



## **Loudoun County, Virginia**

### **Department of General Services**

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Virginia Department of Environmental Quality  
Norther Virginia Regional Office  
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October 31, 2021  
(via email)

Subject: Revised Loudoun County Local TMDL Action Plan

Mrs. Tuthill,

Loudoun County submitted the "*Comprehensive Local TMDL Action Plan*" to DEQ on May 1, 2020. DEQ provided a written review of the Loudoun County TMDL action plan via letter dated September 17, 2021. The DEQ letter stated that Loudoun County has met the Waste Load Allocation (WLA) for sediment for Goose Creek. The letter further requests that Loudoun County reevaluate the target end date for meeting the waste load allocation for sediment in the Bull Run Watershed.

Since the issuance of the Loudoun County Local TMDL Action Plan, the county has been refining the projects outlined in the plan and has been developing a working list of other possible projects within the Bull Run watershed to meet the waste load allocation. Based on this effort, Loudoun County estimates that it can meet the WLA by January 1, 2050. To meet this revised deadline Loudoun County will continue to refine the projects outlined in the table below, has initiated a pond dredging investigation with the Bull Run watershed, and will continue to identify future retrofit projects.

Rather than draft a new action plan at this time, the existing plan has been redlined with updates and table 2.G below will replace the corresponding table in the plan. This letter will serve as the new cover sheet for the "*Loudoun County Comprehensive Local TMDL Action Plan*", dated October 31, 2021. These updates will be incorporated into the next plan update.

We will provide annual status updates on progress achieved towards meeting the Bull Sediment reductions in our forthcoming MS4 annual reports.

Sound you any further questions or comments, please feel free to contact me.

Sincerely

Chris Stone  
Chief, Stormwater Management  
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571.258.3542

Table 2.G – Summary of Bull Run Sediment Reductions (revised)

Project	Description	Completion Date	Sediment Reductions	
			(lbs/year)	(tons/year)
Conklin Park Retrofit (JC77)	Retrofitting of exisiting stormwater pond to a Level II wet pond	2023	5,600	2.8
Conklin Park Retrofit (farm pond)	Retrofitting of exisiting farm pond to a wetland	2023	6,400	3.2
Conklin Park Stream Restoration	Restoration of approximately 2,200 LF of degraded stream	2023	36,000	14.2
Dulles south Retrofit	Retrofitting of existing pond to a wetland	2024	28,300	14.2
Lightridge HS Stream Restoration	Restoration of approximately 2,300 LF of degraded stream	2025	50,000	25.0

**Loudoun County, Virginia**

# **Comprehensive Local TMDL Action Plan**

**Revised October 31, 2021**

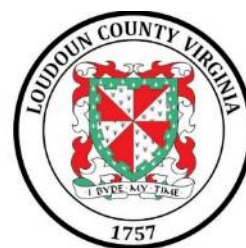
**Submittal to DEQ - ~~May 1, 2020~~**



**Sediment TMDLs for Goose Creek and Bull Run  
Bacteria TMDLs for Bull Run and Sugarland Run**

**Loudoun County Department of General Services  
801 Sycolin Road, S.E., Suite 300, Leesburg, Virginia 20175**

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

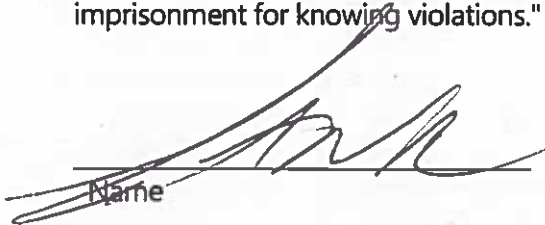


**wood.**

**Prepared in Compliance with Municipal Separate Storm Sewer System (MS4)  
Permit No. VAR040067**

## 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

Director, Dept. of General Services

Title

26 OCT 2021

Date

This plan was originally submitted to DEQ on May 1, 2020. DEQ provided comments to Loudoun County via letter dated, September 17, 2021. This version of the plan has incorporated those comments and will remain the current plan until such time as the Loudoun County Local TMDL Action Plan can be updated.



# Comprehensive Local TMDL Action Plan

## Loudoun County, Virginia

~~May 1, 2020~~

Revised October 31, 2021

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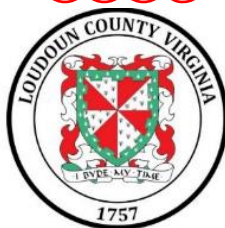
Appendix A	Loudoun County MS4 Service Area Delineation
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Appendix C	Sediment Reduction Calculations
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# Comprehensive Local TMDL Action Plan

## Loudoun County, Virginia

May 1, 2020

Revised October 31, 2021



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## 1. Introduction

### 1.1. Purpose

This Comprehensive Local TMDL Action Plan documents how the County will meet the “Local TMDL Special Condition” in Part II B of the General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) that became effective November 1, 2018 (2018 MS4 permit). This plan replaces the original County plan dated October 1, 2015 that was submitted to the Virginia Department of Environmental Quality (DEQ).

The County’s MS4 permit requires the development and implementation of action plans for impaired waters where a Total Maximum Daily Load (TMDL) approved by the State Water Control Board (SWCB) assigns a waste load allocation (WLA) to the County. A TMDL establishes the maximum amount of a pollutant that can enter a water body without violating water quality standards. A WLA represents the total pollutant loading that is allocated to a specific source. The County has been assigned WLAs for sediment (Goose Creek and Bull Run) and bacteria (Bull Run and Sugarland Run).

Section 2 presents the Sediment TMDL Action Plan and Section 3 presents the Bacteria TMDL Action Plan. The MS4 permit is addressed by: describing the WLAs assigned to the County and the corresponding reduction requirements; identifying significant sources of the pollutants of concern discharging from the County’s MS4; identifying best management practices (BMPs) to reduce the pollutants of concern in accordance with specific permit requirements; calculating existing and planned pollutant reductions; developing outreach strategies to enhance the public’s ability to eliminate and reduce discharges of pollutants; and, establishing an implementation schedule for the permit term.

The County's original plan addressed WLAs assigned prior to July 1, 2013. These included the sediment and bacteria WLAs for Goose Creek and Bull Run. In accordance with the 2018 MS4 permit, the County must update previously approved plans no later than 18 months after the effective permit date. The County must also develop plans for WLAs assigned on or after July 1, 2013 no later than 30 months after the effective permit date. This includes the bacteria WLA for Sugarland Run. This Comprehensive Local TMDL Action Plan updates the previously approved plan and integrates new strategies to address the Sugarland Run bacteria WLA.

## 1.2. Plan Preparation

This plan has been prepared in accordance with Part II B of the MS4 permit, DEQ Guidance Memo 16-2006 "TMDL Action Planning for Local TMDL Maximum Daily Loads," applicable portions of DEQ Guidance Memo 15-2005 "Chesapeake Bay TMDL Special Conditions Guidance," and other guidance as provided by DEQ.

## 1.3. MS4 Service Area

The County's responsibilities under the MS4 permit are based on the extent of the MS4 service area within the 2010 Census Urbanized Area. The WLAs in the TMDLs are aggregated to include other MS4 permit holders due to limitations in available MS4 mapping data at the time of TMDL development. However, Loudoun County and other permittees have since more precisely delineated their MS4 service areas. The methodology used to delineate the County's regulated MS4 is described in the County's Final Phase II Chesapeake Bay TMDL Action Plan.

The County's full MS4 service area map is presented in Appendix A. Figures 1.A-1.C show the MS4 service area within portions of Goose Creek, Bull Run, and Sugarland Run subject to WLAs assigned to the County. Table 1.A shows the amount of MS4 impervious and pervious area within each watershed. The MS4 area for Goose Creek is shown with and without the area draining to Beaverdam Reservoir.<sup>1</sup>

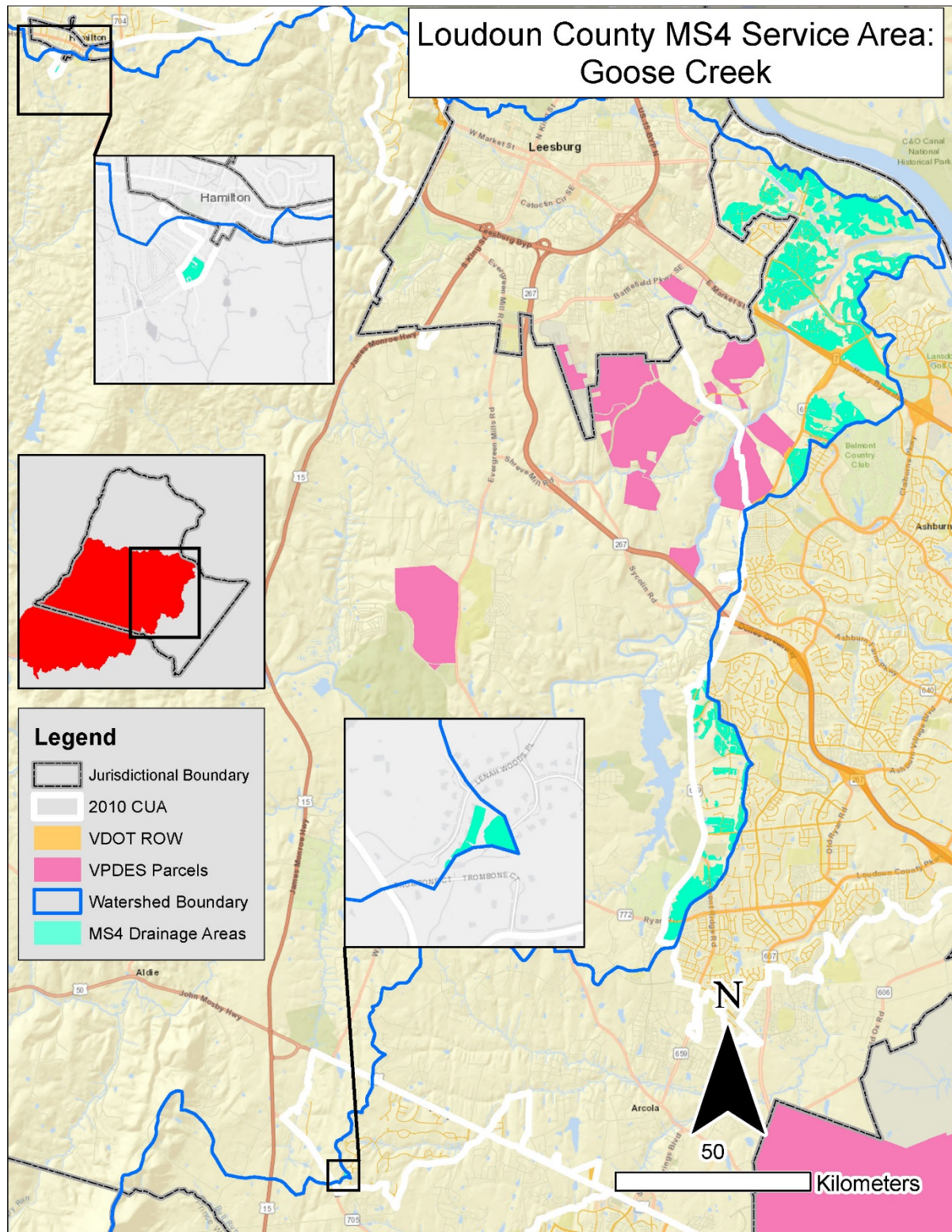
**Table 1.A – County MS4 Impervious and Pervious Area by TMDL Watershed**

Watershed	Total Area (acres)			County MS4 Area (acres)		
	Total	Imperv.	Pervious	Total	Imperv.	Pervious
Goose Creek	247,135.7	8,942.0	238,193.7	1,240.2	340.0	900.2
	<i>Excluding Beaverdam Reservoir</i>			972.4	283.4	689.0
Bull Run	123,995.1	2,899.0	121,096.1	2,390.7	559.0	1,831.7
Sugarland Run	14,516.2	2,022.1	12,494.1	2,279.8	803.3	1,476.5

<sup>1</sup> The Goose Creek benthic TMDL excludes the Beaverdam Reservoir drainage area from the Loudoun County MS4 because it is assumed to contribute no loads to Goose Creek. See Section 6.2.3.3 of the Goose Creek TMDL.

