



# Benthic TMDL Action Plan

## Prince William County

Prepared in compliance with Permit No. VA0088595

November 22, 2016 - Draft  
**December 13, 2016 - Final**  
July 2, 2018 - Revised

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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."

Man J. Awer

Name

Chief

Title

6.29.2018

Date

# Prince William County, Virginia Benthic TMDL Action Plan

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# Prince William County, Virginia Benthic TMDL Action Plan

## 1. Introduction

### 1.1 Purpose

This Benthic TMDL Action Plan demonstrates how Prince William County intends to meet the requirements for “TMDL Action Plans other than the Chesapeake Bay TMDL” in Part I.D.2 of its Phase I Municipal Separate Storm Sewer System (MS4) permit (VA0088595). The County’s most recent MS4 permit was issued by the Virginia Department of Environmental Quality (DEQ) effective December 17, 2014 and will expire December 16, 2019.

The County’s MS4 permit requires the development of action plans for impaired streams where a total maximum daily load (TMDL) approved by the State Water Control Board 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. Prince William County is subject to a benthic TMDL affecting Bull Run. Major tributaries of Bull Run in the County include Black Branch, Chestnut Lick, Lick Branch, Catharpin Creek, Little Bull Run, Chinn Branch, and Russia Branch. The Benthic TMDL for Bull Run identifies sediment as the primary cause of the impairment and assigns a WLA to the County for sediment. An action plan must be developed to address this TMDL within 24 months of MS4 permit issuance (December 17, 2016).

Sediment pollution is a leading cause of stream degradation and has been identified as one of the major stressors associated with the decline of aquatic habitats. While some sediment is a natural part of the water environment, too much sediment can smother bottom dwelling organisms and block sunlight to underwater plants. These plants serve as habitat to many aquatic species. In addition, other pollutants such as phosphorus and PCBs may be attached to sediment particles.

This plan addresses the requirements of the County’s MS4 permit by evaluating significant sources of sediment, assessing the adequacy of existing programs and legal authorities, identifying new action items and associated schedules and milestones, and determining how the effectiveness of the plan will be assessed.

### 1.2 Chesapeake Bay TMDL Action Plan

This Benthic TMDL Action Plan is designed to work in conjunction with Prince William County’s Chesapeake Bay TMDL Action Plan. A TMDL was developed for the Chesapeake Bay by the U.S. Environmental Protection Agency (EPA) in 2010. Pollutants of concern (POCs) for the Chesapeake Bay include nitrogen, phosphorus, and sediment. The County’s MS4 permit requires specific reductions in sediment over three five-year permit cycles in accordance with the following: 5% of the required reductions by the end of the first permit cycle; 40% of required reductions by the end of the second permit cycle; and 100% of required reductions at the end of the third permit cycle. The Chesapeake Bay TMDL Action Plan includes measures designed to reduce sediment loads from the entire County. The applicability of these measures to Bull Run is discussed in Section 2.5.

1.3 Permit Compliance Crosswalk

DEQ published draft guidance in April 2015 for MS4s to use in the development of TMDL action plans. Table 1A provides an overview of the organization of this plan and how each section addresses the County's MS4 permit and the draft guidance.

**Table 1A – Action Plan and Permit Compliance Crosswalk**

Action Plan	Action Plan Element	DEQ Draft Local TMDL Action Plan Guidance	MS4 Permit
Section 1	Introduction		
Section 2.1	TMDL Report	1. The name(s) of the final TMDL report(s)	
Section 2.2	Pollutant of Concern	2. The pollutant(s) causing the impairment(s)	
Section 2.3	Waste Load Allocation	3. The WLA(s) assigned to the MS4 as aggregate or individual WLAs	
Section 2.4	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 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;	Part I.D.2.b)4)
Section 2.5	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;	Part I.D.2.b)2)
Section 2.6	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;	Part I.D.2.b)1)
Section 2.7	Enhanced Education,	7. Enhancements to public education, outreach, and employee training programs to also promote methods to eliminate and	Part I.D.2.b)3)

Action Plan	Action Plan Element	DEQ Draft Local TMDL Action Plan Guidance	MS4 Permit
	Outreach, and Training	reduce discharges of the POC(s) for which a WLA has been assigned;	
Section 2.8	Schedule and Milestones	8. A schedule of interim milestones and implementation of the items in 5, 6, and 7;	Part I.D.2.b)5)
Section 3	Assessment of Effectiveness	9. Methods to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs;	Part I.D.2.b)5)
Section 4	Measurable Goals	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); and	Part I.D.2.b)5)
Section 5	Public Input	11. Solicit public input on the draft TMDL Action Plan and consider public comments in development of the final TMDL Action Plan that is submitted to the Department for review and approval.	Part I.D.2.b)6)

## 2. Benthic TMDL Action Plan

### 2.1 TMDL Report

This TMDL action plan addresses “Benthic TMDL Development for Bull Run, Virginia” approved by the State Water Control Board on June 27, 2007.

