

Chickahominy River
Total Maximum Daily Load (TMDL)
Action Plan

Hanover County, Virginia

Permit No. VAR040012

Prepared by:
Department of Public Works
7516 County Complex Road
Hanover, VA 23069
(804) 365-6181

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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 (MS4s) requires Hanover County to establish a Total Daily Maximum Load (TMDL) Action Plan to address the permit special condition for approved TMDLs other than the Chesapeake Bay TMDL by July 1, 2016. The Chickahominy 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 the Bacterial Implementation Plan Development for the Chickahominy River and Tributaries Technical Report. Focus will be directed at the MS4 area surrounding Beaverdam Creek because this is the most urbanized portion within Hanover County which contributes to the Chickahominy River impairment. Nutrient and Sediment TMDLs for the Chickahominy River and Tributaries are addressed through Hanover County's Chesapeake Bay TMDL Action Plan.

Hanover County's Chickahominy River TMDL Action Plan was formatted in accordance with The Department of Environmental Quality's Local TMDL Guidance (April 2015).

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

E. coli TMDL Development for Chickahominy River and Tributaries
- EPA approval 9/19/2012, SWCB approval 3/25/2013

Bacterial Implementation Plan Development for the Chickahominy River and Tributaries
- EPA approval 9/2/2014, SWCB approval 2/25/2016

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

E. coli

3. The WLA(s) 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 load for the entire Chickahominy River study area:

Daily: 9.38E+07 cfu/yr

Annual: 3.43E+10 cfu/yr

4. Significant sources of POC(s) from facilities of concern owned or operated by the MS4 operator that are not covered under a separate VPDES permit. A significant source of pollutant(s) from a facility of concern 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 Section I.B.2(d))

Assess all significant sources of pollutant(s) from facilities of concern owned or operated by the MS4 operator that are not covered under a separate VPDES permit and identify all municipal facilities that may be a significant source of the identified pollutant. For the purposes of this assessment, a significant source of pollutant(s) from a facility of concern means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL. (For example, a significant source of pollutant from a facility of concern for a bacteria TMDL would be expected to be greater at a dog park than at other recreational facilities where dogs are prohibited);

Meetings were 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 (facility of concern) 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 and screening of facilities was performed in accordance with Section II.B.6.b and a detailed summary can be found in Appendix A5 of Hanover County's FY2014 MS4 Annual Report.

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 one high-priority facility within the MS4 urbanized area (Mechanicsville Solid Waste Service Convenience Center), which is not located in the Chickahominy River watershed.

During the facility screening process, all sanitary sewer pump stations located within the MS4 urbanized area of the Chickahominy 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 not located in the Chickahominy River watershed and 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 nor the Chickahominy River watershed.

5. Existing or new management practices, control techniques, and system design and engineering methods , that have been or will be implemented as part of the MS4 Program Plan that are applicable to reducing the pollutant identified in the WLA. (General Permit Section I.B.2(b))

Identify and maintain an updated list of all additional management practices, control techniques and system design and engineering methods, beyond those identified in Section II B, that have been implemented as part of the MS4 Program Plan that are applicable to reducing the pollutant identified in the WLA;

*Management Practices to reduce pollutant loading were selected based on the Chickahominy River Bacterial Implementation Plan and Hanover County's MS4 Program Plan.

Septic System Pump-out

There are 2,242 properties using septic systems that are within Hanover County's MS4 urbanized area of the Chickahominy 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 Public Works Department 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 SSOs 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 wastes 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. The waste fliers are distributed in an annual mailing to licensed pet owners. Over 10,000 fliers are distributed with the mailing 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.

Retention Pond Retrofits

The Laurel Meadows Elementary School Pond Enhancement Project converted an existing Dry Pond to a Level 2 Wet Pond, which treats a 16.9 acre watershed (6.26 acres of impervious cover and 10.68 acres of managed turf). The property contains a large school facility with associated parking, sidewalks, bus loops, maintenance access lots, and turf grass fields. The developed area drains via stormsewer into the detention facility. The parking lots drain primarily by curb and gutter directly into curb inlets. Some roof top drainage is collected directly into underground pipe networks and the rest outfalls directly onto the ground surface.

Retention Pond Retrofit projects help to reduce bacteria loading as a direct result of controlling the allowable discharge from each facility. Retention Pond Retrofit projects will be a focus going forward because they address requirements of both Hanover County's Chesapeake Bay TMDL and Chickahominy Bacterial TMDL.

There are a total of 72 stormwater facilities located within the MS4 urbanized area of the Chickahominy River watershed. This total is comprised of 9 operator-owned and 61

privately-owned facilities, which are maintained in accordance with Hanover County's MS4 permit.

