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Appendix 7-A Chesapeake Bay TMDL Action Plan: Phase III Draft Update

Town of Leesburg, Virginia

Draft Phase III Chesapeake Bay TMDL Action Plan

September 23, 2023

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

Prepared with assistance by:
WSP USA Earth & Environment
Chantilly, Virginia

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

CERTIFICATION

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

Name	Title	Date

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

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September 23, 2023

1. Introduction

1.1 Purpose

This draft Phase III Chesapeake Bay TMDL Action Plan meets the requirement of 9VAC25-890-30.B.10, which provides that the Town of Leesburg must submit a "draft third phase Chesapeake Bay TMDL action plan" with its registration statement to maintain coverage under the General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4 permit). The State Water Control Board adopted a new five-year MS4 permit on August 23, 2023, with an effective date of November 1, 2023. Plan requirements are contained in Part II A "Chesapeake Bay TMDL special condition."

The Virginia Department of Environmental Quality (DEQ) approved the Town's Phase I Chesapeake Bay TMDL Action Plan on December 28, 2015. Draft and final Phase II plans were submitted to DEQ on May 29, 2018 and October 30, 2019, respectively. This draft Phase III plan builds on those previous efforts. In accordance with the MS4 permit, the Town must submit a final Phase III plan to DEQ no later than 12 months after the effective date of the permit.

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

A TMDL for the Chesapeake Bay was established by the U.S. Environmental Protection Agency in 2010. Pollutants of concern (POCs) identified for the Chesapeake Bay include total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS).[1] Virginia subsequently adopted a Watershed Implementation Plan (WIP) that establishes the framework for meeting the Chesapeake Bay TMDL. The Virginia WIP states that MS4 permit holders will implement a phased approach for meeting required reductions over three five-year permit cycles in

[1] The 2023 MS4 permit removes TSS from the definition of pollutant of concern (Part II A 2) and from the pollutant load reduction requirements (Part II A 3).

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 Town met the 5% and 40% reduction requirements for the first and second permit cycles. This draft Phase III Chesapeake Bay TMDL Action Plan establishes the Town's 100% reduction target and identifies the Best Management Practices (BMPs) for achieving the target in accordance with the 2023 MS4 permit, DEQ Guidance Memo No. 20-2003, and additional communications provided by DEQ.

1.2 Summary of Required Reductions and BMPs to Achieve Reductions

The 100% reduction calculation is presented in Section 3. This includes reductions from existing sources as of June 30, 2009, offsets to account for increases in pollutant loads due to new sources initiating construction between July 1, 2009 and June 30, 2014, and offsets to account for grandfathered projects commencing construction after July 1, 2014.

Reductions and offsets are calculated based on the extent of the MS4 service area. The Town performed a comprehensive update of its MS4 service area map in 2017. The map is continuously updated to account for changes. The most recent version of the map, which reflects the extent of the 2020 Census Urban Area[2] as required in the MS4 permit, is shown in Appendix A.

Based on the MS4 service area, the Town calculates that the following reductions must be achieved from existing sources as of June 30, 2009 to meet the 100% target: 4,531.64 pounds for TN and 535.39 pounds for TP.

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

The next step is to identify the BMPs to achieve the required POC reductions. The Town's overall strategy for achieving the reductions is summarized below:

[2] Provided by DEQ via email on August 7, 2023.

- Redevelopment since July 1, 2009 that has resulted in a decrease in pollutant loads.
- Stormwater management facilities installed between January 1, 2006 and June 30, 2009.
- Town-initiated stormwater management and stream restoration projects.
- Street sweeping.
- Septic system disconnects.
- More stringent regulation of land disturbing activities under one acre.
- Additional BMPs that may be implemented in accordance with DEQ's Chesapeake Bay TMDL Special Conditions Guidance.

The MS4 permit requires the Town to report total POC reductions achieved prior to November 1, 2023 and to demonstrate how the Town will achieve additional reductions to meet the 100% target within 60 months of the permit effective date. Table 1A summarizes the required reductions, reductions achieved as of November 1, 2023, and the anticipated reductions planned to meet the 100% reduction target.

Table 1A– Summary of Required Reductions and Implemented and Planned BMPs

	Total Nitrogen (lbs/year)	**Total Phosphorus (lbs/year)**
Required Reductions from Existing Sources	4,531.64	535.39
+ New Source Offsets	0.00	0.00
+ Grandfathered Offsets	0.00	0.00
= Total Required Reductions and Offsets	4,531.64	535.39
- BMPs Prior to November 1, 2023	2,645.26	717.25
- BMPs November 1, 2023 and On	1,703.15	535.41
= Final Remainder/(Excess)	183.23	(717.27)
% Achieved Toward 2028 Target	96.0%	234.0%

1.3 Permit Compliance Crosswalk

Table 1B provides each of the requirements for this action plan from Part II A 12 b of the 2023 MS4 permit and the specific sections where the requirements are addressed.

Table 1B – Action Plan and Permit Compliance Crosswalk

Action Plan Section	MS4 Permit Part II A 12	MS4 Permit Requirement
Section 2	b (1)	Any new or modified legal authorities, such as ordinances, permits, policy, specific contract language, orders, and interjurisdictional agreements, implemented or needing to be implemented to meet the requirements of Part II A 3, A 4, and A 5.
Section 3	b (2)	The load and cumulative reduction calculations for each river basin calculated in accordance with Part II A 3, A 4, and A 5.
Section 5	b (3)	The total reductions achieved as of November 1, 2023 for each pollutant of concern in each river basin.
Section 5 and Appendix B	b (4)	A list of BMPs implemented prior to November 1, 2023 to achieve reductions associated with the Chesapeake Bay TMDL including: (1) The date of implementation; and, (2) The reductions achieved.
Section 6 and Appendix C	b (5)	The BMPs to be implemented by the permittee within 60 months of the effective date of this permit to meet the cumulative reductions calculated in Part II A 3, A 4, and A 5, including as applicable: (1) Type of BMP; (2) Project name; (3) Location; (4) Percent removal efficiency for each pollutant of concern; and, (5) Calculation of the reduction expected to be achieved by the BMP calculated and reported in accordance with the methodologies established in Part II A 9 for each pollutant of concern.
Section 7 and Appendix D	b (6)	A summary of any comments received as a result of public participation required in Part II A 13, the permittee's response, identification of any public meetings to address public concerns, and any revisions made to the Chesapeake Bay TMDL action plan as a result of public participation.

2. Program and Legal Authority

The Town has adopted an MS4 Program Plan that documents implementation of all MS4 permit requirements, including the programmatic and legal authorities required to meet the "Chesapeake Bay TMDL special condition." The full MS4 Program Plan can be found at www.leesburgva.gov/departments/public-works/water-quality-stormwater-management. In accordance with the MS4 permit, the Town will update the MS4 Program Plan no later than six months after the effective date of the permit.

Table 2A provides a summary of elements of the six minimum control measures (MCMs) implemented by the Town that relate to controlling total nitrogen and total phosphorus. Also included are efforts to control total suspended solids since phosphorus binds to sediment and many of the reduction strategies overlap.

Table 2A – MS4 Program Plan Components Related to the Chesapeake Bay TMDL

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling TN, TP, and TSS
Public Education and Outreach on Stormwater Impacts	The Town's MS4 Public Education and Outreach Plan identifies nutrients from lawn fertilizers as one of its three high-priority pollutants. Actions specific to nutrients and their impact on the Chesapeake Bay include: • At least once annually, promote proper fertilizing techniques in the Town's seasonal newsletter. • At least once annually, post on social media about proper fertilizing techniques. • Every three years, include a proper use of fertilizer-related message in the Town's annual postcard to all single family and townhome residences. • Every three years, mail information to the Town's HOAs and property management companies about strategies to prevent nutrient pollution. • Every three years, mail a letter and tip sheet to landscape companies about the impact of nutrient pollution on water quality and the legal ramifications of not meeting state nutrient management requirements. The Town also participates in the Northern Virginia Regional Commission's Clean Water Partners program. One of the program's focus areas is nutrients from home lawn care.

Minimum Control Measure	MS4 Program Plan Elements Related to Controlling TN, TP, and TSS
Public Involvement and Participation	The Town has designed a program to involve the public in the decision-making process by meeting all public notice requirements and implementing at least four public involvement activities annually. The Town has also implemented mechanisms for residents to report suspected illicit discharges, including the improper application of fertilizers.
Illicit Discharge Detection and Elimination	The Town has adopted an Illicit Discharge Detection and Elimination Plan. This plan includes preventing, identifying, and eliminating sources of pollutants, including total nitrogen and total phosphorus as well as total suspended solids.
Construction Site Stormwater Runoff Control	The Town's construction site stormwater runoff control program is designed to be fully consistent with the water quality control requirements of the Virginia Erosion and Sediment Control Act and the Virginia Stormwater Management Act, and their attendant regulations.
Post-Construction Stormwater Management	The Town's construction site stormwater runoff control program is designed to be fully consistent with the water quality control requirements of the Virginia Stormwater Management Act and its attendant regulations.
Pollution Prevention and Good Housekeeping for Municipal Operations	The Town has included in its MS4 Program Plan actions to meet the pollution prevention and good housekeeping requirements for municipal operations. This includes general good housekeeping, as well as specific requirements to develop nutrient management plans for all properties where nutrients are applied to more than one contiguous acre.

In addition to the MS4 Program Plan, the Town has adopted a Goose Creek Benthic TMDL Action Plan. The Goose Creek TMDL plan further identifies potential sources of total suspended solids and outlines strategies for reducing pollutant sources. The strategies in the Goose Creek TMDL plan align with those identified in this draft Phase III Bay TMDL plan.

The Town has reviewed its existing MS4 Program Plan and legal authorities and finds that no additional legal authorities are required for compliance with the "Chesapeake Bay TMDL special condition."

3. Load and Cumulative Reduction Calculations

The following sections describe the methodology used by the Town to determine the existing load and cumulative reduction calculations in accordance with Part II A 3, A 4, and A 5 of the 2023 MS4 permit.

3.1 MS4 Service Area Delineation Methodology

Reductions and offsets are calculated based on the extent of the MS4 service area within the 2020 Census Urban Area as provided by DEQ.

Storm sewer pipes, outfall locations, and elevation data were comprehensively analyzed in 2017 by qualified engineers in a GIS environment to delineate the watershed boundaries of the Town's regulated storm sewer system. Artificial conveyances and natural drainage features were thoroughly reviewed to accurately account for storm sewer drainage areas and determine break points between the manmade and natural hydrologic systems. This approach rendered a delineation of regulated and unregulated areas within the Town. The map is continuously updated by Town staff to account for changes. Excluded areas include those that sheet flow directly to natural channels of major drainage sheds such as streams or creeks without the benefit of an engineered system. In addition, several road rights-of-way are part of the VDOT MS4 and are therefore excluded from the Town's MS4. VDOT's MS4 is based on their approved Chesapeake Bay TMDL Action Plan.[3] VDOT is reviewing their MS4 service area as part of their Phase III planning effort. Any changes will be reflected in the Town's final Phase III plan.

In accordance with DEQ's Chesapeake Bay TMDL Special Guidance, the Town may exclude from its MS4 service area land regulated under any general Virginia Pollutant Discharge Elimination System (VPDES) permit that addresses industrial stormwater and forested land that meets specific criteria. The Town has identified one VPDES permitted facility within its boundary.[4] This facility, listed in Table 3A, is excluded from the Town's MS4 area.

Table 3A – VPDES Permit Holders in Leesburg

Permit Holder	VPDES Permit	Address
Leesburg Municipal Airport	VAR051426	1001 Sycolin Road, SE

[3] Based on guidance from DEQ, the Town's MS4 includes areas upstream of direct interconnections with VDOT pipes even though drainage ultimately flows to outfalls owned or operated by VDOT.

[4] The Phase II plan excluded two VPDES permitted facilities. However, the Leesburg Water Pollution Control Facility was granted a no-exposure certification and is therefore no longer covered under an active VPDES permit.

For the purpose of the MS4 service area delineation, "forested" lands must meet tree density requirements, be undeveloped, and be a minimum of 30m x 30m (900 m^2) contiguous. The Town utilized its existing forest layer in GIS and then conducted an analysis to eliminate areas less than 900m^2. The results were manually reviewed to further eliminate areas that are not natural forest (for example, backyard trees or buffer areas along roads). These forested lands are excluded where they overlap with the MS4 service area.

The Town's MS4 service area map is presented in Appendix A. Based on the above analysis, the Town has determined that a total of 4,941.40 acres is served by the regulated MS4.

3.2 Pervious and Impervious Surface Delineation Methodology

A GIS approach was used to determine the Town's regulated urban impervious and regulated urban pervious acres. Planimetric impervious cover GIS data was developed from 2009 aerial imagery. Impervious cover surfaces include buildings, roads, parking lots, sidewalks, recreational surfaces, and other similar features.

To calculate the 2009 impervious regulated area, the 2009 planimetric impervious cover features were clipped using the MS4 boundary polygon layer and the resulting acres were totaled. Regulated pervious acres were calculated by subtracting the regulated impervious acres from the total MS4 acres.

Based on the above analysis, the Town has determined that the MS4 service area is divided into 1,693.00 impervious acres and 3,248.40 pervious acres.

3.3 Reduction Requirements

The Town is located within the Potomac River Basin. Therefore, reduction requirements are calculated in accordance with Part II A 3, Table 3b of the 2023 MS4 permit.

Table 3B presents the estimated existing source loads and the 100% cumulative reduction requirement in accordance with the MS4 permit and the Chesapeake Bay TMDL Special Conditions Guidance.

Table 3B – Calculation Sheet for Estimating Existing Source Loads and Reduction Requirements for the Potomac River Basin

Pollutant	Subsource	A. Loading Rate (lbs/ac/yr)	B. Existing Developed Land 2009 (acres)	C. Loading (lbs/yr)	D. MS4 Required Bay Total L2 Loading Rate Reduction	E. 100% Cumulative Reduction Required by 2028	F. Sum of 100% Cumulative Reduction (lbs/yr)
TN	Imp.	16.86	1,693.00	28,543.98	0.09	2,568.96	4,531.64
TN	Perv.	10.07	3,248.40	32,711.39	0.06	1,962.68	
TP	Imp.	1.62	1,693.00	2,742.66	0.16	438.83	535.39
TP	Perv.	0.41	3,248.40	1,331.84	0.07	96.56	

3.4 New Source Offset

Part II A 4 of the 2023 MS4 permit requires the Town to offset 100% of increases from new sources initiating construction between July 1, 2009 and June 30, 2014 that disturb one acre or greater as a result of the utilization of an average land cover condition greater than 16% impervious cover for the design of post-development stormwater management facilities. The Town adopted Town Code Chapter 14, Article II "Stormwater Management" and revisions to Article 5 "Storm Drainage" of the Design and Construction Standards Manual (DCSM) in 2007 and 2008 respectively that define the average land cover condition as 16% (DCSM, version 2008, Section 5-620 "Water Quality Design Criteria."). Therefore, no new source offset is required.

