



Bay Restoration Fund Advisory Committee

Christopher P. Murphy, Acting Chairman

Annual Status Report January 2020 (15th 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
Christopher P. Murphy	Acting Committee Chairman
Ben Grumbles	Maryland Department of the Environment
Joseph Bartenfelder	Maryland Department of Agriculture
Robert S. McCord	Maryland Department of Planning
Jeannie Haddaway-Riccio	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
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 15th 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, 2019, the Comptroller of Maryland has deposited approximately \$1.193 billion in the Maryland Department of the Environment (MDE) Wastewater Treatment Plant fund, \$170 million in the MDE Septic Systems Upgrade fund, and \$122 million in the Maryland Department of Agriculture (MDA) Cover Crop Program fund, for a total of \$1.485 billion in BRF fees (wastewater and septic users).
- Enhanced Nutrient Removal (ENR) upgrades of the state's major sewage treatment plants are almost completed with 63 of the 67 major facilities have been upgraded and are currently in operation. Upgrades to three other facilities are under construction, and one remaining is in planning.
- Upgrades are underway for some minor sewage treatment plants (less than 0.5 million gallons per day). To date, nine minor facilities have completed the ENR upgrade and are in operation. Five more are under construction, and 15 additional plants have signed the funding agreement and have progressed into planning or design.
- MDE is using BRF to upgrade septic systems with the Best Available Technology (BAT) for nitrogen removal. As of June 30, 2019, the BRF has funded 10,288 BAT upgrades throughout Maryland, of which 6,446 BAT upgrades were completed within Maryland's Critical Areas. In addition, 668 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 BRF to purchase nitrogen, phosphorus and sediment reductions. Subsequent to the adoption of the regulations, MDE solicited twice (for FY19 and FY20) for proposals to purchase these reductions achieved through environmental practices. To date, MDE has secured the Board of Public Works approval for two proposals, which were fully executed into agreements. The annual purchases are expected to begin in 2020 upon achieving the reductions.

- MDA dedicates its portion of BRF funds for the implementation of the statewide Cover Crop Program.
- In FY19, Maryland farmers applied to plant 617,269 acres of cover crops. Typically they enroll more acreage than they plant. Farmers planted 362,976 acres attaining an estimated nutrient reduction of 2.5 million pounds of nitrogen and 3,000 pounds of phosphorus.
- The extreme weather conditions in 2018 and 2019 resulted in fewer acres planted compared to previous years. The rainfall has been unprecedented, and fields are frequently inundated with water 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 FY19 utilized appropriations of \$11.3 million from BRF, and \$11.25 million from Chesapeake and Atlantic Coastal Bays Trust Fund (Trust Fund).
- This summer 650,000 acres were enrolled in next years' (FY20) cover crop program. The program is totally a traditional Cover Crop Program meaning the crop recovers unused plant nutrients in the fall then recycles the nutrients for the following spring crop. The traditional planted acres along with commodity acres reported by the U.S. Department of Agriculture (USDA) 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 regions, found in Tables 1 of this report.

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 its final 2025 nutrient reduction targets.
- MDE and MDP, in consultation with the BRAC 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) Water Quality Integrated Project Priority System (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 BRF and make distributions to MDE and MDA as required by the law.

In the third year of administering BRF, the CoM began the compliance phase of the fee administration. The law specifies that 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 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 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 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 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 BRF. Specifically for 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, ECPP 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 BRF. To accommodate the implementation of the OSDS portion of 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.

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 FY19 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 FY20. 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 BRAC. Chapter 80 of the Acts of 2014 allows for the use of BRAC monies for the remediation of failing septic systems, outside of the Priority Funding Area (PFA), connecting to qualified WWTPs. Such cases must meet certain conditions and gain approval from the Smart Growth Coordinating Committee prior to using BRAC. 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 BRAC are summarized below. HB 893 enacted by the 2007 session, added an additional BRAC reporting responsibility which is discussed later in this report.

State Clearinghouse Review

All state and federal financial assistance applications, including those for BRAC 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.

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 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% - FY19):

<u>Sources:</u>	<u>\$ Million</u>	<u>Uses:</u>	<u>\$ Million</u>
Cash Deposits	\$ 108	Grant Awards	\$127
Cash Interest Earnings	\$ 2	Admin. Expense Allowance	\$ 2
Net Bond Proceeds	<u>\$ 0</u>	Bond DS Payments	<u>\$ 32</u>
Total	\$ 110	Total	\$ 161

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

<u>Sources:</u>	<u>\$ Million</u>	<u>Uses:</u>	<u>\$ Million</u>
Cash Deposits	\$ 1,193	Grant Awards	\$1,506*
Cash Interest Earnings	\$ 33	Admin. Expense Allowance	\$ 18
Net Bond Proceeds	<u>\$ 362</u>	Bond DS Payments	<u>\$ 138</u>
Total	\$ 1,588	Total	\$1,662

** 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, 2019, the grants under the Wastewater Fund were awarded as follows:

ENR MAJOR WWTP GRANTS:

Aberdeen, City of	Aberdeen WWTP ENR Upgrade	\$14,581,773.00
Allegany Co	Georges Creek ENR Upgrade	9,875,136.00
Allegany Co	Celanese ENR Upgrade	2,333,382.00
Anne Arundel Co.	Annapolis Water Reclamation Facility (WRF) ENR	14,683,515.00