### 2.2 Pollutant of Concern

Bull Run was first listed as being impaired on Virginia’s 303(d) TMDL Priority List in 1998 because of violation of General Standard (benthic impairment). The TMDL identifies sediment as the primary stressor impacting biologically impaired segments within the watershed. Sources of the sediment loading identified in the TMDL includes urban stormwater runoff, stream bank erosion, and sediment loss from habitat degradation associated with urbanization. The TMDL states that improvement of the benthic community will rely on reducing sediment loads through stormwater controls and through restoration of streams and the associated riparian habitat.

### 2.3 Waste Load Allocations

This action plan applies to those areas of the County’s regulated MS4 that drain to the Bull Run watershed. The MS4 regulated area is defined in the MS4 permit as a system that discharges to waters of the state that is owned or operated by the permittee. Figure 2A shows the County’s MS4 area and the Bull Run watershed.

The larger Bull Run watershed drains approximately 118,951 acres of Prince William County, Fairfax County, Loudoun County, the City of Fairfax, the City of Manassas, and the City of Manassas Park. The WLA for Prince William County is aggregated with other MS4 permit holders in the Prince William County portion of the watershed. The existing load for MS4s in the Prince William County portion is identified as 2,418.7 tons/year and the WLA is identified as 552.9 tons/year. This represents a 77.1% reduction from existing sources. Table 2A summarizes existing and allocated sediment loads from MS4 sources in the Prince William County portion of the Bull Run watershed.<sup>1</sup>

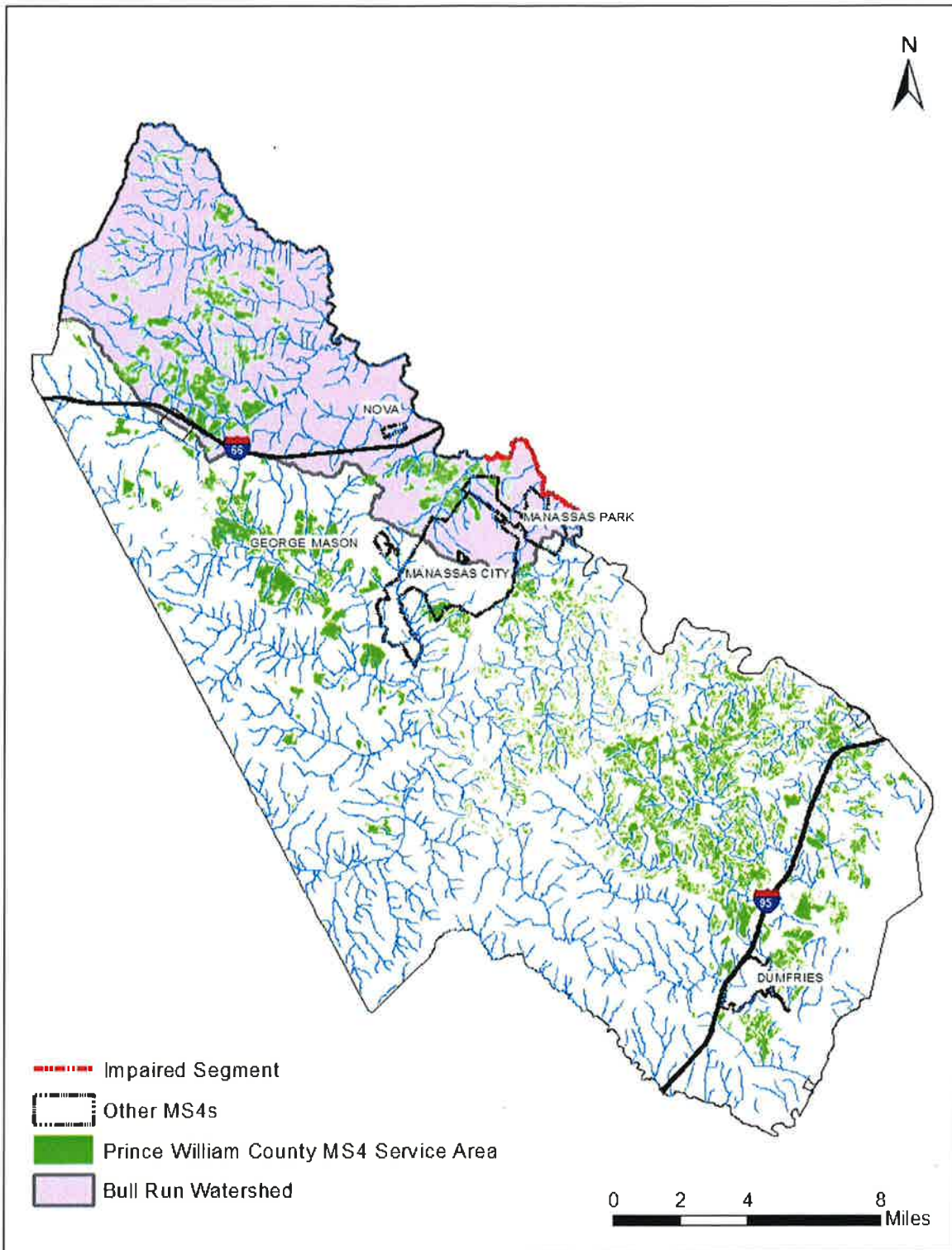
**Table 2A – Bull Run TMDL Aggregate Allocations for MS4s**

