Town of Christiansburg, Virginia

Bacteria Impairment Action Plan

General Permit No. VAR040025

July 1, 2015

Updated December 8, 2015

Updated April 10, 2020

Updated June 10, 2025

Prepared by the Christiansburg Department of Engineering

MS4 TMDL ACTION PLAN UPDATES

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

R. Wingfield 6-18-25

Randy Wingfield, Town Manager date

VAR040025 Town of Christiansburg

Executive Summary

The Town of Christiansburg was assigned a Waste Load Allocations (WLA) for Bacteria in the Crab Creek watershed and the Wilson Creek watershed. The Total Maximum Daily Load (TMDL) study for Crab Creek was approved by the State Water Control Board on December 2, 2004, and by the EPA on August 10, 2004. The TMDL study for the Wilson Creek watershed was approved by the State Water Control Board on June 27, 2007, and by the EPA on August 2, 2006. As a part of a 2020 census defined urban area, (previously called a census defined urbanized area), Christiansburg is required to maintain Municipal Separate Storm Sewer System (MS4) permit coverage in order to discharge stormwater from its storm drain system, and is defined as an MS4 operator under General Permit VAR04. In compliance with Section II, Part B, of General Permit VAR04, Christiansburg shall address bacteria waste load allocations in accordance with Section II.B and this Local TMDL Action Plan.

This iteration of the Town of Christiansburg Bacteria Action Plan addresses the special conditions of the MS4 General Permit through the following actions:

- Continuing the implementation of the Crab Creek Interceptor Study per the Town's Capital Improvement Plan (CIP)
- Continuing the existing Fats, Oils, and Grease program initiated through Code revision.
- Continuing outreach efforts to residents to reduce FOG sewerage system disposal.
- Continuing the existing Parks and Recreation Department Pet Waste Stations and developing a procedure or policy for locating future stations or improving the program.
- Targeted outreach efforts to the pet owning populace.
- Evaluating options for tracking connections made to sanitary sewer from a site previously using a septic system

Due to the anticipated high cost to the Town of meeting the required reductions, the Town reserves the right to make adjustments to this plan and to substitute any practices and projects that can achieve Pollutant of Concern (POC) reductions at less total cost.

Introduction

This document serves as a Town-specific Total Maximum Daily Load (TMDL) Action Plan to identify the best management practices and other interim milestone activities to be implemented to address the bacteria waste load allocations (WLA) assigned to the Town's regulated MS4 area.

The TMDL project names and EPA approval dates are as follows:

Crab Creek Watershed

- *Fecal Bacteria and General Standard Total Maximum Daily Load Development for Crab Creek*
- State Water Control Board approval on December 2, 2004
- EPA approval on August 10, 2004

Wilson Creek Watershed

- *Bacteria TMDLs for Wilson Creek, Ore Branch and Roanoke River Watershed, Virginia*
- State Water Control Board approval on June 27, 2007
- EPA approval on August 2, 2006

The referenced TMDL studies were developed in response to violations of the state's water quality standard for fecal coliform bacteria. These violations resulted in the listing of Crab Creek and Wilson Creek watersheds as impaired waters.

The current town limits of Christiansburg incorporate approximately 14.75 square miles of land area. The Crab Creek watershed has a total area of 19.4 square miles and approximately 9.59 square miles, or 49% of the total area, lie within the Town limits. The Wilson Creek impairment watershed is approximately 13.21 square miles and the TMDL report identifies 119 acres as within the Town. Today approximately 509 acres (0.80 sq mi) or 6% of the total area is within Town limits. MS4 Permit requirements apply to both watersheds with equal weight and authority and the Action Plan will address the regulatory requirements in both watersheds.

The Town participated in the development of both the Crab Creek Implementation Plan (IP) and the Roanoke River IP. The Town commented extensively on the assumptions of complete elimination of sanitary sewer overflows (SSO), and will again note here that addressing SSO is a continuing program that requires significant resources that can provide significant benefit in addressing fecal coliforms as a POC. The Town also would reiterate that complete elimination of SSO is only theoretically achievable as no working system can completely eliminate Inflow and Infiltration (I&I) in all storm events nor eliminate accidental overflows.

Due to the anticipated high cost to the Town of meeting the required reductions, the Town reserves the right to make adjustments to this plan and to substitute any practices and projects that can achieve the required POC reductions at less total cost.