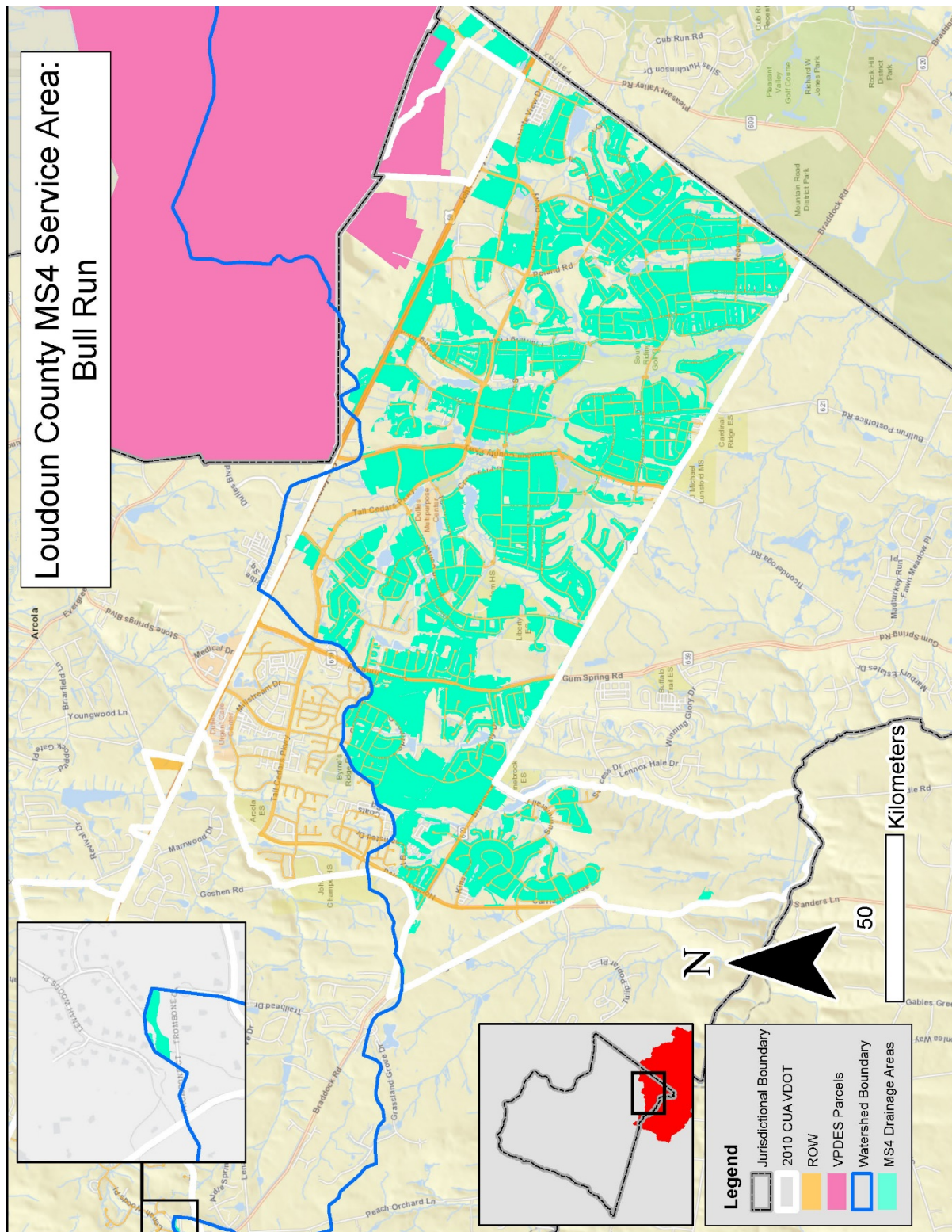


**Figure 1.A – County MS4 Service Area within Goose Creek Watershed**



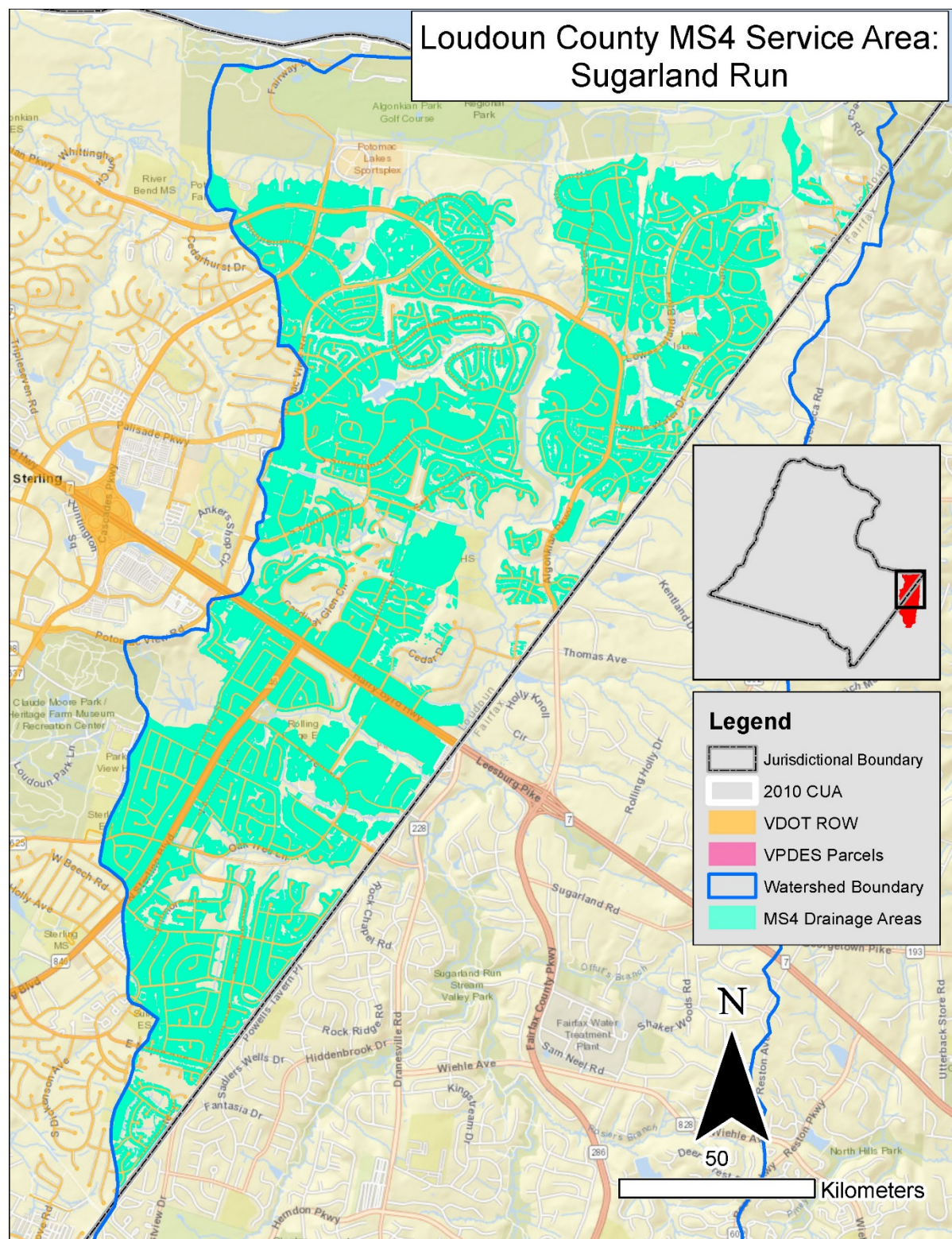


**Figure 1.B – County MS4 Service Area within Bull Run Watershed**





**Figure 1.C – County MS4 Service Area within Sugarland Run Watershed**



## 2. Sediment TMDL Action Plan

The County has been assigned two WLAs for sediment, including the “Benthic TMDLs for the Goose Creek Watershed” and the “Benthic TMDL Development for Bull Run, Virginia.” Table 2.A provides an overview of the organization of the Sediment TMDL Action Plan and how each section addresses the 2018 MS4 permit.

**Table 2.A – Sediment TMDL Action Plan Permit Compliance Crosswalk**

Section	Plan Element	2018 MS4 Permit	
2.1	Overview of Sediment TMDLs	Part II B 3	a. The TMDL project name. b. The EPA approval date of the TMDL. c. The wasteload allocated to the permittee (individually or in aggregate), and the corresponding percent reduction, if applicable.
2.2	Identification of Significant Sources of Sediment	Part II B 3	d. Identification of the significant sources of the pollutants of concern discharging to the permittee’s MS4 and that are not covered under a separate VPDES permit. For the purpose of this requirement, a significant source of pollutants means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL.
2.3	Best Management Practices	Part II B 3	e. The BMPs designed to reduce the pollutants of concern in accordance with Parts II B 4, B 5, and B 6.
2.4	Sediment-Specific Permit Requirements	Part II B 3	f. Any calculations required in accordance with Part II B 4, B 5, or B 6.
		Part II B 5	a. The permittee shall reduce the loads associated with sediment, phosphorus, or nitrogen through implementation of one or more of the following: (1) one or more of the BMPs from the Virginia Stormwater BMP Clearinghouse listed in 9VAC25-870-65 or other approved BMPs found on the Virginia Stormwater BMP Clearinghouse website; (2) one or more BMPs approved by the Chesapeake Bay Program; or, (3) land disturbance thresholds lower than Virginia’s regulatory requirements for erosion and

Section	Plan Element	2018 MS4 Permit	
			<p>sediment control and post-development stormwater management.</p> <p>b. The permittee may meet the local TMDL requirements for sediment, phosphorus, or nitrogen through BMPs implemented to meet the requirements of the Chesapeake Bay TMDL in Part II A as long as the BMPs are implemented in the watershed for which local water quality is impaired.</p> <p>c. The permittee shall calculate the anticipated load reduction achieved from each BMP and include the calculations in the action plan required in Part II B 3 f.</p>
2.5	Outreach Strategy	Part II B 3	g. For action plans developed in accordance with Part II B 4 and B 5, an outreach strategy to enhance the public's education (including employees) on methods to eliminate and reduce discharges of the pollutants.
2.6	Schedule of Anticipated Actions	Part II B 3	h. A schedule of anticipated actions planned for implementation during this permit term.
2.7	Anticipated End Date	Part II B 5	d. No later than 36 months after the effective date of this permit, the permittee shall submit to the department the anticipated end dates by which the permittee will meet each WLA for sediment, phosphorus, or nitrogen. The proposed end date may be developed in accordance with Part II B 2.
4	Opportunity for Public Comment	Part II B 7	Prior to submittal of the action plan required in Part II B 1, the permittee shall provide an opportunity for public comment proposed to meet the local TMDL action plan requirements of no less than 15 days.

### 2.1. Overview of Sediment TMDLs

Sediment is a major cause of stream degradation nationally and has been identified as the primary stressor associated with the decline of benthic aquatic habitats in the Goose Creek and Bull Run watersheds. While some sediment is a natural part of the water environment, too much sediment smothers bottom dwelling organisms, impairs the organs of filter-feeders, and blocks



sunlight to underwater plants. These underwater plants serve as food and habitat to many aquatic species. In addition, other pollutants such as phosphorus and PCBs may be attached to sediment particles.

#### 2.1.1. Goose Creek Sediment TMDL

The Goose Creek sediment TMDL addresses 4.91 miles of benthic impairment located downstream of the Goose Creek Reservoir to the confluence of the Potomac River. The County MS4 is assigned a WLA of 123.6 tons/year, which is aggregated with the Virginia Department of Transportation (VDOT) MS4, Virginia Pollutant Discharge Elimination System (VPDES) industrial permit holders, and VPDES construction site permit holders. The MS4 wasteload allocation is based on the 2015 Land Use Scenario and assumes a total of 1,628.1 acres served by the County MS4 (1,613 developed and 15.1 under construction). Table 2.B provides a summary of the Goose Creek sediment TMDL.