Anne Arundel Co	Broadneck WRF	7,762,678.00
Anne Arundel Co	Broadwater ENR	6,044,053.00
Anne Arundel Co	Cox Creek WRF ENR Upgrade	88,600,000.00
Anne Arundel Co	MD City Facility ENR Upgrade	3,473,000.00
Anne Arundel Co	Mayo WRF BNR ENR Upgrade	8,854,528.00
Anne Arundel Co	Patuxent WRF ENR Upgrade	3,713,000.00
Baltimore City	Back River WW ENR Upgrade (SC877)	300,885,432.00
Baltimore City	Back River WW ENR Upgrade (SC882)	46,219,057.00
Baltimore City	Patapsco ENR Upgrade	158,922,000.00
Bowie, City of	Bowie ENR Upgrade	8,668,492.00
Brunswick, City of	WWTP ENR Upgrade	8,263,000.00
Cambridge, City of	Cambridge ENR Upgrade	8,618,255.00
Carroll Co.	Hampstead WWTP ENR Upgrade	10,012,819.00
Cecil Co.	Northeast River WWTP ENR	10,923,342.00
Chesapeake Beach, Town of	Chesapeake Beach WWTP ENR	7,099,652.00
Chestertown, Town of	Chestertown BNR ENR	1,490,854.14
Crisfield, City of	Crisfield WWTP BNR ENR Upgrade	4,230,766.00
Cumberland, City of	Cumberland WWTP BNR ENR Upgrade	25,654,866.00
Delmar, Town of	Delmar WWTP BNR ENR Upgrade	2,369,464.00
Denton, Town of	Denton WWTP ENR Upgrade	4,405,615.00
Denton, Town of	Denton WWTP ENR Refinement	825,994.00
Easton, Town of	Easton WWTP ENR Upgrade	7,788,021.00
Elkton, Town of	Elkton BNR ENR Upgrade	7,403,154.00
Emmitsburg, Town of	Emmitsburg WWTP ENR Upgrade	5,517,848.00
Federalsburg, Town of	Federalsburg BNR ENR Upgrade	2,900,000.00
Frederick, City of	Frederick Gas House	17,781,337.00
Frederick Co.	Ballenger Creek McKinney WWTP	29,812,509.00
Fruitland, City of	Fruitland WWTP ENR Upgrade	4,700,298.00
Hagerstown, City of	WWTP ENR	10,191,836.00
Harford Co.	Joppatowne ENR Upgrade	3,399,778.00
Harford Co.	Sod Run ENR Upgrade	36,640,567.00
Havre de Grace, City of	Havre de Grace WWTP ENR	10,474,820.00
Howard County	Howard County/Little Patuxent	35,493,172.00
Hurlock, Town of	Hurlock WWTP ENR Upgrade	941,147.75
Indian Head, Town of	Indian Head ENR Upgrade	5,822,098.00
LaPlata, Town of	La Plata ENR Upgrade	9,367,610.00
Leonardtwn	Leonardtwn WWTP ENR	8,996,527.00
MD Environmental Svcs	Freedom District WWTP ENR	7,716,359.00
MD Environmental Svcs	MD Correctional Institute WWTP ENR	6,504,691.00
MD Environmental Svcs	Dorsey Run WWTP ENR	47,986.00
Mt.Airy, Town of	Mt Airy WWTP/ENR	3,354,144.00

Perryville, Town of	Perryville ENR Upgrade	3,888,168.00
Perryville, Town of	Perryville WWTP ENR Refinement	20,000.00
Pocomoke, City of	Pocomoke WWTP ENR Upgrade	3,214,878.00
Poolesville, Town of	Poolesville WWTP ENR	223,132.00
Poolesville, Town of	Poolesville WWTP ENR Refinement	249,760.00
Queen Anne's County	Kent Island ENR	6,380,645.09
Salisbury, City of	Salisbury WWTP ENR Upgrade	2,553,876.86
Salisbury, City of	WWTP BNR ENR (Drain Pump)	11,435,411.00
Snow Hill, Town of	BNR ENR Upgrade	3,275,455.00
St. Mary's County	Marlay Taylor WRF	9,896,000.00
Talbot County	St Michaels ENR	1,978,698.78
Taneytown	WWTP ENR Planning /Design	5,381,998.00
Thurmont, Town of	Thurmont WWTP ENR	6,680,679.00
Washington County	Winebrenner WWTP ENR	2,990,607.00
Washington County	Conococheague WWTP ENR	19,271,609.00
Westminster	WWTP ENR	40,347,789.00
Wash Sub San Comm(WSSC)	Blue Plains WWTP ENR	138,036,769.00
Wash Sub San Comm(WSSC)	Damascus WWTP ENR Upgrade	5,053,399.00
Wash Sub San Comm(WSSC)	Parkway WWTP ENR Upgrade	14,271,803.00
Wash Sub San Comm(WSSC)	Piscataway WWTP ENR Upgrade	6,324,000.00
Wash Sub San Comm(WSSC)	Seneca WWTP ENR Upgrade/Expansion	5,550,048.00
Wash Sub San Comm(WSSC)	Western Branch WWTP ENR Upgrade	37,589,528.00
MAJOR WWTP-ENR GRANT SUBTOTAL		<u>\$1,297,978,829.62</u>

EXPANDED USE PROJECT GRANTS (POST FY16):

Minor WWTP Projects

Betterton, Town of	Betterton WWTP BNR ENR Upgrade.	\$5,905,336.00
Boonsboro, Town of	Boonsboro WWTP ENR Upgrade	2,000,000.00
Cecil County	Harbour View WWTP ENR Upgrade	5,131,902.00
Galena, Town of	Galena WWTP ENR	1,847,832.00
Greensboro, Town of	Greensboro WWTP ENR	2,581,838.00
Hancock, Town of	Hancock WWTP ENR Upgrade	56,500.00
MD Environmental Svc	Elk Neck St Park WWTP ENR	80,683.00
MD Environmental Svc	Victor Cullen WWTP ENR Upgrade.	24,216.00
Oxford, Town of	Oxford WWTP/ ENR Upgrade	2,989,477.00
Preston, Town of	Preston WWTP ENR Upgrade	9,120,869.00
Queenstown, Town of	Queenstown WWTP BNR ENR	842,895.00
Rising Sun, Town of	WWTP ENR	862,312.00
Secretary, Town of	Twin Cities WWTP ENR Upgrade	317,185.00
Somerset County	Smith Island BNR ENR Upgrade	1,121,073.00
Sudlersville, Town of	Sudlersville BNR ENR	2,299,722.00
Trappe, Town of	WWTP ENR Upgrade	25,975.00

Sewer Projects

Allegany Co.	Bedford Rd San Sew Rehab Ph VI	\$1,137,500.00
Baltimore City	Patapsco SSI (SC-903)	19,869,452.00
Baltimore City	Herring Run SSI HR07A (SC-937)	5,145,588.00
Baltimore City	Low Level SSI (SC-914)	12,566,952.00
Baltimore City	SSI SW SC963 & Maiden Choice	12,958,000.00
Baltimore City	Gwynns Falls Sewershed SC921	8,454,271.00
Baltimore City	Gwynns Falls Sewershed SC977	5,720,729.00
Baltimore City	Herring Run Sewershed II SC910	10,686,000.00
Baltimore City	Improv to SS Herring Run SC956	6,135,657.00
Baltimore City	Improv to SanSewer SC965	9,803,428.00
Cumberland, City of	CSO Storage Facility Ph I	27,241,372.00
Frostburg, City of	CSO Ph VIII-B	2,135,875.00
Greensboro, Town of	Goldsboro Reg WW Ph V	2,520,000.00
LaVale Sanitary Commission	LaVale Manhole Rehab Ph II	714,855.00
Luke, Town of	Landslide Sewer Ln Repair	65,000.00