Local TMDL Special Conditions

The VAR04 General Permit lists in Part II.B.4 specific criteria to be addressed when a permittee is assigned a WLA as listed below:

a) The TMDL project name;

b) The EPA approval date of the TMDL. (a) and (b) are listed above.;

c) The wasteload allocated to the permittee (individually or in aggregate), and the corresponding percent reduction, if applicable;

Table 1: Wasteload Allocations for Bacteria (cfu=colony forming units)

Watershed	MS4 permittees assigned WLA	Existing Condition loads (cfu/yr)	Percent reduction required	Allocated Loads (cfu/yr)
Wilson Creek	Town of Christiansburg (VAR040025)	4.65E+11	99.5	2.33E+09
Crab Creek	Town of Christiansburg (VAR040025) VDOT (VAR040016)	*	*Assumed between 99-100	3.40E+12

**Existing load not given in TMDL report, percent reductions assigned to specific non-point sources, Town WLA combined with VDOT. See Tables 5.2 and 5.3 in the TMDL report*

d) Identification of the significant sources of the pollutants of concern discharging to the permittee's MS4 and that are not covered under a separate 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;

- The TMDL report for Wilson Creek used the E. coli loading rates from the urban land use category (low density residential, high density residential, commercial, industrial, and transportation land uses) to determine the waste load for MS4 acreages. The report also identifies human waste through failed septic systems and straight pipes as being a specific source of E. coli loads, and specifically found pet signature samples and human signature samples through bacteria source tracking. The Crab Creek TMDL report similarly notes human and pets as significant sources of E. coli loads, and specifically notes failing septic and sanitary sewer overflows as sources.
- The Town identifies the dog park at the Town's Huckleberry Park as possibly being a significant source of the pollutant of concern (bacteria) discharging to the permittee's MS4 per the significant source definition in the permit. The Town has instituted multiple Best Management Practices to address this area. The TMDL report for Crab Creek, in section 4.3.2.3, identifies sewer overflows as, "leading to a significant input of fecal bacteria into the watershed." As these occurrences then appear to be included in the TMDL model, it is unclear at what level sanitary sewer overflows (SSO) are considered part of the average pollutant loading for the urban land use category. As

such, while the Town is addressing SSOs, the Town is not naming SSOs as a significant source *greater than the average pollutant loading for the urban land use category*. However, as SSOs are specifically named in the Crab Creek TMDL, the Town is focused on BMPs to address this matter in this Action Plan.

- To meet the requirements of Part II.B.5.a, the Town will use the sources identified in both TMDL studies as coming from MS4 sources, namely pet waste and human waste. Human waste sources are categorized as illicit discharges to the MS4 under the required strategies.

e) The BMPs designed to reduce the pollutants of concern in accordance with Parts II B5, B6, and B7;

f) Any calculations required in accordance with Part II B5, B6 or B7;

g) For action plans developed in accordance with Part II B5 and B6, an outreach strategy to enhance the public's education (including employees) on methods to eliminate and reduce discharges of the pollutants; and

h) A schedule of anticipated actions planned for implementation during this permit term.

- Sections e through h are addressed below in "Strategies and schedules to address bacteria load reduction."

Additionally, per Sections B.II.2.a.(1) and (2) of the permit, an evaluation of the results achieved by the previous action plan and any adaptive management strategies incorporated into the updated action plan based on action plan evaluation, are included in the section "Strategies and schedules to address bacteria load reduction" as well.

Strategies and schedules to address bacteria load reduction

Evaluation of results achieved by previous action plan:

The following strategies were included in the 2020 Bacteria Action Plan update:

Table 2: Strategies for Bacteria Reduction Stormwater Control/Management Strategy

Source	Strategy
Domestic pets	○ Provide pet waste bags and disposal containers in public parks. ○ Enhance outreach efforts to the pet owning populace.
Illicit connections or illicit discharges to the MS4	○ Continue implementation of the Crab Creek Interceptor Study. ○ Continue implementation of Sections 36-96 and 36-97 of the Town Code requiring connection to the town's sanitary sewer, if available, if a septic system needs to be pumped or repaired. ○ Continue implementation of the Fats, Oils and Grease (FOG) program as outlined in the Town Code Section 36-212, to help prevent sanitary sewer overflows.