3.5 Grandfathered Projects Offset

Part II A 5 of the 2023 MS4 permit requires the Town to offset any grandfathered projects that disturb one acre or greater than begin construction after July 1, 2014 and where the project utilizes an average land cover condition greater than 16%. As noted in Section 3.4, the Town adopted post-construction stormwater management requirements in 2007 that define the average land cover condition as 16%. Therefore, while the Town provided a list of grandfathered projects in the initial action plan, no offset is required.

3.6 Total Reduction and Offset Requirements

Table 3C presents the total reduction and offset requirements that the Town must achieve during the third MS4 permit cycle.

Table 3C – Total Reduction and Offset Requirements

Reductions and Offsets	**TN (lbs/year)**	**TP (lbs/year)**
Required Reductions from Existing Sources	4,531.64	535.39
+ New Source Offsets	-	-
+ Grandfathered Offsets	-	-
= Total Reductions and Offsets	**4,531.64**	**535.39**

4. Overall Strategy for Achieving Reductions

The Town's overall strategy for achieving required POC reductions is summarized below:

4.1 Redevelopment

This includes redevelopment since July 1, 2009 that has resulted in a decrease in pollutant loads from the existing land use. The methodology described in Part III 3 and Appendix V.E of the DEQ Chesapeake Bay TMDL Special Condition Guidance is used by the Town to calculate pollutant reduction credit. For any portion of redevelopment that results in a direct impervious surface reduction, Table 4 from the MS4 permit is used to determine the equivalent credit for TN associated with the TP reduction.

4.2 2006-2009 Stormwater Facilities

In accordance with Chesapeake Bay TMDL Special Condition Guidance Appendix VI, this includes credit for stormwater management facilities initially installed on or after January 1, 2006 and prior to July 1, 2009 within the regulated MS4 service area.

4.3 Town-Initiated Projects

This includes Town-initiated stormwater quality projects. Projects may include new structural facilities, design enhancements to existing facilities, and stream restoration projects. The methodologies described in Appendices V.A, V.B, and V.C of the DEQ guidance are used by the Town to calculate pollution reduction credit.

4.4 Street Sweeping

This includes pollutant reductions associated with sweeping Town-operated streets within the MS4 service area. The methodology described in Appendix V.G of the DEQ guidance is used to calculate pollution reduction credit.

4.5 Septic System Disconnects

This includes septic system disconnects after January 1, 2006. To be eligible, the disconnect must be permanent (i.e., the septic system cannot be replaced by another system and/or the property must be subsequently connected to the sanitary sewer system). Disconnects may be within our outside of the MS4 service area.[5] Credit is available for TN only. The methodology described in Appendix V.O of the DEQ guidance is used to calculate pollutant reduction credit.

[5] Per Appendix V.O of DEQ Guidance Memo No. 20-2003 and email confirmation from DEQ dated October 5, 2022.

4.6 More Stringent Regulation of Land Disturbing Activities

This includes pollutant reductions associated with land disturbing activities under one acre as a result of more stringent Town standards. The Town's stormwater management ordinance exceeds the state minimum standards in the Virginia Stormwater Management Regulations (9VAC25-870) by regulating non-single family land disturbance under one acre that requires more than a site plan waiver or standard zoning permit. The Town is not subject to the Chesapeake Bay Preservation Act and therefore is not required to regulate water quality under one acre. Based on correspondence with DEQ, the Town will take credit for the difference between the pollutant load that could have been allowed for these properties under the state's minimum water quality criteria and the pollutant load that was actually allowed for these properties under the Town's more stringent requirements.

4.7 Additional BMPs

The Town reserves the right to implement other BMPs that are allowed in accordance with DEQ guidance and state laws and regulations. This includes, but is not limited to, nutrient management plans beyond the Town's MS4 permit requirements, nutrient credit purchases, and land use change.

5. BMPs Implemented Prior to November 1, 2023

Part II A 12 b (3) and (4) of the 2023 MS4 permit requires the Town to provide the total reductions achieved for each pollutant of concern and a list of BMPs implemented prior to November 1, 2023 to achieve the reductions. The following is a summary of BMPs implemented prior to November 1, 2023. The detailed list of BMPs, including the date of implementation and the reductions achieved, is included in Appendix B.

5.1 Redevelopment

The Town achieved pollutant reductions from 20 redevelopment projects. Detailed pollutant reduction spreadsheets for each project, except the reconstruction of Battlefield Parkway at Route 7, were provided in annual reports to DEQ. See Appendix B for the calculations associated with the Battlefield Parkway project.

Figure 5A – Significant Retrofit Projects

Battlefield Parkway at Route 7	**Description**
	This project was completed in FY2023 and involved construction of two wet ponds to meet pollutant reduction requirements for reconstruction of existing roadway as well as new roadway infrastructure. One wet pond was also sized to meet pollutant reduction requirements anticipated for redevelopment of 26.24 acres of impervious cover at neighboring Potomac Station.

5.2 2006-2009 Stormwater Facilities

The Town has taken credit for stormwater management facilities that were initially installed on or after January 1, 2006 and prior to July 1, 2009 within the regulated MS4 service area.

5.3 Town-Initiated Projects

Three stormwater pond retrofit projects came on-line during FY2018. These include the Greenway Pond Retrofit, the Foxridge Pond Retrofit, and Stratford Pond Retrofit. In addition, the Town completed restoration of a stretch of Tuscarora Creek during FY2021. Detailed pollutant reduction spreadsheets for each project were provided in annual reports to DEQ.

Figure 5B – Town-Initiated Projects Prior to November 1, 2023

Greenway Pond Retrofit	**Description**
	This pond was originally built in 1995 to provide quantity control only. This retrofit provides water quality volume to the existing pond by creating two new constructed floodplain wetland facilities. This project was funded by a Virginia Stormwater Local Assistance Fund grant and has been reviewed by DEQ.

Foxridge Pond Retrofit	**Description**
	The pond was originally built in 1986 as a dry pond. This retrofit provides water quality volume by converting the facility into a dry extended detention pond. This project was funded by a Virginia Stormwater Local Assistance Fund grant and has been reviewed by DEQ.

Stratford Pond Retrofit	Description
	The pond was originally built in 2003 as a dry pond with no water quality value. This retrofit provides water quality volume by converting the facility into a dry extended detention pond. This project was funded by a Virginia Stormwater Local Assistance Fund grant and has been reviewed by DEQ.

Tuscarora Creek Stream Restoration	Description
	This project involves the restoration of 2,262 linear feet of a highly degraded stretch of Tuscarora Creek. The stream restoration includes realignment of the stream channel to reduce/eliminate erosion and improve stream health as well as the establishment of a riparian buffer. The restoration was completed in May 2021.

5.4 Street Sweeping

The Town has taken credit for its street sweeping program. The Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices requires vacuum assisted sweeper technology and assigns a removal efficiency based on the number of passes per year. The Town meets the technology requirement and typically achieves 7-8 passes annually. As a result, the Town meets the efficiencies associated with practice SPC-5 from Table 17 of the Expert Panel report.

While the amount has varied per year, the Town documented that it swept 290 curb miles in FY2023. This is an operational BMP that must be conducted annually for credit to continue.

5.5 Septic System Disconnects

The Town achieved pollutant reductions based on four septic system disconnects. The Loudoun County Health Department generated a list of septic systems taken off-line after January 1, 2006. The Town documented each disconnect by: (1) confirming with Leesburg Utilities that the property is connected to sanitary sewer; or, (2) using Online RME to verify that the septic system has been properly closed and that a new system has not been installed on the property.

5.6 More Stringent Regulation of Land Disturbing Activities

The Town achieved pollutant reductions from three projects that were subject to more stringent regulation.

5.7 Additional BMPs

The Town did not achieve pollutant reductions from other BMPs prior to November 1, 2023.

Table 5A – Summary of BMPs Implemented Prior to November 1, 2023

BMPs	TN (lbs/year)	TP (lbs/year)
Total Reduction Target	**4,531.64**	**535.39**
Redevelopment	330.00	85.87
2006-2009 Stormwater Facilities	187.87	68.72
Town-Initiated Projects	2,050.12	550.96
Street Sweeping	31.47	11.19
Septic Disconnects	42.20	0.00
More Stringent Regulation of Land Disturbing Activities	3.61	0.50
Total BMPs	**2,645.26**	**717.25**
Remainder/(Excess) To Achieve Target	**1,886.38**	**(181.86)**

6. BMPs Planned to Meet Cumulative Reduction Targets

This section describes the BMPs that the Town plans to implement in accordance with Part II A 12 b (5) of the 2023 MS4 permit to achieve the cumulative reduction targets calculated in Table 3C. These BMPs will be further refined in the final Phase III plan and as reported to DEQ in annual reports.

6.1 Redevelopment

The Town will continue to take credit for any pollutant reductions from redevelopment. Project details, including calculations, will be reported to DEQ in the Town's MS4 annual reports.

Table 6A – Summary of Reductions from Redevelopment

	TN (lbs/year)	TP (lbs/year)
Achieved	330.00	85.87
Planned	To be determined.	To be determined.
Total	330.00	85.87

6.2 2006-2009 Stormwater Facilities

The Town will continue to take credit for stormwater management facilities that were initially installed on or after January 1, 2006 and prior to July 1, 2009 within the regulated MS4 service area. This credit was calculated once and does not change.

Table 6B – Summary of Reductions from 2006-2009 Stormwater Facilities

	TN (lbs/year)	TP (lbs/year)
Achieved	187.87	68.72
Planned	0.00	0.00
Total	187.87	68.72

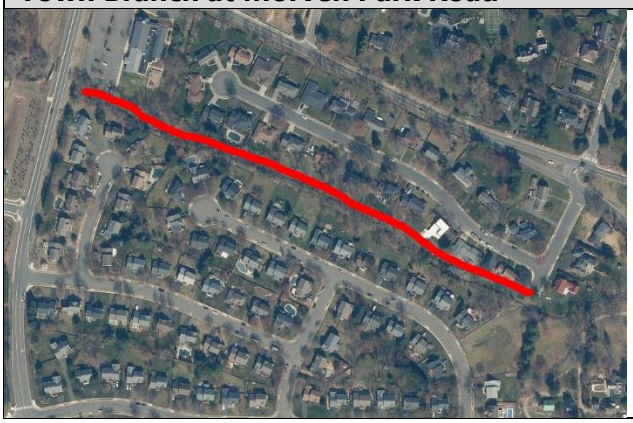
6.3 Town-Initiated Projects

The Town will initiate additional retrofit projects. Two stream restoration projects are under active design – Town Branch at Morven Park Road and Tuscarora Creek at Crescent Parke. In addition, the Town is assessing restoration of Tuscarora Creek at Russell Branch Parkway.

The Town has completed concept plans for five additional pond retrofits. These include Kincaid Forest, Stowers Pond, Fox Chapel Pond, Newhall Place, and Ida Lee Park. While the Town believes each of these retrofits to be feasible, it reserves the right to replace individual projects with different projects that achieve required pollutant reduction targets.

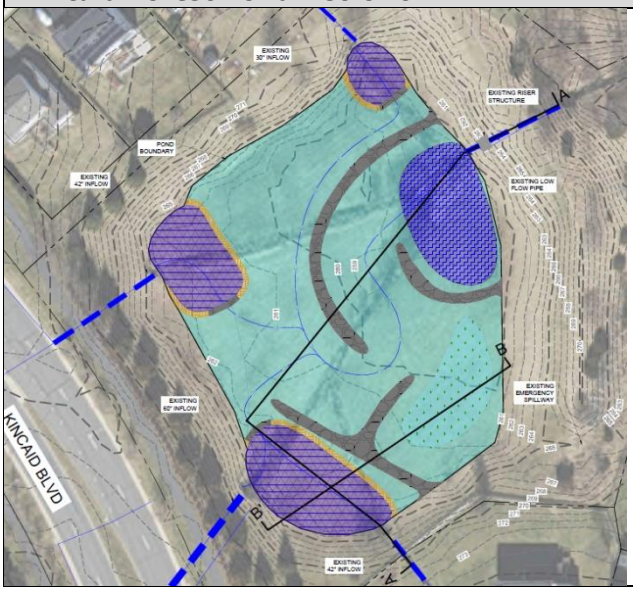
Detailed pollutant reduction spreadsheets for these projects, including all required information in the 2023 MS4 permit, are provided in Appendix C.

Figure 6A – Description of Planned Town-Initiated Projects

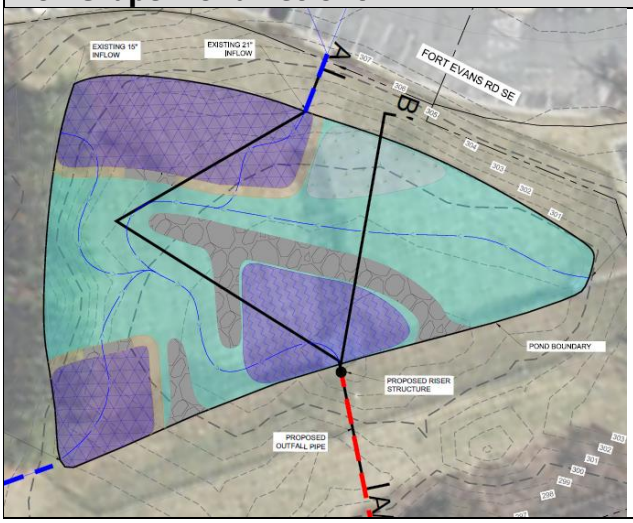
Town Branch at Morven Park Road	**Description**
	This project involves restoration of approximately 1,528 linear feet of highly degraded stream. Bank stability issues are affecting adjoining properties and are resulting in substantial sediment transport. A BANCS assessment has been conducted. The Town has been awarded a Virginia Stormwater Local Assistance Fund grant for this project. Completion is expected in FY2024.

