VPCC Back River Bacteria TMDL Action Plan

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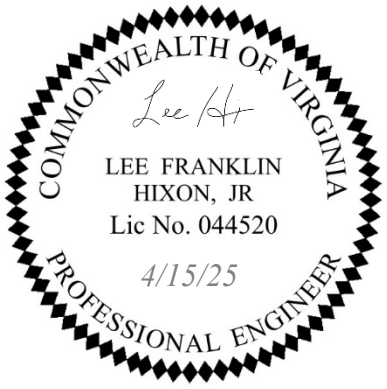

April 15, 2025

General Permit No. VAR040087

This Action Plan is developed to: (1) address applicable sections of Part II.B of the Commonwealth's General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems and (2) for consistency with the *Total Maximum Daily Loads of Bacteria for Back River in York County and the Cities of Hampton, Poquoson, and Newport News, Virginia*, approved by EPA on February 8, 2018.

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Appendices

Executive Summary

Virginia Peninsula Community College (VPCC) is permitted to discharge stormwater from the college's municipal separate storm sewer system (MS4) by maintaining coverage under the General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small MS4s (MS4 General Permit). In part, the MS4 General Permit requires the college to meet special conditions for a Total Maximum Daily Load (TMDL) when the college has been assigned a waste load allocation (WLA). VPCC has been assigned a WLA for the Hampton campus with the *Total Maximum Daily Loads of Bacteria for Back River in York County and the Cities of Hampton, Poquoson, and Newport News, Virginia*, approved by the Environmental Protection Agency (EPA) on February 8, 2018. Assignment of the WLA necessitates the development and implementation of a TMDL Action Plan. The TMDL requires VPCC implement best management practices (BMPs) to achieve a bacteria WLA. Per the approved TMDL, MS4 permittees, such as VPCC, may address the TMDL WLA through the iterative implementation of programmatic BMPs. The BMPs to address the WLA are described in the VPCC MS4 Program Plan available on the college's stormwater webpage and within this action plan.

This Action Plan supersedes and replaces previous versions of the VPCC Back River Bacteria TMDL Action Plan and evaluates results achieved thus far, demonstrating the college achieves the WLA consistent with the intent of the TMDL and MS4 General Permit. The action plan also characterizes the bacteria source loadings from the Hampton campus and the WLA. In summary, the action plan describes the programmatic BMPs in place to address the WLA, specifically with:

- ✓ Continued implementation of the existing MS4 Program Plan BMPs that could impact bacteria loading from the MS4;
- ✓ Modification of MS4 Program supporting documents, as applicable, to include information regarding bacteria as a local TMDL pollutant of concern; and with
- ✓ Providing and maintaining pet waste stations on campus.

This action plan is part of the VPCC MS4 Program Plan, by reference, and implementation will be annually reported as part of VPCC's MS4 annual reporting requirements.

1.0 Introduction

VPCC has developed, maintains, implements and enforces a municipal separate storm sewer system (MS4) program designed to reduce the discharge of pollutants from the college's MS4 to the maximum extent practicable (MEP). The program is designed in accordance with the *General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small MS4s*, also known as the MS4 General Permit. The program is intended to protect water quality and to satisfy the water quality requirements of the State Water Control Law and its attendant regulations. VPCC utilizes the legal authority provided by the laws and regulations of the Commonwealth of Virginia to control discharges, into and from, the college's MS4 consistent with the MS4 General Permit. Legal authorities include college policies and specific contract language, as applicable.

Compliance with the MS4 General Permit is dependent on the implementation of best management practices (BMPs) to address the requirements described in the permit, including special conditions associated with applicable total maximum daily loads (TMDLs). A TMDL is a study producing a calculation of the maximum amount of an impairing pollutant that can enter a waterbody while still maintaining water quality standards (including a margin of safety). A TMDL assigns pollutant reduction targets and allocates allowable loadings of the pollutant(s) to point source discharges, including discharges from regulated MS4s such as VPCC. The allocations to MS4s, known as waste load allocations (WLAs), represent the amount of the pollutant the MS4 permittee is allowed to discharge annually, often translated to a percent reduction of the existing annual pollutant loading. VPCC's Hampton Campus has been assigned a WLA for bacteria (fecal coliform, enterococcus, and *E. coli*) in an Environmental Protection Agency (EPA) approved total maximum daily load (TMDL) for the Back River.