TOTAL EXPANDED USE PROJECT GRANTS

\$160,362,494.00

SEWER PROJECTS (PRE FY10)

Allegany County	Braddock Run Interceptor	\$499,748.00
Baltimore City	Gwynns Run Sewer	1,575,000.00
Baltimore City	Greenmount Br Sewer Interc.	2,300,000.00
Baltimore City	Greenmount Br Sewer Interc. II	1,000,000.00
Cumberland, City of	CSO Elimination-Evitts Creek	1,319,889.00
Denton, Town of	Lockerman St. Lift Station	100,000.00
Emmitsburg, Town of	South Seton Ave Sewer Line	600,000.00
Federalburg, Town of	Maple Ave Sewer	600,000.00
Frostburg, Town of	Combined Sewer Overflow Ph IV	1,000,000.00
Frostburg, Town of	CSO - Phase V	800,000.00
Frostburg, Town of	CSO - Phase VI Elimination	1,100,000.00
Fruitland, City of	Infiltration & Inflow Sewer	800,000.00
Hagerstown, City of	Collection System Rehab	800,000.00
Havre de Grace, City of	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, Town of	Gordon Street Lift Station	150,000.00
Secretary, Town of	Infil/Inflow Reduction	172,068.00
St. Mary's METCOM	Evergreen Park Sewer	203,714.00
St. Mary's METCOM	Piney Pt. Sewer Repair	465,559.00
Talbot County	St Michaels Sewer & Upgrade	1,000,000.00
Talbot County	St Michaels Reg.II Sewer & Upgr.	450,000.00
Taneytown, City of	Balto. St Water Main	200,000.00
Thurmont, Town of	Sewer Line Rehab	947,000.00
Washington County	Halfway Inflow/Infil Reduction	200,000.00
Westernport	CSO	936,000.00
Westernport	CSO/ Elim Philos Ave Area	1,032,519.00
WilliamSPORT, Town of	Inflow & Infiltration Red.	383,226.00

SEWER GRANT SUBTOTAL (PRE FY10)

\$19,711,306.00

O&M GRANTS

Allegany County	North Branch WWTP O&M	\$432,000.00
Allegany County	George's Creek WWTP O&M	100,800.00
Anne Arundel County	Annapolis WWTP O&M	900,000.00
Anne Arundel County	Broadneck WWTP O&M	675,000.00
Anne Arundel County	Broadwater WWTP O&M	140,000.00
Anne Arundel County	Maryland City WWTP O&M	275,000.00
Anne Arundel County	Patuxent WWTP O&M	900,000.00
Baltimore, City of	Back River WWTP O&M	125,000.00
Boonsboro, Town of	Boonsboro WWTP O&M	129,540.00
Bowie, City of	Bowie WWTP O&M	257,400.00
Brunswick, City of	Brunswick WWTP O&M	285,600.00
Cambridge, City of	Cambridge WWTP O&M	789,750.00
Cecil County	Northeast River WWTP O&M	75,000.00
Charles County	Mattawoman WWTP O&M	816,000.00
Chesapeake Beach, Town of	Chesapeake Beach WWTP O&M	11,250.00
Chestertown, Town of	Chestertown WWTP O&M	175,650.00
Crisfield, City of	Crisfield WWTP O&M	18,000.00
Cumberland, City of	Cumberland WWTP O&M	1,698,000.00
Delmar, Town of	Delmar WWTP O&M	70,000.00
Denton, Town of	Denton WWTP O&M	140,000.00
Easton Utilities	Easton WWTP O&M	864,000.00
Elkton, Town of	Elkton WWTP O&M	603,900.00
Emmitsburg, Town of	Emmitsburg WWTP O&M	30,000.00
Federalsburg, Town of	Federalsburg WWTP O&M	133,500.00
Frederick County	Ballenger Creek WWTP O&M	850,000.00
Hagerstown, City of	Hagerstown WWTP O&M	1,584,000.00
Harford County	Aberdeen WWTP O&M	480,000.00
Harford County	Joppatowne WWTP O&M	137,500.00
Harford County	Sod Run WWTP O&M	1,125,000.00
Havre de Grace, City of	Havre de Grace WWTP O&M	518,400.00
Howard County	Little Patuxent WWTP O&M	1,600,000.00
Hurlock, Town of	Hurlock WWTP O&M	356,400.00
Indian Head, Town of	Indian Head WWTP O&M	159,000.00
La Plata, Town of	La Plata WWTP O&M	172,500.00
MD Environmental Svc	Dorsey Run WWTP O&M	300,000.00
MD Environmental Svc	Eastern Corr. Inst WWTP O&M	120,000.00
MD Environmental Svc	So.MD Pre-Release WWTP O&M	27,500.00
Mount Airy, Town of	Mount Airy WWTP O&M	201,600.00
Perryville, Town of	Perryville WWTP O&M	149,700.00
Pocomoke City, City of	Pocomoke City WWTP O&M	97,020.00
Poolesville, Town of	Poolesville WWTP O&M	13,500.00
Queen Anne County	Kent Island WWTP O&M	558,000.00
Queenstown, Town of	Queenstown WWTP O&M	30,000.00
Rising Sun, Town of	Rising Sun WWTP O&M	12,500.00
Snow Hill, Town of	Snow Hill WWTP O&M	130,000.00
St. Mary's County	Marley Taylor WWTP O&M	75,000.00
Leonardtown, Town of	Leonardtown WWTP O&M	12,500.00
Talbot County	Talbot Region II WWTP O&M	194,850.00

Thurmont, Town of	Thurmont WWTP O&M	150,000.00
Washington County	Winebrenner WWTP O&M	30,000.00
WSSC	Blue Plains WWTP O&M	300,000.00
WSSC	Damascus WWTP O&M	225,000.00
WSSC	Parkway WWTP O&M	1,031,250.00
WSSC	Piscataway WWTP O&M	1,500,000.00
WSSC	Seneca WWTP O&M	900,000.00
WSSC	Western Branch WWTP O&M	900,000.00

O&M GRANT SUBTOTAL \$23,586,610.00

CW Commerce Act GRANTS		
HGS/Resource Envir Solutions	Tributary to Winters Run Stream	\$4,409,300.00
CW Commerce Act GRANT SUBTOTAL		<u>\$4,409,300.00</u>

