Town of Leesburg, Virginia

Municipal Separate Storm Sewer System (MS4) Program Plan

April 24, 2019



Town of Leesburg
Department of Public Works and Capital Projects
25 West Market Street
Leesburg, Virginia 20176

Prepared with assistance by:
Wood Environment & Infrastructure Solutions
Chantilly, Virginia

Prepared in Compliance with Municipal Separate Storm Sewer System (MS4)
Permit No. VAR040059

Town of Leesburg
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(MS4) Program Plan

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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."

Name	Title	Date

Town of Leesburg
Municipal Separate Storm Sewer System (MS4) Program Plan

A. Introduction

This MS4 Program Plan (plan) documents how the Town of Leesburg will meet the requirements of the General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4s). The Town was originally issued an MS4 permit effective July 8, 2003 (Permit No. VAR040059). The MS4 permit was re-issued on July 9, 2008, July 8, 2013, and November 1, 2018. The current five-year permit will expire on October 31, 2023.

Stormwater runoff from urban areas may contain sediments, fertilizers, pesticides, bacteria, motor oil, and other pollutants generated by various land uses and human activities. When left uncontrolled, this pollution can result in the impairment or destruction of aquatic habitats, a loss in aesthetic value, and threats to public safety and health.

Mandated by Congress under the Clean Water Act and implemented in Virginia by the Department of Environmental Quality (DEQ), the MS4 permit requires the Town to develop, implement, and enforce an MS4 Program (program) to reduce the discharge of pollutants to the maximum extent practicable (MEP), protect water quality, and satisfy the appropriate water quality requirements of the State Water Control Law and its attendant regulations. This is achieved through the implementation of best management practices (BMPs) to address six minimum control measures (MCMs).

Six Minimum Control Measures	
1. Public Education and Outreach on Stormwater Impacts 2. Public Involvement/Participation 3. Illicit Discharge Detection and Elimination	4. Construction Site Stormwater Runoff Control 5. Post-Construction Stormwater Management 6. Pollution Prevention/Good Housekeeping for Municipal Operations

In addition to addressing the MCMs, the Town must develop and implement action plans to address pollutants allocated to Leesburg in approved Total Maximum Daily Loads (TMDLs). A

TMDL establishes the maximum amount of a pollutant that can enter a water body without violating water quality standards. The Town has developed two TMDL action plans under the MS4 permit – Chesapeake Bay TMDL Action Plan and Goose Creek Benthic TMDL Action Plan. These are described in Section D.

The Town has successfully implemented its MS4 permit requirements for the past three permit cycles. As part of the plan update process, the Town engaged in an extensive review and assessment of existing stormwater management operations, ordinances, protocols, and programming against the MS4 permit compliance requirements. This MS4 plan builds on the Town's past success and meets the new MS4 permit requirements.

B. Community Profile

The Town of Leesburg was founded in 1758 and serves as the seat of government for Loudoun County. The Town has a land area of 12.47 square miles. To the west of the Town are the foothills of the Blue Ridge Mountains. Limestone conglomerate underlies the northern area of Leesburg, which may limit appropriate stormwater management facilities since the carbonate rock is prone to the formation of sinkholes. The great majority of the Town is located within the Goose Creek watershed, with most of the Town drained by Tuscarora Creek. Areas to the north drain to Cattail Branch, while areas to the south drain to Sycolin Creek. The Virginia DEQ maintains an ambient water quality monitoring station on Tuscarora Creek near its confluence with Goose Creek.

Major Streams of Leesburg

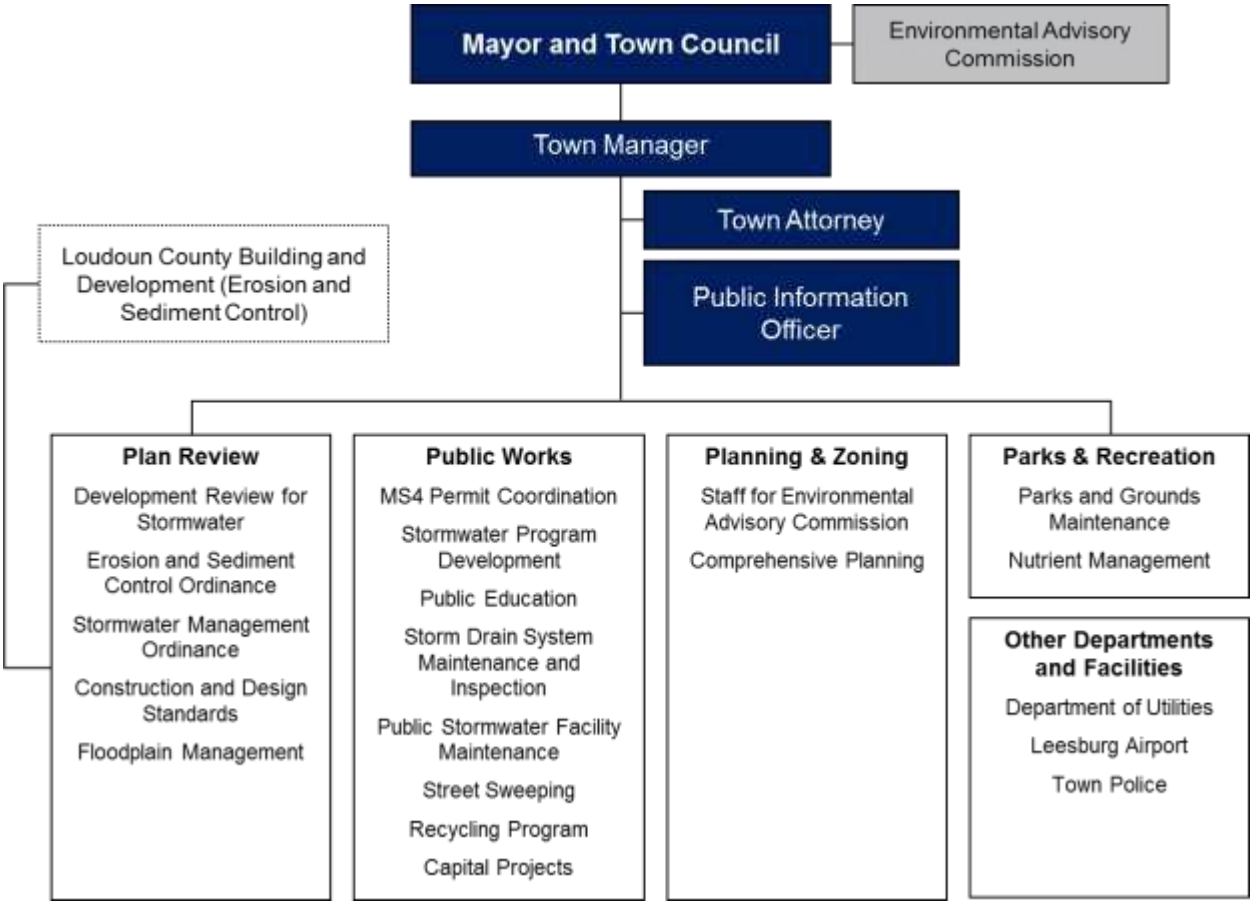
Leesburg has experienced significant growth over the past several decades. According to U.S. Census estimates, the population of the Town grew from 28,311 in the year 2000 to 54,215 in the year 2017 – a 92% increase in only 17 years. Approximately 34% of the Town's 16,082 housing units were built in 2000 or later. Town's population is relatively young and very diverse. The median age of a Town resident is 34.8, with approximately 31% of residents being under the age 20. The minority population is 25% of the total and the foreign-born population is 22% of the total.

Residents of the Town are highly educated, with approximately 52% of residents age 25 or older holding a Bachelor's Degree or higher. A large majority of residents in the Town and in Loudoun County are also technology-savvy, with a 2016 survey conducted by the County indicating that 98% of residents in urban areas have access to the internet at home.

C. Leesburg's Stormwater Management Program

The Department of Public Works and Capital Projects (DPW) is responsible for coordinating the Town's MS4 permit and for implementing a majority of the permit requirements. In addition to DPW, departments with significant stormwater management responsibilities include: Plan Review; Planning and Zoning; Parks and Recreation; Utilities; Public Information; Police; and, Fire and Rescue.

Town of Leesburg Stormwater Management Organization



Department of Public Works and Capital Projects. DPW is responsible for stormwater planning/operations and administers the Town's MS4 permit. DPW crews are responsible for maintaining the Town's stormwater management infrastructure, including pipes, curb and gutter, and public stormwater management facilities. The crews have access to a Vac-Con truck for litter and debris removal as well as an inspection camera in the case of a suspected illicit connection. DPW is responsible for inspecting public and private stormwater management facilities and also handles street sweeping operations. The DPW Office of Capital Projects manages the design and construction of capital improvement projects, including stormwater management projects.

In addition to direct stormwater management, the Town uses a contractor to collect refuse, recyclable materials, and yard waste from residents. The Street Maintenance Division collects brush weekly and offers curbside pickup of loose leaves with the vacuum truck every October through January. In addition to curbside pick-up of recycling, the Town maintains a recycling drop-off center. As residents of the County, Town residents also have access to Loudoun County drop-off locations for household hazardous waste (HHW), including used motor oil and antifreeze.

Department of Plan Review. Plan Review (DPR) is responsible for development review and ensuring that site plans are in compliance with the Town's Stormwater Management Ordinance and Erosion and Sediment Control Ordinance. The Director of Plan Review serves as the Town's land development official. The Town has a formal memorandum of understanding (MOU) with Loudoun County Building and Development to enforce the Erosion and Sediment Control Ordinance, although DPW staff maintains certification by DEQ to supplement enforcement activities if necessary.

Department of Planning and Zoning. Planning and Zoning (DPZ) is responsible for overall land use and natural resources planning as well as zoning. DPZ also provides staff support to the Town's Environmental Advisory Commission.

Department of Parks and Recreation. Parks and Recreation (P&R) is responsible for maintenance of the Town's 16 parks, sponsors a number of annual and special events, and engages in environmentally-friendly programming. P&R hosts the annual Leesburg Flower and Garden Festival and coordinates an Adopt-A-Spot program. Because maintenance of large areas of landscaping has the potential to negatively affect water quality, P&R maintains a Community Applicators License, requires training of applicators by the state, and has developed site-specific nutrient management plans.

Leesburg's Camera Truck

Department of Utilities. Utilities is responsible for maintenance and operation of the Town's sanitary sewer system. In addition to collaborating with DPW on potential illicit connection issues, DPW uses camera equipment from Utilities to find suspected illicit discharges. The Water Pollution Control Facility is in full compliance with a separate VPDES industrial stormwater permit (VAR051427). The WPCF is co-located with the Central Maintenance Facility, and both are covered under a consolidated stormwater pollution prevention plan (SWPPP).

Public Information. The Public Information Officer (PIO) provides overall coordination of Town communications. Outreach mechanisms include the Town's web site (www.leesburgva.gov), cable TV channels (Comcast Channel 67 and Verizon Channel 35), social media (Facebook and

Twitter), and emergency alerts. The Town also published four seasonal newsletters each year that are mailed to all residences.

Other Relevant Organizations. Leesburg Executive Airport is owned by the Town and is governed by a Town-appointed board. The Airport is in full compliance with a separate VPDES industrial stormwater permit (VAR051426). Loudoun County Fire and Rescue, with support from Town Police, respond to and mitigate hazardous material incidents and spills, including those that have the potential to affect water resources in the Town. The Town is a member of the Loudoun County Soil and Water Conservation District (LCSWCD) and the Northern Virginia Regional Commission (NVRC). Town staff collaborate with the LCSWCD on local education and outreach efforts and participates in NVRC's Clean Water Partners regional education efforts.

The following acronyms and abbreviations are used in this plan:

DPW.....Department of Public Works and Capital Projects
DPR.....Department of Plan Review
PIO.....Public Information Officer
P&R.....Department of Parks and Recreation
DPZ.....Department of Planning and Zoning
Utilities.....Department of Utilities
LCSWCD.....Loudoun County Soil and Water Conservation District
NVRC.....Northern Virginia Regional Commission
EAC.....Environmental Advisory Commission

D. Special Conditions for Approved TMDLs

While the focus of the MS4 permit is on prevention, the permit contains special conditions that require the Town to develop and implement "action plans" to address impaired waters where a TMDL wasteload allocation (WLA) has been approved by the State Water Control Board (SWCB) and assigned to the Town.

The Town has been assigned WLAs associated with the Chesapeake Bay TMDL (total nitrogen, total phosphorus, and total suspended solids) and the Goose Creek Benthic TMDL (total suspended solids). Based on the MS4 permit, the Town must achieve Chesapeake Bay TMDL pollutant reductions over three five-year permit cycles in accordance with the following: 5% by the end of the first permit cycle (2018); 40% by the end of the second permit cycle (2023); and, 100% by the end of the third permit cycle (2028). The Town met the 5% reduction requirement for the first permit cycle and in May 2018 submitted a draft Phase II Chesapeake Bay TMDL Action Plan demonstrating how the Town will meet the 40% reduction. The final Phase II action plan must be submitted to DEQ no later than November 1, 2019.

The Town submitted a Goose Creek Benthic TMDL Action Plan to DEQ in 2015. The action plan must be updated and submitted to DEQ no later than May 1, 2020.

Both the Chesapeake Bay TMDL Action Plan and the Goose Creek Benthic TMDL Action Plan have been integrated into this MS4 plan and are included in Appendix G. Progress toward achieving both action plans will be included in the Town's MS4 annual report.

In addition, a Goose Creek Bacteria TMDL was developed in 2003 and approved by the SWCB in June 2004. Since the development of the Goose Creek Bacteria TMDL predates the original issuance of an MS4 permit to the Town, there is no WLA assigned to the Town. However, the Town has integrated BMPs into Section F to reduce anthropogenic sources of bacteria pollution to the maximum extent practicable.

E. Reliance on Other Government Entities

The MS4 permit requires that if the Town relies on another entity to implement portions of its MS4 program that the plan must include a description of each party's roles and responsibilities. The plan must also include copies of written agreements.

The Town has a formal memorandum of understanding (MOU) with Loudoun County Building and Development to enforce the Erosion and Sediment Control Ordinance. In addition, Town public education and outreach efforts are supplemented by NVRC's Clean Water Partners regional education program. Both the MOU with Loudoun County and the agreement with NVRC are included in Appendix H.

F. Minimum Control Measures

This section outlines the specific BMPs and strategies for meeting the MCMs in Part I E of the MS4 permit. For each MCM, the following information is included:

- Each specific requirement as listed in Part I E for each MCM.
- A description of the BMPs or strategies that the permittee anticipates will be implemented to demonstrate compliance with the permit conditions.
- All standard operating procedures (SOPs) or policies necessary to implement the BMPs.
- The measurable goal by which each BMP or strategy will be evaluated.
- The persons, positions, or departments responsible for implementing each BMP or strategy.

After each section is a table that summarizes the schedule for implementing the BMPs.

MCM #1: Public Education and Outreach on Stormwater Impacts

Permit Reference: Part I E 1

a. The permittee shall implement a public education and outreach program designed to:

(1) Increase the public's knowledge of how to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and other local water pollution concerns;

(2) Increase the public's knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications; and

(3) Implement a diverse program with strategies that are targeted toward individuals or groups most likely to have significant stormwater impacts.

b. The permittee shall identify no less than three high-priority stormwater issues to meet the goal of educating the public in accordance with Part I E 1 a. High-priority issues may include the following examples: Chesapeake Bay nutrients, pet wastes, local receiving water impairments, TMDLs, high-quality receiving waters, and illicit discharges from commercial sites.

c. The high-priority public education and outreach program, as a whole, shall:

(1) Clearly identify the high-priority stormwater issues;

(2) Explain the importance of the high-priority stormwater issues;

(3) Include measures or actions the public can take to minimize the impact of the high priority stormwater issues; and

(4) Provide a contact and telephone number, website, or location where the public can find out more information.

d. The permittee shall use two or more of the strategies listed in Table 1 below per year to communicate to the public the high-priority stormwater issues identified in accordance with Part I E 1 b including how to reduce stormwater pollution.

Table 1
Strategies for Public Education and Outreach

Strategies	*Examples (provided as examples and are not meant to be all inclusive or limiting)*
Traditional written materials	*Informational brochures, newsletters, fact sheets, utility bill inserts, or recreational guides for targeted groups of citizens*
Alternative materials	*Bumper stickers, refrigerator magnets, t-shirts, or drink koozies*
Signage	*Temporary or permanent signage in public places or facilities, vehicle signage, bill boards, or storm drain stenciling*
Media materials	*Information disseminated through electronic media, radio, television, movie theater, or newspaper*
Speaking engagements	*Presentations to school, church, industry, trade, special interest, or community groups*
Curriculum materials	*Materials developed for school-aged children, students at local colleges or universities, or extension classes offered to local citizens, trade organizations, or industrial officials.*

e. The permittee may coordinate its public education and outreach efforts with other MS4 permittees; however, each permittee shall be individually responsible for meeting all of its state permit requirements.

f. The MS4 program plan shall include:

MCM #1: Public Education and Outreach on Stormwater Impacts

(1) A list of the high-priority stormwater issues the permittee will communicate to the public as part of the public education and outreach program;

(2) The rationale for selection of each high-priority stormwater issue and an explanation of how each education or outreach strategy is intended to have a positive impact on stormwater discharges;

(3) Identification of the public audience to receive each high-priority stormwater message;

(4) The strategies from Table 1 of Part I E 1 d to be used to communicate each high-priority stormwater message; and

(5) The anticipated time periods the messages will be communicated or made available to the public.

g. The annual report shall include the following information:

(1) A list of the high-priority stormwater issues the permittee addressed in the public education and outreach program; and

(2) A list of the strategies used to communicate each high-priority stormwater issue.

MCM #1 Program Overview

The Town has developed a Public Education and Outreach Plan that documents the Town's public education and outreach strategy. This includes the process used to identify three high-priority stormwater issues, identify target audiences, and select appropriate communication strategies that will have a positive impact on stormwater discharges. High-priority stormwater issues identified in the plan are: (1) bacteria from pets; (2) illicit discharges and illegal dumping; and, (3) nutrients from lawn fertilizers. Selected communication strategies align with those in Table 1 of the MS4 permit.

The Town also participates in the NVRC Clean Water Partners program. This collaborative effort allows the Town to reach a broader audience through cable television and digital media. The program includes an annual assessment component conducted through a web-based survey of Northern Virginia residents. The specific focus areas, messages, and survey results are reviewed each year by the Clean Water Partners, including the Town.

Referenced Documents:

- Public Education and Outreach Plan (Appendix A).
- NVRC Clean Water Partners Program Memorandum of Agreement (Appendix H).
- Stormwater Webpage: www.leesburgva.gov/government/departments/public-works/water-quality-stormwater-management

BMP 1.A – General Pollution Prevention Education and Outreach

Objective: A broad-based public outreach strategy serves to educate residents about why it is important to reduce stormwater pollution and what personal actions can be taken to have a positive impact on the Chesapeake Bay and the Town's local waterways. A focus of the Town's efforts is on educating school-age youth.

Best Management Practices:

- Include links to pollution prevention materials on the Town's stormwater webpage.
- Distribute pollution prevention materials (brochures, flyers, give-aways) at Town-sponsored programs and events.
- Sponsor a storm drain marking program and distribute information about the program on the stormwater webpage and at public events.
- Provide presentations to school-age youth and/or collaborate with the Loudoun County Soil and Water Conservation District (LCSWCD) or other community organizations on opportunities to reach out to school-age youth.

Standard Operating Procedures and Policies: This BMP is supported by the Town's Public Education and Outreach Plan.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report: (1) a snapshot of links to pollution prevention materials on the stormwater webpage; (2) statistics on materials distributed at public events; (3) documentation of efforts to promote the storm drain marking program; and, (4) a description of outreach to school-age youth and/or collaboration with community organizations.

Responsible Parties: DPW will lead this effort with support from the PIO. DPW will collaborate with LCSWCD and local community organizations as needed.

BMP 1.B – Bacteria from Pet Waste

Objective: Bacteria from pet waste is one of the Town's three high-priority stormwater issues. The objective of this BMP is to educate pet owners about the impact of pet waste on water quality and the importance of picking up after pets.

Best Management Practices:

- Promote the "PAWS for Clean Water" initiative to encourage responsible pet ownership using a voluntary pledge that owners will pick up after their pets.
- At least once annually, post on social media about proper pet waste disposal.
- Every three years, beginning Permit Year (PY) 1, include a bacteria-related message in the Town's annual postcard sent to all single family and townhome residences.
- Every three years, beginning PY1, mail information to the Town's HOAs and property management companies about strategies to prevent bacteria pollution.

Standard Operating Procedures and Policies: This BMP is supported by the Town's Public Education and Outreach Plan.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report: (1) the number of individuals taking the PAWS pledge; (2) a snapshot of the social media post; (3) a copy of the postcard; and, (4) information sent to HOAs and property management companies.

Responsible Parties: DPW will lead this effort with support from the PIO.

BMP 1.C – Illicit Discharges and Illegal Dumping

Objective: Illicit discharges and illegal dumping is one of the Town's three high-priority stormwater issues. The objective of this BMP is to educate residents about the impacts of illicit discharges and illegal dumping on water quality, including how to identify and report a suspected illicit discharge. This BMP also targets restaurants to reduce the discharge of cooking oil and grease from these sources.

Best Management Practices:

- At least once annually, promote household hazardous waste (HHW) disposal options in the Town's seasonal residential newsletter.
- At least once annually, post on social media about where to properly dispose of HHW.
- Every three years, beginning PY2, include an illicit discharge detection and illegal dumping-related message in the Town's annual postcard to all single family and townhome residences.
- Every three years, beginning PY2, mail information to the Town's HOAs and property management companies on strategies to prevent illicit discharges and illegal dumping.
- Every three years, beginning PY2, mail a letter and tip sheet to restaurants about the impact of cooking oil on water quality and the legal ramifications of non-compliance.

Standard Operating Procedures and Policies: This BMP is supported by the Town's Public Education and Outreach Plan.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report: (1) the HHW promotion in the newsletter; (2) a snapshot of the social media post; (3) a copy of the postcard; (4) information sent to HOAs and property management companies; and, (5) information sent to restaurants.

Responsible Parties: DPW will lead this effort with support from the PIO.

BMP 1.D – Nutrients

Objective: Nutrients from fertilizers is one of the Town's three high-priority stormwater issues. The objective of this BMP is to educate single family and townhome residents, HOAs and property management companies, and landscape companies about how to reduce the impacts of excess nutrients on local water quality and the Chesapeake Bay.

Best Management Practices:

- At least once annually, promote proper fertilizing techniques in the Town's seasonal residential newsletter.
- At least once annually, post on social media about proper fertilizing techniques.
- Every three years, beginning PY3, include a proper use of fertilizer-related message in the Town's annual postcard to all single family and townhome residences.
- Every three years, beginning PY3, mail information to the Town's HOAs and property management companies about strategies to prevent nutrient pollution.

- Every three years, beginning PY3, mail a letter and tip sheet to landscape companies about the impact of nutrient pollution on water quality and the legal ramifications of not meeting state nutrient management requirements.

Standard Operating Procedures and Policies: This BMP is supported by the Town's Public Education and Outreach Plan.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report: (1) the proper fertilizer application promotion in the newsletter; (2) a snapshot of the social media post; (3) a copy of the postcard; (4) information sent to HOAs and property management companies; and, (5) information sent to landscape companies.

Responsible Parties: DPW will lead this effort with support from the PIO.

BMP 1.E – Clean Water Partners

Objective: Clean Water Partners is a regional collaborative effort that allows the Town to reach a broader audience through the use of cable television and digital media. The program is aligned with the Town's three high-priority stormwater issues.

Best Management Practices:

- Continue to participate in the NVRC Clean Water Partners program.

Standard Operating Procedures and Policies: This BMP is governed by the NVRC Clean Water Partners Program Memorandum of Agreement and annual work plan.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report a summary of Clean Water Partner activities, including the scope of the campaign and the results of the annual assessment survey. The goal is to document increasing awareness of water quality issues and changes in pollution-causing behaviors over time.

Responsible Parties: NVRC will lead this effort.

MCM #1 Implementation Schedule							
BMP	**Task**	**Year(s) to Implement**					**Responsibility**
		PY1	PY2	PY3	PY4	PY5	
1.A	Include links to pollution prevention materials on the stormwater webpage.	▶	▶	▶	▶	▶	DPW, PIO
	Distribute pollution prevention materials at Town-sponsored programs and events.	▶	▶	▶	▶	▶	DPW
	Sponsor and promote a storm drain marking program.	▶	▶	▶	▶	▶	DPW
	Reach out to school-age youth.	▶	▶	▶	▶	▶	DPW
1.B	Promote the PAWS for Clean Water initiative.	▶	▶	▶	▶	▶	DPW

MCM #1 Implementation Schedule							
	Post social media message on proper pet waste disposal.	►	►	►	►	►	DPW, PIO
	Include a bacteria-related message in the Town's postcard to all single family/townhome residents.	■			■		DPW
	Mail information on bacteria pollution prevention strategies to HOAs and property management companies.	■			■		DPW
1.C	Promote HHW disposal options in seasonal newsletter.	►	►	►	►	►	DPW, PIO
	Post social media message on proper HHW disposal.	►	►	►	►	►	DPW, PIO
	Include an illicit discharge-related message in the Town's postcard to all single family/townhome residents.		■			■	DPW
	Mail information on illicit discharge prevention strategies to HOAs and property management companies.		■			■	DPW
	Mail letter and tip sheet to restaurants on proper storage and disposal of cooking oil and grease.		■			■	DPW
1.D	Promote proper fertilization techniques in seasonal newsletter.	►	►	►	►	►	DPW, PIO
	Post social media message on proper fertilization techniques.	►	►	►	►	►	DPW, PIO
	Include a fertilizer-related message in the Town's postcard to all single family/townhome residents.			■			DPW
	Mail information on nutrient reduction strategies to HOAs and property management companies.			■			DPW, PIO
	Mail letter and tip sheet to landscape companies on nutrient reduction strategies.			■			DPW
1.E	Participate in the NVRC Clean Water Partners program.	►	►	►	►	►	DPW, NVRC

MCM #2: Public Involvement and Participation

Permit Reference: Part I E 2

a. The permittee shall develop and implement procedures for the following:

(1) The public to report potential illicit discharges, improper disposal, or spills to the MS4, complaints regarding land disturbing activities, or other potential stormwater pollution concerns;

(2) The public to provide input on the permittee's MS4 program plan;

(3) Receiving public input or complaints;

(4) Responding to public input received on the MS4 program plan or complaints; and

(5) Maintaining documentation of public input received on the MS4 program and associated MS4 program plan and the permittee's response.

b. No later than three months after this permit's effective date, the permittee shall develop and maintain a webpage dedicated to the MS4 program and stormwater pollution prevention. The following information shall be posted on this webpage:

(1) The effective MS4 permit and coverage letter;

(2) The most current MS4 program plan or location where the MS4 program plan can be obtained;

(3) The annual report for each year of the term covered by this permit no later than 30 days after submittal to the department;

(4) A mechanism for the public to report potential illicit discharges, improper disposal, or spills to the MS4, complaints regarding land disturbing activities, or other potential stormwater pollution concerns in accordance with Part I E 2 a (1); and

(5) Methods for how the public can provide input on the permittee's MS4 program plan in accordance with Part I E 2 a (2).

c. The permittee shall implement no less than four activities per year from two or more of the categories listed in Table 2 below to provide an opportunity for public involvement to improve water quality and support local restoration and clean-up projects.

Table 2
Public Involvement Opportunities

Public involvement opportunities	*Examples (provided as examples and are not meant to be all inclusive or limiting)*
Monitoring	*Establish or support citizen monitoring group*
Restoration	*Stream or watershed clean-up day, adopt-a-water way program*
Educational events	*Booth at community fair, demonstration of stormwater control projects, presentation of stormwater materials to schools to meet applicable education Standards of Learning or curriculum requirements, watershed walks, participation on environmental advisory committees*
Disposal or collection events	*Household hazardous chemicals collection, vehicle fluids collection*
Pollution prevention	*Adopt-a-storm drain program, implement a storm drain marking program, promote use of residential stormwater BMPs, implement pet waste stations in public areas, adopt-a-street program*

d. The permittee may coordinate the public involvement opportunities listed in Table 2 with other MS4 permittees; however, each permittee shall be individually responsible for meeting all of the permit requirements.

MCM #2: Public Involvement and Participation
e. The MS4 program plan shall include: *(1) The webpage address where mechanisms for the public to report (i) potential illicit discharges, improper disposal, or spills to the MS4, (ii) complaints regarding land disturbing activities, or (iii) other potential stormwater pollution concerns;* *(2) The webpage address that contains the methods for how the public can provide input on the permittee's MS4 program; and* *(3) A description of the public involvement activities to be implemented by the permittee, the anticipated time period the activities will occur, and a metric for each activity to determine if the activity is beneficial to water quality. An example of metrics may include the weight of trash collected from a stream cleanup, the number of participants in a hazardous waste collection event, etc.* *f. The annual report shall include the following information:* *(1) A summary of any public input on the MS4 program received (including stormwater complaints) and how the permittee responded;* *(2) A webpage address to the permittee's MS4 program and stormwater website;* *(3) A description of the public involvement activities implemented by the permittee;* *(4) A report of the metric as defined for each activity and an evaluation as to whether or not the activity is beneficial to improving water quality; and* *(5) The name of other MS4 permittees with whom the permittee collaborated in the public involvement opportunities.*

MCM #2 Program Overview

The Town has a well-established public involvement and participation program that includes a dedicated stormwater webpage. Illicit discharges, illegal dumping, spills, complaints about land disturbing activities, and other stormwater pollution concerns can be reported using the "Illegal Discharge Information and Reporting" function on the stormwater webpage and the "How Do I Report…" function on the Town's homepage. The Town has also implemented a mechanism for receiving and responding to complaints and public input into the MS4 plan. The Town implements at least four activities from Table 2 of the MS4 permit each year to provide an opportunity for public involvement in water quality and local restoration and clean-up projects. The Town has developed guidelines for promoting additional volunteer events, which are found on the Town's stormwater webpage.

Referenced Documents:

- Stormwater Webpage: www.leesburgva.gov/government/departments/public-works/water-quality-stormwater-management
- Illicit Discharge or Illegal Dumping Reporting Form: https://www.leesburgva.gov/government/departments/public-works/water-quality-stormwater-management/illegal-discharge-information-and-reporting/report-illicit-discharge-or-illegal-dumping
- Public Input and Complaint Form: https://www.leesburgva.gov/government/departments/public-works/water-quality-stormwater-management

- Public Input and Complaint SOP (Appendix B)
- Non-Governmental Volunteer Opportunities SOP: www.leesburgva.gov/government/departments/public-works/water-quality-stormwater-management/non-governmental-volunteer-opportunities.

BMP 2.A – Stormwater Webpage

Objective: The objective of the stormwater webpage is to ensure that residents and businesses have readily available access to all MS4 program documents and reporting mechanisms.

Best Management Practices:

- Post the effective MS4 permit and coverage letter.
- Post the most current MS4 Program Plan within 30 days of an update.
- Post each annual report within 30 days of submittal to DEQ.
- Provide links to reporting functions from BMPs 2.B and 2.C.

Standard Operating Procedures and Policies: No additional SOPs or policies are required to implement this BMP.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report a snapshot of the stormwater web page, or links to the web page, documenting all required elements.

Responsible Parties: DPW will take the lead on this effort with the assistance of the PIO.

BMP 2.B – Public Reporting of Potential Illicit Discharges

Objective: The objective of this BMP is to promote the ability of the public to report illicit discharges, illegal dumping, spills, complaints about land disturbing activities, and other stormwater pollution concerns.

Best Management Practices:

- Provide information on how to report a potential illicit discharge or illegal dumping (including phone, email, and online forms) on the stormwater webpage.
- Maintain an "Illegal Discharge Information and Reporting" function on the webpage.
- Include erosion problems and illicit discharges on the Town's "How Do I Report…" function.

Standard Operating Procedures and Policies: No additional SOPs or policies are required to implement this BMP. Complaint investigation, response, and tracking is conducted in accordance with BMP 3.F.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report a snapshot of the reporting functions or link to the web page.

Responsible Parties: DPW will take the lead on this effort with the assistance of the PIO.

BMP 2.C – Public Input and Complaints

Objective: This objective of this BMP is to promote the ability of the public to provide input into the MS4 Program Plan and to receive public input or complaints.

Best Management Practices:

- Maintain a "Public Input and Complaint" function on the webpage.
- Implement the Public Input and Complaint SOP to document how the Town receives, tracks, responds to, and maintains documentation on public input or complaints.

Standard Operating Procedures and Policies: This BMP is supported by the Public Input and Complaint SOP.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report: (1) a snapshot of the public input and complaint reporting function; and, (2) a summary of any public complaints or input on the MS4 Program Plan and the Town's response to complaints or input.

BMP 2.D – Public Involvement Opportunities

Objective: The objective of this BMP is to increase the public's awareness and participation in the Town's water quality and pollution prevention efforts.

Best Management Practices:

- Implement no less than four public involvement activities per year from two or more categories in Table 2 of the MS4 permit. Planned activities include the following:

Description	Time Period	Metric	Permit Strategy
Attend the Town's Environmental Advisory Committee	Ongoing	Meeting Minutes	Educational Events
Booth at the Flower and Garden Festival	Annually in April	Materials Distributed	Educational Events
Sponsor Keep Leesburg Beautiful Trash Clean Ups	Annually in April	Number of Volunteers; Amount of Trash Collected	Restoration
Storm Drain Marking Program	Ongoing	Number of Volunteers; Number Storm Drains Marked	Pollution Prevention

- Continue to include guidelines on the stormwater webpage for submitting a request for the Town to promote a volunteer activity.

Standard Operating Procedures and Policies: This BMP is also supported by the Town's Non-Governmental Volunteer Opportunities SOP.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report a summary of the activities implemented and the metrics from the above table.

Responsible Parties: DPW and P&R will take the lead on these efforts.

MCM #2 Implementation Schedule							
BMP	**Task**	**Year(s) to Implement**					**Responsibility**
		PY1	PY2	PY3	PY4	PY5	
2.A	Host a stormwater webpage with the required permit information.	►	►	►	►	►	DPW, PIO
2.B	Provide information on how to report a potential illicit discharge on the webpage.	►	►	►	►	►	DPW, PIO
	Maintain the "Illegal Discharge Information and Reporting" function on the webpage.	►	►	►	►	►	DPW, PIO
	Include erosion and illicit discharges on the Town's "How Do I Report…" function.	►	►	►	►	►	DPW, PIO
2.C	Maintain a "Public Input and Complaint" function on the webpage.	►	►	►	►	►	DPW, PIO
	Implement the Public Input and Complaint SOP.	►	►	►	►	►	DPW
2.D	Implement at least four public involvement activities.	►	►	►	►	►	DPW, P&R
	Continue to include guidelines for promoting volunteer opportunities on the webpage.	►	►	►	►	►	DPW, PIO

MCM #3: Illicit Discharge Detection and Elimination

Permit Reference: Part I E 3

a. The permittee shall develop and maintain an accurate MS4 map and information table as follows:

(1) A map of the storm sewer system owned or operated by the permittee within the census urbanized area identified by the 2010 decennial census that includes, at a minimum:

(a) MS4 outfalls discharging to surface waters, except as follows:

….

(b) A unique identifier for each mapped item required in Part I E 3;

(c) The name and location of receiving waters to which the MS4 outfall or point of discharge discharges;

(d) MS4 regulated service area; and

(e) Stormwater management facilities owned or operated by the permittee.

(2) The permittee shall maintain an information table associated with the storm sewer system map that includes the following information for each outfall or point of discharge for those cases in which the permittee elects to map the known point of discharge in accordance with Part I E 3 a (1) (a):

(a) A unique identifier as specified on the storm sewer system map;

(b) The latitude and longitude or the outfall or point of discharge;

(c) The estimated regulated acreage draining to the outfall or point of discharge;

(d) The name of the receiving water;

(e) The 6th Order Hydrologic Unit Code of the receiving water;

(f) An indication as to whether the receiving water is listed as impaired in the Virginia 2016 305(b)/303(d) Water Quality Assessment Integrated Report;

(g) The predominant land use for each outfall discharging to an impaired water; and,

(h) The name of any EPA approved TMDLs for which the permittee is assigned a wasteload allocation.

(3) No later than July 1, 2019, the permittee shall submit to DEQ a GIS-compatible shapefile of the permittee's MS4 map as described in Part I E 3 a. If the permittee does not have an MS4 map in a GIS format, the permittee shall provide the map as a PDF document.

(4) No later than October 1 of each year, the permittee shall update the storm sewer system map and outfall information table to include any new outfalls constructed or TMDLs approved or both during the immediate preceding reporting period.

(5) The permittee shall provide written notification to any downstream adjacent MS4 of any known physical interconnection established or discovered after the effective date of this permit.

b. The permittee shall prohibit, through ordinance, policy, standard operating procedures, or other legal mechanism, to the extent allowable under federal, state, or local law, regulations, or ordinances, unauthorized nonstormwater discharges into the storm sewer system. Nonstormwater discharges or flows identified in 9VAC25-890-20 D 3 shall only be addressed if they are identified by the permittee as a significant contributor of pollutants discharging to the MS4. Flows that have been identified by the department as de minimis discharges are not significant sources of pollutants to surface water.

c. The permittee shall maintain, implement, and enforce illicit discharge detection and elimination (IDDE) written procedures designed to detect, identify, and address unauthorized nonstormwater discharges, including illegal dumping, to the small MS4 to effectively eliminate the unauthorized discharge. Written procedures shall include:

(1) A description of the legal authorities, policies, standard operating procedures or other legal mechanisms available to the permittee to eliminate identified sources of ongoing illicit discharges

MCM #3: Illicit Discharge Detection and Elimination

including procedures for using legal enforcement authorities.

(2) Dry weather field screening protocols to detect, identify, and eliminate illicit discharges to the MS4. The protocol shall include:

(a) A prioritized schedule of field screening activities and rationale for prioritization determined by the permittee based on such criteria as age of the infrastructure, land use, historical illegal discharges, dumping or cross connections;

(b) If the total number of MS4 outfalls is equal to or less than 50, a schedule to screen all outfalls annually;

(c) If the total number of MS4 outfalls is greater than 50, a schedule to screen a minimum of 50 outfalls annually such that no more than 50% are screened in the previous 12-month period. The 50% criteria is not applicable if all outfalls have been screened in the previous three years; and

(d) A mechanism to track the following information:

…

(3) A timeframe upon which to conduct an investigation to identify and locate the source of any observed unauthorized nonstormwater discharge. Priority of investigations shall be given to discharges of sanitary sewage and those believed to be a risk to human health and public safety. Discharges authorized under a separate VPDES or state permit require no further action under this permit.

(4) Methodologies to determine the source of all illicit discharges. If the permittee is unable to identify the source of an illicit discharge within six months of beginning the investigation then the permittee shall document that the source remains unidentified. If the observed discharge is intermittent, the permittee shall document that attempts to observe the discharge flowing were unsuccessful.

(5) Methodologies for conducting a follow-up investigation for illicit discharges that are continuous or that permittees expect to occur more frequently than a one-time discharge to verify that the discharge has been eliminated except as provided for in Part I E 3 c (4);

(6) A mechanism to track all illicit discharge investigations to document the following:

(a) The dates that the illicit discharge was initially observed, reported, or both;

(b) The results of the investigation, including the source, if identified;

(c) Any follow-up to the investigation;

(d) Resolution of the investigation; and

(e) The date that the investigation was closed.

d. The MS4 program plan shall include:

(1) The MS4 map and information table required by Part I E 3 a. The map and information table may be incorporated into the MS4 program plan by reference. The map shall be made available to the department within 14 days upon request;

(2) Copies of written notifications of new physical interconnections given by the permittee to other MS4s; and

(3) The IDDE procedures described in Part I E 3 c.

e. The annual report shall include:

(1) A confirmation statement that the MS4 map and information table have been updated to reflect any changes to the MS4 occurring on or before June 30 of the reporting year;

(2) The total number of outfalls screened during the reporting period as part of the dry weather screening program; and

(3) A list of illicit discharges to the MS4 including spills reaching the MS4 with information as follows:

(a) The source of illicit discharge;

MCM #3: Illicit Discharge Detection and Elimination
(b) The dates that the discharge was observed, reported, or both; *(c) Whether the discharge was discovered by the permittee during dry weather screening, reported by the public, or other method (describe);* *(d) How the investigation was resolved;* *(e) A description of any follow-up activities; and* *(f) The date the investigation was closed.*

MCM #3 Program Overview

The Town has developed a comprehensive program designed to maintain an accurate understanding of its storm sewer system and to identify and eliminate illicit discharges and illegal dumping.