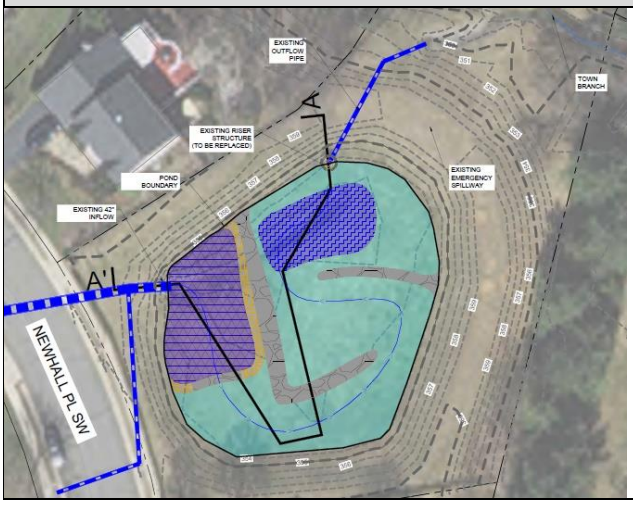
Tuscarora Creek at Crescent Parke	**Description**
	This project involves the restoration of approximately 2,130 linear feet of highly degraded stream. The project is part of the larger Crescent Parke development. A portion of the stream restoration is being used to meet the developer's Virginia Stormwater Management Program requirements and will be set up as a nutrient credit bank approved by DEQ. The remainder of the credit will be dedicated to the Town for use to meet Chesapeake Bay TMDL requirements. A BANCS assessment has been conducted. Completion is expected in FY2025.

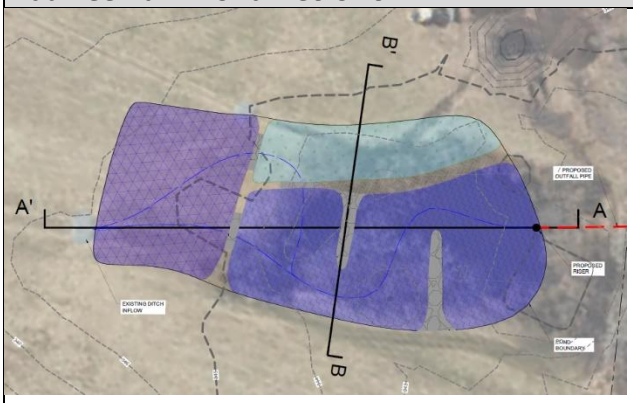
Tuscarora Creek at Russell Branch Parkway	Description
	The Town has identified a stretch of Tuscarora Creek abutting Town property (Central Maintenance Facility and Water Pollution Control Facility) for potential restoration. The project would involve approximately 2,100 linear feet of highly degraded stream. The next step is to conduct a BANCS assessment and to develop a concept plan for the project. For credit planning purposes, the Town has used the average sediment reduction per linear foot for four completed restoration projects in Leesburg and Loudoun County.

Kincaid Forest Pond Retrofit	Description
	Kincaid Forest pond is currently functioning as a dry pond with a 40% downward modification. The concept plan envisions conversion to a dry extended detention pond with sediment forebay, deep pool, wetland cell, and extended flow path.

Stowers Pond Retrofit	Description
	Stowers pond is currently functioning as a dry pond with a 40% downward modification. The concept plan envisions conversion to a constructed wetland with deep pool, high marsh cell, low marsh cell, sediment forebay, and extended flow path.

Fox Chapel Pond Retrofit	Description
	Fox Chapel pond is currently functioning as a dry pond with a 40% downward modification. The concept plan envisions conversion to a dry extended detention pond with sediment forebay, deep pool, wetland cell, and extended flow path.

Newhall Place Pond Retrofit	Description
	Newhall Place pond is currently functioning as a dry pond with a 30% downward modification. The concept plan envisions conversion to a dry extended detention pond with sediment forebay, deep pool, and extended flow path.

Ida Lee Park Pond Retrofit	Description
	Ida Lee Park pond is currently functioning as an impoundment. Although not designed for water quality, DEQ has stated that treatment from old ponds is implicit in the Chesapeake Bay Model. As a result, credit is based on the difference between the storage volume of the original pond versus the retrofit. The current storage volume is estimated at 0.19 acre/feet and the concept plan storage volume is estimated at 1.72 acre/feet. The retrofit will include a deep pool, wetland cell, sediment forebay, and extended flow path.

The strategies outlined above, along with other implemented and planned BMPs, result in exceeding cumulative reduction requirements for TP. However, a gap remains for TN. The Town has identified two strategies for addressing this gap.

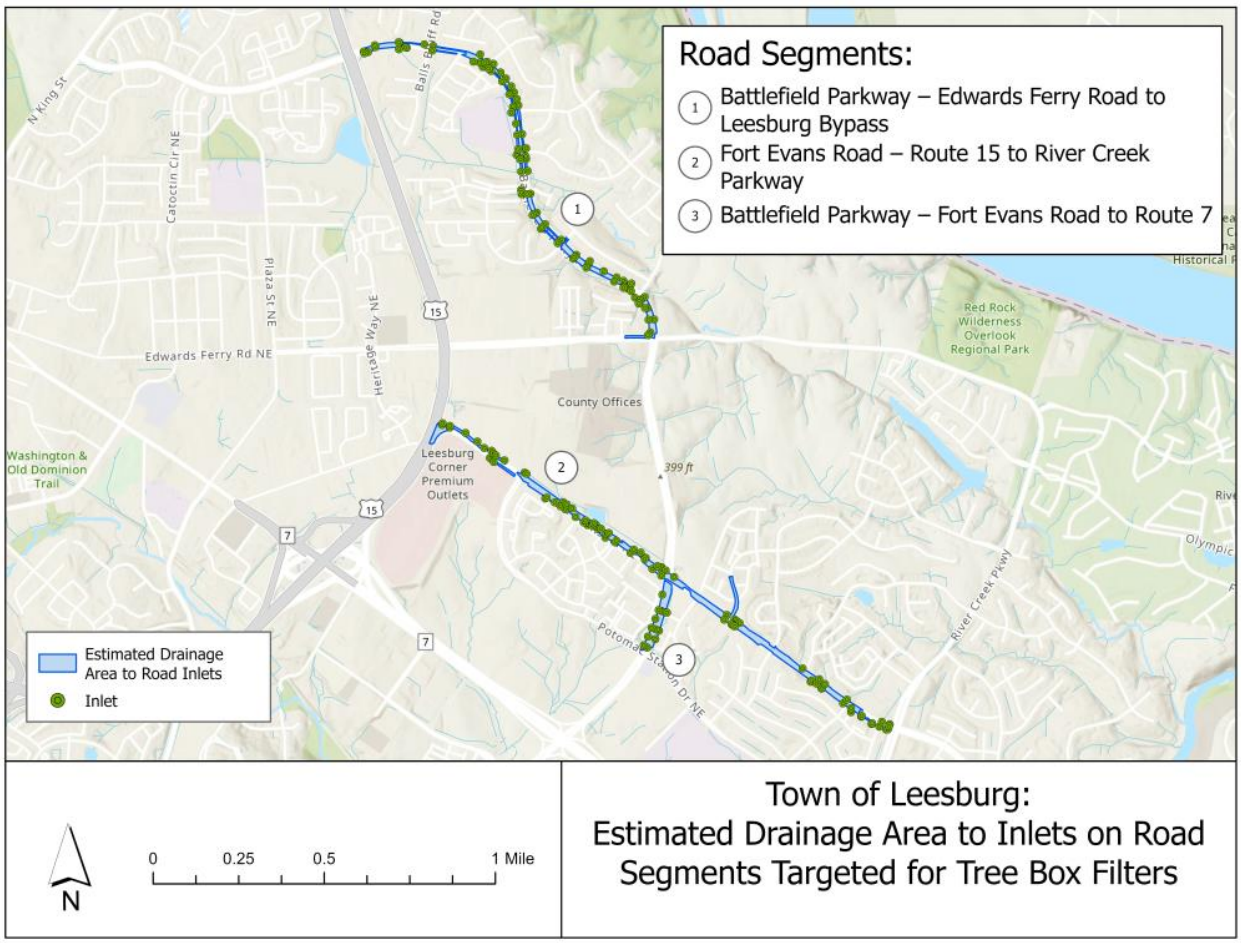
Urban Filtering Practices

The Town has identified three roadways for retrofit with urban filtering practices (tree box filters). This includes the following:

- Battlefield Parkway – Edwards Ferry Road to Leesburg Bypass
- Battlefield Parkway – Fort Evans Road to Route 7
- Fort Evans Road – Route 15 to River Creek Parkway

The total estimated drainage area is 28.65 acres, with 17.53 acres of 2009 impervious area. The Town will plan to implement these retrofits, or retrofits along similar stretches of roadway, assuming that the gap is not made up through implementation of other strategies. Reductions from urban filtering practices are reflected in Table 6C. See Appendix C for calculations.

Figure 6B – Location of Urban Filtering Practices



Stream Restoration Effectiveness Factor

In accordance with DEQ guidance, the default effectiveness factor applied to stream restoration is 50%. A higher factor can be achieved through a second BANCS assessment performed three years after construction – with a maximum of 80%. The Town reserves the right to reassess the Tuscarora Creek stream restoration completed in 2021. For example, if the effectiveness factor can be increased to 80%, TN removal for that project is increased from 793.06 lbs/year to 1,268.89 lbs/year. This increase is sufficient to bring the Town to 106.7% of its TN cumulative reduction target without the need for urban filtering practices. The Town will report the results of any BANCS assessment to DEQ and modify the Phase III plan accordingly.

Table 6C – Summary of Reductions from Town-Initiated Projects

Project	TN (lbs/year)	TP (lbs/year)
Achieved	**2,050.12**	**550.96**
Planned	**1,899.61**	**570.60**
Town Branch at Morven Park Road	*391.73*	*122.12*
Tuscarora Creek at Crescent Parke	*273.76*	*147.82*
Tuscarora Creek at Russell Branch	*478.65*	*220.45*
Kincaid Forest Pond	*209.91*	*10.88*
Stowers Pond	*283.65*	*42.15*
Fox Chapel Pond	*22.38*	*1.44*
Newhall Place Pond	*36.12*	*1.81*
Ida Lee Park Pond	*40.40*	*4.15*
Urban Filtering Practices	*163.01*	*19.77*
Total	**3,949.72**	**1,121.57**

6.4 Street Sweeping

The Town will continue to take credit for its street sweeping program to meet the required POC reductions. The Town anticipates maintaining the current level of effort described in Section 5.

Table 6D – Summary of Reductions from Street Sweeping

	TN (lbs/year)	TP (lbs/year)
Achieved	31.47	11.19
Planned	Same level of effort.	Same level of effort.
Total	31.47	11.19

6.5 Septic System Disconnects

The Town will continue to take credit for any pollutant reductions from documented septic system disconnects. Details, including calculations, will be reported to DEQ in the Town's MS4 annual reports.

Table 6E – Summary of Reductions from Septic System Disconnects

	TN (lbs/year)	TP (lbs/year)
Achieved	42.20	0.00
Planned	To be determined.	To be determined.
Total	42.20	0.00

6.6 More Stringent Regulation of Land Disturbing Activities

The Town will continue to take credit for any pollutant reductions from the regulation of land disturbing activities above state minimum standards. Project details, including calculations, will be reported to DEQ in the Town's MS4 annual reports.

Table 6F – Summary of Reductions from More Stringent Regulation of Land Disturbing Activities

	TN (lbs/year)	TP (lbs/year)
Achieved	3.61	0.50
Planned	To be determined.	To be determined.
Total	3.61	0.50

6.7 Additional BMPs

The Town reserves the right to implement and take credit for additional facilities or practices as provided for in the Chesapeake Bay TMDL Special Condition Guidance. The Town also has the option of purchasing off-site nutrient credits under the provisions of §62.1-44.15:35 of the Code of Virginia. Any reductions will be documented to DEQ in the Town's annual reports.

Table 6G – Summary of Reductions from Additional BMPs

	TN (lbs/year)	TP (lbs/year)
Achieved	0.00	0.00
Planned	To be determined.	To be determined.
Total	0.00	0.00

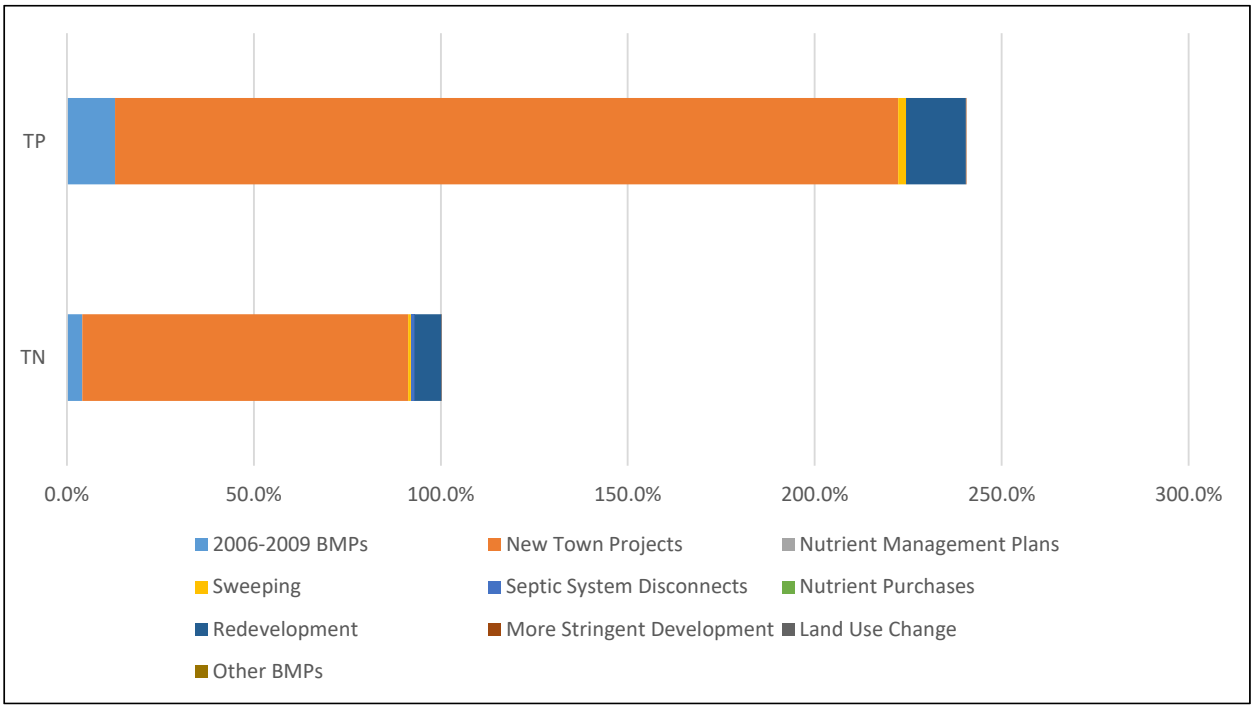
6.8 Compliance Summary

Tables 6H demonstrate how the Town will meet the required reductions from Section 3 for each POC with the BMPs described in Sections 6.1 through 6.7.