TOTAL BRF Grants (ENR, Sewer, CW Commerce & O&M) \$1,506,048,539.62

Septic Fund (MDE 60% for Onsite Disposal System upgrades FY19):

Sources:	\$ Million	Uses:	\$ Million
Cash Deposits	\$ 17	Capital Grant Awards	\$ 15
Cash Interest Earnings	\$ 0	Admin. Expense Allowance	\$ 1
		HB-12 Local Admin Grant	\$ 2
<u>Total</u>	<u>\$ 17</u>	<u>Total</u>	<u>\$ 18</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	\$170	Capital Grant Awards	\$ 152*
Cash Interest Earnings	\$ 3	Admin. Expense Allowance	\$ 13
		HB-12 Local Admin Grant	\$ 7 **
<u>Total</u>	<u>\$173</u>	<u>Total</u>	<u>\$172</u>

* Does not include \$15 million of FY20 grant awarded in June 2019. Payment disbursements are made as BATs and public sewer connections are installed and expenses are incurred.

** HB-12 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, 2019, the grants under the Septic Fund were awarded as follows:

<u>GRANTEE</u>	<u>Program Grant Award</u>	<u>HB12 Admin Grant Award</u>
Allegany Co. Hlth Dept	\$712,116.85	\$95,000.00
Anne Arundel Co. Hlth Dept.	26,373,812.64	195,000.00
Baltimore Co. Hlth Dept.	4,278,631.81	395,000.00
Calvert Co.Hlth Dept.	13,039,455.94	560,000.00
Caroline Co.Hlth Dept.	3,622,467.21	560,000.00
Carroll Co.Hlth Dept.	2,262,766.60	145,000.00
Cecil Co.Hlth Dept.	7,533,198.95	195,000.00
Charles Co. Hlth Dept.	3,975,777.60	395,000.00
Dorchester Co. Hlth Dept.	7,082,313.05	560,000.00
Frederick Co. Hlth Dept.	3,901,611.55	330,000.00
Garrett Co. Hlth Dept.	1,016,043.34	210,000.00
Harford Co. Hlth Dept.	3,754,228.93	330,000.00
Howard Co. Hlth Dept	1,489,704.75	145,000.00
Kent Co. Hlth Dept.	5,741,019.09	560,000.00
Montgomery Co. Hlth Dept	2,110,781.00	120,000.00
Prince George's Co.Hlth Dept.	413,282.16	35,000.00
Queen Anne's Co. Hlth Dept.	10,321,361.89	195,000.00
Somerset Co. Hlth Dept.	3,070,012.78	195,000.00
St. Mary's Co. Hlth dept.	11,179,668.44	560,000.00
Talbot Co.Hlth Dept.	8,591,372.93	560,000.00
Washington Co. Hlth Dept	3,397,652.05	185,000.00
Wicomico Co. Hlth Dept.	7,203,322.75	195,000.00
Worcester Co.Hlth Dept.	3,323,200.76	85,000.00
Direct Grant Awards -Individual	\$17,725,266.58	-
2nd year O&M Grant Awards	\$220,000.00	-
Total BRF SEPTIC Grant Awards	\$152,339,069.65	\$6,805,000.00

Septic Fund (MDA 40% for Cover Crops)

Sources:

Cash Deposits* \$122,018,423

Uses:

Grant Awards

\$118,518,275

Admin. Expense

500,148

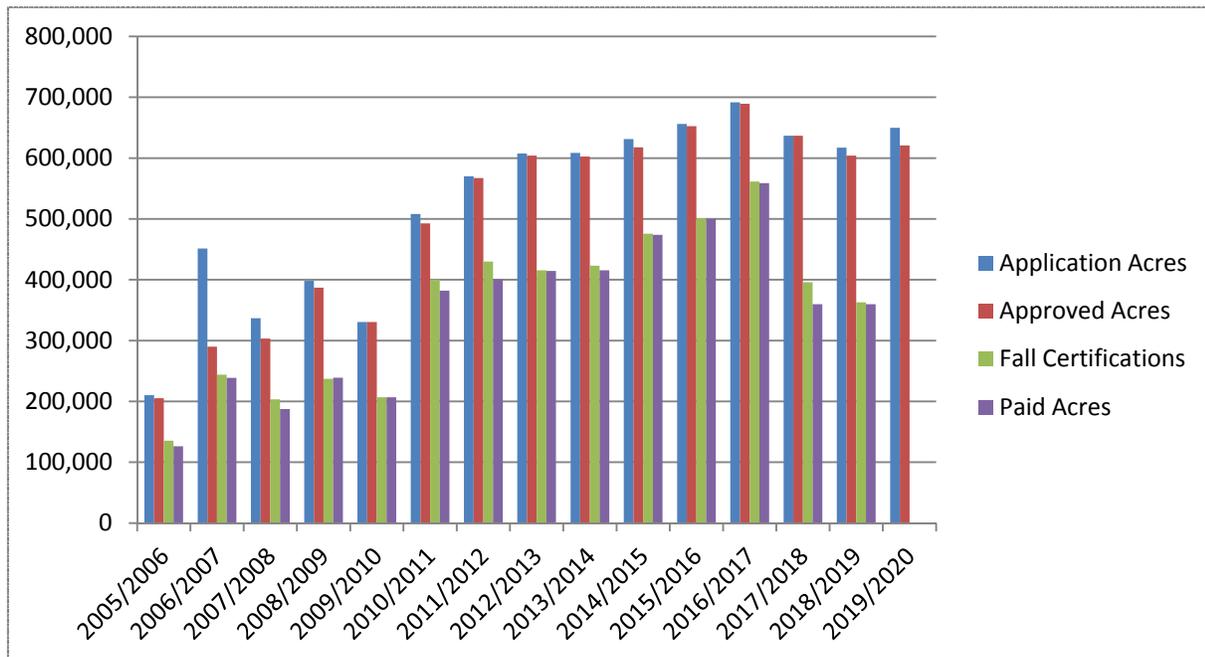
Total

\$119,018,423

*Cumulative revenue and expenditures as of June 30, 2019

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 BRF to purchase nitrogen, phosphorus, and sediment reductions if they are determined to be cost effective. The Act authorizes funding of up to \$4 million in fiscal year 2018, \$6 million in fiscal year 2019, and \$10 million in fiscal years 2020 and 2021.

