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The Peninsula's Community College

TNCC Back River Bacteria TMDL Action Plan

Prepared for:

Mr. John W. Mason
Buildings and Grounds Supervisor
Thomas Nelson Community College

Prepared by:

H2R Engineering, Inc.
PO Box 2348
Prince George, VA 23875

H2R Engineering, Inc.

COMMONWEALTH OF VIRGINIA
LEE FRANKLIN HIXON, JR
Lic No. 044520
PROFESSIONAL ENGINEER

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This Action Plan is developed to address Part II.B.1b, 3 and 4 of the Commonwealth's General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems. This Action Plan is developed 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, dated June 21, 2017 and approved by EPA on February 8, 2018.

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Executive Summary

Thomas Nelson Community College (TNCC) 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 Total Maximum Daily Load (TMDL) when the college has been assigned a waste load allocation (WLA). TNCC's Hampton Campus has been assigned a WLA in an Environmental Protection Agency (EPA) approved TMDL for the Back River, necessitating the development and implementation of a TMDL Action Plan (Plan). The WLA requires TNCC prevent increase in the current level of bacteria loadings annually discharged from the college's MS4 (i.e., 0% reduction assigned).

The Plan characterizes the bacteria loadings from the campus, the WLA and potential bacteria sources that could originate on campus. The Plan also describes the practices in place to ensure bacteria loadings are not increased overtime, specifically with:

- ✓ Continued implementation of the existing MS4 Program Plan;
- ✓ Modifications to the MS4 Program's supporting documents, as applicable, to incorporate bacteria as a local TMDL pollutant of concern; and
- ✓ Maintaining per waste stations on campus.

The Plan becomes part of the MS4 Program Plan, by reference, and implementation will be annually reported as part of the MS4 annual reporting.

1.0 Introduction

TNCC 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. TNCC 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, with 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 than 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. 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. TNCC'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.