Table 6H – Compliance Summary

	TN (lbs/year)	**TP (lbs/year)**
Required Reductions from Existing Sources	4,531.64	535.39
+ New Source Offsets	0.00	0.00
+ Grandfathered Offsets	0.00	0.00
= Total Reductions and Offsets	4,531.64	535.39
- Actual and Planned BMPs from Sections 5 and 6	4,544.87	1,287.86
Redevelopment	330.00	85.87
2006-2009 Facilities	187.87	68.72
Town-Initiated Projects	3,949.72	1,121.57
Street Sweeping	31.47	11.19
Septic Disconnects	42.20	0.00
More Stringent Regulation of Land Disturbing Activities	3.61	0.50
Additional BMPs	0.00	0.00
= Remainder/(Excess)	(13.23)	(752.47)
% Achieved Toward 2028 Target	100.3%	240.5%

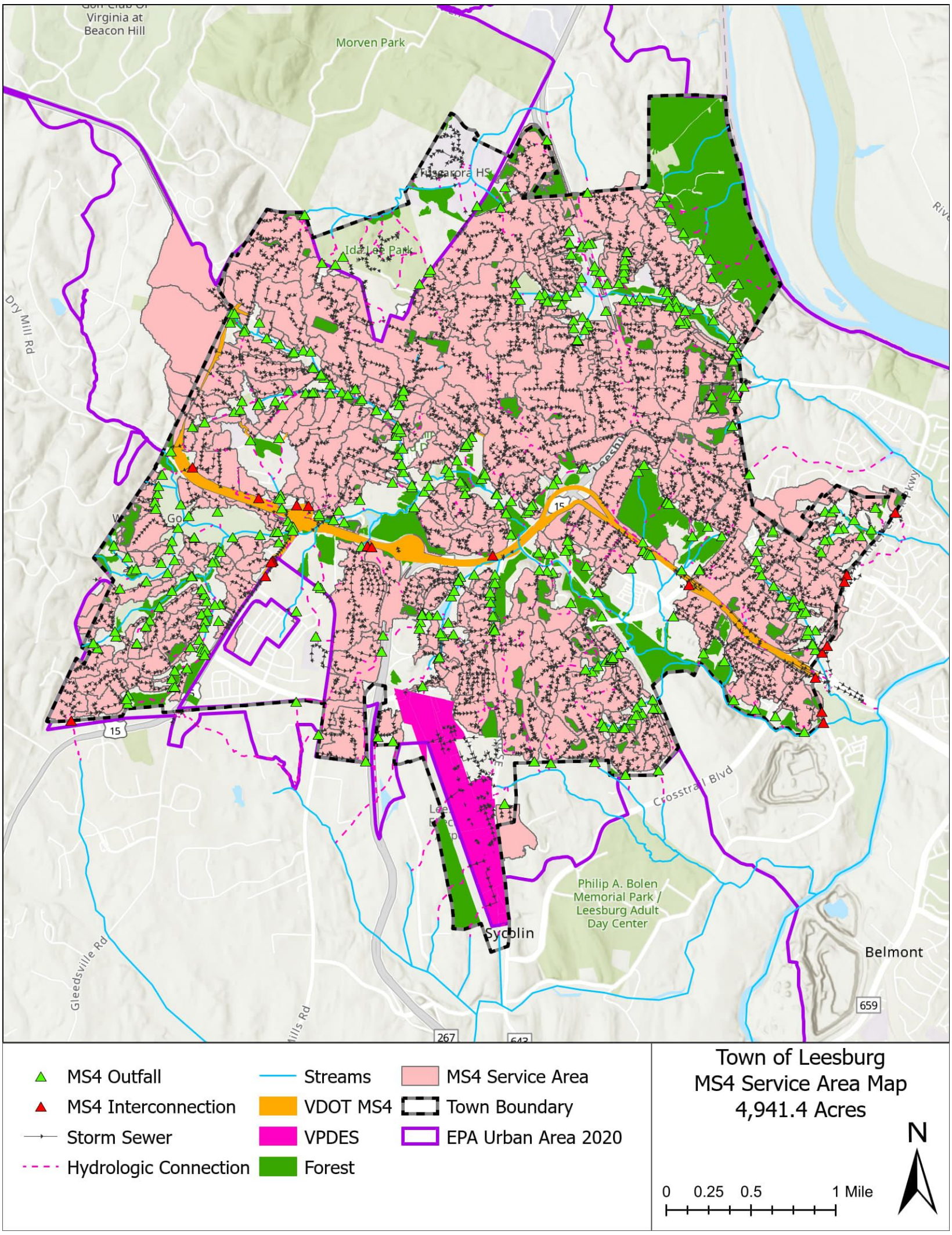
Figure 6C – Compliance Summary Graph



7. Public Comments

Public comments will be solicited on the final Phase III plan in accordance with Part II A 13 of the 2023 MS4 permit. The final Phase III plan must be submitted to DEQ within 12 months after the permit effective date. The Town is required to provide an opportunity for the public to comment on additional proposed BMPs for no fewer than 15 days. Appendix D is reserved for any future comments received on the plan.

Appendix A – Town of Leesburg MS4 Service Area Delineation



Appendix B

List of BMPs Implemented Prior to November 1, 2023

All calculations and supporting documentation, except Battlefield Parkway at Route 7, were included in previous versions of the Chesapeake Bay TMDL Action Plan and/or MS4 annual reports provided to DEQ.

Redevelopment

Redevelopment Project	TN Credit	TP Credit	TSS Credit	Year
Spring Arbor - 237 Fair View Street	2.02	0.80	275.71	2011
Loudoun County Building - 102 North Street	3.41	1.37	455.83	2011
Lowanbach Subdivision Road Improvement	1.90	0.21	259.53	2011
Frederick Douglass ES - 510 Principal Drumm	4.46	0.66	380.67	2011
Turner Harwood Drainage - Sycolin Road	0.64	0.26	87.60	2012
Wolf Furniture - 131 Fort Evans Road	1.54	0.63	210.41	2012
Star Building Addition - 326 East Market Stree	6.96	2.40	912.86	2012
Dulles Chrysler Dodge - 109 Catoctin Circle	4.56	1.77	621.09	2011
South King Street Phase 1	7.61	2.75	1036.53	2013
INOVA Cornwall Building - 224 Cornwall Stree	3.75	1.04	510.33	2014
Chipotle - Edwards Ferry Road	0.97	0.40	132.20	2014
Sycolin Road Widening Phase III - Sycolin Roa	4.31	1.56	587.36	2014
Sycolin Road and Tavistock Drive Intersection	1.93	0.35	200.37	2013
Leesburg Toyota - 1 Cardinal Drive Park, SE	17.17	6.14	2321.49	2015
Verizon Leesburg Training Center - 501 Tolbe	4.06	1.18	463.74	2014
Leesburg Airpark	3.44	0.73	424.30	2014
Lowenbach Phase V Road Improvements	15.89	3.63	2165.03	2016
Jerry's Ford Site Redevelopment	48.15	6.74	2614.32	2017
Floor and Decor	0.74	0.06	4.69	2022
Battlefield Parkway at Route 7	196.47	53.20	20256.89	2023
Total	**330.00**	**85.87**	**33920.96**	

Battlefield Parkway at Route 7		
Information	**Input**	**As Developed**
Date Completed	2023	
Rainfall		
Site Area (SF)	3607203.6	
Site Area (AC)		82.81
Watershed I %		
Pre-I Area (SF)	1412650.8	
Pre-I Area (AC)		32.43
Pre-I Area (%)		
Pre C Value		
Pre-TP Load (VRRM)		**94.60**
Post-I Area (SF)	1770278.4	
Post-I Area (AC)		40.64
Post-I Area (%)		
Post C Value		
Post-TP Load (VRRM)		**110.48**
Increase/Decrease		15.88
Stormwater Controls		
BMP 1	BMP 1 - Wet Pond Level 2	
Efficiency	0.75	
I Area (AC)	32.9	
TP Removed		67.08
BMP 2	BMP 2 - Wet Pond Level 1	
Efficiency	0.5	
I Area (AC)	1.47	
TP Removed		2.00
BMP 3		
Efficiency	0	
I Area (AC)	0	
TP Removed		0.00
Total BMP TP Removed		**69.08**
Net Change in TP		**(53.20)**

Creditable Reductions for TN and TSS Per Guidance Appendix V.E			
TP Decrease for Impervious Reduction			-
TP Decrease for BMPs (Proportion of BMP Applied to TMDL Reduction)			
	0.77		(53.20)
Total Creditable TP Decrease			**(53.20)**
Total Associated TN Load	6.9		762.31
TN Decrease from Impervious Reduction			-
TN Decrease for BMPs	Efficiency	Proportion IA Treated by BMP	
BMP 1	0.4	0.809547244	(246.85)
BMP 2	0.3	0.03617126	(8.27)
BMP 3	0	0	-
TN Decrease for BMPs (Decrease * Prop. Applied to TMDL)			-196.4734713
Total Creditable TN Decrease (Imp. Reduction + BMPs)			**(196.47)**
Total Associated TSS Load	469.2		51,837.22
TSS Decrease from Impervious Reduction			-
TSS Decrease for BMPs	Efficiency	Proportion IA Treated by BMP	
BMP 1	0.6	0.809547244	(25,178.81)
BMP 2	0.6	0.03617126	(1,125.01)
BMP 3	0	0	-
TSS Decrease for BMPs (Decrease * Prop. Applied to TMDL)			(20,256.89)
Total Creditable TSS Decrease (Imp. Reduction + BMPs)			**(20,256.89)**

BMP Efficiency Methodology Description:

Pre-TP Load and Post-TP Load taken from Virginia Runoff Reduction Method Redevelopment Worksheet. Methodology confirmed by email from Kelsey Brooks at DEQ received 5/18/2016. TP and TN efficiencies from Virginia BMP Clearinghouse for Wet Pond Levels 1 and 2. TSS efficiency from Chesapeake Bay Program Established Efficiencies. Project includes control for new interchange at Battlefield Parkway at Route 7. BMP 1 is sized to accomodate anticipated buildout/redevelopment at adjoining Potomac Station (which requires 20% reduction in TP).

2006-2009 Stormwater Facilities

Eligible 2006-2009 Facility	TN Credit	TP Credit	TSS Credit
South King Street Center - 818 South King Street	6.52	0.72	888.11
Kids Domain - 3 Greenway Drive, SW Leesburg	2.08	0.26	160.46
Leesburg Plaza Shopping Center - 510 East Market Street	3.20	1.15	435.94
Fort Evans Plaza II - 516 Fort Evans Road	85.43	39.79	16,918.39
Leesburg Veterinary Specialist - 165 Fort Evans Road, NE	8.62	1.16	669.91
Leesburg Commerce Center - 163 Fort Evans Road	24.91	3.35	1,935.96
Oaklawn Townhouses Phase 2 - 414 Virginia Wild Flower Terrace, SE	25.24	10.02	3,439.24
Fort Evans Plaza II Battlefield Parkway Extension - 516 Fort Evans Road	10.14	3.67	2,067.76
Potomac Station Parce "B" Lot C - 603 Potomac Station Dr. NE	2.17	0.89	295.90
Exeter Shopping Center - 700 Fieldstone Drive, NE	12.46	5.12	1,697.49
Western Loudoun Medical Center - 224D Old Waterford Road, NW	-	-	-
E.C.H.O Parcel 1B - 75 Lawson Road, SE	7.10	2.57	1,449.28
Total	**187.87**	**68.72**	**29,958.45**

More Stringent Regulation of Land Disturbing Activities

Project #	Project Title	Address	Methodology	Type BMP	Total Site Acres	Pre-IA	IA Treated	Pervious Treated	Date Activated	TN Credit	TP Credit	TSS Credit	Year
TLPF-2015-0003	Mini Site Plan Lots 4A and 4B Honicon Subdivision	707 Edwards Ferry Road, NE	VRRM	Purchased Credit	0.45	0.11	NA	NA	Purchase Date 7/28/2015	2.01	0.15		2015
TLCD-2016-0001	102 Cornwall Street	102 Cornwall Street	VRRM	Dry Wells (3)	0.56	0.28	0.1417	0.1626	2020		0.24		2020
TLCD-2016-0001	102 Cornwall Street	102 Cornwall Street	VRRM	Purchased Credit	0.56	0.28	NA	NA	2020	1.60	0.11		2020
									Total	**3.61**	**0.50**	**-**	

Street Sweeping

Notes: Updated calculation based on 2019 DEQ guidance. Must be vacuum assisted sweeper and utilize efficiencies from the Expert Panel Report (May 19, 2016). The Town typically does 7-8 passes per year. As a result, the Town may take credit in accordance with practice SPC-5 from Table 17 of the Expert Panel report.

TN Efficiency	0.7%	**Load per Acre**	15.5	Table 18 of Expert Panel.
TP Efficiency	2.0%	**Load per Acre**	1.93	Table 18 of Expert Panel.
TSS Efficiency	4.0%	**Load per Acre**	1300	Table 18 of Expert Panel.
Goose Creek %	0.95	Percent of total impervious area in Goose Creek watershed.		

Year	Centerline Miles	Curb Miles
FY18	109	218.00
FY19	109	218.00
FY20	131	262.00
FY21	133	266.00
FY22	145	290.00
FY23	145	290.00
FY24	145	290
FY25	145	290
FY26	145	290
FY27	145	290
FY28	145	290

Enter estimate for out-years.