**Table 2.B – Goose Creek Sediment TMDL Summary**

TMDL Name	Approval Date	MS4 Existing Load	MS4 WLA	Reduction	Aggregated MS4s
		Tons per Year			
"Benthic TMDLs for the Goose Creek Watershed"	SWCB – 8/31/2004	See Text	123.6	30%	Loudoun County
	USEPA – 4/26/2004				VDOT

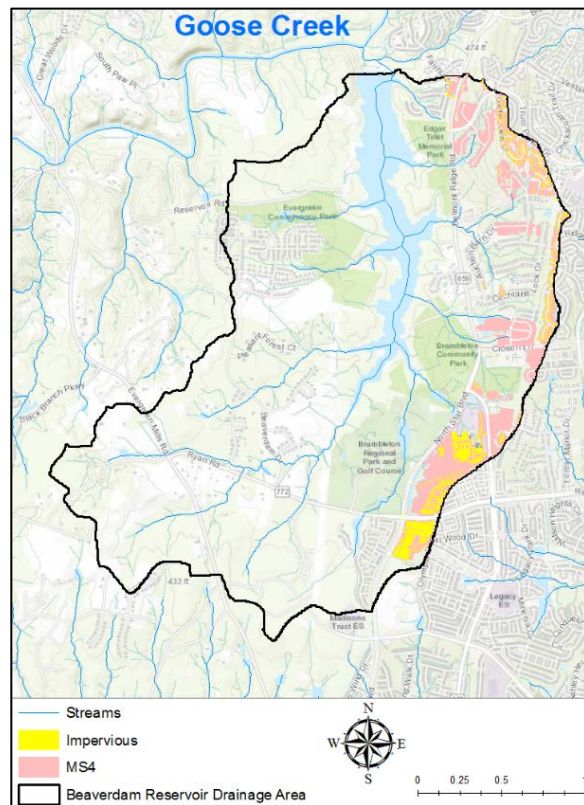
In addition to aggregating the County's MS4 WLA, the Goose Creek sediment TMDL does not specify an existing baseline load for the County MS4 from which to measure progress. The County has developed a methodology for estimating its portion of the required sediment reduction to meet the TMDL. As noted previously, Loudoun County and other MS4 permittees have more precisely delineated their MS4 service areas. Based on the County's MS4 service area map, the County calculates that 972.4 acres drain to the Goose Creek from the regulated MS4.<sup>2</sup> The County-specific MS4 service area is 59.7% of the aggregated MS4 area in the TMDL of 1,628.1 acres. As a result, it is estimated that the County is responsible for 59.7% of the aggregated WLA of 123.6 tons/year, which equals 73.8 tons/year.

<sup>2</sup> The total amount of the County's MS4 service area draining to Goose Creek is 1,240.2. However, as discussed in Section 6.2.3.3 of the Goose Creek TMDL, the area draining to Beaverdam Reservoir is not included in the MS4 service area since it is assumed to contribute no loads to Goose Creek.

The TMDL assumes a reduction of 30% of the sediment load from developed land in determining the MS4 WLA.<sup>3</sup> A 30% reduction means that the County-specific baseline load is 105.4 tons/year ( $100\% - 30\% * (\text{baseline load}) = 73.8 \text{ tons/year}$ ). Therefore, the reduction that must be achieved by the County to meet the WLA is estimated to be 31.6 tons/year ( $105.4 \text{ tons/year} - 73.8 \text{ tons/year}$ ).

### 2.1.2. Bull Run Sediment TMDL

The Bull Run sediment TMDL addresses 4.8 miles of benthic impairment located downstream of the County between Cub Run and Popes Head Creek. The County MS4 is assigned a WLA of 458.7 tons/year, which is aggregated with the VDOT MS4. The MS4 wasteload allocation assumes a County MS4 area of 5,156.2 acres. Unlike the Goose Creek TMDL, VPDES industrial and construction site permits are accounted for separately. The Bull Run TMDL establishes a sediment reduction target of 77.1%. The reason that this percent is much higher than Goose Creek is that a portion of sediment from streambank erosion is assigned to the MS4s. Table 2.C provides a summary of the Bull Run sediment TMDL.



**Beaverdam Reservoir drainage area.**

**Table 2.C – Bull Run Sediment TMDL Summary**

TMDL Name	Approval Date	MS4 Existing Load	MS4 WLA	MS4 Reduction	Aggregated MS4s
		Tons per Year			
"Benthic TMDL Development for Bull Run, Virginia"	SWCB – 6/27/2007	2,006.8	458.7	77.1%	Loudoun County
	USEPA – 9/26/2006				VDOT

<sup>3</sup> Section 6.2.1.4 of the TMDL states "The wasteload allocation for the MS4s under each growth scenario was determined based on the acres of developed land and disturbed land within the MS4 boundary under each scenario. Under each scenario, these land uses were given the same reduction within the MS4 as they were given watershed-wide. The MS4 wasteload under each scenario is the load after the reductions from developed and disturbed land." Section 6.3 states "The load reduction required from developed land was therefore set at 30%."

To determine the County's share of the WLA for Bull Run, it is again appropriate to reference the most recently delineated MS4 service area. The County calculates that 2,390.7 acres drain to Bull Run from the regulated MS4. The County-specific MS4 service area is 46.4% of the aggregated MS4 area in the TMDL of 5,156.2 acres. As a result, it is estimated that the County is responsible for 46.4% of the MS4 existing load of 2,006.8, which equals 931.2 tons/year, and the aggregated WLA of 458.7 tons/year, which equals 212.8 tons/year. Therefore, the reduction that must be achieved by the County to meet the WLA is estimated to be 718.4 tons/year (*931.2 tons/year – 212.8 tons/year*).

## 2.2. Identification of Significant Sources of Sediment

Sources of sediment in urban areas identified in the Goose Creek and Bull Run TMDLs include stormwater runoff from developed land, discharges from active land-disturbing activities, and streambank erosion caused by increased volume and velocity of stormwater runoff from impervious surfaces.

Sediment from developed land may enter the storm drain system when stormwater intermingles with exposed or poorly stabilized soils or when soil particles are blown onto impervious surfaces. Exposed or poorly stabilized soils can be caused by improper stabilization after construction, vehicle/pedestrian compaction, vehicle/equipment wheel ruts, sports activities, concentrated runoff in areas without stable vegetation, etc. Soil stockpiles that are not protected from precipitation can be a source of sediment if not properly controlled. Construction and other land disturbing activities can become a source of sediment if adequate erosion and sediment controls are not in place. Loudoun County addresses the impacts of land-disturbing activities through implementation of its Virginia Erosion and Sediment Control Program. Similarly, the volume and velocity of stormwater runoff from developed areas is addressed through implementation of the County's Virginia Stormwater Management Program. Measures put in place to address sources of sediment are further discussed in Section 2.3.



***Two examples of potential sources of sediment from developed land uses.***

As required by the MS4 permit, the County has reviewed publicly-owned properties within the MS4 to identify any significant sources of sediment in the Goose Creek and Bull Run watersheds. A source is considered significant if the pollutant loading is expected to be greater than the average pollutant loading for the land use identified in the TMDL. For the Loudoun County MS4, this is developed urban land. Factors identified by the County for the assessment include the following features or activities: stockpiles of soil or other erodible material; sports fields; large areas of denuded or poorly stabilized soils; active construction; long-term use of vehicles/equipment with the potential to expose or disturb underlying soil; vehicle/equipment washing areas; and, playground equipment/picnic areas.

The County conducted an initial desktop assessment of each publicly-owned property within the MS4 using land use type and aerial photography during the last permit cycle. Based on the initial assessment, properties were identified for further onsite assessment using the factors identified above. A "Loudoun County Total Maximum Daily Load (TMDL) Municipal Facility Assessments" report was completed in 2015 and submitted to DEQ with the FY2015 annual report. Table 2.D presents the results of the evaluation. Follow-up actions for the current permit cycle are discussed in Section 2.3.

**Table 2.D – Evaluation of Potential Significant Sediment Sources**

Facility Name	Primary Use	Watershed	Assessment Factors	Source of Sediment? <sup>4</sup>
Elizabeth Mills Riverfront Park 43513 Squirrel Ridge Pl.	Park	Goose Creek	None (Passive Recreation)	NA
Lansdowne Sports Park 18900 Kipheart Dr.	Park	Goose Creek	Sports Fields	No
Harper Park 18910 Potomac Station Dr.	Park	Goose Creek	Playground Equipment	No
Conklin Park 25710 Donegal Dr.	Park	Bull Run	Sports Fields (Volleyball)	No
Dulles Multipurpose Center 24950 Riding Center Dr.	General Recreation	Bull Run	Playground Equipment; Equipment Storage	No

<sup>4</sup> Based on the "Loudoun County Total Maximum Daily Load (TMDL) Municipal Facility Assessments" conducted in 2015, if applicable.

Facility Name	Primary Use	Watershed	Assessment Factors	Source of Sediment? <sup>4</sup>
Dulles South Public Safety Station 19 25216 Loudoun County Pkwy.	Fire & Rescue	Bull Run	None (No Exposed Soils)	NA
South Riding Park Site 42691 Nations St.	Park	Bull Run	Sports Fields (Volleyball)	No
Byrne's Ridge Park 24915 Mineral Springs Circle	Park	Bull Run	Sports Fields	No

### 2.3. Sediment Best Management Practices

The County has implemented a comprehensive program to reduce existing sources of sediment and prevent new sources of sediment. The program includes the County's legal authorities to prohibit illicit discharges, require active land-disturbing activities to implement erosion and sediment controls, and require post-development stormwater quality and quantity controls. The program also includes the County's Public Education and Outreach Plan, MS4 Program Plan, Final Phase II Chesapeake Bay TMDL Action Plan, and Loudoun County 2019 Comprehensive Plan. Finally, this section describes the actions the County will take to continue to monitor County properties identified in Section 2.2 for potential sources of sediment pollution.

#### 2.3.1. *County Legal Authorities Related to Sediment*

The County Board of Supervisors has adopted stormwater quality and quantity requirements that meet or exceed state requirements. Chapter 1220 "Erosion Control" of the Loudoun County Codified Ordinance implements the requirements of the Virginia Erosion and Sediment Control Act (§62.1-44.15:51 *et seq.*, Code of Virginia) and its attendant regulations. In addition to meeting minimum state standards, the County has strengthened the requirements by requiring land disturbing permits land-disturbing activities exceeding 5,000 square feet. In addition, the County has established special limitations on land-disturbing activities and the clearing of vegetation in its Mountainside Development Overlay District (Section 4-1600), Limestone Overlay District (Section 4-1900) and other steep slopes areas in the County's Zoning Ordinance.

Chapter 1220 also authorizes the County to require a property owner to develop and implement an erosion and sediment control plan if the County has identified an "erosion impact area." This is an area not associated with current land-disturbing activity but subject to persistent soil erosion resulting in the delivery of sediment to waters of the Commonwealth. The definition of an erosion impact area does not include land of 10,000 square feet or less used for residential purposes or to shorelines where erosion results from wave action.



Chapter 1096 "Stormwater Management" of the Loudoun County Codified Ordinance implements the requirements of the Virginia Stormwater Management Act (§62.1-44.15:24 *et seq.*, Code of Virginia) and its attendant regulations. The ordinance was first adopted in 2003 and then updated in 2014. The County was approved as a Virginia Stormwater Management Program Authority effective July 1, 2014. Technical criteria are provided in the County's Facilities Standards Manual and reflect the requirements of the Virginia Stormwater Management Program Regulations (Part II B, 9 VAC 25-870-10 *et seq.*). For any new development approved after July 1, 2014, post development stormwater management water quality controls must be designed using the Virginia Runoff Reduction Method, which is equivalent to 60% forest, 30% pasture, and 10% impervious cover. In addition, the redevelopment requirements of the ordinance are designed to reduce sediment and other pollutants from existing land uses. For redevelopment greater or equal to one acre, the phosphorus load must be reduced by at least 20% from predevelopment conditions. For redevelopment less than one acre, the phosphorus load must be reduced by at least 10% from predevelopment conditions. The reduction in phosphorus load also results in a reduction in sediment.

Finally, the County has implemented measures to prohibit illicit discharges to the storm sewer system, which includes sediment. Section 1096.03 of the Loudoun County Codified Ordinance defines and prohibits illicit discharges and establishes penalties for violations.

#### *2.3.2. Public Education and Outreach Plan*

The County's Public Education and Outreach Plan (PEOP) identifies sediment as one of the County's high-priority water quality issues in accordance with the MS4 permit. Specific actions included in PEOP Section 4.4 are as follows:

- 4.4.1 – Distribute English and Spanish versions of the "Resident's Guide to Sediment Reduction for a Cleaner Environment" brochure.
- 4.4.2 – Promote the use of rain barrels and rain gardens to capture and infiltrate stormwater and reduce instream erosion caused by uncontrolled runoff.
- 4.4.3 – Provide information to the development community to improve their knowledge about how to improve site design and minimize the discharge of sediment as a result of land-disturbing activities.
- 4.4.4 – Promote the availability of the Extension Service Master Gardeners Speakers Bureau Program to provide speakers to community groups regarding the management of stormwater runoff.