The Illicit Discharge source reduction strategies are focused on reducing sanitary sewer overflows (SSO). The Town analyzed reported SSO events for a 10 year period, 2015-2024, that has included the implementation of much of the Crab Creek Interceptor Study. Table 3 shows a decline in SSO events that is especially clear in the 2022-2024 time frame. That time frame includes the significant week long rain event that ended with Hurricane Helene. Preliminary analysis of 2025 data shows the same trend of extreme prolonged precipitation events causing multiple SSO events. A detailed analysis of rainfall intensity or multiple day events correlated with SSOs was not done.

Table 3: Number of Sanitary Sewer Overflow (SSO) Events in Crab Creek Watershed 2015-2024

Year	SSO events**	NOAA estimated Annual Precipitation* (inches)	Notes
2015	29	52.15	
2016	13	41.75	
2017	11	47.86	
2018	35	58.5	
2019	15	43.55	
2020	44	65.92	
2021	10	44.23	
2022	0	49.38	
2023	2	43.3	
2024	8	43.55	5 events associated with Hurricane Helene. A multi-day rain event immediately preceded Hurricane Helene.

*Estimated annual precipitation obtained from NOAA/National Water Prediction Service "display estimated precipitation on hover" from near Town Hall

**All reported SSO events were included regardless of cause or if they reached state waters

The Town concludes that the strategies and actions to reduce the SSO sources of excess E. coli in Crab Creek are working. Analysis of SSO data showed no SSO events in the Wilson Creek watershed in 2015-2024. The Town will continue with the strategies outlined in the 2020 Bacteria TMDL Action Plan.

Additionally, implementation of the Crab Creek Interceptor Study continued beyond the actions detailed in the 2020 update by completing phases I AND II of the Silver Lake Interceptor as well as upgrading a portion of the sewer main identified in the Crab Creek Interceptor Study from Hickok Street to the interceptor at Crab Creek.

The Domestic Pet Source reduction strategies are centered around education and changing pet owners' habits by engaging with possible pet owners (and their neighbors) at targeted outreach events and providing easy access to pet waste bags and trash cans in parks. As noted in the Town's MS4 annual reports, even with events canceled in 2020 and 2021, the Town has been able to attend events with public attendance numbers over 1000 and directly engage the public and distribute pet waste bags. Observation by Town employees shows that pet waste stations are being used in at least one neighborhood. As such, the Town will continue with efforts to provide easy access to pet waste bags and trash cans in parks.

The Town recently received data collected by the New River Conservancy (NRC) Water Watchers on mainstem Crab Creek and the Walnut Branch tributary. Water Watchers is a volunteer citizen science program. The Town facilitates access to Town properties along streams for interested Water Watchers. Other sites are on private property. The Town will be analyzing this data for trends. Preliminary results show that in the main

stem of Crab Creek, instantaneous E. coli levels are not continuously above the current 235 CFU/100mL maximum level for *E. coli*.

Please note the standards for bacterial impairments changed during the TMDL study (as noted in the study). The NRC Water Watchers data cannot be directly compared to the TMDL study, as the TMDL study measured fecal coliform and the NRC Water Watchers use Coliscan gel which measures *E. coli* specifically. Datasets are available from the Town and are courtesy of the New River Conservancy. The Conservancy can be contacted for further information. As this is a volunteer program not funded or operated by the Town, the Town does not commit to further collecting this data as part of the MS4 program or this Bacteria TMDL Action Plan.