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 in order to utilize FY19 authorized funding. Another solicitation was done in December 2018 for FY20 funding. The final solicitation, for FY21, has been initiated in December 2019.

To date, the following are the proposals received, and resulting grant awards for each fiscal year:

FY19 Proposals Received:

Applicant	Nitrogen (\$/Lb/yr)	Phosphorus (\$/Lb/yr)	Sediment (\$/Ton/yr)	Evaluation Results
HGS, LLC (a RES company)	\$105.12	\$144.34	\$552.80	Selected
OptiRTC, Inc.	\$265.00	\$1,535.00	\$1,995.00	Not Selected

FY19 Grant Awards:

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

On April 24, 2019, the Board of Public Works approved up to \$4,409,300 in grants for HGS, LLC to restore approximately 6,236 linear feet of degraded stream channel. Current stream bank erosion throughout the course is significant, resulting in downstream pollution from sediment loss. The proposed project will stabilize the stream and greatly improve water quality for the Winters Run watershed and ultimately the Chesapeake Bay. Upon completion of the construction, HGS will provide 20 years of monitoring and maintenance activities, and all restoration areas will be protected in perpetuity by deed restrictions. MDE will provide annual payments for the purchase of verified annual reductions of nitrogen, phosphorus and sediment based on the agreed upon unit prices. Annual purchases are estimated to be between \$220,000 and \$375,000 depending on the actual verified reductions.

The following were the approved prices and estimated budget:

Reduction Type	Estimated 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

FY20 Proposals Received:

Applicant	Nitrogen (\$/Lb/yr)	Phosphorus (\$/Lb/yr)	Sediment (\$/Ton/yr)	Evaluation Results
Broadneck WRF	\$75.00	\$100.00	\$300.00	Selected for Nitrogen and Sediment
Annapolis WRF	\$75.00	\$100.00	\$300.00	Selected for Nitrogen and Sediment
Little Patuxent WRF	\$79.00	\$99.00		Selected for Phosphorus
HGS, LLC (a RES company)	\$105.12	\$144.34	\$552.80	Not Selected
Blue Oyster Environmental	\$750.00	\$8,000		Not Selected

FY20 Grant Awards:

Little Patuxent Water Reclamation Plant Advanced Process Instrumentation and Control System (APICS)

On August 14, 2019, the Board of Public Works approved up to \$1,818,450 in grants for Howard County Department of Public Works to implement advanced online instrumentation coupled with automated control and active management, along with expanded treatment regime to achieve treatment level and performance exceeding ENR to provide additional nitrogen and phosphorus reductions from the original ENR goals. MDE will provide annual payments for the purchase of verified annual reductions of nitrogen and phosphorus beyond ENR based on the agreed upon unit prices. Annual purchases are estimated to be between \$146,000 and \$746,520 depending on the actual verified reductions.

The following were the approved prices and estimated budget:

Reduction Type	Estimated Units/Year		Delivery Factor	Unit/Year Delivered	Price per Unit/Year	Total Price/Year
Nitrogen	589	Lbs/yr	0.80	471	\$75.00	\$35,325.00
Phosphorus	2,000	Lbs/yr	0.74	1,480	\$99.00	\$146,520.00

Total Annual Price \$181,845.00

Practice Useful Life (years) 10

Total Over 20 Years \$1,818,450.00

Broadneck and Annapolis WRFs

Broadneck and Annapolis WRFs will be submitted for the Board of Public Works approval upon Anne Arundel County signing the funding agreement.

Wastewater Treatment Plant Upgrades With Enhanced Nutrient Removal (ENR)

Status of Upgrades:

MDE is implementing a strategy and is providing financial assistance to upgrade wastewater treatment facilities in order to achieve ENR level of treatment. MDE's strategy and 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 of the state's major sewage treatment plants are almost completed with 63 of the 67 major facilities have been upgraded and are currently in operation. Upgrades to three other facilities are under construction, and one remaining is in planning.

Minor WWTPs:

ENR upgrades are underway for some minor sewage treatment plants (less than 0.5 million gallons per day). MDE and MDP have been assisting local governments in applying for BRF grants, and to date, nine minor facilities have completed the ENR upgrade and are in operation. Five more are under construction, and 15 additional plants have signed the funding agreement and have progressed into planning or design.

The following are the upgraded major and minor facilities with their nitrogen and phosphorus reductions achieved in calendar year 2018:

ENR Wastewater Treatment Plant	County	Approved Design Capacity (MGD)	Start of ENR Operation	TN Reduction (Lbs/yr)	TP Reduction (Lbs/yr)
Cumberland	Allegany	15.00	Feb-11	270,267.37	80,208.38
George's Creek	Allegany	0.60	Sep-10	60,163.59	6,944.81
North Branch	Allegany	2.00	Nov-06	97,252.91	10,799.25
Annapolis	Anne Arundel	13.00	Jan-15	154,080.17	50,549.11
Broadneck	Anne Arundel	6.00	Apr-14	93,392.99	27,586.85
Broadwater	Anne Arundel	2.00	Sep-15	20,572.03	6,237.97
Cox Creek	Anne Arundel	15.00	Jan-18	201,622.92	66,853.92
Dorsey Run	Anne Arundel	2.00	Dec-12	69,752.51	6,893.67
Maryland City	Anne Arundel	2.50	May-14	25,810.92	8,166.41
Patuxent	Anne Arundel	7.50	Jan-14	106,257.35	31,191.68
Back River	Baltimore	180.00	Aug-17	2,257,973.35	52,846.18
Chesapeake Beach	Calvert	1.50	Oct-17	13,019.62	5,235.55