### 2.3.3. MS4 Program Plan

The County's MS4 Program Plan documents implementation of all MS4 permit requirements, including the programmatic and legal authorities required to meet the "Local TMDL Special Condition." The full MS4 Program Plan can be found at <https://www.loudoun.gov/stormwater>. Table 2.E provides a summary of elements of the plan's six minimum control measures (MCMs) implemented by the County that relate to sediment.

**Table 2.E – MS4 Program Plan Components Related to the Chesapeake Bay TMDL**

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling Sediment
MCM #1 – Public Education and Outreach on Stormwater Impacts	The County has developed a Public Education and Outreach Plan as described in Section 2.3.2. The PEOP identifies sediment as one of the County's high-priority pollutants for the focus of its education and outreach efforts.
MCM #2 – Public Involvement and Participation	MCM #2, BMP 2A establishes procedures for the public to report illicit discharges and improper disposal. The Loudoun Express Request (LEEx) system is used to report sediment-related complaints, including violations of the County's erosion and sediment control requirements.
MCM #3 – Illicit Discharge Detection and Elimination	The County has implemented an Illicit Discharge Detection and Elimination (IDDE) program designed to prevent, identify, and eliminate sources of pollutants, including sediment.
MCM #4 – Construction Site Stormwater Runoff Control	The County's construction site stormwater runoff control program, implemented through Chapter 1220 "Erosion Control," is fully consistent with the requirements of the Virginia Erosion and Sediment Control Act and the Virginia Stormwater Management Act, and their attendant regulations.
MCM #5 – Post-Construction Stormwater Management	The County's post-construction stormwater runoff control program, implemented through Chapter 1096 "Stormwater Management," is fully consistent with the requirements of the Virginia Stormwater Management Act and its attendant regulations.
MCM #6 – Pollution Prevention and Good Housekeeping for Municipal Operations	The County has designed a program to prevent pollution from County facilities through the development of stormwater pollution prevention plans (SWPPPs), standard operating procedures (SOPs), and training. SOPs related to sediment include the Land Disturbing SOP, Landscaping and Grounds Maintenance SOP, Loading-Unloading SOP, Material Storage

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling Sediment
	SOP, Street and Parking Lot SOP, Storm Sewer System Cleaning and Maintenance SOP, and Vehicle-Large Equipment Washing SOP.

#### 2.3.4. Chesapeake Bay TMDL Action Plan

The County has adopted a Final Phase II Chesapeake Bay TMDL Action Plan, which was submitted to DEQ on November 1, 2019. The plan is located at [https://www.loudoun.gov/DocumentCenter/View/157709/Loudoun-Phase-II-Bay-TMDL-Action-Plan\\_DEQ-Submittal\\_11-1-2019](https://www.loudoun.gov/DocumentCenter/View/157709/Loudoun-Phase-II-Bay-TMDL-Action-Plan_DEQ-Submittal_11-1-2019). The Chesapeake Bay TMDL was established by the U.S. EPA in December 2010. One of the pollutants of concern identified for the Chesapeake Bay is sediment. The County's MS4 permit requires specific reductions in sediment 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 (2023); and, 100% by the end of the third permit cycle (2028).

The MS4 permit authorizes local TMDLs to be met through BMPs implemented to meet the Chesapeake Bay TMDL. The Final Phase II Chesapeake Bay TMDL Action Plan includes sediment reduction strategies applicable to Goose Creek and Bull Run. Applicable strategies are described below. Sediment reduction calculations are contained in Section 2.4.

- **County Stormwater Retrofits.** This includes County-initiated stormwater quality retrofit projects as well as retrofits above regulatory minimums initiated as a result of proffers to the County by developers. Projects may include new structural facilities, design enhancements to existing facilities, or stream restoration projects.
- **Street/Parking Lot Sweeping.** This includes pollutant reductions associated with sweeping of County properties within the MS4 service area.
- **Land Use Changes:** This includes land use changes that result in a pollutant load reduction. Land use changes eligible for credit include: (1) impervious to forest, mixed open, and turf; (2) turf to forest and mixed open; and, (3) mixed open to forest.

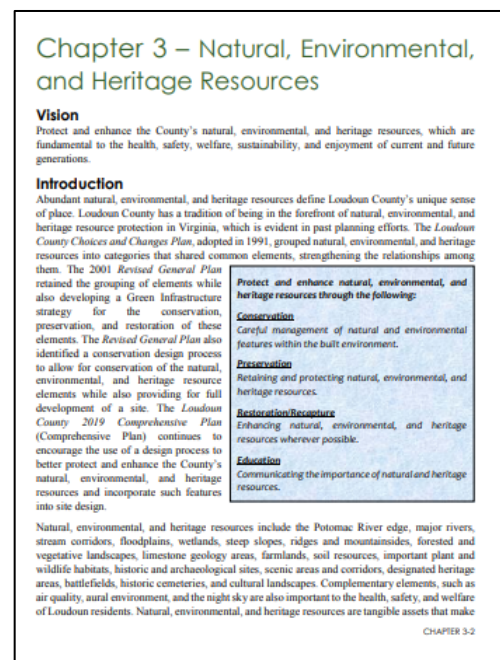
#### 2.3.5. Loudoun County 2019 General Plan

The Loudoun County 2019 General Plan, most recently adopted by the Board of Supervisors on June 20, 2019, provides an overall vision for the County's growth and establishes policies and actions to achieve that vision. Chapter 3 – Natural, Environmental, and Heritage Resources establishes the following vision for the County: "Protect and enhance the County's natural, environmental, and heritage resources, which are fundamental to the health, safety, welfare, sustainability, and enjoyment of current and future generations." The chapter contains several

sections related to reducing sediment pollution. The Water Resources section includes a discussion about the restoration of impaired streams and the protection of steep slopes. The Forest, Trees, and Vegetation section includes a discussion about how the preservation and enhancement of vegetation reduces stormwater runoff and soil erosion.

Strategies from Chapter 3 relevant to reducing the County's sediment load are provided below. Each strategy is accompanied in the plan by specific action items.

- Strategy 2.1. Establish and maintain a healthy river and stream corridor ecosystem that meets desired water quality standards, protecting from the damages of soil erosion and flooding while promoting biological diversity.
- Strategy 2.2. Establish River and Stream Corridor Resource (RSCR) buffers to promote river and stream health (streambank/streambed stability, temperature moderation, nutrient removal, sediment removal, flood control, and aquatic food and habitat).
- Strategy 2.3 Protect and improve stream quality and watershed health by decreasing the amount of stormwater runoff and pollutants from reaching local waters.
- Strategy 2.4. Protect and enhance impaired streams and their tributaries to improve water quality and provide ecological benefits while also providing opportunities for passive recreation.
- Strategy 3.3. Protect steep slopes, ridgelines, and mountainside areas against destabilization, erosion, building and/or road failure, downstream flooding, and other hazards and to maintain the scenic and rural nature of these areas.
- Strategy 4.1. Preserve, protect, and manage forest resources for their economic and environmental benefits.
- Strategy 4.2. Promote tree planting and preservation to reduce the heat island effect, manage stormwater run-off, and improve water quality, air quality, and wildlife habitat.



***The County's Comprehensive Plan establishes an overall vision and specific actions for improving water quality.***

#### 2.3.6. County-Owned Properties

As noted in Section 2.2, the County performed a "Loudoun County Total Maximum Daily Load (TMDL) Municipal Facility Assessments" during the last permit cycle. The County will conduct a

follow-up assessment in FY2022 using the form in Appendix B and report the findings to DEQ in the FY2022 MS4 annual report.

#### 2.4. Sediment-Specific Permit Requirements

Part II B 5 a-c of the MS4 permit requires permittees to reduce sediment loads through implementation of specific BMPs and to calculate anticipated load reductions. The MS4 permit allows the reductions to be met through BMPs implemented as part of the Chesapeake Bay TMDL provided that the BMPs are implemented in the watershed for which local water quality is impaired.


The Final Phase II Chesapeake Bay TMDL Action Plan includes three strategies applicable to the Goose Creek and Bull Run sediment TMDLs (see Section 2.3.4). While the County engages in street/parking lot sweeping, it does not do so at a frequency necessary to receive credit. As a result, the County is leveraging County-initiated stormwater retrofit projects (structural facilities and stream restoration projects) and land use changes to reduce the sediment load in the Bull Run and Goose Creek watersheds. It is important to note that the sediment reduction credit has been modified from the Final Phase II Chesapeake Bay TMDL Action Plan. This reflects that local TMDL sediment reduction projects are subject to TMDL-specific baseline reductions and do not have to account for the sediment delivery factor.

##### *2.4.1. Goose Creek Sediment Reduction Calculations*

The County has completed one project in the Goose Creek watershed (Murray's Bridge Removal), with an additional project expected to be completed during 2020 (Phil Bolen Memorial Park Stream Restoration). In addition, one land use change was implemented at the Loudoun County Landfill. These projects are described in Figure 2.A and calculations are summarized in Table 2.F. Detailed calculations are provided in Appendix C.



**Figure 2.A – Description of Goose Creek Sediment Reduction Projects**

Murray's Bridge Removal Project	Description
	<p>The Murray's Bridge removal project occurred in 2014 on Goose Creek. The bridge was abandoned in place in 1970. The remainder of the bridge was impeding flow and causing bank erosion on both sides. A report by Wetland Studies and Solutions, Inc. estimated erosion reduction rates as a result of the removal of the bridge and the stabilization of stream banks. The picture on the left shows the abutment and resulting erosion prior to stabilization.</p>
Phil Bolen Memorial Park Stream Restoration	Description
	<p>This project involves the restoration of 1,350 linear feet of an un-named tributary of Sycolin Creek at the Phil Bolen Memorial Park. The current stream is in a highly degraded condition. The project will stabilize and restore the channel with a gravel/cobble riffle/pool morphology typical of Virginia Piedmont streams.</p>
Loudoun County Landfill Land Use Change	Description
	<p>This project involves the conversion of nine acres of turf to forest. Approximately 680 trees per acre were planted using a mix of conifer and hardwood.</p>

**Table 2.F – Summary of Goose Creek Sediment Reductions**

Project	Completion Date	Sediment Reduction	
		(lbs/year)	(tons/year)
Murrays Bridge Removal	2014	50,780.85	25.4
Phil Bolen Stream Restoration	2020	196,283.41	98.1
Loudoun County Landfill Land Use Change	2015	3,509.10	1.8
<b>Total</b>		<b>250,573.36</b>	<b>125.3</b>

**2.4.2. Bull Run Sediment Reduction Calculations**

Three projects from the Final Phase II Chesapeake Bay TMDL Action Plan are planned to be implemented in the Bull Run watershed. These are anticipated to be completed in 2022 and 2023. Since these projects are still in the conceptual phase, the County reserves the right to replace them with projects of similar scale should they be deemed impractical. However, should that be necessary, the County will work to find alternative locations within the Bull Run watershed if possible. These projects are summarized in Table 2.G.

**Table 2.G – Summary of Bull Run Sediment Reductions**

Project	Description	Completion Date	Sediment Reduction	
			(lbs/year)	(tons/year)
Conklin Park Retrofit	Retrofit of existing stormwater pond to a constructed wetland.	2023	7,100.00	3.6
Conklin Park Stream Restoration	Restoration of approximately 1,300 LF of highly degraded stream.	2023	5,300.00	2.7
Dulles South Retrofit	Retrofit of existing stormwater pond to a constructed wetland.	2022	28,300.00	14.2
<b>Total</b>			<b>40,700.00</b>	<b>20.4</b>

Revised 10/31/2021. Please see cover letter, dated 10/31/2021.

## 2.5. Sediment Outreach Strategy

The County has adopted an outreach strategy to enhance the public's understanding about how to eliminate and reduce the discharge of sediment from the MS4. The foundation of the County's efforts is the Public Education and Outreach Plan, which is described in Section 2.3.2. Sediment was selected as a high-priority pollutant in response to the Goose Creek and Bull Run impairments. The PEOB has been integrated into the MS4 Program Plan. The PEOB focuses on educating the public about what they can do on their own property to capture and infiltrate stormwater and to reduce instream erosion caused by uncontrolled runoff. The PEOB also targets the development community to educate them about how environmental site design can be improved to reduce stormwater runoff. The public is informed that they may report sources of sediment pollution (such as a failing erosion and sediment controls at a construction site) through the Loudoun Express Request (LEX) system. LEX is the County's online system for the public to submit requests for service and to report concerns.