Town Wide Reductions

Pollutant	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
TN	23.65	23.65	28.43	28.86	31.47	31.47	31.47	31.47	31.47	31.47	31.47
TP	8.41	8.41	10.11	10.27	11.19	11.19	11.19	11.19	11.19	11.19	11.19
TSS	11,336.00	11,336.00	13,624.00	13,832.00	15,080.00	15,080.00	15,080.00	15,080.00	15,080.00	15,080.00	15,080.00

Town-Initiated Projects

New Town Project	TN Credit	TP Credit	TSS Bay Credit	FY
Greenway Pond Retrofit	514.00	69.59	56,576.69	2018
Foxridge Pond Retrofit to Extended Dry Detention	236.04	14.39	25,837.78	2018
Stratford Pond Retrofit to Extended Dry Detention	507.02	21.47	41,142.77	2018
Tuscarora Creek Restoration	793.06	445.51	126,445.70	2021
Total	**2,050.12**	**550.96**	**250,002.94**	

Appendix C

Calculations and Supporting Documents for BMPs Planned to Meet Cumulative Reduction Targets

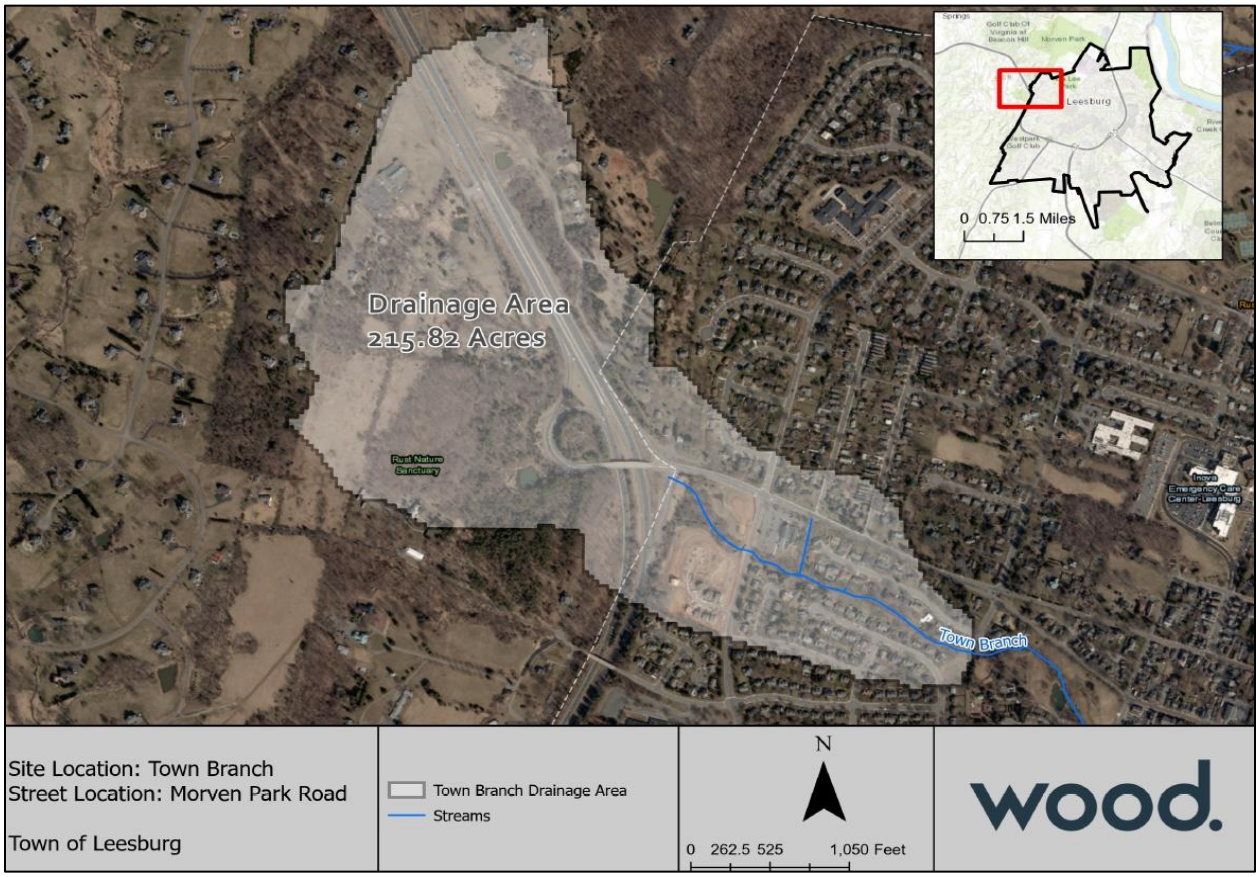
Summary of Planned BMPs

	Cumulative Reductions from Worksheets										
	Through FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
2006-2009 BMPs											
TN	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87	187.87
TP	68.72	68.72	68.72	68.72	68.72	68.72	68.72	68.72	68.72	68.72	68.72
TSS	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45	29,958.45
New Town Projects											
TN	1,257.06	1,257.06	1,257.06	2,050.12	2,050.12	2,050.12	2,441.84	2,715.60	2,715.60	2,715.60	3,949.72
TP	105.46	105.46	105.46	550.96	550.96	550.96	673.09	820.91	820.91	820.91	1,121.57
TSS	123,557.24	123,557.24	123,557.24	250,002.94	250,002.94	250,002.94	723,580.67	1,357,182.88	1,357,182.88	1,357,182.88	1,869,926.01
Nutrient Management Plans											
TN	-	-	-	-	-	-	-	-	-	-	-
TP	-	-	-	-	-	-	-	-	-	-	-
TSS	-	-	-	-	-	-	-	-	-	-	-
Sweeping											
TN	23.65	23.65	28.43	28.86	31.47	31.47	31.47	31.47	31.47	31.47	31.47
TP	8.41	8.41	10.11	10.27	11.19	11.19	11.19	11.19	11.19	11.19	11.19
TSS	11,336.00	11,336.00	13,624.00	13,832.00	15,080.00	15,080.00	15,080.00	15,080.00	15,080.00	15,080.00	15,080.00
Septic System Disconnects											
TN	10.55	21.10	21.10	42.20	42.20	42.20	42.20	42.20	42.20	42.20	42.20
TP	-	-	-	-	-	-	-	-	-	-	-
TSS	-	-	-	-	-	-	-	-	-	-	-
Nutrient Purchases											
TN	-	-	-	-	-	-	-	-	-	-	-
TP	-	-	-	-	-	-	-	-	-	-	-
TSS	-	-	-	-	-	-	-	-	-	-	-
Redevelopment											
TN	132.79	132.79	132.79	132.79	133.53	330.00	330.00	330.00	330.00	330.00	330.00
TP	32.62	32.62	32.62	32.62	32.68	85.87	85.87	85.87	85.87	85.87	85.87
TSS	13,659.38	13,659.38	13,659.38	13,659.38	13,664.07	33,920.96	33,920.96	33,920.96	33,920.96	33,920.96	33,920.96
More Stringent Development											
TN	2.01	2.01	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61	3.61
TP	0.15	0.15	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
TSS	-	-	-	-	-	-	-	-	-	-	-
Landuse Conversion											
TN	-	-	-	-	-	-	-	-	-	-	-
TP	-	-	-	-	-	-	-	-	-	-	-
TSS	-	-	-	-	-	-	-	-	-	-	-
Other BMPs											
TN	-	-	-	-	-	-	-	-	-	-	-
TP	-	-	-	-	-	-	-	-	-	-	-
TSS	-	-	-	-	-	-	-	-	-	-	-
Total Reductions											
TN	1,613.93	1,624.48	1,630.85	2,445.45	2,448.79	2,645.26	3,036.99	3,310.74	3,310.74	3,310.74	4,544.87
TP	215.36	215.36	217.41	663.07	664.06	717.25	839.38	987.20	987.20	987.20	1,287.86
TSS	178,511.06	178,511.06	180,799.06	307,452.77	308,705.46	328,962.35	802,540.08	1,436,142.29	1,436,142.29	1,436,142.29	1,948,885.42

Town-Initiated Projects

New Town Project	TN Credit	TP Credit	TSS Bay Credit	FY
Kincaid Forest Pond Retrofit	209.91	10.88	27,301.35	2028
Stowers Pond Retrofit	283.65	42.15	36,093.18	2028
Fox Chapel Pond Retrofit	22.38	1.44	3,751.03	2028
Newhall Place Pond Retrofit	36.12	1.81	4,535.63	2028
Ida Lee Park Pond Retrofit	40.40	4.15	3,200.18	2028
Tuscarora Creek at Russell Branch Parkway	478.65	220.45	419,871.26	2028
Battlefield Pkwy and Ft Evans Road Filtering Practices	163.01	19.77	17,990.51	2028

Town Branch at Morven Road Park



View of undercut bank

View eroded stream bank, potential property loss

Stream Restoration	Town Branch at Morven Road Park		
Latitude	39.1169N	Watershed	HUC PL15
Longitude	77.5750W	Length (LF)	1528
Completion Year (FY)	2024		

Step 1	Calculate POC Reductions with BANCS			Notes
				Enter data into green cells only.
TSS/Year in Tons	479.35			Tons TSS/year per BANCS assessment.
Site-Specific Nutrients or Default Rates?	Site-Specific			Choose site-specfic nutrient analysis or default rates. Site-specific required after July 1, 2021.
	TN	TP	TSS	
Site-Specific Nutrients in Pounds/Year	830.876529	257.02747	958,700.00	Prompts to enter pounds TN and TP if "Site-Specific" is selected.
Default Conversion	1,092.92	503.32	958,700.00	
Selected POC Reductions	830.88	257.03	958,700.00	
Effectiveness	0.5			Default is 50%. Modify up to 80% using BANCS recalculation at three years after completion.
Total Reduction	**415.44**	**128.51**	**479,350.00**	

Step 2	Calculate the Project Credit Ratio			
	Impervious	Pervious	Total Urban	Forested
Regulated Land	191.17	0	191.17	0
Unregulated Land	24.64	0	24.64	0
		Subtotal	215.81	0
		Total Urban and Forested		215.81

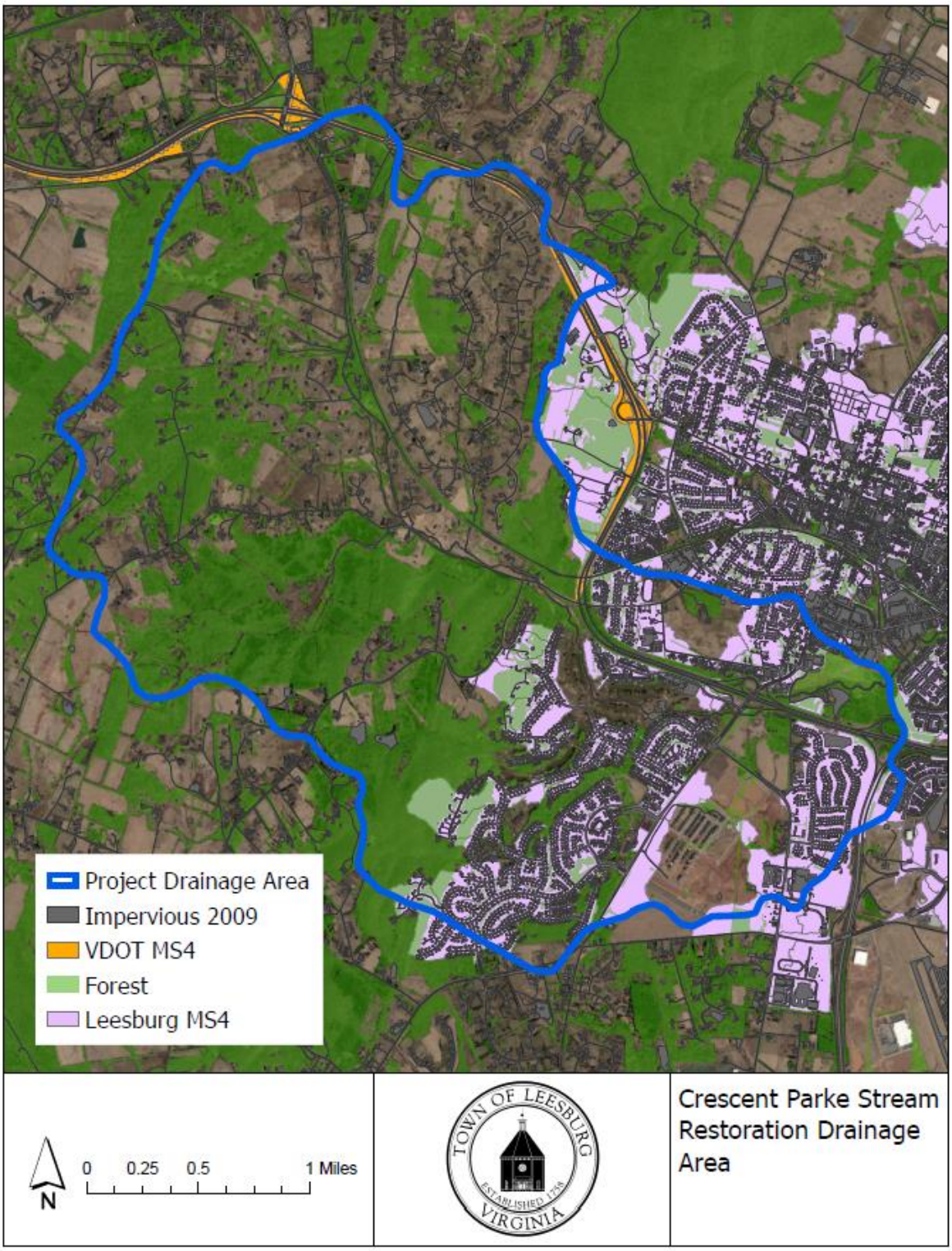
Regulated Urban	0.886
Unregulated Urban	0.114
Forest	0.000

Step 3	Calculate Total Reductions Before Baseline		
	TN	TP	TSS
Regulated Urban	368.01	113.84	424,620.45
Unregulated Urban	47.43	14.67	54,729.55
Forest	-	-	-

Step 4	Account for Unregulated Baseline			
	TN	TP	TSS	
Unregulated Urban at 50%	23.72	7.34	27,364.78	
Unregulated Urban at L2	37.39	6.39	5,772.26	Table 3b of MS4 permit; acres of each unregulated land use by the basin loading rate and L2 required reductions.
Less Stringent Baseline	23.72	6.39	5,772.26	

Step 5	Total Credit			
Regulated and Forest	368.01	113.84	424,620.45	
Unregulated Urban Minus Less Stringent Baseline	23.72	8.28	48,957.29	Calculation set so that it does not result in negative credit.
Total Credit	**391.73**	**122.12**	**473,577.74**	

Tuscarora Creek at Crescent Parke



Project	Tuscarora Creek at Crescent Park		
Latitude	39.103175	Watershed	HUC PL15
Longitude	-77.566935	Length (LF)	2,130
Completion Year	2025		

Step 1	Calculate POC Reductions with BANCS			Notes
				Enter data into green cells only.
TSS/Year in Tons	714.07			Tons TSS/year per BANCS assessment.
Site-Specific Nutrients or Default Rates?	Site-Specific			Choose site-specfic nutrient analysis or default rates. Site-specific required after July 1, 2021.
	TN	TP	TSS	
Site-Specific Nutrients in Pounds/Year	714.07	385.60	1,428,140.00	Prompts to enter pounds TN and TP if "Site-Specific" is selected.
Default Conversion	1,628.08	749.77	1,428,140.00	
Selected POC Reductions	714.07	385.60	1,428,140.00	
Effectiveness	0.5			Default is 50%. Modify up to 80% using BANCS recalculation at three years after completion.
Total Reduction	**357.04**	**192.80**	**714,070.00**	