ENR Wastewater Treatment Plant	County	Approved Design Capacity (MGD)	Start of ENR Operation	TN Reduction (Lbs/yr)	TP Reduction (Lbs/yr)
Denton	Caroline	0.80	May-12	9,004.45	2,856.58
Federalsburg	Caroline	0.75	Aug-10	19,360.48	2,313.52
Greensboro	Caroline	0.332	Apr-18	6,420.01	768.71
Freedom District	Carroll	3.50	Mar-18	35,088.33	11,904.97
Mount Airy	Carroll	1.20	Nov-10	20,380.25	6,051.37
Taneytown	Carroll	1.10	Jul-16	12,456.46	6,265.98
Elkton	Cecil	3.05	Dec-09	96,674.53	11,808.98
Northeast River	Cecil	2.00	Oct-16	23,211.26	76.10
Perryville	Cecil	2.00	Aug-10	30,197.47	3,623.70
Rising Sun	Cecil	0.50	Aug-15	10,806.56	1,415.51
Indian Head	Charles	0.50	Dec-08	22,602.44	2,575.31
La Plata	Charles	1.50	Mar-14	24,742.44	7,500.05
Mattawoman	Charles	20.00	Nov-07	268,489.62	(4,653.82)
SMPRU	Charles	0.02	Feb-17	1,488.56	180.82
Cambridge	Dorchester	8.10	Sep-13	57,381.29	18,698.38
Hurlock	Dorchester	1.65	May-06	63,317.28	7,637.65
Ballenger Creek	Frederick	15.00	Mar-15	136,132.15	49,740.59
Brunswick	Frederick	1.40	Sep-08	35,141.09	4,392.64
Emmitsburg	Frederick	0.75	Mar-16	32,666.24	3,977.73
Frederick	Frederick	8.00	Jun-18	76,253.18	26,613.86
Thurmont	Frederick	1.00	Sep-12	20,261.53	6,141.78
Aberdeen	Harford	4.00	Jan-14	42,848.75	12,287.51
Havre de Grace	Harford	3.03	May-10	38,973.61	12,815.05
Joppatowne	Harford	0.95	May-13	16,803.43	5,293.08
Sod Run	Harford	20.00	Apr-14	234,882.76	69,681.88
Little Patuxent	Howard	29.00	Sep-12	409,029.63	44,512.05
Chestertown	Kent	0.90	Jun-08	32,976.74	4,011.82
Damascus	Montgomery	1.50	Dec-12	16,365.08	4,935.09
Poolesville	Montgomery	0.75	Jul-10	8,560.01	4,256.87
Seneca	Montgomery	26.00	Jan-15	249,056.09	6,315.35
Bowie	Prince George's	3.30	Dec-10	28,976.79	4,473.61
Parkway	Prince George's	7.5	May-13	121,051.68	19,491.37
Piscataway	Prince George's	30.00	Oct-12	421,775.28	10,310.06
Western Branch	Prince George's	30.00	Jan-15	425,680.86	60,182.47
Kent Island	Queen Anne's	3.00	Aug-07	112,978.73	14,232.39
Queenstown	Queen Anne's	0.20	Oct-16	3,397.22	613.69
Blue Plains	Regional	169.60	Jan-15	1,493,131.05	33,180.69

ENR Wastewater Treatment Plant	County	Approved Design Capacity (MGD)	Start of ENR Operation	TN Reduction (Lbs/yr)	TP Reduction (Lbs/yr)
Crisfield	Somerset	1.00	Aug-10	30,669.31	3,878.18
ECI	Somerset	0.50	Jan-14	27,427.34	3,097.68
Leonardtown	St. Mary's	0.68	Aug-17	10,931.36	3,336.94
Marlay Taylor	St. Mary's	6.00	Aug-16	72,918.37	21,751.92
Easton	Talbot	4.00	Jun-07	154,034.50	17,893.83
Talbot Region II	Talbot	0.66	Oct-08	21,205.20	2,329.95
Boonsboro	Washington	0.53	Oct-10	28,425.81	3,442.88
Conococheague	Washington	4.50	Mar-18	46,960.32	15,894.26
Hagerstown	Washington	8.00	Oct-10	177,148.36	51,982.88
MCI	Washington	1.60	Jan-18	13,561.47	4,734.18
Winebrenner	Washington	0.60	Jan-17	16,766.90	1,950.66
Delmar	Wicomico	0.85	Sep-12	33,795.60	3,767.38
Fruitland	Wicomico	0.80	Feb-18	12,750.57	3,273.28
Salisbury	Wicomico	8.50	Jan-18	246,937.39	27,780.46
Pocomoke City	Worcester	1.47	Sep-11	15,890.20	4,904.05
Snow Hill	Worcester	0.50	Aug-13	19,360.48	2,252.63

8,957,512.19 1,002,268.30

Chesapeake Bay TMDL Implications:

In early November, 2009, 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 December 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.

Continuing to upgrade major and minor WWTPs as described above is essential for Maryland to meet its 2025 target loads.

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 ENR technologies. 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 19, 2019, the Maryland Board of Public Works approved \$6,024,000 (under FY20 authorization) for facilities that achieved ENR level of treatment during CY18.

MDE is requesting authorization for \$8 million in FY21. The upgraded facilities will be receiving O&M grants based on the above rates if they continue to achieve ENR level of treatment in CY19.

Update on Department of Defense and Other Federal 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 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 ENR upgrades at certain DoD-owned WWTPs at its own expense in lieu of paying the fee.

In addition to the DoD facilities, Beltsville Agricultural Research Center (BARC), owned by USDA, has a relatively large WWTP. BARC requested to be covered under the MOU and is currently upgrading its WWTP to ENR in lieu of paying the fee.

No other federal facility is exempt from paying the BRF fee under this MOU. Many federal facilities are connected to public water or sewer systems and are paying the fee through the local billing authorities. Some federal facilities with small WWTPs or OSDS continue not to participate in the BRF process.

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	Operation	American Water Group has assumed ownership of the plant. ENR upgrade was completed in January 2015.
Naval Support Activity – Annapolis	Under Construction	Construction is scheduled to be completed by February 1, 2021

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 funded facilities that were upgraded to ENR with BRF, that were completed prior to January 1, 2019 and operational for one calendar year:

Facility	County	Design Capacity (MGD)		Flow in CY 2018 (MGD)
		Original	At Upgrade	
Cumberland	Allegany	15.0	15.0	14.32
George’s Creek	Allegany	0.6	0.6	1.22
North Branch	Allegany	2.0	2.0	1.96
Annapolis	Anne Arundel	13.0	13.0	8.88
Broadneck	Anne Arundel	6.0	6.0	4.72
Broadwater	Anne Arundel	2.0	2.0	1.09
Cox Creek	Anne Arundel	15.0	15.0	11.62
Maryland City	Anne Arundel	2.5	2.5	1.39
Patuxent	Anne Arundel	7.5	7.5	5.63
Back River	Baltimore City	180	180	157.82
Chesapeake Beach	Calvert	1.32	1.5	0.91
Denton	Caroline	0.8	0.8	0.51
Federalburg	Caroline	0.75	0.75	0.40
Greensboro	Caroline	0.28	0.332	0.185
Freedom District	Carroll	3.5	3.5	2.47
Mount Airy	Carroll	1.2	1.2	1.03
Taneytown	Carroll	1.1	1.1	1.24
Elkton	Cecil	2.7	3.05	2.01
North East River	Cecil	2.0	2.0	1.25
Perryville	Cecil	1.65	2.0	0.64
Rising Sun	Cecil	0.275	0.50	0.25