Storm Sewer System Map: The Town conducted a comprehensive update of the storm sewer system map and associated outfall table during the last permit cycle. All information is maintained on a continuous basis. The map and outfall table will be updated as required in Part I E 3 a of the MS4 permit and provided to DEQ in accordance with the schedule in BMP 3.A.

Description of Legal Authorities: The Town updated Town Code Section 14-23(b) in 2014 to ensure that it has all legal authorities to addresses illicit discharges.

Illicit Discharge Detection and Elimination Written Procedures: The Town developed an Illicit Discharge Detection Elimination Plan (IDDE plan) in September 2007. The IDDE plan was updated in 2014 and then again in 2019 to incorporate the requirements of Part I E 3 c of the MS4 permit.

Referenced Documents:

- Storm Sewer System Map and Outfall Table (Appendix C).
- Town Code Section 14-23(b) "Illicit Discharge Detection and Elimination" https://library.municode.com/va/leesburg/codes/code_of_ordinances?nodeId=PTIITOCO_CH14EN_ARTIISTMA_S14-23PRCO
- Illicit Discharge Detection and Elimination Plan (Appendix D).

BMP 3.A – Storm Sewer System Map

Objective: An accurate storm sewer map and associated outfall table ensures that the Town has a full understanding of the storm drain system and enables the Town to conduct dry weather outfall reconnaissance as described in BMP 3.D.

Best Management Practices:

- By July 1, 2019, update the outfall table to include all new elements required in Part I E 3 a of the MS4 permit.
- By July 1, 2019, submit to DEQ a GIS-compatible shapefile of the Town's MS4 map.
- By October 1 of each year, update the storm sewer system map and outfall table to include any new outfalls and/or reflect any newly approved TMDLs.

- Each year, provide written notification to downstream MS4s of any new interconnection or newly discovered interconnection.

Standard Operating Procedures and Policies: All policies are reflected in the Storm Sewer System Map and Outfall Table.

Measurable Goals and Evaluation Criteria: The Town will provide DEQ the GIS-compatible shapefile by July 1, 2019. The Town will include in each annual report: (1) documentation of updates to the storm sewer system map and outfall tables; and (2), copies of notifications to downstream MS4s, if any.

Responsible Parties: DPW will take the lead on this effort.

BMP 3.B – Authority to Address Illicit Discharges

Objective: This objective of this BMP is to ensure that the Town has appropriate enforcement and right-of-entry tools to effectively prohibit non-stormwater discharges to the storm sewer system.

Best Management Practices:

- Enforce the provisions of Town Code Section 14-23(b).

Standard Operating Procedures and Policies: This BMP is implemented through Town Code Section 14-23(b) "Illicit Discharge Detection and Elimination."

Measurable Goals and Evaluation Criteria: The Town will include in each annual report a narrative on how any discharges were controlled or eliminated as part of BMP 3.F. The Town will annually assess whether any changes to the Town Code are necessary to enforce against future discharges.

Responsible Parties: DPW will take the lead on this effort with the assistance and support of the Town Attorney.

BMP 3.C – Written Procedures for Illicit Discharges and Illegal Dumping

Objective: The objective of this BMP is to ensure that procedures are in place to detect, identify, and address unauthorized discharges and illegal dumping to the Town's MS4.

Best Management Practices:

- Implement the IDDE plan.
- Incorporate the IDDE plan into field personnel training on recognizing and reporting illicit discharges in BMP 6.E.

Standard Operating Procedures and Policies: This BMP is implemented through the Illicit Discharge Detection and Elimination Plan.

Measurable Goals and Evaluation Criteria: The Town will document any changes to the IDDE plan in the applicable annual report.

Responsible Parties: DPW will take the lead on this effort.

BMP 3.D – Dry Weather Outfall Reconnaissance

Objective: The objective of this BMP is to identify and eliminate discharges as soon as possible through proactive dry weather outfall reconnaissance. Outfalls are prioritized for inspection in accordance with the procedures in the IDDE plan.

Best Management Practices:

- Perform dry weather outfall reconnaissance for at least 50 outfalls annually such that no more than 50% are screened in the previous 12-month period.

Standard Operating Procedures and Policies: This BMP is implemented through the Illicit Discharge Detection and Elimination Plan.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report a summary of the dry weather outfall reconnaissance program. Tracking will be reported as part of BMP 3.F.

Responsible Parties: DPW will take the lead on this effort.

BMP 3.F – Illicit Discharge Tracking

Objective: The MS4 permit requires that the Town track and process complaints about potential illicit discharges and to coordinate an appropriate response. Potential illicit discharges are identified through public reporting in BMP 2.B, the dry weather outfall reconnaissance program in BMP 3.D, and staff reporting in BMP 6.E.

Best Management Practices:

- Maintain a tracking database to record potential and actual illicit discharges.

Standard Operating Procedures and Policies: This BMP is implemented through the Illicit Discharge Detection and Elimination Plan.

Measurable Goal and Evaluation Criteria: The Town will include in each annual report a summary of all potential and actual illicit discharges in the tracking database. For each case, the Town will provide: (1) the date the discharge was observed or reported; (2) follow up activities; (3) measures to resolve the investigation; and, (4) closure date.

Responsible Parties: DPW will take the lead on this effort.

MCM #3 Implementation Schedule							
BMP	**Task**	**Year(s) to Implement**					**Responsibility**
		PY1	PY2	PY3	PY4	PY5	
3.A	Update outfall table in accordance with Part I E 3 a of the MS4 permit.	■					DPW, GIS
	Submit GIS shape-file to DEQ.	■					DPW, GIS
	Maintain map and outfall table annually, no later than October 1.	►	►	►	►	►	DPW, GIS
	Identify new interconnections and notify adjacent MS4s as applicable.	►	►	►	►	►	DPW, GIS
3.B	Enforce Town Code prohibitions against illicit discharges.	►	►	►	►	►	DPW, Town Attorney
3.C	Implement IDDE plan and incorporate into training.	►	►	►	►	►	DPW
3.D	Conduct dry weather outfall reconnaissance on 50 outfalls annually.	►	►	►	►	►	DPW
3.E	Maintain the illicit discharge tracking database.	►	►	►	►	►	DPW

MCM #4: Construction Site Stormwater Runoff Control

Permit Reference: Part I E 4

a. The permittee shall utilize its legal authority, such as ordinances, permits, orders, specific contract language, and interjurisdictional agreements, to address discharges entering the MS4 from regulated construction site stormwater runoff. The permittee shall control construction site stormwater runoff as follows:

(1) If the permittee is a city, county, or town that has adopted a Virginia Erosion and Sediment Control Program (VESCP), the permittee shall implement the VESCP consistent with the Virginia Erosion and Sediment Control Law (§ 62.1-44.15:51 et seq. of the Code of Virginia) and Virginia Erosion and Sediment Control Regulations (9VAC25-840);

....

b. The permittee shall require implementation of appropriate controls to prevent nonstormwater discharges to the MS4, such as wastewater, concrete washout, fuels and oils, and other illicit discharges identified during land disturbing activity inspections of the MS4. The discharge of nonstormwater discharges other than those identified in 9VAC25-890-20 D through the MS4 is not authorized by this state permit.

c. The permittee's MS4 program plan shall include:

(1) If the permittee implements a construction site stormwater runoff control program in accordance with Part I E 4 a (1), the local ordinance citations for the VESCP program;

(2) A description of the legal authorities utilized to ensure compliance with Part I E 4 a to control construction site stormwater runoff control such as ordinances, permits, orders, specific contract language, policies, and interjurisdictional agreements;

(3) Written inspection procedures to ensure the erosion and sediment controls are properly implemented and all associated documents utilized during inspection including the inspection schedule;

(4) Written procedures for requiring compliance through corrective action or enforcement action to the extent allowable under federal, state, or local law, regulation, ordinance, or other legal mechanisms; and

(5) The roles and responsibilities of each of the permittee's departments, divisions, or subdivisions in implementing the construction site stormwater runoff control requirements in Part I E 4.

d. The annual report shall include the following:

(1) If the permittee implements a construction site stormwater runoff program in accordance with Part I E 4 a (3):

(a) A confirmation that land disturbing projects that occurred during the reporting period have been conducted in accordance with the current department approved standards and specifications for erosion and sediment control; and,

(b) If one or more of the land disturbing projects were not conducted with the department approved standards and specifications, an explanation as to why the projects did not conform to the approved standards and specifications.

(2) Total number of inspections conducted; and,

(3) The total number and type of enforcement actions implemented and the type of enforcement actions.

MCM #4 Program Overview

The Town's construction site stormwater runoff control program is designed to minimize impacts from land-disturbing activities and meet all applicable local, state and federal requirements.

Description of Legal Authorities: Legal authority for the Town's program is contained in Town Code Section 14-23(f). The Town leverages Loudoun County's erosion and sediment control program to meet construction site stormwater runoff control requirements. A Memorandum of Understanding (MOU) has been executed between the Town and the County to memorialize roles and responsibilities.

Written Plan Review Procedures: Written plan review procedures are provided in the Town's "Submittal and Review of Stormwater Management and Erosion Control Plans Standard Operating Procedure."

Written Inspection and Enforcement Procedures: Written inspection and enforcement procedures are provided in the Town's "Construction Site Inspection Process Standard Operating Procedure."

Roles and Responsibilities: The Department of Plan Review is responsible for overall coordination of the plan review process. In accordance with the MOU between the Town and the County, the County handles the review and approval of erosion and sediment control plans. Loudoun County inspects erosion and sediment control measures for land-disturbing activities. To supplement the County's efforts, the Town maintains inspection staff with DEQ erosion and sediment control certification.

Referenced Documents:

- Town Code Section 14-23(f) "Construction Site Stormwater Control" https://library.municode.com/va/leesburg/codes/code_of_ordinances?nodeId=PTIITOCO_CH14EN_ARTIISTMA_S14-23PRCO
- Submittal and Review of Stormwater Management and Erosion Control Plans Standard Operating Procedure (Appendix E).
- Construction Site Inspection Process Standard Operating Procedure (Appendix E).
- Memorandum of Understanding for Erosion and Sediment Controls and Stormwater Management Between Loudoun County and the Town of Leesburg (Appendix H).

BMP 4.A – Maintain Local Program Consistency

Objective: The objective of this BMP is to ensure that the Town has in place all legal authority and processes and procedures necessary to address discharges from regulated construction site stormwater runoff.

Best Management Practices:

- Implement a program consistent with state law and regulations.
- Train all plan review, inspection, and enforcement staff as required by state law and regulations in accordance with BMP 6.E.

Standard Operating Procedures and Policies: Implement program components, including: Town Code Section 14-23(f); the MOU with Loudoun County, and the Town's construction-related SOPs.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report a summary of any changes in program consistency, if applicable.

Responsible Parties: Plan Review will lead this effort in coordination with DPW and Loudoun County in accordance with the MOU.

BMP 4.B – Track and Report Land Disturbing Activities

Objective: The Town has developed an Excel spreadsheet to maintain a comprehensive, up-to-date database of erosion and sediment control and land disturbing activities. This spreadsheet allows the Town to track and report all data required in the MS4 permit.

Best Management Practices:

- Track and submit to DEQ all land disturbing activities in accordance with MS4 permit requirements.

Standard Operating Procedures and Policies: Excel spreadsheet to track erosion and sediment control and land disturbing activities.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report: (1) a confirmation statement that land disturbing activities have been conducted in accordance with all approved standards and specifications; (2) an explanation for any projects not conducted in accordance with all standards and specifications; (3) the total number of inspections conducted; and, (4) the number and type of enforcement actions taken during the reporting period.

Responsible Parties: Plan Review will lead this effort.

MCM #4 Implementation Schedule							
BMP	**Task**	**Year(s) to Implement**					**Responsibility**
		PY1	PY2	PY3	PY4	PY5	
4.A	Implement program consistent with state law and regulations.	►	►	►	►	►	Loudoun County, Plan Review, DPW
	Train all plan review, inspection, and enforcement staff in accordance with state law and regulations.	►	►	►	►	►	Plan Review, DPW
4.B	Track and report all land disturbing activities in accordance with permit requirements.	►	►	►	►	►	Plan Review, DPW

MCM #5: Post-Construction Stormwater Management

Permit Reference: Part I E 5

a. The permittee shall address post-construction stormwater runoff that enters the MS4 from the following land disturbing activities by implementing a post-construction stormwater runoff management program as follows:

(1) If the permittee is a city, county, or town, with an approved Virginia Stormwater Management Program (VSMP), the permittee shall implement the VSMP consistent with the Virginia Stormwater Management Act (§ 62.1-44.15:24 et seq. of the Code of Virginia) and VSMP Regulations (9VAC25-870) as well as develop an inspection and maintenance program in accordance with Parts I E 5 b and c;

…

b. The permittee shall implement an inspection and maintenance program for those stormwater management facilities owned or operated by the permittee that discharges to the MS4 as follows:

(1) The permittee shall develop and maintain written inspection and maintenance procedures in order to ensure adequate long-term operation and maintenance of its stormwater management facilities;

(2) The permittee shall inspect stormwater management facilities owned or operated by the permittee no less than once per year. The permittee may choose to implement an alternative schedule to inspect these stormwater management facilities based on facility type and expected maintenance needs provided that the alternative schedule and rationale is included in the MS4 program plan. The alternative inspection frequency shall be no less than once per five years; and

(3) If during the inspection of the stormwater management facility conducted in accordance with Part I E 5 b (2), it is determined that maintenance is required, the permittee shall conduct the maintenance in accordance with the written procedures developed under Part I E 5 b (1).

c. For those permittees described in Part I E 5 a (1) or (2), the permittee shall:

(1) Implement an inspection and enforcement program for stormwater management facilities not owned by the permittee (i.e., privately owned) that includes:

(a) An inspection frequency of no less than once per five years for all privately owned stormwater management facilities that discharge into the MS4; and

(b) Adequate long-term operation and maintenance by the owner of the stormwater management facility by requiring the owner to develop and record a maintenance agreement, including an inspection schedule to the extent allowable under state or local law or other legal mechanism;

(2) Utilize its legal authority for enforcement of the maintenance responsibilities if maintenance is neglected by the owner; and

(3) The permittee may develop and implement a progressive compliance and enforcement strategy provided that the strategy is included in the MS4 program plan.

d. The permittee shall maintain an electronic database or spreadsheet of all known permittee owned or permittee-operated and privately owned stormwater management facilities that discharge into the MS4. The database shall also include all BMPs implemented by the permittee to meet the Chesapeake Bay TMDL load reduction as required in Part II A. A database shall include the following information as applicable:

(1) The stormwater management facility or BMP type;

(2) The stormwater management facility or BMPs location as latitude and longitude;

(3) The acres treated by the stormwater management facility or BMP, including total acres, pervious acres, and impervious acres;

(4) The date the facility was brought online (MM/YYYY). If the date brought online is not known, the permittee shall use June 30, 2005;

(5) The 6th Order Hydrologic Unit Code in which the stormwater management facility is located;

MCM #5: Post-Construction Stormwater Management

(6) Whether the stormwater management facility or BMP is owned or operated by the permittee or privately owned;

(7) Whether or not the stormwater management facility or BMP is part of the permittee's Chesapeake Bay TMDL action plan required in Part II A or local TMDL action plan required in Part II B, or both;

(8) If the stormwater management facility or BMP is privately owned, whether a maintenance agreement exists; and

(9) The date of the permittee's most recent inspection of the stormwater management facility or BMP.

e. The electronic database or spreadsheet shall be updated no later than 30 days after a new stormwater management facility is brought online, a new BMP is implemented to meet a TMDL load reduction as required in Part II, or discovered if it is an existing stormwater management facility.

f. The permittee shall use the DEQ Construction Stormwater Database or other application as specified by the department to report each stormwater management facility installed after July 1, 2014, to address the control of post-construction runoff from land disturbing activities for which the permittee is required to obtain a General VPDES Permit for Discharges of Stormwater from Construction Activities.

g. No later than October 1 of each year, the permittee shall electronically report the stormwater management facilities and BMPs implemented between July 1 and June 30 of each year using the DEQ BMP Warehouse and associated reporting template for any practices not reported in accordance with Part I E 5 f including stormwater management facilities installed to control post-development stormwater runoff from land disturbing activities less than one acre in accordance with the Chesapeake Bay Preservation Act regulations (9VAC25-830) and for which a General VPDES Permit for Discharges of Stormwater from Construction Activities was not required.

h. The MS4 program plan shall include:

(1) If the permittee implements a VSMP in accordance with Part I E 5 a (1) and (2):

(a) A copy of the VSMP approval letter issued by the department;

(b) Written inspection procedures and all associated documents utilized in the inspection of privately owned stormwater management facilities; and

(c) Written procedures for compliance and enforcement of inspection and maintenance requirements for privately owned BMPs.

(2) If the permittee implements a post-development stormwater runoff control program in accordance with Part I E 5 a (3):

(a) The most recently approved standards and specifications or if incorporated by reference, the location where the standards and specifications can be viewed; and

(b) A copy of the most recent standards and specifications approval letter from the department.

(3) A description of the legal authorities utilized to ensure compliance with Part I E 5 a for post-construction stormwater runoff control such as ordinances (provide citation as appropriate), permits, orders, specific contract language, and interjurisdictional agreements;

(4) Written inspection procedures and all associated documents utilized during inspection of stormwater management facilities owned or operated by the permittee;

(5) The roles and responsibilities of each of the permittee's departments, divisions, or subdivisions in implementing the post-construction stormwater runoff control program;

and

(6) The stormwater management facility spreadsheet or database incorporated by reference and the location or webpage address where the spreadsheet or database can be reviewed.

i. The annual report shall include the following information:

MCM #5: Post-Construction Stormwater Management
(1) If the permittee implements a Virginia Stormwater Management Program in accordance with Part I E 5 a (1) and (2): *(a) The number of privately owned stormwater management facility inspections conducted; and* *(b) The number of enforcement actions initiated by the permittee to ensure long-term maintenance of privately owned stormwater management facilities including the type of enforcement action;* *(2) Total number of inspections conducted on stormwater management facilities owned or operated by the permittee;* *(3) A description of the significant maintenance, repair, or retrofit activities performed on the stormwater management facilities owned or operated by the permittee to ensure it continues to perform as designed. This does not include routine activities such as grass mowing or trash collection;* *(4) A confirmation statement that the permittee submitted stormwater management facility information through the Virginia Construction Stormwater General Permit database for those land disturbing activities for which the permittee was required to obtain coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities in accordance with Part I E 5 f or a statement that the permittee did not complete any projects requiring coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities; and* *(5) A confirmation statement that the permittee electronically reported BMPs using the DEQ BMP Warehouse in accordance with Part I E 5 g and the date on which the information was submitted.*

MCM #5 Program Overview

The Town's post-construction stormwater management program is designed to meet all applicable local, state and federal requirements to minimize the long-term water quality impacts associated with development and redevelopment.

Description of Legal Authorities: The Town made revisions to the Design and Construction Standards Manual (DCSM), the Subdivision and Land Development Regulations (SLDR), Town Code (Section 14-23), and the Land Development Fee Schedule consistent with the obligations and requirements set forth in the Virginia Stormwater Management Regulations (9VAC25-870 et seq). The Town was approved as a VSMP authority by DEQ on June 13, 2014.

VSMP Approval Letter: The Town's VSMP approval letter, as required in accordance with Part I E 5 h (1), is located in Appendix E.

Written Stormwater Facility Design and Installation Procedures: The Town requires that stormwater management facilities are designed properly and installed per design to ensure that pollutant reduction requirements are met, and that the facility continues to provide long-term water quality benefits. Changes were made to the DCSM and the SLDR to incorporate new requirements in the VSMP regulations. The Town reviews development projects to ensure they are meeting VSMP criteria for water quality and water quantity requirements, along with DEQ-approved annual standards and specifications, using the Virginia BMP Clearinghouse, the Virginia Stormwater Management Handbook, and the DCSM.

Written plan review procedures are provided in the Town's "Submittal and Review of Stormwater Management and Erosion Control Plans Standard Operating Procedure."

Written Inspection, Compliance, and Enforcement Procedures: The Town ensures that maintenance is performed for both private and public stormwater management facilities so that they continue to provide the intended water quality benefits.

The Town requires private facility owners to enter into a BMP Maintenance Agreement to provide for maintenance and inspection of facilities. The Town requires that private BMP owners provide a maintenance report no later than December 31 of each year. Follow-up notices are sent to owners who do not provide an annual maintenance report. Town Code Section 14-24 provides for penalties for noncompliance. The Town conducts an inspection of each private facility at least once every five years.

The frequency of inspection by Town staff of public facilities is based upon the type of facility and expected maintenance needs. The inspection schedule for public facilities is described below.

Alternative Inspection Schedule for Public Facilities: Part I E 5 b (2) of the MS4 permit requires annual inspection by the Town of public facilities unless an alternative schedule has been adopted. The Town has adopted the following alternative schedule:

- Dry ponds, wet ponds, vegetated swales – biennial inspection
- All other facilities – annual inspection

The alternative schedule is based on the Town's assessment of whether biennial inspections for certain facilities would result in an unacceptable increase in the risk that such facilities would not perform or operate as designed. The Town has determined that facilities subject to routine maintenance throughout the year are appropriate for biennial inspection since these additional visual evaluations alert staff to any potential issues. The Town will monitor the alternative schedule to determine whether any adjustments are required.

Roles and Responsibilities: DPW is responsible for ensuring compliance with post construction stormwater management facility design, inspection, and maintenance requirements, with assistance from Plan Review. The Town Attorney assists with enforcement as necessary.

Stormwater Management Facility Database: The Town maintains an Excel spreadsheet containing all information required in Part I E 5 d. The spreadsheet can be reviewed by contacting the Town Department of Public Works.

Referenced Documents:

- Town Code Section 14-23 "Stormwater Management" https://library.municode.com/va/leesburg/codes/code_of_ordinances?nodeId=PTIITOCO_CH14EN_ARTIISTMA_S14-23PRCO
- VSMP Approval Letter (Appendix E).
- Design and Construction Standards Manual: https://www.leesburgva.gov/how-do-i/browse-documents/-folder-554
- Best Management Practice Maintenance and Inspection Standard Operating Procedure (Appendix E).
- Private Property Owner "Notice Letter" Requesting Maintenance Report (Appendix E).
- Inspection and Maintenance Procedures for Operator-Owned BMPs (Appendix E).

BMP 5.A – Maintain Local Program Consistency

Objective: The objective of this BMP is to ensure that the Town has in place all legal authority and processes and procedures necessary to effectively address post-construction stormwater quality and quantity in accordance with the VSMP regulations (9VAC25-870 et seq).

Best Management Practices:

- Implement a post-construction stormwater runoff management program consistent with state law and regulations.
- Train all plan review, inspection, and enforcement staff as required by state law and regulations in accordance with BMP 6.E.

Standard Operating Procedures and Policies: Implement program components, including: Town Code Section 14-23 and the Town's post-construction-related SOPs

Measurable Goals and Evaluation Criteria: According to the VSMP regulations (9VAC25-870-144), DEQ will review each approved local VSMP at least once every five years. The Town will provide a summary of any changes in consistency status and any actions to maintain consistency.

Responsible Parties: Plan Review will serve as the lead for facility design and implementation. DPW will serve as the lead for inspection, compliance, and enforcement.

BMP 5.B – Stormwater Facility Tracking

Objective: The Town has developed an Excel spreadsheet to maintain a comprehensive, up-to-date database of existing stormwater management facilities. This spreadsheet allows the Town to track and report all required data required in the MS4 permit.

Best Management Practices:

- By July 1, 2019, update the database to include all new elements required in Part I E 5 d of the MS4 permit.
- Update the database no later than 30 days after each new stormwater management facility is brought online.
- Record each inspection and enforcement action in the database, as applicable.
- Use the DEQ Construction Stormwater Database to report any new facility installed to meet the requirements of a General VPDES Permit for Discharges of Stormwater from Construction Activities.
- By October 1 of each year, use the DEQ BMP Warehouse to report any new facility not reported using the DEQ Construction Stormwater Database, including facilities to meet the Chesapeake Bay TMDL and facilities where a General VPDES Permit for Discharges of Stormwater from Construction Activities was not required.

Standard Operating Procedures and Policies: No additional SOPs or policies are required to implement this BMP.

Measurable Goals and Evaluation Criteria: The Town will submit an electronic database or spreadsheet of all facilities brought online during the reporting period with the appropriate

annual report. The data will include: the type of facility, location, acres treated (total acres with a breakdown of impervious and pervious acres), date brought online, sixth order Hydrologic Unit Code (HUC), the name of the impaired stream segment the facility is discharging into, whether public or private, existence of maintenance agreement, date of the most recent inspection, and when applicable, the number of enforcement actions.

Responsible Parties: DPW will maintain the database with information from Plan Review.

BMP 5.C – Stormwater Facility Maintenance and Inspection Program

Objective: The objective of this BMP is to ensure that public and private stormwater management facilities continue to provide the desired benefits to water quality over time.

Best Management Practices:

- Continue to ensure that all new facilities are subject to the provisions of a maintenance agreement and have a recorded stormwater detention easement prior to release of the construction bond.
- Notify all private facility owners/operators of their responsibility to submit an annual maintenance inspection letter. The Town will initiate appropriate enforcement procedures against private owners that do not submit maintenance inspection reports.
- Conduct inspections of all privately owned stormwater management BMPs at least once every five years per the Best Management Practice (BMP) Maintenance and Inspection Standard Operating Procedure.
- The Town will inspect owner-operated BMPs per Inspection and Maintenance Procedures for Operator-Owned BMPs.

Standard Operating Procedures and Policies: This BMP is implemented through the Best Management Practice (BMP) Maintenance and Inspection Standard Operating Procedure and Inspection and Maintenance Procedures for Operator-Owned BMPs.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report: (1) the number of private facilities inspected each year; (2) the number and type of enforcement actions taken against private facilities, if applicable; (3) the number of public facilities inspected each year; (4) a description of significant maintenance, repair, or retrofit activities performed on public facilities; and, (5) confirmation that new facilities were reported either through the DEQ Construction Stormwater Database or the DEQ BMP Warehouse.

Responsible Parties: DPW will serve as the lead on this effort, with support from Plan Review, GIS, and the Town Attorney for enforcement, as necessary.

MCM #5 Implementation Schedule							
BMP	**Task**	**Year(s) to Implement**					**Responsibility**
		PY1	PY2	PY3	PY4	PY5	
5.A	Implement program consistent with state law and regulations.	►	►	►	►	►	Town Council, Town Attorney, DPW, Plan Review
	Train all plan review, inspection, and enforcement staff in accordance with state law and regulations.	►	►	►	►	►	DPW, Plan Review
5.B	Update stormwater facility database in accordance with Part I E 5 of the MS4 permit.	■					DPW, Plan Review
	Update database no later than 30 days after each new facility is brought online.	►	►	►	►	►	DPW, Plan Review
	Track information on all enforcement activities.	►	►	►	►	►	DPW, Plan Review
	Use the DEQ Construction Stormwater Database to report new facilities requiring a construction general permit.	►	►	►	►	►	DPW, Plan Review
	Use the DEQ BMP Warehouse to report all other new facilities no later than October 1.	►	►	►	►	►	DPW, Plan Review
5.C	Enforce provisions that require BMP maintenance agreements and easements.	►	►	►	►	►	DPW
	Require private BMP owners to provide maintenance letters annually. Initiate appropriate enforcement action as necessary.	►	►	►	►	►	DPW, Town Attorney
	Conduct inspection of all privately owned facilities once every five years.	►	►	►	►	►	DPW
	Conduct inspection of publicly maintained BMPs per the "alternative schedule."	►	►	►	►	►	DPW

MCM #6: Pollution Prevention and Good Housekeeping for Municipal Operations

Permit Reference: Part I E 6

a. The permittee shall maintain and implement written procedures for those activities at facilities owned or operated by the permittee, such as road, street, and parking lot maintenance; equipment maintenance; and the application, storage, transport, and disposal of pesticides, herbicides, and fertilizers designed to:

(1) Prevent illicit discharges;

(2) Ensure the proper disposal of waste materials, including landscape wastes;

(3) Prevent the discharge of wastewater or permittee vehicle wash water or both into the MS4 without authorization under a separate VPDES permit;

(4) Require implementation of best management practices when discharging water pumped from utility construction and maintenance activities;

(5) Minimize the pollutants in stormwater runoff from bulk storage areas (e.g., salt storage, topsoil stockpiles) through the use of best management practices;

(6) Prevent pollutant discharge into the MS4 from leaking municipal automobiles and equipment; and

(7) Ensure that the application of materials, including fertilizers and pesticides, is conducted in accordance with the manufacturer's recommendations.

b. The written procedures established in accordance with Part I E 6 a shall be utilized as part of the employee training program at Part I E 6 m.

c. Within 12 months of state permit coverage, the permittee shall identify which of the high-priority facilities have a high potential of discharging pollutants. The permittee shall maintain and implement a site specific stormwater pollution prevention plan (SWPPP) for each facility identified. High priority facilities that have a high potential for discharging pollutants are those facilities that are not covered under a separate VPDES permit and which any of the following materials or activities occur and are expected to have exposure to stormwater resulting from rain, snow, snowmelt or runoff:

(1) Areas where residuals from using, storing or cleaning machinery or equipment remain and are exposed to stormwater;

(2) Materials or residuals on the ground or in stormwater inlets from spills or leaks;

(3) Material handling equipment;

(4) Materials or products that would be expected to be mobilized in stormwater runoff during loading or unloading or transporting activities (e.g., rock, salt, fill dirt);

(5) Materials or products stored outdoors (except final products intended for outside use where exposure to stormwater does not result in the discharge of pollutants);

(6) Materials or products that would be expected to be mobilized in stormwater runoff contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

(7) Waste material except waste in covered, nonleaking containers (e.g., dumpsters);

(8) Application or disposal of process wastewater (unless otherwise permitted); or

(9) Particulate matter or visible deposits of residuals from roof stacks, vents or both not otherwise regulated (i.e., under an air quality control permit) and evident in the stormwater runoff.

d. Each SWPPP as required in Part I E 6 c shall include the following:

(1) A site description that includes a site map identifying all outfalls, direction of stormwater flows, existing source controls, and receiving water bodies;

(2) A description and checklist of the potential pollutants and pollutant sources;

(3) A description of all potential nonstormwater discharges;

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(4) Written procedures designed to reduce and prevent pollutant discharge;

(5) A description of the applicable training as required in Part I E 6 m;

(6) Procedures to conduct an annual comprehensive site compliance evaluation;

(7) An inspection frequency of no less than once per year and maintenance requirements for site specific source controls. The date of each inspection and associated findings and follow-up shall be logged in each SWPPP; and

(8) A log of each unauthorized discharge, release, or spill incident reported in accordance with Part III G including the following information:

(a) Date of incident;

(b) Material discharged, released, or spilled; and

(c) Estimated quantity discharged, released or spilled.

e. No later than June 30 of each year, the permittee shall annually review any high-priority facility owned or operated by the permittee for which a SWPPP has not been developed to determine if the facility has a high potential to discharge pollutants as described in Part I E 6 c. If the facility is determined to be a high-priority facility with a high potential to discharge pollutants, the permittee shall develop a SWPPP meeting the requirements of Part I E 6 d no later than December 31 of that same year.

f. The permittee shall review the contents of any site specific SWPPP no later than 30 days after any unauthorized discharge, release, or spill reported in accordance with Part III G to determine if additional measures are necessary to prevent future unauthorized discharges, releases, or spills. If necessary, the SWPPP shall be updated no later than 90 days after the unauthorized discharge.

g. The SWPPP shall be kept at the high-priority facility with a high potential to discharge and utilized as part of staff training required in Part I E 6 m. The SWPPP and associated documents may be maintained as a hard copy or electronically as long as the documents are available to employees at the applicable site.

h. If activities change at a facility such that the facility no longer meets the criteria of a high-priority facility with a high potential to discharge pollutants as described in Part I E 6 c, the permittee may remove the facility from the list of high-priority facilities with a high potential to discharge pollutants.

i. The permittee shall maintain and implement turf and landscape nutrient management plans that have been developed by a certified turf and landscape nutrient management planner in accordance with § 10.1-104.2 of the Code of Virginia on all lands owned or operated by the permittee where nutrients are applied to a contiguous area greater than one acre. If nutrients are being applied to achieve final stabilization of a land disturbance project, application shall follow the manufacturer's recommendations.

j. Permittees with lands regulated under § 10.1-104.4 of the Code of Virginia, including state agencies, state colleges and universities, and other state government entities, shall continue to implement turf and landscape nutrient management plans in accordance with this statutory requirement.

k. The permittee shall not apply any deicing agent containing urea or other forms of nitrogen or phosphorus to parking lots, roadways, and sidewalks, or other paved surfaces.

l. The permittee shall require through the use of contract language, training, standard operating procedures, or other measures within the permittee's legal authority that contractors employed by the permittee and engaging in activities with the potential to discharge pollutants use appropriate control measures to minimize the discharge of pollutants to the MS4.

m. The permittee shall develop a training plan in writing for applicable staff that ensures the following:

(1) Field personnel receive training in the recognition and reporting of illicit discharges no less than once per 24 months;

(2) Employees performing road, street, and parking lot maintenance receive training in pollution

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prevention and good housekeeping associated with those activities no less than once per 24 months;

(3) Employees working in and around maintenance, public works, or recreational facilities receive training in good housekeeping and pollution prevention practices associated with those facilities no less than once per 24 months;

(4) Employees and contractors hired by the permittee who apply pesticides and herbicides are trained or certified in accordance with the Virginia Pesticide Control Act (§ 3.2-3900 et seq. of the Code of Virginia). Certification by the Virginia Department of Agriculture and Consumer Services (VCACS) Pesticide and Herbicide Applicator program shall constitute compliance with this requirement;

(5) Employees and contractors serving as plan reviewers, inspectors, program administrators, and construction site operators obtain the appropriate certifications as required under the Virginia Erosion and Sediment Control Law and its attendant regulations;

(6) Employees and contractors implementing the stormwater program obtain the appropriate certifications as required under the Virginia Stormwater Management Act and its attendant regulations; and

(7) Employees whose duties include emergency response have been trained in spill response. Training of emergency responders such as firefighters and law-enforcement officers on the handling of spill releases as part of a larger emergency response training shall satisfy this training requirement and be documented in the training plan.

n. The permittee shall maintain documentation of each training event conducted by the permittee to fulfill the requirements of Part I E 6 m for a minimum of three years after the training event. The documentation shall include the following information:

(1) The date of the training event;

(2) The number of employees attending the training event; and

(3) The objective of the training event.

o. The permittee may fulfill the training requirements in Part I E 6 m, in total or in part, through regional training programs involving two or more MS4 permittees; however, the permittee shall remain responsible for ensuring compliance with the training requirements.

p. The MS4 program plan shall include:

(1) The written procedures for the operations and maintenance activities as required by Part I E 6 a;

(2) A list of all high-priority facilities owned or operated by the permittee required in accordance with Part I E 6 c, and whether or not the facility has a high potential to discharge;

(3) A list of lands for which turf and landscape nutrient management plans are required in accordance with Part I E 6 i and j, including the following information:

(a) The total acreage on which nutrients are applied;

(b) The date of the most recently approved nutrient management plan for the property; and

(c) The location in which the individual turf and landscape nutrient management plan is located;

(4) A summary of mechanisms the permittee uses to ensure contractors working on behalf of the permittees implement the necessary good housekeeping and pollution prevention procedures, and stormwater pollution plans as appropriate; and

(5) The written training plan as required in Part I E 6 m.

q. The annual report shall include the following:

(1) A summary of any operational procedures developed or modified in accordance with Part I E 6 a during the reporting period;

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(2) A summary of any new SWPPPs developed in accordance Part I E 6 c during the reporting period; *(3) A summary of any SWPPPs modified in accordance with Part I E 6 f or the rationale of any high priority facilities delisted in accordance with Part I E 6 h during the reporting period;* *(4) A summary of any new turf and landscape nutrient management plans developed that includes:* *(a) Location and the total acreage of each land area; and* *(b) The date of the approved nutrient management plan; and* *(5) A list of the training events conducted in accordance with Part I E 6 m, including the following information:* *(a) The date of the training event;* *(b) The number of employees who attended the training event; and* *(c) The objective of the training event.*

MCM #6 Program Overview

Operation and Maintenance Pollution Prevention SOPs: The Town developed and is implementing operation and maintenance pollution prevention procedures as required in Part I E 6 a. The "Standard Operating Procedure for Stormwater Pollution Prevention" includes: basin cleaning; catch basin repair; outfall repair; storm drain system repair; erosion and sediment control; landscape design and management; pesticide storage and disposal; fertilizer application; weed and pest control; mowing and irrigation; vehicle and equipment storage; vehicle and equipment washing; vehicle and equipment fueling; spill clean-up; parts cleaning and storage; produce use, storage, and disposal; petroleum and chemical handling and disposal; refuse storage; general housekeeping; floor drains; painting; street sweeping; snow removal; sand and salt storage; and salt application.

Stormwater Pollution Prevention Plans: Part I E 6 c of the permit requires the identification of locations designated as high-priority facilities due to the high potential for pollutant discharges, and the development and implementation of SWPPPs for those facilities. Facilities covered under separate VPDES industrial stormwater permits are not subject to this requirement.

The Town has two separate industrial stormwater permits: the co-located Water Pollution Control Facility and Central Maintenance Facility (VAR05127); and, Leesburg Executive Airport (VAR051426). The Town's Utilities Maintenance Facility is considered a non-industrial facility and therefore not subject to a VPDES permit. However, it is voluntarily included in the SWPPP for the Water Pollution Control Facility and Central Maintenance Facility since it is part of the same complex. The SWPPP will be updated in 2019 as part of the VPDES industrial stormwater re-permitting process and the sections addressing the Utilities Maintenance Facility will be updated to ensure that they address all of the items in the MS4 permit.

Nutrient Management Plans: Part I E 6 i requires the development of nutrient management plans (NMPs) for Town properties where nutrients are applied to more than one contiguous acre. Three properties were identified during the last permit cycle. The following table shows the property details, the year the NMP was adopted, and the NMP renewal date.

Name	Size (ac)	Adopted	Renewal Date	Latitude and Longitude
Freedom Park	25.4	2015	June 29, 2020	Lat: 39.089047 Long: -77.569296
Robinson Park	10.0	2015	June 29, 2020	Lat: 39.122227 Long: -77.549160
Ida Lee Park	138.0	2016	August 31, 2021	Lat: 39.123595 Long. -77.565736

Prohibition on Urea Containing Deicers: The Town prohibits the use of urea-based deicers through its Standard Operating Procedure for Stormwater Pollution Prevention.

Contractors: Part I E 6 l requires the Town to ensure that all contractors providing services to the Town are in full compliance with applicable licensing and certification requirements as well as the Town's pollution prevention SOPs. The Town includes the following language in all RFPs and contracts with the Town:

> PERMITS, FEES AND NOTICES
>
> 4.9.1 The Contractor shall secure and pay for all permits, fees, licenses and inspections necessary for the proper execution and completion of the Work that are legally required at the time the proposals are received.
>
> 4.9.2 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the Work.
>
> 4.9.3 The Contractor shall have personnel on site that are qualified and have the proper certifications for Erosion and Sedimentation Control, Best Management Practice (BMP), and Storm Water Management (SWM), or any other Department of Environmental Quality (DEQ) certifications as required for any and all permits issued and/or required by the Work

Training Plan: The Town has developed a training program and schedule in accordance with the permit requirements. The training program is reflected in BMP 6.E.

Referenced Documents:

- Operation and Maintenance Pollution Prevention Standard Operating Procedures (Appendix F).
- VPDES Industrial Stormwater Permit SWPPPs (on-site at the Water Pollution Control Facility/Central Maintenance Facility and Leesburg Executive Airport).
- Nutrient Management Plans (on-site at Ida Lee Park).

BMP 6.A – Operation and Maintenance Pollution Prevention SOPs

Objective: The objective of this BMP is to implement pollution prevention procedures for operation and maintenance activities as required in Part I E 6 a of the permit.

Best Management Practices:

- Implement the Operation and Maintenance Pollution Prevention Standard Operating Procedures.

- Prohibit the application of any deicing agent containing urea or other forms of nitrogen or phosphorus in accordance with the Operation and Maintenance Pollution Prevention Standard Operating Procedures.
- Annually review, and if necessary, update the Operation and Maintenance Pollution Prevention Standard Operating Procedures to comply with the MS4 permit requirements.
- Incorporate the Operation and Maintenance Pollution Prevention Standard Operating Procedures into the staff training in BMP 6.E, as appropriate.

Standard Operating Procedures and Policies: This BMP is implemented through the Standard Operating Procedure for Stormwater Pollution Prevention.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report a confirmation that the SOP has been reviewed and any necessary changes have been made.