Aggregated MS4s	Existing Sediment Load	Allocated Sediment Load	% Reduction	Load Reduction
Prince William County VDOT Prince William County Public Schools	4,837,400 lbs/yr (2,418.7 tons/yr)	1,105,800 lbs/yr (552.9 tons/yr)	77.1%	3,731,600 lbs/yr (1,865.8 tons/yr)

<sup>1</sup> Table 7-2 of the TMDL.



**Figure 2A – Prince William County MS4 Service Area and Bull Run Watershed**



## 2.4 Evaluation of Significant Sources of Sediment

The Bull Run TMDL describes significant sources of sediment from MS4s as being associated with overland stormwater runoff and stream bank erosion. Sediment from overland stormwater runoff is caused by erosion of exposed or poorly stabilized soils. In urban areas, soils are often subject to compaction or frequent disturbance where stabilization with vegetation is difficult. Soil stockpiles that are not protected from precipitation can also be a source of sediment. Land disturbing activities (development, utility installation, roadwork, etc.) can also be a source of sediment if not properly controlled. However, erosion from construction activities one acre and greater is considered separate from the MS4 allocation since these activities are subject to separate VPDES construction general permits.

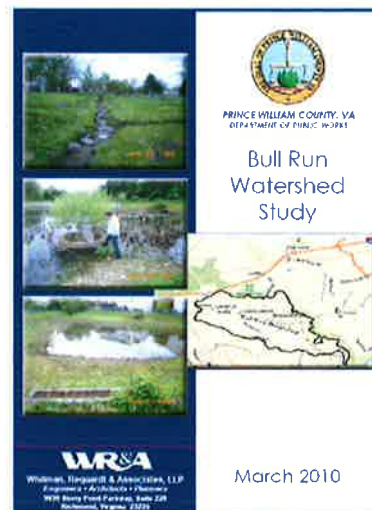
Stream bank erosion is caused by the volume and velocity of the flow within the stream, which may be increased during storm events as a result of runoff from impervious areas such as parking lots, roadways, and rooftops.

The MS4 permit requires the County to assess “all significant sources of pollutant(s) from facilities of concern owned or operated by the MS4 operator that are not covered under a separate VPDES industrial stormwater permit and identify all municipal facilities that may be a significant source of the identified pollutant.” Two assessment tools have been used to meet this requirement: (1) the County’s watershed studies and management plans; and, (2) a review of County owned or operated properties within the Bull Run watershed.

