

Septic Sector Excerpt From: *Maryland's Phase III Watershed Implementation Plan to Restore Chesapeake Bay by 2025 Final Document* | August 23, 2019

Phase III WIP Septic Strategies

Septic Upgrades

Maryland has two main programs for implementing BAT septic upgrades. First, upgrades are funded through the State's BRF Septic Fund, and second, BAT treatment is required on all new systems in the Critical Area. It is important to note that a portion of the BRF Fee paid by households on septic systems is used to pay for cover crops.

The department will continue to pay for BAT upgrades through the BRF Septic Fund. Funding priority is ranked based on six categories: (1) failing OSDS in the Critical Area, (2) failing OSDS outside the Critical Area, (3) non-conforming²⁵ OSDS in the Critical Area, (4) non-conforming OSDS outside the Critical Area 5) other OSDS in Critical Area, including new construction 6) other OSDS outside Critical Area, including new construction. All installations and subsequent operation and maintenance of nitrogen reducing units are tracked by MDE's WSA Wastewater Permits Program in a secure database.

Regulations mandate any new construction of a septic system or repair of a septic system within the Critical Area must utilize BAT. Within the Chesapeake Bay watershed, the Critical Area covers land located within 1,000 feet of the tidal waters. This land is deemed to be of crucial importance to the health of the Bay, and due to its proximity the delivery of nitrogen from OSDSs has been estimated to be much greater than from systems located higher up in the watershed. Septic systems located outside the Critical Area are not required to install BAT units, however a significant level of BAT implementation is still being done in these areas through the BRF Septic Fund.

Maryland's BAT Technical Review Committee (TRC) currently lists a variety of pre-approved manufacturer units capable of reducing nitrogen discharged into a septic system by 50 percent or greater. The BAT TRC continues to review newer technologies to include in the pre-approved categories. In addition, the TRC has approved additional reduction by utilizing BAT units in concert with particular OSDS that are capable of reducing nitrogen effluent by 30 percent, hence increasing the total nitrogen reduction to 80 percent or greater.

From 2016-2018 Maryland spent roughly \$10.1 million annually for roughly 1,000 BAT units installed (BRF 2018). Maryland's Water Quality Trading Program allows non-required septic upgrades to be installed to generate nitrogen credits. It is intended that this will act as an additional driver of septic implementation.

Septic Strategy 1: Provide incentives for OSDS upgrades to BAT

Maryland will continue to implement septic upgrades through its BRF Septic Fund. This strategy estimates implementation of 1,000 upgrades per year and assumes an average reduction of 5.5 pounds per year per household, yielding an annual reduction of 5,500 pounds of nitrogen per year delivered to the Bay. Over a seven-year period, 2019 to 2025, this will result in a reduction of 40,000 pounds of nitrogen.

²⁵ systems that do not conform with current regulations

Septic Strategy 2: Require BAT for systems installed in the critical area

Maryland will continue to require that new OSDs in the Critical Area use BAT treatment. It is estimated that on average approximately 200 systems are installed per year, yielding average per household reductions of 7.5 pounds per year. Cumulatively this results in 10,000 pounds per year prevented by 2025.

Septic Strategy 3: Accelerate BAT through WQ trading

Maryland will promote using septic upgrades as a mechanism for generating credit to meet NPDES permit requirements. We acknowledge that there will be a reduction; however, that reduction will be used to meet NPDES permit requirements so no estimate figure is provided here.

Septic Connections

Maryland has invested over \$1.2 billion in ENR upgrades for wastewater treatment plants, and by 2022, around 98 percent of the State's wastewater treatment capacity will be operating at this high treatment level. In order to maximize the benefit from this investment, the State must continue to pursue opportunities to connect additional septic systems to sewers. On average, from 2016 to 2018, 100 onsite sewage disposal systems were connected annually to sewer (BRF Advisory Committee 2018). And from 2016-2018 Maryland spent roughly \$1.3 million annually per roughly 100 septic connections (BRF 2018). The anticipated annual load reduction per household connected to sewer is a slightly over 8 pounds of nitrogen delivered to the Bay, with an average cost below \$100 per pound²⁶ (CBP 2017, MDE 2016). Accelerating the pace of connections is a priority in this phase of the WIP, and Maryland is pursuing several options to achieve this. For example, the funding and approval process has been streamlined, which is anticipated to generate increased interest for public sewer connections for areas with problem sewage disposal systems. One project of note is on southern Kent Island, where 1,500 systems are being connected to sewer.