The Virginia Institute of Marine Science, Gloucester Point, Virginia, prepared the TMDL entitled "*Total Maximum Daily Loads of Bacteria for Back River in York County and the Cities of Hampton, Poquoson, and Newport News, Virginia*," dated June 21, 2017 and approved by the EPA on February 8, 2018. The TMDL was developed as required by Section 303(d) of the Clean Water Act (CWA) and the EPA's Water Quality Planning and Management Regulations (40 CFR Part 130) since the Back River had been listed as impaired on Virginia's Section 303(d) Report of Impaired Waters (see Figure 1 for watershed location). The impairment designation is the result of a water quality assessment that finds the river does not support its designated use of

primary contact recreation (e.g., swimming and boating) nor as a shellfish growing area due to highly elevated bacteria concentration.

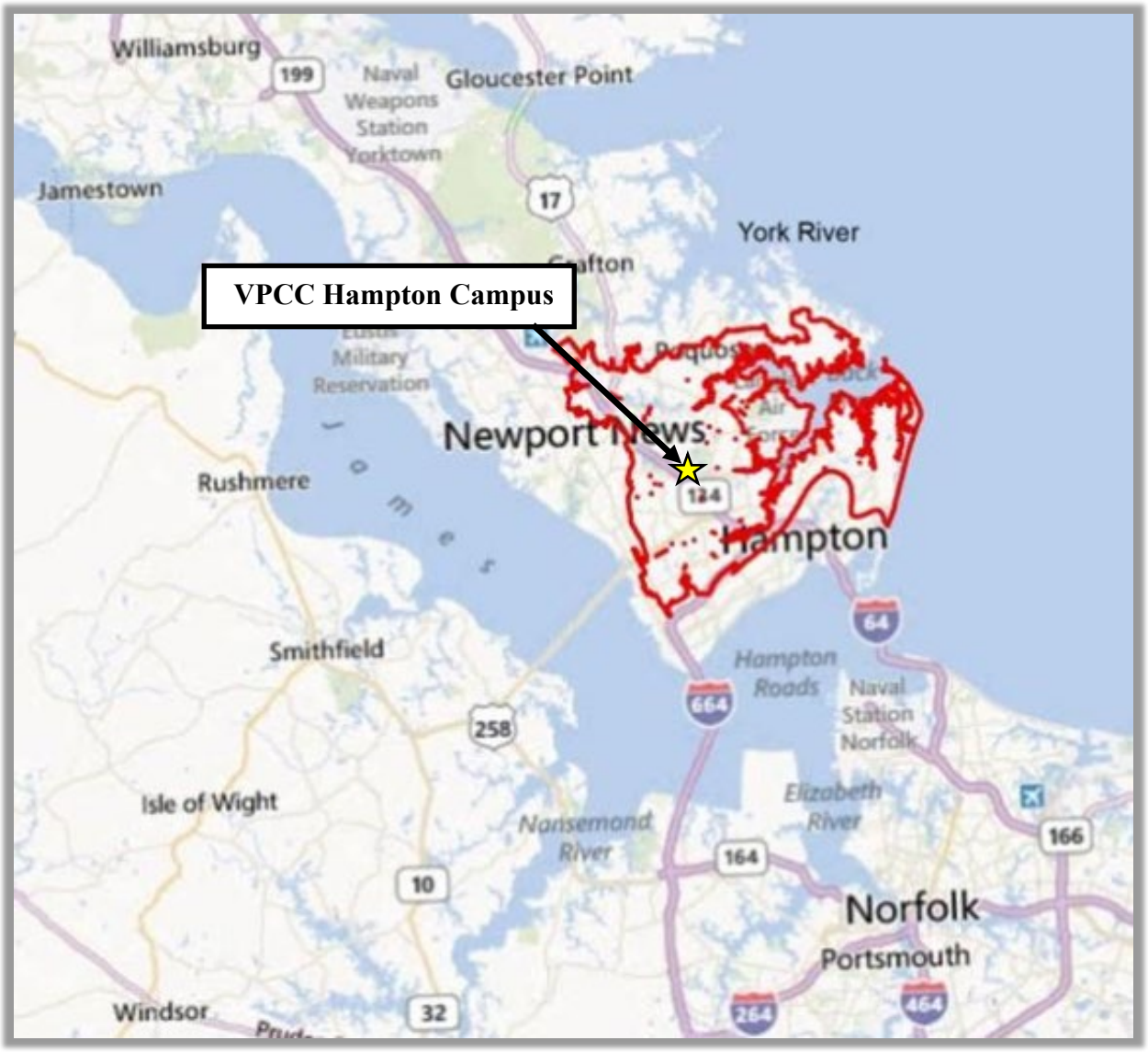

Figure 1. Location map of the impaired Back River Watershed (from Figure 1.1 of TMDL Report with VPCC location added).

As a result of the assignment of a WLA, the college is required to develop and implement a TMDL Action Plan. For consistency with the MS4 General Permit, this Action Plan is required to include the following:

- ✓ TMDL Project Name and EPA approval date (Project name is the name of this Action Plan and EPA approval date is provided on the Action Plan Cover and Page 1);
- ✓ The WLA allocation and the corresponding percent reduction (Section 2.2);

- ✓ Identification of any significant sources of sediment discharging to the college's MS4 (Section 2.3);
- ✓ The BMPs designed to reduce the pollutant of concern, including a calculation of the anticipated load reduction achieved from BMP(s) and the anticipated end date that the WLA will be achieved (Section 3; Note: BMPs ongoing, thus end date already annually achieved);
- ✓ Schedule of anticipated actions planned for implementation during the permit term (Section 3.4 and 4.1); and an
- ✓ Outreach strategy to enhance the public's education on methods to eliminate and reduce discharges of sediment (Section 3.3).