Facility	County	Design Capacity (MGD)		Flow in CY 2018 (MGD)
		Original	At Upgrade	
Indian Head	Charles	0.5	0.5	0.45
La Plata	Charles	1.5	1.5	1.27
Cambridge	Dorchester	8.1	8.1	3.25
Hurlock	Dorchester	2.0	1.65	1.30
Ballenger Creek	Frederick	6.0	15.0	8.60
Brunswick	Frederick	0.7	1.4	0.74
Emmitsburg	Frederick	0.75	0.75	0.73
Frederick	Frederick	8.0	8.0	8.42
Thurmont	Frederick	1.0	1.0	1.04
Aberdeen	Harford	4.0	4.0	2.07
Havre De Grace	Harford	1.89	3.03	2.17
Joppatowne	Harford	0.95	0.95	0.92
Sod Run	Harford	20.0	20.0	12.86
Little Patuxent	Howard	25.0	29.0	19.76
Chestertown	Kent	0.9	0.9	0.69
Damascus (WSSC)	Montgomery	1.5	1.5	0.84
Poolesville	Montgomery	0.75	0.75	0.76
Seneca (WSSC)	Montgomery	26.0	26.0	14.61
Blue Plains	Prince George's Montgomery	169.6	169.6	109.00
Bowie	Princes George's	3.3	3.3	1.67
Parkway (WSSC)	Prince George's	7.5	7.5	6.74
Piscataway (WSSC)	Prince George's	30.0	30.0	30.79
Western Branch (WSSC)	Prince George's	30.0	30.0	24.11
Kent Narrows	Queen Anne's	2.0	3.0	2.41
Queenstown	Queen Anne's	0.085	0.20	0.12
Crisfield	Somerset	1.0	1.0	0.65
Leonardtwn	St. Mary's	0.68	0.68	0.63
Marlay Taylor	St. Mary's	6.0	6.0	4.06
Easton	Talbot	2.35	4.0	3.03
Talbot Region II	Talbot	0.5	0.66	0.43
Boonsboro	Washington	0.46	0.53	0.58
Conococheague	Washington	4.10	4.50	3.56
Hagerstown	Washington	8.0	8.0	9.54
MCI	Washington	1.60	1.60	0.81
Winebrenner	Washington	1.0	0.6	0.36

Facility	County	Design Capacity (MGD)		Flow in CY 2018 (MGD)
		Original	At Upgrade	
Delmar	Wicomico	0.65	0.85	0.91
Fruitland	Wicomico	0.8	0.8	0.68
Salisbury	Wicomico	6.8	8.5	5.07
Pocomoke City	Worcester	1.47	1.47	0.90
Snow Hill	Worcester	0.50	0.50	0.40

2020 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.

In 2018, 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,

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

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.

MDP's Findings

For the 2020 reporting period, MDP reviewed development served by 54 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, 2018 and (2) operational for one calendar year. Six new ENR upgrades are included in this year's report. The Baltimore Region and Southern Maryland Region each had two upgrades; Back River and Mayo in the Baltimore Region and Chesapeake Beach and Leonardtown in Southern Maryland. The Western Region saw an upgrade of the Winebrenner WWTP while Greensboro was upgraded in the upper Eastern Shore Region.

Table 1 summarizes all the ENR upgrades that MDP is advised to report on by MDE. 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.

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.