In accordance with the MS4 Program Plan, County field staff receive pollution prevention training at least once every 24 months. Training includes how to identify and report potential sources of sediment to the MS4. It also includes training on SOPs related to sediment include the Land Disturbing SOP, Landscaping and Grounds Maintenance SOP, Loading-Unloading SOP, Material Storage SOP, Street and Parking Lot SOP, Storm Sewer System Cleaning and Maintenance SOP, and Vehicle-Large Equipment Washing SOP.

## 2.6. Schedule of Anticipated Actions

This Sediment TMDL Action Plan will be implemented in accordance with the following schedule and milestones.

**Table 2.H – Sediment TMDL Action Plan Schedule and Milestones**

Action Item	Description	Schedule
Implement Legal Authorities	<ul style="list-style-type: none"> <li>Erosion and Sediment Control – Section 1220 County Code</li> <li>Stormwater Management – Section 1096 County Code</li> <li>Illicit Discharge Prohibition – Section 1096.03 County Code</li> </ul>	Ongoing.

Action Item	Description	Schedule
Public Education and Outreach Plan	<ul style="list-style-type: none"> <li>• 44.4.1 – Distribute English and Spanish versions of the “Resident’s Guide to Sediment Reduction for a Cleaner Environment” brochure.</li> <li>• 4.4.2 – Promote the use of rain barrels and rain gardens to capture and infiltrate stormwater and to reduce instream erosion caused by uncontrolled runoff.</li> <li>• 4.4.3 – Provide information to the development community to improve their knowledge about how to improve site design and minimize the discharge of sediment as a result of land-disturbing activities.</li> <li>• 4.4.4 – Promote the availability of the Extension Service Master Gardeners Speakers Bureau Program to provide speakers to community groups regarding the management of stormwater runoff.</li> </ul>	In accordance with the schedule contained in the PEOP.
MS4 Program Plan	<ul style="list-style-type: none"> <li>• MCM #1 – Public Education and Outreach on Stormwater Impacts</li> <li>• MCM #2, BMP 2A – Public Involvement and Participation</li> <li>• MCM #3 – Illicit Discharge Detection and Elimination</li> <li>• MCMC #4 – Construction Site Stormwater Runoff Control</li> <li>• MCM #5 – Post-Construction Stormwater Management</li> <li>• MCM #6 – Pollution Prevention and Good Housekeeping for Municipal Operations</li> </ul>	Ongoing in accordance with the schedule contained in the MS4 Program Plan.
	<ul style="list-style-type: none"> <li>• MCM #6, BMP 6H – Field Staff Training</li> </ul>	Every 24 months in accordance with the MS4 Program Plan
Chesapeake Bay TMDL Action Plan	<ul style="list-style-type: none"> <li>• Implement planned County-initiated water quality retrofit and stream restoration projects.</li> </ul>	In accordance with the schedule contained in the Chesapeake Bay

Action Item	Description	Schedule
		TMDL Action Plan.
Loudoun County Comprehensive Plan	<ul style="list-style-type: none"> <li>Implement strategies and actions contained in Chapter 3 related to reducing sediment loads and streambank erosion.</li> </ul>	In accordance with the Loudoun County Comprehensive Plan
County Facility Assessments	<ul style="list-style-type: none"> <li>Conduct on-site assessments of County properties identified as having high risk factors for sediment in Table 2.D.</li> </ul>	During FY2022; report findings to DEQ in the FY2022 annual report.

## 2.7. Anticipated End Date

The MS4 permit requires the County to submit an anticipated end date by which it will meet the WLAs for sediment. As described in Section 2.1.1, the County estimates that its share of the Goose Creek TMDL sediment load reduction is 31.6 tons/year. Section 2.4.1 describes projects that when fully implemented are expected to reduce sediment by 125.3 tons/year. As a result, the County has met the Goose Creek sediment TMDL. The County will continue to implement projects necessary to meet the Chesapeake Bay TMDL, which will further reduce sediment loads to Goose Creek.

As described in Section 2.1.2, the County estimates that its share of the Bull Run TMDL sediment load reduction is 718.4 tons/year. This reduction target, which is higher due to the assignment of a portion of stream erosion to the County, represents a significant challenge. Section 2.4.2 describes projects that when fully implemented are expected to reduce sediment by 20.4 tons/year. The sediment reduction calculation for the stream restoration project has not been adjusted to eliminate the sediment delivery factor (SDF) of 0.181 (which is required for the Chesapeake Bay TMDL but not local TMDLs). While preliminary, the County estimates that elimination of the SDF will result in an additional sediment reduction of 10 tons/year, for a total of 30.4 tons/year. Assuming a similar pace of investment and mix of projects each five year permit cycle, full compliance with the TMDL will be achieved in approximately 119 years, or ~~2139~~. As the County continues to implement projects to meet the Chesapeake Bay TMDL, it will focus on selecting potential projects in Bull Run in order to accelerate the expected end date.

by approximately 2050



### 3. Bacteria TMDL Action Plan

The County has been assigned two WLAs for bacteria – the “Bacteria TMDLs for Popes Head Creek, Broad Run, Kettle Run, South Run, Little Bull Run, Bull Run, and the Occoquan River, Virginia” and the “Bacteria TMDL Development for Tributaries to the Potomac River: Sugarland Run, Mine Run, and Pimmit Run.” Specific WLAs are assigned to the County for Bull Run and Sugarland Run, respectively. Table 3.A provides an overview of the organization of the Bacteria TMDL Action Plan and how each section addresses the 2018 MS4 permit.

**Table 3.A – Bacteria TMDL Action Plan Permit Compliance Crosswalk**

Section	Plan Element	2018 MS4 Permit	
3.1	Overview of Bacteria TMDLs	Part II B 3	a. The TMDL project name. b. The EPA approval date of the TMDL. c. The wasteload allocated to the permittee (individually or in aggregate), and the corresponding percent reduction, if applicable.
3.2	Identification of Significant Sources of Bacteria	Part II B 3	d. Identification of the significant sources of the pollutants of concern discharging to the permittee’s MS4 and that are not covered under a separate VPDES permit. For the purpose of this requirement, a significant source of pollutants means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL.
3.3	Best Management Practices	Part II B 3	e. The BMPs designed to reduce the pollutants of concern in accordance with Parts II B 4, B 5, and B 6.
3.4	Bacteria-Specific Permit Requirements	Part II B 3	f. Any calculations required in accordance with Part II B 4, B 5, or B 6.
		Part II B 4	a. If the permittee is an approved VSMP authority, the permittee shall select at least three strategies listed in Table 5 below designed to reduce the load of bacteria to the MS4. Selection of the strategies shall correspond to sources identified in Part II B 3 d.

Section	Plan Element	2018 MS4 Permit	
			b. [Not applicable].
3.5	Outreach Strategy	Part II B 3	g. For action plans developed in accordance with Part II B 4 and B 5, an outreach strategy to enhance the public's education (including employees) on methods to eliminate and reduce discharges of the pollutants.
3.6	Schedule of Anticipated Actions	Part II B 3	h. A schedule of anticipated actions planned for implementation during this permit term.
4	Opportunity for Public Comment	Part II B 7	Prior to submittal of the action plan required in Part I B 1, the permittee shall provide an opportunity for public comment proposed to meet the local TMDL action plan requirements for no less than 15 days.

### 3.1. Overview of Bacteria TMDLs

Bacteria contamination is one of the most common causes of water quality impairment in Virginia streams. According to the U.S. EPA "Although they [fecal bacteria] are generally not harmful themselves, they indicate the possible presence of pathogenic (disease-causing) bacteria, viruses, and protozoans that also live in human and animal digestive systems. Therefore, their presence in streams suggests that pathogenic microorganisms might also be present and that swimming and eating shellfish might be a health risk."<sup>5</sup> In Virginia, water quality standards for bacteria were changed in 2003 from the more general fecal coliform bacteria to *E. coli* (*Escherichia coli*). *E. coli* is a subset of fecal coliform bacteria and is considered a better indicator of the pathogenic potential of contamination.

#### 3.1.1. *Bull Run Bacteria TMDL*

The Bull Run bacteria TMDL is part of an overall TMDL developed to address bacterial impairments in the Occoquan River watershed. The impairment affecting Loudoun County is located 4.8 miles downstream of the County between Cub Run and Popes Head Creek. The WLA assigned to the County's MS4 is aggregated with the VDOT MS4. The Bull Run segment identified in the TMDL was delisted as impaired for bacteria in 2008. The segment remains delisted as of the 2018 Virginia Water Quality Assessment. As a result, the strategies presented in this plan are designed to prevent a re-listing of the impairment. Table 3.B provides a summary of the Bull Run bacteria TMDL.

<sup>5</sup> <https://archive.epa.gov/water/archive/web/html/vms511.html>

**Table 3.B – Bull Run Bacteria TMDL Summary**

TMDL Name	Approval Date	MS4 Existing Load	MS4 WLA	MS4 Reduction	Aggregated MS4s
		CFU/Year			
"Bacteria TMDLs for Popes Head Creek, Broad Run, Kettle Run, South Run, Little Bull Run, Bull Run, and the Occoquan River, Virginia"	SWCB – 7/31/2008	1.18E+11	1.32E+10	89%	Loudoun County
	USEPA – 11/15/2006				VDOT

### 3.1.2. Sugarland Run Bacteria TMDL

The Sugarland Run bacteria TMDL addresses 5.72 miles of bacteria impairment located between Folly Lick Branch (located in Fairfax County) and the Potomac River (located in Loudoun County). The WLA assigned to the County's MS4 is aggregated with the VDOT MS4. Table 3.C provides a summary of the Sugarland Run bacteria TMDL.

**Table 3.C – Sugarland Run Bacteria TMDL Summary**

TMDL Name	Approval Date	MS4 Existing Load	MS4 WLA	MS4 Reduction	Aggregated MS4s
		CFU/Year			
"Bacteria TMDL Development for Tributaries to the Potomac River: Sugarland Run, Mine Run, and Pimmit Run"	SWCB – 4/4/2014	Not Specified	1.76E+12	97.3%	Loudoun County
	USEPA – 9/26/2013				VDOT

### 3.2. Identification of Significant Sources of Bacteria

The Bull Run bacteria TMDL identifies the primary sources of bacteria as direct deposition from cattle and direct deposition from wildlife, which together constitute ~86% of the total load.

Sources associated with MS4s play a less prominent role, including low density residential (7% of the total load) and high density residential (6% of the total load). In contrast, urban land uses play a more significant role in the Sugarland Run impairment, with the dominant land uses being developed and forest (74% and 18% at the time of TMDL development). Key sources of bacteria from the MS4 are identified as stormwater runoff from residential areas.

Domestic pets are the predominant controllable source of bacteria from residential areas. Two types of domestic pets, dogs and cats, were considered in both TMDLs. While both dogs and cats were considered, dogs are more likely to become a source because they are often walked on paved areas connected to the storm drain system. Wildlife is also considered a source of bacteria from residential areas. Bacteria from wildlife can flow from the MS4 as a result of on-land runoff and direct deposition within the storm sewer system itself.

The TMDL also examines failing septic systems as a potential source of bacteria. The number of failing systems in both watersheds is small. Failed septic systems and straight pipes, which may be located in urban areas, are considered to be <1% of the total load in the Bull Run watershed. The Sugarland Run TMDL estimated just 46 homes with failing systems at the time for the entire watershed. The number of septic systems is expected to have decreased due to the redevelopment of older residential areas. New buildings that abut a street where public sewer is available must connect to the public sewer system in accordance with Section 1064.4 of the Loudoun County Codified Ordinance.

As required by the MS4 permit, the County has reviewed publicly-owned properties to identify any significant sources of bacteria in the MS4 portion of the Bull Run and Sugarland Run watersheds. A source is considered significant if the pollutant loading is expected to be greater than the average pollutant load for the land use identified in the TMDL. In conducting the assessment, the County considered whether the property would likely have a higher concentration of pet waste than similar developed land uses. This includes uses such as dog parks and parks with trails likely to be frequented by large numbers of individuals walking their pets. The County does not have public dog parks, but does have an extensive trail system open to the public. The County also considered whether the property is on a septic system. All of the identified properties are connected to the County sanitary sewer system.