### *Bull Run Watershed Study*

In 2010, the Environmental Services Division of the County Public Works Department commissioned the development of the Bull Run Watershed Study. The study involved inspection of existing stormwater facilities, assessment of the condition of stream channels, inventorying problem areas along stream channels, and identification of potential watershed management projects for inclusion in the County’s Capital Improvement Program (CIP). Due to the large size of the watershed, the study focused on three broadly representative subwatersheds. These included Buckhall, Yorkshire, and Linden.

Of the 15% of total linear stream channel assessed, approximately 25% were identified as “high priority” for potential restoration. In addition, five stormwater outfalls were recommended for water quality retrofits. The study noted that space is limited for new stormwater management facilities. As a result, the immediate focus of the County’s efforts should be on retrofitting and upgrading existing facilities. The Bull Run Watershed Study can be found at [www.pwcgov.org/government/dept/publicworks/documents/12358.pdf](http://www.pwcgov.org/government/dept/publicworks/documents/12358.pdf). Projects identified in the study were used in the development of the County’s Chesapeake Bay TMDL Action Plan.



### *Assessment of County Owned or Operated Properties*

The County conducted a review of County owned or operated properties located within the MS4 service area in the Bull Run watershed. This resulted in the identification and assessment of seven properties with approximately 17 acres of regulated impervious cover. A summary of the sites assessed is included in Appendix A. Properties with large areas of impervious cover represent potential sites for stormwater retrofits. In addition, the assessment identified some areas with bare/exposed soil for further review and potential action. Follow up actions are further discussed in Section 2.5.

### *Potential Sources of Sediment from Private Property*

Risk factors associated with private properties are generally the same as those associated with County owned or operated properties. The Prince William County Code of Ordinances (Section 23.2 *et seq* and Section 24-14) and the County Design and Construction Standards Manual (Section 750) require adequate erosion and sediment control in accordance with the Virginia Erosion and Sediment Control Regulations and the Virginia Stormwater Management Program Regulations. The threshold for erosion and sediment control in the County is 2,500 square feet of land disturbance. This is more stringent than the VPDES construction general permit requirement of one acre or greater. In addition, the County has the discretionary authority to require a conservation plan for any property identified as an Erosion Impact Area (Design and Construction Standards Manual Section 752.01). An Erosion Impact Area is defined as “An area of land not associated with current land disturbing activity but subject to persistent erosion resulting in the delivery of sediment onto neighboring properties or into drainage ways. This definition shall not apply to any lot or parcel of land two thousand five hundred (2,500) square feet or less used for residential purposes.”

## 2.5 Existing and Planned Management Controls

The County has in place a rigorous program aimed at preventing new sources of sediment and reducing the discharge of existing sources of sediment to the MS4. This program includes the County’s MS4 Program Plan, the Chesapeake Bay TMDL Action Plan, and the County’s public education and staff training efforts. The County proposes to continue and build upon these efforts to achieve sediment load reductions in the Bull Run watershed.

### *MS4 Program Plan*

The County has adopted an MS4 Program Plan that documents implementation of all MS4 permit requirements, including the programmatic and legal authorities required to meet the requirements for “TMDL Action Plans other than the Chesapeake Bay TMDL.” The full MS4 Program Plan can be found at <http://www.pwcgov.org/government/dept/publicworks/environment/pages/ms-4-permit.aspx>. Table 2B provides a summary of MS4 Program Plan elements related to reducing sediment pollution.