Step 2	Calculate the Project Credit Ratio			
	Impervious	Pervious	Total Urban	Forested
Regulated Land	270.4	586.6	857	124.8
Unregulated Land	201.2	2167	2368.2	1725.6
		Subtotal	3225.2	1850.4
		Total Urban and Forested		5075.6

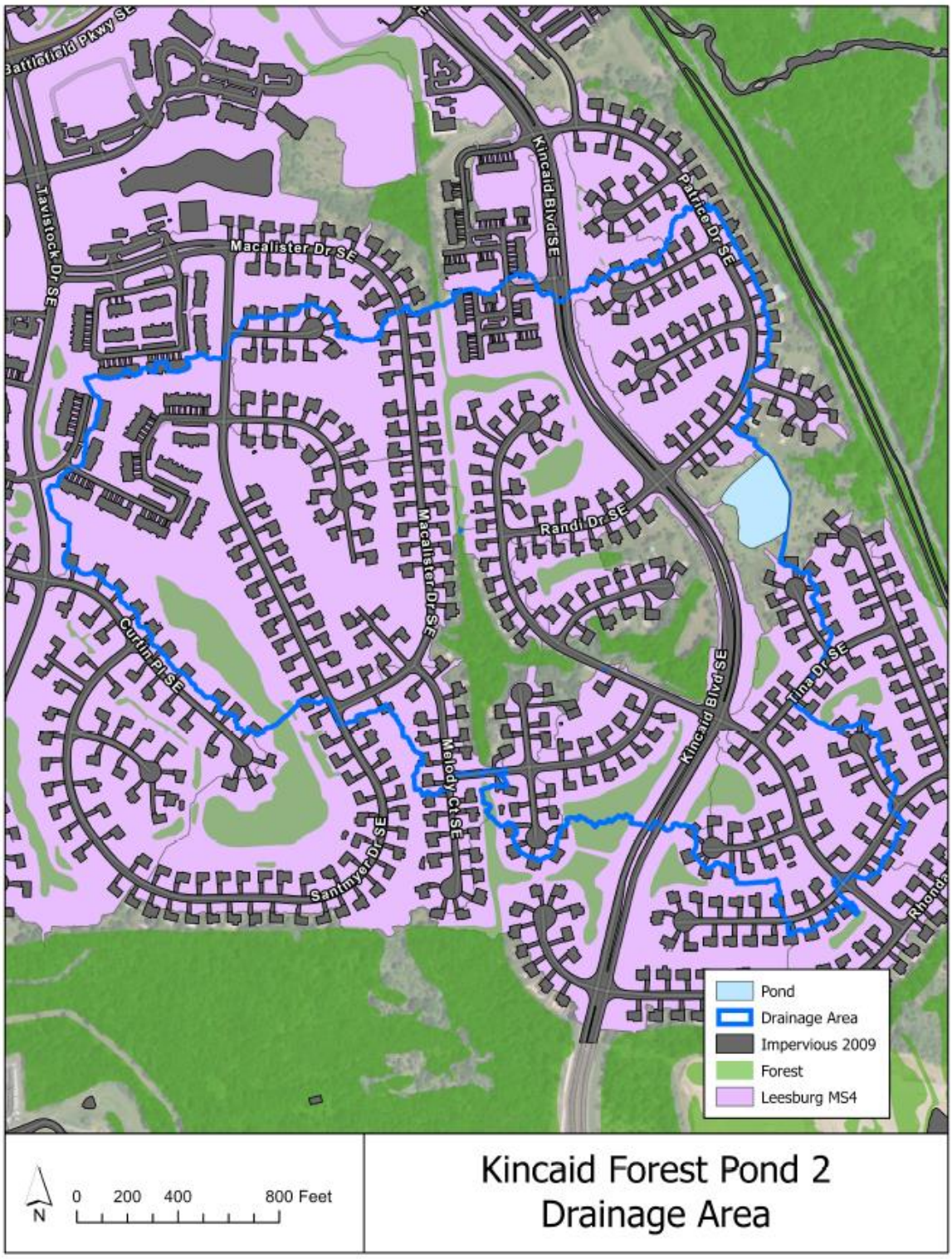
Regulated Urban	0.169
Unregulated Urban	0.467
Forest	0.365

Step 3	Calculate Total Reductions Before Baseline		
	TN	TP	TSS
Regulated Urban	60.29	32.55	120,568.60
Unregulated Urban	166.59	89.96	333,174.52
Forest	130.17	70.29	260,326.88

Step 4	Account for Unregulated Baseline			
	TN	TP	TSS	
Unregulated Urban at 50%	83.30	44.98	166,587.26	
Unregulated Urban at L2	1,614.60	116.57	80,467.79	Table 3b of MS4 permit; acres of each unregulated land use by the basin loading rate and L2 required reductions.
Less Stringent Baseline	83.30	44.98	80,467.79	

Step 5	Total Credit			
Regulated and Forest	190.46	102.84	380,895.48	
Unregulated Urban Minus Less Stringent Baseline	83.30	44.98	252,706.73	Calculation set so that it does not result in negative credit.
Total Credit	**273.76**	**147.82**	**633,602.21**	

Kincaid Forest Pond Retrofit



Project	Kincaid Forest Pond Retrofit		
Description:	Convert dry pond to extended detention dry pond.		
Completion Fiscal Year:	2028	Watershed:	Goose Creek
Lattitude:	39.086539	Longitude:	-77536839
Methodology:	DEQ Guidance Memo No 20-2003 - Chesapeake Bay TMDL Special Condition (2/6/2021)		
	Appendix V.D - BMP Enhancement, Conversion, and Restoration		
Efficiencies:	Existing Efficiencies = Appendix V.C - Chesapeake Bay Program, Established Efficiencies Dry Pond		
	Retrofit Efficiencies = Appendix V.C - Chesapeake Bay Program, Established Efficiencies Extended Detention Dry Pond		

Downward Modification Table Applies to retrofit of existing facilities only - 50% maximum.

BMP Type	Modification Type	Downward Modification (%)
Dry Pond	No Sediment Forebay	10
	No Micropool/Riser Protec.	10
	Short-Circuiting	10
	No BMP Orifice	
	Existing Trickle Ditch	
	Undersized - Drainage Area	
	Undersized - Pond Volume	10
	Total %	**40**

Efficiency for New Facility

Pollutant	Existing Facility Efficiency	Downward Modification * Existing Pond Efficiency	New Facility Efficiency	Total Efficiency
TN	5	3	20	**17.00**
TP	10	6	20	**14.00**
TSS	10	6	60	**54.00**

Calculation Sheet Table 3b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin (Include total drainage when also taking baseline reduction.)

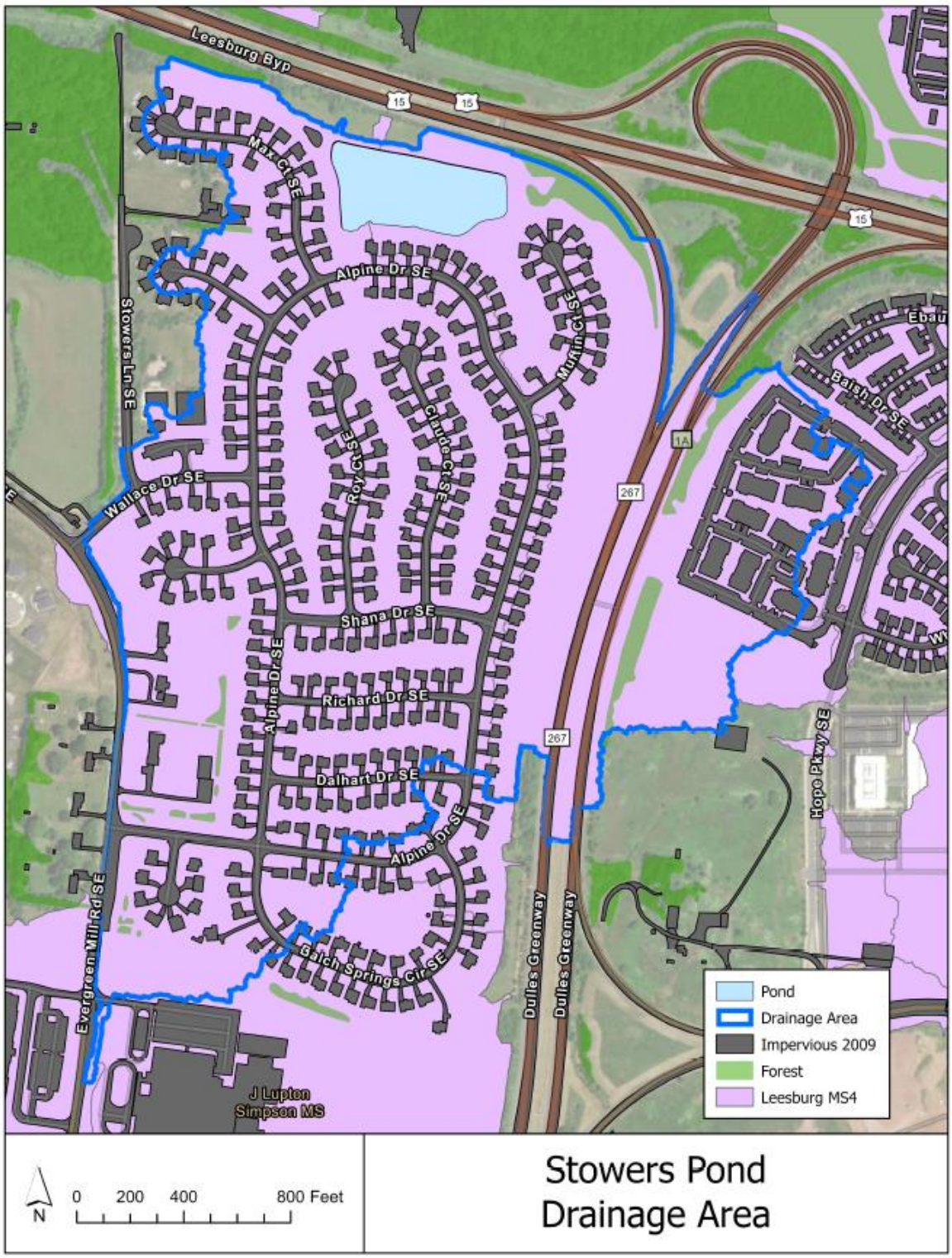
Subsource	Pollutant	Total Acres Served (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	New BMP Efficiency	Load Reduction
Total Impervious	Total Nitrogen	33.1	16.86	558.07	17.00	**94.87**
Total Pervious		73.4	10.07	739.14	17.00	**125.65**
Forested (Reg or Unreg)		0	1.16	0.00	17.00	**0.00**
Total Impervious	Total Phosphorus	33.1	1.62	53.62	14.00	**7.51**
Total Pervious		73.4	0.41	30.09	14.00	**4.21**
Forested (Reg or Unreg)		0	0.07	0.00	14.00	**0.00**
Total Impervious	Total Suspended Solids	33.1	1,171.32	38,770.69	54.00	**20,936.17**
Total Pervious		73.4	175.80	12,903.72	54.00	**6,968.01**
Forested (Reg or Unreg)		0	57.54	0.00	54.00	**0.00**

Baseline Reduction Applies only where facility is not completely within the MS4 service area.

Subsource	Pollutant	Acres in Unregulated Area (6/30/09)	2009 EOS Loading Rate (lbs/acre)	L2 Load Reduction Percent	Baseline
Unregulated Impervious	Total Nitrogen	1.7	16.86	0.0900	2.58
Unregulated Pervious		13.3	10.07	0.0600	8.04
Unregulated Impervious	Total Phosphorus	1.7	1.62	0.1600	0.44
Unregulated Pervious		13.3	0.41	0.0725	0.40
Unregulated Impervious	Total Suspended Solids	1.7	1,171.32	0.2000	398.25
Unregulated Pervious		13.3	175.80	0.0875	204.59

TN Reduction (lbs/year)	**209.91**
TP Reduction (lbs/year)	**10.88**
TSS Reduction (lbs/year)	**27,301.35**

Stowers Pond Retrofit



Project	Stowers Pond Retrofit		
Description:	Convert dry pond to constructed wetland.		
Completion Fiscal Year:	2028	Watershed:	Goose Creek
Lattitude:	39.09984	Longitude:	-77566467
Methodology:	DEQ Guidance Memo No 20-2003 - Chesapeake Bay TMDL Special Condition (2/6/2021)		
	Appendix V.D - BMP Enhancement, Conversion, and Restoration		
Efficiencies:	Existing Efficiencies = Appendix V.C - Chesapeake Bay Program, Established Efficiencies Dry Pond		
	Retrofit Efficiencies = Appendix V.C - Chesapeake Bay Program, Established Efficiencies Constructed Wetland		

Downward Modification Table Applies to retrofit of existing facilities only - 50% maximum.

BMP Type	Modification Type	Downward Modification (%)
Dry Pond	No Sediment Forebay	10
	No Micropool/Riser Protec.	10
	Short-Circuiting	10
	No BMP Orifice	
	Existing Trickle Ditch	
	Undersized - Drainage Area	
	Undersized - Pond Volume	10
	Total %	**40**

Efficiency for New Facility

Pollutant	Existing Facility Efficiency	Downward Modification * Existing Pond Efficiency	New Facility Efficiency	Total Efficiency
TN	5	3	20	**17.00**
TP	10	6	45	**39.00**
TSS	10	6	60	**54.00**

Calculation Sheet Table 3b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin (Include total drainage when also taking baseline reduction.)