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 Year 1 outfall inspections was 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 notes 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 at these sites could provide an avenue for pollution to take place if wastes and other materials stored outdoors are 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.

Street Sweeping

The Department of Public Works street sweeping program helps to improve the appearance of Hanover County's roadways and reduce the pollutants in runoff. Reducing sediment loading subsequently reduces bacteria loads to surface waters. Debris runoff from roadways can potentially damage stormsewer infrastructure and pollute downstream surface waters.

Roads in Hanover County are under the control of the Virginia the Department of Transportation. Hanover County, with the cooperation of VDOT, has initiated a program to clean local roadways. Public Works uses a rented street sweeping machine and operated on major thoroughfares in the County including Bell Creek, Pole Green,

Meadowbridge, Atlee, Shady Grove, Lakeridge Parkway, part of US 1 to Sliding Hill, parts of Mechanicsville Turnpike and other roadways. Sweeping is conducted biannually. All materials from street sweeping are properly disposed in a sanitary landfill.

Education and Outreach

Information about the County's education and outreach programs are discussed under Section 7 of this Action Plan.

6. Legal authorities such as ordinances, state and other permits, orders, specific contract language, and interjurisdictional agreements applicable to reducing the POCs identified in each respective TMDL. (General Permit Section I.B.2(a))

Develop and maintain a list of its legal authorities such as ordinances, state and other permits, orders, specific contract language, and interjurisdictional agreements applicable to reducing the pollutant identified in each applicable WLA;

Hanover County Municipal Separate Storm Sewer System (MS4) Permit (VAR040012)

Hanover County Ordinances

Chapter 10 – Environmental Management

- Article I – Erosion and Sediment Control
- Article II – Chesapeake Bay Preservation
- Article IV – Municipal Separate Storm Sewer System (MS4) Management Program
- Article V – Stormwater Management

Chapter 12 - Flood Plain and Drainage Control

Hanover Ordinances that have been modified to meet the new requirements of the requirements to adopt a stormwater program consistent with the requirements of 9VAC-25-870-150, including the most recent provisions related to the implementation of the Chesapeake Bay TMDL:

Ordinance 13-09 – Erosion and Sediment Control

An ordinance amending Chapter 10, ARTICLE I, of the Hanover County Code pursuant to Title 62.1, Chapter 3.1, Article 2.4 (§ 62.1-44.15:51 et seq.) of the Code of Virginia to conform to state law and new regulatory requirements

Ordinance 13-10 – Chesapeake Bay Preservation

An ordinance amending Chapter 10, ARTICLE II, of the Hanover County Code pursuant to Title 62.1, Chapter 3.1, Article 2.5 (§ 62.1-44.15:67 et seq.) of the Code of Virginia to conform to state law and new regulatory requirements

Ordinance 13-12 – Stormwater Management

An ordinance adopting ARTICLE V of Chapter 10 of the Hanover County Code pursuant to Title 62.1, Chapter 3.1, Article 2.3 (§ 62.1-44.15:24 et seq.) of the Code of Virginia to conform to changes in state law and new regulatory requirements

Hanover County received VSMP program approval from DEQ on December 22, 2014. Hanover County maintains a Notice of Interconnection with the Town of Ashland and VDOT. Copies are provided in the MS4 Annual Report.

7. Enhancements to public education, outreach, and employee training programs to also promote methods to eliminate and reduce discharges of the POC(s) for which a WLA has been assigned. (General Permit Section I.B.2(c))

Enhance its public education and outreach and employee training programs to also promote methods to eliminate and reduce discharges of the pollutants identified in the WLA;

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 offer educational opportunities to Hanover and Caroline County Citizens throughout the year. Their watershed education programs for students increase individual and household knowledge of the impacts of developed land on stormwater and provide a direct association with the plants and animals that can be impacted by improper management of resources.

The HCSWCD has developed and received funding through DEQ for their Chickahominy River TMDL Implementation Project that targets non-point source pollution and bacterial reduction. Targets of this project include: 1) pet waste; 2) urban BMP assessments and rain garden implementation; 3) buffer and tree plantings; 4) fencing and grazing management; 5) equine waste management and composting; 6) outreach education to both agricultural and residential landowners; and 7) water quality monitoring. The goals of the Implementation Plan 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 activities are provided through announcements in the county newsletter and promotion of the Chesapeake Bay TMDL Action Plan. Announcements in the Hanover Review 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 dumping. Each issue of the Hanover Review reaches over 47,000 residents.

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 received Chesapeake Bay TMDL Action Plan approval from DEQ on February 29, 2016.