**Table 2B – Prince William County MS4 Program Plan Components Related to Sediment Reduction**

Permit Element	MS4 Program Plan Elements Related to Controlling Sediment
Planning	The County’s MS4 Program Plan contains a prioritized list of potential stormwater management projects, including projects in Bull Run to reduce sediment loads.
Construction Site Runoff and Post Construction Runoff from Areas of New Development and Development on Prior Developed Lands	The County has in place all necessary ordinances and regulations to implement the Virginia Erosion and Sediment Control Act and the Virginia Stormwater Management Act, and their attendant regulations. This includes Section 23.2 “Stormwater Management” of the Prince William County Code and Section 750 “Erosion and Sediment Control” of the Design and Construction Standards Manual.
Retrofitting of Prior Developed Lands	The County will implement seven retrofit projects from the prioritized list of potential projects developed under Planning. These projects address sediment reductions.
Roadways	The County has integrated actions into the MS4 Program Plan to develop standard operating procedures to reduce pollutants from road, street, and parking lot maintenance.
Illicit Discharges and Improper Disposal	The County has established a program to prevent, identify, and eliminate sources of pollutants, including sediment. This includes, but is not limited to, conducting dry weather outfall inspections of 25% of the outfalls discharging to the MS4 within the permit cycle.
Stormwater Infrastructure Management	The County has established a program to ensure that stormwater management facilities installed to control sediment and other pollutants are properly maintained for the long-term.
County Facilities	The County 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 actions aimed at high priority facilities.
Public Education/Participation	<p>The County has included in its MS4 Program Plan actions to reduce pollution through public education. Actions that specifically address sediment include the following:</p> <ul style="list-style-type: none"> <li>• General pollution prevention outreach and education.</li> <li>• Information to the public about how to report an illicit discharge.</li> <li>• Information to the public about voluntary retrofits such as raingardens or removal of impervious surface cover.</li> </ul>
Training	The County has included in its MS4 Program Plan actions to ensure that County employees are properly trained. This includes training for review and implementation of erosion and sediment control and stormwater management.
Water Quality Screening	The County has developed dry and wet weather screening programs to identify and eliminate sources of illicit discharges, including sediment.

*Chesapeake Bay TMDL Action Plan*

The County's primary strategy for addressing the Bull Run TMDL will be to continue to leverage projects selected to meet the Chesapeake Bay TMDL Action Plan. The Chesapeake Bay TMDL Action Plan demonstrates how the County intends to meet the Chesapeake Bay TMDL, which includes specific sediment load reduction targets. The County has identified stream restoration and stormwater retrofits as key components to reducing sediment pollution.

An example of a project implemented in the Bull Run watershed is a stream restoration at the road crossing in front of 7828 Oak Street, Manassas. This project was completed in 2015 and involved constructing a new end wall adjacent to a large elliptical VDOT culvert draining to a perennial stream channel. This new wall dissipates energy during storm events by directing storm flow back into the channel.

***Figure 2B – Oak Street Stream Restoration Project***



Table 2C summarizes the reductions for the Bull Run TMDL drainage area contained in the Chesapeake Bay TMDL Action Plan.<sup>2</sup> Project details can be found by referring to the Chesapeake Bay TMDL Action Plan. It is important to note that sediment load reductions for stream restoration projects are higher in this plan because they do not include the delivery load factor that is used to calculate credit for the Chesapeake Bay TMDL.<sup>3</sup> For comparison, the table also includes the load reduction assigned to the MS4s from the Bull Run TMDL. It is important to note that the load reduction is aggregated and includes multiple MS4 permit holders and not just Prince William County. Figure 2C shows the general location of stream restoration, stormwater retrofits, and reforestation projects within the Bull Run watershed.

The County will include in its prioritization process for selecting projects to meet the Chesapeake Bay TMDL whether the project will also achieve sediment reductions in the Bull Run watershed. Projects will

<sup>2</sup> SWM Facility #77 was not included in the total reductions. While it is in the Bull Run watershed, it is not in the portion draining to the impaired segment of Bull Run.

<sup>3</sup> Per 10/13/2016 guidance from Jaime Bauer, DEQ, stream restoration projects do not include the delivery load factor contained in DEQ's Chesapeake Bay TMDL Action Plan Guidance Memorandum (Guidance Memo No. 15-2005) dated 5/18/2015.

continue to draw from the Bull Run Watershed Study and consider the potential to retrofit County owned or operated properties identified in Appendix A.

**Table 2C – Bull Run Sediment Reductions from Stream Restoration and Stormwater Retrofits**

Project Name	Project Type	Year Completed	Sediment Reduction lbs/year	Aggregate Load Reduction for MS4s lbs/year
Ben Lomond Park Area A	Reforestation	2012	19.944	
Ben Lomond Park Area C	Reforestation	2013	30.5808	
Ben Lomond Park Area B	Reforestation	2013	506.5776	
Sudley Place Reforestation	Reforestation	2014	421.4832	
Ben Lomond Park Area D	Reforestation	2015	15.9552	
Garner Drive	Reforestation	2016	53.184	
		<b>Subtotal</b>	<b>1,047.7248</b>	
SWM Facility #99	Retrofit	2015	4273.97	
		<b>Subtotal</b>	<b>4,273.97</b>	
Oak Street	Stream Restoration	2015	49,591.16	
		<b>Subtotal</b>	<b>49,591.16</b>	
		<b>Total Reduction</b>	<b>54,912.85</b>	<b>3,731,600</b>