Responsible Parties: DPW will lead this effort with assistance from applicable agency heads.

BMP 6.B –Stormwater Pollution Prevention Plans for High-Priority Facilities

Objective: The objective of this BMP is to reduce and prevent the discharge of pollutants at high-priority facilities through implementation of SWPPPs and other pollution prevention measures.

Best Management Practices:

- Implement SWPPPs required by VPDES industrial stormwater permits for the Water Pollution Control Facility, the Central Maintenance Facility, and the Leesburg Airport.
- By July 1, 2019, update the Water Pollution Control Facility/Central Maintenance Facility SWPPP to ensure that all requirements are included for the Utilities Maintenance Facility.
- By June 30 of each year, review high priority sites that do not have a SWPPP to see if they have a high potential to discharge pollutants. By December 31 of the same year, develop a SWPPP for any newly identified high priority site with a high potential to discharge pollutants.
- Review a SWPPP within 30 days of any unauthorized discharge, release, or spill reported in accordance with the permit. Update the SWPPP within 90 days if necessary to prevent future unauthorized discharge, release, or spill.

Standard Operating Procedures and Policies: This BMP is implemented through SWPPPs for the Water Pollution Control Facility/Central Maintenance Facility and Leesburg Executive Airport.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report: (1) confirmation that the VPDES stormwater industrial SWPPPs are being implemented; (2) confirmation of the review of high priority sites; and, (3) a description of any new SWPPPs or changes to SWPPPs.

Responsible Parties: Utilities and DPW implement the Water Pollution Control Facility/Central Maintenance Facility SWPPP; Leesburg Airport implements the Airport SWPPP.

BMP 6.C – Turf and Landscape Nutrient Management Plans

Objective: The objective of this BMP is to reduce the potential for nutrients applied to turf and landscape areas to impact water quality through the implementation of NMPs by a certified nutrient planner.

Best Management Practices:

- Implement NMPs for any properties where nutrients are applied to greater than one contiguous acre.
- By June 29, 2020, update the Freedom Park and Robinson Park NMPs.
- By August 31, 2021, update the Ida Lee Park NMP.

Standard Operating Procedures and Policies: This BMP is implemented through NMPs for Freedom Park, Robinson Park, and Ida Lee Park.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report verification that the Town is implementing required NMPs. Copies of updated NMPs will be submitted in the appropriate annual report.

Responsible Parties: P&R is the lead for implementing this effort, with assistance from DPW as needed.

BMP 6.D– Contractor Oversight Procedures

Objective: The objective of this BMP is to ensure that contractors performing work on behalf of the Town use the appropriate procedures and control measures to protect water quality.

Best Management Practices:

- Include requirement for contractors to abide by applicable licensing and certification requirements as well as the Town's pollution prevention SOPs in RFPs and contact language.

Standard Operating Procedures and Policies: This BMP is implemented through RFP/contract language adopted by the Town and provided at the beginning of MCM #6.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report verification that the Town is implementing the mechanism selected to ensure contractor adherence to local, state, and federal requirements and the Town's SOPs.

Responsible Party: DPW will be the lead agency, with assistance from Procurement as needed.

BMP 6.E– Training Plan

Objective: The purpose of this BMP is to implement a training plan in accordance with Part I E 6 m-o of the MS4 Permit.

Best Management Practice: Training will be provided in accordance with the following schedule:

Category	Training	Agencies	Mechanisms	Schedule
Field Personnel	Recognition and reporting of illicit discharges	DPW – Streets and Grounds Maintenance DPW – Sign and Signal Maintenance DPW – Building Maintenance Capital Projects – Construction Capital Projects – Inspection Utility Maintenance	Videos, presentations, desktop exercises, field exercises DPW and Utility Maintenance may be coordinated with annual VPDES SWPPP training	PY1, PY3, PY5
Road, Street, and Parking Lot Maintenance Personnel	Pollution prevention and good housekeeping associated with work activities	DPW – Streets and Grounds Maintenance	Videos, presentations, desktop exercises, field exercises DPW may be coordinated with annual VPDES SWPPP training	PY2, PY4
Maintenance, Public Works, and Recreational Facilities	Pollution prevention and good housekeeping associated with work activities	DPW – Streets and Grounds Maintenance DPW – Sign and Signal Maintenance DPW – Building Maintenance DPW – Fleet Maintenance Utilities – Utility Maintenance Utilities – Water Pollution Control Parks – Parks Services Parks – Ida Lee Operations Parks – Aquatics Leesburg Airport	Videos, presentations, desktop exercises, field exercises DPW, Utilities, and Airport may be coordinated with annual VPDES SWPPP training	PY2, PY4
Pesticide and Herbicide Applicators	Proper storage, handling, and application of pesticides and herbicides	Parks – Parks Services	VDACS certification	Recertification as required by VDACS

Category	Training	Agencies	Mechanisms	Schedule
Erosion and Sediment Control and Stormwater Management Regulations	Implementation of VESC and VSMP requirements	Plan review and approval in DPW and Plan Review	VESC and VSMP certifications	As required by DEQ and state law and regulations
Emergency Response Personnel	Spill response	Town Police – Patrol Operations*	Video, presentations	PY5

** Fire and Rescue is provided by Loudoun County.*

Standard Operating Procedures and Policies: This BMP will be implemented through the schedule provided above.

Measurable Goals and Evaluation Criteria: The Town will include in each annual report: (1) the date of each training event; (2) the number of employees attending each training event; and, (3)) the objective of each training event.

Responsible Parties: DPW will be the lead agency, with assistance from Procurement as needed.

MCM #6 Implementation Schedule							
BMP	**Task**	**Year(s) to Implement**					**Responsibility**
		PY1	PY2	PY3	PY4	PY5	
6.A	Implement SOP for Stormwater Pollution Prevention.	►	►	►	►	►	DPW
	Prohibit application of deicing agents containing urea or other forms of nitrogen or phosphorus.	►	►	►	►	►	DPW
	Annually review SOP.	►	►	►	►	►	DPW
	Incorporate SOP into staff training.	►	►	►	►	►	DPW
6.B	Implement stormwater industrial SWPPPs under VPDES permits.	►	►	►	►	►	DPW, Utilities, Airport
	Update WPCF/CMF SWPPP to Cover Utilities Maintenance Facility.	■					DPW, Utilities
	Review high-priority sites and develop new SWPPPs, if necessary.	►	►	►	►	►	DPW
	Review high-priority sites after incidents and update SWPPPs, if necessary.	►	►	►	►	►	DPW

MCM #6 Implementation Schedule							
6.C	Implement NMPs.	▶	▶	▶	▶	▶	DPR, DPW
	Update Freedom Park and Robinson Park NMPs.		■				P&R
	Update Ida Lee Park NMP.			■			P&R
6.D	Implement contractor RFP/contract requirements.	▶	▶	▶	▶	▶	DPW, Procurement
6.E	Provide biennial training for field personnel on recognition and reporting of illicit discharges.	■		■		■	DPW, Capital Projects, Utilities
	Provide biennial pollution prevention training to road, street, and parking lot maintenance personnel.		■		■		DPW
	Provide biennial pollution prevention training to maintenance, public works, and recreational facility personnel.		■		■		DPW, Utilities, P&R, Airport
	Provide appropriate certification for personnel engaged in pesticide and herbicide application.	▶	▶	▶	▶	▶	P&R
	Provide appropriate certification for personnel engaged in implementation of VESC and VSMP requirements.	▶	▶	▶	▶	▶	DPW; Plan Review
	Provide refresher training to emergency spill response personnel.					■	DPW, Police

G. Annual Report and Key Milestones

Annual Report

The Town will submit annual reports to DEQ each year covering the period of July 1 through June 30. The reports will be submitted to DEQ no later than October 1 of each year. The information provided to DEQ will be in accordance with the provisions of Part I D of the MS4 permit, which includes the following:

a) General information:
   i) The permittee, system name, and permit number.
   ii) The reporting period for which the annual report is being submitted.
   iii) A signed certification as per Part III K.

iv) Each annual reporting item as specified in an MCM in Part I E.

v) An evaluation of the MS4 program implementation, including a review of each MCM, to determine the MS4 program's effectiveness and whether or not changes to the MS4 Program Plan are necessary.

b) A status report on the implementation of the Chesapeake Bay TMDL Action Plan in accordance with Part II A of the permit, including any revisions to the plan.

c) A status report on the implementation of any local TMDL action plans (i.e. the Goose Creek Benthic TMDL Action Plan) in accordance with Part II B of the permit, including any revisions to the plan

Annual Reporting Checklist

The following are the specific annual reporting items specified in Part I E for each MCM.

MCM #1	
☐	A list of the high-priority stormwater issues the permittee addressed in the public education and outreach program; and,
☐	A list of the strategies used to communicate each high-priority stormwater issue.
MCM #2	
☐	A summary of any public input on the MS4 program received (including stormwater complaints) and how the permittee responded;
☐	A webpage address to the permittee's MS4 program and stormwater website;
☐	A description of the public involvement activities implemented by the permittee;
☐	A report of the metric as defined for each activity and an evaluation as to whether or not the activity is beneficial to improving water quality; and,
☐	The name of other MS4 permittees with whom the permittee collaborated in the public involvement opportunities.
MCM #3	
☐	A confirmation statement that the MS4 map and information table have been updated to reflect any changes to the MS4 occurring on or before June 30 of the reporting year;
☐	The total number of outfalls screened during the reporting period as part of the dry weather screening program; and,
☐	A list of illicit discharges to the MS4 including spills reaching the MS4 with information as follows: (a) The source of illicit discharge; (b) The dates that the discharge was observed, reported, or both; (c)) Whether the discharge was discovered by the permittee during dry weather screening, reported by the public, or other method (describe); (d) How the investigation was resolved; (e) A description of any follow-up activities; and

	(f) The date the investigation was closed.
MCM #4	
☐	If the permittee implements a construction site stormwater runoff program in accordance with Part I E 4 a (3): (a) A confirmation that land disturbing projects that occurred during the reporting period have been conducted in accordance with the current department approved standards and specifications for erosion and sediment control; and, (b) If one or more of the land disturbing projects were not conducted with the department approved standards and specifications, an explanation as to why the projects did not conform to the approved standards and specifications.
☐	Total number of inspections conducted; and,
☐	The total number and type of enforcement actions implemented and the type of enforcement actions.
MCM #5	
☐	If the permittee implements a Virginia Stormwater Management Program in accordance with Part I E 5 a (1) and (2): (a) The number of privately owned stormwater management facility inspections conducted; and, (b) The number of enforcement actions initiated by the permittee to ensure long-term maintenance of privately owned stormwater management facilities including the type of enforcement action.
☐	Total number of inspections conducted on stormwater management facilities owned or operated by the permittee;
☐	A description of the significant maintenance, repair, or retrofit activities performed on the stormwater management facilities owned or operated by the permittee to ensure it continues to perform as designed. This does not include routine activities such as grass mowing or trash collection;
☐	A confirmation statement that the permittee submitted stormwater management facility information through the Virginia Construction Stormwater General Permit database for those land disturbing activities for which the permittee was required to obtain coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities in accordance with Part I E 5 f or a statement that the permittee did not complete any projects requiring coverage under the General VPDES Permit for Discharges of Stormwater from Construction Activities; and,
☐	A confirmation statement that the permittee electronically reported BMPs using the DEQ BMP Warehouse in accordance with Part I E 5 g and the date on which the information was submitted.
MCM #6	
☐	A summary of any operational procedures developed or modified in accordance with Part I E 6 a during the reporting period;
☐	A summary of any new SWPPPs developed in accordance Part I E 6 c during the reporting period;

☐	A summary of any SWPPPs modified in accordance with Part I E 6 f or the rationale of any high priority facilities delisted in accordance with Part I E 6 h during the reporting period;
☐	A summary of any new turf and landscape nutrient management plans developed that includes: (a) Location and the total acreage of each land area; and, (b) The date of the approved nutrient management plan.
☐	A list of the training events conducted in accordance with Part I E 6 m, including the following information: (a) The date of the training event; (b) The number of employees who attended the training event; and, (c)) The objective of the training event.

Key Milestones

- May 30, 2019 – Post updated MS4 Program Plan on the webpage.
- July 1, 2019 – Submit to DEQ a GIS-compatible shapefile of the Town's MS4 map.
- October 31, 2019 – Update Chesapeake Bay TMDL Action Plan.
- March 31, 2020 – Update Goose Creek Sediment TMDL Action Plan.
- August 3, 2023 – Registration Statement due to DEQ for renewal of permit coverage.
- October 31, 2023 – MS4 permit expiration date.
- Annually by June 30 – Review high-priority sites without SWPPPs.
- Annually by October 1 – Update MS4 map and outfall information table.
- Annually by October 1 – Report new stormwater management facilities not subject to a General VPDES Construction Permit on the DEQ BMP Warehouse.
- Within 30 Days – Update stormwater management facility database with new facilities brought on line.
- Within 30 Days – Review SWPPP if an unauthorized discharge/release/spill is reported.

Appendix A
Public Education and Outreach Plan

Public Education and Outreach Plan

April 24, 2019

Town of Leesburg
Department of Public Works and Capital Projects
25 West Market Street Leesburg, Virginia 20176

Prepared with assistance by:
Wood Environment & Infrastructure Solutions
Chantilly, Virginia

Prepared in Compliance with Municipal Separate Storm Sewer System (MS4) Permit No. VAR040059. *For more information on the program community outreach and educational opportunities contact the Department of Public Works or call 703-771-2790*

Town of Leesburg Public Education and Outreach Plan

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Tables

Town of Leesburg Public Education and Outreach Plan

1 Introduction

1.1 Overview

This Public Education and Outreach Plan (plan) has been developed in compliance with the Town's "General VPDES Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems" (MS4) Permit No VAR040059. The plan builds on the Town's existing public education and outreach efforts, which are documented in MS4 annual reports to the Virginia Department of Environmental Quality (DEQ).

The Town has long recognized that preventing stormwater pollution is the most effective and cost-efficient way to protect water resources. An active and engaged public that understands the link between personal behaviors and the potential impact to water quality is the foundational basis of a successful public education and outreach program geared towards preventing stormwater pollution. In addition to the impact of education on changing personal behaviors, Town residents and the business community can act as water quality ambassadors by helping to educate their own family members, friends, and neighbors about the importance of preventing pollution.

1.2 Applicable Requirements

Part I E 1 of the MS4 permit requires the Town to implement a public education and outreach program designed to:

- Increase the public's knowledge of how to reduce stormwater pollution, placing priority on reducing impacts to impaired waters and other local water pollution concerns.
- Increase the public's knowledge of hazards associated with illegal discharges and improper disposal of waste, including pertinent legal implications.
- Implement a diverse program with strategies that are targeted toward individuals or groups most likely to have significant stormwater impacts.

To meet those goals, the Town must identify at least three high-priority stormwater issues and design a program that:

- Clearly identifies the high-priority stormwater issues.
- Explains the importance of the high-priority stormwater issues.

- Includes measures or actions the public can take to minimize the impact of the high-priority stormwater issues.
- Provides a contact and telephone number, website, or location where the public can find out more information.

While the Town has broad latitude to design the program, it must use at least two of the communications strategies listed in Table 1 of the MS4 permit annually for each high-priority issue. These include:

Strategies	Examples
Traditional Written Materials	Informational brochures, newsletters, fact sheets, utility bill inserts, or recreational guides.
Alternative Materials	Bumper stickers, refrigerator magnets, t-shirts, or drink koozies.
Signage	Temporary or permanent signage in public spaces or facilities, vehicle signage, bill boards, or storm drain stenciling.
Media Materials	Information disseminated through electronic media, radio, television, movie theaters, or newspapers.
Speaking Engagements	Presentations to school, church, industry, trade, special interest, or community groups.
Curriculum Materials	Materials developed for school-aged children, students at local colleges or universities, or extension classes offered to local citizens.
Training Materials	Materials developed to disseminate during workshops offered to local citizens, trade organizations, or industrial officials.

1.3 Responsibility for Plan Implementation

The Town Department of Public Works and Capital Projects (DPW) has overall responsibility for plan implementation. They are assisted by the Public Information Officer (PIO), Parks and Recreation (P&R), and other Town departments as needed.

1.4 Demographics

Having an understanding of the Town's population is key to designing an effective outreach strategy. The Town's population is relatively young, with approximately 31% of residents being under the age 20. The median age of a Town resident is 34.8. It is not surprising, then, that a large majority of residents are technology-savvy. A Loudoun County survey conducted in 2016 indicated that 98% of residents in urban areas have access to the internet at home. As a result, internet and social media have significant potential as education and outreach tools.

The Town is also very diverse. The minority population is 25% of the total and the foreign-born population is 22% of the total. Approximately 14% of the Town's residents speak Spanish as their primary language.

Finally, approximately 34% of the Town's 16,082 housing units were built in 2000 or later. Most of the Town's housing stock consists of single family detached homes or townhomes with yards. This indicates that many residents are responsible for making decisions about the application of pesticides and fertilizers.

1.5 Existing Town Outreach Mechanisms

The Town has multiple outreach mechanisms that are currently, or could be used to promote pollution prevention messages. These mechanisms provide a solid platform for continuing and enhancing the Town's program. Key outreach tools include the following:

- Web Page – DPW maintains a stormwater-focused web page on the Town's web site. The page had nearly 2,000 views in FY2018 and includes pollution prevention information targeted to homeowners, pet owners, and businesses.
- Social Media – The Town is an active user of social media, including Facebook and Twitter. As of July 2018, the Town had 7,728 Twitter followers and 9,802 "likes" on the Town's Facebook page.
- Festivals and Events – Several major events occur in the Town each year that provide an opportunity to distribute pollution prevention education materials. These include the annual Flower and Garden Festival and Keep Leesburg Beautiful clean-up events.
- Storm Drain Marking – The Town promotes its storm drain marking program at various events and through its web site. Storm drain marking reminds residents and businesses that storm drains lead to a local stream, and not a wastewater treatment facility.
- Resident Newsletter – The Town publishes four seasonal newsletters each year that are mailed to all residences in the Town.
- Post Cards – DPW sends out annual post cards that reach all residential households in the Town. Post cards include pollution prevention messages.
- Targeted Outreach – The Town periodically provides targeted outreach to specific businesses or organizations. These have included homeowner associations (HOAs), restaurants, and landscape companies.

1.6 Clean Water Partners

The Town participates in the Northern Virginia Regional Commission (NVRC) Clean Water Partners regional outreach program. By pooling resources, Clean Water Partners enables the Town to reach a broader audience through cable television and digital media. In addition to advertising in English, Clean Water Partners includes a focus on Spanish language media. Clean Water Partners conducts an annual survey of 500 Northern Virginia residents to assess the effectiveness of the program. In 2018, the Clean Water Partners chose three high-priority issues as the focus of outreach efforts. These included bacteria, nutrients, and illicit discharge of chemical contaminants. Clean Water Partners periodically assesses its focus areas to align with member priorities.

1.7 Loudoun County Soil and Water Conservation District

The Town will continue to provide presentations to school-age youth and/or collaborate with the Loudoun County Soil and Water Conservation District (LCSWCD) or other community organizations on opportunities to reach out to school-age youth.

2 General Education and Outreach

The Town will continue to implement a broad-based education and outreach program designed to increase general awareness of the importance of protecting water resources and specific actions that residents and businesses can take to prevent stormwater pollution. The goal is to expose as many residents as possible to a pollution prevention message. The program will include the following elements:

- Web Page – DPW will continue to maintain a stormwater-focused web page on the Town's web site and update it with new information as applicable.
- Festivals and Events – DPW will continue to distribute general stormwater pollution prevention information at the annual Flower and Garden Festival and Keep Leesburg Beautiful clean-up events.
- Storm Drain Marking – DWP will continue to implement the storm drain marking program and promote it to Town volunteer organizations.
- Clean Water Partners – The Town will continue to participate in the NVRC Clean Water Partners program.
- Youth-Focused Education – The Town will continue to provide presentations to schools and collaborate with Loudoun County Soil and Water Conservation District on opportunities to reach out to school-age youth.

3 High Priority Stormwater Issues

The Town must identify at least three high-priority stormwater issues and the design and implement communications strategies to reach target audiences. The following sections provide the rationale for the Town's three issues and discuss selected target audiences.

3.1 Identification of High Priority Stormwater Issues

The MS4 permit places priority on reducing impacts to impaired waters and other local water pollution concerns. Impaired waters are those that do not meet Virginia's water quality standards. DEQ maintains a list of impaired waters based on local monitoring data (2016 305(b)/303(d) Water Quality Assessment Integrated Report). Locally, impaired waters include

Sycolin Creek, Tuscarora Creek, and Goose Creek for *e. coli* bacteria and Goose Creek for impacts to benthic macroinvertebrates (typically caused by too much sediment).

In addition, DEQ has developed Total Maximum Daily Load (TMDL) reports for several impairments. A TMDL identifies the source of the impairment and establishes the maximum amount of a pollutant that can enter a water body without violating water quality standards. Three TMDLs have been developed that affect the Town. The Chesapeake Bay TMDL, which affects the entire area draining to the Chesapeake Bay, identifies nutrients (phosphorus and nitrogen) as well as sediment as key pollutants of concern. Two TMDLs have also been developed for Goose Creek – including one for *e. coli* bacteria and one for sediment.

In addition to these pollutants of concern, the Town has identified illicit discharges and illegal dumping as an issue based on staff observations and complaints. Although broad-based, the primary areas of concern are oil and grease from restaurants and dumping of household hazardous waste (HHW) in residential areas.

The following provides an assessment of these stormwater issues identified by the Town and the rationale for selecting the three high-priority issues.

Table 1. Assessment of High-Priority Stormwater Issues

Pollutant	Discussion and Rationale	Top Three High Priority?
Bacteria	Sycolin Creek, Tuscarora Creek, and Goose Creek are impaired for *e. coli* bacteria. The Goose Creek TMDL lists pet waste as a significant source of bacteria. With over 2,000 dog owners in the Town, the potential for pet waste pollution is significant. Public education can play a meaningful role in reducing bacteria pollution through educating owners of the human health and legal consequences of not picking up pet waste.	Yes
Illicit Discharges and Illegal Dumping	Illicit discharges and illegal dumping can seriously impact local water quality resources. In addition to stormwater pollution, illegal dumping can also cause blockages in the system and lead to flooding. Field observations and resident complaints have identified this issue at restaurants as well as in residential communities. Problems can be mitigated through education on proper disposal methods and the legal consequences of non-compliance.	Yes
Sediment	The Town is subject to the Chesapeake Bay and Goose Creek TMDLs for sediment and has developed action	No

Pollutant	Discussion and Rationale	Top Three High Priority?
	plans to address this issue. The Goose Creek TMDL found that the majority of urban sediment loads were coming from stream bank erosion and construction to a lesser extent. Any public role in reducing sediment will be handled in the Town's larger effort to reduce illicit discharges by informing the public on where to report problems.	
Nutrients	The Town is subject to the Chesapeake Bay TMDL for nutrients (nitrogen and phosphorus) and has developed an action plan to address this issue. The majority of residences in Leesburg are single-family or townhomes where the lawn may be managed by the property owner or a landscape company. As a result, there is a high potential for public education to affect behavior in a way that will reduce the amount of nutrients entering local waterways and eventually the Chesapeake Bay.	Yes

3.2 Identification of Target Audiences

The MS4 permit requires the identification of the public audience that will be the subject of outreach and education messages. The following provides an overview of each target audiences identified for each high-priority water quality issue.

Table 2. Target Audience for High-Priority Stormwater Issues

High-Priority Issue	Discussion of Target Audience	Audience Size
Bacteria	Dog owners have been identified as the target audience. Dog owners may be identified through registrations. However, Loudoun County manages registrations and the Leesburg ZIP code extends beyond the Town limits. As a result, it is impractical to utilize direct mail to dog owners. Therefore, the Town will target all residential households as well as HOAs and property management companies.	All households (approximately 17,026 according to the 2017 U.S. Census Bureau estimate)
Illicit Discharges and Illegal Dumping	Residents and restaurants have been identified as the target audiences. The Town has been contacted by various HOAs and property managers for assistance in dealing with these	All households ~40 HOAs and/or property management

High-Priority Issue	Discussion of Target Audience	Audience Size
	types of issues. The Town will benefit from their support in the outreach efforts.	companies ~ 140 restaurants
Nutrients	Landscape companies, single family and townhome residences, and HOAs and property managers have been identified as target audiences.	All single-family and town home households ~40 HOAs and/or property management companies 12-15 landscape companies

4 Communication Strategies

This section identifies the communication strategies that will be used to reach target audiences for the three high-priority issues. As required in the MS4 permit, the Town has selected at least two strategies from Table 1 of the permit that will be implemented annually for each high-priority issue. Timing and frequency is designed to ensure that a mix of strategies is employed over the five year permit cycle.

Table 3. Communication Strategies

High-Priority Issue	Target Audience	Strategies	Frequency Over Permit
Bacteria	All households	The Town will include a bacteria-related message in one of the direct mail post-cards to reach single family home and townhome owners.	Once
		The Town will continue its PAWS for Clean Water initiative. Dog owners are asked to sign a pledge form stating that they will clean up after their pet(s). In exchange the Town provides them a free pet waste pickup bag dispenser. The program is implemented primarily	All Years

High-Priority Issue	Target Audience	Strategies	Frequency Over Permit
		through the Town's Festivals and Events.	
		One of the Town's social media posts will be on pet waste.	All Years
		The Town will utilize direct mail to reach HOAs and property managers about the importance of keeping common areas free of pet waste.	Once
Illicit Discharges and Illegal Dumping	All households ~40 HOAs and/or property management companies ~ 140 restaurants	The Town will include an illicit discharge-related message in one of the direct mail post-cards to reach single family home and townhome owners, with a focus on how to report incidents.	Once
		The Town will promote HHW disposal options in the seasonal resident newsletter.	All Years
		One of the Town's social media posts will be on where to properly dispose of HHW.	All Years
		The Town will utilize direct mail to reach HOAs and property managers with tips on reducing illicit discharges and dumping, with a focus on how to report incidents.	Once
		The Town will provide all restaurants with educational materials on the importance of proper disposal of wastes and the legal consequences of non-compliance.	Once
Nutrients	Single-family and town home households ~40 HOAs	The Town will include a fertilizer-related message in one of the direct mail post-cards to reach single family home and townhome owners.	Once

High-Priority Issue	Target Audience	Strategies	Frequency Over Permit
	and/or property management companies 12-15 landscape companies	The Town will promote proper fertilizing techniques in the seasonal resident newsletter.	All Years
		One of the Town's social media posts will be on proper fertilizer use.	All Years
		The Town will utilize direct mail to reach HOAs and property managers about the importance of proper nutrient management.	Once
		The Town will provide landscape companies with educational materials on the importance of proper nutrient management and the legal consequences of non-compliance.	Once

5 Assessment of Strategies

DPW will assess the adequacy of this plan through the MS4 annual report and at the end of the permit cycle. Any deficiencies or areas where the plan seems to be lacking will be noted and the plan will be modified accordingly.

The Town will also review the results of the annual survey conducted by the NVRC Clean Water Partners. The survey, which has been in place for several years, provides invaluable information on trends and whether behavior has changed over time.

Appendix B
Public Input and Complaint Standard Operating Procedure

Town of Leesburg

Municipal Separate Storm Sewer System Permit

Public Input and Complaint Standard Operating Procedure

Department of Public Works and Capital Projects

April 18, 2019

Purpose

The purpose of this standard operating procedure (SOP) is to meet the requirements of Part I E 2 a of the Town's Municipal Separate Storm Sewer System (MS4) permit. Specifically, the permit requires the Town to develop and implement procedures for the following:

- The public to report potential illicit discharges, improper disposal, or spills to the MS4, complaints regarding land disturbing activities, or other potential stormwater pollution concerns;
- The public to provide input on the permittee's MS4 program plan;
- Receiving public input or complaints;
- Responding to public input received on the MS4 program plan or complaints; and,
- Maintaining documentation of public input received on the MS4 program and associated MS4 program plan and the permittee's response.

Responsible Party

The Department of Public Works (DPW) is responsible for implementing this SOP.

Reporting Stormwater Pollution Concerns

The following mechanisms will be maintained for the public to report potential illicit discharges, improper disposal, or spills to the MS4, complaints regarding land disturbing activities, or other potential stormwater pollution concerns:

- Emergency: 911
- Non-Emergency:
  - Phone: DPW at (703) 771-2790 (business hours)
  - Phone: Town Police at (703) 771-4500 (non-business hours)
  - Email: DPW at publicworks@leesburgva.gov
  - Web: DPW Illegal Discharge Information and Reporting Form
  - Web: Town of Leesburg government "How Do I Report…" function

The phone, email, and Illegal Discharge Information and Reporting Form will be prominently displayed on the DPW stormwater webpage.

The "How Do I Report…" function is located on the Town's homepage.

The Town will include reporting information in the DPW's postcard sent to all single family and townhome residences in accordance with the schedule in the MS4 Program Plan.

The Department of Public Works will receive, track, and respond to reports in accordance with MCM #3 of the MS4 Program Plan and the Town's Illicit Discharge Detection and Elimination (IDDE) Plan.

Public Input on the MS4 Program Plan and Complaints

Mechanisms for Input

The Town will provide on its stormwater webpage instructions for how to provide public input on the MS4 Program Plan and/or to register stormwater program-related complaints. This will include the DPW phone number and email, as well as the DPW's mailing address at 25 West Market Street, Leesburg, Virginia 20176.

Public Notice

The Town will notify the public any time that substantive changes are proposed to the MS4 Program Plan through a social media post. The social media post will include a link to the plan and the directions for providing input. To the extent practical, notification will be provided 30 days before the Town finalizes changes.

The Environmental Advisory Commission will be notified of any substantive changes through an agenda item at their next regularly scheduled meeting.

Receiving, Tracking, and Responding to Complaints

The Department of Public Works will receive, track, and respond to comments and complaints. Comments and complaints made by Town residents will be answered in writing within 30 days of receipt where the Town has an email or address.

The Department of Public Works will track in an Excel spreadsheet, or other mechanism, the following for each comment/complaint:

- Details of the complaint (verbatim if by writing or summary if by phone)
- Individual making the comment/complaint
- Date of the comment/complaint
- Date of the Town's response
- Town response
- Changes to the MS4 Program Plan as a result of the comment/complaint, if any

Documentation

Letters, emails, or other documents associated with tracking complaints and comments will be maintained by the Town for a minimum of three years.

The Town's annual report to the Department of Environmental Quality will include a summary of any public input on the MS4 program received (including stormwater complaints) and how the Town responded.

Input Mechanism Screen Shots

DPW Illegal Discharge Information and Reporting Form

Town of Leesburg "How Do I Report..." Function

Appendix C
Storm Sewer System Map and Outfall Table

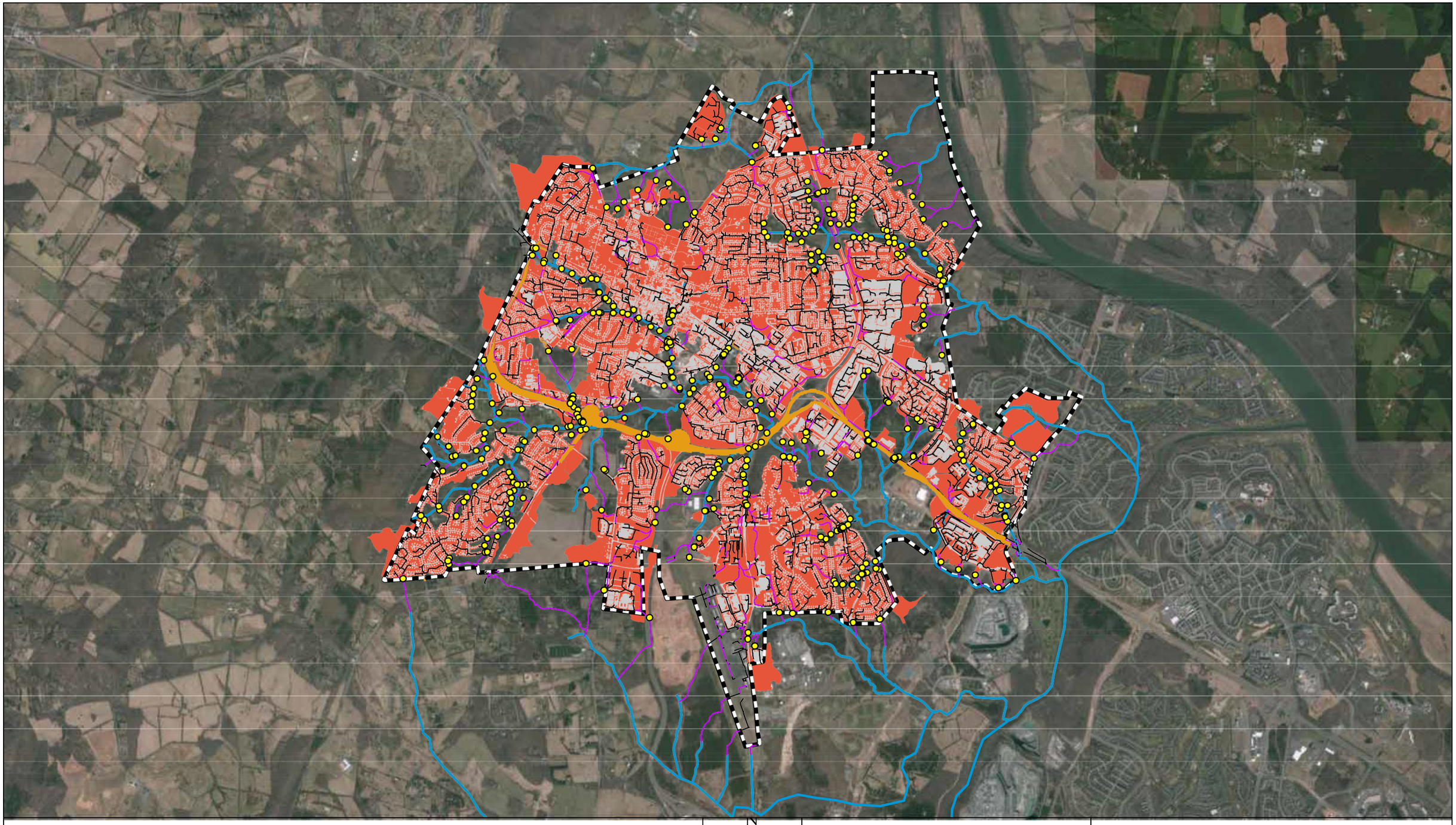

Figure: Leesburg MS4 Area
and Storm Sewer Map
5287.37 Total Acres
1738.83 Impervious Acres

ID_NUM	MS4_Outfall	Rec_WtrBody	CATEGORY	TotAcres	Name	HUC12	ToHUC	VAHU6	PJ_RPT_FINAL_APPRVD_LINK	POL_NAME	IMP_NAME	PJ_RPT_FINAL_APPRVD_LINK3	POL_NAME4	IMP_NAME5
3	Y	Goose Creek/Cattail Branch	3A	0.91	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
4	Y	Goose Creek/Cattail Branch	3A	216.81	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
12	Y	Tuscarora Creek	5D	12.56	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
29	Y	Goose Creek/Cattail Branch	3A	0.43	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
32	Y	Goose Creek/Cattail Branch	3A	4.21	Limestone Branch-Potomac River	20700080403	20700080904	PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
42	Y	Goose Creek/Cattail Branch	3A	0.48	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
43	Y	Goose Creek/Cattail Branch	3A	2.46	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
44	Y	Goose Creek/Cattail Branch	3A	2.68	Limestone Branch-Potomac River	20700080403	20700080904	PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
45	Y	Big Spring Creek	3C	3.31	Limestone Branch-Potomac River	20700080403	20700080904	PL05						
46	Y	Big Spring Creek	3C	7.07	Limestone Branch-Potomac River	20700080403	20700080904	PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
47	Y	Big Spring Creek	3C	0.71	Limestone Branch-Potomac River	20700080403	20700080904	PL05						
48	Y	Big Spring Creek	3C	16.52	Limestone Branch-Potomac River	20700080403	20700080904	PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
49	Y	Big Spring Creek	3C	150.22	Limestone Branch-Potomac River	20700080403	20700080904	PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
50	Y	Big Spring Creek	3C	19.02	Limestone Branch-Potomac River	20700080403	20700080904	PL05						
51	Y	Goose Creek/Cattail Branch	3A	1.59	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
52	Y	Goose Creek/Cattail Branch	3A	3.58	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
53	Y	Goose Creek/Cattail Branch	3A	0.93	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
54	Y	Goose Creek/Cattail Branch	3A	3.57	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
55	Y	Goose Creek/Cattail Branch	3A	45.71	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
56	Y	Goose Creek/Cattail Branch	3A	2.08	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
57	Y	Goose Creek/Cattail Branch	3A	5.76	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
58	Y	Goose Creek/Cattail Branch	3A	8.08	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
59	Y	Goose Creek/Cattail Branch	3A	1.90	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
60	Y	Goose Creek/Cattail Branch	3A	14.37	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
61	Y	Goose Creek/Cattail Branch	3A	0.24	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
62	Y	Goose Creek/Cattail Branch	3A	5.03	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
63	Y	Goose Creek/Cattail Branch	3A	12.51	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
64	Y	Goose Creek/Cattail Branch	3A	0.25	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
65	Y	Goose Creek/Cattail Branch	3A	1.97	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
67	Y	Goose Creek/Cattail Branch	3A	98.34	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
68	Y	Goose Creek/Cattail Branch	3A	1.79	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
69	Y	Goose Creek/Cattail Branch	3A	23.65	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
70	Y	Goose Creek/Cattail Branch	3A	0.65	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
71	Y	Goose Creek/Cattail Branch	3A	0.36	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
72	Y	Goose Creek/Cattail Branch	3A	74.91	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
73	Y	Goose Creek/Cattail Branch	3A	11.54	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
74	Y	Goose Creek/Cattail Branch	3A	4.26	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
75	Y	Tuscarora Creek	5D	44.15	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
76	Y	Tuscarora Creek	5D	10.51	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
77	Y	Goose Creek/Cattail Branch	3A	0.14	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
78	Y	Goose Creek/Cattail Branch	3A	0.06	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
79	Y	Goose Creek/Cattail Branch	3A	33.12	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
80	Y	Goose Creek/Cattail Branch	3A	0.61	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
81	Y	Goose Creek/Cattail Branch	3A	1.46	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
82	Y	Goose Creek/Cattail Branch	3A	1.85	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
83	Y	Goose Creek/Cattail Branch	3A	4.87	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
84	Y	Goose Creek/Cattail Branch	3A	1.34	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
85	Y	Goose Creek/Cattail Branch	3A	1.31	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
86	Y	Goose Creek/Cattail Branch	3A	15.91	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
87	Y	Goose Creek/Cattail Branch	3A	0.89	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
88	Y	Goose Creek/Cattail Branch	3A	0.03	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
89	Y	Goose Creek/Cattail Branch	3A	0.03	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
90	Y	Goose Creek/Cattail Branch	3A	7.14	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
91	Y	Goose Creek/Cattail Branch	3A	0.31	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
92	Y	Goose Creek/Cattail Branch	3A	0.79	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
93	Y	Goose Creek/Cattail Branch	3A	12.95	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
94	Y	Goose Creek/Cattail Branch	3A	83.14	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
95	Y	Goose Creek/Cattail Branch	3A	16.12	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
96	Y	Goose Creek/Cattail Branch	3A	1.39	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
97	Y	Goose Creek/Cattail Branch	3A	0.12	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
98	Y	Goose Creek/Cattail Branch	3A	3.13	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
99	Y	Goose Creek/Cattail Branch	3A	8.99	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
100	Y	Goose Creek/Cattail Branch	3A	13.60	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
101	Y	Goose Creek/Cattail Branch	3A	2.97	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
102	Y	Goose Creek/Cattail Branch	3A	4.65	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
103	Y	Sycolin Creek	3A	39.27	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
105	Y	Goose Creek/Cattail Branch	3A	2.26	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
106	Y	Goose Creek/Cattail Branch	3A	12.18	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
107	Y	Goose Creek/Cattail Branch	3A	2.85	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)