The County conducted an initial desktop assessment of each publicly-owned property within the MS4 using land use type and aerial photography during the last permit cycle. Based on the initial assessment, properties were identified for further onsite assessment using the factors identified above. A "Loudoun County Total Maximum Daily Load (TMDL) Municipal Facility Assessment" report was completed in 2015 and submitted to DEQ with the FY2015 annual report. Table 3.D presents the results of the evaluation. Follow-up actions for the current permit cycle are discussed in Section 3.3.

**Table 3.D – Evaluation of Potential Significant Bacteria Sources**

Facility Name	Primary Use	Watershed	Assessment Factors	Source of Bacteria? <sup>6</sup>
Conklin Park 25710 Donegal Dr.	Park	Bull Run	None	NA
Dulles Multipurpose Center 24950 Riding Center Dr.	General Recreation	Bull Run	Walking Trails	No
Dulles South Public Safety Station 19 25216 Loudoun County Pkwy.	Fire & Rescue	Bull Run	None	NA
South Riding Park Site 42691 Nations St.	Park	Bull Run	None	NA
Byrne's Ridge Park 24915 Mineral Springs Circle	Park	Bull Run	Walking Trails	No
Loudoun County Sheriff's Office 46620 E Frederick Dr.	Public Safety	Sugarland Run	None	NA

While not located within the MS4 portion of the Sugarland Run watershed, three additional County-owned properties have been identified as having trails that could impact water quality from pet waste. These are Gwen Thompson Briar Patch Park, Potomac Lakes Sports Complex, and Sugarland Run Stream Valley Park. These and other parks with trail systems will be subject to the general BMPs identified in Section 3.3.

### 3.3. Bacteria Best Management Practices

The County's program to reduce the bacteria load focuses on public education and field staff training as described in the County's Public Education and Outreach Plan and MS4 Program Plan. In addition, the County has put in place legal authorities designed to eliminate illicit discharges of bacteria, ensure that individuals pick up after their pets, and reduce discharges from septic systems. Finally, the County tracks septic system conversions to sanitary sewer as

<sup>6</sup> Based on the "Loudoun County Total Maximum Daily Load (TMDL) Municipal Facility Assessments" conducted in 2015, if applicable.

part of its Final Phase II Chesapeake Bay TMDL Action Plan. Table 3.E summarizes the components of the County's program and the roles and responsibilities of County agencies.

**Table 3.E – Loudoun County Bacteria Reduction Program**

Program Element	Description
<b>Public Education and Outreach Plan</b>	
Section 4.1 – Bacteria Impacts on Water Quality	<p>The Public Education and Outreach Plan identifies bacteria as one of the County's high-priority water quality issues in accordance with the MS4 permit. Specific actions included in PEOP Section 4.1 are as follows:</p> <ul style="list-style-type: none"> <li>• 4.1.1 – Distribute English and Spanish versions of the "Scoop the Poop" brochure.</li> <li>• 4.1.2 – Participate in the Northern Virginia Clean Water Partners multi-media pollution prevention campaign.</li> <li>• 4.1.3 – Establish dog waste stations and signage at County parks.</li> <li>• 4.1.4 – Distribute portable waste-bag dispensers and written materials to individuals who adopt dogs from a County facility or event.</li> </ul>
<b>MS4 Program Plan</b>	
MCM #1 – Public Education and Outreach on Stormwater Impacts	The County has developed the PEOP as described above. MCM #1 establishes a schedule for reviewing and updating the PEOP.
MCM #2 – Public Involvement and Participation BMPs	MCM #2, BMP 2A establishes procedures for the public to report illicit discharges and improper disposal. The Loudoun Express Request (LEx) system is used to report animal-related complaints, including violations of the County's leash law and requirement for pet owners to remove pet feces.
MCM #3 – Illicit Discharge Detection and Elimination	The County has developed an Illicit Discharge Detection and Elimination (IDDE) program designed to prevent, identify, and eliminate sources of pollutants, including bacteria.
MCM #6 – Pollution Prevention/Good Housekeeping for Municipal Operations	The County has designed a program to prevent pollution from County facilities. MCM #6, BMP 6H describes the County's employee pollution prevention training program. Under the program, field personnel receive training in the recognition and reporting of illicit discharges, including those related to bacteria.



Program Element	Description
<b>Chesapeake Bay TMDL Action Plan</b>	
Septic Conversions	Loudoun County tracks the conversion of properties served by septic systems to the sanitary sewer system. Conversions are tracked for the purpose of receiving nitrogen reduction credit. While specific bacteria pollution reductions are not assigned to septic conversions, they have the potential to reduce bacteria pollution. Two conversions have occurred in the affected watersheds (one each in Bull Run and Sugarland Run).
<b>Northern Virginia Clean Water Partners Program</b>	
Bacteria Public Education Media Campaign	Loudoun County participates in the Northern Virginia Regional Commission's Clean Water Partners. This program allows participating localities to pool resources to more effectively reach target audiences. Bacteria is one of the program's high priority water quality issues. Advertisements featuring messages on the importance of picking up pet waste are aired on cable TV networks, including four Spanish speaking channels. The campaign also includes a digital component. A survey is conducted annually to assess the impact of the program and to track long-term trends.
<b>Legal Authorities</b>	
Pet Waste Removal	Section 612.19 of the Loudoun County Codified Ordinance requires dog owners to immediately remove dog waste from any property, other than their own, located in or adjacent to any residential subdivision including common areas of homeowners' associations and condominium and apartment complexes. Violations can be reported by the public using the LEx system.
Leash Law	Section 612.13 of the Loudoun County Codified Ordinance requires dogs to be on a leash at all times except in designated, fenced-in areas. This ensures that the dog owners are present to remove any pet waste deposits. Violations can be reported by the public using the LEx system.
Connections to Sanitary Sewer	Section 1064.4 of the Loudoun County Codified Ordinance requires all new buildings that abut a street where public sewer is available to connect to the public sewer system. This means that over time, as a result of redevelopment, the number of septic systems in the County will decrease.

Program Element	Description
Septic Pump Out Requirements	Section 1066.07(b) of the Loudoun County Codified Ordinance requires the owner of a septic tank to perform a maintenance pump-out at least once every five years by a septic tank cleaner licensed by the Loudoun County Health Department. Pump-outs are essential to the proper operation of a septic system. The use of a licensed cleaner also helps to identify other problems that may lead to failure.
<b>Other Programs and Activities</b>	
Department of Animal Services	The Department of Animal Services is responsible for implementing the County's animal services programs including pet adoption, animal control, and pet licensing. Specific to bacteria, DAS investigates pet waste complaints and provides educational materials aimed at encouraging individuals who adopt dogs from the County's facility and mobile adoption events to clean up and properly dispose of dog wastes.
Parks, Recreation, and Community Services	The Department of Parks, Recreation, and Community Services coordinates with the Department of General Services in the placement of dog waste stations at their facilities and promotes proper clean-up and disposal of dog waste.
Pet Waste Stations	Dog waste stations located in parks frequented by dog walkers make it convenient for County residents to comply with pet waste removal laws. Associated signage reminds residents to use the stations and that there are legal consequences for ignoring the law. Pet waste stations are maintained at the following County facilities located in the Bull Run and Sugarland Run watersheds: Byrne's Ridge Park; Conklin Community Park; Dulles South Multi-Purpose Facility; and, South Riding Park. Additional dog waste stations can be found using the following site <a href="http://www.loudoun.gov/Facilities">www.loudoun.gov/Facilities</a> .

As noted in Section 3.2, the County performed a "Loudoun County Total Maximum Daily Load (TMDL) Municipal Facility Assessments" during the last permit cycle. In addition to the activities in Table 3.E, the County will conduct a follow-up assessment in FY2022 using the form in Appendix B and report the findings to DEQ in the FY2022 MS4 annual report.


The County will also assess the potential for adding dog waste stations and/or signage to County-owned parks with walking trails that are not in the MS4 but located within the Sugarland

Run watershed. These include Gwen Thompson Briar Patch Park, Potomac Lakes Sports Complex, and Sugarland Run Stream Valley Park.

### 3.4. Bacteria-Specific Permit Requirements

Part II B 4 a of the MS4 permit requires approved VSMP authorities such as Loudoun County to select and implement at least three strategies listed in Table 5 of the MS4 permit. The strategies must correspond with the sources identified in Section 3.2. Both the Bull Run and Sugarland Run TMDLs identify stormwater runoff from residential areas as the key source of bacteria pollution from MS4s. Bacteria from residential areas may include pet waste, failing septic systems, and wildlife. Both TMDLs state that implementation of MS4 WLAs should focus on reducing anthropogenic (human and pet) sources of bacteria as opposed to wildlife sources.<sup>7</sup> As noted in Section 3.3, the County has already implemented an aggressive program to reduce bacteria pollution. Table 3.F identifies how the County demonstrates compliance with Table 5 of the MS4 permit.

**Table 3.F – Selection of Bacteria Reduction Strategies from MS4 Permit Table 5**

Source	Table 5 Strategy	County Program
Domestic Pets	Provide signage to pick up dog waste, providing pet waste bags and disposal containers.	<p>Pet waste stations are maintained at the following County facilities located in the Bull Run watershed: Byrne's Ridge Park; Conklin Community Park; Dulles South Multi-Purpose Facility; and, South Riding Park.</p>  <p>The County will assess whether to install additional pet waste stations at the following parks: Gwen Thompson Briar Patch Park, Potomac Lakes Sports Complex, and Sugarland Run Stream Valley Park.</p>
Domestic Pets	Adopt and enforce pet waste ordinances or	The County has adopted ordinances requiring the removal of pet waste by owners (Section

<sup>7</sup> See Section 5.3.2 of the Sugarland Run Bacteria TMDL.

Source	Table 5 Strategy	County Program
	policies, or leash laws or policies.	612.19) and requiring owners to keep pets on leashes except under limited circumstances (Section 612.13). The Department of Animal Services is responsible for implementing these ordinances.
Illicit Connections or Discharges	Implement an enhanced dry weather screening and illicit discharge detection, and elimination program beyond the requirements of Part I E 3.	The County has implemented an enhanced dry weather screening program by screening more than the required minimum of 50 outfalls per year. For example, in FY2019, the County screened 375 outfalls.
Illicit Connections or Discharges	Implement septic tank inspection and maintenance programs.	The County has adopted an ordinance (Section 1066.07(b)) requiring the owner of a septic tank to perform a maintenance pump-out at least once every five years by a septic tank cleaner licensed by the Loudoun County Health Department.

### 3.5. Bacteria Outreach Strategy

The County has adopted an outreach strategy to enhance the public's understanding about how to eliminate and reduce the discharge of bacteria from the MS4. The strategy focuses on educating pet owners on the importance of picking up fecal matter as well as training County field staff to identify and report potential sources of bacteria pollution. The Public Education and Outreach Plan, described in Table 3.E, is the primary vehicle for implementing the County's efforts and has been integrated into the MS4 Program Plan. The public are informed that they may report pet owners who do not abide by County ordinances (pet waste and leash laws) through the LEx system. County field staff receive pollution prevention training at least once every 24



**Loudoun County "Scoop the Poop" education brochure.**



months. This training includes how to identify and report potential sources of bacteria to the MS4. In addition to these local efforts, the Northern Virginia Clean Water Partners is an important part of the County's overall efforts. The program allows the County to leverage funding with its regional partners to reach a much broader audience than working alone. A strength of Clean Water Partners is that it conducts an annual survey to assess the effectiveness of regional efforts and to track long-term trends. For instance, in 2019, 83% of survey respondents indicated that they always pick up after their pets. This is significantly better than the assumption in the Sugarland Run TMDL that residents pick up after their dogs only 50% of the time.<sup>8</sup> The goal of the County is to ensure no backsliding on current progress and to increase the number of people who always pick up after their pets.

### 3.6. Schedule of Anticipated Actions

This Bacteria TMDL Action Plan will be implemented with the following schedule and milestones.