In addition, this updated Action Plan also provides:

- ✓ An evaluation of the results achieved by the previous action plan (Section 4); and
- ✓ Any adaptive management strategies incorporated into updated action plans based on action plan evaluation (Section 4.3).

2.0 MS4 Bacteria Discharge Characterization

The annual bacteria load discharged from VPCC's Hampton Campus and the required annual reduction per the TMDL are provided in this Section. Additional discussion is available within the "*Total Maximum Daily Loads of Bacteria for Back River in York County and the Cities of Hampton, Poquoson, and Newport News, Virginia*," referred to as the Back River Bacteria TMDLs for the remainder of this Action Plan.

2.1 Bacteria Loadings

TMDL studies use modeling efforts to estimate pollutant loadings from the land surfaces within a watershed, as is the case with the Back River Bacteria TMDLs. The watershed model, Loading Simulation Program in C++, developed by the EPA, was selected to simulate the watershed hydrology and bacterial load (as fecal coliform) to the Back River. The model simulates bacterial loadings for multiple land uses. The Environmental Fluid Dynamics Computer Code was used to simulate the transport and fate of fecal coliform and enterococci in the receiving water of the Back River and the Big Bethel Reservoir. The model was calibrated based on field data observations from 2008-2012.

VPCC's Hampton Campus accounts for 0.22% of the of the impaired Back River watershed, with the regulated MS4 areas within the impaired watershed model simulated using urban land use data. Specifically, the land use characterization for the impaired watershed was based on land cover data from the National Oceanic and Atmospheric Administration Coastal Change Analysis Program (See Figure 2). The modeled existing bacteria loadings presented in the Back River Bacteria TMDLs for the VPCC Hampton Campus are provided in Table 1. Potential sources of bacteria existing within the campus are discussed in Section 2.3.

Table 1. Modeled existing fecal coliform loadings for the VPCC Hampton Campus regulated MS4 area.