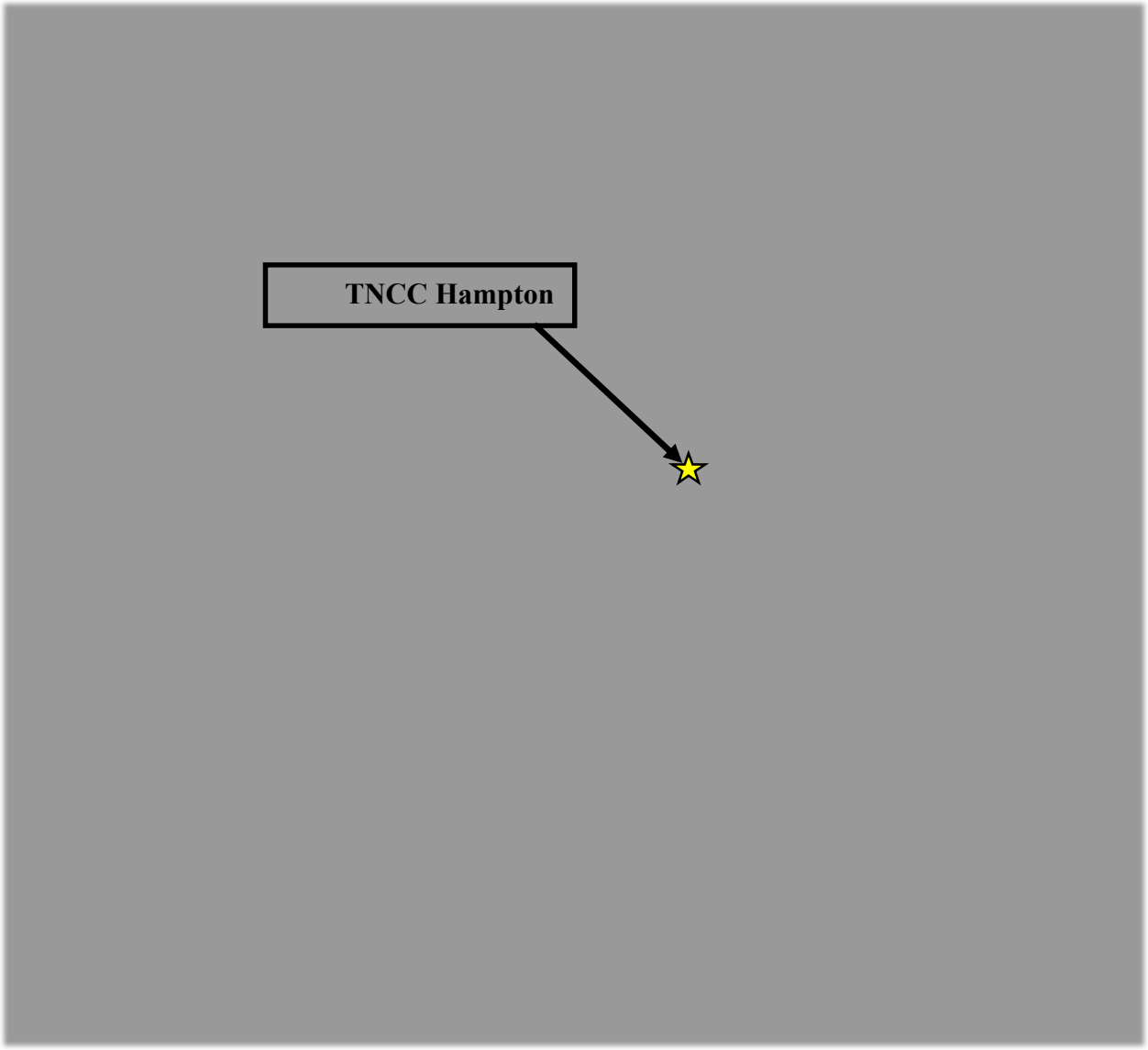

Figure 1. Location map of the impaired Back River Watershed (from Figure 1.1 of TMDL Report with TNCC location added).

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 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**);
- ✓ Schedule of anticipated actions planned for implementation during the permit term (**Section 4.1**); and an
- ✓ Outreach strategy to enhance the public's education on methods to eliminate and reduce discharges of sediment (**Section 4.3**).

2.0 MS4 Bacteria Discharge Characterization

The annual bacteria load discharged from TNCC'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.

TNCC's Hampton Campus accounts for 0.22% of the of the impaired Back River watershed, with the regulated MS4 areas within impaired watershed modeled simulated using urban land use data in the model. 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 TNCC Hampton Campus are provided in Table 1. Potential sources of bacteria occurring within the TNCC Hampton Campus are discussed in Section 2.3.