Review of Schedule of Anticipated Actions through the 2018 – 2023 Permit Cycle

- The Town is using the Center for Watershed Protection's spreadsheet based Watershed Treatment Model (WTM) to assess the effectiveness of the structural and nonstructural best management practices employed under the Action Plan. The pet waste program component of the WTM will be used to quantify bacterial reductions. **THE WTM'S SOLE PRACTICE TO REDUCE BACTERIA LOADS FROM PETS IS A PET WASTE EDUCATION PROGRAM. AS THE TOWN IS IMPLEMENTING MULTIPLE PRACTICES TO ADDRESS PET WASTE, THE WTM WILL UNDERESTIMATE BACTERIA LOAD REDUCTION AND USING IT IS BEING REMOVED FROM THE 2025 ACTION PLAN UPDATE.**
- Map locations of pet waste stations in public parks. **FINISHING THE MAP IS INCLUDED IN THE 2025 ACTION PLAN UPDATE**
- Evaluate options for additional pet waste stations on public land. **THIS HAS NOT BEEN COMPLETED AND IS INCLUDED IN THE 2025 ACTION PLAN UPDATE**
- Distribute educational materials or messaging at targeted public participation events. **THIS IS ONGOING AND IS INCLUDED IN THE 2025 ACTION PLAN UPDATE.**
- Use a map-based approach to evaluate frequency of sanitary sewer overflows in the Wilson Creek watershed within Town limits. **ANALYSIS OF SSO DATA SHOWS NO SSO EVENTS IN THE WILSON CREEK WATERSHED DURING 2015-2024. THIS ACTION IS BEING REMOVED FROM THE PLAN AS UNNEEDED.**
- Continue implementation of the Crab Creek Interceptor Study
  - Complete Phase 1 of College Street construction. **PHASE 1 COMPLETED**
  - Complete College Street Sanitary Sewer Evaluation Survey for areas in upper sewer shed to identify sources of Inflow & Infiltration to help reduce Sanitary Sewer Overflows. **COMPLETED**
  - Complete engineering for Arrowhead Sewershed. This sewershed is shown to have the highest rain derived Inflow & Infiltration (RDII) per the interceptor report. **COMPLETED DESIGN, CURRENTLY IN CONSTRUCTION PHASE**
  - Construction of Phase 1 of Silver Lake Interceptor. **COMPLETED CONSTRUCTION OF PHASE 1 AND PHASE 2**
- Coordinate with the Waste Water Treatment Facility to provide web-based educational information and instructions for homeowners to reduce FOG sewerage system disposal. **FOG INFORMATION HAS BEEN SPORADICALLY PROVIDED. COORDINATION DID NOT OCCUR. ACTION INCLUDED IN 2025 ACTION PLAN UPDATE**
- Create a procedure to quantify connections made to sanitary sewer from sites previously using a septic system. **INFORMATION EXISTS. PROCEDURE NOT CREATED. ACTION INCLUDED IN 2025 ACTION PLAN UPDATE.**

Strategies for Bacteria Reduction Stormwater Control/Management Strategy 2023-2028

Part II.B.5 of the VAR04 General Permit requires the following for traditional permittees. The Town of Christiansburg is a traditional permittee:

"Traditional permittees shall select and implement at least three of the strategies listed in Table 5 below designed to reduce the load of bacteria to the MS4. Selection of the strategies shall correspond to the sources identified in Part II.B.4.d."

Table 4: Strategies for Bacteria Reduction Stormwater Control/Management Strategy 2023-2028 permit cycle

Source	Strategy
Domestic pets	○ Provide pet waste bags and/or disposal containers in public parks. ○ Targeted outreach effort to the pet owning populace. ○ Targeted maintenance at the dog park at the Town's Huckleberry Park and adjacent bioretention facility
Illicit connections or illicit discharges to the MS4	○ Continue implementation of the Crab Creek Interceptor Study. ○ Continue implementation of Sections 36-96 and 36-97 of the Town Code requiring connection to the town's sanitary sewer, if available, if a septic system needs to be pumped or repaired. ○ Continue implementation of the Fats, Oils and Grease (FOG) program as outlined in the Town Code Section 36-212, to help prevent sanitary sewer overflows.

Calculations:

There are no calculations required for the Bacteria Reduction Strategies employed by the Town.

Outreach Strategies

As noted in Table 4, targeted outreach efforts as part of MCM 2 in the MS4 Program Plan will be implemented. The Town will continue to use targeted public education and outreach and/or public participation events to distribute pet waste management educational materials or messaging. Evaluation of events and messaging is done through the MS4 Annual Reports.

Additionally, the required staff Good Housekeeping/IDDE training currently contains information on local TMDLs including bacteria and will continue to be used as an outreach strategy to enhance employee's education on methods to eliminate and reduce discharges of the pollutant.

Schedule of Anticipated Actions through the 2023-2028 Permit Cycle

- Analyze New River Conservancy Water Watcher data for E. coli trends in Crab Creek and Walnut Branch. Data set received 4/29/2025.
- Continue to map locations of pet waste stations and trash receptacles in public parks and trails.

- Evaluate options for additional pet waste stations on public land.
- Targeted maintenance of the dog park at Christiansburg's Huckleberry Park
- Distribute educational materials or messaging or dog waste bags through targeted public education and outreach and/or at public participation events.
- Continue implementation of the Crab Creek Interceptor Study
  - Complete Design of Phase 2 of College Street Sanitary Sewer.
  - Complete replacement of sanitary sewer in the Hickok Project
  - Complete construction for Arrowhead Sewershed. This sewershed is shown to have the highest rain derived Inflow & Infiltration (RDII) per the interceptor report.
- Coordinate with the Waste Water Treatment Facility to provide web-based educational information and instructions for homeowners to reduce FOG sewerage system disposal.
- Create a procedure to quantify connections made to sanitary sewer from sites previously using a septic system.