Existing Load (Counts/Day)	Existing Load (Counts/Year)
1.04+10	1.71E+12

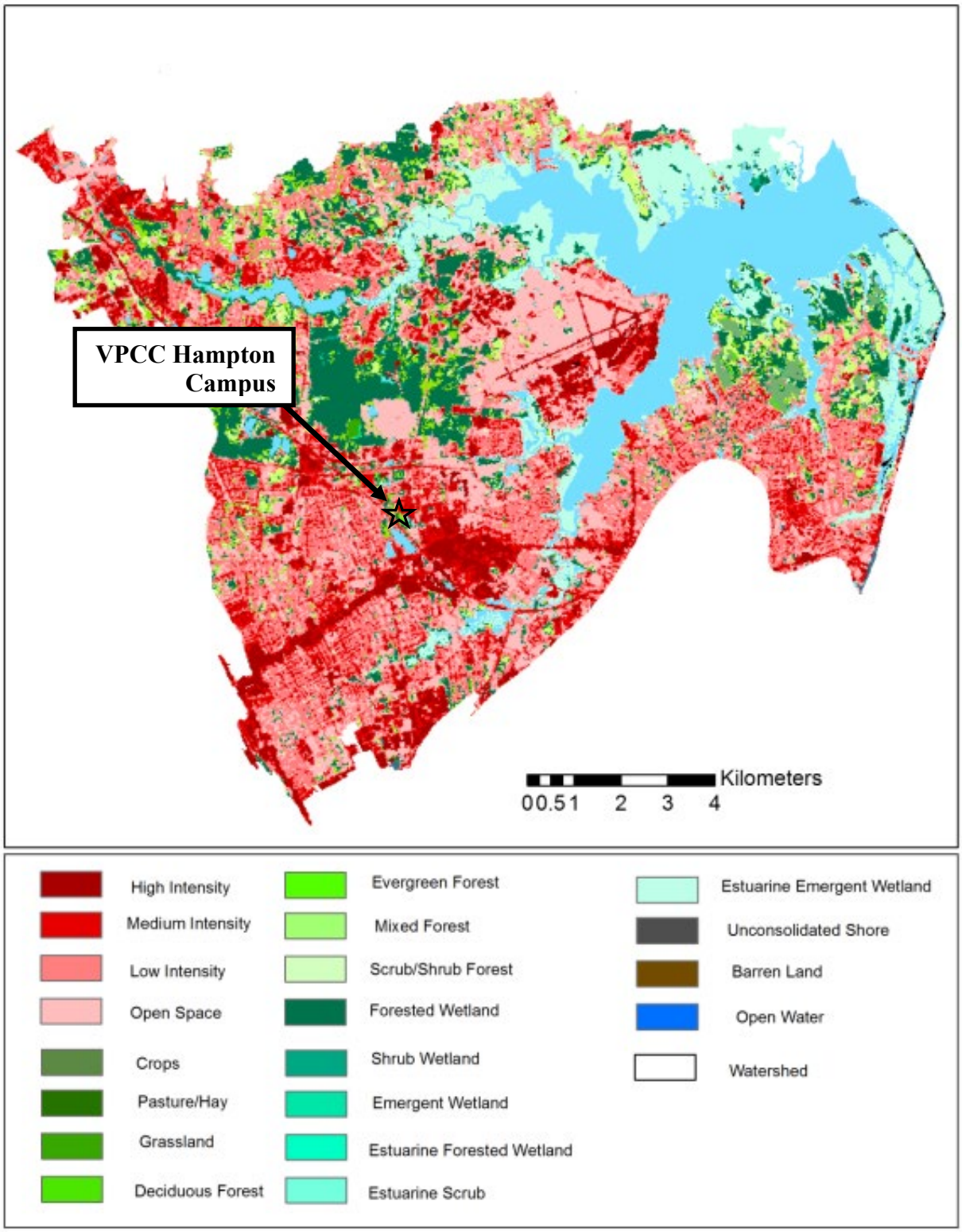

Figure 2. Land use within the Back River Watershed (from Figure 2.2 of TMDL Report with VPCC location added).

2.2 Waste Load Allocation

Modeling results from the Back River Bacteria TMDLs provide a WLA for VPCC equivalent to the existing loading provided in Table 1 (compare to Table 2). The results are equivalent to a 0% reduction, with the model simulation finding bacteria loadings from the campus not causing impairment of downstream river segments. Load reduction was deemed not required by the Back River Bacteria TMDL since the dominant bacteria sources in the watershed are wildlife, pets and livestock and the contributing area of the campus is small in respect to the impaired watershed. The Back River Bacteria TMDL states that WLAs may be addressed by MS4 permittees through the iterative implementation of programmatic BMPs.

Table 2. WLAs for fecal coliform loadings for the VPCC Hampton Campus regulated MS4 area. Note the WLAs are equivalent to a 0% reduction in existing loadings.