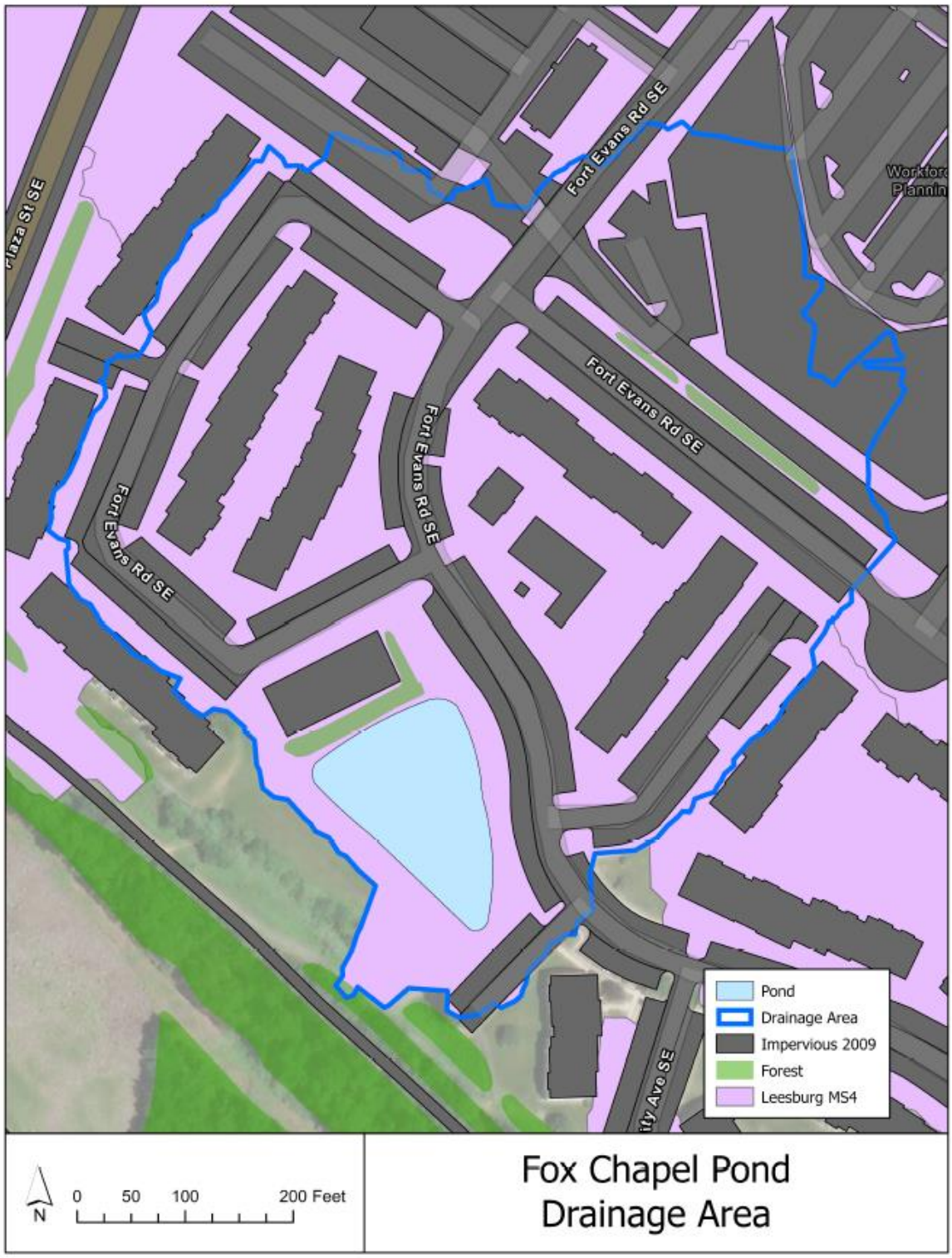
Subsource	Pollutant	Total Acres Served (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	New BMP Efficiency	Load Reduction
Total Impervious	Total Nitrogen	43	16.86	724.98	17.00	**123.25**
Total Pervious		93.7	10.07	943.56	17.00	**160.41**
Forested (Reg or Unreg)		0	1.16	0.00	17.00	**0.00**
Total Impervious	Total Phosphorus	43	1.62	69.66	39.00	**27.17**
Total Pervious		93.7	0.41	38.42	39.00	**14.98**
Forested (Reg or Unreg)		0	0.07	0.00	39.00	**0.00**
Total Impervious	Total Suspended Solids	43	1,171.32	50,366.76	54.00	**27,198.05**
Total Pervious		93.7	175.80	16,472.46	54.00	**8,895.13**
Forested (Reg or Unreg)		0	57.54	0.00	54.00	**0.00**

Baseline Reduction Applies only where facility is not completely within the MS4 service area.

Subsource	Pollutant	Acres in Unregulated Area (6/30/09)	2009 EOS Loading Rate (lbs/acre)	L2 Load Reduction Percent	Baseline
Unregulated Impervious	Total Nitrogen	0	16.86	0.0900	0.00
Unregulated Pervious		0	10.07	0.0600	0.00
Unregulated Impervious	Total Phosphorus	0	1.62	0.1600	0.00
Unregulated Pervious		0	0.41	0.0725	0.00
Unregulated Impervious	Total Suspended Solids	0	1,171.32	0.2000	0.00
Unregulated Pervious		0	175.80	0.0875	0.00

TN Reduction (lbs/year)	**283.65**
TP Reduction (lbs/year)	**42.15**
TSS Reduction (lbs/year)	**36,093.18**

Fox Chapel Pond Retrofit



Project	Fox Chapel Pond Retrofit		
Description:	Convert dry pond to extended detention dry pond.		
Completion Fiscal Year:	2028	Watershed:	Goose Creek
Lattitude:	39.104397	Longitude:	-77.551005
Methodology:	DEQ Guidance Memo No 20-2003 - Chesapeake Bay TMDL Special Condition (2/6/2021)		
	Appendix V.D - BMP Enhancement, Conversion, and Restoration		
Efficiencies:	Existing Efficiencies = Appendix V.C - Chesapeake Bay Program, Established Efficiencies Dry Pond		
	Retrofit Efficiencies = Appendix V.C - Chesapeake Bay Program, Established Efficiencies Extended Detention Dry Pond		

Downward Modification Table Applies to retrofit of existing facilities only - 50% maximum.

BMP Type	Modification Type	Downward Modification (%)
Dry Pond	No Sediment Forebay	10
	No Micropool/Riser Protec.	10
	Short-Circuiting	10
	No BMP Orifice	
	Existing Trickle Ditch	
	Undersized - Drainage Area	
	Undersized - Pond Volume	10
	Total %	**40**

Efficiency for New Facility

Pollutant	Existing Facility Efficiency	Downward Modification * Existing Pond Efficiency	New Facility Efficiency	Total Efficiency
TN	5	3	20	**17.00**
TP	10	6	20	**14.00**
TSS	10	6	60	**54.00**

Calculation Sheet Table 3b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin (Include total drainage when also taking baseline reduction.)

Subsource	Pollutant	Total Acres Served (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	New BMP Efficiency	Load Reduction
Total Impervious	Total Nitrogen	5.3	16.86	89.36	17.00	**15.19**
Total Pervious		4.2	10.07	42.29	17.00	**7.19**
Forested (Reg or Unreg)		0	1.16	0.00	17.00	**0.00**
Total Impervious	Total Phosphorus	5.3	1.62	8.59	14.00	**1.20**
Total Pervious		4.2	0.41	1.72	14.00	**0.24**
Forested (Reg or Unreg)		0	0.07	0.00	14.00	**0.00**
Total Impervious	Total Suspended Solids	5.3	1,171.32	6,208.00	54.00	**3,352.32**
Total Pervious		4.2	175.80	738.36	54.00	**398.71**
Forested (Reg or Unreg)		0	57.54	0.00	54.00	**0.00**

Baseline Reduction Applies only where facility is not completely within the MS4 service area.

Subsource	Pollutant	Acres in Unregulated Area (6/30/09)	2009 EOS Loading Rate (lbs/acre)	L2 Load Reduction Percent	Baseline
Unregulated Impervious	Total Nitrogen	0	16.86	0.0900	0.00
Unregulated Pervious		0	10.07	0.0600	0.00
Unregulated Impervious	Total Phosphorus	0	1.62	0.1600	0.00
Unregulated Pervious		0	0.41	0.0725	0.00
Unregulated Impervious	Total Suspended Solids	0	1,171.32	0.2000	0.00
Unregulated Pervious		0	175.80	0.0875	0.00

TN Reduction (lbs/year)	**22.38**
TP Reduction (lbs/year)	**1.44**
TSS Reduction (lbs/year)	**3,751.03**

Newhall Place Pond Retrofit

Project	Newhall Place Pond Retrofit		
Description:	Convert dry pond to extended detention dry pond.		
Completion Fiscal Year:	2028	Watershed:	Goose Creek
Lattitude:	39.116704	Longitude:	-77.575335
Methodology:	DEQ Guidance Memo No 20-2003 - Chesapeake Bay TMDL Special Condition (2/6/2021)		
	Appendix V.D - BMP Enhancement, Conversion, and Restoration		
Efficiencies:	Existing Efficiencies = Appendix V.C - Chesapeake Bay Program, Established Efficiencies Dry Pond		
	Retrofit Efficiencies = Appendix V.C - Chesapeake Bay Program, Established Efficiencies Extended Detention Dry Pond		

Downward Modification Table Applies to retrofit of existing facilities only - 50% maximum.

BMP Type	Modification Type	Downward Modification (%)
Dry Pond	No Sediment Forebay	10
	No Micropool/Riser Protec.	10
	Short-Circuiting	10
	No BMP Orifice	
	Existing Trickle Ditch	
	Undersized - Drainage Area	
	Undersized - Pond Volume	
	Total %	**30**

Efficiency for New Facility

Pollutant	Existing Facility Efficiency	Downward Modification * Existing Pond Efficiency	New Facility Efficiency	Total Efficiency
TN	5	3.5	20	**16.50**
TP	10	7	20	**13.00**
TSS	10	7	60	**53.00**

Calculation Sheet Table 3b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin (Include total drainage when also taking baseline reduction.)

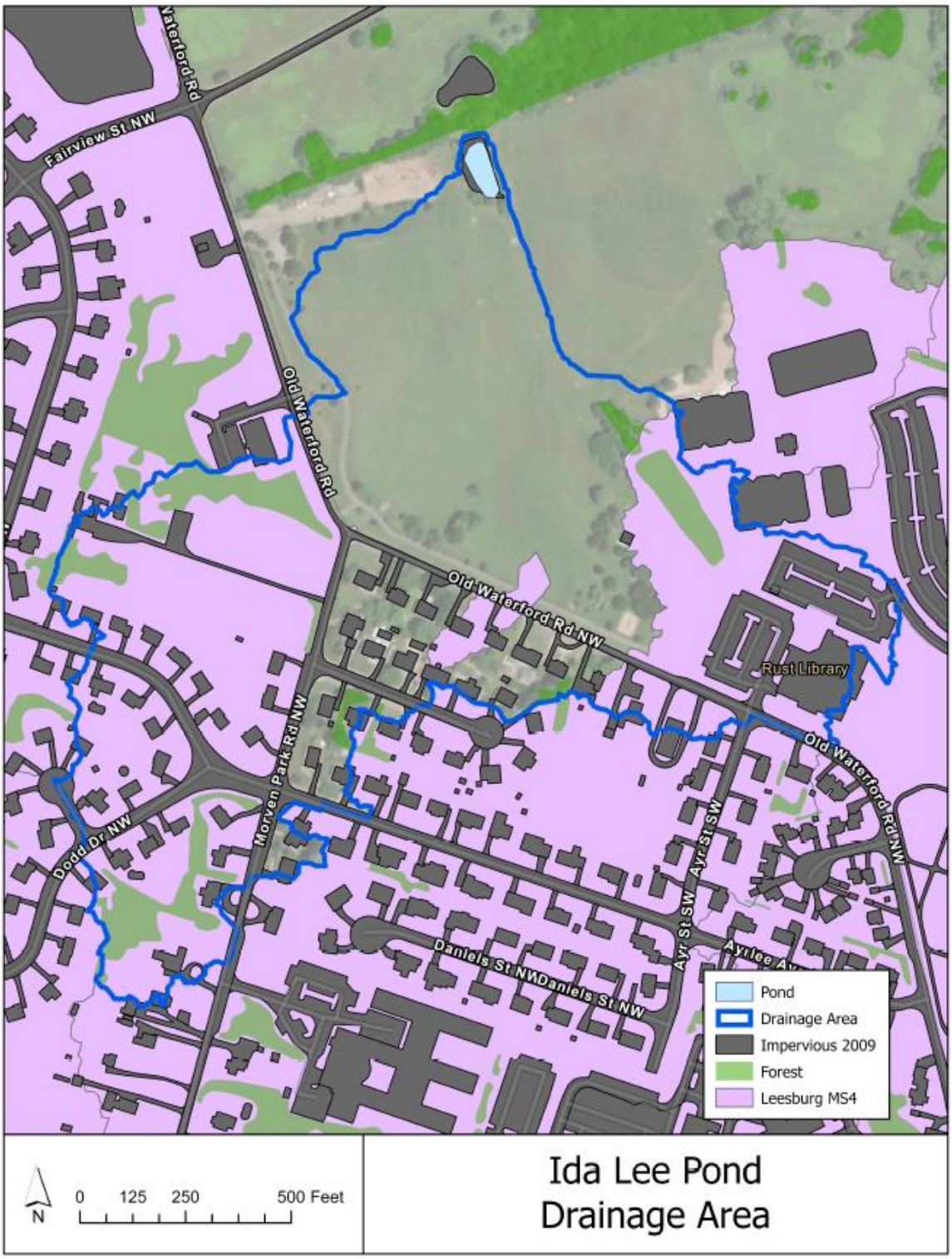
Subsource	Pollutant	Total Acres Served (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	New BMP Efficiency	Load Reduction
Total Impervious	Total Nitrogen	5.4	16.86	91.04	16.50	**15.02**
Total Pervious		12.7	10.07	127.89	16.50	**21.10**
Forested (Reg or Unreg)		0	1.16	0.00	16.50	**0.00**
Total Impervious	Total Phosphorus	5.4	1.62	8.75	13.00	**1.14**
Total Pervious		12.7	0.41	5.21	13.00	**0.68**
Forested (Reg or Unreg)		0	0.07	0.00	13.00	**0.00**
Total Impervious	Total Suspended Solids	5.4	1,171.32	6,325.13	53.00	**3,352.32**
Total Pervious		12.7	175.80	2,232.66	53.00	**1,183.31**
Forested (Reg or Unreg)		0	57.54	0.00	53.00	**0.00**

Baseline Reduction Applies only where facility is not completely within the MS4 service area.

Subsource	Pollutant	Acres in Unregulated Area (6/30/09)	2009 EOS Loading Rate (lbs/acre)	L2 Load Reduction Percent	Baseline
Unregulated Impervious	Total Nitrogen	0	16.86	0.0900	0.00
Unregulated Pervious		0	10.07	0.0600	0.00
Unregulated Impervious	Total Phosphorus	0	1.62	0.1600	0.00
Unregulated Pervious		0	0.41	0.0725	0.00
Unregulated Impervious	Total Suspended Solids	0	1,171.32	0.2000	0.00
Unregulated Pervious		0	175.80	0.0875	0.00

TN Reduction (lbs/year)	**36.12**
TP Reduction (lbs/year)	**1.81**
TSS Reduction (lbs/year)	**4,535.63**

Ida Lee Park Pond Retrofit



Project	Ida Lee Park Pond Retrofit		
Description:	Enhance wet pond by providing additional storage capacity (0.19 acre/feet to 1.72 acre/feet).		
Completion Fiscal Year:	2028	Watershed:	Potomac River Direct
Lattitude:	39.127011	Longitude:	-77.570686
Methodology:	DEQ Guidance Memo No 20-2003 - Chesapeake Bay TMDL Special Condition (2/6/2021)		
	Appendix V.D - BMP Enhancement, Conversion, and Restoration		
Efficiencies:	Existing Efficiencies = Appendix V.B - Chesapeake Bay Program, Retrofit Curves		
	Retrofit Efficiencies = Appendix V.C - Chesapeake Bay Program, Retrofit Curves		

Downward Modification Table Applies to retrofit of existing facilities only - 50% maximum.

BMP Type	Modification Type	Downward Modification (%)
Wet Pond	No Sediment Forebay	
	No Micropool/Riser Protec.	
	Short-Circuiting	
	No BMP Orifice	
	Existing Trickle Ditch	
	Undersized - Drainage Area	
	Undersized - Pond Volume	
	Total %	**0**

Efficiency for New Facility

Pollutant	Existing Facility Efficiency	Downward Modification * Existing Pond Efficiency	New Facility Efficiency	Total Efficiency
TN	18.7	18.7	40	**21.30**
TP	29.5	29.5	63.2	**33.70**
TSS	37.5	37.5	80.3	**42.80**

Calculation Sheet Table 3b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin (Include total drainage when also taking baseline reduction.)

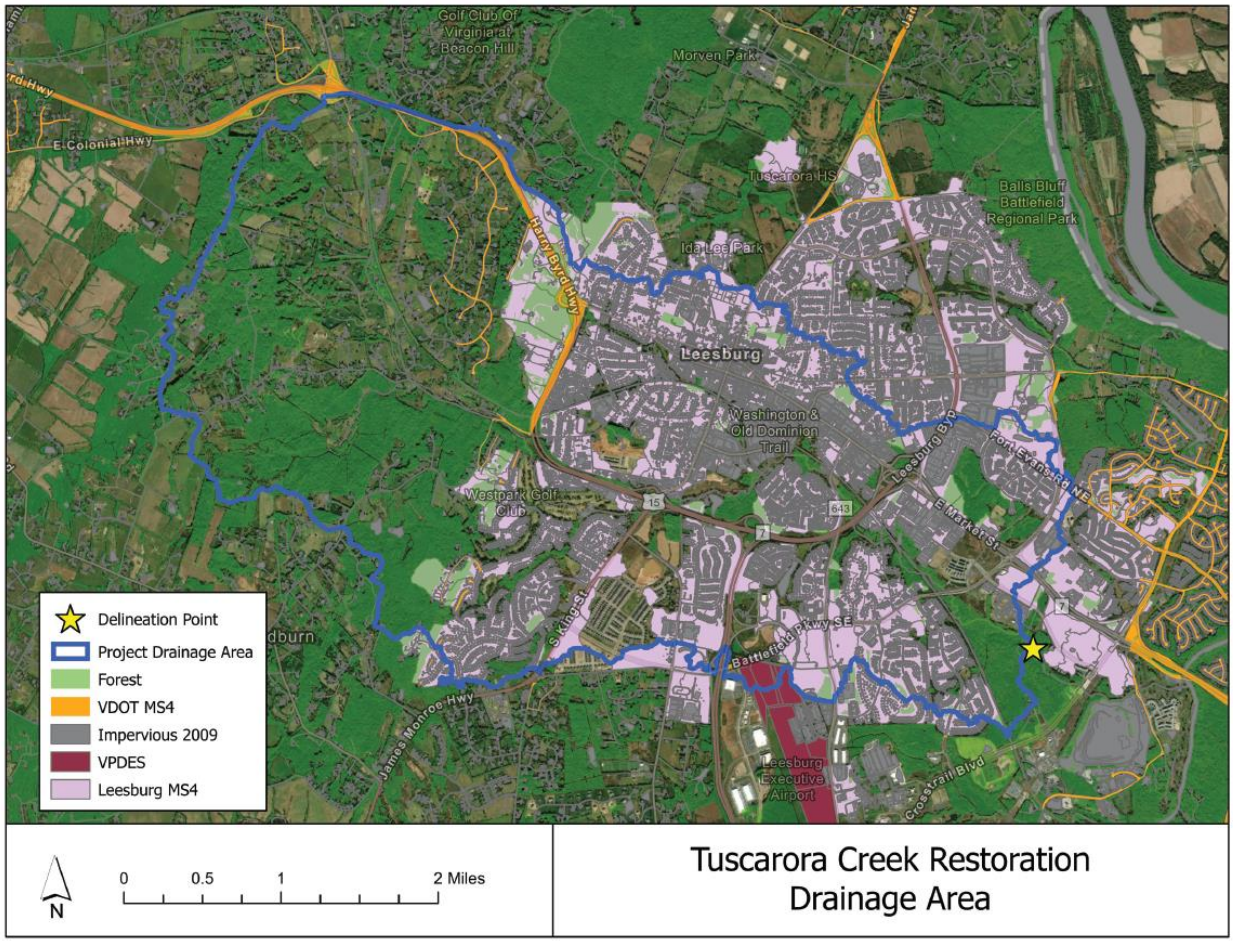
Subsource	Pollutant	Total Acres Served (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	New BMP Efficiency	Load Reduction
Total Impervious	Total Nitrogen	5.5	16.86	92.73	21.30	**19.75**
Total Pervious		15.9	10.07	160.11	21.30	**34.10**
Forested (Reg or Unreg)		0	1.16	0.00	21.30	**0.00**
Total Impervious	Total Phosphorus	5.5	1.62	8.91	33.70	**3.00**
Total Pervious		15.9	0.41	6.52	33.70	**2.20**
Forested (Reg or Unreg)		0	0.07	0.00	33.70	**0.00**
Total Impervious	Total Suspended Solids	5.5	1,171.32	6,442.26	42.80	**2,757.29**
Total Pervious		15.9	175.80	2,795.22	42.80	**1,196.35**
Forested (Reg or Unreg)		0	57.54	0.00	42.80	**0.00**

Baseline Reduction Applies only where facility is not completely within the MS4 service area.

Subsource	Pollutant	Acres in Unregulated Area (6/30/09)	2009 EOS Loading Rate (lbs/acre)	L2 Load Reduction Percent	Baseline
Unregulated Impervious	Total Nitrogen	2.1	16.86	0.0900	3.19
Unregulated Pervious		17	10.07	0.0600	10.27
Unregulated Impervious	Total Phosphorus	2.1	1.62	0.1600	0.54
Unregulated Pervious		17	0.41	0.0725	0.51
Unregulated Impervious	Total Suspended Solids	2.1	1,171.32	0.2000	491.95
Unregulated Pervious		17	175.80	0.0875	261.50

TN Reduction (lbs/year)	**40.40**
TP Reduction (lbs/year)	**4.15**
TSS Reduction (lbs/year)	**3,200.18**

Tuscarora Creek at Russel Branch Parkway



Stream Restoration	Tuscarora Creek at Russell Branch Parkway		
Latitude	39.08862	Watershed	HUC PL15
Longitude	-77.529143	Length (LF)	2100
Completion Year (FY)	2028		

Step 1	Calculate POC Reductions with BANCS		
TSS/Year in Tons	516.0645		
Site-Specific Nutrients or Default Rates?	Default		
	TN	TP	TSS
Site-Specific Nutrients in Pounds/Year	894.5152404	276.7137849	1,032,129.00
Default Conversion	1,176.63	541.87	1,032,129.00
Selected POC Reductions	1,176.63	541.87	1,032,129.00
Effectiveness	0.5		
Total Reduction	**588.32**	**270.94**	**516,064.50**

Notes
Enter data into green cells only.
Tons TSS/year per BANCS assessment.
Choose site-specfic nutrient analysis or default rates. Site-specific required after July 1, 2021.
Prompts to enter pounds TN and TP if "Site-Specific" is selected.
Default is 50%. Modify up to 80% using BANCS recalculation at three years after completion.

Step 2	Calculate the Project Credit Ratio			
	Impervious	Pervious	Total Urban	Forested
Regulated Land	1083	2045.2	3128.2	255.7
Unregulated Land	360.8	2801.4	3162.2	1936.3
		Subtotal	6290.4	2192
		Total Urban and Forested		8482.4

Regulated Urban	0.369
Unregulated Urban	0.373
Forest	0.258

Step 3	Calculate Total Reductions Before Baseline		
	TN	TP	TSS
Regulated Urban	216.96	99.92	190,317.95
Unregulated Urban	219.32	101.01	192,386.49
Forest	152.03	70.02	133,360.06

Step 4	Account for Unregulated Baseline		
	TN	TP	TSS
Unregulated Urban at 50%	109.66	50.51	96,193.25
Unregulated Urban at L2	2,240.08	176.79	127,614.99
Less Stringent Baseline	109.66	50.51	96,193.25

Notes
Table 3b of MS4 permit; acres of each unregulated land use by the basin loading rate and L2 required reductions.

Step 5	Total Credit		
Regulated and Forest	368.99	169.94	323,678.01
Unregulated Urban Minus Less Stringent Baseline	109.66	50.51	96,193.25
Total Credit	**478.65**	**220.45**	**419,871.26**

Notes
Calculation set so that it does not result in negative credit.

Battlefield Parkway and Fort Evans Road Filtering Practices

Project	Battlefield Pkwy and Ft Evans Road Filtering Practices		
Description:	Install urban filtering practices at road inlets.		
Completion Fiscal Year:	2028	Watershed:	Goose Creek
Lattitude:	Multipe locations	Longitude:	Multiple locations
Methodology:	DEQ Guidance Memo No 20-2003 - Chesapeake Bay TMDL Special Condition (2/6/2021)		
	Appendix V.D - BMP Enhancement, Conversion, and Restoration		
Efficiencies:	Existing Efficiencies = NA		
	Retrofit Efficiencies = Appendix V.C - Chesapeake Bay Program, Established Efficiencies Urban Filtering Practices		

Downward Modification Table — Applies to retrofit of existing facilities only - 50% maximum.

BMP Type	Modification Type	Downward Modification (%)
NA		
	Total %	0

Efficiency for New Facility

Pollutant	Existing Facility Efficiency	Downward Modification * Existing Pond Efficiency	New Facility Efficiency	Total Efficiency
TN	0	0	40	**40.00**
TP	0	0	60	**60.00**
TSS	0	0	80	**80.00**

Calculation Sheet — Table 3b: Calculation Sheet for Estimating Existing Source Loads for the Potomac River Basin (Include total drainage when also taking baseline reduction.)

Subsource	Pollutant	Total Acres Served (6/30/09)	2009 EOS Loading Rate (lbs/acre)	Estimated Total POC Load Based on 2009 Progress Run	New BMP Efficiency	Load Reduction
Total Impervious	Total Nitrogen	17.53	16.86	295.56	40.00	**118.22**
Total Pervious		11.12	10.07	111.98	40.00	**44.79**
Forested (Reg or Unreg)		0	1.16	0.00	40.00	**0.00**
Total Impervious	Total Phosphorus	17.53	1.62	28.40	60.00	**17.04**
Total Pervious		11.12	0.41	4.56	60.00	**2.74**
Forested (Reg or Unreg)		0	0.07	0.00	60.00	**0.00**
Total Impervious	Total Suspended Solids	17.53	1,171.32	20,533.24	80.00	**16,426.59**
Total Pervious		11.12	175.80	1,954.90	80.00	**1,563.92**
Forested (Reg or Unreg)		0	57.54	0.00	80.00	**0.00**

Baseline Reduction — Applies only where facility is not completely within the MS4 service area.

Subsource	Pollutant	Acres in Unregulated Area (6/30/09)	2009 EOS Loading Rate (lbs/acre)	L2 Load Reduction Percent	Baseline
Unregulated Impervious	Total Nitrogen	0	16.86	0.0900	0.00
Unregulated Pervious		0	10.07	0.0600	0.00
Unregulated Impervious	Total Phosphorus	0	1.62	0.1600	0.00
Unregulated Pervious		0	0.41	0.0725	0.00
Unregulated Impervious	Total Suspended Solids	0	1,171.32	0.2000	0.00
Unregulated Pervious		0	175.80	0.0875	0.00

TN Reduction (lbs/year)	**163.01**
TP Reduction (lbs/year)	**19.77**
TSS Reduction (lbs/year)	**17,990.51**

Appendix D

Public Comments

This appendix is reserved for comments on future versions of this plan.

Appendix 7-B Local TMDL Action Plan Activity Summary- Street Sweeping Operations

Street Sweeping Calculations

Year	Centerline Miles	Curb Miles
FY18	109	218.00
FY19	109	218.00
FY20	131	262.00
FY21	133	266.00
FY22	145	290.00
FY23	145	290.00

Enter estimate for out-years.

Notes: Updated calculation based on 2019 DEQ guidance. Must be vacuum assisted sweeper and utilize efficiencies from the Expert Panel Report (May 19, 2016). The Town typically does 7-8 passes per year. As a result, the Town may take credit in accordance with practice SPC-5 from Table 17 of the Expert Panel report.

TN Efficiency	0.7%	**Load per Acre**	15.5	Table 18 of Expert Panel.
TP Efficiency	2.0%	**Load per Acre**	1.93	Table 18 of Expert Panel.
TSS Efficiency	4.0%	**Load per Acre**	1300	Table 18 of Expert Panel.
Goose Creek %	0.95	Percent of total impervious area in Goose Creek watershed.		

Town Wide Reductions

Pollutant	FY18	FY19	FY20	FY21	FY22	FY23
TN	23.65	23.65	28.43	28.86	31.47	31.47
TP	8.41	8.41	10.11	10.27	11.19	11.19
TSS	11,336.00	11,336.00	13,624.00	13,832.00	15,080.00	15,080.00

Goose Creek Reductions

Pollutant	Through FY18	FY19	FY20	FY21	FY22	FY23
TN	22.47	22.47	27.01	27.42	29.89	29.89
TP	7.99	7.99	9.61	9.75	10.63	10.63
TSS	10769.20	10769.20	12942.80	13140.40	14326.00	14326.00