

***Draft* Pamunkey River
Total Maximum Daily Load (TMDL)
Action Plan**

Hanover County, Virginia

Permit No. VAR040012

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Introduction

Virginia Regulation 9VAC-25-890 et. seq. regarding the General VPDES permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4) requires Hanover County to establish a Total Daily Maximum Load (TMDL) Action Plan to address the permit special condition for local TMDLs that were approved by the EPA prior to July 1, 2018. An update of the previously approved Pamunkey River TMDL Action Plan is required by May 1, 2025. The Pamunkey River TMDL Action Plan may be implemented in multiple phases over more than one state permit cycle using an adaptive iterative approach. This TMDL Action Plan identifies the best management practices implemented under terms of the state permit.

This plan is in compliance with the general permit and consistent with best available implementation practices. Focus will be directed at the MS4 area surrounding Totopotomoy Creek because this is the most urbanized portion within Hanover County which contributes to the Pamunkey River impairment. Nutrient reductions for the Pamunkey River and Tributaries are addressed through Hanover County's Chesapeake Bay TMDL Action Plan.

1. The name(s) of the Final TMDL report(s).

E. coli TMDL Development for the Pamunkey River and Tributaries
- EPA approval 4/27/2015, SWCB approval 12/11/2014

2. The pollutant(s) causing the impairment(s).

E. coli

3. The Waste Load Allocation(s) (WLA) assigned to the MS4 as aggregate or individual WLAs.

The final in-stream aggregate (Hanover County, Town of Ashland, and VDOT in Hanover County) *E. coli* bacterial loads for the Pamunkey River study area:

Reach:	Upper (cfu/yr)	Middle (cfu/yr)	Lower (cfu/yr)
Daily	8.75E+09	5.00E+09	3.00E+08
Annual	3.20E+12	1.83E+12	1.10E+11

4. Identification of the significant sources of the pollutants of concern (POC) from facilities owned or operated by the MS4 operator that are not covered under a separate Virginia Pollutant Discharge Elimination System (VPDES) permit. For the purposes of this requirement, a significant source of pollutants means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL.

(General Permit Part II.B.4(d))

Meetings were previously held with all Hanover County departments (Fire and EMS, Public Utilities, Public Works, and the Hanover County School Board) that operate facilities that could potentially meet the criteria for a high priority facility (significant source of pollutants) and 100% of Hanover owned facilities were screened for all potential pollutant impacts to stormwater. Types of facilities discussed included composting facilities, equipment storage and maintenance facilities, materials storage yards, pesticide storage facilities, public works yards, recycling facilities, salt storage facilities, solid waste handling and transfer facilities, and vehicle storage and maintenance yards. Identification, screening of facilities, and Stormwater Pollution Prevention Plan (SWPPP) implementation was performed in accordance with Part I.E.6 and a detailed summary can be found in the MS4 Program Plan.

During discussions with Fire and EMS, Public Utilities and the Hanover County School Board, no high priority facilities or practices that could potentially pollute stormwater were identified. Discussions with Hanover Public Works identified two high-priority facilities within the MS4 urbanized area of the Pamunkey River watershed; the Elmont and Mechanicsville Solid Waste Convenience Centers. SWPPPs for these facilities are being implemented to eliminate or reduce the pollutants in storm water discharges. SWPPPs are updated annually and are available for review upon request from the Department of Public Works.

During the facility screening process, all sanitary sewer pump stations located within the MS4 urbanized area of the Pamunkey River watershed were identified and were determined not to be significant pollutant sources. Sewer pump stations are managed under the SSO program described in Section 5. There are two operator-owned facilities located within the MS4 urbanized area that have septic systems. These two facilities are located in the Pamunkey River watershed, are routinely maintained, and would not provide a risk of stormwater contamination. In addition, there are two operator-owned dog parks located in Hanover County, but neither are located within the MS4 urbanized area of the Pamunkey River watershed and best practices are implemented for those facilities.