108	Y	Goose Creek/Cattail Branch	3A	2.39	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
109	Y	Goose Creek/Cattail Branch	3A	3.51	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
110	Y	Goose Creek/Cattail Branch	3A	0.56	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
111	Y	Goose Creek/Cattail Branch	3A	0.08	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
112	Y	Goose Creek/Cattail Branch	3A	71.97	Sycolin Creek	20700080703	20700080704 PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
113	Y	Tuscarora Creek	5D	4.72	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
114	Y	Goose Creek/Cattail Branch	3A	4.18	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
115	Y	Goose Creek/Cattail Branch	3A	0.11	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
116	Y	Goose Creek/Cattail Branch	3A	1.27	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
117	Y	Goose Creek/Cattail Branch	3A	8.14	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
118	Y	Goose Creek/Cattail Branch	3A	2.92	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
119	Y	Tuscarora Creek	5D	21.98	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
120	Y	Goose Creek/Cattail Branch	3A	0.38	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
121	Y	Tuscarora Creek	5D	30.24	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
122	Y	Tuscarora Creek	5D	31.28	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
123	Y	Tuscarora Creek	5D	30.85	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
124	Y	Goose Creek/Cattail Branch	3A	6.70	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
125	Y	Goose Creek/Cattail Branch	3A	0.19	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
126	Y	Goose Creek/Cattail Branch	3A	1.72	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
129	Y	Sycolin Creek	3A	25.51	Sycolin Creek	20700080703	20700080704 PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
130	Y	Sycolin Creek	3A	24.93	Sycolin Creek	20700080703	20700080704 PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
133	Y	Sycolin Creek	3A	62.60	Sycolin Creek	20700080703	20700080704 PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
136	Y	Goose Creek/Cattail Branch	3A	11.62	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
137	Y	Goose Creek/Cattail Branch	3A	0.03	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146001	Y	Goose Creek/Cattail Branch	3A	0.18	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146002	Y	Goose Creek/Cattail Branch	3A	10.90	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146003	Y	Goose Creek/Cattail Branch	3A	0.99	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146004	Y	Goose Creek/Cattail Branch	3A	11.26	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146005	Y	Potomac River/Limestone Branch	3A	1.85	Limestone Branch-Potomac River	20700080403	20700080904 PL05						
146006	Y	Goose Creek/Cattail Branch	3A	1.37	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146007	Y	Goose Creek/Cattail Branch	3A	1.15	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146008	Y	Potomac River/Limestone Branch	3A	0.73	Limestone Branch-Potomac River	20700080403	20700080904 PL05						
146009	Y	Goose Creek/Cattail Branch	3A	51.48	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146010	Y	Potomac River/Limestone Branch	3A	2.75	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146011	Y	Goose Creek/Cattail Branch	3A	5.07	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146012	Y	Potomac River/Limestone Branch	3A	2.27	Limestone Branch-Potomac River	20700080403	20700080904 PL05						
146013	Y	Goose Creek/Cattail Branch	3A	1.89	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146014	Y	Goose Creek/Cattail Branch	3A	3.69	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146015	Y	Goose Creek/Cattail Branch	3A	0.66	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146016	Y	Goose Creek/Cattail Branch	3A	0.08	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146017	Y	Potomac River/Limestone Branch	3A	1.97	Limestone Branch-Potomac River	20700080403	20700080904 PL05						
146018	Y	Potomac River/Limestone Branch	3A	6.13	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146019	Y	Goose Creek/Cattail Branch	3A	9.42	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
146021	Y	Potomac River/Limestone Branch	3A	0.33	Limestone Branch-Potomac River	20700080403	20700080904 PL05						
147001	Y	Goose Creek/Cattail Branch	3A	18.33	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
147002	Y	Goose Creek/Cattail Branch	3A	1.52	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
147004	Y	Goose Creek/Cattail Branch	3A	2.01	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
147005	Y	Goose Creek/Cattail Branch	3A	0.20	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
147006	Y	Goose Creek/Cattail Branch	3A	6.06	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
147008	Y	Goose Creek/Cattail Branch	3A	2.45	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
147009	Y	Goose Creek/Cattail Branch	3A	7.04	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
147010	Y	Goose Creek/Cattail Branch	3A	3.78	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148001	Y	Goose Creek/Cattail Branch	3A	0.32	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148002	Y	Goose Creek/Cattail Branch	3A	21.65	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148006	Y	Goose Creek/Cattail Branch	3A	1.91	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148007	Y	Goose Creek/Cattail Branch	3A	3.32	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148008	Y	Goose Creek/Cattail Branch	3A	0.03	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148009	Y	Goose Creek/Cattail Branch	3A	0.76	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148010	Y	Goose Creek/Cattail Branch	3A	1.35	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148011	Y	Goose Creek/Cattail Branch	3A	5.29	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148012	Y	Goose Creek/Cattail Branch	3A	13.82	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148013	Y	Goose Creek/Cattail Branch	3A	6.27	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148019	Y	Goose Creek/Cattail Branch	3A	36.59	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148024	Y	Goose Creek/Cattail Branch	3A	86.09	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148025	Y	Goose Creek/Cattail Branch	3A	45.04	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148026	Y	Goose Creek/Cattail Branch	3A	0.62	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148031	Y	Goose Creek/Cattail Branch	3A	7.23	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148032	Y	Goose Creek/Cattail Branch	3A	6.27	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148035	Y	Goose Creek/Cattail Branch	3A	0.76	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148036	Y	Goose Creek/Cattail Branch	3A	2.22	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)

148037	Y	Goose Creek/Cattail Branch	3A	0.46	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
148038	Y	Goose Creek/Cattail Branch	3A	2.13	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149006	Y	Goose Creek/Cattail Branch	3A	3.83	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149007	Y	Goose Creek/Cattail Branch	3A	6.00	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149013	Y	Goose Creek/Cattail Branch	3A	9.24	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149014	Y	Goose Creek/Cattail Branch	3A	3.45	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149015	Y	Goose Creek/Cattail Branch	3A	4.50	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149019	Y	Goose Creek/Cattail Branch	3A	37.42	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149020	Y	Goose Creek/Cattail Branch	3A	3.82	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149021	Y	Goose Creek/Cattail Branch	3A	3.44	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149027	Y	Goose Creek/Cattail Branch	3A	1.80	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149028	Y	Goose Creek/Cattail Branch	3A	3.84	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149029	Y	Tuscarora Creek	5D	1.51	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149032	Y	Goose Creek/Cattail Branch	3A	84.81	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
149050	Y	Tuscarora Creek	5D	7.60	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
186001	Y	Potomac River/Limestone Branch	3A	8.24	Limestone Branch-Potomac River	20700080403	20700080904 PL05						
186005	Y	Potomac River/Limestone Branch	3A	2.01	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
186006	Y	Potomac River/Limestone Branch	3A	1.91	Limestone Branch-Potomac River	20700080403	20700080904 PL05						
186008	Y	Potomac River/Limestone Branch	3A	59.93	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
186010	Y	Potomac River/Limestone Branch	3A	64.67	Limestone Branch-Potomac River	20700080403	20700080904 PL05						
187001	Y	Goose Creek/Cattail Branch	3A	5.68	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187002	Y	Goose Creek/Cattail Branch	3A	3.05	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187003	Y	Goose Creek/Cattail Branch	3A	0.42	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187006	Y	Goose Creek/Cattail Branch	3A	7.32	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187008	Y	Goose Creek/Cattail Branch	3A	0.06	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187009	Y	Goose Creek/Cattail Branch	3A	97.50	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187010	Y	Goose Creek/Cattail Branch	3A	6.30	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187011	Y	Goose Creek/Cattail Branch	3A	0.73	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187013	Y	Goose Creek/Cattail Branch	3A	2.96	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187014	Y	Goose Creek/Cattail Branch	3A	2.19	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187015	Y	Goose Creek/Cattail Branch	3A	4.50	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187016	Y	Goose Creek/Cattail Branch	3A	4.61	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187017	Y	Goose Creek/Cattail Branch	3A	1.60	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187018	Y	Goose Creek/Cattail Branch	3A	9.92	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187019	Y	Goose Creek/Cattail Branch	3A	5.67	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187020	Y	Goose Creek/Cattail Branch	3A	1.45	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187021	Y	Goose Creek/Cattail Branch	3A	83.36	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187022	Y	Goose Creek/Cattail Branch	3A	1.17	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187023	Y	Goose Creek/Cattail Branch	3A	16.90	Limestone Branch-Potomac River	20700080403	20700080904 PL05						
187024	Y	Goose Creek/Cattail Branch	3A	4.29	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187025	Y	Goose Creek/Cattail Branch	3A	0.41	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187026	Y	Goose Creek/Cattail Branch	3A	1.22	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187027	Y	Goose Creek/Cattail Branch	3A	1.15	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187029	Y	Goose Creek/Cattail Branch	3A	3.42	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187030	Y	Goose Creek/Cattail Branch	3A	4.71	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187032	Y	Goose Creek/Cattail Branch	3A	0.20	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187033	Y	Goose Creek/Cattail Branch	3A	86.90	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187034	Y	Goose Creek/Cattail Branch	3A	4.01	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187035	Y	Goose Creek/Cattail Branch	3A	0.90	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187036	Y	Goose Creek/Cattail Branch	3A	8.22	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187037	Y	Goose Creek/Cattail Branch	3A	25.28	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187039	Y	Goose Creek/Cattail Branch	3A	3.37	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187040	Y	Goose Creek/Cattail Branch	3A	50.97	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187041	Y	Goose Creek/Cattail Branch	3A	11.02	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187042	Y	Goose Creek/Cattail Branch	3A	0.50	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187043	Y	Goose Creek/Cattail Branch	3A	0.99	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187047	Y	Goose Creek/Cattail Branch	3A	0.05	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187048	Y	Goose Creek/Cattail Branch	3A	1.21	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187050	Y	Goose Creek/Cattail Branch	3A	26.59	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187053	Y	Potomac River/Limestone Branch	3A	115.43	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
187054	Y	Goose Creek/Cattail Branch	3A	0.09	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
188020	Y	Goose Creek/Cattail Branch	3A	2.66	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
188022	Y	Goose Creek/Cattail Branch	3A	112.91	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
188023	Y	Goose Creek/Cattail Branch	3A	11.28	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189001	Y	Tuscarora Creek	5D	3.24	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189006	Y	Goose Creek/Cattail Branch	3A	5.22	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189007	Y	Goose Creek/Cattail Branch	3A	7.55	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189009	Y	Goose Creek/Cattail Branch	3A	17.08	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189010	Y	Goose Creek/Cattail Branch	3A	0.72	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189015	Y	Goose Creek/Cattail Branch	3A	0.50	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)

189018	Y	Tuscarora Creek	5D	3.80	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189019	Y	Goose Creek/Cattail Branch	3A	4.00	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189020	Y	Goose Creek/Cattail Branch	3A	1.25	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189021	Y	Goose Creek/Cattail Branch	3A	3.03	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189022	Y	Tuscarora Creek	5D	10.82	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189026	Y	Tuscarora Creek	5D	6.91	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189027	Y	Tuscarora Creek	5D	0.60	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189030	Y	Tuscarora Creek	5D	2.19	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189040	Y	Tuscarora Creek	5D	12.13	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189041	Y	Tuscarora Creek	5D	2.82	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189042	Y	Tuscarora Creek	5D	3.88	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189043	Y	Tuscarora Creek	5D	0.60	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189046	Y	Goose Creek/Cattail Branch	3A	28.24	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189047	Y	Goose Creek/Cattail Branch	3A	0.04	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189048	Y	Goose Creek/Cattail Branch	3A	0.07	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189049	Y	Goose Creek/Cattail Branch	3A	0.08	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189053	Y	Tuscarora Creek	5D	18.77	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189054	Y	Tuscarora Creek	5D	17.18	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189055	Y	Tuscarora Creek	5D	0.23	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189056	Y	Tuscarora Creek	5D	3.97	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189061	Y	Tuscarora Creek	5D	19.43	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
189062	Y	Tuscarora Creek	5D	2.43	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190004	Y	Goose Creek/Cattail Branch	3A	3.42	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190005	Y	Goose Creek/Cattail Branch	3A	18.39	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190006	Y	Goose Creek/Cattail Branch	3A	11.23	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190007	Y	Goose Creek/Cattail Branch	3A	14.42	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190012	Y	Goose Creek/Cattail Branch	3A	11.20	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190013	Y	Goose Creek/Cattail Branch	3A	9.10	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190014	Y	Goose Creek/Cattail Branch	3A	0.13	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190016	Y	Goose Creek/Cattail Branch	3A	11.25	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190022	Y	Goose Creek/Cattail Branch	3A	3.61	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190024	Y	Goose Creek/Cattail Branch	3A	4.41	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190033	Y	Goose Creek/Cattail Branch	3A	27.41	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190035	Y	Goose Creek/Cattail Branch	3A	1.22	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190037	Y	Goose Creek/Cattail Branch	3A	2.24	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190046	Y	Goose Creek/Cattail Branch	3A	7.32	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190049	Y	Goose Creek/Cattail Branch	3A	20.59	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190053	Y	Tuscarora Creek	5D	7.77	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190055	Y	Goose Creek/Cattail Branch	3A	8.43	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190056	Y	Goose Creek/Cattail Branch	3A	0.41	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190057	Y	Goose Creek/Cattail Branch	3A	0.13	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190060	Y	Goose Creek/Cattail Branch	3A	94.33	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
190061	Y	Goose Creek/Cattail Branch	3A	53.06	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191001	Y	Sycolin Creek	3A	36.11	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191006	Y	Goose Creek/Cattail Branch	3A	1.38	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191007	Y	Goose Creek/Cattail Branch	3A	2.46	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191008	Y	Goose Creek/Cattail Branch	3A	0.03	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191010	Y	Sycolin Creek	3A	50.83	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191011	Y	Goose Creek/Cattail Branch	3A	7.48	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191012	Y	Sycolin Creek	3A	18.89	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191013	Y	Sycolin Creek	3A	4.91	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191021	Y	Sycolin Creek	3A	47.45	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191022	Y	Goose Creek/Cattail Branch	3A	34.40	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191034	Y	Sycolin Creek	3A	17.59	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
191037	Y	Goose Creek/Cattail Branch	3A	2.78	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
230001	Y	Big Spring Creek	3C	0.23	Limestone Branch-Potomac River	20700080403	20700080904	PL05						
230002	Y	Big Spring Creek	3C	5.59	Limestone Branch-Potomac River	20700080403	20700080904	PL05						
230003	Y	Big Spring Creek	3C	24.54	Limestone Branch-Potomac River	20700080403	20700080904	PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
230004	Y	Big Spring Creek	3C	4.34	Limestone Branch-Potomac River	20700080403	20700080904	PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
230008	Y	Big Spring Creek	3C	2.44	Limestone Branch-Potomac River	20700080403	20700080904	PL05						
230029	Y	Big Spring Creek	3C	6.25	Limestone Branch-Potomac River	20700080403	20700080904	PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
230034	Y	Big Spring Creek	3C	5.56	Limestone Branch-Potomac River	20700080403	20700080904	PL05						
230035	Y	Big Spring Creek	3C	1.19	Limestone Branch-Potomac River	20700080403	20700080904	PL05						
231003	Y	Goose Creek/Cattail Branch	3A	32.89	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231005	Y	Goose Creek/Cattail Branch	3A	0.43	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231006	Y	Goose Creek/Cattail Branch	3A	7.99	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231007	Y	Goose Creek/Cattail Branch	3A	48.58	Limestone Branch-Potomac River	20700080403	20700080904	PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231008	Y	Goose Creek/Cattail Branch	3A	6.11	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231009	Y	Goose Creek/Cattail Branch	3A	29.50	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231010	Y	Goose Creek/Cattail Branch	3A	44.53	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)

231012	Y	Goose Creek/Cattail Branch	3A	17.20	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231014	Y	Goose Creek/Cattail Branch	3A	11.12	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231018	Y	Goose Creek/Cattail Branch	3A	4.53	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231019	Y	Goose Creek/Cattail Branch	3A	152.24	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231020	Y	Goose Creek/Cattail Branch	3A	2.08	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231021	Y	Goose Creek/Cattail Branch	3A	1.59	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231022	Y	Goose Creek/Cattail Branch	3A	104.80	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231023	Y	Goose Creek/Cattail Branch	3A	27.90	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231026	Y	Goose Creek/Cattail Branch	3A	12.02	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231027	Y	Goose Creek/Cattail Branch	3A	14.80	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231028	Y	Goose Creek/Cattail Branch	3A	0.20	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231029	Y	Goose Creek/Cattail Branch	3A	0.13	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231030	Y	Goose Creek/Cattail Branch	3A	3.45	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231032	Y	Goose Creek/Cattail Branch	3A	2.97	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231033	Y	Goose Creek/Cattail Branch	3A	0.74	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231034	Y	Goose Creek/Cattail Branch	3A	0.11	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231035	Y	Goose Creek/Cattail Branch	3A	0.09	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231036	Y	Goose Creek/Cattail Branch	3A	0.05	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231038	Y	Goose Creek/Cattail Branch	3A	5.35	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231040	Y	Goose Creek/Cattail Branch	3A	26.30	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231043	Y	Goose Creek/Cattail Branch	3A	0.30	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
231045	Y	Goose Creek/Cattail Branch	3A	1.74	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232001	Y	Goose Creek/Cattail Branch	3A	1.91	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232002	Y	Goose Creek/Cattail Branch	3A	2.80	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232006	Y	Tuscarora Creek	5D	0.76	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232011	Y	Goose Creek/Cattail Branch	3A	88.47	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232013	Y	Tuscarora Creek	5D	2.91	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232014	Y	Tuscarora Creek	5D	1.25	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232015	Y	Goose Creek/Cattail Branch	3A	0.41	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232016	Y	Tuscarora Creek	5D	15.25	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232018	Y	Goose Creek/Cattail Branch	3A	0.14	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232019	Y	Goose Creek/Cattail Branch	3A	0.93	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232020	Y	Goose Creek/Cattail Branch	3A	13.26	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232021	Y	Goose Creek/Cattail Branch	3A	0.98	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232022	Y	Goose Creek/Cattail Branch	3A	10.64	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232023	Y	Goose Creek/Cattail Branch	3A	2.98	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232027	Y	Tuscarora Creek	5D	17.13	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232028	Y	Goose Creek/Cattail Branch	3A	27.83	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232029	Y	Goose Creek/Cattail Branch	3A	20.39	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232031	Y	Goose Creek/Cattail Branch	3A	0.15	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232032	Y	Goose Creek/Cattail Branch	3A	0.39	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232033	Y	Tuscarora Creek	5D	2.73	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232038	Y	Goose Creek/Cattail Branch	3A	6.18	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232039	Y	Tuscarora Creek	5D	0.38	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232040	Y	Tuscarora Creek	5D	0.25	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232041	Y	Tuscarora Creek	5D	1.54	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232045	Y	Goose Creek/Cattail Branch	3A	61.73	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232046	Y	Goose Creek/Cattail Branch	3A	11.34	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232047	Y	Goose Creek/Cattail Branch	3A	3.19	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232048	Y	Goose Creek/Cattail Branch	3A	57.58	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
232049	Y	Goose Creek/Cattail Branch	3A	0.29	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
233003	Y	Goose Creek/Cattail Branch	3A	2.09	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
233010	Y	Goose Creek/Cattail Branch	3A	44.45	Sycolin Creek	20700080703	20700080704 PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
233011	Y	Goose Creek/Cattail Branch	3A	5.07	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
233012	Y	Goose Creek/Cattail Branch	3A	9.60	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
233013	Y	Goose Creek/Cattail Branch	3A	5.71	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
233014	Y	Goose Creek/Cattail Branch	3A	0.52	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
233016	Y	Goose Creek/Cattail Branch	3A	22.16	Sycolin Creek	20700080703	20700080704 PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
233019	Y	Goose Creek/Cattail Branch	3A	13.40	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
234011	Y	Sycolin Creek	3A	16.79	Sycolin Creek	20700080703	20700080704 PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
270001	Y	Goose Creek/Cattail Branch	3A	1.04	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
270002	Y	Goose Creek/Cattail Branch	3A	79.36	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
270003	Y	Goose Creek/Cattail Branch	3A	162.46	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
270004	Y	Goose Creek/Cattail Branch	3A	6.82	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
270005	Y	Goose Creek/Cattail Branch	3A	26.77	Limestone Branch-Potomac River	20700080403	20700080904 PL05	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
271001	Y	Goose Creek/Cattail Branch	3A	6.05	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
271005	Y	Goose Creek/Cattail Branch	3A	0.07	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
271008	Y	Goose Creek/Cattail Branch	3A	98.59	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
271011	Y	Goose Creek/Cattail Branch	3A	4.42	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
271014	Y	Goose Creek/Cattail Branch	3A	6.17	Cattail Branch-Goose Creek	20700080704	20700080904 PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)

271020	Y	Goose Creek/Cattail Branch	3A	14.44	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
271024	Y	Goose Creek/Cattail Branch	3A	0.40	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272001	Y	Goose Creek/Cattail Branch	3A	10.57	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272004	Y	Goose Creek/Cattail Branch	3A	1.28	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272005	Y	Goose Creek/Cattail Branch	3A	2.32	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272007	Y	Goose Creek/Cattail Branch	3A	4.32	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272008	Y	Goose Creek/Cattail Branch	3A	8.37	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272009	Y	Goose Creek/Cattail Branch	3A	23.56	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272010	Y	Goose Creek/Cattail Branch	3A	28.59	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272011	Y	Goose Creek/Cattail Branch	3A	2.09	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272012	Y	Goose Creek/Cattail Branch	3A	1.72	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272014	Y	Goose Creek/Cattail Branch	3A	50.02	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272016	Y	Goose Creek/Cattail Branch	3A	5.33	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272017	Y	Goose Creek/Cattail Branch	3A	2.09	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272018	Y	Goose Creek/Cattail Branch	3A	1.80	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272019	Y	Goose Creek/Cattail Branch	3A	3.09	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272020	Y	Goose Creek/Cattail Branch	3A	10.11	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272021	Y	Goose Creek/Cattail Branch	3A	3.74	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272022	Y	Goose Creek/Cattail Branch	3A	12.05	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272023	Y	Goose Creek/Cattail Branch	3A	3.41	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272026	Y	Goose Creek/Cattail Branch	3A	4.33	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272027	Y	Goose Creek/Cattail Branch	3A	42.06	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272028	Y	Goose Creek/Cattail Branch	3A	1.78	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272029	Y	Goose Creek/Cattail Branch	3A	5.46	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272032	Y	Goose Creek/Cattail Branch	3A	8.84	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272034	Y	Goose Creek/Cattail Branch	3A	1.38	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272035	Y	Goose Creek/Cattail Branch	3A	4.23	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272036	Y	Goose Creek/Cattail Branch	3A	6.54	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272038	Y	Goose Creek/Cattail Branch	3A	4.25	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272039	Y	Goose Creek/Cattail Branch	3A	3.15	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272040	Y	Goose Creek/Cattail Branch	3A	7.82	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272041	Y	Goose Creek/Cattail Branch	3A	0.81	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272042	Y	Goose Creek/Cattail Branch	3A	2.90	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272043	Y	Goose Creek/Cattail Branch	3A	1.05	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
272047	Y	Goose Creek/Cattail Branch	3A	11.64	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273002	Y	Goose Creek/Cattail Branch	3A	3.60	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273003	Y	Goose Creek/Cattail Branch	3A	1.00	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273004	Y	Goose Creek/Cattail Branch	3A	27.90	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273005	Y	Goose Creek/Cattail Branch	3A	0.49	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273007	Y	Goose Creek/Cattail Branch	3A	15.38	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273008	Y	Goose Creek/Cattail Branch	3A	22.89	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273009	Y	Goose Creek/Cattail Branch	3A	8.29	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273010	Y	Goose Creek/Cattail Branch	3A	14.13	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273011	Y	Goose Creek/Cattail Branch	3A	5.21	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273012	Y	Goose Creek/Cattail Branch	3A	3.63	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273013	Y	Goose Creek/Cattail Branch	3A	2.84	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273014	Y	Goose Creek/Cattail Branch	3A	5.78	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273016	Y	Goose Creek/Cattail Branch	3A	1.11	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273017	Y	Goose Creek/Cattail Branch	3A	14.81	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273018	Y	Goose Creek/Cattail Branch	3A	3.07	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273020	Y	Goose Creek/Cattail Branch	3A	3.93	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273021	Y	Goose Creek/Cattail Branch	3A	15.25	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273022	Y	Goose Creek/Cattail Branch	3A	1.40	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273023	Y	Goose Creek/Cattail Branch	3A	0.74	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273025	Y	Goose Creek/Cattail Branch	3A	1.50	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273026	Y	Goose Creek/Cattail Branch	3A	10.73	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273027	Y	Goose Creek/Cattail Branch	3A	18.44	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273028	Y	Goose Creek/Cattail Branch	3A	3.79	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273029	Y	Goose Creek/Cattail Branch	3A	1.10	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273030	Y	Goose Creek/Cattail Branch	3A	1.49	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273032	Y	Goose Creek/Cattail Branch	3A	0.38	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273033	Y	Goose Creek/Cattail Branch	3A	0.23	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273034	Y	Goose Creek/Cattail Branch	3A	1.12	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
273035	Y	Goose Creek/Cattail Branch	3A	1.26	Cattail Branch-Goose Creek	20700080704	20700080904	PL16	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)
313001	Y	Sycolin Creek	3A	43.51	Sycolin Creek	20700080703	20700080704	PL15	http://www.deq.virginia.gov/port	Fecal Coliform	Total Fecal Coliform	http://www.deq.virginia.gov/porta	Sediment	Benthic-Macroinvertebrate Bioassessments (Streams)

Appendix D
Illicit Discharge Detection and Elimination Plan

Town of Leesburg
Illicit Discharge Detection and Elimination (IDDE) Plan

Department of Public Works and Capital Projects

Original – September 10, 2007

Revised – September 29, 2014

Revised – April 9, 2019

Table of Contents

Section I - Introduction

A. Purpose

This Illicit Discharge Detection and Elimination Plan (IDDE plan) describes the Town of Leesburg's plan to detect, identify, and address unauthorized non-stormwater discharges, including illegal dumping, to the Town's storm sewer system. The IDDE plan was originally developed in 2007 to support the requirements of the Town's General VPDES Permit for Discharges of Stormwater from Municipal Separate Storm Sewer Systems (MS4 permit). The IDDE plan has been periodically updated to meet new MS4 permit requirements and to reflect current best practices.

The Center for Watershed Protection's "Illicit Discharge Detection and Elimination – A Guidance Manual for Program Development and Technical Assessment" (2004) was used in the preparation of this plan and will serve as a reference by Town staff in implementing the program. The manual can be downloaded at the following link:

https://www3.epa.gov/npdes/pubs/idde_manualwithappendices.pdf

B. Stormwater Regulations

The Town was originally issued an MS4 permit effective July 8, 2003. The MS4 permit was re-issued on July 9, 2008, July 8, 2013, and November 1, 2018. The current five-year permit will expire on October 31, 2023. Mandated by Congress under the Clean Water Act and implemented in Virginia by the Department of Environmental Quality (DEQ), the MS4 permit requires the Town to develop, implement, and enforce an MS4 Program (program) to reduce the discharge of pollutants to the maximum extent practicable (MEP), protect water quality, and satisfy the appropriate water quality requirements of the State Water Control Law and its attendant regulations. This is achieved through the implementation of best management practices (BMPs) to address six minimum control measures (MCMs). One of these MCMs is Illicit Discharge Detection and Elimination.

The Department of Public Works (DPW) is responsible for coordinating the Town's MS4 permit with assistance from Plan Review, Planning and Zoning, Parks and Recreation, Utilities, Information Technology, Police, and Fire and Rescue.

C. Definitions

An illicit discharge is generally any discharge to the MS4 that is not composed entirely of stormwater. Examples of illicit discharges include but are not limited to:

1. Sanitary sewer overflows;
2. Improper disposal of waste products – such as emptying a septage holding tank into a catch basin or pouring used motor oil into a catch basin;
3. Sediment from construction activities;
4. Pool water that has not been properly de-chlorinated;
5. Misapplied or over-applied fertilizers and pesticides;
6. Pet waste;
7. Automobile washing (except individual residential washing, non-commercial fundraising car washes under specific circumstances, or commercial activities covered under a separate VPDES permit);

8. Laundry wastes (except under a separate VPDES permit);
9. Washing paint brushes;
10. Washing of construction equipment;
11. Washing restaurant equipment outside;
12. Fuel spills or leaks that enter the MS4;
13. Leaking dumpsters;
14. Dumping of automotive fluids; and,
15. Spills of used cooking grease or leaking containers.

The following allowable exceptions found in 9VAC25-890-20 D and Town Code section 14-23(c) may not be considered an illicit discharge unless the Town identifies such discharges as sources of pollutants:

1. Water line flushing, managed in a manner to avoid an instream impact;
2. Landscape irrigation;
3. Diverted stream flows;
4. Rising groundwater;
5. Uncontaminated groundwater infiltration, as defined at 40 CFR 35.2005(20);
6. Uncontaminated pumped groundwater;
7. Discharges from potable water sources;
8. Foundation drains;
9. Air conditioning condensation;
10. Irrigation water;
11. Springs;
12. Water from crawl space pumps;
13. Footing drains;
14. Lawn watering;
15. Individual residential car washing;
16. Flows from riparian habitats and wetlands;
17. Dechlorinated swimming pool discharges;
18. Street wash water;
19. Discharges or flows from firefighting activities;
20. Discharges from noncommercial fundraising car washes if the washing uses only biodegradable, phosphate-free, water-based cleaners; or
21. Other activities generating discharges identified by the department as not requiring VPDES authorization.

An illicit connection is an improper physical connection to the MS4 or other connections not authorized by the local authority (where required). Some examples of illicit connections include, but are not limited to:

1. Floor drain in an automobile repair shop that is connected to the storm drain system rather than the sanitary sewer;
2. Septic tank discharge line that has been connected to the storm drain system; and,
3. Sanitary sewage that should be connected to the sanitary sewer but are inappropriately connected to the storm sewer.

D. Methods of Identifying Illicit Discharges

The Town has established several methods for identifying illicit discharges in accordance with the MS4 permit. These methods are highlighted below.

D.1 Public Reporting

Residents and business owners are often an excellent source of information regarding illicit connections and discharges. The Town has developed a system for the public to report potential illicit discharges, improper disposal, or spills to the MS4, complaints regarding land disturbing activities, or other potential stormwater pollution concerns. Public reporting mechanisms include.

- Non-Emergency:
  - "How Do I Report…" function on the Town's homepage
  - "Illegal Discharge Information and Reporting" form on the stormwater webpage
  - Department of Public Works phone (703) 771-2790 and email publicworks@leesburgva.gov (business hours)
  - Police Department phone (703) 771-4500 (non-business hours)
- Emergency: 911

D.2 Staff Training

Town employees whose normal responsibilities require a considerable amount of time in the field are an important part of the Town's efforts to identify and correct potential illicit discharges. Field personnel receive training in the recognition and reporting of illicit discharges no less than once per 24 months. The schedule for delivering training is located in the Town's MS4 Program Plan.

D.3 Dry Weather Outfall Screening

The MS4 permit requires the Town to conduct dry weather outfall screening on a minimum of 50 outfalls annually such that no more than 50% are screened in the previous 12-month period. Dry weather outfall screening is a field test method for proactively inspecting outfalls for potential signs of illicit discharges. Section III details the Town's dry weather outfall screening protocols.

D.4 Hazardous Materials

If a substance discovered or reported is suspected to be hazardous, Loudoun County HAZMAT will be notified immediately by dialing 911. Town staff will remain onsite at a safe distance to receive the HAZMAT team and transfer site operations.

E. MS4 Outfall App and Incident Tracking Form

The MS4 Outfall Inspection App in Attachment B and described in Section III is used for tracking any activity involving an outfall. This includes dry weather outfall screening as well as any illicit discharge reported to the Town that involves an outfall.

The Illicit Discharge Incident Tracking Form in Attachment C and described in Section IV is used for tracking all illicit discharges reported to the Town.

F. Storm Sewer System Map

An accurate storm sewer map and associated outfall table ensures that the Town has a full understanding of the storm drain system and is essential to an effective IDDE plan. The Town's storm sewer system map and associated outfall table is in compliance with Part III E 3 (a) of the MS4 permit. The map is maintained on a continuous basis, and includes updates to account for

any new outfalls as a result of development or the identification of previously unknown outfalls during field work.

G. Plan Overview

This IDDE plan addresses the following elements as required in Part I E 3 of the MS4 permit.

Section of Part I E 3	Requirement	Plan Section
c (1)	Description of legal authorities	Section II
c (2)	Dry weather field screening protocols	Section III
c (2) (a)	Prioritization schedule	Section III.A
c (2) (b)(c)	Outfalls to be screened annually	Section III
c (2) (d)	Tracking mechanism	Section III.E and Section V
c (3)	Timeframe for investigations	Section IV.A
c (4)	Methods to determine sources	Section IV.B
c (5)	Methods for conducting follow up investigations	Section IV.B
c (6)	Tracking investigations	Section V
e	Annual reporting	Section V

Section II - Legal Authorities

Town Code section 14-23(b) prohibits illicit discharges to the stormwater management system and provides the Town with inspection and enforcement authority. The Town has conducted a thorough review of its legal authorities and finds them adequate to effectively implement the IDDE program. The ordinance will be reviewed annually or as necessary after an incident, to ensure that:

- The ordinance adequately defines illicit discharges and connections;
- The ordinance prohibits illicit discharges and connections;
- The Town has adequate legal authority to investigate suspected illicit discharges and connections;
- The Town has adequate legal authority to require elimination of illicit discharges and connections; and,
- The Town has adequate enforcement capability.

Section III - Dry Weather Outfall Screening

Each fiscal year (July 1 through June 30), the Town will select a minimum of 50 outfalls for dry weather outfall screening. Dry weather is defined as periods when there has not been precipitation or snow melt producing measurable runoff for a minimum of 48 hours.

A. Outfall Prioritization

The permit requires the Town to develop a prioritization schedule based on criteria such as age of infrastructure, land use, historical illegal discharges, dumping, or cross connections.

The predominant land use in the Town is residential, with most development being relatively new. This reduces the chances for cross-connections or straight pipes. However, the Town does have a historic district where the potential for cross-connections may be elevated. In addition, the Town has identified oil and grease from restaurants as being an ongoing concern. Confirmed illicit discharges in the Town during the last permit cycle were primarily the result of activities by contractors (improper wash out of concrete, improperly timed application of parking lot sealant, equipment rupture, etc.). These activities were widespread and do not lend themselves to targeting specific areas.

Based on the above, the Town will use the following general guidelines when selecting outfalls for annual inspection:

- Next Year After Identification – Any outfall with a confirmed illicit discharge or a suspected illicit discharge where the source has not been identified.
- Every Five Years – Outfalls draining the downtown area.
- Every Five Years – Outfalls draining concentrations of restaurants along the Town's commercial corridors.

For the remaining outfalls to be inspected each year, the Town will strive to select a representative range of land use types. In order to maximize efficiency, these may be focused on a geographic area of the Town.

B. Screening Location

Screening will occur at the point of discharge from man-made conveyance infrastructure into waters of the state or a natural swale or channel. In instances where the stormwater outfall is partially submerged, a floatable object may be used to determine whether there is dry weather flow. If the outfall is completely submerged, the Town will inspect the upstream manhole.

C. Safety Measures

Field teams will abide by all Town, state, and federal safety requirements. The following general safety measures will be observed for field work involving potential illicit discharges.

- Perform field work in teams.
- Conduct a safety meeting prior to field work.
- Document the location of the nearest medical facility.
- Leave an itinerary, including locations to be visited and timeframes, with a supervisor or responsible staff member.
- Bring a first aid kit.
- Wear clothing and personal protective equipment appropriate for fieldwork activities (safety glasses, gloves, sturdy boots, etc.).
- Wear insect repellant and sun screen.
- Fully charge mobile communications devices.

- Bring additional alert devices such as a whistle.
- Do not enter the storm drain system without proper confined space certification.
- Do not attempt to visit an outfall if it cannot be done safely.

D. Field Equipment

The IDDE Field Equipment Checklist located in Attachment A should be used for dry weather outfall screening and other field work involving potential illicit discharges.

E. Field Information Collection

The MS4 Outfall Inspection App in Attachment B will be used to collect field information for dry weather screening. The field investigation is broken into the following activities.

E.1 Background Information

This section includes background information about where the screening was performed and the conditions at the time of the screening. Items include:

- Facility ID (unique identifier for the outfall)
- Date/time of screening
- Person performing the screening
- Weather conditions
- Time since last precipitation event
- Estimated quantity of last precipitation event
- Outfall description (material, shape, number of pipes, diameter)
- Dominant land use
- Visual field observations of dry weather flow (yes or no)

E.2 Physical Indicators for Flowing and Non-Flowing Outfalls

Regardless of whether the outfall is flowing or non-flowing, the outfall will be observed for the presence of the following:

- Deposits or stains
- Abnormal or inhibited vegetation
- Poor pool quality, such as suds, discoloration, floatables, oil sheen, and excessive algae growth
- Abnormal pipe benthic growth
- Abnormal odors, color, and turbidity

E.3 Physical Indicators for Flowing Outfalls

If the outfall exhibits dry weather flow, the following additional data will be collected using a portable field testing kit:

- Estimated discharge rate (width and depth of discharge flow rate)
- pH – This is an indicator of wash water or industrial or commercial liquid waste
- Chlorine – This is an indicator of pool water discharge or industrial or commercial liquid waste
- Detergents – This is an indicator of sewage, wash water, or industrial or commercial liquid waste

E.4 Estimating Discharge Rate

The estimated discharge rate, or flow rate of the observed dry weather flow, can be discerned through a simple field method. Perform the following steps to estimate the discharge rate:

1. Measure and record the approximate width of the water surface.

2. Next, measure and record the approximate average depth of the discharge.
3. Multiply the width of the water surface times the approximate average depth to get the flow area.
4. Measure flow velocity by recording the travel time for an object floating near the surface, moving across a measurable distance. (If the observed does not contain any observable floating object, then a leaf or other organic detritus may be introduced.)
5. Finally, multiply the computed flow area by the flow velocity and record the flow rate.

Additionally, if the duration of the observed illicit discharge is known, then an estimated volume of discharge can be computed (flow rate * duration). The estimated volume of discharge may also comprise a portion of the reporting requirements pursuant to MS4 permit Part III G "Reports of Unauthorized Discharges."

E.5 Investigation Triggers

The MS4 Outfall Inspection App requires the field team to characterize whether an illicit discharge is unlikely, potential, suspect, or obvious. No single indicator can be fully relied upon to make a characterization. Rather, the team should use judgement about the nature and severity of the physical and visual indicators.

The following parameters from the inspection form can be used to assist with the characterization.

Measure	**Unlikely**	**Potential**	**Suspect**	**Obvious**
Physical Indicators	Non-flowing outfalls with no physical indicators of an illicit discharge	Flowing or non-flowing outfalls with presence of two or more physical indicators	Flowing or non-flowing outfalls with any severity rating of 2 or greater	Outfalls where there is an illicit discharge that doesn't even require sample collection for confirmation
Measure	**Unlikely**	**Trigger for Follow-Up Investigation**		
pH	<6.5 and >7.2 s.u.	<6.0 or >9.0 s.u.[1]		
Chlorine	Non-detected	>0.02 mg/L		
Detergents	<0.25 mg/L	>0.25 mg/L[2]		

E.6 Immediate Field Investigation

Where a potential, suspect, or obvious illicit discharge has been identified in the field, and it is safe to do so, the field team will take immediate steps to determine the potential source.

Discharges expected to contain hazardous materials, present an immediate threat to health and human safety, or represent a reportable spill in accordance with the Town's MS4 permit (including the visible presence of sheen in waters of the state), will be reported immediately to Loudoun County Fire and Rescue HAZMAT Response.

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[1] Industrial Stormwater Monitoring and Sampling Guide, USEPA, 2009. Table 3 "Parameter Benchmark Values"

[2] Illicit Discharge Detection and Elimination – A Guidance Manual for Program Development and Technical Assessment, Center for Watershed Protection, 2004

If safe to do so, follow-up activities at the site will include:

- Walk up-flow of the outfall to observe any storm drain inlets, parking areas, and potentially contributing properties
- Take pictures of the outfall and the surrounding areas.
- Collect discharge samples for potential testing at the laboratory.

If the source cannot immediately be identified in the field, the follow up procedures in Section IV.A will be utilized.

Section IV - Investigation Protocols

Once an actual or potential illicit discharge has been observed, it is necessary to conduct an investigation to identify and eliminate the source of the discharge. An investigation may result from a report to Town staff from the public, a report from an interconnected MS4, or the results of dry weather outfall screening.

A. Prioritization for Follow Up

Illicit discharges suspected of being sanitary sewage or significantly contaminated will be prioritized and investigated first, while those suspected of being less hazardous to human health and safety may be delayed until the former has been resolved.

Timeframes for initiating an investigation after identifying an actual or suspected illicit discharge are established as follows:

- Observed Flow – Immediately.
- Obvious – Begin inspection within two business days of report or identification.
- Suspected – Begin inspection within one week of report or identification.
- Potential – Begin inspection within two weeks of report or identification.