Existing Load (Counts/Day)	Existing Load (Counts/Year)
1.04+10	1.71E+12

2.3 Identification of Significant Sources of Bacteria

The MS4 General Permit requires this Action Plan identify significant sources of bacteria discharging to VPCC's MS4. The permit defines a "significant source" as a discharge where the expected bacteria loading is greater than the average bacteria loading for the land use identified in the TMDL. Annual field inspection of the VPCC Hampton campus has not identified any significant source of bacteria where bacteria discharge would be expected to be greater than the average bacteria loading for any urban land use identified in the Back River Bacteria TMDL. This is consistent with the TMDL findings. However, potential sources on campus may include those listed in Table 3.

Table 3. Potential bacteria sources to surface waters from the VPCC Hampton Campus.

Potential Source of Bacteria Discharge to Surface Waters*	Campus Characterization from Annual Assessments
Sanitary sewer overflow	No known or observed overflows from campus sanitary sewer.
Leaky or broken sanitary sewer infrastructure	No known leaky or broken sanitary sewer. Annual outfall inspections have not identified any indication of discharge from the college's sanitary sewer.
Illicit discharge to MS4	Annual outfall inspections have not identified instances of illicit discharge associated with bacteria.
Domestic pet waste	With campus immediately adjacent to residential areas with residents that walk pets on campus, there is potential for pet waste to be a source from campus.
Urban wildlife	The TMDL deems VPCC as not a significant contributor of bacteria from wildlife. Further, neither Virginia nor EPA propose elimination of wildlife to achieve WLA objectives.

* No significant sources identified on campus.

3.0 Methods to Achieve the WLA

Pollutant reductions from stormwater discharge can be achieved using a variety of practices and methods. Selection of the appropriate practices and methods is dependent on variables such as physical opportunities, the scale of required reductions and cost effectiveness. Since the WLA assigned to VPCC in the Back River Bacteria TMDL results in is 0% reduction in existing loads, VPCC maintains compliance with the WLA as long as the existing bacteria loadings discharged (at time of TMDL development) from the campus are maintained. This is accomplished with the continued implementation of currently implemented MS4 program plan BMPs that minimize discharge of bacteria to surface waters. The following sections describe the applicable BMPs incorporated into the VPCC MS4 Program Plan to minimize bacteria discharges to surface waters from the Hampton campus.

3.1 MS4 Program BMPs Applicable to Reduction of Bacteria Loadings

Continued implementation of the VPCC MS4 Program Plan BMPs constitutes compliance with the standard of reducing pollutants to the MEP, provides adequate progress in meeting water quality standards, and satisfies the appropriate water quality requirements of the State Water Control Law and its attendant regulations. VPCC's MS4 Program Plan includes a description of each BMP, the necessary standard operating procedures (SOPs) or policies necessary to implement each BMP, the measurable goal by which each BMP or strategy will be evaluated; and the persons, positions, or departments responsible for implementing each BMP. Annually implemented BMPs applicable to addressing bacteria discharges are listed in Table 4, along with any changes implemented to supporting program materials to incorporate bacteria as a local TMDL pollutant of concern.

Table 4. VPCC MS4 Program Plan BMPs annually implemented that have potential to reduce bacteria loadings at the Hampton Campus.