Table 1. Connections to Wastewater Treatment Facilities Upgraded to ENR

ENR WWTP	County	ENR Upgrade Completed and Operational (Month-Year)	Connections Before ENR Funding					2020 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%	1,843	1,825	99.0%	42	
George's Creek	ALLE	Nov-10	2009	2,069	1,938	1,876	96.8%	1,961	1,908	97.3%	23	
City of Cumberland	ALLE	Feb-11	2010	17,656	16,412	16,243	99.0%	16,702	16,550	99.1%	290	
City of Hagerstown	WASH	Dec-10	2009	21,975	18,825	17,769	94.4%	20,112	19,836	98.6%	1,287	
Winebrenner (New)	FRED/WASH	Feb-17	2016	455	455	446	98.0%	456	443	97.1%	1	
Facilities Upgraded During Reporting Period				455	455	446		456	443	97.1%	1	
Western Region Total				44,068	39,431	38,128	97%	41,074	40,562	98.8%	1,643	
Washington Region												
City of Brunswick	FRED	Sep-08	2007	2,446	1,957	1,957	100.0%	2,260	2,260	100.0%	303	
Town of Thurmont	FRED	Apr-13	2012	2,385	2,345	2,204	94.0%	2,355	2,231	94.7%	10	
Town of Poolesville	MONT	Jul-10	2009	1,742	1,719	1,651	96.0%	1,723	1,654	96.0%	4	
Damascus	MONT	Feb-13	2012	3,997	3,793	3,437	90.6%	3,796	3,439	90.6%	3	
City of Bowie	PRIN	Feb-11	2010	20,712	20,559	20,269	98.6%	20,947	20,471	97.7%	388	
Parkway	PRIN	Jul-13	2012	15,470	15,394	15,383	99.9%	15,462	15,450	99.9%	68	
Piscataway	PRIN	May-13	2012	56,296	55,007	51,954	94.4%	57,032	52,977	92.9%	2,025	
Western Branch (WSSC)	PRIN	Apr-16	2015	45,533	43,438	38,554	88.8%	44,203	38,752	87.7%	765	
Blue Plains	PRIN/MONT	Apr-16	2015	330,121	327,437	319,529	97.6%	328,385	320,543	97.6%	948	
Seneca (WSSC)	MONT	Apr-16	2015	60,161	57,387	56,911	99.2%	57,541	57,065	99.2%	154	
Ballenger Creek	FRED	Apr-16	2015	21,554	17,110	17,105	100.0%	17,284	17,279	100.0%	174	
Town of Emmitsburg	FRED	Mar-16	2015	927	824	791	96.0%	828	795	96.0%	4	
Washington Region Total				561,344	546,970	529,745	97%	551,816	532,916	96.6%	4,846	
Upper Eastern Shore Region												
Town of Elkton	CECI	Dec-09	2008	6,000	4,926	4,925	100.0%	5,066	5,064	100.0%	140	
Town of Perryville	CECI	Dec-10	2009	1,704	1,508	1,508	100.0%	1,554	1,552	99.9%	46	
Rising Sun	CECI	Apr-16	2015	1,052	856	846	98.8%	851	847	99.5%	-5	
Town of Chestertown	KENT	Jun-08	2007	1,772	1,742	1,562	89.7%	1,897	1,705	89.9%	155	
Kent Island (KNSG)	QUEE	Aug-07	2006	6,590	6,401	5,974	93.3%	7,238	6,852	94.7%	837	
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%	828	817	98.7%	1	
Town of Easton	TALB	Jun-07	2006	5,810	5,831	5,822	99.8%	6,529	6,484	99.3%	698	
Talbot Region II	TALB	Oct-08	2007	2,289	2,214	1,981	89.5%	2,437	2,161	88.7%	223	
Northeast River	CECI	Oct-16	2015	5,714	4,459	3,931	88.2%	4,585	4,502	98.2%	126	
Town of Queenstown	QUEE	Oct-16	2015	333	300	299	99.7%	307	306	99.7%	7	
Greensboro (New)	CARO	Jun-17	2016	727	687	687	100.0%	687	687	100.0%	0	
Facilities Upgraded During Reporting Period				727	687	687	100.0%	687	687	100.0%	0	
Upper Eastern Shore Total				34,380	30,848	29,447	95%	33,486	32,477	97%	2,638	
Lower Eastern Shore Region												
City of Cambridge	DORC	Dec-13	2012	5,861	5,418	5,293	97.7%	5,425	5,406	99.6%	7	
Town of Hurlock	DORC	May-06	2005	769	703	703	100.0%	798	798	100.0%	95	
Town of Delmar	WICO	Sep-11	2010	1,107	932	824	88.4%	963	847	88.0%	31	
City of Pocomoke	WORC	Oct-11	2010	1,893	1,607	1,585	98.6%	1,632	1,611	98.7%	25	
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%	925	877	94.8%	-5	
City of Fruitland	WICO	Nov-16	2015	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%	13,728	13,214	96.3%	247	
Baltimore Region												
Town of Mount Airy	CARR/FRED	Nov-10	2009	3,336	3,145	3,145	100.0%	3,427	3,425	99.9%	282	
Joppatowme/Sod Run	HARF	Nov-13	2012	51,174	48,459	48,195	99.5%	48,935	48,672	99.5%	476	
City of Havre De Grace	HARF	May-10	2009	5,098	4,898	4,782	97.6%	5,368	5,365	99.9%	470	
Little Patuxent	HOWA	Sep-12	2011	56,997	50,848	50,833	100.0%	58,292	58,221	99.9%	7,444	
City of Aberdeen	HARF	Mar-15	2014	5,098	4,524	4,443	98.2%	4,525	4,444	98.2%	1	
Broadneck	ANNE	May-15	2014	30,847	21,172	20,454	96.6%	21,781	21,013	96.5%	609	
Maryland City	ANNE	Mar-15	2014	4,522	4,394	4,376	99.6%	4,483	4,475	99.8%	89	
Patuxent	ANNE	Mar-15	2014	24,037	22,886	22,440	98.1%	23,816	23,356	98.1%	930	
City of Annapolis	ANNE	Apr-16	2015	31,823	28,384	27,466	96.8%	28,633	27,709	96.8%	249	
Broadwater	ANNE	Apr-16	2015	4,919	4,694	3,902	83.1%	4,727	3,926	83.1%	33	
City of Taneytown	CARR	Jul-16	2015	2,647	2,486	2,485	100%	2,496	2,495	100.0%	10	
Back River (New)	BACI/BACO	Sep-17	2016	313,624	311,468	309,249	99%	312,042	309,885	99.3%	574	
Mayo (New)	ANNE	Oct-17	2016	3,410	3,316	3,066	92%	3,329	3,078	92.5%	13	
Facilities Upgraded During Reporting Period				317,034	314,784	312,315	99%	315,371	312,963	99.2%	587	
Baltimore Region Total				537,532	510,674	504,836	99%	521,854	516,064	98.9%	11,180	
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%	3,391	3,309	97.6%	178	
Marylay Taylor	STMA	Aug-16	2015	12,420	7,996	7,984	99.8%	8,168	8,156	99.9%	172	
Chesapeake Beach (New)	CALV	Nov-17	2016	4,041	3,320	2,694	81.1%	3,320	2,694	81.1%	0	
Leonardtown (New)	STMA	Aug-17	2016	1,640	1,089	936	86.0%	1,093	940	86.0%	4	
Facilities Upgraded During Reporting Period				5,681	4,409	3,630	82.3%	4,413	3,634	82.3%	4	
Southern Maryland Total				22,674	16,935	16,063	95%	17,376	16,503	95.0%	441	
Statewide												
Facilities Upgraded During Reporting Period				323,897	320,335	317,078	99.0%	320,927	317,727	99.0%	592	
Statewide Totals				1,215,260	1,158,339	1,131,029	98%	1,179,334	1,151,736	97.7%	20,995	

Notes:

(new) = Facilities upgraded to ENR during the 2020 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's analysis shows Little Patuxent had the largest annual increase of connections, with an increase of 7,444 connections. Overall, the Baltimore Region had the largest regional annual increase of new connections with 11,180. Statewide, there was an increase of 320,927 improved parcels (mostly in Back River).

Although every effort is made to ensure data is current and correct, there may be significant increases or decreases of new connections from year to year. For example, the number of total improved parcels with existing sewer (Column F) may appear to decrease from one year to the next. However, the reason for the decrease may not be related to the number of improved parcels no longer having sewer, but rather adjustments in the MDProperty View data, the PFA layer, or the sewer layer. We evaluate the many factors that play a part in our source data and findings and make adjustments or corrections, where necessary.

Onsite Sewage Disposal System Upgrade Program

Program Implementation

The BRF Septic System Upgrade Program (SSUP) for upgrading onsite disposal systems to BAT for nitrogen removal 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 January 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 November 14, 2016, MDE finalized a regulatory change to 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 FY19. During this fiscal year, 690 BAT installations were completed, and 183 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 October 2, 2018 which allows local jurisdictions the availability to develop plans with FY20 and FY21 funds. MDE introduced the program through regional workshops involving 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 FY19, 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 2019 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 10 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 (Schaefer 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 \$122,018,423 as of June 30, 2019. In FY 2019, \$11.3 million from 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 ten years. Thank you!

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