If, after performing an investigation, the source of the discharge has not been identified and the discharge has not been detected again after six months, efforts will be documented and the discharged identified as "non-recurring/source not found." At least one additional dry weather screening must occur during the six month period.

If, after performing an investigation, the source of the illicit discharge has not been identified and the discharge occurs on an intermittent basis, efforts will be documented and the discharged identified as "non-recurring/source not found." At least three additional dry weather screenings must occur during the six month period in an attempt to observe the discharge when it is flowing.

Any outfall with a discharge documented as "non-recurring/source not found" will be added to the list of outfalls for dry weather screening during the next year in Section III.

B. Investigation Techniques

Discharges expected to contain hazardous materials will be reported immediately to Loudoun County Fire and Rescue HAZMAT Response for investigation.

Once an observed or potential illicit discharge is documented on the MS4 Outfall Inspection App (observed during dry weather screening) or the Illicit Discharge Incident Tracking Form (as part of a complaint investigation), and pictures have been taken, the Town will perform investigations to identify the source. Some sources will be easily identified through field techniques discussed below. Other sources may require a combination of field investigations and indicator sampling for identification. The Town may be able to locate the source of an illicit connection/discharge solely through visual observation of flow at manholes.

The following investigatory techniques will be considered during an investigation.

1. Additional testing
2. Drainage area investigations
3. Storm drain network investigations
4. Onsite investigations
5. Video

B.1 Additional Testing

Additional testing of dry weather flow may be warranted when field tests are inconclusive about the potential presence or source of stormwater pollutants. In these cases, a sample may be collected and tested at a certified laboratory to confirm the presence of contaminants.

The exact parameters to be tested will depend on other physical indicators. Common parameters include:

- Ammonia
- Boron
- Chlorine
- Conductivity
- Bacteria
- Fluorescence
- Fluoride
- Hardness
- Petroleum hydrocarbons
- Potassium
- Turbidity

B.2 Drainage Area Investigation

The Town will employ its mapping and land use data to identify potential dischargers in the drainage area based on the characteristics of the illicit discharge detected. This type of investigation is most appropriate with a large or complex drainage area and will help to allocate resources for further investigation. This involves a parcel by parcel analysis of potential generating sites within the drainage area of the problem outfall. Physical indicators observed in the field should be closely considered alongside land uses and types of possible generating sites in the drainage area.

The drainage area investigation may be done in the field using hard copy maps, but is most effectively done in the office. This may also be accomplished by contacting staff in the office to conduct a review in conjunction with review of mapping documents in the field. Office staff and field staff are then able to confer on the best approach to take in identifying the source. Once the probable dischargers have been identified, resources can be focused on specific storm drain networks to investigate, or perform on-site investigations to rule out possibilities and verify the source.

B.3 Storm Drain Network Investigations

The Town can perform an investigation of the storm drain network to identify the source of the illicit discharge. At outfalls with a simple drainage network it is recommended that inspectors move upstream from the outfall and test manholes along the way to locate the source of the discharge. However, much of the Town's storm drain network is complex or located in traffic areas. In these cases the Town will split the trunk into equal segments and test manholes at strategic junctions in the storm drain system. The method for splitting the storm drain network is outlined in the Center for Watershed Protection IDDE manual and is summarized below:

1. Review the system map leading to the suspect outfall.
2. Identify smaller pipes (branches) that are major contributors to trunk line.
3. Identify the manhole immediately upstream from the outfall and manholes at the farthest downstream node of each contributing smaller pipe branch.

4. Working up the network, investigate manholes on each contributing branch and the trunk, until the source is narrowed to a specific section of the trunk or contributing branch.
5. If the discharge is narrowed to a specific section of the trunk, select the appropriate onsite investigation method(s) to determine the source.
6. If the discharge is narrowed to a contributing branch, move up or split the branch until a specific pipe segment is isolated, and commence the appropriate on investigation to determine the source.

B.4 Manhole Inspections

Manhole inspections consist of visual observations made from the surface. Safety precautions should be taken during manhole inspections to ensure the safety of the field crew. Safety factors to consider in manhole inspections are: diversion of road and foot traffic: proper lifting of the manhole covers; and, testing to determine whether any toxic or flammable fumes exist within the manhole. Manholes may only be entered by properly trained and equipped personnel following all Occupational Safety and Health Administration (OSHA) requirements. In most circumstances, it is not necessary for the field crew to enter the manhole.

B.5 Onsite Investigations

Once the location of the illicit discharge has been isolated, yet the source remains undetermined, there are three techniques that are useful in identification of the exact source or connection that is producing the illicit discharge. These include:

- Dye testing
- Video testing
- Smoke testing

Depending on the circumstances, the Town may televise those storm sewers that look suspicious to identify pollutant sources that cannot be located through simple visual observation and/or sampling. For example, the Town may be able to determine, based on visual observation and/or sampling, that an illicit connection exists between two specific manholes.
Video inspection of the stretch of storm sewer between these two manholes could be used to isolate the exact source of the connection/discharge.

B.6 Notification of Responsible Party

Once an illicit connection/discharge has been identified and verified, the Town will notify the responsible party, if able to be identified, in writing and direct them to eliminate the illicit connection/discharge within a specified time frame. The notification will require the owner to inform the Town when the connection has been eliminated. The time frame for eliminating the connection/discharge will depend on the type of illicit connection/discharge and the difficulty of the elimination.

The Town will follow up with the owner to ensure that the connection/discharge has been eliminated. If the connection has not been eliminated, the Town will enforce its ordinances to obtain compliance.

Section V - Reporting and Recordkeeping

An important and required part of the IDDE program is a tracking and reporting system. The Town uses a database to track dry weather screening and investigations of suspected illicit discharges. Completed forms (MS4 Outfall Inspection App and Illicit Discharge Incident Tracking Form) will be kept on file for the duration of the permit cycle and no less than three years.

A. Dry Weather Outfall Screening

The MS4 permit requires the following minimum information to be tracked for each outfall screened in Section III. Additional information is collected on the MS4 Outfall App.

- The unique outfall identifier
- Time since last precipitation event
- Estimated quantity of last precipitation event
- Site description (conveyance type and dominant watershed land uses)
- If a discharge was observed:
- Estimated discharge rate (width and depth of discharge flow rate)
- Visual characteristics of the discharge (odor, color, clarity, floatables, deposits or stains, vegetation condition, structural condition, and biology)

B. Illicit Discharge Investigation Tracking

The MS4 permit requires the Town to track all illicit discharge investigations and document the following:

- The dates that the illicit discharge was initially observed, reported, or both
- The results of the investigation, including the source, if identified.
- Any follow up to the investigation.
- Resolution of the investigation.
- The date that the investigation was closed.

C. Annual Reporting

The MS4 permit requires the Town to provide in its annual report to DEQ the following:

- Confirmation statement that the MS4 map and information table have been updated to reflect any changes to the MS4 occurring on or before June 30 of the reporting year.
- Total number of outfalls screened during the reporting period as part of the dry weather screening program.
- A list of illicit discharges to the MS4 including spills reaching the MS4 with information as follows:
    - The source of the illicit discharge.
    - The dates that the discharge was observed, reported, or both.
    - Whether the discharge was discovered by the permittee during dry weather screening, reported by the public, or other method.
    - How the investigation was resolved.
    - A description of follow-up activities.
    - The date the investigation was closed.

D. Reports of Unauthorized Discharges

In accordance with Part III G of the MS4 permit, the Town must notify DEQ immediately upon discovery, but in no case later than within 24 hours, any discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance or a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, 40 CFR Part 302, or § 62.1-44.34:19 of the Code of Virginia that occurs during a 24-hour period into or upon surface waters or who discharges or causes or allows a discharge that may reasonably be expected to enter surface waters.

A written report of the unauthorized discharge shall be submitted to the department within five days of discovery of the discharge. The written report shall contain:

- A description of the nature and location of the discharge;
- The cause of the discharge;
- The date on which the discharge occurred;
- The length of time that the discharge continued;
- The volume of the discharge;

Section VI - Contacts

Town of Leesburg Department of Public Works
Main Phone Number: 703-771-2790

Initial Staff Contact:	Renee LaFollette, P.E.
Title:	Director of Public Works and Capital Projects
Telephone:	703-771-6071
Email:	rlafollette@leesburgva.gov
Second Staff Contact:	Nathaniel Ogedegbe, Dual Combined Administrator
Title:	Senior Engineer, Stormwater Management
Telephone:	703-737-3269
Third Staff Contact:	Brian K. Lloyd
Title:	Inspector Supervisor
Telephone:	703-771-2782
	571-233-7390 cell
Fourth Staff Contact:	OJ Jackson
Title:	Streets Superintendent
Telephone:	703-737-7070
	571-233-7396 cell

Section VII - Attachments

Appendices

Attachment A
Field Equipment Checklist

Town of Leesburg
IDDE Field Equipment Checklist

Field crews should work in groups no smaller than two for safety reasons. The field equipment listed below is used to conduct dry weather outfall screening.

Dry Weather Screening

- iPad
- Hardcopy MS4 maps
- Cell phone
- Digital camera
- Tape measure to:
    - verify outfall diameter
    - measure width of flow
    - measure travel distance (in determining flow velocity
- Field boots
- Rubber boots or waders (optional)
- For flowing outfalls
    - Folding scale for measuring stream depth
    - Watch with second hand (or stopwatch)
    - Protective eyeglasses or goggles
- pH strips or other pH monitor
- Chlorine strips or other chlorine monitor
- Detergent strips or other detergent monitor

Additional Equipment for Sample Collection and Field Measurements

- Latex gloves
- Paper towels
- Cooler with ice
- Sample bottles
- Dip cup on sampling rod (if needed)
- De-ionized or ultra-pure water in squeeze bottles for rinsing, dilutions, etc. (depending on methods used)
- Waste disposal bottles

Attachment B
MS4 Outfall Inspection App

Note: Town staff are trained to collect all information represented in Attachment B. The mobile app may be formatted differently than the form in this attachment and may be modified/updated to meet the specific needs of field personnel.

Town of Leesburg Dry Weather Outfall Inspection Report Form

Outfall ID:		**Site Visit Date:**		**Time of Visit:**	
Inspector's Name:				**Rainfall Last 48 Hours:**	
Nearest Address or Street Intersection:				**Temperature:**	
Outfall Description:		**Watershed:**		**Current Weather Conditions:**	

Land Use Area:	☐ Commercial	☐ Industrial	☐ Open Space	☐ High Residential	☐ Low Residential

Outfall Physical Indicators										
Outfall Information	**Diameter/# of Pipes:**	☐ Circular		☐ Elliptical		☐ Box		☐ Other:		
	Pipe Condition:	☐ Good		☐ Average		☐ Poor		☐ Non-Functional		
	Pipe End Composition:	☐ End Section		☐ End Wall		☐ Projecting Pipe				
	Pipe End Material:	☐ RCP	☐ PVC	☐ CMP	☐ HDPE	☐ Steel	☐ Other:			

Downstream Receiving Channel	☐ Concrete	☐ Rip-Rap	☐ Grass	☐ Bed/Bank	☐ V-Ditch
	☐ Trapezoid	☐ Parabolic	☐ Other:		
	Notes:				

Illicit Discharge Indicators for Flowing and Non-Flowing Outfalls				**Relative Severity Index**
Deposits/Stains: ☐ Yes ☐ No	☐ Flow Line	☐ Paint	☐ Sediment	☐ 1 – Faint/old ☐ 2 – Easily detected/old ☐ 3 – Easily detected/recent
	☐ Oily	☐ Rust	☐ Other:	
Vegetation: ☐ Yes ☐ No	☐ Normal	☐ Inhibited	☐ Other:	☐ 1 – Possible inhibited growth ☐ 2 – Clearly inhibited ☐ 3 – Clearly inhibited by other indicator
Poor Pool Quality ☐ Yes ☐ No	☐ Suds	☐ Excessive Algae	☐ Floatables	☐ 1 – Faint ☐ 2 – Easily Detected ☐ 3 – Noticeable from a distance
	☐ Oil Sheen	☐ Color	☐ Other:	
Odor Present: ☐ Yes ☐ No	☐ Sewage	☐ Rancid/Sour	☐ Sulfur/Rotten Eggs	☐ 1 – Faint ☐ 2 – Easily detected ☐ 3 – Noticeable from a distance
	☐ Petroleum/Gas	☐ Laundry/Wash	☐ Other:	
Pipe Benthic Growth: ☐ Yes ☐ No	☐ Brown	☐ Orange	☐ Green	☐ 1 – Faint ☐ 2 – Easily detected ☐ 3 – Noticeable from a distance
	☐ Other:			

Illicit Discharge Indicators for Flowing Outfalls (Complete if Flow Present)				
Is Flow Present? ☐ No ☐ Yes	☐ Trickle/Light	☐ Moderate	☐ Heavy	
Estimated Discharge Rate:	**A. Width of Water:**	**B. Approx. Avg. Depth:**	**A x B = C Flow:**	**C x D = E Est. Flow Rate:**

Color: ☐ Yes ☐ No	☐ Brown	☐ Gray	☐ Yellow	☐ Green	☐ 1 – Faint colors ☐ 2 – Clearly visible ☐ 3 – Clearly visible in flow
	☐ Orange	☐ Red	☐ Other:		
Turbidity: ☐ Yes ☐ No	See Severity				☐ 1 – Slight Cloudiness ☐ 2 – Cloudy ☐ 3 – Opaque
Floatables: ☐ Yes ☐ No	☐ Suds	☐ Sewage (toilet paper, etc.)	☐ Petroleum (oil sheen)	☐ Dead Fish	☐ 1 – Few/slight – origin not obvious ☐ 2 – Some – indications of origin ☐ 3 – Some – origins clear (e.g., obvious oil sheen, floating sanitary materials)
	☐ Trash	☐ Other:			
Field Test Results:	**pH:**	**Chlorine:**	**Detergents:**	**Other:**	**Further investigation required if:** • pH <6.0 or >9.0 s.u. • Chlorine >0.02 mg/L • Detergents >0.25 mg/L

Overall Outfall Illicit Discharge Characterization			
☐ Unlikely	☐ Potential (presence of two or more indicators)	☐ Suspect (one or more indicators with a severity rating of 2 or higher)	☐ Obvious
Notes and Site Observations:			
Follow-up Actions Required:			

Signature of Inspector:		**Date:**	

Attachment C
Illicit Discharge Incident Tracking Form

Town of Leesburg Illicit Discharge Incident Tracking Form

Incident ID:			
Call Taken By:		**Date of Call:**	
		Time of Call:	
Caller Name:		**Caller Phone:**	
		Caller Email:	
Date of Incident:		**Time of Incident:**	
Description of Incident:			
Address of Incident:			

Incident Location Information			
Date of Site Visit:		**Investigator:**	
Precipitation (inches) in past 24 hours		**Latitude/Longitude:**	
Current weather conditions			
Nearest Address or Outfall No.:			

Upland Problem Indicator Description		
☐ **Dumping**	☐ **Oil/solvents/chemicals**	☐ **Petroleum (gas)**
☐ **Wash water, suds, etc.**	☐ **Other**	

Stream Corridor Problem Indicator Description			
Odor	☐ **None**	☐ **Sewage**	☐ **Rancid/Sour**
	☐ **Sulfide (rotten eggs); natural gas**	☐ **Petroleum (gas)**	☐ **Other**
Appearance	☐ **Normal**	☐ **Oil Sheen**	☐ **Cloudy**
	☐ **Suds**	☐ **Other (Describe in "Narrative" Section)**	
Floatables	☐ **None**	☐ **Sewage (toilet paper, etc.)**	☐ **Algae**
	☐ **Dead Fish**	☐ **Other (Describe in "Narrative" Section)**	

Narrative Description of Problem Indicators:	
Suspected Violator Information (name, personal or vehicle description, license plate #, etc.):	
Actions Taken/Follow Up:	

Attachment D
Reporting Unauthorized Discharges Form

Log #:_____

Town of Leesburg Reporting Form for Unauthorized Discharge to the MS4

Reference: MS4 General Permit Section III G. Reports of Unauthorized Discharges

1.	**Name of the person making the report:**			
2.	**Title of the person making the report:**			
3.	**Phone and email contact:**			
4.	**Today's date:**			
5.	**Current weather conditions:**			
6.	**Date and time staff became aware of the discharge:**			
7.	**Description and nature of the discharge:**			
8.	**Location of the discharge:**			
9.	**Cause of the discharge:**			
10.	**Estimated date/time discharge started:**		**Estimated date/time discharge ended:**	
11.	**Estimated volume (gallons):**			
12.	**If the discharge is continuing, how long is it expected to continue?**			
13.	**If the discharge is continuing, what is the expected total volume?**			
14.	**Did the discharge enter the storm system (MS4)?**		**Did the discharge enter surface water?**	
15.	**Corrective action taken, or to be taken, to reduce, eliminate, or prevent a recurrence:**			
16.	**Other information:**			

Appendix E
VSMP Approval Letter and Construction Site and Post-Construction Stormwater Management Procedures

(C) K. Dentler (S) S. Parker Directors

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
Fax: 804-698-4019 - TDD (804) 698-4021
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

June 13, 2014

John Wells, Town Manager
Town of Leesburg
25 West Market St.
Leesburg, VA 20176

Dear Mr. Wells:

ln accordance with §62.1-44.15:27 G of the Virginia Stormwater Management Act (Act), the Department of Environmental Quality (DEQ) has completed the review of the Town of Leesburg's final Virginia Stormwater Management Program (VSMP) application package submitted on April 28, 2014. Based on this review, DEQ has determined that the Town of Leesburg's VSMP is consistent with the Act, the VSMP regulation and the Genera} VPDES Permit for Discharges of Stormwater from Construction Activities.

In light of this determination, DEQ approves the Town of Leesburg's VSMP; and the Town is authorized to operate a VSMP beginning on July 1, 2014. Please note that this approval is based on the content of the application package. Any changes made to the documents in the package after the approval date, including changes to the adopted ordinance, may necessitate DEQ evaluati.on as part of its compliance review of your approved VSMP.

Thank you for your cooperation in developing a VSMP. We look forward to continuing to assist the Town with the implementation of its VSMP.

Sincerely,

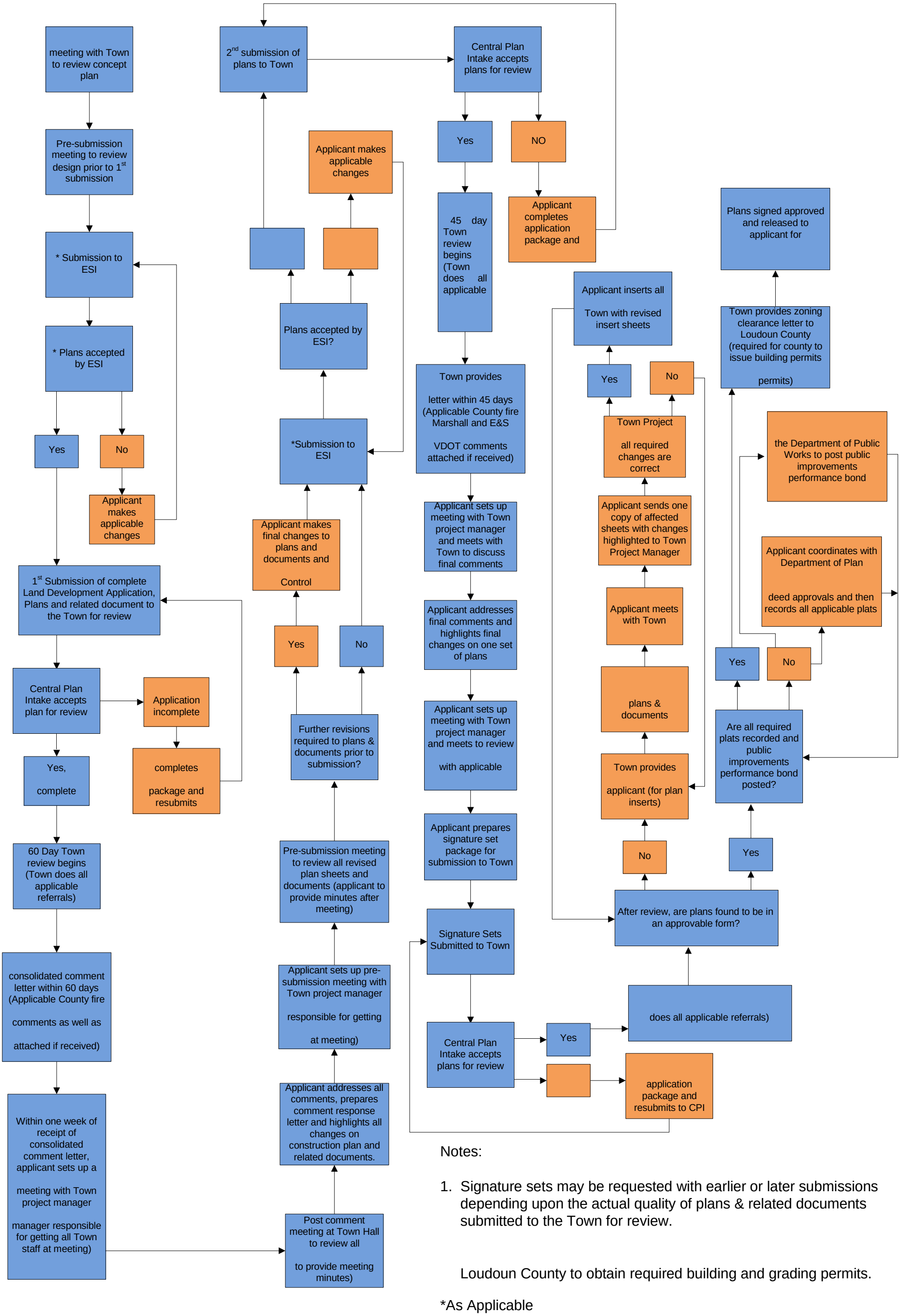
David K. Paylor

cc: Melanie Davenport, Director, DEQ Water Division
Frederick Cunningham, Director, DEQ Office of Water Permits
Joan Salvati, Manager, DEQ Local Government Stormwater Programs

Process Flow Chart for Construction Drawings, Site Plan, Minor Site Plan, Site Plan Waiver, Modification to Approved Plans, Rough Grading Plans & Traffic Signal Plan

Central Plan Intake (CPI) – Department of Plan Review (DPR)

All meetings noted herein are highly encouraged and recommended in order to promote a more efficient and predictable plan review process.



Notes:

1. Signature sets may be requested with earlier or later submissions depending upon the actual quality of plans & related documents submitted to the Town for review.

Loudoun County to obtain required building and grading permits.

*As Applicable

Town of Leesburg, Virginia
Submittal and Review of Stormwater Management and Erosion and Sediment Control Plans

STANDARD OPERATING PROCEDURE

- All Virginia Stormwater Management Program (VSMP) compliance elements, including one half of the required stormwater management fees, are submitted to the Town of Leesburg as part of the first submission of the Site Plan or Subdivision Construction Drawing. The SWPPP can be in draft format with the first submission.

- All VSMP compliance elements are distributed to the Town of Leesburg Plan Review Engineer and sent out to the Loudoun County Building and Development Erosion and Sediment Control Division as a referral.

- The Town of Leesburg has a Memorandum of Understanding (MOU) in place with Loudoun County that states that they will review the Erosion and Sediment Control Plans, issue the Grading Permit, and inspect Erosion and Sediment Control facilities during construction.

- The Town's plan review engineer utilizes the checklists in Appendix 3 of the Virginia Stormwater Management Handbook to review the stormwater management plan to verify that the minimum standards are met and required elements of the plan have been provided and the submission requirements listed in Article 10 of the DCSM.

- Both the Town's plan review engineer and the Loudoun County Erosion and Sediment Control Engineer utilize Chapter 6 & 7 of the Erosion and Sediment Control Handbook to verify that minimum standards are met and required elements of the plan have been provided.

- Comments on the VSMP compliance elements are prepared and sent out to the applicant/engineer to be addressed. All elements are revised and resubmitted until satisfactorily addressed.

- Final versions of all VSMP compliance elements are submitted with the signature set submission of the Site Plan or Subdivision Construction Drawing. The second half of the Stormwater management fees are collected with this submission.

- Once the Town has reviewed all the VSMP information and found the documentation to be in conformance with Town and State requirements, Town staff will populate the DEQ charts and recommend that DEQ issue a compliance letter under the criteria of Virginia's General Permit.

- Once DEQ issues their letter, the plans are signed by the Town, which approves the VSMP compliance elements.

- The Town of Leesburg issues a Permit Processing Clearance Letter and the applicant submits a grading permit application to Loudoun County.

- In accordance with the MOU with Loudoun County, they review and approve the required Grading Permit, which permits construction to begin.

- The Town will process the payment to the Commonwealth of Virginia for their share of all collected VSMP compliance fees at the end of each quarter.

Town of Leesburg, Virginia
Construction Site Inspection Process

STANDARD OPERATING PROCEDURE

- All Virginia Stormwater Management Program (VSMP) compliance elements, including the approved Site or Subdivision Construction Drawings, are provided to the Town of Leesburg Public Works Inspector as well as the Loudoun County Erosion and Sediment Control Inspector.

- The Town of Leesburg Public Works Inspector utilizes Appendix 3 of the Virginia Stormwater Management Handbook and the VSMP compliance elements to verify that the stormwater management facilities are constructed properly. The Town of Leesburg Public Works Inspector visits the site several times per week.

- In accordance with the Memorandum of Understanding (MOU) in place with Loudoun County, the Loudoun County Erosion and Sediment Control Inspector inspects the erosion and sediment control measures to verify that they are performing as designed.

- The Loudoun County Erosion and Sediment Control Inspector visits the site at various times, including after rainfall events. Inspection reports are generated with each site visit, which are provided to the Town of Leesburg, Department of Public Works.

- Upon stabilization of the site, the Loudoun County Erosion and Sediment Control Inspector allows all erosion and sediment controls to be removed.

- If any violations are noted, the contractor and applicant shall be notified in writing of such violations within five working days. Failure to comply with the terms of the notice of violation shall be referred to the Town Attorney's office for enforcement actions as outlined in the Town Code.

- Upon completion of the site improvements and stormwater management facilities, the developer submits as-builts and a certificate of completion of the Town of Leesburg, Department of Public Works.

- Periodic review of the site SWPPP may be requested by the Town of Leesburg Department of Public Works Inspector for compliance to Town Code 14-23.

Stormwater Management Easement (Privately Maintained).

Owner hereby grants and conveys unto the Town, its successors and assigns, a **Stormwater Management Easement (Privately Maintained)** for the purpose of installing, constructing, operating, maintaining, adding to, repairing, replacing, altering present or future stormwater management facilities and structures including but not limited to stormwater storage areas, drainage ditches, drainage lines, or other drainage structures and facilities, plus necessary inlet structures, manholes, and appurtenances collectively for the collection, storage and/or treatment of storm waters and its transmission through, upon, and across a portion of the Owner's Property said easement areas being more particularly bounded and described on the Plat as the "**Stormwater Management Easement (Privately Maintained)**".

The above-described "**Stormwater Management Easement (Privately Maintained)**" is subject to the following conditions:

1. Owner shall construct the Stormwater Management (SWM) Facilities according to the construction plans approved by the Town (the "**Plans**") and in compliance with all applicable laws and regulations promulgated pursuant to the Code of Virginia § 62.1-44.15:24, et. seq and 62.1-44.15:27, et. seq., **9VAC25-870 (Virginia Stormwater Management Program Regulations)**. All drainage lines and appurtenant facilities installed in the

"**Stormwater Management Easement (Privately Maintained)**" Area shall be and remain the property of the Grantor, its successors and assigns.

2. The Owner, its successors and assigns, shall be responsible for any specific maintenance requirements included in the Plans, all applicable SWM Regulations, and for providing adequate maintenance of all drainage lines and appurtenant facilities located within the "**Stormwater Management Easement (Privately Maintained)**" Area; adequate maintenance means good working condition so that these facilities are performing their design functions as described and shown on the Plans and as described in all applicable SWM Regulations (currently, found in the Virginia State Code, the BMP Clearinghouse, the Virginia Stormwater Management Handbook and the Town's Design and Construction Standards Manual (DCSM), latest editions).

3. Owner, its successors and assigns, shall annually file an inspection report, which shall be signed and sealed by a qualified professional engineer or surveyor, with the Town of Leesburg Department of Public Works that shows compliance with the Plans and applicable SWM Regulations (currently, found in the

Virginia State Code, the BMP Clearinghouse, the Virginia Stormwater Management Handbook and the Town's DCSM, latest editions).

4. The Town, its authorized agents and employees, shall have the right, but not the obligation, to enter upon the "**Stormwater Management Easement (Privately Maintained)**" Area to inspect the "**Stormwater Management Easement (Privately Maintained)**" area whenever the Town deems it reasonably necessary. Except in cases of emergency, the Town shall make reasonable attempts to notify the Owner, its successors and assigns, prior to entering the Property.

5. If the Owner, its successors and assigns, fails to adequately maintain the "**Stormwater Management Easement (Privately Maintained)**" Area, inspect and file annual reports, or comply with applicable SWM regulations, the Town and its agents shall have the right, but not the obligation, to perform any reasonable inspection, replacement, repair and maintenance as the Town deems necessary. The Owner, its successors and assigns, shall, reimburse the Town the costs of the inspection, replacement, repair, and maintenance of the SWM Facilities performed by the Town within 30 days of receipt thereof. This

provision shall not be construed to allow the Town to erect any building or structure in the "**Stormwater Management Easement (Privately Maintained)**" Area without obtaining written approval of the Owner.

6. The Town and its agent or assigns shall have full and free use of said "**Stormwater Management Easement (Privately Maintained)**" Area for the purposes named herein and shall have all rights and privileges necessary to exercise the rights granted in this easement including, but not limited to, the right of access to and from the "**Stormwater Management Easement (Privately Maintained)**" Area and the right to use adjoining land where necessary; provided, however, that this right to use adjoining land shall be exercised only during periods of actual inspection, replacement, repair and maintenance of the SWM Facilities, and then only to the extent necessary to perform inspections, replacement, repair and maintenance of the SWM Facilities, and further, this right shall not be construed to allow the Town to erect any building or structure on such adjoining lands.

7. If the Owner, its successors and assigns, fails to adequately maintain the "**Stormwater Management Easement (Privately**

Maintained)" Area, inspect and file annual reports, or comply with applicable SWM Regulations, the Town and its agent or assigns shall have the right, but not the obligation, to trim, cut and remove trees, shrubbery, fences, structures, or other obstructions in and near the "**Stormwater Management Easement (Privately Maintained)**" Area, deemed by the Town to interfere with the proper and efficient operation and maintenance of the SWM Facilities, provided that the Town, at the expense of the Owner, its successors and assigns, shall restore as the Town deems necessary, all land or premises disturbed by the inspection, construction, operations and maintenance of said SWM facilities.

8. The Owner, its successors and assigns, shall not alter the SWM Facilities without prior written approval of the Town. The Owner, its successor and assigns, shall submit a written request to the Town of Leesburg Department of Public Works for approval of any alteration to the "**Stormwater Management Easement (Privately Maintained)**" Area.

9. The Owner reserves the right to make use of the easement areas herein granted which may not be inconsistent with the rights herein conveyed, or interfere with the use of said easement

areas by the Town for the purposes named; provided, however, that the Owner, its successors and assigns, shall comply with all applicable Federal, State, Local and Town ordinances and regulations prior to placing any building, roadway, or other structure, or fence, in the easement areas.

10. The Owner, its successors or assigns, including but not limited to homeowner and business associations, shall indemnify and hold harmless the Town, and its agents, for any liability or claims of any kind resulting from the construction, presence, maintenance, inspection, repair or failure of the facilities within or adjacent to the "**Stormwater Management Easement (Privately Maintained)**" Area.

Town of Leesburg, Virginia
Best Management Practice (BMP) Maintenance and Inspection
STANDARD OPERATING PROCEDURE

- The required Certificate of Completion stating that the BMP facilities have been activated and are operating as designed is provided to the Town of Leesburg after all construction is completed.

- Town Public Works staff manually enters each individual BMP facility into an inventory database in Microsoft Excel format. The database is utilized to track all facilities in the Town of Leesburg and that proper maintenance is kept up to date.

- The Town of Leesburg Public Works sends out annual notices to each property owner in the fall reminding them to provide the required inspection reports for each BMP facility by the end of the calendar year. This annual report is required in Town Code Section 14-23h.

- After receipt of the annual reports, Town the Leesburg Public Works inspectors visit the site to visually verify that the reports appear accurate.

- If no report is submitted by April 1st, the Town Attorney is notified and Public Works staff follows the procedure as outlined in the Town Code for enforcement actions.

- In addition to the annual reports required by the property owner, the Town of Leesburg Public Works staff inspects each facility in accordance with the MS4 permit.

- The database is updated by Public Works staff to reflect each inspection of the facility.

This SOP is currently under revision and will be replaced on final approval.

Standard Operating Procedures
For Inspection of Owner-Operated BMPs

September 2014

The Town of Leesburg has developed this stormwater management facility maintenance and inspection plan to ensure the continued functionality and operation of the BMP per its original design and intent. This plan is designed to provide guidance for the regularly required maintenance and facility inspections of the BMPs owned and operated by the Town.

Stormwater Facilities – Descriptions & Locations

The Town of Leesburg currently owns and operates five (5) BMP facilities within the corporate limits of the town. Below is a table identifying the types of facilities and their locations:

Type of BMP	Location
Bay Saver	Lowenbach Roadway Improvements
Filterra	Turner Harwood Drainage Improvements
Storm Filter	Leesburg Executive Airport
Storm Filter	Leesburg Executive Airport
Storm Filter	Leesburg Central Maintenance Facility

Owner/Operator Contact Information

These facilities are the property of the Town of Leesburg. Below is the contact information for the owner:

Town of Leesburg
Department of Public Works
25 W Market Street
Leesburg, Virginia 20176
Tel 703-307-8592
Email publicworks@leesburgva.gov

Routine Maintenance Procedures (Applicable to All Current Facilities)

Regardless of the manufacturer or facility-specific maintenance tasks, all facilities share some common maintenance requirements as noted below:

- Regular Visual Inspections
- Vegetation Management
- Debris and Litter Control

Inspection and Maintenance Schedules

Following are the schedules for regular maintenance and inspection frequency for each of the 3 types of facility the Town currently owns and operates:

BayFilter Inspection and Maintenance

Maintenance: The BayFilter system requires periodic maintenance to continue operating at the design efficiency. The maintenance process consists of the removal and replacement of each BayFilter cartridge and the cleaning of the vault or manhole with a vacuum truck. BayFilter maintenance should be performed by a BaySaver Technologies, Inc. (BTI) certified maintenance contractor.

The BayFilter cartridges are provided on an exchange basis and are refilled by BTI and reused. Certain components are replaced such as the filter fabric, media and any part that would not fully function for the next life cycle. The media and any nonrecyclable components are disposed of by BTI as part of the exchange.

The maintenance cycle of the BayFilter system will be driven mostly by the actual solids load on the BayFilter system. The system should be checked periodically to be certain it is operating correctly. Since stormwater solids loads can be variable, it is possible that the maintenance cycle could be more or less than the projected duration.

Inspection: BTI recommends the BayFilter system be inspected every six (6) months after its initial installation and inspected annually after the first year of installation. The BayFilter system has two indicators that maintenance is required. The two indicators are sediment storage capacity and flow capacity.

Filterra Inspection and Maintenance

Maintenance: Examine the plant for any disease or damage. Prune as necessary. Carefully remove each half of tree grate and place to one side. Lift grates safely and appropriately as each half may weigh up to 155 pounds. In the throat of each unit there are numerous fist sized erosion control stones that need to be removed before the maintenance and they are to be placed to the side.

To remove the debris, trash and mulch, it may be necessary to place a bungee cord around the shrub or tree's limbs. Take extra care when removing waste, there may be sharp items or trash contained in the unit.

Enter the unit with your modified, short handle rake and pull back from all corners and edges, the collected debris, trash and mulch with any sediment too. Be careful not to remove the engineered media.

The number of 5 gallon buckets removed and the type of waste should be recorded. All waste should be disposed in compliance to local waste disposal regulations. Measure and Record

Once all mulch and debris are removed you should see a clean media surface, 9” plus or minus one inch below the bottom of the top slab. Measure and record this distance. If more media is needed or if the media appears clogged with sediment please contact the Filterra office.

Shredded hardwood mulch should be spread evenly to a depth of 3” within the unit. Place the mulch through the throat and the tree grate opening for simple installation. Measure the distance from the bottom of the top slab to the mulch. This should be 6” plus or minus one inch. A typical 6x6 unit needs 4 bags of mulch.

Tap the stones to remove sediment and re-install cleaned stones back through the throat. These should cover the mulch for at least 6” back. The stones should be replaced low enough so that trash items may enter the throat without obstruction. Clean the top slab and throat of all debris. Re-install the tree grates, taking care not to damage the plant and ensuring that the Filterra plate can be easily seen. Carefully remove bungee cord from plant. Add a minimum of 5 gallons of water to plant.

Measure and record (in feet and inches) the plant height above the grate and widest width. Record any additional notes of interest about the unit or its surrounding environment (oil/chemical spill, dead landscape vegetation, construction within the drainage area, etc.) Take a dated photograph of every unit after the maintenance is complete. Ensure all paperwork is completed and signed. (Example Maintenance Worksheet found at end of document)

Inspection: Each Filterra unit should be inspected to confirm that:
a) Confirm the structure number matches the paper work (see below)
b) there is no standing water in the unit
c) there is no damage to the tree grate or grates
d) there is no damage to the top slab
e) the downstream bypass structure or opening is clear

Filterra units will be visually inspected on an annual basis with a more in-depth assessment and evaluation performed bi-annually. If deficiencies are observed during routine visual inspections additional maintenance will be performed as appropriate.

Storm Filter Inspection and Maintenance
Maintenance: Depending on the configuration of the particular system, maintenance personnel will be required to enter the vault to perform the maintenance. Important: If vault entry is required, OSHA rules for confined space entry must be followed. Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows is occurring. Replacement cartridges can be delivered to the site or customers facility. Information concerning how to obtain the replacement cartridges is available from CONTECH Construction Products.

Note: In the case of a spill, the maintenance personnel should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Construction Products immediately.

To conduct cartridge replacement and sediment removal maintenance:
1. If applicable, set up safety equipment to protect maintenance personnel and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:
A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Unscrew (counterclockwise rotations) each filter cartridge from the underdrain connector. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact CONTECH Construction Products for suggested attachment devices.

Important: Note that cartridges containing leaf media (CSF) do not require unscrewing from their connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and could be capped during the maintenance activity to prevent sediments from entering the underdrain manifold.

B. Remove the used cartridges (up to 250 lbs. each) from the vault. Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner unless CONTECH Construction Products performs the maintenance activities and damage is not related to discharges to the system.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps a through c until all cartridges have been removed.

Method 2:
A. Enter the vault using appropriate confined space protocols.
B. Unscrew the cartridge cap.
C. Remove the cartridge hood screws (3) hood and float.
D. At location under structure access, tip the cartridge on its side.

Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

D. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.
E. Set the empty, used cartridge aside or load onto the hauling truck.
F. Continue steps a through e until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. This can most effectively be accomplished by use of a vacuum truck.

9. Once the sediments are removed, assess the condition of the vault and the condition of the connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude about 1" above the floor of the vault. Lightly wash down the vault interior.

a. Replace any damaged connectors.

10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.

11. Close and fasten the door.

12. Remove safety equipment.

13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used empty cartridges to CONTECH Construction Products.

Performed on an as-needed basis:
StormFilter units are often just one of many structures in a more comprehensive stormwater drainage and treatment system. In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities. In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

Inspection: At least one scheduled inspection should take place each year with maintenance following as warranted.

First, an inspection should be done before the winter season. During the inspection the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, a maintenance (replacement of the filter cartridges and removal of accumulated sediments) should be performed during periods of dry weather. Inspections should be made once per year as well as after any significant storms, per Contech.

Record Keeping and Data Tracking

The Department of Public Works performs maintenance and inspection on each of the five (5) facilities. Information obtained through regular inspections shall be kept in an Excel spreadsheet and used to assist in determining when additional maintenance or repairs are required.

A record of any maintenance performed will also be noted in the Excel spreadsheet to ensure the facilities are being properly maintained in order to continue functioning as designed.

When possible, manufacturer's documentation/checklists will be used to collect data for inspection and track maintenance activities. Photos will be saved in a folder under the BMP Documents file on the server.