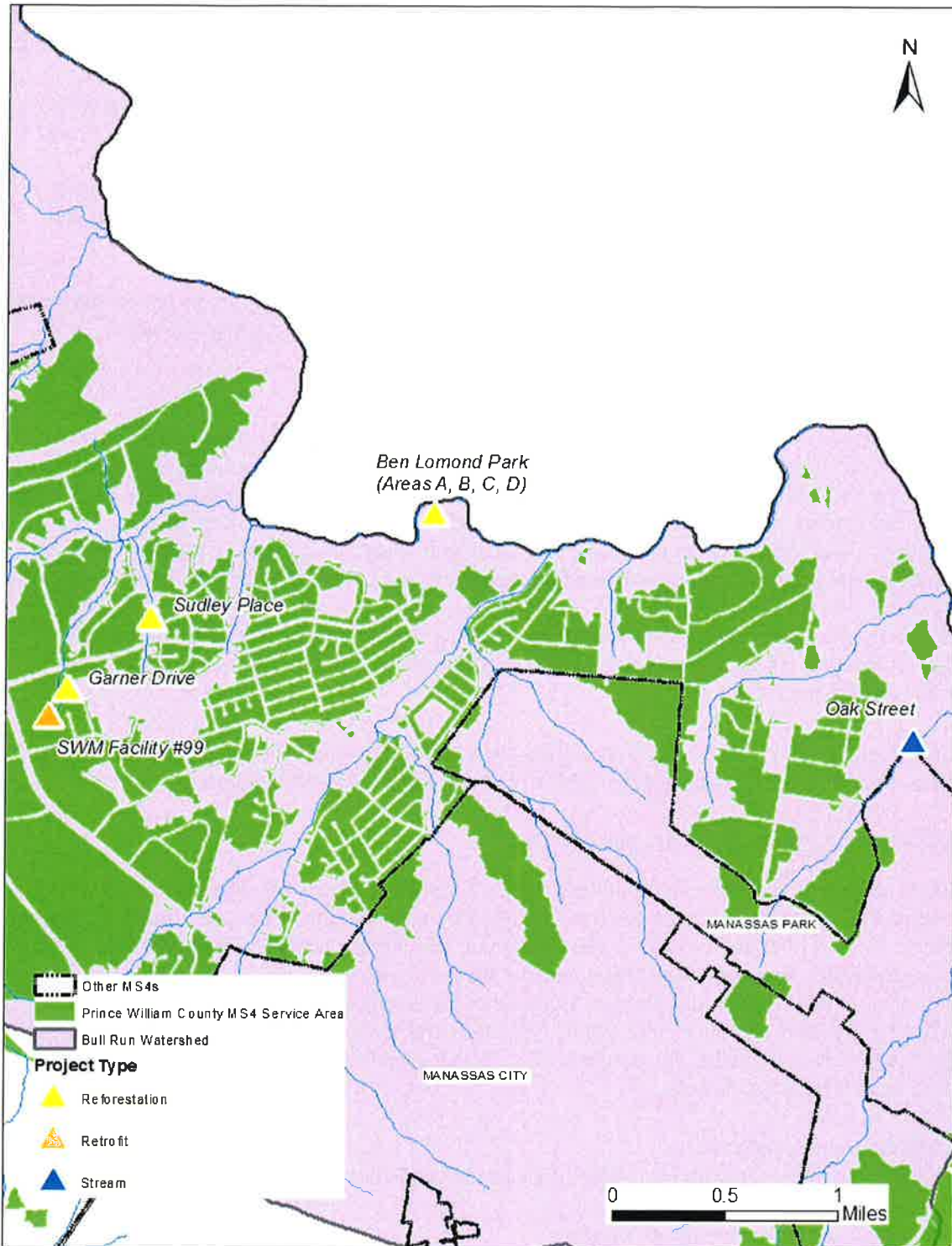
*Retrofit of County Owned or Operated Properties*

Several County owned or operated properties assessed in Section 2.4 and Appendix A were identified as having minor erosion issues, primarily associated with high-intensity field use or pedestrian/equestrian activities. The County will address these erosion issues no later than December 16, 2017 and/or provide DEQ with a status report in the subsequent annual report.