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

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

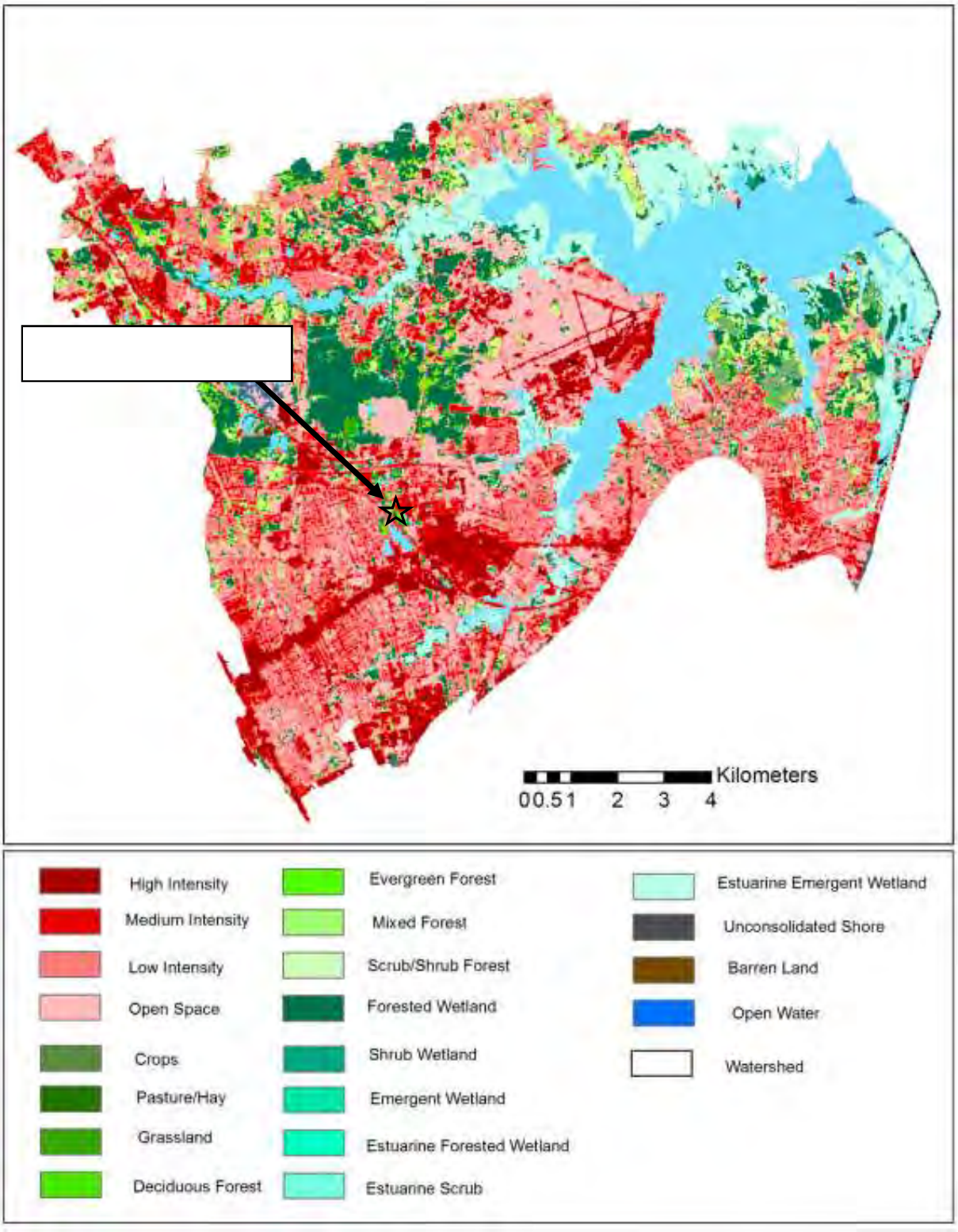

Figure 2. Land use within the Back River Watershed (from Figure 2.2 of TMDL Report with TNCC location added).

2.2 Waste Load Allocation

Modeling results from the Back River Bacteria TMDLs provides a WLA for TNCC equivalent to the existing loading provided in Table 1 (compare to Table 2). The results are equivalent to a 0% reduction in the existing load, with the model simulation finding bacteria loadings from the campus not causing impairment of downstream river segments. The Back River Bacteria TMDL states the TMDL WLAs may be addressed by MS4 permittees through the iterative implementation of programmatic BMPs.

Table 2. WLAs for fecal coliform loadings for the TNCC 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 Sediment

The MS4 General Permit requires this Action Plan identify significant sources of bacteria discharging to TNCC'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 TNCC 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 TNCC Hampton Campus.

Potential* Source of Bacteria Discharge to Surface Waters
Sanitary sewer overflow
Leaky or broken sanitary sewer infrastructure
Illicit discharge to MS4
Domestic pet waste
Urban wildlife

* 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 TNCC in the Back River Bacteria TMDL results in is 0% reduction in existing loads, TNCC maintains compliance with the WLA as long as the existing bacteria loadings discharged from the campus are maintained. This is accomplished with the continued implementation of currently implemented BMPs that minimize discharge of bacteria to surface waters. Specifically, these BMPs are defined in the TNCC MS4 Program Plan. In addition, the MS4 General Permit requires TNCC select to implement at least one bacteria-specific strategy identified in the permit. The following sections describe the practices incorporated into this Action Plan to minimize bacteria discharges to surface waters from the TNCC Hampton campus,

3.1 MS4 Program BMPs Applicable to Reduction of Bacteria Loadings

The existing conditions at the TNCC Hampton Campus are reflected in the TMDL and need to be maintained to ensure no increase in the current bacteria loadings, thus maintaining the required 0% required reduction. BMPs implemented on campus that reflect the existing conditions associated with reduction in bacteria loadings include certain BMPs described in the TNCC MS4 Program Plan. Implementation of the TNCC MS4 Program Plan constitutes compliance with the standard of reducing pollutants to the maximum extent practicable (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.

The MS4 Program Plan describes each BMP currently implemented. The 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. The BMPs applicable to addressing bacteria discharges are listed in Table 4, along with any necessary changes to supporting program materials to incorporate this Action Plan into the MS4 Program Plan and bacteria as a local TMDL pollutant of concern.

