed during 2018 legislative session, HB 1765 is intended to:

- (1) Allow nitrogen reduction from OSDS to be counted in the WIP only if the operation and maintenance of the systems are current.
- (2) Allow nitrogen reduction from pumping out of OSDS to be counted in the WIP if they are part of local Septic Stewardship Plan.
- (3) Allow Local jurisdictions to provide financial assistance (not to exceed 10% of their allocated funds) toward the pumping out of OSDS.
- (4) Allow MDE to provide financial assistance to local jurisdictions in FY20 and FY21 to develop Septic Stewardship Plans.

Program Status:

The Septic Stewardship Program became effective Oct. 2, 2018 which allows local jurisdictions the availability to develop plans with FY20 and FY21 funds. MDE introduced the program through regional workshops involving the WIP in June 2018. Conceptual Septic Stewardship plans have been provided to each county health department or local approving authority, acknowledging that each plan should be customized to address local goals. Portions of the septic stewardship plan currently exist in three counties, albeit voluntary or regulated, that have a septic pumping program.

Cover Crop Activities

Recent Program Streamlining and Targeting to Achieve Maximum Nutrient Reduction:

In FY18, MDA continued to implement a targeting strategy to maximize nutrient reduction effectiveness of cover crops. MDA eliminated aerial seeding for non-irrigated, double-crop soybeans due to lesser than desired crop performance. The 2018 program included incentives to:

1. Plant cover crops as early as possible in the fall,
2. Plant after crops that need higher fertilizer rates, such as corn, vegetables, and tobacco,
3. Use cover crops on fields that were fertilized using manure,
4. Use planting methods that maximize seed to soil contact to assure germination and early growth, and
5. Use small grains such as rye to maximize nutrient uptake.

MDA has applied these criteria for the last 9 fiscal years by structuring the incentive payments to reward farmers who adhered to one or more of these priorities. They are based both on four separate surveys (Schaeffer Center of Public Policy at the University of Baltimore) of farm operators' opinions to streamline and adapt the program to be responsive to participants while maximizing water quality benefits.

Status of Implementation of BRF for Cover Crop Activities:

MDA cumulative portion of BRF is \$110,762,610 as of June 30, 2018. In FY18, \$11.2 million from the BRF was supplemented by an additional \$11.2 million from the Trust Fund to fund the Cover Crops Program.

It is with great pleasure that the BRFAC acknowledges the steadfast, commitment, and unwavering service of the professionals who have contributed their time, energy, and efforts toward the production of this report, annually for over 10 years. Thank you!

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