*Redevelopment*

In addition to the measures described in the previous sections, sediment reductions will also be achieved through the redevelopment process. Section 23.2 of the Prince William County Code requires that all redevelopment one acre or greater achieve a 20% reduction in phosphorus from existing conditions. Redevelopment under one acre must achieve a 10% reduction in phosphorus. Reductions in phosphorus also result in correlating reductions in sediment. These reductions will be tracked and reported in the annual reports to DEQ.

**Figure 2C – Bull Run Watershed Sediment Reduction Projects**



### *Public Education and Staff Training*

The MS4 permit requires the County to develop and implement a public education and outreach program that includes measures to reduce sediment loads to the MS4. Elements of the County's program include: (1) general water resources stewardship and pollution prevention; (2) promoting, publicizing, and facilitating public reporting of the presence of illicit discharges; and, (3) encouraging private property owners to implement voluntary stormwater management techniques and/or retrofits.

The County also implements a rigorous training program for County personnel. Biennial training is provided in the recognition and reporting of illicit discharges and on general good housekeeping and pollution prevention practices.

The County will continue to implement its public education and staff training programs in accordance with the MS4 permit and with a focus on pollutants identified in local TMDLs, including sediment.

### 2.6 Legal Authorities

The County maintains erosion and sediment control and stormwater management programs that are consistent with the Virginia Stormwater Management Act (§62.1-44.15:24 of the Code of Virginia), the Virginia Erosion and Sediment Control Law (§62.1-44.15:51 of the Code of Virginia), and their attendant regulations. The County's construction site runoff control requirements are primarily implemented through Section 750 of the Design and Construction Standards Manual while post-construction runoff control requirements are primarily implemented through Section 23.2 of the Prince William County Code.

Non-authorized stormwater discharges to the MS4, including sediment laden water, are prohibited through implementation of Section 23.2-4.1 Article II, Stormwater Pollution, of the Prince William County Code of Ordinances.

The County believes that these legal authorities are adequate to meet the requirements of "TMDL Action Plans other than the Chesapeake Bay TMDL" in Part I.D.2 of the MS4 permit.

### 2.7 Enhanced Education, Outreach, and Training

The County's education, outreach, and training program for sediment has been developed over time in an iterative manner based on periodic assessments of potential sources and the effective means of reducing these sources. As described in Section 2.5, the County has developed various outreach programs aimed at fostering general water resources stewardship, promoting public reporting of potential illicit discharges, and encouraging implementation of voluntary stormwater management techniques and/or retrofits on private property. These programs include public education efforts that specifically target controlling the discharge of sediments into the local waterways. Topics that specifically target controlling discharge of sediments to local waterways include:

- Urban nutrient management
- Homeowner stormwater and soil BMPs (use of native plants, mulching, rooftop disconnection, bio-retention etc.)
- Management of effective riparian buffers
- Citizen reporting of illicit discharges
- Citizen reporting of erosion and sediment runoff
- Preservation of Resource Protection Areas



- Storm drain labelling to promote awareness of stormwater discharges
- Erosion and sediment control as well as stormwater management information associated with Site Development

The County has also implemented a rigorous training program for County personnel.

The County believes that these education, outreach, and training efforts meet the requirements of an enhanced program as specified in the MS4 permit and will continue to assess whether additional enhancement of education, outreach, and training would be beneficial to reducing sediment loads.

## 2.8 Schedule and Milestones

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

**Table 2D – Schedule and Milestones**

Implementation Item	Description	Schedule and Milestones
MS4 Program Plan	The County 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.	See MS4 Program Plan for implementation schedule.
Chesapeake Bay TMDL Action Plan	<p>The County will continue to leverage the projects selected to meet the Chesapeake Bay TMDL Action Plan to reduce sediment in the Bull Run watershed.</p> <p>The County will include whether a project will help meet Bull Run sediment load reductions in its project selection prioritization process.</p>	<p>See Chesapeake Bay TMDL Action Plan for implementation schedule.</p> <p>The County will document the updated prioritization process by December 16, 2017 and include documentation in the subsequent annual report to DEQ.</p>
County Owned or Operated Property	<p>The County will consider potential retrofits of property assessed in Appendix A for inclusion in lists of projects to meet the Chesapeake Bay TMDL.</p> <p>The County will address minor erosion issues identified during the assessment of properties as described in Appendix A.</p>	<p>The County will address erosion issues no later than December 16, 2017 and/or provide DEQ with a status report in the subsequent annual report.</p> <p>County owned or operated properties will be re-assessed at least once during each five-year permit cycle.</p>
Redevelopment	The County will continue to enforce provisions that require redevelopment to reduce phosphorus from existing conditions (20% one acre and greater; 20% less than one acre). Reductions in phosphorus also result in reductions in sediment.	Ongoing implementation of Section 23.2 of the Prince William County Code.
Enhanced Education, Outreach, and Training	The County will continue to implement enhanced education, outreach, and training for sediment in accordance with the MS4 permit and the MS4 Program Plan.	See MS4 Program Plan for implementation schedule.