Public Comment

The Town held a Public Comment period from June 26, 2025, through July 13, 2025. The TMDL Action Plan was posted on the Town's website with contact information for comments submitted via email, in person, or via the US mail, posted on the same page. Links were provided via the Town's homepage and through the Town's Facebook and "X" accounts page.

The Town received one email with comments relevant to the Bacteria Action Plan. The commenter thanked the Town for installing dog waste stations in a neighborhood and noted a decrease in dog waste left on the ground. The commenter also suggested quantifying the amount of dog waste collected to determine effectiveness of the measure.

DEFINITIONS – For the purposes of this guidance document, the following definitions shall apply:

Best Management Practices ("BMPs") – Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices, including both structural and nonstructural practices to prevent or reduce the pollution of surface waters and groundwater systems.

Fats, Oils, and Greases (FOG) - Organic polar compounds derived from vegetable/plant or animal sources that are composed of long chain triglycerides.

Load Allocation ("LA") - The portion of the loading capacity attributed to (1) the existing nonpoint sources of pollution and (2) natural background sources.

Pollutant(s) of Concern ("POC") – The pollutant(s) impairing a water body for which one or more TMDL(s) has been developed.

TMDL Implementation Plan – A document guided by an approved TMDL(s) that at a minimum provides details of the corrective actions to address the load allocation of one or more TMDLs. The plan includes measureable goals needed to achieve pollutant(s) source load reductions; outlines a schedule to attain water quality standards along with costs, benefits, and environmental impacts to reduce pollutant(s) and remediate impaired waterbodies.

Total Maximum Daily Load ("TMDL") – The sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources, natural background loading and a margin of safety.

Wasteload Allocation ("WLA") - The portion of a receiving waters' pollutant loading capacity that is allocated to existing or future point sources of pollution, such as an MS4.

***For terms not defined above, please refer to the 9VAC25-890-1, 9VAC25-875-20, or 9VAC25-31-10 of the Virginia Administrative Code*.**

Appendix A
BMP Schedules and Goals prior to 2018 permit cycle

The following BMP and schedules are from the 2015 Town of Christiansburg Sediment Action Plan. It is noted at the end of each BMP and schedule if it was completed, or if it is being modified or removed from the Action Plan. Detailed progress reports on these BMPs have already been submitted to DEQ through the MS4 Annual Reports.

Identify and Maintain a List of BMPs, Techniques, Design and Engineering methods beyond those required per the MCMs

- MCM 1 – Public Education:
    - Christiansburg will address Bacteria/Fecal Coliform as a TMDL pollutant of concern in the spring 2016 survey intended to assess citizen knowledge and assist in the selection of high priority water quality issues. **COMPLETED.**
    - Present TMDL information at a Town Council work session and a planned Open House that will also present the Stormwater Utility Program to the public. **OPEN HOUSE HELD, NO INFORMATION ON TMDL COMMENTS**
    - Include information about Bacteria/Fecal Coliform as a POC in the annual mailer that also provides drinking water quality information. **MAILER DISCONTINUED. DRINKING WATER INFORMATION REPORT WILL BE CONSIDERED AS A POSSIBLE MEANS OF REACHING THE PET OWNING POPULACE.**
- MCM 2 – Public Involvement:
    - Christiansburg will address Bacteria/Fecal Coliform as a TMDL pollutant of concern in the spring 2016 survey intended to assess citizen knowledge and assist in the selection of high priority water quality issues. **COMPLETED.**
    - Solicit comments on the TMDL action plan at the proposed Stormwater Utility Open House. **OPEN HOUSE HELD, NO INFORMATION ON TMDL COMMENTS.**
- MCM 3 – Illicit Discharge:
    - Implementation of the Town website IDDE comment and complaint link. **NOW REQUIRED UNDER VAR04 GENERAL PERMIT PART I.E.2. ITEM REMOVED FROM ACTION PLAN.**
- MCM 4 – Construction Site Runoff:
    - Regulated land disturbance projects in the Town are required to be consistent with the Chapter 16 ESC and SWM Ordinances, which require a Stormwater Pollution Prevention Plan (SWPPP) that minimize all pollutant discharge from construction activity. Inspections are required to be performed during construction activity. **NOT APPLICABLE TO BACTERIA TMDL. ITEM REMOVED FROM ACTION PLAN.**
- MCM 5 – Post Construction Stormwater Management:
    - The Town SWM program requires regulated land disturbance projects to address post-construction water quality and requires a long-term inspection and maintenance program for stormwater management facilities to ensure functionality. As an additional practice the SWM regulations and BMP maintenance requirements apply at a lower 10,000 square foot threshold as compared to the state 1-acre threshold. The facilities are designed to meet the technical criteria target phosphorus reductions; however, facilities that remove phosphorus inherently also remove sediment from passing downstream. **NOT APPLICABLE TO BACTERIA TMDL. ITEM REMOVED FROM ACTION PLAN.**