**Table 3.G – Bacteria TMDL Action Plan Schedule and Milestones**

Action Item	Description	Schedule
Public Education and Action Plan	<ul style="list-style-type: none"> <li>4.1.1 – Distribute English and Spanish versions of the "Scoop the Poop" brochure.</li> <li>4.1.2 – Participate in the Northern Virginia Clean Water Partners multi-media pollution prevention campaign.</li> <li>4.1.3 – Establish dog waste stations and signage at County parks.</li> <li>4.1.4 – Distribute leash dispensers and written materials to individuals who adopt dogs from a County facility or event.</li> </ul>	In accordance with the schedule contained in the PEOP.
MS4 Program Plan	<ul style="list-style-type: none"> <li>MCM #1 – Public Education and Outreach BMPs</li> <li>MCM #2, BMP 2A – Public Involvement and Participation BMPs</li> <li>MCM #3 – Illicit Discharge Detection and Elimination</li> </ul>	Ongoing in accordance with the MS4 Program Plan.
	<ul style="list-style-type: none"> <li>MCM #6, BMP 6H – Field Staff Training</li> </ul>	Every 24 months in accordance with the MS4 Program Plan

<sup>8</sup> Section 3.8.6 of the Sugarland Run Bacteria TMDL states "The estimated bacteria pet loading on each urban land use category was then reduced by 50%, assuming that that pet owners pick up after their dogs 50% of the time (Swann, 1999)."

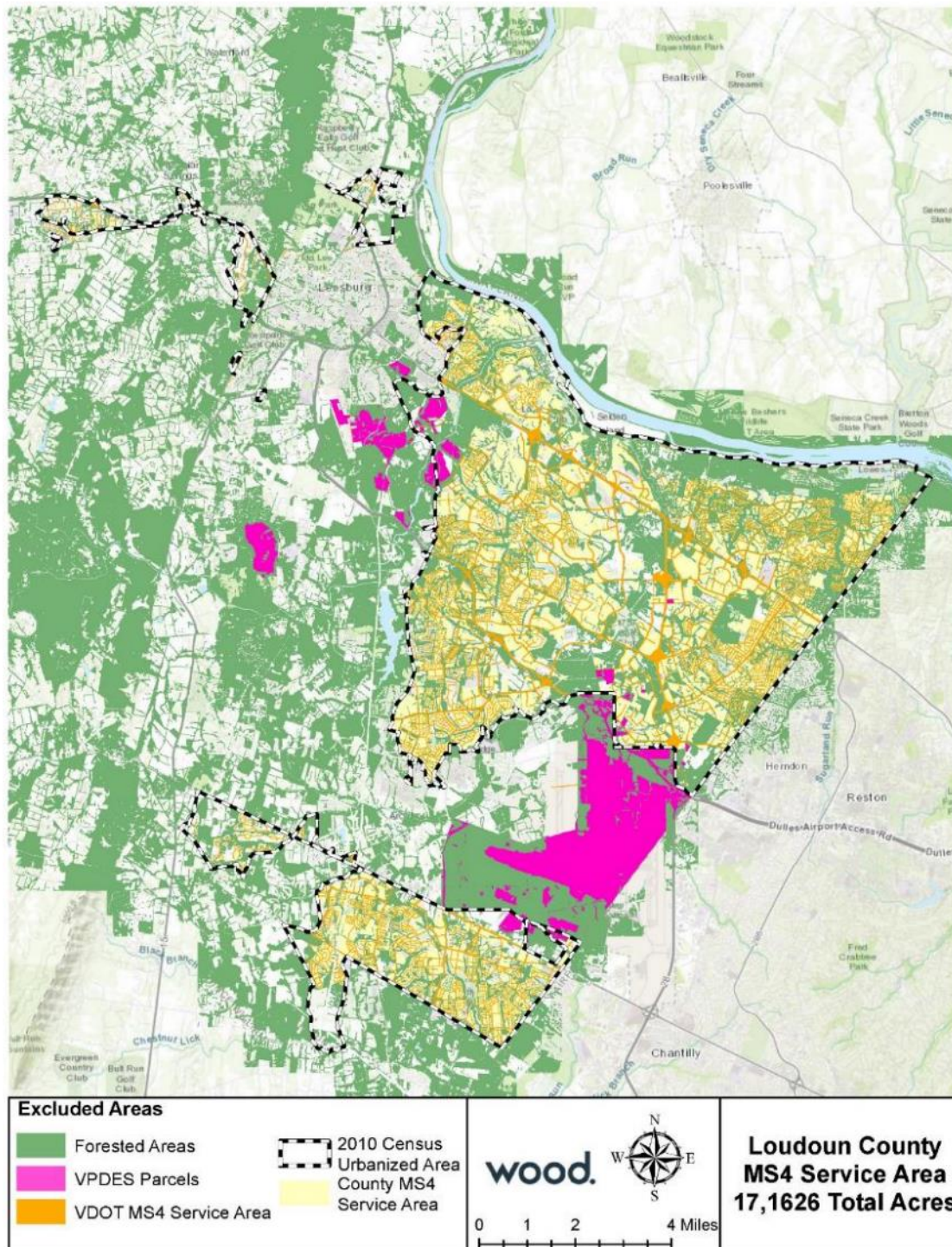
Action Item	Description	Schedule
Chesapeake Bay TMDL Action Plan	<ul style="list-style-type: none"> <li>Track septic system conversions.</li> </ul>	In accordance with the schedule contained in the Chesapeake Bay TMDL Action Plan.
Northern Virginia Clean Water Partners	<ul style="list-style-type: none"> <li>Regional public education media campaign targeting dog owners.</li> </ul>	Ongoing in accordance with the MS4; assessment of effectiveness annually with DEQ annual report.
Implement Legal Authorities	<ul style="list-style-type: none"> <li>Pet Waste Removal – Section 612.19 County Code</li> <li>Leash Law – Section 612.13 County Code</li> <li>Connections to Sanitary Sewer – Section 1064.4 County Code</li> <li>Septic Tank Pump Outs – Section 1066.07(b) County Code</li> </ul>	Ongoing.
Pet Waste Stations and Signage	<ul style="list-style-type: none"> <li>Maintain pet waste stations and signage at Byrne's Ridge Park, Conklin Community Park, Dulles South Multi-Purpose Facility, and South Riding Park</li> </ul>	Ongoing in accordance with Section 4.1.3 of the PEOP.
	<ul style="list-style-type: none"> <li>Assess whether to install additional pet waste stations and signage at Gwen Thompson Briar Patch Park, Potomac Lakes Sports Complex, and Sugarland Run Stream Valley Park. Implement where determined to be beneficial.</li> </ul>	During FY2021; report findings to DEQ in the FY2021 annual report.
County Facility Assessments	<ul style="list-style-type: none"> <li>Conduct on-site assessments of County properties identified as having high risk factors for bacteria in Table 3.D.</li> </ul>	During FY2022; report findings to DEQ in the FY2022 annual report.

#### 4. Opportunity for Public Comment

This plan was made available for public comment no less than 15 days prior to submittal to DEQ in accordance with Part II B 7 of the MS4 permit. The County's news release inviting public comment and comments received are provided in Appendix D.

## Appendix A

### Loudoun County MS4 Service Area Delineation



## **Appendix B**

# **Loudoun County Municipal Assessment Form**





## Loudoun County TMDL Municipal Facility Assessment Form

The County's MS4 permit requires certain municipal facilities to be periodically assessed to identify any significant sources of sediment (Goose Creek and Bull Run watersheds) or bacteria (Bull Run and Sugarland Run watersheds) pollution. Affected facilities are identified in the most recent Loudoun County Comprehensive Local TMDL Action Plan. This form is used to capture site information and identify any significant sources of the pollutants. Include site photos to illustrate issues as appropriate.

**Facility Name:** [Click here to enter text.](#)

**Date:** [Click here to enter a date.](#)

**Location:** [Click here to enter text.](#)

**Site Reviewer:** [Click here to enter text.](#)

**Watershed:** Goose Creek ☐ Bull Run ☐ Sugarland Run ☐

### Sediment Assessment (Bull Run and Goose Creek)

1. Check potential sources of sediment at the site:

<input type="checkbox"/> Stockpiles of Soil or Other Erodible Materials	<input type="checkbox"/> Soil Exposed by Use of Vehicles/Equipment
<input type="checkbox"/> Sports Fields – Soccer	<input type="checkbox"/> Vehicle/Equipment Washing Area
<input type="checkbox"/> Sports Fields – Baseball	<input type="checkbox"/> Playground/Picnic Areas
<input type="checkbox"/> Volleyball Pit	<input type="checkbox"/> Denuded/Poorly Stabilized Soils
<input type="checkbox"/> Sports Fields – Other	<input type="checkbox"/> Construction Activity
<input type="checkbox"/> Other: <a href="#">Click here to enter text.</a>	

**Note: Take pictures of any checked pollutant sources and include with this form.**

2. Are any of the potential sources from above exhibiting discharges that are greater than that typically expected for a developed land use?

☐ Yes ☐ No

If yes, describe the type and/or location of the source(s) of sediment. Include whether the sediment discharges directly to receiving waters or stormwater infrastructure.

[Click here to enter text.](#)

3. Describe any actions (immediate or long-term) that should be taken to control any significant source(s) of sediment.

[Click here to enter text.](#)

4. Provide any additional comments about the site. This may include information about existing BMPs, other potential sources of pollution, etc.

[Click here to enter text.](#)



## Loudoun County TMDL Municipal Facility Assessment Form

### Bacteria Assessment (Bull Run and Sugarland Run)

1. Check potential sources of bacteria at the site:

<input type="checkbox"/> Dog Park/Off-Leash Area	<input type="checkbox"/> Trails Frequented by Dog Walkers
<input type="checkbox"/> On-Site Septic System	<input type="checkbox"/> Dumpster
<input type="checkbox"/> Portable Toilet	<input type="checkbox"/> Barns/Stables
<input type="checkbox"/> Latrine/Outhouse	<input type="checkbox"/> Congregated Wildlife (Geese, etc.)
<input type="checkbox"/> Other: <a href="#">Click here to enter text.</a>	

**Note: Take pictures of any checked pollutant sources and include with this form.**

2. Are any of the potential sources from above exhibiting discharges that are greater than that typically expected for a developed land use?

☐ Yes    ☐ No

If yes, describe the type and/or location of the source(s) of bacteria. Include whether the bacteria discharges directly to receiving waters or stormwater infrastructure.

[Click here to enter text.](#)

3. Describe any actions (immediate or long-term) that should be taken to control any significant source(s) of bacteria.

[Click here to enter text.](#)

4. Provide any additional comments about the site. This may include information about existing BMPs, other potential sources of pollution, etc.

[Click here to enter text.](#)



## Loudoun County TMDL Municipal Facility Assessment Form

### Site Photos

A large, empty light blue square box intended for uploading a site photo.

**Photo #** Click here to enter text.

**Description:** Click here to enter text.

**Date:** Click here to enter a date.

A large, empty light blue square box intended for uploading a site photo.

**Photo #** Click here to enter text.

**Description:** Click here to enter text.

**Date:** Click here to enter a date.

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**Photo #** Click here to enter text.

**Description:** Click here to enter text.

**Date:** Click here to enter a date.

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**Photo #** Click here to enter text.

**Description:** Click here to enter text.

**Date:** Click here to enter a date.

## Appendix C

### Sediment Reduction Calculations

All projects are from the County's Final Phase II Chesapeake Bay TMDL Action Plan. The calculations have been modified to reflect that local TMDL sediment reduction projects do not have to account for the sediment delivery factor. In addition, baseline reductions must reflect the local TMDL. In the case of Goose Creek stream restoration projects, a 62% percent reduction from the load allocation is assigned to stream bank erosion. This means that the County can take 38% of the sediment reduction credit for areas outside of the regulated MS4. Likewise, for Bull Run stream restoration projects, the County can take 22.6% of the sediment reduction credit.<sup>9</sup>

**Table 6.16: TMDL Load Allocation for Goose Creek**

Land Use	Projected Load (tons/yr)	Load Allocation (tons/year)	Percent Reduction
Forest	998	998	0%
Clear-Cut Timber	2	0.2	92%
Select-Cut Timber	72	6	92%
Cropland	1,666	1,166	30%
Pasture	14,185	9,930	30%
Developed Land*	634	444	30%
Streambank Erosion	83,842	31,860	62%
Sediment Trapping	-10,140	-4,440	---
Total	91,259	39,963	56%

\* Excludes developed land within MS4s

**Table 7-6: Load Allocations Summary for Bull Run**

Source	Land Use Type	Existing Load (tons/year)	Allocated Load (tons/year)
Non-point Source	Deciduous Forest	55.7	55.7
	Evergreen Forest	12.6	12.6
	Mixed Forest	7.8	7.8
	Pasture/Hay	1,005.5	227.4
	Row Crop	2,066.8	467.3
	Quarries Strip Mine	0.0	0.0
	Low Intensity Residential	2.9	0.7
	Medium High Intensity	124.9	28.2
	Commercial/Industrial	189.9	42.9
	Institutional	19.9	4.5
	Urban Recreational Grass	0.6	0.1
	Instream Erosion	17,755.9	4,020.6
<b>Total</b>		<b>21,242.5</b>	<b>4,867.8</b>

<sup>9</sup> Email communication from Allan Brockenbrough, DEQ, 4/8/2020.