Employee Training

The County conducts biennial employee education as required through the MS4 permit. Training typically consists of a half-day seminar which includes presentations, and videos specific to the MS4 program, stormwater pollution prevention, spill prevention control and countermeasures, and pollution prevention opportunities in County operations. County departments attending the training include personnel from Parks and Recreation, Fleet Management, Facilities Management, Public Works, Fire and Emergency Services, Communications, Purchasing, the Community Services Board, Public Utilities and the County Attorney's Office. Providing training, refocusing, and reminders of applicable requirements are effective ways to focus employee attention on the stormwater program.

8. A schedule of interim milestones and implementation of the items in 5, 6, and 7

Actions	Programs / Practices	Implementation	Milestone
Management Practices	Septic System Pump-outs	On-going	Maintenance every 5 years
	SSO Program	On-going	Continuous
	Pet Waste Program	On-going	Continuous
	Retention Pond Retrofits	On-going	POC required reductions reported in Bay TMDL Action Plan
	Illicit Discharge Detection and Elimination	On-going	5 year inspection cycle for outfalls
	Commercial Site Inspections	On-going	Inspect sites bi-annually
	Street Sweeping	On-going	Biannual sweeping
	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)

9. Methods to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs. (General Permit Section I.B.2(e))

Develop and implement a method to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs. The evaluation shall use any newly available information, representative and adequate water quality monitoring results, or modeling tools to estimate pollutant reductions for the pollutant or pollutants of concern from implementation of the MS4 Program Plan. Monitoring may include BMP, outfall, or instream monitoring, as appropriate, to estimate pollutant reductions. The operator may conduct monitoring, utilize existing data, establish partnerships, or collaborate with other MS4 operators or other third parties, as appropriate. This evaluation shall include assessment of the facilities identified in subdivision 2 d of this subsection. The methodology used for assessment shall be described in the TMDL Action Plan.

Adequate assessment of this TMDL Action Plan will be achieved through the tracking, monitoring, and reporting of the programs and practices listed in Sections 5 and 7. Hanover County will continue to implement the MS4 Minimum Control Measure BMP's and strategies as approved by DEQ, which are included as part of this TMDL Action Plan. The implementation of these activities as required under the MS4 permit are sufficient in meeting the requirements of this section. The assessment of facilities listed in Section 4 will be provided by ensuring continued routine maintenance.

Hanover County is collaborating with the Hanover-Caroline Soil and Water Conservation District and Chesapeake Bay Foundation, which implement bacteria monitoring programs. The HCSWCD currently has a grant contract with DEQ for their Chickahominy River TMDL Implementation Project. Water quality monitoring is conducted as one of the deliverables under the grant. Assessment is provided to DEQ by the HCSWCD. The CBF has initiated a pilot monitoring program in the Richmond-Metro area, with one of the sites being Beaverdam Creek in Hanover County.

10. Measurable goals and the metrics that the permittee and Department will use to track those goals (and the milestones required by the permit). Evaluation metrics other than monitoring may be used to determine compliance with the TMDL(s).

The metrics for tracking measurable goals and milestones will be consistent with Hanover County's MS4 Minimum Control Measure BMP's. These methods and strategies are described in Sections 5 and 7 of this TMDL Action Plan and reported in the County's MS4 Permit Annual Reports. Compliance with this TMDL Action Plan will be achieved by following the milestones listed in Section 8. The implementation of the aforementioned management practices, legal authorities, and education and outreach programs will help to reduce local bacterial loading within Hanover County.

11. Public Comments on Action Plan.

An opportunity for receipt and consideration of public comment regarding the Chickahominy River TMDL Action Plan.

The Hanover County Department of Public Works presented on the Chickahominy River TMDL Action Plan at the August 24, 2016 Hanover County Board of Supervisors Meeting. This allowed the opportunity for public comment through September 28, 2016. The Board of Supervisors Meeting was advertised through the Hanover County website and the Herald Progress.

The following comments were received and addressed:

1. A question was raised on whether implementation of the Action Plan would involve any type of tax, fee, assessment to citizens, or municipal bond. A response was provided that there is no tax, fee or assessment specifically tied to this plan and that it is required by law for the County to develop and submit this plan to the Department of Environmental Quality for review and approval.
2. Two members of the Chesapeake Bay Foundation spoke in favor of the Action Plan. Compliments included the County's pet waste program and cooperation with Public Schools, HCSWCD, DEQ, and Master Gardner's. Concerns were with the presence of high bacteria levels after storm events, the exclusion of mentioning riparian buffers in the plan, and the minimal mention of pollutants of concern (POC). The Department of Public Works advised that POC's are addressed in the Chesapeake Bay TMDL Action Plan and riparian buffers are implemented under the Chesapeake Bay Act, but could be included in future plans.