The State is specifically pursuing sewer connection opportunities for campgrounds, mobile home parks and Bermed Infiltration Ponds (BIPs). BIPs are above-ground facilities that typically serve multiple homes. Beyond connections to existing sewer systems, the management action may involve replacing the existing treatment facility with a different treatment system such as a package plant²⁷.

The State will continue working directly with county governments and officials to increase the number of connections statewide. Implementation of this strategy is time consuming, as it requires extensive local planning and significant funding allocations. There are also many communities that cannot be connected to sewer due to local zoning and "no growth" sewer lines. Annual reductions will continue to be modest at a statewide scale, but on a finer scale these projects can provide significant nitrogen reductions in rural

²⁶ mde.maryland.gov/programs/Water/TMDL/TMDLImplementation/Documents/Data_and_Tools/BMP_Unit_Cost_Estimates_Phase_5-3-2.xlsx

²⁷ Package plants are pre-manufactured treatment facilities used to treat wastewater in small communities or on individual properties. According to manufacturers, package plants can be designed to treat flows as low as 0.002 MGD or as high as 0.5 MGD, although they more commonly treat flows between 0.01 and 0.25 MGD (Metcalf and Eddy, 1991).

watersheds with few other nutrient sources. Perhaps more importantly, the public health impact at this level can be substantial.

Septic Strategy 4: Connect households on OSDSs to sewer

This strategy assumes that septic connections to sewer will occur at a pace of 300 systems per year. This equates to reductions of 2,400 pounds per year, or 16,800 pounds by 2025. These connections will be funded through a combination of funding sources, including the BRF Wastewater Fund and State Revolving Loan Fund. There is expected to be a small phosphorus increase of less than 100 pounds associated with this work. Maryland will look for opportunities to accelerate this work, and update projections in its two-year milestones accordingly.

Septic Strategy 5: Pursue higher-level treatments systems

Maryland will continue to investigate the use of *in situ* and *ex situ* treatment, as described in the 2014 report, Recommendations of the Onsite Wastewater Treatment Systems Nitrogen Reduction Technology Expert Review Panel, including elevated sand mounds and shallow-placed pressuredosed dispersal. Where possible, the State will develop crediting mechanisms through its permits or trading program to incentivize these practices.

Septic Strategy 6: Pursue additional reduction strategies for “high-benefit” reductions

Maryland will continue to investigate additional septic strategies for addressing septic loads that provide a maximum benefit, either in terms of cost effectiveness for nitrogen removal or non-nutrient impacts, including public health and drinking water quality. Examples of potential opportunities include focusing on BIPs, mobile home parks and campgrounds, as opportunities to fund sewer connections or construct package plants or other small wastewater treatment facilities. The State is not projecting load reductions for this strategy in this document; however, a review of alternatives will be conducted and an adaptive management approach will be conducted through the two-year milestone process.

Septic Stewardship Plans and Septic Pumping

Recent legislation (HB1765 2018) makes funding available to county governments that adopt Septic Stewardship Plans. Septic Stewardship Plans must describe jurisdictions’ goals, consistent with the WIP nitrogen reduction goal and describe funding mechanisms to support the plan. To get credit for septic pumping under this plan, OSDS tanks must be pumped on a routine cycle. Based on numbers from P6 CAST, the anticipated annual load reduction for pumping an OSDS is about 0.4 pounds of nitrogen per household. The law also allows for financial assistance to homeowners for the cost of pumping out a septic system. Currently, county-based programs are too varied to provide an estimate of the annual cost of pumping across the State. The Septic Stewardship Plans provide a mechanism for local jurisdictions to develop plans that incorporate local priorities targeted toward goals beyond nitrogen reductions. For example, at the jurisdiction’s discretion, a plan could be written to focus on subsurface source water protection zones.

Several counties already have voluntary rebate incentive programs to encourage OSDS pumping. Through the adoption in local codes one county (Queen Anne's County) already requires OSDS pumping every five years and that compliance documentation be provided to local officials.

Septic Strategy 7: Incentivize Septic Pumpouts

Maryland will continue to offer credit to incentivize septic pumpouts. It is anticipated that the State will credit 10,000 pumpouts per year. Estimating a household reduction of 0.4 pounds per system, the total reduction is 4,000 pounds.