Appendix F
Operation and Maintenance Pollution Prevention Standard Operating Procedures

Town of Leesburg
Operation and Maintenance Pollution Prevention Standard Operating Procedure

Department of Public Works and Capital Projects

Original – June, 2015

Updated – April 18, 2019

Background

Stormwater runoff contains pollutants that can harm human health, degrade water quality and aquatic habitat, and impair ecosystem functions. On its way to streams, estuaries, and other receiving water bodies, stormwater runoff accumulates pollutants such as oil and other petroleum products, heavy metals, deicers, pesticides, fine sediment, fertilizers, and bacteria – all of which can impair water quality.

The Town of Leesburg is required by state and federal laws and regulations to prevent and eliminate stormwater pollution from its municipal activities. Specifically, the Town must implement written procedures for Town operations in accordance with Part I E 6 of its Municipal Separate Storm Sewer System (MS4) permit issued by the Virginia Department of Environmental Quality.

This Operations and Maintenance Pollution Prevention Standard Operating Procedure has been developed by the Town Department of Public Works and Capital Projects for use by all divisions to prevent stormwater pollution and to assist in personnel training.

These procedures are general in nature and may not cover all activities conducted by Town personnel. **If you have any questions or concerns, please contact your supervisor or the Public Works Administration Office at 703-771-2790.**

Activities Covered in This SOP

The following activities are contained in this SOP.

- General Good Housekeeping
- Catch Basin Cleaning
- Catch Basin and Outfall Repair
- Storm Drain System Repair
- Erosion and Sediment Control
- Landscape Design and Management
- Lawn Care: Fertilizer and Pesticide Storage and Disposal
- Lawn Care: Fertilizing and Lawn Health
- Lawn Care: Weed and Pest Control
- Lawn Care: Mowing and Irrigation
- Vehicle and Equipment Storage
- Vehicle and Equipment Washing
- Vehicle and Equipment Fueling
- Spill Cleanup
- Parts Cleaning
- Spare Parts Storage
- Alternative Products/Use/Storage/Disposal
- Petroleum and Chemical Disposal
- Petroleum and Chemical Handling
- Petroleum and Chemical Storage – Bulk
- Petroleum and Chemical Storage – Small Quantity
- Refuse Storage
- Floor Drains
- Painting
- Street Sweeping
- Snow Removal
- Road Maintenance – Sand and Salt Storage
- Road Maintenance – Salt Application
- Right-of-Way Entry

Standard Operating Procedures

General Housekeeping

Always:

- Keep a tidy facility.
- Store hazardous materials as specified by the manufacturer.
- Conduct regular employee training and education to reinforce proper housekeeping.

Whenever Possible:

- Store materials and wastes inside or under cover if outside.
- Substitute less- or non-toxic materials for toxic ones.
- Perform a routine cleaning of the facility.
- Inspect the facility (interiors, exterior, parking areas, etc.) for stains.

Erosion and Sediment Control

Always:

- Ensure that all land disturbing activities comply with Town of Leesburg and Loudoun County erosion and sediment control requirements.
- Use effective site planning to avoid sensitive areas.
- Keep land disturbance to a minimum.
- Inspect and maintain erosion control devices.
- Install erosion control devices properly.
- Install erosion control blankets when seeding drainage ways.

Whenever Possible:

- Protect disturbed areas from stormwater runoff by using stabilizers such as mulch.
- Limit construction activities during months with higher runoff rates.
- Assign responsibility for maintaining erosion control devices.
- Reduce the velocity of stormwater runoff.
- Divert clean water away from the disturbed area during construction activities.
- Protect vegetative buffers or create new ones.
- Stabilize soils by mulching and/or seeding when soils are exposed for more than one week during the dry season, and two days during the rainy season.

Never:

- Divert runoff into a sensitive area.

Landscape Design and Management

Always:

- Design landscaping by taking into account soil types, light, drainage, desired maintenance level, and budget.

Whenever Possible:

- Minimize erosion prone steep slopes by using techniques such as terracing.
- Use native plants that are pest resistant. Plant the right plant in the right area.
- Manage water runoff by rerouting gutters away from storm drains and maintaining groundcovers between developed areas and waterways.
- Reduce or eliminate mown lawn in unused areas.
- Convert unused turf to meadow or forest.
- Establish set back distances from pavement, storm drains, and waterways. Allow these areas to serve as buffers with disease-resistant plants and minimal mowing.

Never:

- Develop a landscape design without assessing the impact on water quality.

Lawn Care – Product Storage

Always:

- Store materials, whether liquid or dry, under cover when not in use.
- Keep materials properly covered and in tight fitting containers.
- Properly label all materials.
- Maintain Safety Data Sheets (SDSs) for stored material in a place accessible to on-site personnel.

Whenever Possible:

- Provide a secondary containment structure, spill pad, or similar structure.
- Keep materials stored away from bay doors and other places where a spill could reach an outside area.

Lawn Care – Fertilizing and Lawn Health

Always:

- Apply fertilizers based on a soil testing program, soil type, turf function, and assessment by qualified personnel.
- Apply fertilizers in accordance with any adopted nutrient management plan (NMP). NMPs have been developed for Robinson Park, Freedom Park, and Ida Lee Park.
- Store, use, and dispose of all fertilizers and contaminated wastes according to manufacturer's specifications and applicable regulations.

- Choose seed based on soil types, intended use of area, latest variety research, and assessment of past site performance.

Whenever Possible:

- Avoid fertilizing during a drought or when the soil is dry.
- Apply fertilizers during periods of maximum plant uptake, preferably in the fall.
- Avoid combined products such as weed and feed, which do not necessarily target specific problems at the appropriate time.
- Calibrate application equipment to ensure proper application.
- If phosphorus fertilizer is used when re-seeding, mix phosphorus into root zone.
- Use natural compost and organic fertilizers instead of synthetic fertilizers.
- Aerate grassed areas to improve drainage and bring more oxygen to the soil.

Never:

- Fertilize before a heavy rainfall.
- Apply phosphorus fertilizer on soil surface.
- Deposit fertilizer in the water, onto the street, or into storm drains.
- Apply fertilizer to frozen ground.

Lawn Care – Weed and Pest Control

Always:

- Ensure that pesticides and herbicides are only applied by personnel certified to do so.
- Use, store, and dispose of all chemicals and waste products according to manufacturer's specifications, Town of Leesburg policy, and any local requirements.
- Clean up any spilled chemicals.
- Store pesticide and herbicide-contaminated waste materials in a labeled, designated, covered, and contained area.
- Use pesticides and herbicides only when necessary.
- Mix the minimum about needed for the immediate job.
- Rinse equipment only when necessary and use rinse water to dilute next mix as long as application rates are not exceeded.

Whenever Possible:

- Use alternative methods to control weeds and pests such as Integrated Pest Management strategies, biorational insecticides (natural soaps and oils) or biological controls.
- Mix/load pesticides in an area where spills can be contained.
- Pull weeds by hand or mechanically.
- Spot treat affected areas only instead of entire location.
- Apply pest control at the life stage when the pest is most vulnerable.
- Choose the least toxic pesticides and herbicides that still achieve results.
- Tolerate low levels of weeds.
- Allow grass to grow 2.5 to 3 inches high, reduce thatch build up and aerate soils.

- Reduce seed release of weeds by timing cutting at seed set.
- Establish setback distances from pavement, storm drains, and waterways; allow these areas to serve as buffers with disease-resistant plants and minimal mowing.

Never:

- Apply controlled pesticides or herbicides unless certified to do so.
- Mix or prepare pesticides or herbicides near storm drains.
- Apply materials in or near any drainage ditch, creek, pond, or seasonal streambed.
- Apply herbicides or pesticides before a heavy rainfall.
- Discharge rinse water or excess chemicals to storm drain, sewer, or ground surface in excess of labeled rates.

Lawn Care – Mowing and Irrigation

Always:

- Mow only as low as needed for the area's intended use.
- Vary mowing pattern.
- Base irrigation amounts on monitoring for moisture content.
- Water at appropriate times (when no rain is forecasted).
- Manage leaves, clippings, and compost so that they do not enter storm drain system or waterways.

Whenever Possible:

- Allow areas to go to meadow or field and mow once or twice per year rather than every week.
- Keep mower blades sharpened to avoid damaging grass leaf tissue.
- Mow when the grass is dry to prevent spread of turf diseases.
- Sweep up lawn clippings and debris instead of using water.
- Mulch grass clippings using a mulching mower.
- Fill gas tanks in a controlled location.

Never:

- Mow an area just because it always has been mowed.
- Purposefully sweep, blow, or dump clippings or vegetated waste into storm drain inlets.
- Irrigate based on timers/schedules instead of monitoring for moisture content.
- Dump gas, wastes, or contaminated water down storm drains.
- Refuel or change the mower oil near storm drains.
- Leave mower running in one location.

Vehicle and Equipment Storage

Always:

- Inspect parking areas for staining/leaks on a schedule established by the appropriate personnel.
- Keep a spill kit near where vehicles and equipment are stored.
- Address a known leak or drip as soon as possible.
- Use drip pans to capture any leak or drip while a vehicle or equipment is awaiting repair.

Whenever Possible:

- Store vehicles and equipment inside.
- Store vehicles on paved areas to make it easier to spot and remove drips/leaks/dirt.
- Perform street sweeping of paved areas on a schedule established by the appropriate personnel, and dispose of street sweepings properly.
- Maintain vehicles to prevent leaks from occurring.
- Perform a pre-trip inspection of vehicle.

Never:

- Store leaking vehicles in the vicinity of a storm drain.

Vehicle and Equipment Washing

Always:

- Wash vehicles and equipment in a designated area.
- Discharge all wash water to an on-site treatment facility, the sanitary sewer in accordance with the treatment plant standards, or an approved holding tank. If washing is limited to removal of vegetative matter without detergents, it can be conducted on a flat, grassy or graveled area away from storm drains, stormwater conveyances, or natural water ways.
- Use a commercial wash facility if the options above are not available.

Never:

- Wash vehicles or equipment in an area where untreated wash water can enter the storm drain system.

Vehicle and Equipment Fueling

Always:

- Fuel carefully to minimize drips to the ground surface.
- Maintain clean fuel dispensing areas using dry cleanup methods.
- Utilize fueling safeguards. Clearly label and tag all valves to reduce human error.
- Train employees and subcontractors on proper fueling methods and spill cleanup techniques.

- Maintain fuel storage tanks in accordance with local, state and federal laws.
- Inspect fueling equipment components regularly and evaluate if replacement is necessary.
- Have absorbent spill cleanup kits and materials available at fueling areas.
- Immediately clean up spills and properly dispose of contaminated soil and cleanup materials.

Whenever Possible:

- Install a canopy or roof over aboveground storage tanks.
- Regularly inspect fueling equipment for corrosion and structural failure, cracks in foundations, and physical damage to container systems.
- Use designated fueling areas built upon a level impervious surface (hard cement is best). If paved with asphalt, add a protective coating to create an impervious surface.
- Design fueling areas to minimize stormwater exposure. Prevent run-on and ponding of water, and use secondary containment systems.
- Protect storm drains from fueling areas using berms and dikes.
- Use drip pans or absorbent pads during fueling to collect leaks.
- Add automatic shutoff mechanisms to fueling equipment.
- Install protective guards around fueling equipment, tanks, and piping to prevent collisions.

Never:

- "Top off" fuel tanks.
- Hose down or bury a fuel spill.

Spill Cleanup

Always:

- Assess the scene to ensure individual safety of nearby personnel. If necessary, contact emergency personnel at 9-1-1.
- Train employees in spill response procedures and equipment.
- Stop the source of the spill.
- Contain any liquids.
- Cover the spill with absorbent material such as kitty litter, sawdust, or oil absorbent pads. Do not use straw. Dispose of used absorbent material properly.
- Use water only when necessary and minimize use.
- Develop and maintain a Spill Prevention, Control, and Countermeasure (SPCC) Plan if the facility stores more than 1,320-gallons of petroleum.
- Fit petroleum and chemical storage containers with secondary containment structures.
- Keep a spill kit in areas where petroleum or hazardous materials are stored.
- Deploy containment booms if spill could potentially reach a storm drain or waterway.
- Position mats to contain drips from equipment or vehicles until they can be repaired.

Whenever Possible:

- Seal the floor with paint to prevent absorption of fluids into concrete.
- Install low-level or low-pressure alarms and/or cut-off systems on hydraulic equipment.

Never:

- Wash a spill into the storm drain or a water body.
- Leave a spill without cleaning it up.

Parts Cleaning

Always:

- Perform cleaning in a designated area to minimize the potential for spills.
- Store waste cleaners in properly labeled containers in accordance with regulations.
- Dispose of all waste cleaners properly with a licensed contractor.

Whenever Possible:

- The variety of cleaners should be minimized to make recycling and disposal simpler.
- Use citrus-based cleaners and dispose of properly.
- Use steam cleaning and pressure washing instead of solvents; however, wastewater must be discharged to an oil/water separator and the waste water treatment plant notified.

Never:

- Dispose of spent cleaners down the floor drains, sinks, or storm drain inlets.

Spare Parts Storage

Always:

- Store spare parts in a designated area.
- Use drip pans for any parts that are dripping.

Whenever Possible:

- Store spare parts inside or under cover.
- Monitor storage areas for staining/leaks on a schedule decided on by the appropriate personnel.
- Clean petroleum residuals from the parts that are to be stored.

Alternative Products Use/Storage/Disposal

Always:

- Use, store, and dispose of alternative products according to manufacturer's specifications.

Whenever Possible:

- Use alternative products when deemed appropriate.
    - Instead of solvent-based parts cleaners, use citrus–based cleaners or steam/pressure wash to an oil/water separator.
    - Instead of herbicides, use bark mulch.
    - Instead of fertilizer, use compost or manure.
- Train employees on the benefits of using alternative products.
- Minimize waste by purchasing recyclable products that have minimal packaging.
- Use less harmful deicers such as calcium magnesium acetate, potassium acetate, or organic deicers such as Magic Salt™.
- Substitute synthetic fertilizers with natural compost and organic fertilizers to improve soil pH, texture and fertility, and cause less leaching to groundwater.
- Use slow-release nitrogen fertilizers.
- Consider reducing or eliminating mown lawn in areas that are not actively used.
- Consider converting unused turf to meadow or forest.

Petroleum and Chemical Disposal

Always:

- Dispose of petroleum/chemicals according to manufacturer's specifications and state and federal regulations.
- Maintain tracking of chemicals and petroleum products being disposed off-site.
- Store waste petroleum/chemical products in a designated area labeled as such.
- Label each waste container with its contents.
- Transport used petroleum and chemical products with a licensed transporter and maintain records for three years.
- Train employees on proper disposal practices.
- Drain used oil filters for 24-hours before disposal (disposal in regular trash allowed).
- Inspect waste storage areas for staining/leaks on a regular basis.

Whenever Possible:

- Minimize the number of solvents used to reduce the variety of waste generated and to make recycling easier.
- Use safer alternatives.

Never:

- Place hazardous waste in solid waste dumpsters.
- Pour liquid waste down floor drains, sinks or outdoor storm drain inlets.
- Mix petroleum waste and chemical waste.
- Dispose of any gasoline-contaminated waste in the regular trash. Dispose of it only as a hazardous waste.

Petroleum and Chemical Handling

Always:

- Train employees in hazardous material handling, safety, spill cleanup and reporting on an annual basis.
- Handle petroleum products and chemicals according to manufacturer's specifications.
- Conduct oil changes indoors for equipment that fits indoors.
- Use proper protective equipment.
- Maintain Safety Data Sheets (SDS) for all chemicals used.
- Make SDS sheets available on materials that require special handling, storage and/or disposal.
- Create a sign-off sheet for employees stating that they know the location of the SDS(s).

Whenever Possible:

- Assess hazardous material needs to minimize the amount and variety of hazardous material in storage.
- Transfer materials from one container to another indoors in a well ventilated area. Properly label containers.
- Train new employees within six months of hire.

Never:

- Treat or dispose of hazardous materials unless licensed to do so.
- Mix petroleum or chemicals unless directed by manufacturer's instructions.

Petroleum and Chemical Storage – Bulk

Always:

- Abide by the facility's Spill Prevention, Control, and Countermeasures (SPCC) plan.
- Ensure that the content of a storage vessel is clearly marked in plain language.
- Store materials away from high traffic areas, posted with appropriate signage.
- Store materials according to manufacturer's specifications in approved containers and conditions.
- Be prepared for possible spills by having a spill kit nearby.
- Store incompatible hazardous materials in separate areas.
- Inspect storage areas for leaks or drips frequently.
- Store bulk items within secondary containment areas if bulk items are stored outside.
- Conduct annual employee training to reinforce proper storage techniques for petroleum and chemical products.

Whenever Possible:

- Store bulk chemicals and petroleum products inside or under cover.
- Provide pallet storage for drums and containers.
- Provide secondary containment for interior storage.

- Provide locks for all bulk storage access points.

Never:

- Store bulk chemicals or petroleum products near a storm drain.
- Release stormwater from a secondary containment area unless it has been verified that there is no contamination present.

Petroleum and Chemical Storage – Small Quantity

Always:

- Store materials away from high traffic areas.
- Store materials according to manufacturer's specifications (e.g. in a flammable materials storage cabinet).
- Dispose of unused or waste materials properly.
- Train employees on proper storage procedures for petroleum and chemical products.
- Store materials in their original containers to maintain appropriate labeling.
- Be prepared for spills by having a spill kit nearby.
- Frequently inspect the storage areas for leaks or spills.
- Conduct annual employee training to reinforce proper storage techniques for petroleum and chemical products.

Never:

- Store petroleum or chemical products near a floor drain or stormwater inlet.

Sand, Dirt, or Gravel Stockpiles

Always:

- Locate stockpiles away from storm drain inlets.
- Contain stormwater runoff from stockpiles using barriers or berms.
- Frequently sweep areas around stockpiles.

Whenever Possible:

- Store stockpiles inside a building or under a roof. If an overhead structure is not available, cover stockpiles with a secured tarp.
- Order only the amount of the material that is needed for a specific job to minimize the need for stockpiling.

Refuse Storage

Always:

- Dispose of hazardous materials according to manufacturer's specifications and applicable regulations.
- Cover rubbish bins to keep rubbish in and wind and rain out.

Whenever Possible:

- Store garbage containers beneath a covered structure or inside to prevent contact with stormwater.
- Provide locks to keep tops from blowing open.
- Install berms, curbing or vegetation strips around storage areas to control water entering/leaving storage areas.
- Locate dumpsters on a flat, concrete surface that does not slope or drain directly into the storm drain system.
- Locate dumpsters and trash cans in convenient, easily observable areas.
- Provide properly-labeled recycling bins to reduce the amount of garbage disposed.
- Inspect garbage bins for leaks regularly, and have repairs made immediately by responsible party.
- Keep bins free of improperly discarded trash.
- Provide training to employees to prevent improper disposal of general trash.
- Minimize waste by purchasing recyclable products that have minimal packaging.
- Request/use dumpsters without drain holes.

Never:

- Place hazardous wastes in a dumpster or trash bin.

Floor Drains

Always:

- Keep a spill kit in the vicinity of floor drains.
- Obtain and use drain mats to cover floor drains in the event of spills.
- Use floor drains that are connected to a holding tank or to the sanitary sewer via an oil/water separator.
- Report to a superior if you suspect that a floor drain connects to the storm sewer.

Whenever Possible:

- Minimize water use or run a dry shop.

Never:

- Dump hazardous materials down the floor drains.
- Store leaking vehicles over floor drains.
- Store hazardous or petroleum products in the vicinity of floor drains.
- Use floor drains if you are unsure of their discharge location.

Painting

Always:

- Store waste paints, solvent, and rags in covered containers.
- Perform abrasive blasting and spray painting in accordance with regulations.
- Properly clean, store, and dispose of paint and associated waste materials.

Whenever Possible:

- Use less-toxic paints such as latex or water-based paints.
- Use drop cloths under any painting or preparation activity such as scraping or sandblasting.
- Use techniques such as brushing and rolling to avoid overspray.
- Use vacuum sanders to collect paint dust.
- Perform abrasive blasting and spray painting in an enclosed or covered area that is safe for personnel.

Never:

- Dispose of paint or waste paint products into the storm drain system, a waterway, or onto the ground.

Street Sweeping

Always:

- Dispose of sweeping residual properly.
- Sweep all publicly accepted paved streets and parking lots at least once per year as soon as possible after snowmelt.

Whenever Possible:

- Perform additional sweeping on a seasonal schedule.
- Sweep in locations that generate debris, such as construction entrances, sand/salt loading areas, vehicle fueling areas, vehicle equipment, and storage areas or on an as needed basis.
- Sweep in a pattern that prevents materials from being pushed into storm drains/catch basin inlets.
- Street sweep before a major rain event.
- Use dry vacuum assisted street sweepers (the most effective).
- Maintain street sweeping equipment for maximum effectiveness.
- Locate storage and disposal areas and manage street sweeping waste so that wastes cannot be transported into storm drain systems, waterways or wetlands.

Never:

- Store street sweeping residuals in areas where stormwater could transport fines to the storm drain system or a waterway.

Snow Removal

Always:

- Identify sensitive ecosystems prior to disposal and avoid snow disposal in these areas.
- Remove trash/waste from snow dump areas as soon as possible after snow melt.

Whenever Possible:

- Select storage locations that do not drain into surface waters and where environmental impacts of spring melt are minimal.
- Store snow on areas that are well above the groundwater table on a flat, vegetated slope.
- Avoid disposal on pavement, concrete, and other impervious surfaces.
- Do not pile snow in wooded areas, around trees or in vegetative buffers.
- Divert run-on of water from areas outside the snow piles.
- Manage remaining materials after snowmelt by containing and cleaning up the sediment, sand, and debris.

Never:

- Dispose of snow in wetlands, lakes, streams, rivers, or near drinking water sources.

Road Maintenance – Sand and Salt Storage

Always:

- Store salt and other chemical deicers in a permanent, waterproof covered structure unless active loading or spreading is occurring. If temporary storage is required, piles must be covered with an adequately secured tarp surrounded by a berm to prevent mixing with stormwater. This is allowed on a temporary basis only.
- Store sand and other chemical deicers on an impervious surface such as a concrete slab. Use of a tarp or similar material is not considered adequate unless designed by an engineer.
- Actively manage run-on and runoff. Storage structures must provide adequate barriers to prevent run-on into the pile and minimize erosion from the pile.
- Store materials away from storm drain inlets and conveyance structures.
- Clean up after loading and unloading, including sweeping, to avoid runoff.

Never:

- Dispose of wash water from sanding and salting trucks into the storm drain system, a waterway or septic system drain fields.

Road Maintenance – Salt Application

Always:

- Assess alternative deicing materials, and select the material and mix that has the least impact on water quality while still meeting the Town's public safety needs.

Whenever Possible:

- Use the minimum amount of salt and sand needed to get the job done.
- Use coarse, clean sand, which is free of fine particles and dust and easier to clean in the spring.
- Train drivers to improve application techniques and reduce losses.
- Remove snow manually from driveways and sidewalks.
- Cleanup road grit as soon as possible.
- Consider road temperatures when determining volume of salt to apply.
- Calibrate sand/salt trucks in accordance with Salt Institute recommendations.
- Control the rate of spreading by equipping trucks with ground-speed sensors.

Never:

- Use deicing agents containing urea or other forms of nitrogen or phosphorus to parking lots, roadways, sidewalks, or other paved surfaces. These deicers are specifically prohibited by state regulation.

Road Maintenance – Asphalt Surface Repairs

Always:

- Store mixed asphalt under cover and protected from precipitation and extreme temperatures.
- Reduce the amount of asphalt materials stored onsite.
- Locate storage area outside of the drainage conveyances and away from storm drain inlets. Ensure a tarp is available in case the materials need to be protected from precipitation.
- Minimize the amount of water used when conducting asphalt cutting, grinding, or milling. Water should only be used in amounts necessary to control dust and provide lubrication, and should never be used in amounts that would result in a flow that could discharge to the drainage system.
- Contain and properly dispose of materials resulting from cutting, grinding, milling, or other repair and maintenance.
- Apply sealants or other liquid surface treatments with care, avoiding misapplication to a storm drain or other non-asphalt surface. When conditions require application adjacent to a storm drain inlet, consider the use of an impervious inlet cover to prevent unintended spray into the storm drain.

Whenever Possible:

- Purchase only the amount of materials necessary to complete a project.
- Avoid the use of tar-based products since they contain higher levels of polycyclic aromatic hydrocarbons (PAHs) that harm fish and other aquatic organisms.

Road Maintenance – Concrete Surface Repairs

Always:

- Store dry concrete material inside, under cover from precipitation.
- Locate storm drain inlets in the vicinity of the work site. Storm drain inlets should be protected with a barrier if the work is in close proximity to the inlets and there is a reasonable chance for material to discharge to the inlet as the result of a spill or precipitation event.
- Remove demolished concrete or related debris and dispose of at a solid waste facility that accepts construction and demolition debris. Dry clean-up methods (broom and shovel) should be used to manage concrete debris to the extent practicable.
- Clearly establish a concrete wash out area and identify where concrete is to be mixed or poured. The concrete washout must be constructed with an impervious material and in a manner that would prevent washout material from discharging to the storm system. Guidance can be found at www.epa.gov/npdes/pubs/concretewashout.pdf.

Whenever Possible:

- Purchase only the amount of materials necessary to complete a project.
- Use "wet" cutting methods to control dust. Minimize the amount of water used when conducting cutting to prevent a discharge to the storm drain system. Saw cut slurry must be contained and properly disposed. Using a vacuum to contain slurry in the saw cutting process is an effective way to ensure that pollutants are not allowed to enter storm drains or other stormwater infrastructure.

Road Maintenance – Surface Painting/Striping

Always:

- Contain any removed paint to the extent possible and dispose of as appropriate. If there is a potential to encounter lead-based paint, additional precautions not outlined in this SOP may be required.
- Protect nearby inlets to prevent the discharge of waste paint, sediment, or other pollutants into the storm drainage system. Use perimeter control around the work area to collect removed paint and dispose of as appropriate.
- Sweep up paint debris immediately when surface grinding or sand blasting. If water is used for grinding, minimize the amount of water used and provide proper containment to prevent any discharge to the drainage system.
- Store all paint inside and protected from precipitation.

- Apply paint at an appropriate rate to prevent excess paint from running off the site.
- Deploy containment materials in the case of a spill.
- Dispose of all waste material in an appropriate manner.
    - Excess latex and water based paint that is not able to be used elsewhere can be allowed to dry, under cover from precipitation, and disposed of as solid waste.
    - Leftover oil based paints and solvents must be disposed of as hazardous waste according to federal and state environmental regulations.
- Washed equipment in a designated wash area that is plumbed to a sanitary sewer, or approved containment structure.

Whenever Possible:

- Handle paint in a contained area, under cover from precipitation. If secondary containment is not available, use temporary structural best management practices to protect storm drain inlets and prevent the discharge of paints in the event of a spill.

Catch Basin Cleaning

Always:

- Inspect catch basins for structural integrity and evidence of illicit discharges during cleaning.
- Dispose of catch basin residues properly.

Whenever Possible:

- Inspect each catch basin during catch basin cleaning.
- Perform street sweeping on an appropriate schedule to reduce the amount of sediment and organic matter entering the catch basins, which in turn reduces the frequency they will need to be cleaned.

Catch Basin and Outfall Repair

Always:

- Practice preventive maintenance and inspect on a regular schedule for cracks, leaks, and other conditions that could cause breakdowns in the system.
- Repair defective equipment or structures identified during an inspection as soon as possible.
- Document inspections and repairs and maintain complete records in a record-keeping system.
- Educate personnel on preventive maintenance inspections.

Whenever Possible:

- Research and implement new technology that will improve the overall performance of the catch basin or outfall.

Never:

- Allow defective equipment or structures to go un-repaired.

Storm Drain System Repair

Always:

- Inspect storm drain system components in accordance with the Town's schedule.
- Practice preventive maintenance and inspect for cracks, leaks, and other conditions that could cause breakdowns in the system.
- Repair defective structures or equipment identified during an inspection as soon as possible.
- Dispose of collected materials according to state, regional, and local regulations to avoid negative environmental impacts.
- Document inspections, cleanings and repairs and maintain complete records in a recordkeeping system.
- Use appropriate erosion and sediment control practices when performing repairs.

Whenever Possible:

- Research and implement new technology that will improve the overall performance of the storm drain system.
- Perform street sweeping on a regular basis to reduce the amount of sediment, debris and organic matter entering the storm drain system, which in turn reduces the frequency with which the system will need to be cleaned.

Right-of-Way Entry

Upon proper identification and at reasonable times during normal business hours, duly authorized representatives of the Town shall be permitted to enter all private property through which the Town holds an easement for the purposes of inspection, observation, measurement, sampling, testing, maintenance, repair, or reconstruction of any portion of the Town's wastewater or storm drainage systems lying within said easement. All entry and subsequent work, if any, shall be done in full accordance with the terms of said easement.

Appendix G
TMDL Action Plans

Draft Phase II Chesapeake Bay TMDL Action Plan

DEQ Submittal – May 29, 2018

Town of Leesburg
Department of Public Works and Capital Projects
25 West Market Street
Leesburg, Virginia 20176

Prepared with assistance by:
Wood Environment & Infrastructure Solutions
Chantilly, Virginia

Prepared in Compliance with Municipal Separate Storm Sewer System (MS4)
Permit No. VAR040059

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."

Name	Title	Date

Draft Phase II Chesapeake Bay TMDL Action Plan
Town of Leesburg, Virginia

May 29, 2018

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Draft Phase II Chesapeake Bay TMDL Action Plan
Town of Leesburg, Virginia

May 29, 2018

1. Introduction

1.1 Purpose

This Draft Phase II Chesapeake Bay TMDL Action Plan builds on the Town of Leesburg's initial Chesapeake Bay TMDL Action Plan approved by the Virginia Department of Environmental Quality (DEQ) on December 28, 2015. The plan documents how the Town intends to meet the "Chesapeake Bay TMDL Special Condition" in Part II A of the General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) that is anticipated to become effective July 1, 2018 (2018 MS4 permit).[1] In accordance with the 2013 MS4 permit (the permit currently in effect), the Town must submit a draft plan with its Registration Statement. Then, in accordance with the 2018 MS4 permit, the Town must submit a final plan to DEQ no later than 12 months after the effective date of the permit.

The Town's MS4 permit requires the development and implementation of action plans for impaired streams where a Total Maximum Daily Load (TMDL) assigns a waste load allocation (WLA) to the Town that has been approved by the State Water Control Board. A TMDL establishes the maximum amount of a pollutant that can enter a water body without violating water quality standards.

A TMDL for the Chesapeake Bay was established by the U.S. Environmental Protection Agency in 2010. Pollutants of concern (POCs) identified for the Chesapeake Bay include total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS). Virginia subsequently developed and adopted a Watershed Implementation Plan (WIP) that establishes the framework for meeting the Chesapeake Bay TMDL. The Virginia WIP states that MS4 permit holders will implement a phased approach for meeting required reductions over three five-year permit cycles in accordance with the following: 5% by the end of the first permit cycle (June 30, 2018); 40% by the end of the second permit cycle (June 30, 2023); and, 100% by the end of the third permit cycle (June 30, 2028).

The Town has met the 5% reduction requirement for the first permit cycle ahead of schedule. This Draft Phase II Chesapeake Bay TMDL Action Plan establishes the Town's 40% reduction

[1] The effective date may change if the permit is administratively extended.

target and identifies the Best Management Practices (BMPs) for achieving the target in accordance with the 2018 MS4 permit and the Chesapeake Bay TMDL Special Condition Guidance developed by DEQ (Guidance Memo No 15-2005) dated May 18, 2015.

1.2 Summary of Required Reductions and BMPs to Achieve Reductions

The Town calculated the 5% reduction requirement in its initial Chesapeake Bay TMDL Action Plan. The 40% reduction calculation is presented in Section 3. This includes reductions from existing sources as of June 30, 2009, offsets to account for increases in pollutant loads due to new sources initiating construction between July 1, 2009 and June 30, 2014, and offsets to account for grandfathered projects commencing construction after July 1, 2014.

Reductions and offsets are calculated based on the extent of the MS4 service area within the 2010 Census Urbanized Area. The Town updated its MS4 area map in 2017 as part of the requirement to develop stormwater outfall tables in accordance with Part II B 3 a of the 2013 MS4 permit. This update included a refinement of the extent of areas draining to the Town's regulated outfalls. It also more accurately defined the extent of the Virginia Department of Transportation's MS4 area. The updated map is shown in Appendix A.

Based on the updated MS4 area, the Town calculates that the following reductions must be achieved from existing sources as of June 30, 2009 to meet the 40% target: 1,913.01 pounds for TN; 222.47 pounds for TP; and, 184,772.28 pounds for TSS.

The MS4 permit requires the Town to offset any increases from new sources initiating construction between July 1, 2009 and June 30, 2014 that disturbed one acre or greater as a result of the utilization of an average land cover condition greater than 16% impervious cover for the design of post-development stormwater management facilities. In addition, the Town must offset any grandfathered projects that disturb one acre or greater than begin construction after July1, 2014 and where the project utilizes an average land cover condition greater than 16%. The Town adopted Town Code Chapter 14, Article II "Stormwater Management" and revisions to Article 5 "Storm Drainage" of the Design and Construction Standards Manual (DCSM) in 2007 and 2008 respectively that defined the average land cover condition as 16% (DCSM, version 2008, Section 5-620 "Water Quality Design Criteria."). Therefore, no offsets are necessary.

The next step is to identify the BMPs to achieve the required POC reductions. The Town's strategy for achieving the reductions includes a combination of BMPs as detailed in Sections 4 and 5. These include:

- redevelopment since July 1, 2009 that has resulted in a decrease in pollutant loads;
- stormwater facilities installed between January 1, 2006 and June 30, 2009;
- Town-initiated stormwater management and stream restoration projects;

- street sweeping;
- more stringent regulation of land disturbing activities under one acre; and,
- additional BMPs that may be implemented in accordance with DEQ's Chesapeake Bay TMDL Special Conditions Guidance.

The 2018 MS4 permit requires the Town to report total reductions achieved prior to July 1, 2018 for each POC no later than 12 months after the effective date of the permit. Since this draft plan is being submitted prior to that date, the Town is presenting reductions achieved prior to July 1, 2017 as the starting point for second permit cycle compliance. The final Phase II Chesapeake Bay TMDL Action Plan will be updated accordingly.

As reported in the Town's FY2017 MS4 annual report to DEQ, the Town achieved the following POC reductions prior to July 1, 2017: 1,980.10 pounds for TN; 764.46 pounds for TP; and, 242,508.83 pounds for TSS.[2] This exceeds the 40% target for TN, TP, and TSS. Section 5 identifies additional reduction for all three POCs. Reductions in excess of 40% that are documented in this plan and in future annual reports to DEQ will be applied to the third permit cycle requirements.

Table 1A provides a summary of the required reductions (40% reduction from existing sources as of June 30, 2009 plus new source and grandfathered offsets) and the planned BMPs from Section 5 to achieve the required reductions.

Table 1A– Summary of Required Reductions and Planned BMPs to Achieve Required Reductions

	Total Nitrogen (lbs/year)	Total Phosphorus (lbs/year)	Total Suspended Solids (lbs/year)
Required Reductions from Existing Sources to Meet 40% Target	1,913.01	222.47	184,772.28
+ Required New Source Offsets	-	-	-
+ Required Grandfathered Offsets	-	-	-
= Total Required Reductions and Offsets	1,913.01	222.47	184,772.28
- BMPs from Section 5	3,597.79	1,142.45	440,620.76

[2] In accordance with Part II A 11 of the 2018 MS4 permit, the Town will submit to DEQ an updated plan to account for progress made prior to July 1, 2018 no later than 12 months after the effective date of the permit.

	Total Nitrogen (lbs/year)	Total Phosphorus (lbs/year)	Total Suspended Solids (lbs/year)
= Remainder/(Excess)	(1,684.78)	(919.98)	(255,848.48)
Percent Planned Toward 40% Reduction	188.1%	513.5%	238.5%

1.3 Permit Compliance Crosswalk

Table 1B provides each of the requirements for this action plan from Part II A 11 of the 2018 MS4 permit and the specific sections where the requirements are addressed.

Table 1B – Action Plan and Permit Compliance Crosswalk

Action Plan Section	MS4 Permit	MS4 Permit Requirement
Section 2	Part II A 11 a	Any new or modified legal authorities, such as ordinances, permits, policy, specific contract language, orders, and interjurisdictional agreements, implemented or needing to be implemented to meet the requirements of Part II A 3, 4, and 5.
Section 3	Part II A 11 b	The load and cumulative reduction calculations for each river basin calculated in accordance with Part II A 3, 4, and 5.
Section 4	Part II A 11 c	The total reductions achieved as of July 1, 2018 for each pollutant of concern in each river basin.
Section 4 and Appendix B	Part II A 11 d	A list of BMPs implemented prior to July 1, 2018 to achieve reductions associated with the Chesapeake Bay TMDL including: (1)) The date of implementation; and, (2)) The reduction achieved.
Section 5 and Appendix C	Part II A 11 e	The BMPs to be implemented by the permittee prior to the expiration of this permit to meet the cumulative reductions calculated in Part II A 3, 4, and 5, including as applicable: (1) Type of BMP; (2) Project name; (3) Location; (4) Percent removal efficiency for each pollutant of

Action Plan Section	MS4 Permit	MS4 Permit Requirement
		concern; and, (5) Calculation of the reduction expected to be achieved by the BMP calculated and reported in accordance with the methodologies established in Part II A 8 for each pollutant of concern.
Section 6 and Appendix D	Part II A 11 f	A summary of any comments received as a result of public participation required in Part II A 12 below, the permittee's response, identification of any public meetings to address public concerns, and any revisions made to the Chesapeake Bay TMDL Action Plan as a result of public participation.

2. Program and Legal Authority

The Town has adopted an MS4 Program Plan that documents implementation of all 2013 MS4 permit requirements, including the programmatic and legal authorities required to meet the "Chesapeake Bay TMDL Special Condition." The full MS4 Program Plan can be found at https://www.leesburgva.gov/government/departments/public-works/water-quality-stormwater-management.

Table 2A provides a summary of elements of the six minimum control measures (MCMs) implemented by the Town that relate to controlling total nitrogen, total phosphorus, and total suspended solids. This table will be updated to account for revisions to the MS4 Program Plan in accordance with Part I C of the 2018 MS4 permit when the Town submits its final Phase II Chesapeake Bay TMDL Action Plan.

Table 2A – MS4 Program Plan Components Related to the Chesapeake Bay TMDL

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling TN, TP, and TSS
Public Education and Outreach on Stormwater Impacts	The Town's MS4 Public Education and Outreach Plan identifies nutrients from lawn fertilizers as one of its three high-priority pollutants for the focus of the Town's public education program during the permit cycle. Actions specific to nutrients and their impact on the Chesapeake Bay include: • Beginning FY15, annually mail a postcard containing a message related to proper use of fertilizers to all single family and town homes.

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling TN, TP, and TSS
	• Beginning in FY15, annually mail information to the Town's HOAs and property management companies about strategies to prevent nutrient pollution. • Beginning in FY15, annually mail a letter and tip sheet to 25% of landscape companies about the impact of nutrient pollution on water quality and the legal ramifications of not meeting state nutrient management requirements. • Participate in the NVRC Clean Water Partners program to reduce water quality impacts from excess nutrients.
Public Involvement and Participation	The Town has designed a program to involve the public in the decision-making process by meeting all public notice requirements, updating the Environmental Advisory Commission on MS4 activities at least annually, and promoting at least four watershed management activities annually.
Illicit Discharge Detection and Elimination	The Town has integrated into its MS4 Program Plan an Illicit Discharge Detection and Elimination Program. This program includes preventing, identifying, and eliminating sources of pollutants, including total nitrogen and total phosphorus as well as total suspended solids.
Construction Site Stormwater Runoff Control	The Town's construction site stormwater runoff control program is designed to be fully consistent with the water quality control requirements of the Virginia Erosion and Sediment Control Act and the Virginia Stormwater Management Act, and their attendant regulations.
Post-Construction Stormwater Management	The Town's construction site stormwater runoff control program is designed to be fully consistent with the water quality control requirements of the Virginia Stormwater Management Act and its attendant regulations.
Pollution Prevention and Good Housekeeping for Municipal Operations	The Town has included in its MS4 Program Plan actions to meet the pollution prevention and good housekeeping requirements for municipal operations. This includes general good housekeeping, as well as specific requirements to develop nutrient management plans for all properties where nutrients are applied to more than one contiguous acre.

The Town has reviewed its existing MS4 Program Plan and legal authorities and finds that no additional legal authorities are required for compliance with the "Chesapeake Bay TMDL Special Condition" at this time.

3. Load and Cumulative Reduction Calculations

The following sections describe the methodology used by the Town to determine the load and cumulative reduction calculations in accordance with Part II A 3, 4, and 5 of the 2018 MS4 permit.