5. Management practices and strategies designed to reduce the pollutants of concern. (General Permit Part II.B.4 (e))

*Management Practices to reduce pollutant loading were selected based on the Chickahominy River Bacterial Implementation Plan (no approved implementation plan for the Pamunkey River), Hanover County’s MS4 Program Plan, and in accordance with General Permit Part II.B.5 (a). Strategies and results achieved under the previous action plan were evaluated and it was determined no adaptive management strategies need to be incorporated at this time.

Septic System Pump-out Program

There are over 2,200 properties using septic systems that are within Hanover County’s MS4 urbanized area of the Pamunkey River watershed. State law requires that septic tanks located in a Chesapeake Bay Preservation Area be pumped out at least once every five years. Septic systems that are not routinely maintained have the potential to leak and contribute to bacteria loading. The Department of Public Works tracks septic systems in the County and reminder letters are sent every five years to residents. The County requires that property owners provide documentation their system has been pumped.

Information about the County’s septic pump-out program is available on the county website and can be found at the following link: <http://www.hanovercounty.gov/Water-and-Sewer/Septic-Pump-Out/>

Sanitary Sewer Overflow (SSO) Program

Hanover County has a robust Supervisory Control and Data Acquisition (SCADA) system which leverages CDMA/POTS technology to monitor all of its wastewater pump stations. The SCADA system provides extensive alarming and access to remote monitoring which helps to minimize response time. The Department of Public Utilities maintains “on-call” capabilities and strives for a response time of no more than one hour. On-call staff responds to all utility related issues including SSO events and pump station alarms. SCADA and “on call” services continue to effectively minimize the length of SSO events.

Hanover County has an up-to-date GIS system with layers dedicated to the County’s sewer system. Field personnel have access to this information and use the system to quickly diagnose sewer related issues. The County provides regular funding via its Capital Improvement Program and Operation & Maintenance budgets for sewer rehabilitation with the goals of extending asset life and minimizing the risk of SSO events.

Pet Waste Program

The pet waste management program places post mounted distribution boxes for bags to be used for the collection of pet waste in public parks, recreational areas, and neighborhoods. This serves to educate the public of the importance of the collection of these wastes. It is the responsibility of pet owners to clean up behind their pet in any public setting to reduce the harmful effects of dog waste on water quality and human health. This program is designed to encourage proper disposal of pet waste.

A pet waste flier was developed discussing the impact of pet waste on the environment. These fliers are distributed in monthly mailings to licensed pet owners and a copy of the flier can be found in the MS4 Program Plan.

The Pooch Pal Program increases individual and household knowledge by identifying pet waste as a pollutant and providing educational materials and resources to address the pollutant. Pet waste is a key source of pollutants in waters in Hanover County that are impaired for bacterial contamination. Encouraging the collection of these wastes and educating the public on the proper management of pet waste are effective measures to address this pollutant.

Stormwater Management (SWM) Water Quality Improvement Projects

Hanover County implements retrofit projects on existing SWM infrastructure, including outfalls to drainageways, and stream restoration projects to address both the Chesapeake Bay TMDL and Pamunkey Bacterial TMDL (further detail provided in the Chesapeake Bay TMDL Action Plan). Projects located in the Pamunkey watershed include:

- Three stream restoration projects totaling 5,252 linear feet (Eagles Point Lane, Henderson Hall Road, and Opossum Creek).

SWM water quality improvement projects help to reduce bacteria loading as a direct result of controlling the allowable release rate and preventing sediment discharge from each facility. These projects are a focus of the County because they address requirements of both Hanover County's Chesapeake Bay TMDL and Pamunkey Bacterial TMDL. Stream restoration projects are inspected annually and maintenance is performed as necessary.

In addition, there are over 45 stormwater facilities located within the MS4 urbanized area of the Pamunkey River watershed. This total is comprised of a mixture of operator-owned and privately-owned facilities, which are maintained in accordance with Hanover County's MS4 permit. Operator-owned facilities are inspected, at a minimum, two times per year and maintenance is performed as necessary.