**Murray's Ford Bridge Removal and Bank Stabilization**

Murray's Ford Bridge Removal and Bank Stabilization				
LOCAL SEDIMENT TMDL CREDIT - LOCAL TMDL BASELINE/NO DELIVERY FACTOR				
Latitude: 39.0387192		Goose Creek		
Longitude: -77.5360684		Calculation Method: Expert Panel Protocol 1 based on Bank Erosion Hazard Index and Near-Bank Stress tools (WSSI, 2011)		
Restoration Length (ft)	450.00			
Credit for Unregulated Land	38%	Goose Creek TMDL Table 6.16 for Streambank Erosion		
STEP 1	TN	TP	TSS	
BANCS Initial Sediment (tons/year)			133.25	
Conversion to Pounds (2.28*TSS Tons for TN; 1.05*TSS Tons for TP; TSS*2,000)	303.81	139.91	266,500.00	
Apply Effectiveness of 50%	151.91	69.96	133,250.00	
Apply Sediment Delivery Factor (None for Local TMDLs)			133,250.00	
Total Reduction Based on Protocol 1 (lbs/year)	151.91	69.96	133,250.00	
STEP 2	Total	Impervious	Forested	Pervious
Regulated Acres	390.44	104.41	-	286.03
Unregulated Acres	220,767.18	3,392.55	96,695.66	120,678.97
	221,157.62	3,496.96	96,695.66	120,965.00
STEP 3		Portion of Reductions (lbs/yr)		
	Land Ratio	TN	TP	TSS
Regulated	0.00	0.27	0.12	235.24
Unregulated	1.00	151.64	69.83	133,014.76
STEP 4	TN	TP	TSS	
Regulated Credits (100%)	0.27	0.12	235.24	
Unregulated Credits	57.62	26.54	50,545.61	
Total Credits	57.89	26.66	50,780.85	



**Phil Bolen Stream Restoration**

Note that the interim/default pollutant removal rate used for the Phil Bolen stream restoration is used for planning purposes only. The County will update the credit using one of the DEQ-accepted protocols for final Chesapeake Bay and local TMDL credit.

Phil Bolen Park Stream Restoration				
LOCAL SEDIMENT TMDL CREDIT - LOCAL TMDL BASELINE/NO DELIVERY FACTOR				
Latitude: 39.072495		Goose Creek		
Longitude: -77.530271		Calculation Method: Interim/Default Rate		
Restoration Length (ft)	1,350.00			
Credit for Unregulated Land	38%	Goose Creek TMDL Table 6.16 for Streambank Erosion		
STEP 1	TN	TP	TSS	
Stream Restoration Interim Rates (lbs/ft)	0.075	0.068	44.88	
Interim Rates (lbs/ft) Adjusted to Remove Sediment Delivery Factor*	0.075	0.068	247.96	
Total Reduction Based on Interim Rates (lbs)	101.25	91.80	334,746.00	
*Removes the 0.181 sediment delivery factor.				
STEP 2	Total	Impervious	Forested	Pervious
Regulated Acres	173.42	88.22	15.59	69.61
Unregulated Acres	347.60	67.52	104.22	175.86
	521.02	155.74	119.81	245.47
STEP 3	Portion of Reductions (lbs/yr)			
	Land Ratio	TN	TP	TSS
Regulated	0.33	33.70	30.56	111,419.24
Unregulated	0.67	67.55	61.24	223,326.76
STEP 4	TN	TP	TSS	
Regulated Credits (100%)	33.70	30.56	111,419.24	
Unregulated Credits	25.67	23.27	84,864.17	
Total Credits	59.37	53.83	196,283.41	

Note: Per 3/11/2019 phone conversation with Jeff Selengut, DEQ, the "industrial area" of VPDES industrial permitted land receives credit as if it is an MS4 regulated area. Further, the MS4 area in this case is the Town of Leesburg. DEQ confirmed that credit is received for the MS4 area regardless of the owner.

**Loudoun Landfill Land Use Change**

The County has one land use change (turf to forest) from the Final Phase II Chesapeake Bay TMDL Action Plan in the Goose Creek watershed. The land use change is outside of the MS4. The calculation has been modified to reflect that the baseline must reflect the local TMDL. In the case of Goose Creek, the closest representative beginning land use is developed land, which has a target reduction of 30%. This means that the County can take 70% of the sediment reduction credit.<sup>10</sup>

Site	Acres	Type from Table	Inside MS4? (Y or N)	Date Effective	TSS Credit	Watershed	MS4 Credit for Local TMDL	Goose Creek TSS
Loudoun Landfill	9.00	TF	N	2015	5,013.00	Goose Creek	0.70	3509.10
<b>Total</b>								<b>3509.10</b>

Conversion	For Table	Lbs/Acre/Year		
		TN Reduction	TP Reduction	TSS Reduction
Imp to Forest	IF	9.85	0.8	1797
Imp to Mixed Open	IM	9.55	0.48	877
Imp to Turf	IT	4.27	0	1240
Turf to Forest	TF	5.58	1.46	557
Turf to Mixed Open	TM	5.28	1.15	0
Mixed Open to Forest	MF	0.3	0.32	920

**Bull Run Concept Projects**

The following concept projects are from the Final Phase II Chesapeake Bay TMDL Action Plan. The sediment reduction calculation for the stream restoration has not been adjusted to eliminate the sediment delivery factor of 0.181 (which is required for the Chesapeake Bay TMDL but not local TMDLs). Calculations will be detailed and updated in MS4 annual reports to DEQ.

New County Project	TN Credit	TP Credit	TSS Credit	FY	Watershed	TSS Local Credit
Proposed - SW Pond to Constructed Wetland Retrofit	74.00	14.00	7,100.00	2023	Bull Run	7,100.00
Proposed - Stream Restoration	236.00	44.00	5,300.00	2023	Bull Run	5,300.00
Proposed - SW Pond to Constructed Wetland Retrofit	270.00	50.00	28,300.00	2022	Bull Run	28,300.00

<sup>10</sup> Email communication from Allan Brockenbrough, DEQ, 4/8/2020.

## Appendix D

### Public Notice and Comments



Loudoun County, Virginia

[www.loudoun.gov](http://www.loudoun.gov)

#### NEWS RELEASE

Office of the County Administrator, Public Affairs and Communications  
1 Harrison Street SE, P.O. Box 7000, Leesburg, VA 20177-7000  
703-777-0113 • Fax 703-771-5841

For Immediate Release  
April 16, 2020

Media Contact: Glen Barbour, Public Affairs and Communications Officer  
703-771-5086, [Glen.Barbour@loudoun.gov](mailto:Glen.Barbour@loudoun.gov)

#### **Comments Sought on Stormwater Management Plan for Reducing Pollutants to Local Waterways**

Loudoun County is seeking public comments on a draft plan for reducing pollutants entering specific local streams: Bull Run, Goose Creek and Sugarland Run.

The draft “[Comprehensive Local TMDL Action Plan; Sediments TMDLs for Goose Creek and Bull Run, Bacteria TMDLs for Bull Run and Sugarland Run](#)” outlines ways that the county intends to meet requirements for reducing the quantity of pollutants entering these waterways via the county’s municipal separate storm sewer system (MS4). The county operates the MS4 under a permit from the state of Virginia and the permit requires the development and implementation of action plans for impaired waterways. TMDL refers to the allowed “Total Maximum Daily Load” of the pollutants allowed to restore clean water in these waterways and ultimately the Chesapeake Bay.

The draft action plan is posted online at [loudoun.gov/stormwater](http://loudoun.gov/stormwater) for review and public comment. Comments on the action plan are due by Friday, May 1, 2020.

Comments can be sent by email to [stormwater@loudoun.gov](mailto:stormwater@loudoun.gov) or by phone to the Stormwater line, 703-777-0117.

More information about Loudoun County’s Stormwater Management Program is available at [loudoun.gov/stormwater](http://loudoun.gov/stormwater).

###

The following comments from the public were received by May 1, 2020.

Date	Source	Comments
4/16/2020	Individual	<p>One area I feel we can improve for sediment control is by requiring the power and phone companies to fix disturbed land when they are done working on their respective lines.</p> <p>A recent example is located along a section of the Sycolin Creek floodplain. You can view the damaged area by turning onto Cochran Mill Rd from Sycolin Rd. Stop just after the red barn on the right. There you see severely damaged land located under powerlines on the opposite side of the creek. This damage was caused by recent work on the powerlines. There is no grass, nor any attempt to cover and reseed. It would certainly be identified as a significant source of sediment.</p> <p>Please let me know if you would like a picture. I travel the road frequently and can send one to your office.</p> <p>Also, I am interested to learn if this type of damage is already covered by ordinances or agreements with the power/phone companies. Were they supposed to repair the damaged area? If not, how can citizens help identify these problem areas (make a report)?</p>
4/16/2020	Individual	<p>Sediment reduction in Bull Run appears to be a significant challenge. Full compliance in 119 years does not seem to be a defensible position. Part of the issue seems to be allocation assigned to the county and part is the lack of significant measures to reduce sediment entering Bull Run. Both sides of this equation merit additional county attention. If the allocation of sediment has inherent issues, perhaps relief can be attained in the allocation. Additionally, an area as large as Bull Run should offer more opportunities to identify reduction options and these additional opportunities merit more aggressive identification and implementation to reduce the compliance timeline.</p> <p>Bacteria Public Education should merit more resources. Compliance by the public to cleaning up pet waste is critical. Educating pet owners and enforcing current ordinance seems critical in addressing bacteria reduction.</p>
4/30/2020	PEC	<p>We appreciate the opportunity to comment on the local TMDL Action Plan and understand that the plan is designed to meet VA DEQ requirements. We appreciate staff efforts to produce a plan that is understandable to the general public also, and that they take the time to respond to questions when it is not clear. Additional clarification is helpful and appreciated. We would encourage presentations to the Board about these documents in relatively easy-to-understand terms so that the public is better informed and ready to participate in reducing the pollution in our streams.</p> <p>Also, we would be glad to help in public education and outreach through our own work in the community. Please feel free to contact me.</p>

Date	Source	Comments
		<p><b>Reference – Page 13:</b></p> <p>2.3.2. Public Education and Outreach Plan</p> <p>Comment:</p> <p>In addition to a speakers bureau, having an outreach program that would involve Master Gardeners and HOA volunteers to educate homeowners on the steps outlined in this section could be an additional help.</p> <p><b>Reference – Page 14:</b></p> <p>Table 2.E – MS4 Program Plan Components Related to the Chesapeake Bay TMDL-- MCM #2, BMP 2A establishes procedures for the public to report illicit discharges and improper disposal. The Loudoun Express Request (LEx) system is used to report sediment related complaints, including violations of the County’s erosion and sediment control requirements.</p> <p>Comment:</p> <p>Several years ago the County had a soil and erosion public engagement program to train interested volunteers on what to look for, and how to report problems on construction sites with downed silt fences, etc. Reinstating this could be a helpful addition.</p> <p><b>Reference – Page 16:</b></p> <p>Comprehensive Plan references</p> <p>Comment:</p> <p>Glad to see the Comp Plan strategies referenced here. In addition to updates to the ordinance to protect riparian areas with development, as part of strategy 4.2 and this TMDL Action plan, there should be focused outreach for residents who live along streams and who could partner to help restore buffers—as individuals and homeowner associations.</p> <p>In addition to ordinance changes, the County will have to find a way to overcome the prohibition it now faces for planting trees in floodplains without costly floodplain delineations and studies.</p> <p><b>Reference – Page 17:</b></p> <p>The MS4 permit allows the reductions to be met through BMPs implemented as part of the Chesapeake Bay TMDL provided that the BMPs are implemented in the watershed for which local water quality is impaired.</p> <p>Comment:</p>