BMP ID	BMP Description	Bacteria TMDL Action
BMP 1A	Public Education and Outreach Plan - Water Quality Issue # 3 - Increase staff knowledge regarding pollutants of concern for TMDLs.	Educational materials modified to include discussion of bacteria as a local pollutant of concern.
BMP 2A	Publicly accessible VPCC Stormwater Management Webpage.	The VPCC Bacteria Action Plan is maintained on the webpage for public access and solicitation for comment.
BMP 2B	Procedures for Receipt/Response to Public Comment.	Address any public comment received on the Action Plan. Comments/responses will be incorporated into an appendix to this Action Plan, as appliable.
BMP 3A	Maintain MS4 Map and Info Table.	Maintain map updates per the MS4 Program Plan. Use to track potential bacteria illicit discharges, if observed.
BMP 3B	Prohibition of Unauthorized Nonstormwater Discharges.	Continue enforcement per the MS4 Program Plan and VPCC policy.
BMP 3C	IDDE Written Procedures.	Continue implementation per the MS4 Program Plan and MS4 Staff Handbook.
BMP 4A	Address Discharge from Construction Activities.	Continue implementation of VCCS Standards and Specifications for ESC and SWM for land disturbance activities, as applicable. This includes VAR10 SWPPP implementation for applicable land disturbance.
BMP 4B	Controls to prevent nonstormwater discharges during construction activities.	
BMP 5A	Address post-construction stormwater runoff.	
BMP 5B	Inspection/maintenance of stormwater management facilities.	Continue implementation per the MS4 Program Plan.
BMP 6A	Written procedures for good housekeeping/pollution prevention.	Includes information on bacteria as a local TMDL pollutant of concern.
BMP 6B	Stormwater Pollution Prevention Plan for High Priority/High Potential Facilities.	Continue implementation per the MS4 Program Plan, as applicable. Annual SWPPP assessments inherently identify potential bacteria discharge to the MS4.
BMP 6D	Contractor requirements to utilize controls to minimize pollutant discharges.	
BMP 6E	Training Plan for Applicable Employees.	Bacteria is incorporated into training material as a local TMDL pollutant of concern.
BMP SC2	VPCC Back River Bacteria Action Plan.	Action Plan is incorporated into the MS4 Program Plan. (See also Section 4.2)

3.2 Bacteria-Specific Strategy

The MS4 General Permit requires VPCC select to annually implement at least one of the bacteria-specific strategy listed in Table 5 and incorporate it into the TMDL Action Plan.

Table 5. Strategies for bacteria loading reduction per the MS4 General Permit. One strategy must be selected and implemented as part of this Action Plan.

Source	Strategies (provided as examples - not all-inclusive or limiting)[1]	Action Plan Note
Domestic pets (dogs/cats)	Provide signage to pick up dog waste, providing pet waste bags and disposal containers.	**Selected** for implementation at the Hampton Campus. On-going implementation.
Urban wildlife	Educate the public on how to reduce food sources accessible to urban wildlife	Urban wildlife not applicable as an issue on campus. Wildlife bacteria loadings not assigned a WLA reductions from the TMDL.
	Install storm drain inlet or outlet controls.	
	Clean out storm drains to remove wildlife waste.	
	Implement a program for removing animal carcasses and properly disposing of the same.	
Illicit connections or illicit discharges to the MS4	Implement an enhanced dry weather screening and illicit discharge, detection, and elimination program beyond the requirements of Part E 3 of the MS4 General Permit to identify and remove illicit connections and identify leaking sanitary sewer lines infiltrating to the MS4 and implement repairs	Illicit connections and leaking sanitary sewer lines have not been observed as a contributor or concern on campus. VPCC will continue the current implementation of annual dry-weather outfall screening.
	Implement an educational program beyond any requirements in Part I E 1 though E 6 of the MS4 General Permit to explain to citizens why they should not dump materials into the MS4	Current educational program addresses dumping. Dumping has not been observed as a contributor/concern on campus.
Dry weather urban flows	Inspect commercial trash areas, grease traps, washdown practices.	Dry weather urban flows are addressed as part of annual dry weather outfall screenings.
Birds (Canadian geese, gulls, pigeons, etc.)	Identify areas with high bird populations and evaluate deterrents, population controls, habitat modifications and other measures that may reduce bird associated bacteria loading.	Not applicable as an issue/concern on campus.
	Prohibit feeding of birds.	
Other sources	Enhance maintenance of stormwater management facilities.	Stormwater management facilities are regularly maintained to maximize functionality (BMP 5B).

[1] Only the strategies applicable to VPCC, as a non-traditional MS4, are listed.

As described in the "Action Plan Notes" column in Table 5, VPCC implements practices consisted with all of the *applicable* strategies listed in the Table. However, VPCC explicitly identifies the strategy to address domestic pet waste to meet the permit requirement that requires the selection of at least one of the strategies from Table 5. VPCC will continue implementation of the strategy to address bacteria sources from domestic pet waste from pet's walked on campus. Specifically, VPCC will continue to provide signage to pick up dog waste and provide pet waste bags and disposal containers for the pet waste stations currently provided at strategically identified locations on the Hampton Campus.