Illicit Discharge Detection and Elimination

The County inspects all outfalls in the MS4 area throughout the MS4 permit cycle. All outfalls to be inspected have been divided for the five-year permit cycle. The focus of permit year 1 outfall inspections is older subdivisions, many of which are on septic systems. The County has developed dry weather screening procedures as required by the MS4 permit. A summary of screening results, including any follow-up actions, are included as part of the MS4 Annual Report. Outfall screening/dry weather monitoring is an appropriate mechanism to detect illicit discharges to the storm sewer system.

Hanover County has also developed procedures and spreadsheet to track illicit discharges. The County has developed illicit discharge tracking and response procedures as required by the MS4 permit. A copy of the tracking spreadsheet is available in the MS4 Annual Report.

Commercial Site Inspections

The County conducts inspections of designated retail areas twice a year and reports any litter-trash or stormwater issues to the management of the business located there. Sites are examined for areas with the potential to pollute stormwater runoff.

Hanover County has focused on commercial sites with a potential to pollute storm water as a targeted strategy to prevent stormwater pollution. The management of materials and wastes (solid and liquid) at these sites could provide an avenue for pollution to take place if the wastes and other materials are stored outdoors and not properly managed. Dumpster leachate and dumpsters without drain plugs can be a source of bacteria. These inspections are an effective targeted strategy to educate business owners.

Climate Resiliency

Hanover County ensures climate resiliency of new development through existing legal authorities. Ordinance Chapters 10,12, & 26 discuss stormwater climate change concerns such as flood protection, tree preservation, encouraging the use of low-impact development practices, and minimizing land disturbance and impervious land cover. Hanover County's implementation practices also have ancillary climate resiliency benefits and we will continue to consider those effects. These include reducing temperatures, stormwater flows, and improving stream function while reducing POC(s). Tree canopy restoration and preservation is an encouraged practice in Hanover County through the HCSWCD and Chesapeake Bay Preservation Ordinance (Ch.10, Art. II). Hanover County has adopted a 1-foot "freeboard" elevation requirement for development in FEMA-mapped special flood hazard areas (SFHA), also known as the 100-year floodplain, to increase resiliency for flood prone structures against future effects from climate-related events.

Legal Authorities

Hanover County maintains a list of legal authorities aimed at reducing the pollutant identified in the WLA. Applicable ordinances include Chapter 10 – *Environmental Management* and Chapter 12 - *Drainage Control*; and Chapter 26, Article IV, Division 10 *Flood Hazard Overlay District*

Hanover County Ordinances meet requirements to adopt a Virginia Erosion and Stormwater Management Program (VESMP) consistent with the requirements of the Virginia Erosion and Stormwater Management Regulations, 9VAC-25-875 et seq.

Hanover County officially adopted its VESMP on January 22, 2025, and maintains a compliant MS4 Permit (VAR040012). Hanover County effectively manages development in the mapped SFHA and its floodplain ordinance meets the minimum requirements of the National Flood Insurance Program through FEMA.

6. Outreach strategy to enhance the public's education and employee training on methods to eliminate and reduce discharges of the POC(s).

(General Permit Part II.B.4 (g))

Community Education and Outreach

The County is a financial supporter of the Hanover Caroline Soil and Water Conservation District (HCSWCD). The money provided by the County is used to support the water quality programs that the HCSWCD administers. Hanover County also supports the Master Gardeners Program and any requests to participate in the seminars for these educators. HCSWCD, with the help of Master Gardeners and other volunteers, offers educational opportunities to Hanover and Caroline County Citizens throughout the year. Their watershed education programs for students and residents increase individual and household knowledge of the impacts of agricultural and urbanized land on stormwater and provide a direct association with the plants and animals that can be impacted by improper management of resources.

The HCSWCD also receives funding through Agricultural BMP and VCAP (Virginia Conservation Assistance Program) urban cost-share programs that help to target non-point source pollution and bacterial reduction. Targets of these programs include: 1) urban BMP assessments and rain garden implementation; 2) buffer and tree plantings; 3) fencing and grazing management; 4) equine waste management and composting; and 5) outreach education to both agricultural and residential landowners. The goals of the HCSWCD are to build on already established County programs and to identify and recruit an entirely new audience of citizens for BMP implementation.