3.1 MS4 Service Area Delineation Methodology

Reductions and offsets are calculated based on the extent of the MS4 service area within the 2010 Census Urbanized Area.

Storm sewer pipes, outfall locations, and elevation data were analyzed in 2015 and then again in 2017 by qualified engineers in a GIS environment to delineate the watershed boundaries of the Town's regulated storm sewer system. Artificial conveyances and natural drainage features were thoroughly reviewed to accurately account for storm sewer drainage areas and determine break points between the manmade and natural hydrologic systems. This approach rendered a delineation of regulated and unregulated areas within the Town. Excluded areas include those that sheet flow directly to natural channels of major drainage sheds such as streams or creeks without the benefit of an engineered system. In addition, several road rights-of-way are part of the VDOT MS4 and are therefore excluded from the Town's MS4. The delineation of VDOT's MS4 was updated in 2017 based on VDOT's approved Chesapeake Bay TMDL Action Plan.[3]

In accordance with DEQ's Chesapeake Bay TMDL Special Guidance, the Town may exclude from its MS4 service area land regulated under any general Virginia Pollutant Discharge Elimination System (VPDES) permit that addresses industrial stormwater and forested land one half contiguous acre or more that meets specific criteria. The Town has identified two VPDES permitted facilities within its boundary. These facilities, listed in Table 3A, are excluded from the Town's MS4 area.

The Town conducted a preliminary analysis of the potential forested area within the MS4 in 2015. Based on this analysis, less than 5% of the total MS4 service area could potentially be defined as forested. While the Town is not opting to exclude these areas for this plan, the Town reserves the right to conduct additional analysis and remove these areas at a later date. Any updates will be provided to DEQ with annual reports.

[3] The relationship between the Town's and VDOT's MS4s is currently being discussed with DEQ. For this draft plan, the Town is taking a more conservative approach by including areas upstream of direct interconnections with VDOT pipes even though drainage ultimately flows to outfalls owned or operated by VDOT. The Town will update the MS4 service area map in the final plan, if necessary, based on the outcome of discussions with DEQ.

The Town's MS4 service area map is presented in Appendix A. Based on the above analysis, the Town has determined that a total of 5,287.37 acres is served by the regulated MS4.

Table 3A – VPDES Permit Holders in Leesburg

Permit Holder	VPDES Permit	Address
Leesburg Municipal Airport	VAR051426	1001 Sycolin Road, SE
Leesburg Water Pollution Control Facility (WPCF)*	VAR051427	1391 Russell Branch Parkway, SE

**The Town's Central Maintenance Facility is co-located with the WPCF.*

3.2 Pervious and Impervious Surface Delineation Methodology

A GIS approach was used to determine the Town's regulated urban impervious and regulated urban pervious acres. Planimetric impervious cover GIS data was developed from 2009 aerial imagery. Impervious cover surfaces include buildings, roads, parking lots, sidewalks, recreational surfaces, and other similar features.

To calculate the 2009 impervious regulated area, the 2009 planimetric impervious cover features were clipped using the MS4 boundary polygon layer and the resulting acres were totaled. Regulated pervious acres were calculated by subtracting the regulated impervious acres from the total MS4 acres.

Based on the above analysis, the Town has determined that the 5,287.37 acres in the MS4 service area is divided into 1,738.83 impervious acres and 3,548.54 pervious acres.

3.3 Reduction Requirements

The Town is located within the Potomac River Basin. Therefore, reduction requirements are calculated in accordance with Part II A 3, Table 3b of the 2018 MS4 permit.

Table 3B presents the estimated existing source loads in accordance with the MS4 permit and the Chesapeake Bay TMDL Special Conditions Guidance.

Table 3B – Calculation Sheet for Estimating Existing Source Loads and Reduction Requirements for the Potomac River Basin

Pollutant	Subsource	A. Loading Rate (lbs/ac/yr)	B. Existing Developed Land 2009 (acres)	C. Loading (lbs/yr)	D. MS4 Required Bay Total L2 Loading Rate Reduction	E. Percentage of L2 Required Reduction by 2023	F. 40% Cumulative Reduction Required by 2023	G. Sum of 40% Cumulative Reduction (lbs/yr)
TN	Imp.	16.86	1,738.83	29,316.67	0.09	0.40	1,055.40	1,913.01
TN	Perv.	10.07	3,548.54	35,733.80	0.06	0.40	857.61	
TP	Imp.	1.62	1,738.83	2,816.90	0.16	0.40	180.28	222.47
TP	Perv.	0.41	3,548.54	1,454.90	0.07	0.40	42.19	
TSS	Imp.	1171.32	1,738.83	2,036,726.36	0.20	0.40	162,938.11	184,772.28
TSS	Perv.	175.8	3,548.54	623,833.33	0.09	0.40	21,834.17	

3.4 New Source Offset

Part II A 4 of the 2018 MS4 permit requires the Town to offset 40% of increases from new sources initiating construction between July 1, 2009 and June 30, 2014 that disturb one acre or greater as a result of the utilization of an average land cover condition greater than 16% impervious cover for the design of post-development stormwater management facilities. The Town adopted Town Code Chapter 14, Article II "Stormwater Management" and revisions to Article 5 "Storm Drainage" of the Design and Construction Standards Manual (DCSM) in 2007 and 2008 respectively that define the average land cover condition as 16% (DCSM, version 2008, Section 5-620 "Water Quality Design Criteria."). Therefore, no new source offset is required.

3.5 Grandfathered Projects Offset

Part II A 5 of the 2018 MS4 permit requires the Town to offset any grandfathered projects that disturb one acre or greater than begin construction after July1, 2014 and where the project utilizes an average land cover condition greater than 16%. As noted in Section 3.4, the Town adopted post-construction stormwater management requirements in 2007 that define the average land cover condition as 16%. Therefore, while the Town provided a list of grandfathered projects in the initial action plan, no offset is required.

3.6 Total Reduction and Offset Requirements

Table 3C presents the total reduction and offset requirements that the Town must achieve during the second MS4 permit cycle.

Table 3C – Total Reduction and Offset Requirements

Reductions and Offsets	**TN (lbs/year)**	**TP (lbs/year)**	**TSS (lbs/year)**
Required Reductions from Existing Sources to Meet 40% Target	1,913.01	222.47	184,772.28
Required New Source Offsets	-	-	-
Required Grandfathered Offsets	-	-	-
Total Reductions and Offsets	**1,913.01**	**222.47**	**184,772.28**

4. BMPs Implemented During the First Permit Cycle

The Town's overall strategy for achieving POC reductions includes a combination of BMPs as described below:

- redevelopment since July 1, 2009 that has resulted in a decrease in pollutant loads;
- stormwater facilities installed between January 1, 2006 and June 30, 2009;
- Town-initiated stormwater management and stream restoration projects;
- street sweeping;
- more stringent regulation of land disturbing activities under one acre; and,
- additional BMPs that may be implemented in accordance with DEQ's Chesapeake Bay TMDL Special Conditions Guidance.

The Town has already exceeded the 5% POC reduction requirement for the first permit cycle. Part II A 4 of the 2018 MS4 permit requires the Town to provide a list of the BMPs implemented prior to July 1, 2018 to achieve these reductions. Because this draft plan is due before the close of the first permit cycle, this section presents progress documented prior to July 1, 2017 as reported in the Town's FY17 MS4 annual report. The final Phase II Chesapeake Bay TMDL Action Plan will update this section to reflect all progress prior to July 1, 2018.

Table 4A summarizes the reductions achieved by the Town during the first permit cycle. A list of BMPs, including the date of implementation and the reductions achieved, is included in Appendix B as required in Part II A 4 of the 2018 MS4 permit.

Table 4A – Summary of BMPs Implemented During the First Permit Cycle

BMPs	Time Period	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Redevelopment	Calculated through FY17.	132.79	32.62	13,659.38
2006-2009 Facilities	Calculated once with initial action plan.	187.87	68.72	29,958.45
Town Projects	None through FY17.	-	-	-
Street Sweeping	Calculated for FY17 (varies slightly from year to year)	1,657.43	662.97	198,891.00

BMPs	Time Period	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
More Stringent Development.	Calculated through FY17.	2.01	0.15	-
Total BMPs		**1,980.10**	**764.46**	**242,508.83**

5. BMPs Planned for FY2018 and the Second Permit Cycle

This section describes the BMPs that have been or will be implemented in FY2018 and will be implemented during the second permit cycle to achieve the cumulative 40% POC reduction target as required in Part II A 11 e of the 2018 MS4 permit.

5.1 Redevelopment

In accordance with the Chesapeake Bay TMDL Special Condition Guidance, the Town will continue to take credit for pollutant reductions from redevelopment regardless of the initial land cover condition of the site. This includes any redevelopment project initiated after July 1, 2009. Redevelopment prior to July 1, 2017 is reported in Section 4. Any redevelopment after that date will be included in the final Phase II Chesapeake Bay TMDL Action Plan and in subsequent MS4 annual reports submitted to DEQ.

Note that for any portion of redevelopment that results in a direct impervious surface reduction, Table 4 from the 2018 MS4 permit will be used to determine the equivalent credit for TN and TSS associated with the TP reduction. For the portion of redevelopment that results in a reduction due to a stormwater management facility, the methodology described in Appendix V.E of the DEQ guidance will be utilized.

Table 5A – Summary of Reductions from Redevelopment

	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Prior to July 1, 2017	132.79	32.62	13,659.38
During FY2018	To be determined.	To be determined.	To be determined.
During Second Permit Cycle	To be determined.	To be determined.	To be determined.
Total	132.79	32.62	13,659.38

5.2 Stormwater Facilities Installed Between January 2006 and July 2009

In accordance with the Chesapeake Bay TMDL Special Condition Guidance (Part IV.2 and Appendix VI), the Town will take full credit for stormwater management facilities that were initially installed on or after January 1, 2006 and prior to July 1, 2009 within the regulated MS4 service area. Credit for these facilities is calculated once.

Table 5B – Summary of Reductions from Facilities Installed 2006-2009

	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Total	187.87	68.72	29,958.45

5.3 Town-Initiated Projects

The Town will take credit for voluntary Town-initiated retrofit projects. Three Town projects came on-line during FY2018. These include the Greenway Pond Retrofit, the Foxridge Pond Retrofit, and Stratford Pond Retrofit. In addition, the Town anticipates the completion of the Tuscarora Creek Restoration in FY2020. Additional projects may be considered during the second permit cycle and will be reported in MS4 annual report.

Detailed pollutant reduction spreadsheets including all required information in the 2018 MS4 permit is provided in Appendix C in a format consistent with the Chesapeake Bay TMDL Special Conditions Guidance.

Figure 5A – Description of Town-Initiated Projects

Greenway Pond Retrofit	Description
	This pond was originally built in 1995 to provide quantity control only. This retrofit provides water quality volume to the existing pond by creating two new constructed floodplain wetland facilities. This project was funded by a Virginia Stormwater Local Assistance Fund grant and has been reviewed by DEQ.

Foxridge Pond Retrofit	Description
	The pond was originally built in 1986 as a dry pond. This retrofit provides water quality volume by converting the facility into a dry extended detention pond. This project was funded by a Virginia Stormwater Local Assistance Fund grant and has been reviewed by DEQ.

Stratford Pond Retrofit	Description
	The pond was originally built in 2003 as a dry pond with no water quality value. This retrofit provides water quality volume by converting the facility into a dry extended detention pond. This project was funded by a Virginia Stormwater Local Assistance Fund grant and has been reviewed by DEQ.

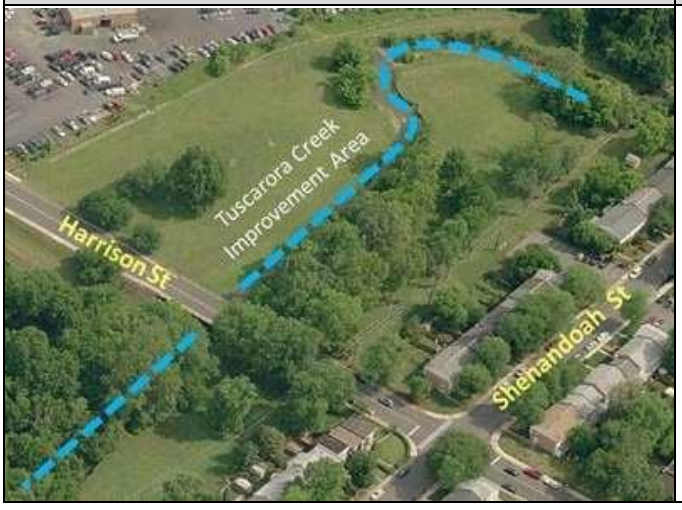
Tuscarora Creek Restoration	Description
	This project involves the restoration of 2,262 linear feet of a highly degraded portion of Tuscarora Creek. The stream restoration will include realignment of the stream channel to reduce/eliminate erosion and improve stream health, and a riparian buffer will be planted as well.

Table 5C – Summary of Reductions from Town-Initiated Projects

	Project	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Prior to July 1, 2017		**0.00**	**0.00**	**0.00**
During FY2018				
	Greenway Pond Retrofit	514.00	69.59	56,576.69
	Foxridge Pond Retrofit	236.04	14.39	25,837.78
	Stratford Pond Retrofit	507.02	21.47	41,142.77
	Subtotal	***1,257.06***	***105.45***	***123,557.24***
During Second Permit Cycle				
	Tuscarora Creek Restoration	793.06	445.51	126,445.70
	Subtotal	***793.06***	***445.51***	***126,445.70***
Total		**2,050.12**	**550.96**	**250,002.94**

5.4 Street Sweeping

The Town will take credit for its street sweeping program to meet the required POC reductions. During the past four fiscal years, the Town documented that it swept an average of 404 tons of debris annually (413 tons in 2014, 357 tons in 2015, 370 tons in 2016, and 474 tons in 2017). The Town anticipates maintaining this level of effort in the future. For planning purposes, the Town is conservatively assuming 350 tons, or 700,000 pounds, annually. DEQ's Chesapeake Bay TMDL Special Conditions Guidance provides the specific steps required for determining credit for street sweeping programs as well as efficiencies for reducing TN, TP, and TSS. Table 5D summarizes reductions that will be claimed annually through the Town's street sweeping program.

Table 5D – Summary of Reductions from Street Sweeping

Pollutant	Pounds Collected	Dry Weight Factor	Dry Pounds Collected	Removal Efficiency	Pollutant Reduction (lbs)
TN	700,000	0.7	455,000	0.0025	1,225.00
TP	700,000	0.7	455,000	0.001	490.00
TSS	700,000	0.7	455,000	0.3	147,000.00

5.5 More Stringent Regulation of Land Disturbing Activities

The Town's stormwater management ordinance exceeds the state minimum standards in the Virginia Stormwater Management Regulations (9VAC25-870) by regulating non-single family land disturbance under one acre that requires more than a site plan waiver or standard zoning permit. The Town is not subject to the Chesapeake Bay Preservation Act and therefore is not required to regulate water quality under one acre. Based on correspondence with DEQ, the Town will take credit for the difference between the pollutant load that could have been allowed for these properties under the state's minimum water quality criteria and the pollutant load that was actually allowed for these properties under the Town's more stringent requirements. Reductions achieved will be documented to DEQ in the Town's annual reports.

Table 5E – Summary of Reductions from More Stringent Regulation of Land Disturbing Activities

	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Prior to July 1, 2017	2.01	0.15	0.00
During FY2018	To be determined.	To be determined.	To be determined.
During Second Permit Cycle	To be determined.	To be determined.	To be determined.
Total	2.01	0.15	0.00

5.6 Additional BMPs

The Town reserves the right to implement and take credit for additional creditable facilities or practices as provided for in the Chesapeake Bay TMDL Special Condition Guidance. The guidance document specifically references the work of the Chesapeake Bay Urban Stormwater Workgroup, which includes credits for urban nutrient management and homeowner best management practices such as rainwater harvesting, downspout disconnection, permeable hard-

scapes, tree planting, and impervious cover removal. Reductions achieved will be documented to DEQ in the Town's annual reports.

The Town also has the option of purchasing off-site nutrient credits under the provisions of §62.1-44.15:35 of the Code of Virginia. Any reductions will be documented to DEQ in the Town's annual reports.

5.7 Compliance Summary

Tables 5F demonstrate how the Town will meet the required reductions from Section 3 for each POC with the BMPs described in Sections 5.1 through 5.6.

Table 5F – Compliance Summary

	TN (lbs/year)	TP (lbs/year)	TSS (lbs/year)
Required Reductions from Existing Sources to Meet 40% Target	1,913.01	222.47	184,772.28
+ Required New Source Offsets	-	-	-
+ Required Grandfathered Offsets	-	-	-
= Total Required Reductions and Offsets	1,913.01	222.47	184,772.28
- Planned Means and Methods from Section 5	3,597.79	1,142.45	440,620.76
Redevelopment	132.79	32.62	13,659.38
2006-2009 Facilities	187.87	68.72	29,958.45
Town Projects	2,050.12	550.96	250,002.94
Street Sweeping	1,225.00	490.00	147,000.00
More Stringent Development	2.01	0.15	-
Additional Methods	-	-	-
= Remainder/(Excess)	(1,684.78)	(919.98)	(255,848.48)
Percent Planned Toward 40% Reduction	188.1%	513.5%	238.5%

6. Public Comments

In accordance with Part II A 11 f of the 2018 MS4 permit, this section will be updated in the final Phase II Chesapeake Bay TMDL Action Plan to reflect the requirement that the public have an opportunity to provide comment on proposed BMPs not previously included in the initial plan. At a minimum, a 15 day comment period must be provided. This section will include a summary of any comments received as a result of the public participation process, the Town's response, identification of any public meetings to address public concerns, and any revisions made to the plan as a result of public participation. Appendix D is reserved for any detailed information related to public comments received by the Town.

Appendix B

List of BMPs Implemented During the First Permit Cycle

All calculations and supporting documentation were included in the initial Chesapeake Bay TMDL Action Plan and/or MS4 annual reports provided to DEQ.

Redevelopment Projects

Redevelopment Project	TN Credit	TP Credit	TSS Credit	Year	Goose Creek
Spring Arbor - 237 Fair View Street	2.02	0.80	275.71	2011	N
Loudoun County Building - 102 North Stree	3.41	1.37	455.83	2011	Y
Lowanbach Subdivision Road Improvemen	1.90	0.21	259.53	2011	Y
Frederick Douglass ES - 510 Principal Drum	4.46	0.66	380.67	2011	Y
Turner Harwood Drainage - Sycolin Road	0.64	0.26	87.60	2012	Y
Wolf Furniture - 131 Fort Evans Road	1.54	0.63	210.41	2012	Y
Star Building Addition - 326 East Market St	6.96	2.40	912.86	2012	Y
Dulles Chrysler Dodge - 109 Catoctin Circle	4.56	1.77	621.09	2011	Y
South King Street Phase 1	7.61	2.75	1,036.53	2013	Y
INOVA Cornwall Building - 224 Cornwall St	3.75	1.04	510.33	2014	Y
Chipotle - Edwards Ferry Road	0.97	0.40	132.20	2014	Y
Sycolin Road Widening Phase III - Sycolin R	4.31	1.56	587.36	2014	Y
Sycolin Road and Tavistock Drive Intersect	1.93	0.35	200.37	2013	Y
Leesburg Toyota - 1 Cardinal Drive Park, SE	17.17	6.14	2,321.49	2015	Y
Verizon Leesburg Training Center - 501 Tol	4.06	1.18	463.74	2014	Y
Leesburg Airpark	3.44	0.73	424.30	2014	Y
Lowenbach Phase V Road Improvements	15.89	3.63	2,165.03	2016	Y
Jerry's Ford Site Redevelopment	48.15	6.74	2,614.32	2017	Y

Facilities Installed Between 2006-2009

Eligible 2006-2009 Facility	TN Credit	TP Credit	TSS Credit
South King Street Center - 818 South King Street	6.52	0.72	888.11
Kids Domain - 3 Greenway Drive, SW Leesburg	2.08	0.26	160.46
Leesburg Plaza Shopping Center - 510 East Market Street	3.20	1.15	435.94
Fort Evans Plaza II - 516 Fort Evans Road	85.43	39.79	16,918.39
Leesburg Veterinary Specialist - 165 Fort Evans Road, NE	8.62	1.16	669.91
Leesburg Commerce Center - 163 Fort Evans Road	24.91	3.35	1,935.96
Oaklawn Townhouses Phase 2 - 414 Virginia Wild Flower Terrace, SE	25.24	10.02	3,439.24
Fort Evans Plaza II Battlefield Parkway Extension - 516 Fort Evans Road	10.14	3.67	2,067.76
Potomac Station Parce "B" Lot C - 603 Potomac Station Dr. NE	2.17	0.89	295.90
Exeter Shopping Center - 700 Fieldstone Drive, NE	12.46	5.12	1,697.49
Western Loudoun Medical Center - 224D Old Waterford Road, NW	-	-	-
E.C.H.O Parcel 1B - 75 Lawson Road, SE	7.10	2.57	1,449.28

More Stringent Development

Project #	Project Title	Address	Metholdology	Type BMP	Total Site Acres	Pre-IA	IA Treated	Pervious Treated	Date Activated	TN Credit	TP Credit	TSS Credit	Year
TLPF-2015-0003	Lots 4A and 4B Honicon Subdivision	707 Edwards Ferry Road, NE	VRRM	Purchased Credit	0.45	0.11	NA	NA	Purchase Date 7/28/2015	2.01	0.15		2015

Street Sweeping

Fiscal Year	Tons	TN Credit	TP Credit	TSS Credit
2015	357	1,249.50	499.80	149,940.00
2016	370	1,295.00	518.00	155,400.00
2017	474	1,657.43	662.97	198,891.00

Appendix C

Calculations and Supporting Documents for BMPs Planned for FY2018 and the Second Permit Cycle

Summary of BMPs Planned for FY2018 and the Second Permit Cycle

	Cumulative Reductions from Worksheets						
	FY17 Actual	**FY18**	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**
Redevelopment							
TN	132.79	132.79	132.79	132.79	132.79	132.79	132.79
TP	32.62	32.62	32.62	32.62	32.62	32.62	32.62
TSS	13,659.38	13,659.38	13,659.38	13,659.38	13,659.38	13,659.38	13,659.38
2006-2009 Facilities							
TN	187.87	187.87	187.87	187.87	187.87	187.87	187.87
TP	68.72	68.72	68.72	68.72	68.72	68.72	68.72
TSS	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45
Town Projects							
TN	-	1,257.06	1,257.06	2,050.12	2,050.12	2,050.12	2,050.12
TP	-	105.46	105.46	550.96	550.96	550.96	550.96
TSS	-	123,557.24	123,557.24	250,002.94	250,002.94	250,002.94	250,002.94
Street Sweeping							
TN	1,657.43	1,225.00	1,225.00	1,225.00	1,225.00	1,225.00	1,225.00
TP	662.97	490.00	490.00	490.00	490.00	490.00	490.00
TSS	198,891.00	147,000.00	147,000.00	147,000.00	147,000.00	147,000.00	147,000.00
More Stringent Development							
TN	2.01	2.01	2.01	2.01	2.01	2.01	2.01
TP	0.15	0.15	0.15	0.15	0.15	0.15	0.15
TSS	-	-	-	-	-	-	-
Additional Means and Methods							
TN	-	-	-	-	-	-	-
TP	-	-	-	-	-	-	-
TSS	-	-	-	-	-	-	-
Total Reductions							
TN	1,980.10	2,804.73	2,804.73	3,597.79	3,597.79	3,597.79	3,597.79
TP	764.46	696.95	696.95	1,142.45	1,142.45	1,142.45	1,142.45
TSS	242,508.83	314,175.06	314,175.06	440,620.77	440,620.77	440,620.77	440,620.77

Street Sweeping

Notes:	Actual from FY17. Anticipate a minimum of 350 tons/yr for planning purposes.						
Dry Weight Facto	0.7	Entered by user as decimal.					
TN Efficiency	0.0025	Entered by user as decimal.					
TP Efficiency	0.001	Entered by user as decimal.					
TSS Efficiency	0.3	Entered by user as decimal.					
Goose Creek %	0.93	Entered by user as decimal.					

Town Wide Reductions

Pollutant	**FY17**	**FY18**	**FY19**	**FY20**	**FY21**	**FY22**	**FY23**
Collected (lbs)	947100	700000	700000	700000	700000	700000	700000
TN	1657.43	1225.00	1225.00	1225.00	1225.00	1225.00	1225.00
TP	662.97	490.00	490.00	490.00	490.00	490.00	490.00
TSS	198891.00	147000.00	147000.00	147000.00	147000.00	147000.00	147000.00

Town-Initiated Projects

New Town Project	TN Credit	TP Credit	TSS Credit	FY
Greenway Pond Retrofit	514.00	69.59	56,576.69	2018
Foxridge Pond Retrofit to Extended Dry Detention	236.04	14.39	25,837.78	2018
Stratford Pond Retrofit to Extended Dry Detention	507.02	21.47	41,142.77	2018
Tuscarora Creek Restoration	793.06	445.51	126,445.70	2020

Greenway Pond Retrofit

Greenway Pond Retrofit

Description:	This pond was originally built in 1995 to provide quantity control only. This retrofit provides water quality volume to the existing pond by creating two new constructed floodplain wetland facilities. This project was funded by a Virginia Stormwater Local Assistance Fund grant and has been reviewed by DEQ.	
Completion Date:	2018	
Location:	Lat: 39.096632	Long: -77.583872
Methodology:	Chesapeake Bay TMDL Special Condition Requirements Memorandum (5/18/2015)	
	Appendix V.D BMP Enhancements & Conversions	

Downward Modification Table Based on Defficiencies in Existing Pond Design

BMP Type	Modification Type	Downward Modification Applied (%)
Dry Pond	No BMP Orifice Installed	10
	Built Between 1991-1999	10
	Absence of Forebay	10
	Absence of Micropool	10
	Total %	**40**

Chesapeake Bay Efficiencies for New Pond Design

Pollutant	Chesapeake Bay Efficiency (Existing Pond Design)	Modified Efficiency Total Downward Modification * Existing Pond Efficiency	Chespeake Bay Wetland (New Pond Design)	New BMP Efficiency
TP	10	6	45	**39**
TN	5	3	20	**17**
TSS	10	6	60	**54**

Table 2b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin

Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	New BMP Efficiency	Load Reduction
Regulated Urban Impervious	Total Nigrogen	59.28	16.86	999.46	17.00	**169.91**
Regulated Urban Pervious		201	10.07	2,024.07	17.00	**344.09**
Regulated Urban Impervious	Total Phosphorus	59.28	1.62	96.03	39.00	**37.45**
Regulated Urban Pervious		201	0.41	82.41	39.00	**32.14**
Regulated Urban Impervious	Total Suspended Solids	59.28	1,171.32	69,435.85	54.00	**37,495.36**
Regulated Urban Pervious		201	175.80	35,335.80	54.00	**19,081.33**

TN Reduction (lbs/year)	**514.00**
TP Reduction (lbs/year)	**69.59**
TSS Reduction (lbs/year)	**56,576.69**

Foxridge Pond Retrofit

Foxridge Pond Retrofit to Extended Dry Detention

Description:	The pond was originally built in 1986 as a dry pond. This retrofit provides water quality volume by converting the facility into a dry extended detention pond. This project was funded by a Virginia Stormwater Local Assistance Fund grant and has been reviewed by DEQ.
Completion Date:	2018
Location:	Lat: 39.116844 Long: -77.537826
Methodology:	Chesapeake Bay TMDL Special Condition Requirements Memorandum (5/18/2015)
	Appendix V.D BMP Enhancements & Conversions

Downward Modification Table Based on Defficiencies in Existing Pond Design

BMP Type	Modification Type	Downward Modification Applied (%)
Dry Pond	Built before 1991, therefore no prior water quality value.	0
		0
		0
		0
	Total %	**0**

Chesapeake Bay Efficiencies for New Pond Design

Pollutant	Chesapeake Bay Efficiency (Existing Pond Design)	Modified Efficiency Total Downward Modification * Existing Pond Efficiency	Chespeake Bay Extended Dry Pond (New Pond Design)	New BMP Efficiency
TP	0	0	20	**20**
TN	0	0	20	**20**
TSS	0	0	60	**60**

Table 2b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin

Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	New BMP Efficiency	Load Reduction
Regulated Urban Impervious	Total Nitrogen	25.61	16.86	431.78	20.00	**86.36**
Regulated Urban Pervious		74.32	10.07	748.40	20.00	**149.68**
Regulated Urban Impervious	Total Phosphorus	25.61	1.62	41.49	20.00	**8.30**
Regulated Urban Pervious		74.32	0.41	30.47	20.00	**6.09**
Regulated Urban Impervious	Total Suspended Solids	25.61	1,171.32	29,997.51	60.00	**17,998.50**
Regulated Urban Pervious		74.32	175.80	13,065.46	60.00	**7,839.27**

TN Reduction (lbs/year)	**236.04**
TP Reduction (lbs/year)	**14.39**
TSS Reduction (lbs/year)	**25,837.78**

Stratford Pond Retrofit

Note that the pollutant removal calculation for this project is in two parts due to the presence of an upstream wet pond. See Stratford Pond Existing Wet Pond on the next page. The first step is to calculate the pollutant load from the area draining directly to the retrofitted dry extended detention pond. The second step is to calculate the pollutant load passing through the wet pond before draining to the dry extended detention pond. Both pollutant loads are added together. The pollutant removal efficiency of the dry extended detention pond is then applied to the cumulative load.

Stratford Pond Retrofit to Extended Dry Detention

Description:	The pond was originally built in 2003 as a dry pond with no water quality value. This retrofit provides water quality volume by converting the facility into a dry extended detention pond. This project was funded by a Virginia Stormwater Local Assistance Fund grant and has been reviewed by DEQ.	
Additional Note:	The pollutant removal calculation for this project is in two parts due to the presence of an upstream wet pond. See Stratford - Wet Pond. The first step is to calculate the pollutant load from the area draining directly to the retrofitted dry extended detention pond. The second step is to calculate the pollutant load passing through the wet pond before draining to the dry extended detention pond. Both pollutant loads	
Completion Date:	2018	
Location:	Lat: 39.097469	Long: -77.556314
Methodology:	Chesapeake Bay TMDL Special Condition Requirements Memorandum (5/18/2015)	
	Appendix V.D BMP Enhancements & Conversions	

Downward Modification Table Based on Defficiencies in Existing Pond Design

BMP Type	Modification Type	Downward Modification Applied (%)
	No BMP Orifice Installed	10
	Absense of Forebay	10
	Absense of Micropool at Outlet	10
	Shortcircuiting	10
	L:W Ratio < 2:1	10
	Total %	**50**

Chesapeake Bay Efficiencies for New Pond Design

Pollutant	Chesapeake Bay Efficiency (Existing Pond Design)	Modified Efficiency Total Downward Modification * Existing Pond Efficiency	Chesapeake Bay Program Established Efficiencies Extended Detention Dry Pond	New BMP Efficiency
TP	10	5	20	**15**
TN	5	2.5	20	**17.5**
TSS	10	5	60	**55**

Table 2b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin

Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	Pass Through Load from Wet Pond	Total Load (Extended Detention Pond Direct + Wet Pond Flow Through)	New BMP Efficiency	Load Reduction
Regulated Urban Impervious	Total Nitrogen	9.14	16.86	154.10	756.68	910.78	17.50	**159.39**
Regulated Urban Pervious		13.47	10.07	135.64	1,850.83	1,986.48	17.50	**347.63**
Regulated Urban Impervious	Total Phosphorus	9.14	1.62	14.81	60.31	75.12	15.00	**11.27**
Regulated Urban Pervious		13.47	0.41	5.52	62.51	68.03	15.00	**10.21**
Regulated Urban Impervious	Total Suspended Solids	9.14	1,171.32	10,705.86	38,231.88	48,937.75	55.00	**26,915.76**
Regulated Urban Pervious		13.47	175.80	2,368.03	23,499.26	25,867.28	55.00	**14,227.01**

TN Reduction (lbs/year)	**507.02**
TP Reduction (lbs/year)	**21.47**
TSS Reduction (lbs/year)	**41,142.77**

Stratford Pond Existing Wet Pond

Description:	This wet pond is upstream of the Stratford dry extended detention pond. This spreadsheet is used to calculate the load passing through the facility to the dry extended detention pond. See Stratford - Detention. The efficiency of the dry extended detention pond is then applied to the pass through load.
Completion Date:	2018
Location:	Lat: 39.096667 Long: -77.557139
Methodology:	Chesapeake Bay TMDL Special Condition Requirements Memorandum (5/18/2015)
	Appendix V.D BMP Enhancements & Conversions

Downward Modification Table Based on Defficiencies in Existing Pond Design

BMP Type	Modification Type	Downward Modification Applied (%)
	Absense of Forebay	10
	Absense of Aquatic Bench	10
	Landscaping Does Not Discourage Geese	10
	Absence of Outlet Protection	10
	Total %	**40**

Chesapeake Bay Efficiencies for Existing Pond

Pollutant	Chesapeake Bay Efficiency (Existing Pond Design)	Modified Efficiency Total Downward Modification * Existing Pond Efficiency
TP	45	27
TN	20	12
TSS	60	36

Table 2b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin

Subsource	Pollutant	Total Existing Acres Served by MS4 (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	BMP Efficiency	Load Reduction	Pass Through Load (Total Load - Load Reduction)
Regulated Urban Impervious	Total Nitrogen	51.00	16.86	859.86	12.00	103.18	**756.68**
Regulated Urban Pervious		208.86	10.07	2,103.22	12.00	252.39	**1,850.83**
Regulated Urban Impervious	Total Phosphorus	51.00	1.62	82.62	27.00	22.31	**60.31**
Regulated Urban Pervious		208.86	0.41	85.63	27.00	23.12	**62.51**
Regulated Urban Impervious	Total Suspended Solids	51.00	1,171.32	59,737.32	36.00	21,505.44	**38,231.88**
Regulated Urban Pervious		208.86	175.80	36,717.59	36.00	13,218.33	**23,499.26**

TN Reduction (lbs/year)	**355.57**
TP Reduction (lbs/year)	**45.43**
TSS Reduction (lbs/year)	**34,723.77**

Tuscarora Creek Stream Restoration

The Town used the BANCS Method, Protocol 1 for establishing pollutant removal credits. Additional information includes photo documentation of current degraded stream conditions and the project description from the Town's Capital Improvement Program.

Tuscarora Creek Restoration					
Anticipated Installation Date: 2020					
Latitude: 39.105642		HUC: PL15			
Longitude: -77.560196		Calculation Method: BANCS Method, Protocol 1			
Restoration Length (ft)	**2,262.00**				
STEP 1	**TN**	**TP**	**TSS**		
Impervious 5% Rate Reduction (lbs/ac/yr)	0.08	0.01	11.71		
Pervious 5% Rate Reduction (lbs/ac/yr)	0.03	0.00	0.77		
BANCS Initial Sediment (tons/yr)			1,012.36		
Conversion to Pounds (2.28*TSS Tons for TN; 1.05*TSS Tons for TP; TSS*2,000)	2,308.18	1,062.98	2,024,720.00		
Apply Effectiveness of 50%	1,154.09	531.49	1,012,360.00		
Apply Delivery Factor of 0.181 for TSS in Piedmont			183,237.16		
Total Reduction Based on Protocol 1 (lbs)	1,154.09	531.49	183,237.16		
STEP 2	**Total**	**Impervious**	**Forested**	**Pervious**	**Total Urban**
Regulated Acres	2,654.60	706.50	493.70	1,454.40	2,160.90
Unregulated Acres	3,561.60	122.80	1,617.00	1,821.80	1,944.60
	6,216.20	829.30	2,110.70	3,276.20	4,105.50
STEP 3		**Portion of Reductions (lbs/yr)**			
	Land Ratio	**TN**	**TP**	**TSS**	
Regulated Urban	0.35	401.19	184.76	63,697.63	
Unregulated Urban	0.31	361.03	166.26	57,321.67	
Unregulated Forested	0.34	391.87	180.47	62,217.86	
STEP 4	**TN**	**TP**	**TSS**		
Required Baseline Reduction on Unregulated Impervious (lbs/yr)	186.34	31.83	28,767.62		
Required Baseline Reduction on Unregulated Pervious (lbs/yr)	1,100.73	54.15	28,023.84		
Total Required Baseline Reduction on Unregulated (lbs/yr)	1,287.07	85.98	56,791.46		
MS4 Credits	401.19	184.76	63,697.63		
Unregulated Urban Credits	-	80.28	530.21		
Unregulated Forested Credits	391.87	180.47	62,217.86		
Total Credits	**793.06**	**445.51**	**126,445.70**		

Capital Improvements Program — Storm Drainage

TITLE: Tuscarora Creek Flood Mitigation (06306)

STATUS: Ongoing

PROGRAM DESCRIPTION: Channel improvements to Tuscarora Creek to help reduce flooding of the adjoining residential properties. The project also includes the installation of storm drainage to handle the 100 year storm event and the construction of a two to four foot high wall. Preparation of a FEMA letter of map revision will be required after the work is complete.

This project will be constructed concurrently with a project to improve water quality in Tuscarora Creek (Project Number 16301 - Tuscarora Creek Restoration - TMDL Project).

The project will be constructed in phases, with the initial Phase I construction located upstream of Harrison Street behind the T.W. Perry and bowling alley properties. Phase II is located downstream of Harrison Street and behind the skate park and Loudoun County rescue squad properties.

OPERATING IMPACT: Mowing and landscape maintenance.

GOAL ADDRESSED: 2012 Town Plan

- Natural Resources Objective 2 calls for protection and restoration of the ecological integrity of streams by utilizing watershed management tools to offset the impacts of development.
- Natural Resources Objective 9 calls for protections of people and property from natural hazards such as flooding.

Click Here for Street View

Significant Dates

UTILITY RELOCATION START	CONSTRUCTION START	ESTIMATED COMPLETION
Spring 2017	Spring 2018	Fall 2019

Funding Sources

Sources	Total Required Project Funding	Funded through 6/30/17	2018	2019	2020	2021	2022	2023	Total for 6 Yr CIP	Future Funds Required
GO Bonds	$3,703,600	$1,433,600	$334,000	$1,610,000	$326,000	—	—	—	$2,270,000	—
PAY-GO	34,700	34,700	—	—	—	—	—	—	—	—
Total Sources	$3,738,300	$1,468,300	$334,000	$1,610,000	$326,000	—	—	—	$2,270,000	—

Planned Uses

Uses	Total Project Cost	Expended through 6/30/17	2018	2019	2020	2021	2022	2023	Total for 6 Yr CIP	Future Project Cost
Project Management	$248,500	$120,500	$34,000	$68,000	$26,000	—	—	—	$128,000	—
Land	40,000	40,000	—	—	—	—	—	—	—	—
Design/Engineering	764,800	464,800	—	—	300,000	—	—	—	300,000	—
Utility Relocation	120,000	120,000	—	—	—	—	—	—	—	—
Construction	2,565,000	723,000	300,000	1,542,000	—	—	—	—	1,842,000	—
Total Uses	$3,738,300	$1,468,300	$334,000	$1,610,000	$326,000	—	—	—	$2,270,000	—

Operating Impact

Operating/Maintenance	2018	2019	2020	2021	2022	2023	Total for 6 Yr CIP	
General Maintenance	—	$5,000	$10,000	$10,300	$10,600	$11,000	$46,900	
Total Impact	—	$5,000	$10,000	$10,300	$10,600	$11,000	$46,900	

Appendix D

Public Comments

Reserved for public comments on the final plan due to DEQ no later than 12 months after the effective date of the permit.

Town of Leesburg, Virginia

Town of Leesburg Municipal Separate Storm Sewer System (MS4) Program Plan

Benthic TMDL Action Plan

Final Submittal September 28, 2015

Department of Public Works and Capital Projects

25 West Market Street, Leesburg, VA 20176

703-771-2790

Submitted to the Virginia Department of Environmental Quality in compliance with MS4 Permit No. VAR040059

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."

Name	Title	Date

Town of Leesburg, Virginia
Benthic TMDL Action Plan

September 28, 2015

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Maps

Town of Leesburg, Virginia
Benthic TMDL Action Plan

September 28, 2015

1. Introduction

1.1 Purpose

This Benthic TMDL Action Plan documents how the Town of Leesburg intends to meet the "Special Conditions for Approved TMDLs Other Than the Chesapeake Bay TMDL" in Section I, Part B of the General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s). The Town's most recent permit (VAR040059) was issued by the Virginia Department of Environmental Quality (DEQ) effective July 1, 2013 and will expire June 30, 2018.

The Town's MS4 permit requires the development and implementation of action plans for impaired streams where a Total Maximum Daily Load (TMDL) assigns a waste load allocation (WLA) to the Town that has been approved by the State Water Control Board. A TMDL establishes the maximum amount of a pollutant that can enter a water body without violating water quality standards.