Table 4. TNCC MS4 Program Plan BMPs with potential to reduce bacteria loadings at the TNCC 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.	Modify educational materials to include bacteria as a local pollutant of concern.
BMP 2A	Publicly accessible TNCC Stormwater Management Webpage.	Post this Bacteria Action Plan 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 TNCC 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.
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.	Update to include 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.
BMP 6D	Contractor requirements to utilize controls to minimize pollutant discharges.	
BMP 6E	Training Plan for Applicable Employees.	Incorporate bacteria as a local TMDL pollutant of concern into training materials.
BMP SC2	TNCC Back River Bacteria Action Plan.	Incorporate this Action Plan into the MS4 Program Plan.

3.2 Bacteria-Specific Strategy

The MS4 General Permit requires TNCC select to 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	Not applicable as an issue on campus.
	Install storm drain inlet or outlet controls.	Currently implemented as part of the existing MS4 Program (BMP 2C).
	Clean out storm drains to remove wildlife waste.	Not applicable since not observed as a significant contributor/concern on campus.
	Implement a program for removing animal carcasses from roadways 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/concern on campus. TNCC 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.
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 TNCC, as a non-traditional MS4, are listed.

As described in the "Action Plan Notes" in Table 5, TNCC implements practices consisted with all of the *applicable* strategies listed in the Table. However, TNCC 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. TNCC will continue implementation of the strategy to address bacteria sources from domestic pet waste from pet's walked on campus. Specifically, TNCC will continue to provide signage to pick up dog waste and provide pet waste bags and disposal containers for the eight (8) pet waste stations currently provided at strategically identified locations on the Hampton Campus.

4.0 Implementation

TNCC will continue implementation of the TNCC MS4 Program Plan and the described practices to address domestic pet waste. Implementation will be annually documented and reported as part of the MS4 annual reporting process. The following Sections provide the implementation schedule and methods used to measure effectiveness of TNCC's practices to minimize bacteria loadings from the Hampton Campus.

4.1 Schedule

TNCC will continue implementation of MS4 Program BMPs as described in the college's MS4 Program Plan. As noted in the Table 6, continued implementation will require modifications to some of TNCC's supporting documents to incorporate bacteria as a local TMDL pollutant of concern. A schedule for these modifications is provided in the Table.

Table 6. Action Plan implementation schedule. BMPs from Table 4 that are not listed need no program modifications/updates and will be implemented per the MS4 Program Plan.

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.	Prior to June 30, 2022
BMP 2A	Post Action Plan on the TNCC Stormwater Webpage for Public Access and Solicitation for Comment	Prior to January 17, 2022
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.	Prior to June 30, 2022
BMP 6A	Update Staff MS4 Handbook to include bacteria as a local TMDL pollutant of concern.	Prior to June 30, 2022
BMP 6E	Incorporate bacteria as a local TMDL pollutant of concern into training materials.	Prior to June 30, 2022, as part of 2022 training.
BMP SC2	Incorporate this Action Plan into the MS4 Program Plan and provide annual reporting per Program Plan.	Prior to June 30, 2022
BMP SC2	Implement domestic pet waste practices by maintaining Pet Waste Stations	Ongoing/annually.

4.2 Measures of Effectiveness

The TNCC MS4 Program Plan describes the measures of effectiveness for each BMP listed in Table 4. In addition, the measure of effectiveness for the domestic pet waste control strategy will be based on the following:

- ✓ Annual inspection of each pet waste station for structural integrity and functionality; and
- ✓ Intermittent inspections for ensuring pet waste bags are available and waste receptacles are emptied (performed by college staff on an as-needed basis)

Measures of effectiveness for the domestic pet waste control strategy will be reported annually in the MS4 annual report for BMP SC-2.

4.3 Enhanced Public Education Outreach Strategy

TNCC, as a non-traditional MS4, describes the college's public as students, faculty and staff in the 2018 – 2023 TNCC MS4 Program Plan. As summarized in Table 6, modifications will be made to applicable program BMP supporting materials to incorporate bacteria as a local TMDL pollutant of concern. These modifications inherently enhance the public education and outreach program with:

- ✓ the inclusion of discussion of bacteria as a local TMDL pollutant and
- ✓ Dissemination of the materials to the TNCC public, as described in the MS4 Program Plan for each respective BMP.

Appendix A- Summary of Public Comments & TNCC Response

- Public Comment can be provided through June 1, 2022 via the TNCC Stormwater Management webpage.
- If no information has been provided in this Appendix by July 1, 2022, no public comment was received.