### 3. Assessment of Effectiveness

The Bull Run benthic TMDL establishes a target for reducing sediment loads from MS4 sources within the geographical area of the County by 77.1%. However, the sediment WLA is aggregated and specific WLAs are not assigned to individual MS4 permit holders. As a result, it is not possible for the County to establish specific load reductions that need to be met such as those contained in the Chesapeake Bay TMDL Action Plan.

The measure of effectiveness for this Benthic TMDL Action Plan is to document progress toward meeting overall sediment load reductions in an iterative manner over multiple permit cycles. The County will accomplish this in two phases. The first phase will be to coordinate sediment load reductions with the County's Chesapeake Bay TMDL Action Plan. Refer to Table 2E for a summary of sediment load reductions from completed projects contained in the Chesapeake Bay TMDL Action Plan.

*Table 3A – Summary of Sediment Load Reductions Achieved*

Existing Load from Aggregated MS4s lbs/year	Reductions Achieved lbs/year	% Reduction from Existing Aggregated MS4 Load
4,837,400	54,912.85	1.1%

Further reductions will be implemented in accordance with the Chesapeake Bay TMDL Action Plan and reported on an annual basis to DEQ. The second phase will occur once Chesapeake Bay TMDL sediment load reduction targets are met. At that time, the County will assess progress toward meeting the sediment reduction targets in the benthic TMDL along with the results of any new ambient water quality monitoring results and update this plan accordingly.

Several actions in this plan are not associated with specific reduction efficiencies. For these activities, the measure of effectiveness will be to document the completion of the efforts (sign-in sheets for training, results of dry weather outfall monitoring, documentation of public education and outreach efforts, etc.). This documentation will be provided to DEQ in the annual MS4 permit reports.

### 4. Measurable Goals

The County's measurable goal is to reduce sediment loads to the Bull Run watershed in accordance with the TMDL through implementation of existing and planned management controls in Section 2.5 and in accordance with the schedule and milestones in Section 2.8. Progress toward implementing the actions in this plan will be reported annually to DEQ in each MS4 permit annual report.

### 5. Public Comments on Draft Action Plan

Prince William County posted the draft Action Plan on the County's website on November 23, 2016 along with an advertisement for a 20-day public comment period. The public comment period was advertised via web announcements, emails to various stakeholder groups as well as a press release. The public comment period ran from November 23, 2016 through December 12, 2016.

During this comment period, no public comments were received regarding the draft Action Plan.

## Appendix A

### Summary of MS4 Municipal Site Assessment

Address	Property Name	Acreage	Impervious Acreage <sup>4</sup>	Exposed Soil	Notes
16198 Silver Lake Road, Haymarket	Therapeutic Riding School	43.76	0.93	Yes	Open field/pasture area with some bare patches of soil.
5901 Antioch Road, Haymarket	Fire and Rescue	3.80	1.78		No issues identified.
14450 John Marshall Highway, Gainesville	Fire and Rescue	3.88	1.53	Yes	Grass ditch/swale with some evidence of wear on the banks, though mostly vegetated.
14870 Lightner Road, Gainesville	Gainesville Public Library	4.25	0.66		No issues identified.
10311 Sudley Manor Drive, Manassas	Ben Lomond Historic Site	5.77	0.22		No issues identified.
10501 Copeland Drive, Manassas	Ben Lomond Community Center	2.71	0.89		No issues identified.
7500 Ben Lomond Park Drive, Manassas	Ben Lomond Park	243.49	1.95	Yes	Some worn spots along pedestrian walkway following Flat Branch. Large land disturbance (~1 acre) in southwest corner along Lomond Road, but appears to be re-grading project that has since been completed.

<sup>4</sup> Blank cells denote impervious area and MS4 area unavailable.