    - The Town inspects all privately owned stormwater management facilities annual, exceeding the General Permit minimum requirement that all facilities be inspected at least once every five years. **NOT APPLICABLE TO BACTERIA TMDL. ITEM REMOVED FROM ACTION PLAN.**
- MCM 6 – Good Housekeeping:
    - The Town performed a comprehensive review of owned or operated sites to identify sites with both high potential and high priority. The Town Public Works Station, known as "Station B", and the historic Town landfill site currently used for public works stockpiling and storage are identified as potential significant sources of pollutants. The MS4 2015-2016 Program Plan will address the potential for significant POC through the plan to develop site specific Stormwater Pollution Prevention Plans (SWPPPs) for these two sites. **THESE SITES WERE NOT IDENTIFIED AS SIGNIFICANT SOURCES OF BACTERIA DISCHARGING TO THE MS4. AS SUCH THIS ITEM IS NOT APPLICABLE AND IS REMOVED FROM THE BACTERIA ACTION PLAN.**
    - Housekeeping SWPPPs to be developed for Town staff will include a TMDL educational component for Bacteria/Fecal Coliform as a POC. **COMPLETED AND ONGOING.**
    - The Town SWPPP housekeeping training will occur at a more frequent training schedule than the biennial frequency required by the MS4 General Permit. **ADDRESSED ABOVE UNDER OUTREACH STRATEGIES.**
- The town will add an IDDE issue complaint contact on the town website, as specified in the MS4 program plan, to enhance public IDDE reporting capabilities. **NOW REQUIRED BY MS4 PERMIT. ITEM REMOVED FROM ACTION PLAN.**

- Additional Management Practices
    - FOG Program - Section 10-26 of the Town Code allows the building official to designate low, medium, and high hazard users based on specific criteria and allows the Town to specify FOG trapping devices. **ORDINANCE UPDATED AND SECTION CHANGED IN 2017 WITH AUTHORITY SHIFTED TO THE WASTE WATER TREATMENT FACILITY. ITEM ADDRESSED IN 2020 ACTION PLAN UPDATE**.
    - The town will add an IDDE issue complaint link on the town website, as specified in the MS4 program plan, to enhance public IDDE reporting capabilities. **NOW REQUIRED BY MS4 PERMIT**. **ITEM REMOVED FROM ACTION PLAN.**
    - The Town continues the Crab Creek Interceptor Study that will result in capital Improvement recommendations to be incorporated into the Capital Improvement Plan. **INTERCEPTOR STUDY COMPLETED.**

Measurable Goals through the 2013 – 2018 Permit Cycle

- FOG Ordinance – The ordinance changes were adopted in August 2014. **UPDATED 2017.**
- Stormwater Website FOG Information Page – This webpage offers educational information and instructions for homeowners to reduce FOG sewerage system disposal. **ADDRESSED IN ACTION PLAN UPDATE**.

- Stormwater Website IDDE Reporting – An IDDE reporting feature is available. **NOW REQUIRED BY MS4 PERMIT. ITEM REMOVED FROM ACTION PLAN.**
- Crab Creek Interceptor Study. This Study is ongoing and recommendations are expected in 2016. **INTERCEPTOR STUDY COMPLETED.**
- The Center for Watershed Protection's spreadsheet based Watershed Treatment Model (WTM) will be employed to provide a methodology for assessing the effectiveness of the TMDL Action Plan. The WTM will act as the primary methodology to assess the effectiveness of the structural and nonstructural best management practices employed under the Action Plan. The 2015-2016 MS4 annual Report will include a Watershed Treatment Model spreadsheet populated with the Town's BMPs that will be used for pollutant credit reporting. **ADDRESSED IN ACTION PLAN UPDATE SPRING 2020.**