3.3 Enhanced Public Education Outreach Strategy

VPCC, as a non-traditional MS4, describes the college's public as students, faculty and staff in the VPCC MS4 Program Plan. As required during the previous permit cycle's action plan, modifications have been made to applicable program BMPs supporting materials that incorporate bacteria as a local TMDL pollutant of concern (see also Table 6). These modifications inherently enhance the public education and outreach program with:

- ✓ Inclusion of bacteria as a local TMDL pollutant in educational materials and
- ✓ Dissemination of materials to the VPCC public, as described in the MS4 Program Plan' public education and outreach BMP.

3.4 Implementation Schedule

VPCC will continue ongoing implementation of the MS4 program bacteria-loading associated BMPs (refer to Table 4), including providing signage to pick up dog waste and pet waste bags and disposal containers for pet waste stations. Implementation status will be provided in annual MS4 reporting and include:

- ✓ A summary of actions conducted to implement the TMDL action plan during the reporting period and
- ✓ A method for evaluating effectiveness and findings based on method.

4.0 Evaluation of Results Achieved

Evaluation of the VPCC implementation of BMPs associated with reduction of bacteria loadings finds program implementation consistent with achieving the goals and requirements of the TMDL and MS4 General Permit standard of protecting water quality to the MEP. The evaluation is based on successful implementation of MS4 Program Plan BMPs, including the bacteria-specific BMP to inspect campus dumpsters.

4.1 Applicable MS4 Program BMPs

VPCC will continue implementation of MS4 Program BMPs as described in the college's MS4 Program Plan and in MS4 annual reporting. As noted in Table 6, VPCC has modified MS4 program BMPs to incorporate bacteria as a local pollutant of concern.

Table 6. Action plan implementation schedule to address bacteria with MS4 program BMPs.

BMP ID	Action Item	Date for Completion*
BMP 1A	Modify educational materials to include bacteria as a local pollutant of concern in the WQ Issue #3 brochure.	Completed. Annually distributed as described in MS4 Program Plan.
BMP 2A	Post Action Plan on the VPCC Stormwater Webpage for Public Access and Solicitation for Comment	Completed and ongoing.
BMP 2B	Address any public comment received on the Action Plan. Comments and responses will be incorporated into Appendix A of this Action Plan, as appliable.	Completed and ongoing.
BMP 6A	Update Staff MS4 Handbook to include bacteria as a local TMDL pollutant of concern.	Completed. Handbook utilized in training.
BMP 6E	Incorporate bacteria as a local TMDL pollutant of concern into training materials.	Completed and included in all trainings.
BMP SC2	Incorporate this Action Plan into the MS4 Program Plan and provide annual reporting per Program Plan.	Completed.
BMP SC2	Implement domestic pet waste practices by maintaining Pet Waste Stations	Ongoing and to be continued annually. See also Section 4.2.

* Initially completed previous permit cycle.

4.2 Pet Waste Stations

VPCC began implementing the domestic pet waste practices by maintaining pet waste stations as described herein during the 2020-2021 MS4 reporting period, consistent with the implementation schedule in previous versions of this action plan. Implementation has since been described in annual MS4 reporting. VPCC will continue to provide signage to pick up dog waste and provide pet waste bags and disposal containers for the pet waste stations currently provided at strategically identified locations on the Hampton Campus. Pet waste stations continue to be utilized and maintained, indicating VPCC is effectively implementing this strategy.

4.3 Adaptive Management Strategies

Based on a continued lack of significant sources of bacteria loadings from the VPCC and continued successful implementation of MS4 program BMPs, including maintaining pet waste stations, no adaptive strategies are necessary at the time of development of this action plan. VPCC will continue annual reporting of implementation of BMPs intended to address bacteria loadings to the MEP.

Appendix A- Summary of Public Comments & VPCC Response

VPCC will maintain this TMDL Action Plan with request for solicitation and means for public comment on the college's stormwater management webpage. The latest version of the action plan will continue to be maintained on the webpage, along with the solicitation for comment throughout the permit cycle.

VPCC will update this action plan annually as part of the annual reporting process, as applicable and necessary, to include any public comment(s) and plan modifications(s). A summary of any comments received from the public will subsequently be provided in this Appendix with a response from the college and a description of any modifications to the plan.