The Town is subject to one TMDL for benthic impairments, "Benthic TMDLs for the Goose Creek Watershed" (Goose Creek TMDL) approved by the State Water Control Board on August 31, 2004. The Goose Creek TMDL assigns a WLA for discharges of sediment to the impaired waters.

1.2 Permit Compliance Crosswalk

Table 1A provides an overview of the organization of this plan and how each section addresses the Town of Leesburg MS4 permit and the draft guidance provided by DEQ dated April 2015.

Table 1A – Action Plan and Permit Compliance Crosswalk

Action Plan	Action Plan Element	DEQ Action Plan Guidance	MS4 Permit
Section 1	Introduction	1. The name(s) of the Final TMDL report(s); 2. The pollutant(s) causing the impairment(s);	Section I.B Section I.B.2.a
Section 2	Benthic TMDL	3. The WLA(s) assigned to the MS4 as aggregate or individual WLAs;	Section I.B.2.b
Section 3	Evaluation of Significant Sources of Sediment	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	Section I.B.2.d

Action Plan	Action Plan Element	DEQ Action Plan Guidance	MS4 Permit
		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;	
Section 4	Existing and Planned Management Controls	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;	Section I.B.2.b
Section 5	Legal Authorities	6. Legal authorities such as ordinances, state and other permits, orders, specific contract language, and inter-jurisdictional agreements applicable to reducing the POCs identified in each respective TMDL;	Section I.B.2.a
Section 6	Enhanced Education, Outreach, and Training	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;	Section I.B.2.c
Section 7	Schedule and Milestones	8. A schedule of interim milestones and implementation of the items in 5, 6, and 7;	Section I.B.2.e
Section 8	Assessment of Effectiveness	9. Methods to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs; and	Section I.B.2.e
		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).	Section I.B.2.e

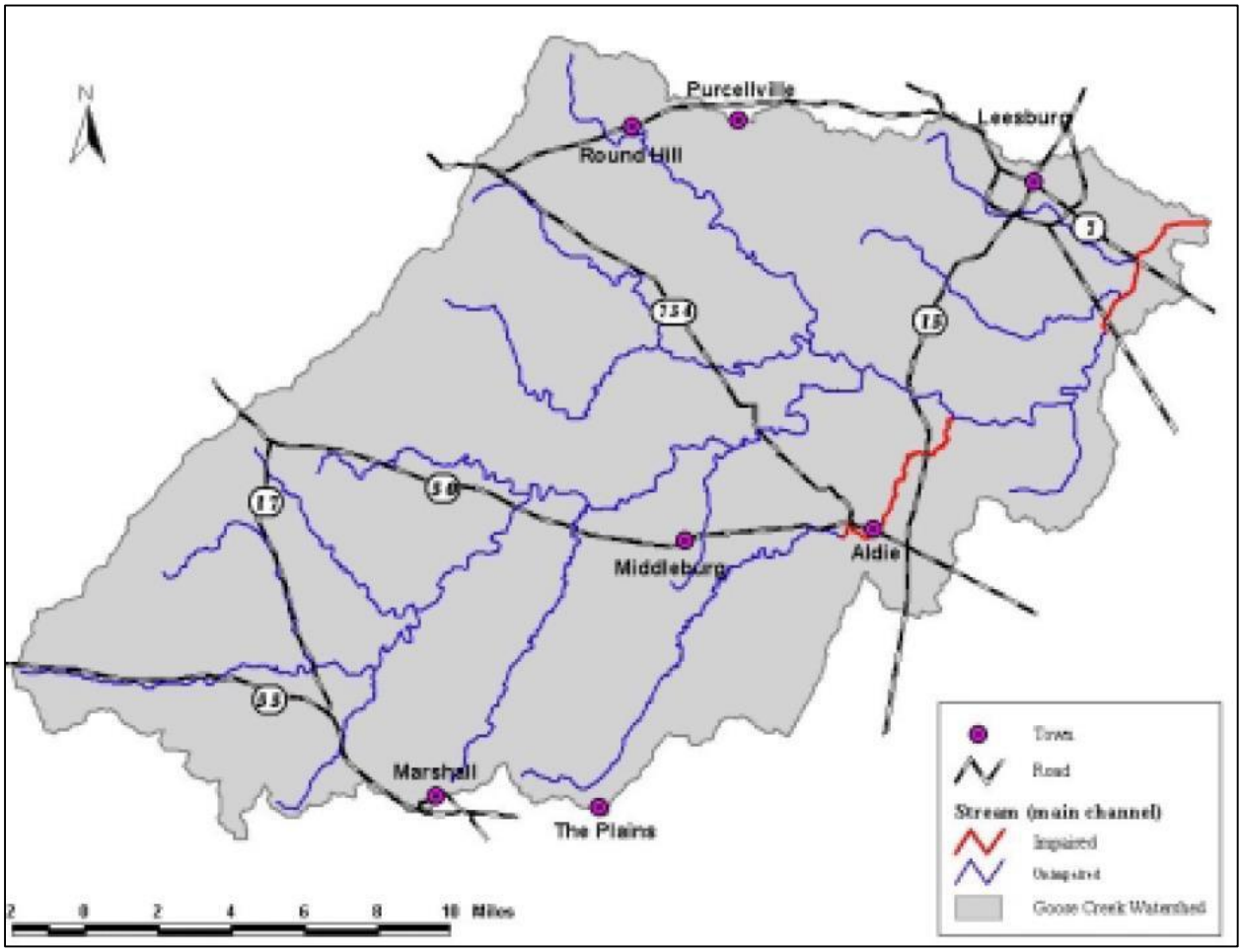
2. Benthic TMDL

The Goose Creek TMDL delineated a total contributing watershed of 248,333 acres. The area covered by the TMDL is shown in Map 2A. The entire area of the Town in the Goose Creek watershed was aggregated into a single unit and includes the Town's MS4 service area, the Virginia Department of Transportation (VDOT) service area, and industrial and construction site permit holders, for a total of 6,334 acres and a WLA of 287.4 tons/year (574,800 pounds/year).

It is important to note that the TMDL reflects the Town boundary as the MS4 service area. The Town has since conducted a more detailed assessment of the regulated MS4 as part of the

Chesapeake Bay TMDL planning process. The methodology used to delineate the regulated MS4 is described in Section 3.1.

Map 2A – Goose Creek Impairment and Watershed Delineation



Source: *Benthic TMDLs for the Goose Creek Watershed, April 2004. Interstate Commission on the Potomac River Basin*

3. Evaluation of Significant Sources of Sediment

This action plan is directed at those facilities and activities that are most likely to constitute a significant source of sediment to surface waters. The first step in implementing this approach is to identify the portion of the Leesburg MS4 that is subject to the Goose Creek TMDL and to evaluate whether the facilities and activities subject to the TMDL are considered significant sources of sediment.

3.1 MS4 Service Area Delineation Methodology

Storm sewer pipes, outfall locations, and elevation data were analyzed by qualified engineers in a GIS environment to delineate the watershed boundaries of the Town's regulated storm sewer system. Artificial conveyances and natural drainage features were thoroughly reviewed to accurately account for storm sewer drainage areas and determine break points between the

manmade and natural hydrologic systems. This approach rendered a delineation of regulated and unregulated areas within the Town. Excluded areas include those that sheet flow directly to natural channels of major drainage sheds such as streams or creeks without the benefit of an engineered system. In addition, several roads are part of the VDOT MS4 and are therefore excluded from the Town's MS4.

In accordance with DEQ's Chesapeake Bay TMDL Special Guidance, the Town may exclude from its MS4 service area land regulated under any general VPDES permit that addresses industrial stormwater and forested land of one half contiguous acre or more that meets specific criteria. The Town has identified three VPDES permitted facilities within its boundary. These facilities, which are listed in Table 3A, are excluded from the Town's MS4 area.

Table 3A – VPDES Permit Holders within Leesburg

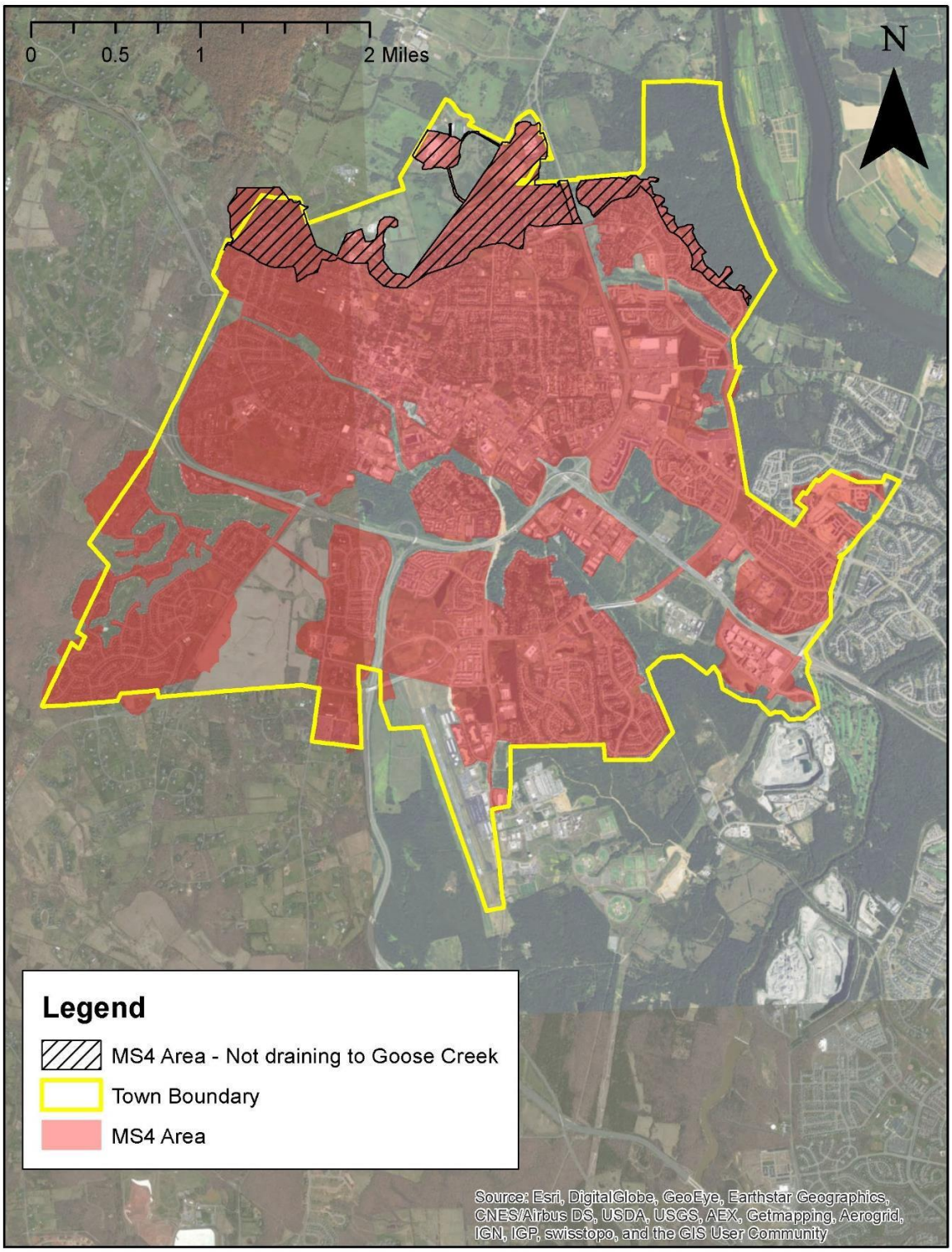
Permit Holder	VPDES Permit	Address
Leesburg Iron and Metal Incorporated	VAR050980	229 Depot Court, SE
Leesburg Municipal Airport	VAR051426	1001 Sycolin Rd
Leesburg Water Pollution Control Division*	VAR051427	1391 E Market St

**The Central Maintenance Facility (Town Shop) is co-located with the WPCD facility. Winter weather materials and operations (salt and sand) are kept at this facility within approved shelters.*

The Town conducted a preliminary analysis of the potential forested area within the MS4. Based on this analysis, there are approximately 220.4 acres that could potentially be defined as forested. This is 3.9% of the total MS4 service area. While the Town is not opting to exclude these areas for this plan, the Town reserves the right to conduct additional analysis and remove these areas at a later date. Any updates will be provided to DEQ with annual reports.

The Town MS4 service area is presented on Map 3A. Based on this MS4 mapping, approximately 5,153 acres drain to Goose Creek from the Leesburg MS4. This is compared to the assumed aggregate for the Town in the Goose Creek TMDL of 6,334 acres.

Map 3A – Leesburg MS4 Service Area Draining to Goose Creek



3.2 Evaluation of Significant Sources of Sediment

An evaluation of the regulated MS4 service area was completed to determine whether any Town facility subject to this action plan should be considered a significant source of sediment. The MS4 permit defines a significant source as a facility that has a "discharge where the expected pollutant loading is greater than the average pollutant loading for the land used identified in the TMDL." The evaluation consisted of a desktop survey of Town facilities within the Goose Creek watershed. Town facilities that maintain a VPDES industrial stormwater permit were not evaluated. Aerial imagery for each facility was observed for indications of conditions or activities that could constitute a significant source of sediment. These activities include, but are not limited to, active construction areas and large sections of disturbed soil. Facilities evaluated included:

- Town Hall and Parking Garage, 25 West Market Street
- Thomas Balch Library, 208 West Market Street
- Public Safety Center, 65 Plaza Street NE

Based on this evaluation, it was determined that none of these Town facilities subject to this action plan currently constitutes a significant pollutant source.

Town facilities could become a significant source of sediment during construction and other land disturbing activities if adequate erosion and sediment controls are not in place. Similarly, structural stormwater management controls, if not properly operated and maintained, could result in increased sediment loads. As such, a core strategy of this action plan is to ensure that Leesburg's erosion and sediment control and stormwater management programs are vigorously implemented and enforced. Leesburg has entered into a memorandum of understanding (MOU) with Loudoun County to leverage its erosion and sediment control program to meet VSMP construction site stormwater runoff requirements.

4. Existing and Planned Management Controls

This section discusses the existing and planned management controls that will be implemented to reduce sediment in the Goose Creek watershed. These reductions will occur over multiple permit cycles and will be coordinated with the Leesburg MS4 Program Plan and the Leesburg Chesapeake Bay TMDL Action Plan.

A TMDL for the Chesapeake Bay was established by the U.S. Environmental Protection Agency in 2010. Pollutants of concern (POCs) identified for the Chesapeake Bay include total nitrogen, total phosphorus, and total suspended solids (sediment). Virginia subsequently developed and adopted a Watershed Implementation Plan (WIP) that establishes the framework for meeting the Chesapeake Bay TMDL. The Virginia WIP states that MS4 permit holders will implement a phased approach for meeting required reductions over three five-year permit cycles in accordance with the following: 5% of required reductions by the end of the first permit cycle (June 30, 2018); a total of 40% of required reductions by the end of the second permit cycle; and, 100% of required reductions by the end of the third permit cycle. The Leesburg Chesapeake Bay TMDL Action Plan establishes the 5% reduction target and the means and methods for achieving the reduction target in accordance with the MS4 permit and the Chesapeake Bay TMDL Special Condition Guidance developed by DEQ (Guidance Memo No 14-2012).

The Town's reductions for sediment, using the 2004 TMDL approval date as the baseline, will be achieved through a combination of the Town's MS4 Program Plan (Section 4.1), redevelopment (Section 4.2), Town-initiated projects (Section 4.3), and street sweeping (Section 4.4). Section 5 addresses legal authorities applicable to reducing sediment load, including erosion and sediment control and post-development stormwater management. Section 6 addresses enhancements to public education, outreach, and employee training.

4.1 MS4 Program Plan

Leesburg has adopted an MS4 Program Plan that documents implementation of all MS4 permit requirements, including the programmatic and legal authorities required to meet the "Special Conditions for Approved TMDLs Other Than the Chesapeake Bay TMDL." The full MS4 Program Plan can be found at http://www.leesburgva.gov/government/departments/public-works/water-quality-stormwater-management. Table 4A provides a summary of elements of the six minimum control measures (MCMs) implemented by the Town under the MS4 permit that relate to meeting the benthic TMDL.

Table 4A – MS4 Program Plan Components Related to Meeting the Benthic TMDLs

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling Total Suspended Solids and Related Pollutants
Public Education and Outreach on Stormwater Impacts	Leesburg's MS4 Public Education and Outreach Plan includes a broad-based public outreach strategy to educate residents and businesses on stormwater pollution prevention. Leesburg participates in the Northern Virginia Regional Commission Clean Water Partners campaign.
Public Involvement and Participation	The Town and its Environmental Advisory Commission work to involve the public in opportunities to protect water quality, including taking steps to prevent sediment from entering the storm drain system.
Illicit Discharge Detection and Elimination	Leesburg has integrated into its MS4 Program Plan an Illicit Discharge Detection and Elimination (IDDE) Program. This program includes preventing, identifying, and eliminating sources of sediment.
Construction Site Stormwater Runoff Control	Legal authority for the Town's program is contained in Town Code Section 14-23(f). The Town was approved as a Virginia Stormwater Management Program (VSMP) authority by DEQ on June 13, 2014. The Town of Leesburg leverages Loudoun County's erosion and sediment control program to meet construction site stormwater runoff control requirements. A Memorandum of Understanding (MOU) has been executed between the Town and the County to memorialize roles and responsibilities.
Post-Construction Stormwater Management	The Town's post construction stormwater management program is designed to meet all applicable local, state and federal requirements to minimize the long-term water quality impacts associated with development and redevelopment. The Town made revisions to the Design and Construction

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling Total Suspended Solids and Related Pollutants
	Standards Manual (DCSM), the Subdivision and Land Development Regulations (SLDR), the Town Code (Section 14-23), and the Land Development Fee Schedule consistent with the obligations and requirements set forth in the Virginia Stormwater Management Regulations (9VAC25-870 et seq). The Town was approved as a VSMP authority by DEQ on June 13, 2014.
Pollution Prevention and Good Housekeeping for Municipal Operations	The Town maintains an active street sweeping program and implements a training program for personnel on illicit discharges, good housekeeping, and pollution prevention. The Town has developed and is implementing SOPs related to sediment control.

4.2 Redevelopment

Sediment loads in the Town will be reduced through improved stormwater management controls as a result of redevelopment. Town Code Section 14-23 requires a reduction in total phosphorus for any redevelopment project. This reduction in phosphorus also results in a reduction in sediment. Between adoption of the Town's stormwater management ordinance in 2007 and the adoption of amendments in July 1, 2014, the Town required a 10% reduction in phosphorus from existing conditions for any redevelopment. After July 1, 2014, redevelopment over one acre or more must achieve a 20% reduction, while redevelopment under one acre must still achieve a 10% reduction. The ordinance also allows the Town to implement more stringent water quality requirements in designated "hot spot" areas. Reductions for redevelopment are calculated in the Leesburg Chesapeake Bay TMDL Action Plan in accordance with DEQ's Chesapeake Bay TMDL Special Condition Guidance. A summary of reductions in the Goose Creek watershed are presented in Table 4B. This includes all redevelopment in the Town except for Spring Arbor (237 Fair View Street), which is outside of the Goose Creek Watershed. Details are found in the Leesburg Chesapeake Bay TMDL Action Plan. Additional reductions from redevelopment will be provided to DEQ in the Town's MS4 annual reports.

Table 4B – Summary of Sediment Reductions from Redevelopment To-Date

	Total Suspended Solids Reduction (lbs)
Total	8,180

4.3 Town-Initiated Projects

The Town has initiated several projects to address sediment that are currently under construction or will be completed prior to the end of the current permit cycle. This includes six stormwater management retrofits and one stream restoration project. Three projects are expected to be completed by October 2016 and four projects are expected to be completed by October 2017. All projects are located within the Goose Creek watershed. Reductions for

these projects are calculated in the Leesburg Chesapeake Bay TMDL Action Plan in accordance with DEQ's Chesapeake Bay TMDL Special Conditions Guidance. A summary of these reductions are presented in Table 4C. Details are found in the Leesburg Chesapeake Bay TMDL Action Plan. Additional reductions from Town-initiated projects will be provided to DEQ in the Town's MS4 annual reports.

Table 4C – Summary of Reductions from Town-Initiated Projects

	Total Suspended Solids Reduction (lbs)
2016 Planned Reductions	100,197
2017 Planned Reductions	146,033
Total Reductions	246,230

4.4 Street Sweeping

The Town implements a street sweeping program from March through November annually. The DEQ Chesapeake Bay TMDL Special Condition Guidance establishes sweeping programs as a control measure for the reduction of sediment loads. During the past two fiscal years, the Town reported that it swept an average of 332 tons of debris Town-wide annually (413 tons in FY14 and 251 tons in FY13). The Town anticipates maintaining this level of effort in the future. For planning purposes, the Town is assuming 325 tons, or 650,000 pounds, annually. Approximately 93% of impervious area in the Town is within the Goose Creek watershed. As a result, it is estimated that approximately 604,500 pounds of debris are attributed to the Goose Creek watershed annually. A summary of these reductions are presented in Table 4D. Details are found in the Leesburg Chesapeake Bay TMDL Action Plan. DEQ's Chesapeake Bay TMDL Special Conditions Guidance provides the specific steps required for determining credit for street sweeping programs as well as efficiencies for reducing TN, TP, and TSS.

Table 4D – Summary of Reductions from Street Sweeping

Pollutant	**Pounds of Debris Collected**	**Dry Weight Factor**	**Dry Pounds Collected**	**Removal Efficiency**	**Pollutant Reduction (lbs)**
Total Suspended Solids	604,500	0.7	423,150	0.3	126,945

4.5 Summary of Progress

The actions and projects outlined in Sections 4.1 through 4.4 above will result in an anticipated reduction in annual sediment loads of slightly greater than 381,000 lbs/year from the Goose Creek portion of the Town's regulated MS4. The existing sediment loading to Goose Creek

from the Town's regulated MS4 is not defined in the Goose Creek TMDL. Therefore a specific load reduction goal cannot be computed for the Town. However, the reductions outlined in this plan represent a 14% decrease in sediment loads from the existing source loads calculated for the Goose Creek portion of the Town's regulated MS4 as presented in the Leesburg Chesapeake Bay TMDL Action Plan.[1]

Table 4E – Summary of Reductions for Current Permit Cycle

	Total Suspended Solids Reduction (lbs)
Redevelopment	8,180
Town-Initiated Projects	246,230
Street Sweeping	126,945
Total Reductions	381,355

The Town will continue to assess additional opportunities to implement sediment reductions within the Goose Creek watershed during the current permit cycle and will update this action plan in accordance with MS4 permit requirements for the next permit cycle.

5. Legal Authorities

The MS4 permit requires the Town to identify ordinances and legal authorities, BMPs, policies, plans, procedures, and contracts that are applicable to the TMDL. Table 5A provides a summary of these items as they relate to sediment.

Table 5A - Town of Leesburg Legal Authorities/Policies

Title	Applicability
Stormwater Management Ordinance - Chapter 14 of the Code of the Town of Leesburg (2014)	The Stormwater Management Ordinance, modified in 2014, establishes the Town's authority to implement and enforce a comprehensive stormwater management program. Components include: (a) Illicit Discharge Detection and Elimination; (b) Construction Site Stormwater Control; (c) Post-Construction Stormwater Control; and, (d) Stormwater Management System Maintenance. Specific to sediment control: • Sec. 14-23(b) & (d) prohibits the discharge of eroded soil and sediment to the stormwater system and allows the Town to designate erosion impact areas with enhanced mitigation requirements. • Sec. 14-23(f) requires any proposed disturbance of the natural terrain of any subdivision or development where the disturbed area is greater than 500 square feet or includes the removal or addition of soil in excess of 12 inches in depth to develop an erosion and sediment control plan and comply with the Town's DCSM.

[1] The Goose Creek watershed represents 5,153.3 acres of the total MS4 service area (5,665.2 acres) in the Town. The impervious area within Goose Creek watershed is 1,745.92 acres. This equates to a load of 2,644,048 lbs/year. The percent reduction is calculated 381,355.65/2,644,048, or 14%.

Title	Applicability
	• Sec. 14-23(g) requires all regulated development, redevelopment, and uses within the Town to develop a stormwater management plan.
Design and Construction Standards Manual (2014)	The Design and Construction Standards Manual was updated in 2014 to ensure that the Town meets minimum control measures for Construction Site Stormwater Control and Post-Construction Stormwater Control. In addition, to provide a buffer from direct urban runoff, which can exacerbate stream bank erosion, the DCSM contains a requirement (with exceptions) for a 50 foot buffer along both sides of any perennial stream within a natural channel.
Town Plan (adopted 2012 and amended through 2014)	The Town Plan sets forth the Town's vision and goals for reducing the impact of the developed environment on the Town's natural resources. Relevant to sediment control, the Town Plan contains the following objectives under Natural Resources: • Objective 1: Identify, protect, and restore an integrated open space network of ecologically valuable land and water resources within the town and its Joint Land Management Area. • Objective 2: Protect and restore the ecological integrity of streams in Leesburg and its JMLA by utilizing a series of watershed management tools to offset the impacts of development. The tools include: watershed planning, land conservation, aquatic buffers, low impact site design, erosion control, stormwater treatment practices, control of non-stormwater discharges, and watershed stewardship. • Objective 3: Minimize the impact of new development on natural systems by adopting low impact development standards and conservation subdivision design techniques. • Objective 5: Protect the Town's water resources and downstream receiving waters including Goose Creek, the Potomac River, and the Chesapeake Bay from the impacts of non-point source pollution. The plan then contains specific implementation actions to meet these objectives.
Town Zoning Ordinance	The Zoning Ordinance, in addition to requiring compliance the Design and Construction Standards Manual, also establishes Creek Valley Buffer standards for larger streams (640 acres drainage and greater) in excess of those required in the DCSM.
Tuscarora Creek Watershed Study (2008)	This study, developed through a Town Council appointed Leesburg Watershed Committee, contains both specific and broad-based recommendations for improving water quality and aquatic habitats in the Town of Leesburg. Specific to sediment pollution, the study contains recommendations for stormwater retrofits to reduce the volume and velocity of stormwater runoff and to promote recharge and recommendations for stream corridor restoration opportunities. Town Council has authorized the committee to further develop recommendations and to pursue grant funding opportunities.
Loudoun County Erosion and Sediment Control Enforcement	Loudoun County administers erosion and sediment control inspection and enforcement activities in the Town. Loudoun County's program is consistent with Virginia Erosion and Sediment Control Regulations.

Title	Applicability
Storm Water Pollution Prevention Plans (SWPPPs)	The Water Pollution Control Facility, the Central Maintenance Facility, and Leesburg Executive Airport each maintain separate SWPPPs in accordance with VPDES industrial permits. These SWPPPs contain BMPs for stormwater pollution prevention training and erosion and sediment control. All three SWPPPs were updated in 2014.

After review of the existing MS4 Program Plan and legal authorities, the Town finds that no additional legal authorities are required for compliance with the "Special Conditions for Approved TMDLs Other than the Chesapeake Bay TMDL."

6. Enhanced Education, Outreach, and Training

As noted in Section 4.1, the Town has adopted a Public Education and Outreach Plan and has integrated the plan into its MS4 Program Plan. The plan specifically considered sediment and includes education, outreach, and training on subjects related to the reduction of sediment in stormwater discharges. Of particular note is the Illicit Discharge Detection and Elimination (IDDE) program and training that specifically includes potential sources of sediment. In addition, standard operating procedures (SOPs) that relate to sediment have been developed for landscape and grounds maintenance and outdoor storage. These SOPs are being incorporated into annual training requirements as provided for in the MS4 Program Plan. The Town will continue to assess whether additional enhancement of education, outreach and training would be beneficial to reducing sediment loads within the Goose Creek watershed.

7. Schedule and Milestones

This Benthic TMDL Action Plan will be implemented in accordance with the following schedule and milestones.

Table 7A – Schedule and Milestones

Implementation Item	Description	Schedule and Milestones
MS4 Program Plan	The MS4 Program Plan will be updated to reflect the actions of the Benthic TMDL Action Plan. The Town will continue to implement the MS4 Program Plan, including elements related to sediment, in accordance with the schedule provided for in the MS4 Program Plan.	MS4 Program Plan update submitted to DEQ by October 1, 2015. See MS4 Program Plan for implementation schedule.
Redevelopment	Redevelopment of properties in the Town that	Ongoing.

Implementation Item	Description	Schedule and Milestones
	meet new stormwater management requirements.	
Town-Initiated Projects	Six stormwater retrofit and one stream restoration project.	Three projects completed in 2016 and four completed in 2017. Additional projects to be assessed during the current permit cycle and as part of planning for the next permit cycle.
Street Sweeping	Street sweeping program to remove sediment and pollutants from Town streets.	Annually – March through November.

8. Assessment of Effectiveness

The assessment of the effectiveness of this action plan will be included in the MS4 Program Plan annual reports submitted to DEQ. The measure of assessing the effectiveness of programmatic BMPs are contained in the MS4 Program Plan and will include specific documentation related to those efforts (sign-in sheets for training, results of IDDE dry weather outfall monitoring, etc.). The measure of assessing the effectiveness of redevelopment, Town-initiated projects, and street sweeping will be based on the documented pollutant load reduction computed in compliance with the DEQ Chesapeake Bay Special Condition Guidance.

As noted previously, reductions will occur over multiple permit cycles and will be coordinated with the Leesburg MS4 Program Plan and the Leesburg Chesapeake Bay TMDL Action Plan.

At the end of this permit cycle (June 30, 2018), the Town will assess progress in sediment reduction and will update the plan with strategies for the next permit cycle based on progress and effectiveness of strategies implemented to date.

Appendix H
Agreements with Other Entities

Memorandum of Understanding

For Erosion & Sediment Controls and Stormwater Management / Best Management Practice Between Loudoun County, Virginia And The Town of Leesburg

THIS MEMORANDUM OF UNDERSTANDING is made and entered into this 5--d day offi:bruG.J. , CSband between Loudoun County (hereinafter the "County"), and the n of Leesburg (hereinafter the "Town").

Purpose of the Memorandum

WHEREAS, clean water is crucial to the quality of life of both County and Town residents as well as the economic vitality of the region and the Commonwealth; and,

WHEREAS, the Commonwealth of Virginia requires the County and the Town to implement measures to protect water quality under the *Virginia Pollutant Discharge Elimination System (VPDES) Phase II* program, the *Virginia Stormwater Management Program (VSMP), National Pollutant Discharge Elimination System Program (NPDES), the County and Town's Municipal Separate Storm Sewer System Permit (MS-4),* the *Virginia Erosion and Sediment Control Law, Regulations, and Certification Regulations,* and the *Virginia Stormwater Management Regulations;* and,

WHEREAS, the County enforces *Chapter 1220: Erosion Control* of the *Codified Ordinances of Loudoun County within the County and the Town* to ensure 100% of construction site run off is adequately controlled; and,

WHEREAS, the Town enforces Design Standards, Hydrologic Design, Stormwater Management, Watershed Protection, and Best Management Practices (BMP) of the Town of Leesburg's Design and Construction Standards Manual; and

WHEREAS, the County and the Town have determined that it is mutually beneficial to establish a cooperative and coordinated approach to implementation of the Town's stormwater and erosion and sediment control requirements; and,

WHEREAS, the County issues grading permits for the Town upon the Town's approval of site plans;

NOW THEREFORE the County and Town agree that their respective responsibilities are as follows:

A. County Responsibilities

1. Review all Site and Construction Plans provided to the County as a referral by the Town and provide technical comments with respect to erosion and sediment control matters.
2. Review and provide technical comments to applicants on all Grading Permit Applications submitted to the County.
3. Require proof that all other associated State and Federal permits have been obtained prior to issuing any grading permit.
4. Require that an Erosion and Sediment control bond be posted to the County on all projects prior to approving the grading permit.
5. If a Grading Permit Application is inconsistent with the State laws and the Loudoun County Erosion and Sediment control ordinances, the County shall reject the Grading Permit Application and notify the Applicant.
6. Issuance of grading permits upon applicant's compliance with all applicable requirements and the Town's approval of site plans (expressed via zoning clearance letter or zoning permit).
7. Provide inspections for issued grading permits consistent with the Loudoun County Erosion and Sediment Control inspection schedule.
8. Pursue administrative enforcement of grading permits in violation of the County erosion and sediment control ordinances as identified by County Field Managers during routine inspections.
9. Investigate violations of the Loudoun County erosion and sediment control ordinances as identified by Town Staff.
10. If during routine inspections, the County's field manager witness violations of the Town's VSMP, VDPES and NPDES permits, the County will notify the Town.
11. Administer Erosion and Sediment control bond inspections and subsequent Erosion and Sediment control bond releases.

12. Upon request, provide general technical assistance to the Town with respect to erosion and sediment control matters.

13. If requested by the Town, the County's Field Manager shall make available to the Town all grading permit correspondence, erosion and sediment control field inspection reports as well as any written violations issued for all projects being inspected by the County within the Town's corporate limits.

8. **Town Responsibilities**

1. Review and approve construction/site plans within the Town's Corporate Limits in accordance with all Town Ordinances and State Laws (including but not limited to floodplain studies & alterations, as well as adequate outfall, stormwater management and BMP measures).
2. Require that all projects within the Town's Corporate Limits comply with Town and State's stormwater management regulations, including the use of Best Management Practices (BMP) to protect water quality. For projects within the Town's Corporate Limits, the Town will review all stormwater management and BMP plans and routinely inspect construction sites to verify compliance with all applicable Town, State and Federal stormwater management regulations.
3. Submit construction/site plans within the Town's Corporate Limits to the County as a referral for erosion and sediment control review.
4. The Town shall forward to the Loudoun County Erosion and Sediment Control Program all construction/site plan re-submissions which may require grading permit approval.
5. During the review process, ensure that all Erosion and Sediment Control plans are in general conformance with all State Laws regarding Erosion & Sediment Control MS-19 Minimum Standards as noted within the County's referral comments.
6. Upon Town approval of the·plan, issue Zoning Clearance Letter to the applicant and forward a copy to the Loudoun County Erosion and Sediment Control Program.
7. When observed, report any site violations that may cause imminent damage to waterways within the Town's Corporate Limits *to* the Loudoun County Erosion and Sediment Control Program.

8. Prepare annual updates to the Town's Municipal Separate Storm Sewer System MS-4, NPDES, VPDES & VSMP permits as required by the State within the Town of Leesburg Corporate limits and provide copies to the County for their files.
9. Pursue legal enforcement of violations of the County Erosion and Sediment Control Ordinances within the Town's corporate limits.

C. Amendments and Modifications

This Memorandum of Understanding may be amended at any time by mutual consent of the parties, in writing.

D. Termination

Any termination or request for modification of this Memorandum of Understanding by either party shall be submitted in writing and require mutual written agreement by both the County and the Town.

However, this Memorandum of Understanding shall automatically terminate upon written notice of termination by one of the parties on the basis of one of the following events:

1. The Town implementing a local erosion and sediment control program within its corporate limits as approved by the Commonwealth of Virginia, Department of Conservation and Recreation; or
2. The Commonwealth of Virginia, Department of Conservation and Recreation approval to exclude the administration of the Loudoun County Erosion and Sediment Control Program within the Town limits; or
3. Upon statutory authority releasing the County from mandatory administration of an Erosion and Sediment Control program within the Town.

This Memorandum of Understanding shall become effective upon the endorsement of the parties as well as adoption of applicable ordinances and shall remain in effect unless terminated by one of the parties as noted above.

In Witness Whereof, the parties herein have caused this document to be executed as of the date of the last signature shown below:

LOUDOUN COUNTY, VIRGINIA
A Political Subdivision

By: Terrance Dwhart
Director
Department of Building and Development

Date: 7/?>/1\0

Approved as to Form

By:
untY Attorney

Date: 2 -- 3' - 10

TOWN OF LEESBURG, VIRGINIA
A Municipal Corporation of Virginia

By: John L Wells
Town Manager

Date: 7/29/09

Approved as to Form

By:
Town Attorney

Date: 7/29/09

NORTHERN VIRGINIA

CLEAN WATER PARTNERS PROGRAM

MEMORANDUM OF AGREEMENT

In order to establish an effectively coordinated stormwater education and outreach program, the parties whose authorized agents are signatories to the Memorandum of Agreement do hereby enter into the following Memorandum of Agreement.

SECTION I PURPOSE OF MEMORANDUM

The purpose of this Memorandum is to establish and maintain a coordinated stormwater education program in the Northern Virginia region, hereinafter referred to as the "Program". The signatories, hereinafter referred to as the "Northern Virginia Clean Water Partners," or "Partners," comprise a group of local governments, public school systems, institutions of higher education, drinking water and sanitation authorities, and businesses that choose to work together to inform individuals about the pollution potential of common activities, so that individuals can take direct action to reduce stormwater pollution. To meet this goal,the Partners work together to:

- Identify high priority water quality issues for the region;
- Identify the target audience(s) for outreach;
- Educate the region's residents on simple ways to reduce pollution around their homes;
- Monitor changes in behavior through surveys and other data collection techniques; and
- Pilot new cost-effective opportunities for public outreach and education.

By working together the Partners are able to leverage their funds and services to develop and place English and Spanish bilingual educational products with common messages and themes, thereby extending the campaign's reach.

SECTION II GENERAL DEFINITIONS

The term "Northern Virginia" refers, at a minimum, to the area comprising the Northern Virginia planning district, as specified in Section III.

The terms "Clean Water Partners," "Partners," "Participants," and "Partnership" refer to all entities which enter into this Agreement and abide by its terms.

"Contributing Partners" refers to those partners who contribute direct funds to the Program.

SECTION Ill AREA OF COVERAGE

Contribution and Participation in this Agreement and Program is available to any local government, public authority or institution of higher education within the confines of the Northern Virginia planning district, or adjacent planning districts.

SECTION IV OPERATIONAL ARRANGEMENTS

A. Staff Services

NVRC shall provide staff support for the Program, to the extent that funds are available. This may include procuring multi-media advertising services, procuring behavior change surveys, coordinating and hosting meetings, and maintaining website hosting and domain services. All contracts and administrative agreements approved by the Partnership shall be submitted to the NVRC Board for review and execution. The Executive Director of NVRC shall be the chief administrative agent of the Partnership and in this capacity shall be responsible to the Partnership for managing its staff support.

Upon the conclusion of each fiscal year NVRC shall prepare an annual report summarizing the status, progress and effectiveness, to the extent possible, of all significant outreach efforts during the previous fiscal year. This report shall include a preliminary work program for the upcoming fiscal year, and it shall be presented to the Partnership for approval. The report will be prepared so that it can be used to support individual permit requirements.

B. Meeting Space

NVRC shall provide adequate space and facilities for the meeting of the Program participants.

C. Budget

An annual budget for the Program shall be developed and funded through a special assessment of the Contributing Partners for inclusion in the annual NVRC budget. The annual operating budget shall be submitted by the NVRC staff to each Participant for its approval. Prior to the assessment of a participating local government, the allocation of program costs must be approved by its governing body.

The funding formula for the Program is as follows: $ 0.05 per capita based on the most recent decennial census unless more current population estimates are available from the Weldon Cooper Center for Public Service of the University of Virginia.

SECTION V TERMS

This Memorandum shall exist subject to amendment or dissolution in accordance with the following provisions:

A. Amendments

This Agreement may be amended at any time by the concurrence of all Participants. Proposed amendments shall be presented in writing to the NVRC staff and must be approved unanimously by all Participants.

The acceptance of additional Parties to this Agreement shall not require an amendment to this Agreement, but shall require the consent of a simple majority of the Partner participants. Each new Participant shall be bound to the terms of this Agreement as evidenced by the signature of its authorized agent.

B. Severability

Each paragraph and provision of this Agreement is severable from the entire Agreement and if any provision is declared invalid or unenforceable the remaining provisions shall nevertheless remain in effect.

C. Dissolution

This Agreement may be dissolved at any time by majority agreement of all participant Partners.

If a single Partner unit wishes to withdraw from the Agreement, notice of intent to withdraw must be provided at least six months prior to the end of the fiscal year, in order to provide the remaining parties with an opportunity to make any necessary budget adjustments.

This Agreement shall take effect after appropriate action by ordinance, resolution or otherwise pursuant to the law of the governing body of each participating political subdivision.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the Town of Leesburg and NVRC have caused this document to be executed as of the date of the last signature shown:

TOWN OF LEESBURG ,VIRGINIA

By: _____
Kaj H. Dentler, Town Manager

Date: 03/22/19

"prov e

Bah(ara Notar,Town Attorney

Date: 3/21/19

NORTHERN VIRGINIA REGIONAL COMMISSION

By: _____

Title: Executive Director

Date: 4/2/2019