Chesapeake Bay TMDL Outreach

The County keeps residents informed of the requirements of the Chesapeake Bay TMDL and the obligation to address the TMDL under the provisions of the MS4 permit. Public education and outreach is performed through announcements in County newsletters and/or posts on the County's social media sites, as well as promotion of the Chesapeake Bay TMDL Action Plan on the County website. Announcements provide tips on how residents can reduce pollution to the Chesapeake Bay through their everyday activities such as pet waste pick-up, landscaping, car washing, and yard waste disposal.

The Chesapeake Bay TMDL Action Plan is available on the county website and can be found at the following link: [http://www.hanovercounty.gov/Property/Municipal-Separate-Storm-Sewer-System-Permit-\(MS4\)/](http://www.hanovercounty.gov/Property/Municipal-Separate-Storm-Sewer-System-Permit-(MS4)/)

Chesapeake Bay TMDL outreach increases citizen knowledge of pollutants that may enter the Bay through the County's MS4. Keeping the public informed allows them to be proactive in day-to-day activities that they may not realize contribute pollutants to stormwater runoff. Maintaining an updated Chesapeake Bay TMDL Action Plan educates the public of projects Hanover County is undertaking to reduce pollutant loading to the Bay.

Hanover County maintains partnerships with regional organizations, such as PlanRVA, to help raise pollution prevention awareness. Programs such as the "Don't Trash Hanover" litter prevention campaign are used to increase public awareness on the harmful side effects of litter, its negative impact in the community, and how it contributes to pollution of local waterways. Additional information can be found at the following link: <http://www.donttrashcentralva.org>

Employee Training

The County conducts biennial employee education as required through the MS4 permit. Training typically consists of a half-day seminar and/or online safety training which includes presentations on the MS4 program, stormwater pollution prevention, spill prevention control and countermeasures, and good housekeeping at County-operated facilities. County departments attending the training include personnel from Parks and Recreation, Fleet Management, Facilities Management, Fire and Emergency Services, Public Works, and Public Utilities. Providing training, refocusing, and reminders of applicable requirements are effective ways to focus employee attention on pollution prevention practices.

7. A schedule of anticipated actions planned for implementation of the items in Sections 5 and 6. (General Permit Part II.B.4 (h))

Actions	Programs / Practices	Implementation	Milestone
Management Practices	Septic System Pump-outs	On-going	Maintenance every 5 years
	SSO Program	On-going	Continuous
	High-Priority Facility SWPPP	On-going	Update SWPPP annually
	Pet Waste Program	On-going	Continuous
	SWM Projects	On-going	POC required reductions reported in Bay TMDL Action Plan. Inspect County SWM facilities bi-annually and stream restoration projects annually.
	Illicit Discharge Detection and Elimination	On-going	5-year inspection cycle for outfalls
	Commercial Site Inspections	On-going	Inspect sites bi-annually
	County Ordinance Code Chapters 10 & 12 MS4 Permit VAR040012	Complete	--
Education and Outreach	Community Education and Outreach	On-going	Consistent with MS4 permit local activity participation
	Chesapeake Bay TMDL Outreach	On-going	Consistent with MS4 permit Public Education and Outreach Plan
	Employee Training	On-going	Consistent with MS4 permit Training Guidance (biennially)

8. Public Comments on Action Plan. *(General Permit Part II.B.9)*

Prior to submittal of the action plan required in Part II.B.2, the permittee shall provide an opportunity for public comment proposed to meet the local TMDL action plan requirements for no less than 15 days.

The Hanover County Department of Public Works advertised a 15-day public comment period on the Pamunkey River TMDL Action Plan beginning 4/XX/2025. This allowed the opportunity for the public to submit written comments through 4/XX/2025. The comment period was advertised through the Hanover County website, social media, and newsletter.

The following comments were received and addressed: