# Town of Herndon, Virginia

# Final Phase II Chesapeake Bay TMDL Action Plan

## Submittal to DEQ – November 1, 2019

**Town of Herndon**
**Department of Public Works**
**777 Lynn Street**
**Herndon, Virginia 20170**

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

**Prepared in Compliance with Municipal Separate Storm Sewer System (MS4)**
**Permit No. VAR040060**

# 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 |
| --- | --- | --- |
| [signature] | Town Manager | 11/1/19 |

# Final Phase II Chesapeake Bay TMDL Action Plan
## Town of Herndon, Virginia

November 1, 2019

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## 1. Introduction

### 1.1. Purpose

This Phase II Chesapeake Bay TMDL Action Plan builds on the Town of Herndon's initial Chesapeake Bay TMDL Action Plan approved by the Virginia Department of Environmental Quality (DEQ) on December 21, 2015. The plan documents how the Town intends to meet the "Chesapeake Bay TMDL Special Condition" in Part II A of the General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) that became effective November 1, 2018 (2018 MS4 permit). A draft Phase II Chesapeake Bay TMDL Action Plan was submitted to DEQ in May 2018. In accordance with the 2018 MS4 permit, the Town must submit a final plan to DEQ no later than 12 months after the effective date of the permit.

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

A TMDL for the Chesapeake Bay was established by the U.S. Environmental Protection Agency in 2010. Pollutants of concern (POCs) identified for the Chesapeake Bay include total nitrogen (TN), total phosphorus (TP), and total suspended solids (TSS). Virginia has 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 reductions over three five-year permit cycles in accordance with the following: 5% by the end of the first permit cycle (June 30, 2018); 40% by the end of the second permit cycle (2023); and, 100% by the end of the third permit cycle (2028).

The Town exceeded the 5% reduction requirement for the first permit cycle. This Phase II Chesapeake Bay TMDL Action Plan establishes the Town's 40% reduction target and identifies the Best Management Practices (BMPs) for achieving the target in accordance with the 2018 MS4 permit, the Chesapeake Bay TMDL Special Condition Guidance developed by DEQ (Guidance Memo No 15-2005) dated May 18, 2015, and additional DEQ policy guidance.

## 1.2. Cooperative Approach to Implementation

The Town has entered into a cooperative agreement with Fairfax County and the Town of Vienna to share pollutant reductions from certain jointly implemented projects. The agreement, included as Appendix A, was originally adopted by Herndon on January 6, 2014 and by Fairfax County on April 1, 2014. The agreement was updated by all parties effective March 8, 2017.

The agreement provides that the Town receives 4.2% credit for any project funded by the County's Stormwater Service District Fee starting July 1, 2009. This is regardless of the project's location in Herndon, Vienna, or Fairfax County. The credit is in proportion to the percentage of the total load reductions that have been established for each locality. The Town's proportion of the load reduction was averaged among TN, TP, and TSS. Shared credit projects include Structural Retrofits, Stream Restoration, and In-Lake Forebay Retrofits. The County's DEQ-approved Chesapeake Bay TMDL Action Plan also reflects this credit-sharing approach.

## 1.3. Summary of Required Reductions and BMPs to Achieve Reductions

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

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

The next step is to identify the BMPs to achieve the required POC reductions. The Town's overall strategy for achieving the reductions is presented in Section 4 and summarized below:

- Redevelopment since July 1, 2009 that has resulted in a decrease in pollutant loads.
- Shared credit projects under the cooperative agreement with Fairfax County.
- Street sweeping.
- Purchased nutrient credits.
- Eligible projects installed on or after January 1, 2006 and before July 1, 2009.
- 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.

Section 5 summarizes reductions achieved during the first permit cycle. Section 6 describes the BMPs that have been or will be implemented during the second permit cycle to meet the required 40% POC reductions.

Table 1.A provides a summary of the required reductions, reductions achieved during the first permit cycle, additional reductions implemented and planned through the end of the second permit cycle, and the anticipated percent progress toward achieving the 100% reduction target.

***Table 1.A – Summary of Required Reductions and Planned BMPs***

| | **Total Nitrogen (lbs/year)** | **Total Phosphorus (lbs/year)** | **Total Suspended Solids (lbs/year)** |
|---|---|---|---|
| Existing Source Reductions to Meet 40% Target | 958.01 | 125.69 | 107,666.87 |
| + New Source Offsets | 55.12 | 7.99 | 3,748.31 |
| + Grandfathered Offsets | 0.00 | 0.00 | 0.00 |
| = Total Required Reductions and Offsets | 1,013.13 | 133.68 | 111,415.18 |
| - BMPs Prior to July 1, 2018 | 2,217.73 | 481.19 | 194,054.73 |
| - BMPs July 1, 2018 and On | 576.17 | 179.67 | 57,654.80 |
| = Total BMPs | 2,793.91 | 660.86 | 251,709.53 |
| Remainder/(Excess) To Achieve 40% Target | (1,780.78) | (527.18) | (140,294.35) |
| Progress Toward 100% Target | 116.7% | 210.3% | 93.5% |

## 1.4. Assessment of Stormwater Management Facilities

The Town is beginning a multi-year, comprehensive assessment of all public and private stormwater management facilities. The purpose of this assessment is to better understand potential deficiencies and to develop a detailed plan that will ensure the proper operation and maintenance of all facilities in the long-term. The process is being undertaken as part of the Town's efforts to comply with the Virginia Stormwater Management Regulations as well as to ensure the accuracy of this plan. The results of the assessment could affect pollutant reduction calculations for projects associated with redevelopment, facilities installed between 2006 and 2009, and more stringent regulation of land disturbing activities. While any changes are not expected to affect the Town's ability to meet the 40% POC reductions, this plan will be updated to reflect any changes and resubmitted to DEQ as appropriate.

## 1.5. Permit Compliance Crosswalk

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

***Table 1.B – Action Plan and Permit Compliance Crosswalk***

| Action Plan Section | MS4 Permit | MS4 Permit Requirement |
|---|---|---|
| Section 2 | Part II A 11 a | Any new or modified legal authorities, such as ordinances, permits, policy, specific contract language, orders, and interjurisdictional agreements, implemented or needing to be implemented to meet the requirements of Part II A 3, 4, and 5. |
| Section 3 | Part II A 11 b | The load and cumulative reduction calculations for each river basin calculated in accordance with Part II A 3, 4, and 5. |
| Section 5 | Part II A 11 c | The total reductions achieved as of July 1, 2018 for each pollutant of concern in each river basin. |
| Section 5 and Appendix C | Part II A 11 d | A list of BMPs implemented prior to July 1, 2018 to achieve reductions associated with the Chesapeake Bay TMDL including:<br>(1) The date of implementation; and,<br>(2) The reduction achieved. |
| Section 6 and Appendix D | Part II A 11 e | The BMPs to be implemented by the permittee prior to the expiration of this permit to meet the cumulative reductions calculated in Part II A 3, 4, and 5, including as applicable:<br>(1) Type of BMP;<br>(2) Project name;<br>(3) Location;<br>(4) Percent removal efficiency for each pollutant of concern; and,<br>(5) Calculation of the reduction expected to be achieved by the BMP calculated and reported in accordance with the methodologies established in Part II A 8 for each pollutant of concern. |

| Action Plan Section | MS4 Permit | MS4 Permit Requirement |
|---|---|---|
| Section 8 and Appendix E | Part II A 11 f | A summary of any comments received as a result of public participation required in Part II A 12 below, the permittee's response, identification of any public meetings to address public concerns, and any revisions made to the Chesapeake Bay TMDL Action Plan as a result of public participation. |

## 2. Program and Legal Authority

The Town has adopted an MS4 Program Plan that documents implementation of all 2018 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 http://www.herndon-va.gov/departments/stormwater-management.

Table 2.A provides a summary of elements of the six minimum control measures (MCMs) implemented by the Town that relate to controlling total nitrogen, total phosphorus, and total suspended solids.

***Table 2.A – 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 Chesapeake Bay nutrients as one of its three high-priority pollutants. Actions specific to nutrients and their impact on the Chesapeake Bay include:<br>• At least annually, provide information on proper fertilizing techniques in one of the following: the "What's On in Herndon: News You Can Use" newsletter; the Mayor's quarterly newsletter; or, Herndon's annual Water Quality Report.<br>• Include a message about proper fertilizing techniques in the annual Town Calendar and Events Guide.<br>• At least once annually, post on social media about proper fertilizing techniques. |

| Minimum Control Measure | MS4 Program Plan Elements Related to Controlling TN, TP, and TSS |
|---|---|
| | In addition, the Town will continue to participate in the Northern Virginia Regional Commission's Clean Water Partners program, which includes proper application of fertilizers. |
| Public Involvement and Participation | The Town has designed a program to provide an opportunity for the public to become involved with local water quality improvement and stream clean-up projects. |
| Illicit Discharge Detection and Elimination | The Town has integrated into its MS4 Program Plan an Illicit Discharge Detection and Elimination Program. This program includes preventing, identifying, and eliminating sources of pollutants, including total nitrogen and total phosphorus as well as total suspended solids. |
| Construction Site Stormwater Runoff Control | The Town's construction site stormwater runoff control program is designed to be fully consistent with the water quality control requirements of the Virginia Erosion and Sediment Control Act and the Virginia Stormwater Management Act, and their attendant regulations. |
| Post-Construction Stormwater Management | The Town's construction site stormwater runoff control program is designed to be fully consistent with the water quality control requirements of the Virginia Stormwater Management Act and its attendant regulations. |
| Pollution Prevention and Good Housekeeping for Municipal Operations | The Town has included in its MS4 Program Plan actions to meet the pollution prevention and good housekeeping requirements for municipal operations. This includes general good housekeeping, as well as specific requirements to develop nutrient management plans for all properties where nutrients are applied to more than one contiguous acre. |

The Town has reviewed its existing MS4 Program Plan and legal authorities and finds that no additional legal authorities are required for compliance with the "Chesapeake Bay TMDL Special Condition" at this time.

# 3. Load and Cumulative Reduction Calculations

The following sections describe the methodology used by the Town to determine the load and cumulative reduction calculations in accordance with Part II A 3, 4, and 5 of the 2018 MS4 permit.

## 3.1. MS4 Service Area Delineation Methodology

Reductions and offsets are calculated based on the extent of the MS4 service area within the 2010 Census Urbanized Area.

Storm sewer pipes, outfall locations, and elevation data have been analyzed by qualified engineers in a GIS environment to delineate the watershed boundaries of the Town's regulated storm sewer system. Artificial conveyances and natural drainage features were thoroughly reviewed to accurately account for storm sewer drainage areas and determine break points between the manmade and natural hydrologic systems. Sheet flow crossing the Town boundary was also considered and analyzed. This approach rendered a delineation of regulated and unregulated areas within the Town.

Significant areas of the Town that do not drain to the regulated MS4 include areas that drain directly to Sugarland Run (along the eastern boundary of the Town), Folly Lick Branch (including a large area of Herndon Centennial Golf Course), and Spring Branch (a tributary of Folly Lick Branch roughly bounded by Ferndale Avenue and Cavalier Drive).

In accordance with Part II.2 of the Chesapeake Bay TMDL Special Conditions Guidance, the Town of Herndon and Fairfax County have cooperatively agreed to utilize the following methodology for allocating pollutant loadings where drainage flows across jurisdictional boundaries:

- *Town MS4 Draining to the County MS4 Through a Pipe:* Any pollutant loading from the Town's MS4 that drains through a pipe or other conveyance to the County's MS4 is the responsibility of the Town up-flow of the interconnection.
- *County MS4 Draining to the Town MS4 Through a Pipe:* Any pollutant loading from the County's MS4 that drains through a pipe or other conveyance to the Town's MS4 is the responsibility of the County up-flow of the interconnection.
- *Town Sheetflow Draining to the County MS4:* Any pollutant loading from an area of the Town that sheet flows across jurisdictional boundaries to the County's MS4 is the responsibility of the Town within the Town's boundary.
- *County Sheetflow Draining to the Town MS4:* Any pollutant loading from an area of the County that sheet flows across jurisdictional boundaries to the Town's MS4 is the responsibility of the County within the County's boundary.

- *Fairfax County Public Schools Property:* Fairfax County Public Schools is covered under the County's permit. Any pollutant loading from property owned by Fairfax County Public Schools within the Town is the responsibility of Fairfax County.

The Virginia Department of Transportation's MS4 service area, identified as its right-of-way in the VDOT Chesapeake Bay TMDL Action Plan, is excluded from the Town's MS4 service area.

In accordance with DEQ's Chesapeake Bay TMDL Special Guidance, the Town may exclude from its MS4 service area land regulated under any general VPDES permit that addresses industrial stormwater and forested land one half contiguous acre or more that meets specific criteria. The Town has not identified within its boundary any property with a VPDES industrial stormwater permit. The Town has identified 13.6 acres of potential forested area within the MS4, which is less than one percent of the total MS4 area. Further analysis would be required to determine whether these acres meet the requirements for exclusion in accordance with the DEQ guidance. Since this amount is *de minimis*, the Town has opted not to exclude these areas for this plan, but may choose to conduct the additional analysis at a later date.

The Town's MS4 service area map is presented in Appendix B. Based on the above analysis, the Town has determined that a total of 2,355.5 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 by Fairfax County from 2009 aerial imagery. This impervious cover dataset contains the entire Town as well as areas within the County. 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's MS4 service area of 2,355.5 acres is divided into 1,064.2 impervious acres and 1,291.3 pervious acres.

### 3.3. Reduction Requirements

The Town is located within the Potomac River Basin. Therefore, reduction requirements are calculated in accordance with Part II A 3, Table 3b of the 2018 MS4 permit.

Table 3.A presents the estimated existing source loads in accordance with the MS4 permit and the Chesapeake Bay TMDL Special Conditions Guidance.

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

| Pollutant | Subsource | A. Loading Rate (lbs/ac/yr) | B. Existing Developed Land 2009 (acres) | C. Loading (lbs/yr) | D. MS4 Required Bay Total L2 Loading Rate Reduction | E. Percentage of L2 Required Reduction by 2023 | F. 40% Cumulative Reduction Required by 2023 | G. Sum of 40% Cumulative Reduction (lbs/yr) |
|---|---|---|---|---|---|---|---|---|
| TN | Imp. | 16.86 | 1,064.20 | 17,942.41 | 0.09 | 0.40 | 645.93 | 958.01 |
| TN | Perv. | 10.07 | 1,291.30 | 13,003.39 | 0.06 | 0.40 | 312.08 | |
| TP | Imp. | 1.62 | 1,064.20 | 1,724.00 | 0.16 | 0.40 | 110.34 | 125.69 |
| TP | Perv. | 0.41 | 1,291.30 | 529.43 | 0.07 | 0.40 | 15.35 | |
| TSS | Imp. | 1171.32 | 1,064.20 | 1,246,518.74 | 0.20 | 0.40 | 99,721.50 | 107,666.87 |
| TSS | Perv. | 175.8 | 1,291.30 | 227,010.54 | 0.09 | 0.40 | 7,945.37 | |

## 3.4. New Source Offset

Part II A 4 of the 2018 MS4 permit requires the Town to offset 40% of increases from new sources initiating construction between July 1, 2009 and June 30, 2014 that disturb one acre or greater as a result of the utilization of an average land cover condition greater than 16% impervious cover for the design of post-development stormwater management facilities.

During the period of July 1, 2009 and June 30, 2014, two projects with a land disturbance of one acre or greater resulted in increases in pollutant loadings. The Town calculated total required offsets as follows: 55.12 pounds for TN; 7.99 pounds for TP; and, 3,748.31 pounds for TSS. While the Town is only required to offset 40%, sufficient overall reductions have been made by the Town to offset 100% of these POCs. Detailed calculations are located in the initial action plan submitted to and approved by DEQ.

## 3.5. Grandfathered Projects Offset

Part II A 5 of the 2018 MS4 permit requires the Town to offset any grandfathered projects that disturb one acre or greater than begin construction after July 1, 2014 and where the project utilizes an average land cover condition greater than 16%. The Town has not identified any existing projects that meet this criteria and therefore no offset is required.

### 3.6. Total Reduction and Offset Requirements

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

***Table 3.B – Total Reduction and Offset Requirements***

| Reductions and Offsets | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|
| Existing Source Reductions to Meet 40% Target | 958.01 | 125.69 | 107,666.87 |
| + New Source Offsets | 55.12 | 7.99 | 3,748.31 |
| + Grandfathered Offsets | 0.00 | 0.00 | 0.00 |
| **Total Reductions and Offsets** | **1,013.13** | **133.68** | **111,415.18** |

## 4. Overall Strategy for Achieving Reductions

The Town's overall strategy for achieving POC reductions includes a combination of BMPs as described in the following sections.

### 4.1. Redevelopment

In accordance with the Chesapeake Bay TMDL Special Condition Guidance, the Town will take credit for pollutant reductions from redevelopment regardless of the initial land cover condition of the site. This includes any redevelopment project initiated after July 1, 2009. For any portion of redevelopment that results in a direct impervious surface reduction, Table 4 from the 2018 MS4 permit is used to determine the equivalent credit for TN and TSS associated with the TP reduction. For the portion of redevelopment that results in a reduction due to a stormwater management facility, the methodology described in Appendix V.E of the DEQ guidance is utilized.

### 4.2. Shared Credit Projects

In accordance with the cooperative agreement with Fairfax County, the Town receives 4.2% credit for any project funded by the County's Stormwater Service District Fee starting July 1, 2009. This is regardless of the project's location in Herndon, Vienna, or Fairfax County. These projects include Structural Retrofits, Stream Restoration, and In-Lake Forebay Retrofits. Table 4.B shows the shared credit projects that have been implemented within the Town.

***Table 4.A – Shared Credit Projects Located in Herndon***

| **Runnymede Bioretention 1** | **Runnymede Bioretention 2** |
|---|---|
| This project consisted of the design of two bioretention facilities. The design also included a kiosk for educational information about the bioretention facilities. | This project consisted of the design of two bioretention facilities. The design also included a kiosk for educational information about the bioretention facilities. |
|  |  |
| **Runnymede Filtering Device** | **Golf Course Pond Retrofit** |
| This project is associated with the two bioretention facilities at Runnymede and involved the design and construction of a 12x6 Filterra tree box filter. | This project involved expanding an existing facility to capture additional flow that was running parallel to the pond. |
|  |  |

## 4.3. Street Sweeping

Street sweeping programs that meet certain requirements can be used to achieve POC reductions. The Town took credit for its program in the initial Chesapeake Bay TMDL Action Plan. Based on communications from DEQ, the methodology described in Appendix V.G of the Chesapeake Bay TMDL Special Conditions Guidance will be replaced by the methodology described in Recommendations of the Expert Panel to Define Removal Rates for Street and Storm Drain Cleaning Practices (May 19, 2016). As a result, the Town's program no longer meets the minimum requirements for credit. The Town will continue to assess its program. Any changes that result in credit will be documented to DEQ in the Town's annual reports.

## 4.4. Purchased Off-Site Nutrient Credits

The Town has the option of purchasing off-site nutrient credits under the provisions of §62.1-44.15:35 of the Code of Virginia. Any off-site nutrient credits purchased by the Town will be documented to DEQ in the Town's annual reports.

## 4.5. Stormwater Facilities Installed Between January 2006 and July 2009

In accordance with the Chesapeake Bay TMDL Special Condition Guidance (Part IV.2 and Appendix VI), the Town receives full 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 provided that the Town submitted a full account of stormwater facilities to DEQ as part of the "Historical Data Clean-Up" effort. The Town documented credit in the Town's Fiscal Year 2016 annual report to DEQ.

## 4.6. More Stringent Regulation of Land Disturbing Activities

The Town has adopted stormwater quality requirements for single family residential development under one acre that are more stringent than the minimum VSMP requirements. While the Virginia Stormwater Management Regulations and the Chesapeake Bay Preservation Act regulate land disturbing activities 2,500 square feet and greater, localities may exempt single family residential development under one acre not part of a common plan of development. Town Code Chapter 26, Article VIII "Stormwater Management" applies the 0.41 pounds of phosphorus per acre per year standard to single family residential development 2,500 square feet and greater.

In accordance with the Chesapeake Bay TMDL Special Condition Guidance the Town will take credit for the difference between the pollutant load that could have been allowed for single family residential property under the state's minimum water quality criteria and the pollutant load that was actually allowed for the property under the Town's more stringent requirements. These include reductions from structural retrofits and credit purchased by the developer.

## 4.7. Additional BMPs

The Town reserves the right to implement and take credit for additional creditable facilities or practices as provided for in the Chesapeake Bay TMDL Special Condition Guidance. The guidance document specifically references the work of the Chesapeake Bay Urban Stormwater Workgroup, which includes credits for urban nutrient management and homeowner best management practices such as rainwater harvesting, downspout disconnection, permeable hard-scapes, tree planting, and impervious cover removal. Reductions achieved will be documented to DEQ in the Town's annual reports.

# 5. BMPs Implemented During the First Permit Cycle

Table 5.A documents that the Town exceeded the 5% pollutant reduction target during the first permit cycle. Part II A 4 of the 2018 MS4 permit requires the Town to provide a list of the BMPs implemented prior to July 1, 2018 to achieve these reductions. The list of BMPs, including the date of implementation and the reductions achieved, is included in Appendix C.

***Table 5.A – Summary of BMPs Implemented During the First Permit Cycle***

| BMPs | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|
| Redevelopment | 41.62 | 5.27 | 3,194.91 |
| Shared Credit Projects | 1,679.46 | 377.27 | 140,928.12 |
| Street Sweeping | 0.00 | 0.00 | 0.00 |
| Purchased Nutrient Credits | 0.00 | 0.00 | 0.00 |
| 2006-2009 Stormwater Facilities | 472.74 | 84.70 | 48,785.23 |
| More Stringent Development | 23.91 | 13.94 | 1,146.47 |
| Additional BMPs | 0.00 | 0.00 | 0.00 |
| **Total BMPs** | 2,217.73 | 481.19 | 194,054.73 |
| **Reduction to Meet 5% Target** | 174.87 | 23.70 | 17,206.67 |
| **Remainder/(Excess) to Achieve 5% Target** | (2,042.86) | (457.49) | (176,848.06) |

# 6. BMPs Implemented or Planned for the Second Permit Cycle

This section describes the BMPs that have been or will be implemented during the second permit cycle to achieve the cumulative 40% POC reduction target as required in Part II A 11 e of the 2018 MS4 permit.

## 6.1. Redevelopment

Table 6.A provides a summary of redevelopment projects that are used for TMDL compliance. Three private redevelopment projects have already been implemented in the second permit cycle as reported in the Town's FY19 annual report. Calculations are included in Appendix D. Future reductions, including project details and calculations, will be reported to DEQ in the Town's MS4 annual reports.

***Table 6.A – Summary of Reductions from Redevelopment***

| | | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|---|
| **First Permit Cycle** | | 41.62 | 5.27 | 3,194.91 |
| **Second Permit Cycle** | Achieved | 5.76 | 1.47 | 631.42 |
| | Planned | To be determined. | To be determined. | To be determined. |
| **Total** | | 47.38 | 6.74 | 3,826.33 |

## 6.2. Shared Credit Projects

Table 6.B provides a summary of shared credit projects that are used for TMDL compliance. Reductions achieved in the first permit cycle as well as during FY19 have been documented in Fairfax County's annual reports to DEQ. Reductions planned for the remainder of the permit cycle have been included in Fairfax County's draft Phase II Chesapeake Bay TMDL Action Plan and are included in Appendix D.

***Table 6.B – Summary of Reductions from Shared Credit Projects***

| | | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|---|
| **First Permit Cycle** | | 1,679.46 | 377.27 | 140,928.12 |
| **Second Permit Cycle** | Achieved | 223.34 | 59.56 | 21,530.22 |
| | Planned | 332.29 | 116.59 | 34,513.14 |
| **Total** | | 2,235.09 | 553.42 | 196,971.48 |

## 6.3. Street Sweeping

As indicated in Table 6.C, the Town is not currently proposing to take credit for its street sweeping program. While the Town did take credit during the first permit cycle, this credit has been removed as a result of a change in DEQ's credit calculation methodology. Any changes to the program that result in pollutant reduction credit will be reported in the Town's annual reports to DEQ.


***One of the Town's street sweepers.***

***Table 6.C – Summary of Reductions from Street Sweeping***

| | | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|---|
| **First Permit Cycle** | | 0.00 | 0.00 | 0.00 |
| **Second Permit Cycle** | Achieved | 0.00 | 0.00 | 0.00 |
| | Planned | To be determined. | To be determined. | To be determined. |
| **Total** | | 0.00 | 0.00 | 0.00 |

## 6.4. Purchased Off-Site Nutrient Credits

As indicated in Table 6.D, the Town is not currently proposing to take credit for the purpose of off-site nutrient credits. Any future purchase of off-site credit will be reported in the Town's annual reports to DEQ.

***Table 6.D – Summary of Reductions from Off-Site Nutrient Credits***

| | | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|---|
| **First Permit Cycle** | | 0.00 | 0.00 | 0.00 |
| **Second Permit Cycle** | Achieved | 0.00 | 0.00 | 0.00 |
| | Planned | To be determined. | To be determined. | To be determined. |
| **Total** | | 0.00 | 0.00 | 0.00 |

## 6.5. Stormwater Facilities Installed Between January 2006 and July 2009

Table 6.E provides a summary of credit from stormwater facilities installed between January 2006 and July 2009 that is used for TMDL compliance. This credit is calculated once and was previously submitted to DEQ for approval.

***Table 6.E – Summary of Reductions from Facilities Installed Between 2006 and 2009***

| | | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|---|
| **First Permit Cycle** | | 472.74 | 84.70 | 48,785.23 |
| **Second Permit Cycle** | Achieved | Not applicable. | Not applicable. | Not applicable. |
| | Planned | Not applicable. | Not applicable. | Not applicable. |
| **Total** | | 472.74 | 84.70 | 48,785.23 |

## 6.6. More Stringent Regulation of Land Disturbing Activities

Table 6.F provides a summary of reductions from more stringent water quality requirements that are used for TMDL compliance. Several projects have already been implemented in the second permit cycle as reported in the Town's FY19 annual report. Calculations are included in Appendix D. Future reductions, including project details and calculations, will be reported to DEQ in the Town's MS4 annual reports.

***Table 6.F – Summary of Reductions from More Stringent Regulation***

| | | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|---|
| **First Permit Cycle** | | 23.91 | 13.94 | 1,146.47 |
| **Second Permit Cycle** | Achieved | 14.79 | 2.05 | 980.02 |
| | Planned | To be determined. | To be determined. | To be determined. |
| **Total** | | 38.70 | 15.99 | 2,126.49 |

## 6.7. Additional BMPs

As indicated in Table 6.G, the Town is not currently proposing to take credit for additional BMPs. Any future credit will be reported in the Town's annual reports to DEQ.

***Table 6.G – Summary of Reductions from Additional BMPs***

| | | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|---|
| **First Permit Cycle** | | 0.00 | 0.00 | 0.00 |
| **Second Permit Cycle** | Achieved | 0.00 | 0.00 | 0.00 |
| | Planned | To be determined. | To be determined. | To be determined. |
| **Total** | | 0.00 | 0.00 | 0.00 |

6.8. Summary of BMPs

Tables 6.H provides a summary of the total implemented and planned reductions as a result of BMPs described in sections 6.1 through 6.7.

***Table 6.H – Summary of BMPs***

| BMP | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|
| Redevelopment | 47.38 | 6.74 | 3,826.33 |
| Shared Credit Projects | 2,235.09 | 553.42 | 196,971.48 |
| Street Sweeping | 0.00 | 0.00 | 0.00 |
| Purchased Nutrient Credits | 0.00 | 0.00 | 0.00 |
| 2006-2009 Stormwater Facilities | 472.74 | 84.70 | 48,785.23 |
| More Stringent Development | 38.70 | 15.99 | 2,126.49 |
| Additional BMPs | 0.00 | 0.00 | 0.00 |
| **Total BMPs** | **2,793.91** | **660.86** | **251,709.53** |

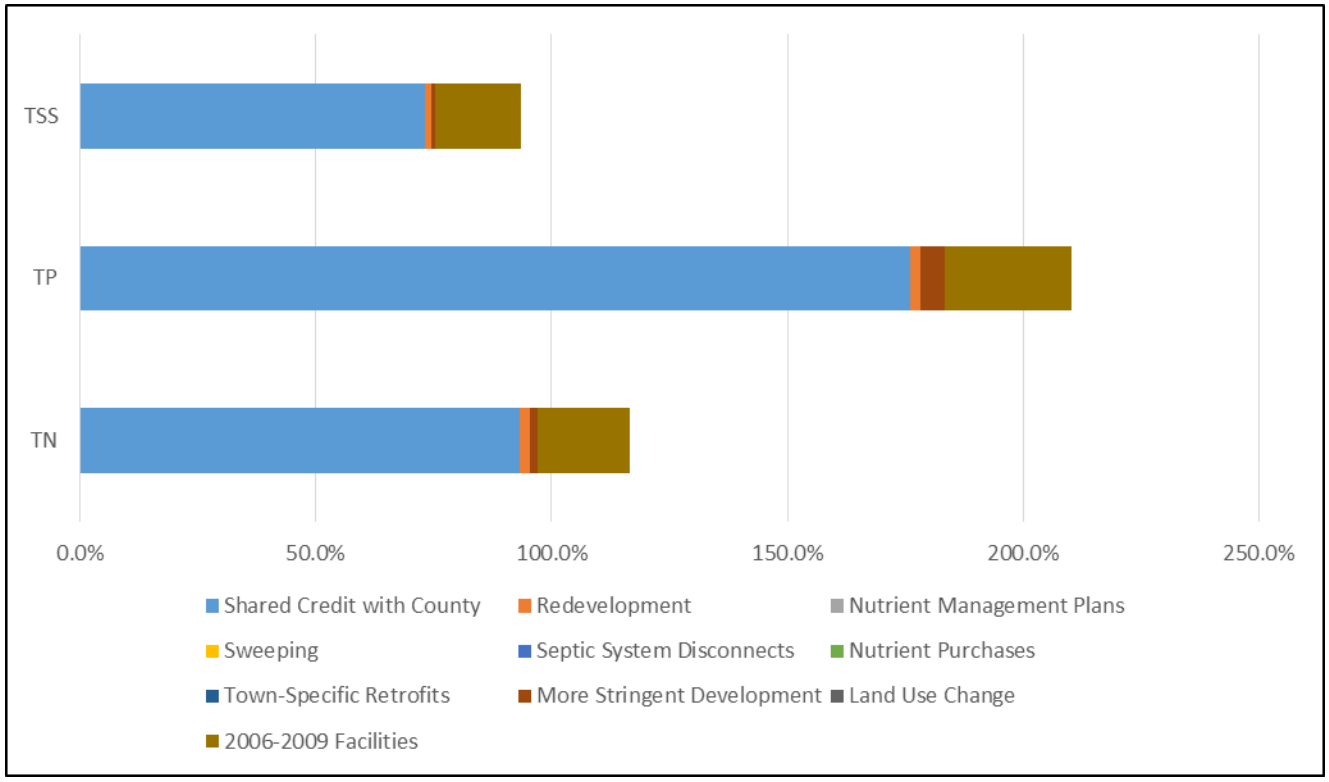
# 7. Overall Compliance Summary

Table 7.A provides an overall compliance ledger demonstrating how the Town meets the Chesapeake Bay TMDL conditions in accordance with the MS4 permit. The ledger shows the reductions required from Section 3 and the total credit achieved by BMPs identified in Section 6. The last two rows show the amount of credit that will be carried forward to the third permit cycle and the anticipated percent progress toward achieving the 100% reduction target.

***Table 7.A – Compliance Summary – Table***

| | TN (lbs/year) | TP (lbs/year) | TSS (lbs/year) |
|---|---|---|---|
| Existing Source Reductions to Meet 40% Target | 958.01 | 125.69 | 107,666.87 |
| + New Source Offsets | 55.12 | 7.99 | 3,748.31 |
| + Grandfathered Offsets | 0.00 | 0.00 | 0.00 |
| = Total Required Reductions and Offsets | 1,013.13 | 133.68 | 111,415.18 |
| - Total BMPs from Section 6 | 2,793.91 | 660.86 | 251,709.53 |
| *Redevelopment* | 47.38 | 6.74 | 3,826.33 |
| *Shared Credit Projects* | 2,235.09 | 553.42 | 196,971.48 |
| *Street Sweeping* | 0.00 | 0.00 | 0.00 |
| *Purchased Nutrient Credits* | 0.00 | 0.00 | 0.00 |
| *2006-2009 Facilities* | 472.74 | 84.70 | 48,785.23 |
| *More Stringent Development* | 38.70 | 15.99 | 2,126.49 |
| *Additional BMPs* | 0.00 | 0.00 | 0.00 |
| = Remainder/(Excess) to Achieve 40% Target | (1,780.78) | (527.18) | (140,294.35) |
| Progress Toward 100% Target | 116.7% | 210.3% | 93.5% |

***Table 7.B – Compliance Summary – Chart***




## 8. Public Comments

In accordance with Part II A 11 f of the 2018 MS4 permit, the public must have an opportunity to provide comment on proposed BMPs not previously included in the initial plan. At a minimum, a 15 day comment period must be provided. Public input was solicited from October 10 through October 25, 2019. The draft plan was posted to the stormwater webpage and notification was provided through the Town's social media. One comment was received. Appendix E provides a snapshot of the stormwater webpage, the social media post, and a summary of the public comment with the Town's response.

# Appendix A

# Cooperative Agreement with Fairfax County and the Town of Herndon

**COOPERATIVE AGREEMENT BETWEEN THE FAIRFAX COU7.NTY BOARD OF SUPERVISORS, THE TOWN OF VIENNA, and TOWN OF HERNDON TO SHARE CERTAIN STORMWATER SERVICE DISTRICT FEES AND RESPONSIBILITY FOR RELATED SERVICES**

This Agreement ("Agreement") is entered into on this 8TH day of MARCH, 2017, by and between the BOARD OF SUPERVISORS OF FAIRFAX COUNTY, VIRGINIA ("FAIRFAX"), the TOWN COUNCIL OF VIENNA, VIRGINIA ("VIENNA"), and the TOWN COUNCIL OF HERNDON, VIRGINIA ("HERNDON") (referenced collectively as the "Parties" or "the Governing Bodies", and individually as the "Party").

**WITNESSETH:**

WHEREAS the Towns of Vienna and Herndon (also referenced herein as "the Towns") are located within Fairfax County (also referenced herein as "the County"); and

WHEREAS Fairfax County, the Town of Vienna, and the Town of Herndon each maintain, operate, and improve stormwater systems that affect one another; and

WHEREAS Fairfax County and the Towns are each subject to a Municipal Separate Storm Sewer System ("MS4") permit issued by the Virginia Department of Environmental Quality ("DEQ"); and

WHEREAS FAIRFAX has cooperated with VIENNA and HERNDON to maintain, operate, and improve their respective stormwater systems and wish to continue such cooperation in the future in the best interests of their residents; and

WHEREAS pursuant to Va. Code Ann. § 15.2-2400 (2012), FAIRFAX has established a Stormwater Service District ("Service District"), and is authorized, pursuant to Va. Code Ann. § 15.2403(6) (Supp. 2016) to levy and collect an annual fee upon any property located within such Service District ("the Service District Fee"); and

WHEREAS the Towns of Vienna and Herndon are located within Fairfax County's Service District; and

WHEREAS, pursuant to Va. Code Ann. § 15.2-2403(6), Fairfax County collects revenues from properties located within the Towns of Vienna and Herndon; and

WHEREAS, pursuant to Va. Code Ann. § 15.2-2403.3 (Supp. 2016), by virtue of the Towns' maintenance of separate MS4 permits and their location within the Service District, the Towns are entitled to the Service District Fee revenues collected by Fairfax County within their respective jurisdictions; and

WHEREAS, the actual amount of revenues collected from the Service District Fee will vary from year to year; and

WHEREAS, each MS4 permit, among other things, assigns jurisdiction-specific, pollutant load reduction requirements for nitrogen, phosphorus, and sediment to address the Chesapeake Bay Total Maximum Daily Load (referred to herein as "TMDL"), and requires each MS4-permit jurisdiction to develop a Chesapeake Bay TMDL Action Plan that identifies the practices, means, and methods that are to be implemented by the permittee to achieve the required pollutant reductions; and

WHEREAS, the Commonwealth's Chesapeake Bay TMDL Watershed Implementation Plan (referred to herein as "the WIP") establishes the total pollutant reduction loads required to achieve the Chesapeake Bay TMDL and the timeframe for MS4-permit jurisdictions to achieve their assigned pollutant reductions; and

WHEREAS, each MS4 permit also requires the development of action plans for other pollutants where a TMDL assigns a wasteload allocation ("WLA") to the permittee; and

WHEREAS, pursuant to their respective MS4 permits, the Towns submitted their initial Chesapeake Bay TMDL Action Plans to DEQ prior to the deadline of October 1, 2015 while the County's initial Chesapeake Bay TMDL Action Plan will be submitted to DEQ prior to the deadline of April 1, 2017. Action plans for other TMDLs are submitted in accordance with the schedule contained in each MS4 permit; and

WHEREAS, while each MS4-permit jurisdiction is ultimately responsible for compliance with its MS4 permit, MS4 permits allow and encourage cooperation and coordination among permit holders, and such cooperation and coordination can mutually benefit MS4-permit jurisdictions through more effective and cost-efficient protection of water resources in each jurisdiction; and

WHEREAS, the purpose this Agreement, in part, is for the Parties to work cooperatively to satisfy the pollutant load reduction requirements of their current and future MS4 permits by implementing stormwater management practices within the Parties' jurisdiction that reduce the discharge of pollutants; and

WHEREAS, FAIRFAX, VIENNA, or HERNDON may terminate this Agreement as set forth by the terms herein if, pursuant to applicable law, either locality chooses not to participate under this Agreement or chooses not to share the Stormwater Service District Fees; and

WHEREAS FAIRFAX, VIENNA, and HERNDON have determined and agreed that the best interests of each locality's residents are fulfilled if FAIRFAX utilizes a portion of the Service District Fees collected by FAIRFAX from properties within the Towns to assist the Towns in maintaining, operating, and improving their respective stormwater systems to achieve the goals of effective regional water quality improvement and local initiatives in these localities and to satisfy certain MS4 permit requirements;

**NOW, THEREFORE,** in consideration of the mutual obligations set forth herein and other good and valuable consideration, so long as FAIRFAX continues to administer the Service District in FAIRFAX that encompasses VIENNA and HERNDON, and so long as VIENNA and HERNDON qualify to receive the Service District Fees collected by FAIRFAX from properties within the Towns, FAIRFAX, VIENNA, and HERNDON agree as follows:

1. FAIRFAX will continue to engage in a coordinated approach with VIENNA, and HERNDON to maintain and operate their respective stormwater systems throughout the incorporated and unincorporated parts of FAIRFAX. Moreover, FAIRFAX, VIENNA, and HERNDON will engage in a coordinated approach for future improvements to their respective stormwater systems.

2. This Agreement's duration shall be for one fiscal year and shall renew at the beginning of each fiscal year thereafter unless terminated pursuant to the terms set forth herein below. For the purposes of this Agreement, "fiscal year" shall mean Fairfax County's fiscal year, which, at the time of the execution of this agreement, ends on June 30.

3. This Agreement's purpose is to set forth how the Parties shall share revenues to be collected pursuant to the Service District Fee, including revenues collected from properties within VIENNA and HERNDON, and the respective obligations of the Parties with respect to the stormwater management services described herein.

**STORMWATER FEE REVENUE SHARING**

4. FAIRFAX shall collect all revenues to be collected pursuant to the Service District Fee, including revenues collected from properties within the Towns.

5. Revenues actually collected throughout the Service District are referred to herein as "STORMWATER FEE REVENUES."

6. At the end of each fiscal year, FAIRFAX shall calculate separately the total amount of stormwater fee revenues that were actually collected from properties within VIENNA and HERNDON from the amount of stormwater fee revenues collected elsewhere in FAIRFAX (the "VIENNA STORMWATER FEE" and "HERNDON STORMWATER FEE").

7. On or before October 30th of each fiscal year, FAIRFAX shall estimate the anticipated VIENNA STORMWATER FEE and HERNDON STORMWATER FEE for that year, and shall pay to VIENNA and HERNDON an amount equal to twenty-five percent (25%) of the estimated VIENNA STORMWATER FEE and HERNDON STORMWATER FEE, respectively, for that fiscal year, rounded to the nearest penny (the "PAID VIENNA REVENUES" and "PAID HERNDON REVENUES").

8. The Parties acknowledge and agree that PAID VIENNA REVENUES and/or PAID HERNDON REVENUES may be more or less than the amount that is actually due and owing to either or both of the Towns, and which amount is calculated at the end of each fiscal year.

9. If the PAID VIENNA REVENUES for a particular fiscal year are determined to have been less than 25% of the actual VIENNA STORMWATER FEE actually collected for that fiscal year, then FAIRFAX shall pay VIENNA the difference between the PAID VIENNA REVENUES and 25% of the VIENNA STORMWATER FEE actually collected for that fiscal year. FAIRFAX shall pay this difference at the same time as it pays the next fiscal year's PAID VIENNA REVENUES.

10. If the PAID HERNDON REVENUES for a particular fiscal year are determined to have been less than 25% of the actual stormwater fee actually collected for that fiscal year in HERNDON, then FAIRFAX shall pay HERNDON the difference between the PAID

HERNDON REVENUES and 25% of the HERNDON STORMWATER FEE actually collected for that fiscal year in HERNDON. FAIRFAX shall pay this difference at the same time as it pays the next fiscal year's PAID HERNDON REVENUES.

11. If the PAID VIENNA REVENUES for a particular fiscal year are determined to have been more than 25% of the actual VIENNA STORMWATER FEE actually collected for that fiscal year, then FAIRFAX shall deduct the difference between the PAID VIENNA REVENUES and 25% of the VIENNA STORMWATER FEE actually collected for that fiscal year from the amount that FAIRFAX pays for the next fiscal year's PAID VIENNA REVENUES.

12. If the PAID HERNDON REVENUES for a particular fiscal year are determined to have been more than 25% of the actual HERNDON STORMWATER FEE actually collected for that fiscal year, then FAIRFAX shall deduct the difference between the PAID HERNDON REVENUES and 25% of the HERNDON STORMWATER FEE actually collected for that fiscal year from the amount that FAIRFAX pays for the next fiscal year's PAID HERNDON REVENUES.

13. Once FAIRFAX has determined the amount of the actual VIENNA STORMWATER FEE and HERNDON STORMWATER FEE, which shall occur within 90 days of the fiscal year end, FAIRFAX shall forward the respective amounts to the Towns' Mayors in writing ("FINAL ACCOUNTING"). If VIENNA and/or HERNDON disputes the amount of the FINAL ACCOUNTING, then within 30 days of the Mayors' receipt of this FINAL ACCOUNTING, VIENNA and/or HERNDON, shall state the complete factual basis for any such dispute in writing to the Fairfax County Executive, and the Parties shall endeavor in good faith to resolve any such dispute. Upon the resolution of any such dispute, or if VIENNA and/or

HERNDON fails to dispute the amount of the FINAL ACCOUNTING within 30 days of either Mayor's receipt thereof, then VIENNA and/or HERNDON shall be deemed to have accepted payment of the respective fiscal year's PAID VIENNA REVENUES or PAID HERNDON REVENUES, which shall result in the waiver of any right to request from FAIRFAX any additional amount of the collected STORMWATER FEE REVENUES. VIENNA's and/or HERNDON's waiver of any such balance, however, is conditioned upon FAIRFAX's obligations to VIENNA and/or HERNDON pursuant to this Agreement.

14. Pursuant to Va. Code Ann. § 15.2-2403.3 VIENNA and HERNDON shall expend the PAID VIENNA REVENUES and PAID HERNDON REVENUES, respectively, only for costs directly related to the Towns' stormwater systems and not for non-stormwater-system costs, such as public safety, schools, or road maintenance.

15. Under this Agreement, neither VIENNA nor HERNDON is required to expend any of the paid revenues within any specific amount of time. This Agreement does not affect any other authority that VIENNA or HERNDON might have to carry over revenues from year-to-year or to expend revenues in one fiscal year when the revenues were collected in a previous fiscal year.

16. If, at any time in the future, either VIENNA or HERNDON becomes unincorporated or ceases to qualify to receive paid revenues for any reason or terminates its stormwater program or ceases to maintain its stormwater systems, none of the previously paid revenues shall be expended for anything other than the maintenance, operation, and improvement of such Town's stormwater systems. If any such amounts are returned to FAIRFAX they may be used for other qualified uses in the Service District as FAIRFAX, or its designee, in its or his sole discretion, deems appropriate.

## TMDL COMPLIANCE AND THE TMDL ADVISORY COMMITTEE

17. Fairfax, Vienna, and Herndon agree that Fairfax will implement stormwater management practices throughout the County and in the Towns sufficient to achieve the TMDL pollutant load reduction requirements that are incorporated into each Party's respective current and future MS4 permit.

18. A TMDL Compliance Advisory Committee (hereinafter referred to as the "Advisory Committee") shall be established and shall be comprised of one or more representatives from each governing body.

19. Regardless of the number of representatives appointed by each governing body, each locality will have one vote on the Advisory Committee.

20. The Advisory Committee shall:

a. establish, pursuant to each Party's respective MS4 permit, the nitrogen, phosphorus, and sediment (referred to as "pollutants of concern" or "POCs") load reductions necessary for each individual Party to achieve full compliance with the Chesapeake Bay TMDL and the WIP (referred to herein as "the Chesapeake Bay TMDL Endpoint").

b. establish the "TOTAL POLLUTANT REDUCTION," which is the total amount of each POC that the Parties must reduce in order to reach the Chesapeake Bay TMDL Endpoint.

c. establish the percentage of the TOTAL POLLUTANT REDUCTION for which each locality is responsible. That percentage assigned to each Party shall hereinafter be referred to, respectively, as the "FAIRFAX PERCENTAGE," "VIENNA PERCENTAGE," and "HERNDON PERCENTAGE."

d. as determined by the Advisory Committee, the FAIRFAX PERCENTAGE, VIENNA PERCENTAGE, and the HERNDON PERCENTAGE may be established for each POC, an average of POCs, or by another mutually agreed upon methodology that will allocate pollutant reduction credits for projects completed under this Agreement as provided for in paragraph 27 below, in a manner necessary to meet the Chesapeake Bay TMDL Endpoint.

e. establish a watershed-specific FAIRFAX PERCENTAGE, VIENNA PERCENTAGE, and HERNDON PERCENTAGE to allocate pollutant reduction credits for projects implemented within a watershed to meet a non-Chesapeake Bay TMDL Endpoint.

21. VIENNA and HERNDON may at any time provide FAIRFAX with a list of stormwater management projects to be considered for implementation. Before submitting any such project, the submitting Town must thoroughly investigate and analyze each project to ensure that any such project is feasible. Any project submitted before June 30 of each year will be considered by FAIRFAX for implementation during the following fiscal year. If a project is not implemented, it will continue to be considered for implementation in subsequent fiscal years until such time that the project is determined to be infeasible. Selection of projects for implementation and determination of final feasibility are at the sole discretion of the Director of the Fairfax County Department of Public Works and Environmental Services ("Director").

22. By April 1 of each year, the Director will send to the Towns of VIENNA and HERNDON and/or their designees a proposed list of projects within their jurisdiction.

23. Within 30 days after each Mayors' receipt of this list, the Towns shall provide comments and suggestions regarding each project, its timing, and its costs for implementation,

lifetime maintenance, and replacement. If the Towns provide any comments or suggestions, the Director shall fully consider any such comments, and may, but shall not be obligated to implement or adhere to them. In the event that a dispute exists regarding implementation of any project on the list sent by the Director, the Director and the disputing Town shall endeavor in good faith to resolve any such dispute, but final authority for the implementation of any such projects rests solely with Fairfax County and the Director.

24. FAIRFAX will pay for the development of the updated Chesapeake Bay TMDL Action Plan for each Town that is due at the beginning of each new MS4 permit cycle. Each Town will be responsible for routine annual updates as required in the MS4 permits. FAIRFAX will also pay for the initial development of other TMDL action plans necessary for compliance with each Town's MS4 permit and any substantial updates to these action plans required in future permit cycles. The action plans will include all information necessary to demonstrate compliance with MS4 permit requirements. Changes or additions to projects identified in the action plans will be reported to each Town annually in accordance with paragraph 31.

25. FAIRFAX shall be solely responsible for implementing projects under this Agreement, excluding the acquisition of any permanent or temporary land rights necessary to construct and maintain a project located within a Town. The Parties may, as necessary, have agreements that are separate from this Agreement that address the Parties' responsibilities over specific projects, facilities, and other funding.

26. A project is subject to this Agreement if it is funded in whole or in part by the Service District Fee and substantially completed on or after July 1, 2009.

27. For each project substantially completed under this Agreement on or after July 1, 2009, whether the project or facility is located within VIENNA, HERNDON, or elsewhere

within Fairfax County, the Parties will receive a pollutant reduction credit for each POC. The reduction credit is determined by applying the VIENNA PERCENTAGE and the HERNDON PERCENTAGE to the estimated total POC load reductions for each project that is substantially completed pursuant to this Agreement (the "VIENNA CREDIT," "HERNDON CREDIT," "FAIRFAX CREDIT," and collectively "REDUCTION CREDITS"). For completed projects and facilities, the REDUCTION CREDITS shall survive any termination of this Agreement unless otherwise agreed to by the Parties or in the event that a constructed facility or improvement is not maintained in accordance with paragraph 28 of this Agreement.

28. The Party in whose jurisdiction any stormwater management facility or improvement is constructed under this Agreement shall ensure that the long-term maintenance of such facility or improvement is performed as necessary to maintain the functionality and performance thereof. Each party shall ensure long-term maintenance in accordance with Va. Code Ann. § 62.1-44.15.15:27(E)(2) and 9 Va. Admin. Code §§ 25-870-58 and 112. In the event that a Party's failure to maintain a project completed under this Agreement results in a decrease in the amount of POCs removed therefrom, as determined by DEQ, then that Party shall, at its sole cost, maintain or improve the facility to restore the facility to its original functionality.

29. In the event that a Party is unable to meet its load reduction requirement for a specific reporting period, and another Party has exceeded its load reduction requirement, the Director may, with written notification to the Parties, transfer credit from shared credit projects among Parties in a manner to ensure that each Party is able to meet its load reduction requirement. Any such transfer shall be temporary and last only as long as it is needed to address the immediate shortfall. Further, no transfer will occur or stay in force that would result in a donating Party being in non-compliance with an MS4 permit condition.

30. Any Party that completes a stormwater management project from funds not generated by or transferred through Fairfax County shall be entitled to claim all resulting load reduction credits for purposes of satisfying its MS4 permit requirements.

31. FAIRFAX will prepare an annual report that details the activities performed under this Agreement. The report will provide sufficient detail so that each locality may use it to meet their respective MS4 permit reporting obligations to DEQ. Fairfax will provide the report annually no later than one month before the date the annual report is due to DEQ.

**STAFF TRAINING**

32. Without any additional invitation or payment, VIENNA's and/or HERNDON's staff may attend MS4 permit-related training programs that are conducted or hosted by FAIRFAX. FAIRFAX will provide VIENNA and HERNDON with at least one-month's advance notice of such training opportunities.

**TERMINATION**

33. Any Party may terminate this Agreement by resolution of that Party's governing body. Any such resolution shall be at a public meeting with notice in writing to the non-terminating Parties. Notice shall be made at least three weeks in advance of any such meeting to the Mayor(s) or, as applicable, the County Executive, of Fairfax County. After adoption of any such resolution, the terminating Party shall notify the remaining Parties. The termination shall be effective no earlier than the end of the fiscal year in which the governing body's vote for the resolution for the termination occurs.

34. If this Agreement is terminated by any party other than FAIRFAX, the Agreement shall remain in force as to the remaining parties. The terminating Town shall have responsibility to maintain and replace, as necessary, any facility constructed under this Agreement that is

located within its boundaries and shall assume all liability for such facility. Unless otherwise agreed to by the Parties, neither Town shall have any liability or responsibility for any facility that is located outside of its jurisdictional boundaries and was developed and implemented under this Agreement.

**ADDITIONAL PROVISIONS**

35. This Agreement is integrated and contains all provisions of the Agreement between the Parties.

36. In the event of a conflict between any term(s) of this Agreement and either of the Parties' MS4 permits or other permit requirements, either Party's respective permit provision(s), shall control.

37. Any provision or term of this Agreement may be modified only by a writing that is approved by resolution at a public meeting of each of the localities' respective governing bodies.

38. This Agreement shall be binding on the Parties' respective agencies, employees, agents, and successors-in-interests.

39. This Agreement shall not be assigned by either of the Parties unless both of the Parties agree to such an assignment in writing.

40. Nothing in this Agreement otherwise limits the respective regulatory and police powers of the Parties.

41. The Parties agree that nothing in this Agreement creates a third-party beneficiary. The Parties also agree that this Agreement does not confer any standing or right to sue or to enforce any provision of this Agreement or any other right or benefit to any person who is not a

party to this Agreement, including but not limited to a citizen, resident, private entity, or local, state, or federal governmental or public body.

42. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one in the same Agreement.

43. This Agreement shall be governed by Virginia law, and any litigation relating to this Agreement shall be brought and/or maintained only in the Circuit Court of Fairfax County, Virginia.

IN WITNESS WHEREOF, the Parties have executed this Agreement, as verified by their signatures below.

**[Signatures appear on the following pages.]**

TOWN OF VIENNA

By: Laurie A DiRocco
Laurie A. DiRocco
Mayor
Town of Vienna, VA

STATE OF VIRGINIA :
: to-wit
COUNTY OF FAIRFAX :

The foregoing Agreement was acknowledged before me by Laurie A. DiRocco of the Town of VIENNA, this 21st day of February 2017 on behalf of the Town of VIENNA.

MELANIE J. CLARK
NOTARY PUBLIC
REGISTRATION # 7290978
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
JUNE 30, 2017

Melanie J Clark
Notary Public

My commission expires: June 30, 2017
Notary Registration Number: 7290978

TOWN OF HERNDON

By: _____
*(Name and Title)*
Lisa C. Merkel
Mayor

STATE OF VIRGINIA :
: to-wit
COUNTY OF FAIRFAX :

The foregoing Agreement was acknowledged before me by Lisa C. Merkel of the Town of HERNDON, this 2nd day of March 2017 on behalf of the Town of HERNDON.

Cynthia M. Yurewicz
Notary Public

My commission expires: 11/30/2018
Notary Registration Number: 325308

CYNTHIA M. YUREWICZ
NOTARY PUBLIC
REGISTRATION # 325308
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES
NOVEMBER 30, 2018

APPROVED AS TO FORM:

Lesa J. Yeatts
Town Attorney

BOARD OF SUPERVISORS OF
FAIRFAX COUNTY, VIRGINIA

By: Edward L Long Jr.
Edward L. Long Jr.
County Executive
Fairfax County, Virginia

STATE OF VIRGINIA :
: to-wit
COUNTY OF FAIRFAX :

The foregoing Agreement was acknowledged before me by Edward L. Long Jr., ~~of the~~ County Executive, on behalf of the Board of Supervisors of Fairfax County, Virginia this 9th day of March ~~2016~~. 2017

SUSAN STANNERS ROBINSON
Registration # 7646782
My Commission Expires
March 31, 2019

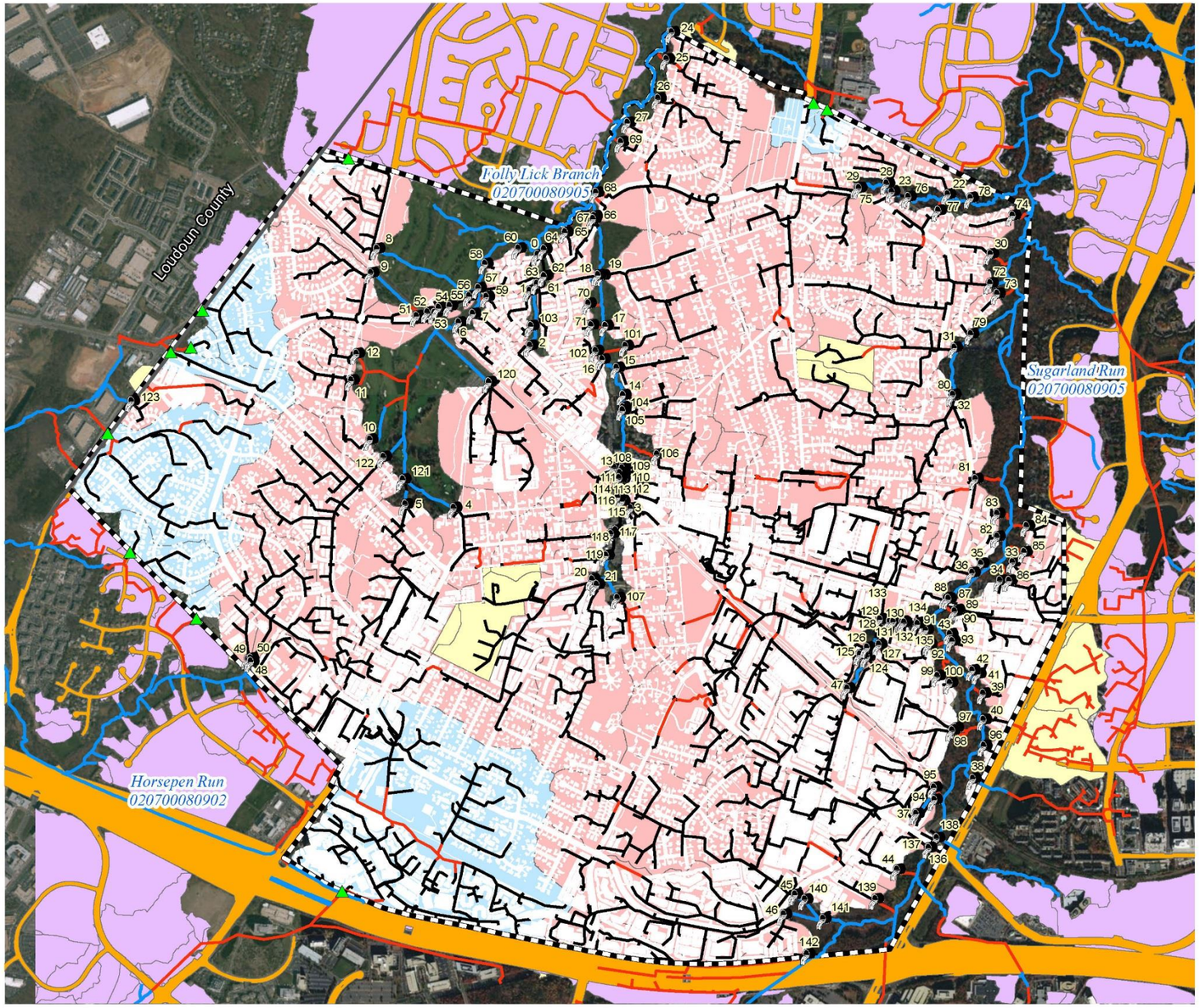
Susan Stanners Robinson
Notary Public

My commission expires: March 31, 2019
Notary Registration Number: 7642019

Approved as to form: _____
Office of the County Attorney
Fairfax, Virginia

# Appendix B

# Town of Herndon MS4 Service Area Delineation

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| 2 | Sufl0006.OF09 | 50 | HCHC0020.OF02 | 98 | Susu0041.OF24 |
| 3 | Sufl0008.OF26 | 51 | Sufl0007.OF15 | 99 | Susu0041.OF18 |
| 4 | Sufl0007.OF08 | 52 | Sufl0007.OF14 | 100 | Susu0041.OF19 |
| 5 | Sufl0007.OF10 | 53 | Sufl0007.OF13 | 101 | Sufl0008.OF09 |
| 6 | Sufl0007.OF02 | 54 | Sufl0007.OF12 | 102 | Sufl0008.OF08 |
| 7 | Sufl0007.OF01 | 55 | Sufl0007.OF11 | 103 | Sufl0006.OF08 |
| 8 | Sufl0006.OF15 | 56 | Sufl0006.OF14 | 104 | Sufl0008.OF13 |
| 9 | Sufl0007.OF16 | 57 | Sufl0006.OF12 | 105 | Sufl0008.OF14 |
| 10 | Sufl0007.OF06 | 58 | Sufl0006.OF11 | 106 | Sufl0008.OF15 |
| 11 | Sufl0007.OF05 | 59 | Sufl0006.OF13 | 107 | Sufl0009.OF04 |
| 12 | Sufl0007.OF04 | 60 | Sufl0006.OF10 | 108 | Sufl0008.OF16 |
| 13 | Sufl0008.OF17 | 61 | Sufl0006.OF06 | 109 | Sufl0008.OF18 |
| 14 | Sufl0008.OF12 | 62 | Sufl0006.OF04 | 110 | Sufl0008.OF20 |
| 15 | Sufl0008.OF11 | 63 | Sufl0006.OF05 | 111 | Sufl0008.OF19 |
| 16 | Sufl0008.OF10 | 64 | Sufl0006.OF03 | 112 | Sufl0008.OF21 |
| 17 | Sufl0008.OF07 | 65 | Sufl0006.OF01 | 113 | Sufl0008.OF23 |
| 18 | Sufl0008.OF04 | 66 | Sufl0008.OF01 | 114 | Sufl0008.OF22 |
| 19 | Sufl0008.OF03 | 67 | Sufl0008.OF02 | 115 | Sufl0008.OF25 |
| 20 | Sufl0009.OF02 | 68 | Sufl0004.OF06 | 116 | Sufl0008.OF24 |
| 21 | Sufl0009.OF03 | 69 | Sufl0004.OF05 | 117 | Sufl0008.OF27 |
| 22 | Susu0034.OF02 | 70 | Sufl0008.OF05 | 118 | Sufl0008.OF28 |
| 23 | Susu0034.OF05 | 71 | Sufl0008.OF06 | 119 | Sufl0009.OF01 |
| 24 | Sufl0004.OF01 | 72 | Susu0038.OF02 | 120 | Sufl0007.OF03 |
| 25 | Sufl0004.OF02 | 73 | Susu0038.OF03 | 121 | Sufl0007.OF09 |
| 26 | Sufl0004.OF03 | 74 | Susu0033.OF01 | 122 | Sufl0007.OF07 |
| 27 | Sufl0004.OF04 | 75 | Susu0034.OF07 | 123 | HCHC0017.OF01 |
| 28 | Susu0034.OF06 | 76 | Susu0034.OF04 | 124 | Susu0041.OF13 |
| 29 | Susu0034.OF08 | 77 | Susu0034.OF03 | 125 | Susu0041.OF12 |
| 30 | Susu0038.OF01 | 78 | Susu0034.OF01 | 126 | Susu0041.OF11 |
| 31 | Susu0039.OF02 | 79 | Susu0039.OF01 | 127 | Susu0041.OF10 |
| 32 | Susu0039.OF04 | 80 | Susu0039.OF03 | 128 | Susu0041.OF08 |
| 33 | Susu0040.OF06 | 81 | Susu0040.OF01 | 129 | Susu0041.OF09 |
| 34 | Susu0040.OF08 | 82 | Susu0040.OF04 | 130 | Susu0041.OF07 |
| 35 | Susu0040.OF09 | 83 | Susu0040.OF02 | 131 | Susu0041.OF06 |
| 36 | Susu0040.OF10 | 84 | Susu0040.OF03 | 132 | Susu0041.OF05 |
| 37 | Susu0043.OF02 | 85 | Susu0040.OF05 | 133 | Susu0041.OF04 |
| 38 | Susu0044.OF01 | 86 | Susu0040.OF07 | 134 | Susu0041.OF02 |
| 39 | Susu0041.OF22 | 87 | Susu0040.OF12 | 135 | Susu0041.OF03 |
| 40 | Susu0041.OF25 | 88 | Susu0040.OF11 | 136 | Susu0043.OF04 |
| 41 | Susu0041.OF21 | 89 | Susu0040.OF13 | 137 | Susu0043.OF05 |
| 42 | Susu0041.OF20 | 90 | Susu0040.OF14 | 138 | Susu0043.OF06 |
| 43 | Susu0041.OF15 | 91 | Susu0041.OF01 | 139 | Susu0043.OF08 |
| 44 | Susu0043.OF07 | 92 | Susu0041.OF16 | 140 | Susu0043.OF10 |
| 45 | Susu0043.OF11 | 93 | Susu0041.OF17 | 141 | Susu0043.OF09 |
| 46 | Susu0043.OF13 | 94 | Susu0043.OF03 | 142 | Susu0043.OF12 |
| 47 | Susu0041.OF14 | 95 | Susu0043.OF01 | | |

MS4 Inteconnection
MS4 Outfall
Impervious Area
Town of Herndon
VDOT MS4
Streams
Hydrologic Connections
Storm Sewer
County MS4, County Responsibility
Flows to County MS4, Town Responsibility
Town MS4, Town Responsibility
Other County Responsibility (Schools; Flow from County to Town MS4)

N W E S

0 0.1 0.2 0.4 Miles

**Town of Herndon**
**Town MS4 Responsibility**
**- 2355.5 Acres**
**- 1064.2 Impervious Acres**

# Appendix C

# List of BMPs Implemented During the First Permit Cycle

All calculations and supporting documentation were included in the initial Chesapeake Bay TMDL Action Plan and/or MS4 annual reports provided to DEQ.

**Redevelopment**

Redevelopment Pre-2014

| Redevelopment Project | TN Credit | TP Credit | TSS Credit | Year |
|---|---|---|---|---|
| Wiygul Automotive | 0.58 | 0.18 | 78.90 | 2011 |
| Dranesville Road Median Improvements | 18.26 | 2.65 | 1,241.48 | 2012 |
| Van Buren Street Median Improvements | 2.46 | 0.36 | 167.47 | 2010 |

Redevelopment FY2014-FY2018

| Redevelopment Project | TN Credit | TP Credit | TSS Credit | Year |
|---|---|---|---|---|
| Fairfax Connector Bus Facility | 12.58 | 1.70 | 1,707.07 | 2016 |
| Junction Square | 7.74 | 0.39 | | 2016 |

## Shared Credit Projects

Shared credit projects include those projects constructed prior to July 1, 2016 from Tables 5.A (Structural Retrofits), 5.B (Stream Restoration), and 5.F (In-Lake Forebay Retrofits) of the Fairfax County Chesapeake Bay TMDL Action Plan approved by DEQ on August 15, 2017. Shared credit projects also include projects constructed from July 1, 2016 to prior to July 1, 2018 as reported in Fairfax County's FY2017 and FY2018 MS4 annual reports. Projects planned for the second permit cycle are shown in FY23 and are detailed in Appendix D.

**Total Cumulative Town Credit**

| Pollutant | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 |
|---|---|---|---|---|---|---|
| TN | 1679.46 | 1902.80 | 1902.80 | 1902.80 | 1902.80 | 2235.09 |
| TP | 377.27 | 436.83 | 436.83 | 436.83 | 436.83 | 553.42 |
| TSS | 140928.12 | 162458.34 | 162458.34 | 162458.34 | 162458.34 | 196971.48 |

**Total Cumulative County-Wide Credit**

| Pollutant | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 |
|---|---|---|---|---|---|---|
| TN | 39987.24 | 45304.76 | 45304.76 | 45304.76 | 45304.76 | 53216.47 |
| TP | 8982.73 | 10400.82 | 10400.82 | 10400.82 | 10400.82 | 13176.73 |
| TSS | 3355431.36 | 3868055.72 | 3868055.72 | 3868055.72 | 3868055.72 | 4689797.20 |

**Implemented Structural Retrofits (Update with Most Recent Cumulative Data from County)**

| Pollutant | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 |
|---|---|---|---|---|---|---|
| TN | 6421.36 | 6979.75 | 6979.75 | 6979.75 | 6979.75 | 7317.20 |
| TP | 614.62 | 667.58 | 667.58 | 667.58 | 667.58 | 706.18 |
| TSS | 749226.15 | 794588.14 | 794588.14 | 794588.14 | 794588.14 | 825921.67 |

**Implemented Stream Retrofits (Update with Most Recent Cumulative Data from County)**

| Pollutant | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 |
|---|---|---|---|---|---|---|
| TN | 26398.07 | 31157.20 | 31157.20 | 31157.20 | 31157.20 | 38731.46 |
| TP | 7943.54 | 9308.67 | 9308.67 | 9308.67 | 9308.67 | 12045.98 |
| TSS | 2437149.69 | 2904412.06 | 2904412.06 | 2904412.06 | 2904412.06 | 3694820.01 |

**Implemented In-Lake Forebays (Update with Most Recent Cumulative Data from County)**

| Pollutant | FY18 | FY19 | FY20 | FY21 | FY22 | FY23 |
|---|---|---|---|---|---|---|
| TN | 7167.81 | 7167.81 | 7167.81 | 7167.81 | 7167.81 | 7167.81 |
| TP | 424.57 | 424.57 | 424.57 | 424.57 | 424.57 | 424.57 |
| TSS | 169055.52 | 169055.52 | 169055.52 | 169055.52 | 169055.52 | 169055.52 |

## 2006-2009 Facilities

| Eligible 2006-2009 Facility | TN Credit | TP Credit | TSS Credit |
|---|---|---|---|
| Dry Extended Detention Ponds | 3.51 | 0.51 | 716.75 |
| Infiltration Practices w/o Sand, Veg. | 34.97 | 5.39 | 2,824.19 |
| Dry Extended Detention Ponds | 15.15 | 2.20 | 3,091.55 |
| Dry Detention Ponds and Hydrodynamic Structures | 2.86 | 0.83 | 389.18 |
| Infiltration Practices w/o Sand, Veg. | 18.80 | 2.90 | 1,518.26 |
| StormFilter | 3.10 | 0.71 | 422.14 |
| Bioretention C/D soils, underdrain | 0.93 | 0.24 | 138.61 |
| Dry Extended Detention Ponds | 1.52 | 0.22 | 309.45 |
| StormFilter | 35.29 | 8.05 | 4,809.05 |
| StormFilter | 14.85 | 3.39 | 2,022.99 |
| Dry Detention Ponds and Hydrodynamic Structures | 1.97 | 0.57 | 267.74 |
| Bioretention C/D soils, underdrain | 8.18 | 2.14 | 1,224.45 |
| Dry Detention Ponds and Hydrodynamic Structures | 4.97 | 1.44 | 675.26 |
| Infiltration Practices w/o Sand, Veg. | 2.34 | 0.36 | 189.18 |
| StormFilter | 0.47 | 0.11 | 63.90 |
| Bioretention C/D soils, underdrain | 0.05 | 0.01 | 6.87 |
| Bioretention C/D soils, underdrain | 0.58 | 0.15 | 86.88 |
| Bioretention C/D soils, underdrain | 0.46 | 0.12 | 68.57 |
| Bioretention C/D soils, underdrain | 0.01 | 0.00 | 1.72 |
| Bioretention C/D soils, underdrain | 0.33 | 0.09 | 48.90 |
| Bioretention C/D soils, underdrain | 1.75 | 0.46 | 262.33 |
| Bioretention C/D soils, underdrain | 0.00 | 0.00 | 0.14 |
| Bioretention C/D soils, underdrain | 0.01 | 0.00 | 1.64 |
| Dry Detention Ponds and Hydrodynamic Structures | 0.99 | 0.29 | 135.11 |
| Dry Detention Ponds and Hydrodynamic Structures | 0.04 | 0.01 | 5.60 |
| StormFilter | 31.16 | 7.11 | 4,246.24 |
| Dry Detention Ponds and Hydrodynamic Structures | 0.01 | 0.00 | 1.79 |
| Dry Detention Ponds and Hydrodynamic Structures | 3.86 | 1.12 | 525.22 |
| Bioretention C/D soils, underdrain | 3.31 | 0.86 | 495.33 |
| Bioretention C/D soils, underdrain | 0.01 | 0.00 | 1.18 |
| Bioretention C/D soils, underdrain | 0.00 | 0.00 | 0.49 |
| Bioretention C/D soils, underdrain | 0.67 | 0.18 | 100.52 |
| Bioretention C/D soils, underdrain | 1.57 | 0.41 | 235.04 |
| Bioretention C/D soils, underdrain | 0.38 | 0.10 | 56.51 |
| Bioretention C/D soils, underdrain | 2.25 | 0.59 | 336.93 |
| Bioretention C/D soils, underdrain | 0.00 | 0.00 | 0.47 |
| Bioretention C/D soils, underdrain | 0.87 | 0.23 | 129.74 |
| Infiltration Practices w/o Sand, Veg. | 22.77 | 3.51 | 1,838.80 |
| StormFilter | 20.34 | 4.64 | 2,771.79 |
| Infiltration Practices w/o Sand, Veg. | 232.38 | 35.78 | 18,764.70 |

## More Stringent Development

| Address | Nitrogen (lbs) | Phosphorus (lbs) | Sediment (lbs) | Fiscal Year |
|---|---|---|---|---|
| Mississippi Drive | 0.79 | 0.1 | 91.08 | 2016 |
| Monroe | 2.18 | 0.17 | 113.48 | 2016 |
| Third Street | 1.32 | 0.19 | 88.28 | 2016 |
| Van Buren | 1.66 | 0.23 | 109 | 2016 |
| Elwardstone Sub | 1.27 | 0.15 | 112.86 | 2016 |
| Dominion Ridge | 1.86 | 0.23 | | 2016 |
| Van Vleck Sub | 2.63 | 0.38 | | 2016 |
| Spring Street | 1.93 | 0.26 | | 2017 |
| Van Buren | 1.23 | 0.17 | 71.57 | 2017 |
| Third Street | 1.46 | 0.21 | 109.11 | 2017 |
| Third Street | 1.46 | 0.21 | 101.71 | 2017 |
| Monroe | 0.62 | 0.09 | 72.72 | 2017 |
| Van Vleck | 1.63 | 0.23 | 103.81 | 2017 |
| Van Vleck | 1.42 | 0.2 | 98.18 | 2017 |
| Van Vleck | 1.14 | 0.16 | 74.67 | 2017 |
| Elden | 0.08 | 0.65 | 0 | 2018 |
| Main Drive | 0.15 | 2.37 | 0 | 2018 |
| Dranesville | 0.22 | 1.79 | 0 | 2018 |
| Dranesville | | | 0 | 2018 |
| Van Vleck | 0.09 | 0.67 | 0 | 2018 |
| Van Vleck | 0.3 | 2.1 | 0 | 2018 |
| Van Vleck | 0.19 | 1.33 | 0 | 2018 |
| Van Vleck | 0.28 | 2.05 | 0 | 2018 |

# Appendix D

# Calculations and Supporting Documents for BMPs Implemented and Planned for the Second Permit Cycle

## Summary of BMPs Implemented or Planned for the Second Permit Cycle

| | Cumulative Reductions from Worksheets | | | | | |
|---|---|---|---|---|---|---|
| | **Through FY18** | **FY19** | **FY20** | **FY21** | **FY22** | **FY23** |
| **Shared Credit Projects** | | | | | | |
| TN | 1,679.46 | 1,902.80 | 1,902.80 | 1,902.80 | 1,902.80 | 2,235.09 |
| TP | 377.27 | 436.83 | 436.83 | 436.83 | 436.83 | 553.42 |
| TSS | 140,928.12 | 162,458.34 | 162,458.34 | 162,458.34 | 162,458.34 | 196,971.48 |
| | | | | | | |
| **Redevelopment** | | | | | | |
| TN | 41.62 | 47.38 | 47.38 | 47.38 | 47.38 | 47.38 |
| TP | 5.27 | 6.74 | 6.74 | 6.74 | 6.74 | 6.74 |
| TSS | 3,194.91 | 3,826.33 | 3,826.33 | 3,826.33 | 3,826.33 | 3,826.33 |
| | | | | | | |
| **Sweeping** | | | | | | |
| TN | - | - | - | - | - | - |
| TP | - | - | - | - | - | - |
| TSS | - | - | - | - | - | - |
| | | | | | | |
| **Nutrient Purchases** | | | | | | |
| TN | - | - | - | - | - | - |
| TP | - | - | - | - | - | - |
| TSS | - | - | - | - | - | - |
| | | | | | | |
| **More Stringent Development** | | | | | | |
| TN | 23.91 | 38.70 | 38.70 | 38.70 | 38.70 | 38.70 |
| TP | 13.94 | 15.99 | 15.99 | 15.99 | 15.99 | 15.99 |
| TSS | 1,146.47 | 2,126.49 | 2,126.49 | 2,126.49 | 2,126.49 | 2,126.49 |
| | | | | | | |
| **2006-2009 Facilities** | | | | | | |
| TN | 472.74 | 472.74 | 472.74 | 472.74 | 472.74 | 472.74 |
| TP | 84.70 | 84.70 | 84.70 | 84.70 | 84.70 | 84.70 |
| TSS | 48,785.23 | 48,785.23 | 48,785.23 | 48,785.23 | 48,785.23 | 48,785.23 |
| | | | | | | |
| **Total Reductions** | | | | | | |
| TN | 2,217.73 | 2,461.62 | 2,461.62 | 2,461.62 | 2,461.62 | 2,793.91 |
| TP | 481.19 | 544.27 | 544.27 | 544.27 | 544.27 | 660.86 |
| TSS | 194,054.73 | 217,196.39 | 217,196.39 | 217,196.39 | 217,196.39 | 251,709.53 |

## Redevelopment

### Redevelopment Post-FY2018

| Redevelopment Project | TN Credit | TP Credit | TSS Credit | Year |
|---|---|---|---|---|
| Virginia Tire and Auto | 1.47 | 0.41 | 200.10 | 2019 |
| Residences at The Station | 2.10 | 0.57 | 133.02 | 2019 |
| Herndon Centre | 2.19 | 0.49 | 298.30 | 2019 |

### Redevelopment Project Details

| Virginia Tire and Auto | | |
|---|---|---|
| **Information** | **Input** | **As Developed** |
| Date of Final Calculation | 2019 | |
| Rainfall | | |
| Site Area (SF) | 45302.4 | |
| Site Area (AC) | | 1.04 |
| Watershed I % | | |
| Pre-I Area (SF) | 29620.8 | |
| Pre-I Area (AC) | | 0.68 |
| Pre-I Area (%) | | |
| Pre C Value | | |
| **Pre-TP Load (VRRM)** | | **1.68** |
| Post-I Area (SF) | 36154.8 | |
| Post-I Area (AC) | | 0.83 |
| Post-I Area (%) | | |
| Post C Value | | |
| **Post-TP Load (VRRM)** | | **1.92** |
| Increase/Decrease | | 0.24 |
| **Stormwater Controls** | | |
| BMP 1 | BaySaver Barracuda + Isolator Row | |
| Efficiency | 0.5 | |
| I Area (AC) | 0.32 | |
| TP Removed | | 0.37 |
| | | |
| BMP 2 | Filterra | |
| Efficiency | 0.5 | |
| I Area (AC) | 0.24 | |
| TP Removed | | 0.28 |
| | | |
| BMP 3 | NA | |
| Efficiency | 0 | |
| I Area (AC) | 0 | |
| TP Removed | | 0.00 |
| | | |
| **Total BMP TP Removed** | | **0.65** |
| Purchased Off-Site Credit | | 0.00 |
| **Net Change in TP** | | **(0.41)** |

| **Creditable Reductions for TP, TN, and TSS Per Guidance Appendix V.E** | | | |
|---|---|---|---|
| TP Decrease for Impervious Reduction | | | - |
| TP Decrease for BMPs (Proportion of BMP Applied to TMDL Reduction) | | | |
| | 0.63 | | (0.41) |
| On-Site Creditable TP Decrease | | | (0.41) |
| Purchased Off-Site TP Credits | | | - |
| **Total Creditable TP Decrease** | | | **(0.41)** |

| | | | |
|---|---|---|---|
| Total Associated TN Loac | 6.9 | | 13.25 |
| TN Decrease from Impervious Reduction | | | - |
| TN Decrease for BMPs | Efficiency | Proportion IA Treated by BMP | |
| BMP 1 | 0.261 | 0.385542169 | (1.33) |
| BMP 2 | 0.261 | 0.289156627 | (1.00) |
| BMP 3 | 0.00 | 0 | - |
| TN Decrease for BMPs (Decrease * Prop. Applied to TMDL) | | | (1.47) |
| On-Site Creditable TN Decrease (Imp. Reduction + BMPs) | | | (1.47) |
| Purchased Off-Site TN Credits | | | - |
| **Total Creditable TN Decrease** | | | **(1.47)** |

| | | | |
|---|---|---|---|
| Total Associated TSS Loa | 469.2 | | 900.86 |
| TSS Decrease from Impervious Reduction | | | - |
| TSS Decrease for BMPs | Efficiency | Proportion IA Treated by BMP | |
| BMP 1 | 0.523 | 0.385542169 | (181.65) |
| BMP 2 | 0.523 | 0.289156627 | (136.24) |
| BMP 3 | 0.00 | 0 | - |
| TSS Decrease for BMPs (Decrease * Prop. Applied to TMDL) | | | (200.10) |
| **Total Creditable TSS Decrease (Imp. Reduction + BMPs)** | | | **(200.10)** |

| **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. BMP 1 and BMP 2 TP efficiencies from the Virginia Stormwater BMP Clearinghouse website. TN and TSS efficiencies calculated using Chesapeake Bay Program Retrofit Equations based on Runoff Treatment Depth of 0.5 per email from Kelsey Brooks received 8/7/2015. |

| Residences at The Station | | |
|---|---|---|
| **Information** | **Input** | **As Developed** |
| Date of Final Calculation | 2019 | |
| Rainfall | | |
| Site Area (SF) | 72309.6 | |
| Site Area (AC) | | 1.66 |
| Watershed I % | | |
| Pre-I Area (SF) | 47916 | |
| Pre-I Area (AC) | | 1.10 |
| Pre-I Area (%) | | |
| Pre C Value | | |
| **Pre-TP Load (VRRM)** | | **2.70** |
| Post-I Area (SF) | 47916 | |
| Post-I Area (AC) | | 1.10 |
| Post-I Area (%) | | |
| Post C Value | | |
| **Post-TP Load (VRRM)** | | **2.70** |
| Increase/Decrease | | - |
| **Stormwater Controls** | | |
| BMP 1 | Permeable Pavers #1 | |
| Efficiency | 0.59 | |
| I Area (AC) | 0.09 | |
| TP Removed | | 0.13 |
| | | |
| BMP 2 | Permeable Pavers #1 | |
| Efficiency | 0.59 | |
| I Area (AC) | 0.12 | |
| TP Removed | | 0.17 |
| | | |
| BMP 3 | NA | |
| Efficiency | 0 | |
| I Area (AC) | 0 | |
| TP Removed | | 0.00 |
| | | |
| **Total BMP TP Removed** | | **0.30** |
| Purchased Off-Site Credit | | 0.27 |
| **Net Change in TP** | | **(0.57)** |

| **Creditable Reductions for TP, TN, and TSS Per Guidance Appendix V.E** | | | |
|---|---|---|---|
| TP Decrease for Impervious Reduction | | | - |
| TP Decrease for BMPs (Proportion of BMP Applied to TMDL Reduction) | | | |
| | 1.00 | | (0.30) |
| On-Site Creditable TP Decrease | | | (0.30) |
| Purchased Off-Site TP Credits | | | (0.27) |
| **Total Creditable TP Decrease** | | | **(0.57)** |

| Total Associated TN Load | 6.9 | | 18.63 |
|---|---|---|---|
| TN Decrease from Impervious Reduction | | | - |
| TN Decrease for BMPs | Efficiency | Proportion IA Treated by BMP | |
| BMP 1 | 0.59 | 0.081818182 | (0.90) |
| BMP 2 | 0.590 | 0.109090909 | (1.20) |
| BMP 3 | 0.00 | 0 | - |
| TN Decrease for BMPs (Decrease * Prop. Applied to TMDL) | | | (2.10) |
| On-Site Creditable TN Decrease (Imp. Reduction + BMPs) | | | (2.10) |
| Purchased Off-Site TN Credits | | | - |
| **Total Creditable TN Decrease** | | | **(2.10)** |

| Total Associated TSS Load | 469.2 | | 1,266.84 |
|---|---|---|---|
| TSS Decrease from Impervious Reduction | | | - |
| TSS Decrease for BMPs | Efficiency | Proportion IA Treated by BMP | |
| BMP 1 | 0.55 | 0.081818182 | (57.01) |
| BMP 2 | 0.550 | 0.109090909 | (76.01) |
| BMP 3 | 0.00 | 0 | - |
| TSS Decrease for BMPs (Decrease * Prop. Applied to TMDL) | | | (133.02) |
| **Total Creditable TSS Decrease (Imp. Reduction + BMPs)** | | | **(133.02)** |

| **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. Permeable Paver efficiencies for TP and TN from the Virginia Stormwater BMP Clearinghouse. TSS efficiencies calculated using Chesapeake Bay Program Established Efficiencies for C/D soils and underdrain. |

| Herndon Centre | | |
|---|---|---|
| **Information** | **Input** | **As Developed** |
| Date of Final Calculation | 2019 | |
| Rainfall | | |
| Site Area (SF) | 54885.6 | |
| Site Area (AC) | | 1.26 |
| Watershed I % | | |
| Pre-I Area (SF) | 48787.2 | |
| Pre-I Area (AC) | | 1.12 |
| Pre-I Area (%) | | |
| Pre C Value | | |
| **Pre-TP Load (VRRM)** | | **2.51** |
| Post-I Area (SF) | 56628 | |
| Post-I Area (AC) | | 1.30 |
| Post-I Area (%) | | |
| Post C Value | | |
| **Post-TP Load (VRRM)** | | **2.52** |
| Increase/Decrease | | 0.01 |
| **Stormwater Controls** | | |
| BMP 1 | MTD - Filtering (StormTech) | |
| Efficiency | 0.4 | |
| I Area (AC) | 0.64 | |
| TP Removed | | 0.50 |
| | | |
| BMP 2 | NA | |
| Efficiency | 0 | |
| I Area (AC) | 0 | |
| TP Removed | | 0.00 |
| | | |
| BMP 3 | NA | |
| Efficiency | 0 | |
| I Area (AC) | 0 | |
| TP Removed | | 0.00 |
| | | |
| **Total BMP TP Removed** | | **0.50** |
| Purchased Off-Site Credit | | 0.00 |
| **Net Change in TP** | | **(0.49)** |

| **Creditable Reductions for TP, TN, and TSS Per Guidance Appendix V.E** | | | |
|---|---|---|---|
| TP Decrease for Impervious Reduction | | | - |
| TP Decrease for BMPs (Proportion of BMP Applied to TMDL Reduction) | | | |
| | 0.98 | | (0.49) |
| On-Site Creditable TP Decrease | | | (0.49) |
| Purchased Off-Site TP Credits | | | - |
| **Total Creditable TP Decrease** | | | **(0.49)** |

| Total Associated TN Load | 6.9 | | 17.39 |
|---|---|---|---|
| TN Decrease from Impervious Reduction | | | - |
| TN Decrease for BMPs | Efficiency | Proportion IA Treated by BMP | |
| BMP 1 | 0.261 | 0.492307692 | (2.23) |
| BMP 2 | 0.000 | 0 | - |
| BMP 3 | 0.00 | 0 | - |
| TN Decrease for BMPs (Decrease * Prop. Applied to TMDL) | | | (2.19) |
| On-Site Creditable TN Decrease (Imp. Reduction + BMPs) | | | (2.19) |
| Purchased Off-Site TN Credits | | | - |
| **Total Creditable TN Decrease** | | | **(2.19)** |

| Total Associated TSS Load | 469.2 | | 1,182.38 |
|---|---|---|---|
| TSS Decrease from Impervious Reduction | | | - |
| TSS Decrease for BMPs | Efficiency | Proportion IA Treated by BMP | |
| BMP 1 | 0.523 | 0.492307692 | (304.44) |
| BMP 2 | 0.000 | 0 | - |
| BMP 3 | 0.00 | 0 | - |
| TSS Decrease for BMPs (Decrease * Prop. Applied to TMDL) | | | (298.30) |
| **Total Creditable TSS Decrease (Imp. Reduction + BMPs)** | | | **(298.30)** |

| **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. TN and TSS efficiencies calculated using Chesapeake Bay Program Retrofit Equations based on Runoff Treatment Depth of 0.5 per email from Kelsey Brooks received 8/7/2015. |

## Street Sweeping

Street sweeping credits, if any, will be reported with the Town's MS4 annual reports.

## Purchased Nutrient Credits

Purchased nutrient credits, if any, will be reported with the Town's MS4 annual reports.

## Shared Credit Projects

The following projects are included in Fairfax County's draft Phase II Chesapeake Bay TMDL Action Plan. Additional shared credit projects will be reported annually with the Town's MS4 annual report based on projects documented by Fairfax County.

Stormwater Retrofits

| Project Name | Long. | Lat. | Type of Project or BMP | Treated (Ac) | Impervious Treated (Ac) | Pervious Treated (Ac) | Estimated Cost ($) | Estimated Amount of Total | | | Pollutant Reduction Calculation Method | % Treated Area Outside Regulated MS4 | Baseline Reduction Provided for | | | Total Credit Received (lb/yr) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | TN | TP | TSS | | | TN | TP | TSS | TN | TP | TSS |
| **Luther Jackson I.S. (AC9179/DP0138)** | -77.23171 | 38.866973 | Constructed Wetland | 37.17 | 31.07 | 6.10 | $300,000 | 137.09 | 19.45 | 17,551.42 | CBP Retrofits Expert Panel, ST, 0.42 inches of runoff treated | 0% | 0.00 | 0.00 | 0.00 | 137.09 | 19.45 | 17,551.42 |
| **Lower Potomac Ball Park** | -77.210744 | 38.698525 | Constructed Wetland | 24.98 | 10.42 | 14.56 | $910,000 | 70.55 | 9.91 | 8,009.62 | CBP Retrofits Expert Panel, ST, 0.62 inches of runoff treated | 0% | 0.00 | 0.00 | 0.00 | 70.55 | 9.91 | 8,009.62 |
| **Nottoway Park BMP Retrofits (Phase 2)** | -77.274818 | 38.885919 | Bioretention | 5.21 | 0.93 | 4.28 | $85,566 | 21.68 | 1.40 | 848.03 | CBP Retrofits Expert Panel, RR, 0.4 inches of runoff treated | | 2.17 | 0.14 | 84.80 | 19.51 | 1.26 | 763.22 |
| | -77.274906 | 38.884787 | Bioretention | 1.27 | 0.07 | 1.2 | $65,857 | 8.98 | 0.48 | 248.71 | CBP Retrofits Expert Panel, RR, 2.5 inches of runoff treated | | 0.90 | 0.05 | 24.87 | 8.08 | 0.43 | 223.84 |
| | -77.273892 | 38.885178 | Bioretention | 0.34 | 0.33 | 0.01 | $9,163 | 1.17 | 0.13 | 100.72 | CBP Retrofits Expert Panel, RR, 0.2 inches of runoff treated | | 0.12 | 0.01 | 10.07 | 1.05 | 0.12 | 90.65 |
| | -77.272714 | 38.885142 | Bioretention | 0.96 | 0.35 | 0.61 | $4,390 | 6.42 | 0.51 | 345.29 | CBP Retrofits Expert Panel, RR, 0.7 inches of runoff treated | | 0.64 | 0.05 | 34.53 | 5.78 | 0.46 | 310.76 |
| | -77.274254 | 38.884998 | Constructed Wetland | 28.58 | 1.87 | 26.71 | $233,315 | 96.08 | 7.02 | 4,403.56 | CBP Retrofits Expert Panel, ST, 0.8 inches of runoff treated | | 9.61 | 0.70 | 440.36 | 86.47 | 6.32 | 3,963.21 |
| | -77.274038 | 38.885405 | Dry Swale | 0.69 | 0.05 | 0.64 | $107,185 | 4.93 | 0.27 | 145.24 | CBP Retrofits Expert Panel, RR, 2.5 inches of runoff treated | | 0.49 | 0.03 | 14.52 | 4.44 | 0.24 | 130.72 |
| | -77.274973 | 38.885071 | Dry Swale | 1.58 | 0.64 | 0.94 | $23,623 | 2.65 | 0.22 | 151.93 | CBP Retrofits Expert Panel, RR, 0.1 inches of runoff treated | | 0.27 | 0.02 | 15.19 | 2.39 | 0.20 | 136.74 |
| | -77.273789 | 38.884902 | Dry Swale | 0.35 | 0.24 | 0.11 | $18,707 | 1.29 | 0.13 | 94.01 | CBP Retrofits Expert Panel, RR, 0.2 inches of runoff treated | | 0.13 | 0.01 | 9.40 | 1.16 | 0.11 | 84.61 |
| | -77.272805 | 38.88491 | Dry Swale | 0.35 | 0.25 | 0.1 | $14,221 | 1.02 | 0.10 | 76.38 | CBP Retrofits Expert Panel, RR, 0.2 inches of runoff treated | | 0.10 | 0.01 | 7.64 | 0.92 | 0.09 | 68.74 |
| | | | | | | | | | | | | | | | | 337.45 | 38.60 | 31,333.53 |
| | | | | | | | | | | | | | | | **Fairfax Credit (92.3%)** | **311.46** | **35.62** | **28,920.84** |
| | | | | | | | | | | | | | | | **Herndon Credit (4.2%)** | **14.17** | **1.62** | **1316.01** |

## Stream Restoration

| Project Name | Longitude | Latitude | Type of Project or BMP | Acres Treated (Ac) | Impervious Acres Treated | Pervious Acres Treated | Estimated Cost ($) | Restored Length (LF) | Estimated Amount of Total | | | Pollutant Reduction Calculation Method | % Treated Area Outside | Baseline Reduction Provided for | | | Total Credit Received (lb/yr) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | TN | TP | TSS | | | TN | TP | TSS | TN | TP | TSS |
| **Flatlick Ph III** | -77.448606 | 38.878373 | Urban Stream Restoration | 3331.058 | 1584.913 | 1746.145 | $3,500,000 | 867.30 | 324.48 | 43.58 | 15,023.00 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 83 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 15.3 ft | 37.9% Note 1 | 350.35 | 41.40 | 29,840.57 | 1,140.58 | 186.99 | 48,894.44 |
| | | | | | | | | 1,716.80 | 550.85 | 32.55 | 11,222.00 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 62 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 16.7 ft | | | | | | | |
| | | | | | | | | 792.20 | 442.42 | 101.33 | 34,933.00 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 193 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 16.8 ft | | | | | | | |
| | | | | | | | | 212.80 | 59.91 | 12.60 | 4,344.00 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 24 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 4.6 ft | | | | | | | |
| | | | | | | | | 204.90 | 113.27 | 38.33 | 13,213.00 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 73 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 4 ft | | | | | | | |
| **Indian Run at Indian Run Court (CA82-0001)** | -77.17744 | 38.822846 | Urban Stream Restoration | 470.39 | 226.50 | 243.89 | $3,960,000 | 1,197.00 | 298.94 | 45.51 | 15,690.89 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 87 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 4.8 ft | 45% | 179.83 | 30.09 | 12,356.12 | 222.47 | 50.09 | 15,286.20 |
| | | | | | | | | 83.00 | 12.05 | 1.96 | 675.13 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 4 tons/yr, Sediment Delivery Ratio: 0.181 | | | | | | | |
| | | | | | | | | 60.00 | 16.76 | 5.12 | 1,766.56 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 10 tons/yr, Sediment Delivery Ratio: 0.181 | | | | | | | |
| | | | | | | | | 100.00 | 61.47 | 23.98 | 8,268.08 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 46 tons/yr, Sediment Delivery Ratio: 0.181 | | | | | | | |
| | | | | | | | | 56.00 | 13.08 | 3.60 | 1,241.66 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 7 tons/yr, Sediment Delivery Ratio: 0.181 | | | | | | | |
| **Indian Run at Columbia Road (CA9240)** | -77.176211 | 38.821069 | Urban Stream Restoration | 516.35 | 202.71 | 313.64 | $850,000 | 430.00 | 113.45 | 19.43 | 6,697.00 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 37 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 5.4 ft | 0.80 | 6.04 | 0.56 | 426.94 | 107.41 | 18.88 | 6,270.06 |
| **Difficult Run at Brittenford Dr.** | -77.297957 | 38.943905 | Urban Stream Restoration | | | 115.81 | $4,994,000 | 636.00 | 504.13 | 189.25 | 65,245.07 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 360.47 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 5 ft | | 65.54 | 9.84 | 7,633.67 | 438.60 | 179.41 | 57,611.40 |
| | | | | | | 1.51 | | 234.00 | 253.39 | 113.30 | 39,061.61 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 215.81 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 5 ft | | 32.94 | 5.89 | 4,570.21 | 220.45 | 107.41 | 34,491.40 |
| | | | | | | 8.92 | | 565.00 | 595.47 | 253.09 | 87,254.67 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 482.07 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 5.6 ft | | 77.41 | 13.16 | 10,208.80 | 518.06 | 239.93 | 77,045.87 |
| | | | | | | 2.62 | | 482.00 | 236.55 | 103.21 | 35,582.79 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 196.59 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 5.6 ft | | 30.75 | 5.37 | 4,163.19 | 205.80 | 97.84 | 31,419.60 |
| | | | | | | 3.39 | | 196.00 | 1,014.35 | 460.19 | 158,657.36 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 876.65 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 5.6 ft | | 131.87 | 23.93 | 18,562.91 | 882.48 | 436.26 | 140,094.45 |
| | | | | | | 5.05 | | 463.00 | 304.19 | 129.32 | 44,585.73 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 246.33 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 5.6 ft | | 39.55 | 6.72 | 5,216.53 | 264.65 | 122.60 | 39,369.20 |
| | | | | | | 7.57 | | 493.67 | 272.63 | 109.24 | 37,662.48 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 208.08 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 5.6 ft | | 35.44 | 5.68 | 4,406.51 | 237.18 | 103.56 | 33,255.97 |
| | | | | | | 39.9 | | 27.77 | 12.74 | 4.28 | 1,475.15 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 8.15 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 2.6 ft | | 1.66 | 0.22 | 172.59 | 11.08 | 4.06 | 1,302.56 |
| | | | | | | 32.24 | | 288.91 | 293.68 | 117.83 | 40,621.83 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 224.43 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 3.4 ft | | 38.18 | 6.13 | 4,752.75 | 255.50 | 111.70 | 35,869.08 |
| | | | | | | 44.05 | | 550.40 | 291.80 | 102.46 | 35,323.96 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 195.16 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 2.9 ft | | 37.93 | 5.33 | 4,132.90 | 253.86 | 97.13 | 31,191.06 |
| | | | | | | 6.3 | | 638.00 | 251.80 | 98.99 | 34,129.36 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 188.56 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 1.3 ft | | 32.73 | 5.15 | 3,993.14 | 219.07 | 93.85 | 30,136.22 |
| | | | | | | 6.94 | | 41.00 | 16.54 | 5.51 | 1,900.50 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 10.5 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 1.4 ft | | 2.15 | 0.29 | 222.36 | 14.39 | 5.23 | 1,678.14 |
| | | | | | | 8.46 | | 249.00 | 93.64 | 30.13 | 10,387.59 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 57.39 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 1.6 ft | | 12.17 | 1.57 | 1,215.35 | 81.47 | 28.56 | 9,172.24 |
| | | | | | | 64.02 | | 621.00 | 331.26 | 114.00 | 39,302.34 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 217.14 tons/yr, Sediment Delivery Ratio: 0.181; Protocol 2 - Average Stream Bank Width: 3.8 ft | | 43.06 | 5.93 | 4,598.37 | 288.20 | 108.07 | 34,703.97 |
| **Pike Branch Tributary at Ridgeview Park** | -77.097927 | 38.785388 | Urban Stream Restoration | 438.54 | 161.47 | 277.07 | $5,530,000 | 2,843.00 | 1,564.81 | 415.28 | 51,415.00 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 791 tons/yr, Sediment Delivery Ratio: 0.065; Protocol 2 - Average Stream Bank Width: 9.29 ft | 0.27 | 89.43 | 8.01 | 6,103.92 | 1,475.38 | 407.27 | 45,311.09 |
| **Old Courthouse Spring Branch - Phase I @ Gosnell Road (DF82-0005)** | -77.247156 | 38.925587 | Urban Stream Restoration | 324.80 | 238.63 | 86.17 | $4,423,000 | 3,400.00 | 558.60 | 257.25 | 88,690.00 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 490 tons/yr, Sediment Delivery Ratio: 0.181 | 0.73 | 56.00 | 26.72 | 8,700.00 | 502.60 | 230.53 | 79,990.00 |
| **Flag Run at Elgar St** | | | Urban Stream Restoration | | | | $4,480,000 | 3,245.00 | 261.13 | 120.26 | 41,460.00 | CBP Urban Stream Restoration Expert Panel: Protocol 1 -BANCS Sediment Load Estimate: 229.06 tons/yr, Sediment Delivery Ratio: 0.181 | | 26.10 | 12.30 | 4,145.00 | 235.03 | 107.96 | 37,315.00 |
| | | | | | | | | | | | | | | | | | 7,574.26 | 2,737.31 | 790,407.95 |
| | | | | | | | | | | | | | | | | | **6,991.04** | **2,526.54** | **729,546.53** |
| | | | | | | | | | | | | | | | | | **318.12** | **114.97** | **33,197.13** |

## More Stringent Development

The following projects occurred between July 1, 2018 and June 30, 2019 and were reported in the Town's FY19 annual report to DEQ. Additional more stringent single family residential development credits, if any, will be reported annually with the Town's MS4 annual reports.

### More Stringent Single Family Residential Development

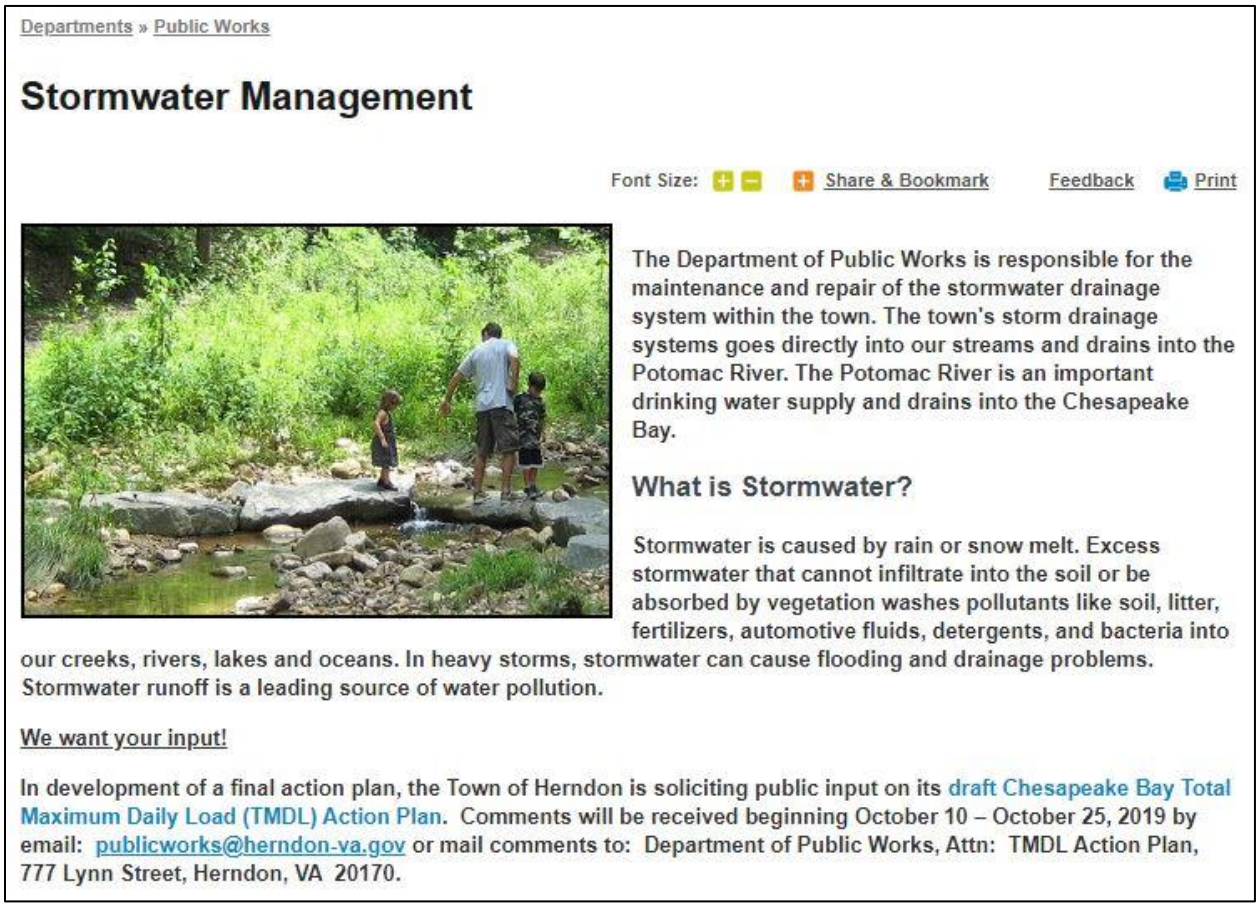
The following table demonstrates pollutant reductions achieved as a result of more stringent regulation of single family residential development under one acre as required by the Town's Stormwater Management Ordinance. Per DEQ guidance, the Town may take credit for all reductions not required under the Virginia Stormwater Management Program regulations. Runoff Storage is from actual facility designs.

| | | | | TP Load Reduction Required (lbs) | | | | BMP Reduction Achieved | | Credit Purchased | | Total TP & TN Reduction | | Sediment Reduction Calculations | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Street Address | Unit Number | Date | Area | Redevelopment | New Impervious | Total | Methodology | Phosphorus (lbs) | Nitrogen (lbs) | Phosphorus (lbs) | Nitrogen (lbs) | Phosphorus (lbs) | Nitrogen (lbs) | Post TP from VRMM (lbs) | Associated TSS Load (469.2 lbs) | Total Site IA (ac) | IA Treated (ac) | % Total IA Treated | BMP | Runoff Storage ($ft^3$) | Runoff Depth Treated (in) | Curve Efficiency | Sediment Reduction (lbs) |
| 1108C Monroe | Lot 6A1A | 1-Jul-18 | 0.27 | 0 | 0.23 | 0.23 | VRRM | 0.23 | 1.63 | 0 | 0 | 0.23 | 1.63 | 0.34 | 159.528 | 0.12 | 0.1 | 0.83 | nfiltration Trench | 356 | 0.98 | 0.745 | 98.64 |
| 719 Dranesville Rd | Lot 7A2 | 1-Oct-18 | 0.43 | 0.02 | 0.19 | 0.21 | VRRM | 0.22 | 1.79 | 0 | 0 | 0.22 | 1.79 | 0.44 | 206.448 | 0.12 | 0.12 | 1 | Bioretention | 241 | 0.55 | 0.592 | 122.22 |
| 1106A Monroe St | Lot 7A | 1-Jan-19 | 0.28 | 0 | 0.25 | 0.25 | VRRM | 0.16 | 1.14 | 0.09 | 0 | 0.25 | 1.14 | 0.37 | 173.604 | 0.13 | 0.07 | 0.54 | nfiltration Trench | 250 | 0.98 | 0.746 | 69.93 |
| 1018 Monroe St | Lot 1A2 Blk 8 | 15-Mar-19 | 0.45 | 0 | 0.28 | 0.28 | VRRM | 0.28 | 2.02 | 0 | 0 | 0.28 | 2.02 | 0.46 | 215.832 | 0.13 | 0.11 | 0.85 | nfiltration Trench | 391 | 0.98 | 0.745 | 136.68 |
| 850 Third St | Lot 9A | 20-Mar-19 | 0.29 | 0 | 0.21 | 0.21 | VRRM | 0.21 | 1.46 | 0 | 0 | 0.21 | 1.46 | 0.33 | 154.836 | 0.1 | 0.09 | 0.9 | nfiltration Trench | 320 | 0.98 | 0.745 | 103.82 |
| 852 Third St | Lot 10A | 20-Mar-19 | 0.27 | 0 | 0.2 | 0.2 | VRMM | 0.21 | 1.46 | 0 | 0 | 0.21 | 1.46 | 0.31 | 145.452 | 0.1 | 0.09 | 0.9 | nfiltration Trench | 499 | 1.53 | 0.817 | 106.95 |
| 1108 Monroe St | Lot 5A1A | 30-Mar-19 | 0.33 | 0 | 0.3 | 0.3 | VRMM | 0.3 | 2.1 | 0 | 0 | 0.3 | 2.1 | 0.43 | 201.756 | 0.16 | 0.13 | 0.81 | nfiltration Trench | 459 | 0.97 | 0.743 | 121.42 |
| 1112 Monroe St | Lot 5A1B | 30-Mar-19 | 0.27 | 0 | 0.18 | 0.18 | VRMM | 0.19 | 1.33 | 0 | 0 | 0.19 | 1.33 | 0.29 | 136.068 | 0.1 | 0.09 | 0.9 | nfiltration Trench | 293 | 0.9 | 0.725 | 88.78 |
| Dominion Ridge | Lot 34 | 13-May-19 | 0.39 | 0 | 0.25 | 0.25 | VRMM | 0.25 | 1.86 | 0 | 0 | 0.25 | 1.86 | 0.41 | 192.372 | 0.12 | 0.12 | 1 | Bioretention | 331 | 0.76 | 0.684 | 131.58 |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | **FY19 Subtotal** | **2.05** | **14.79** | **0.09** | **0** | **2.14** | **14.79** | | | | | | | | | | **980.02** |

# Appendix E

## Public Comments

Appendix E contains information about the Town's public input process, including a snapshot of the stormwater webpage with the draft plan, the social media post announcing solicitation of public comments, and a summary of public comments received with the Town's response.

Departments » Public Works

**Stormwater Management**

Font Size: Share & Bookmark Feedback Print



The Department of Public Works is responsible for the maintenance and repair of the stormwater drainage system within the town. The town's storm drainage systems goes directly into our streams and drains into the Potomac River. The Potomac River is an important drinking water supply and drains into the Chesapeake Bay.

**What is Stormwater?**

Stormwater is caused by rain or snow melt. Excess stormwater that cannot infiltrate into the soil or be absorbed by vegetation washes pollutants like soil, litter, fertilizers, automotive fluids, detergents, and bacteria into our creeks, rivers, lakes and oceans. In heavy storms, stormwater can cause flooding and drainage problems. Stormwater runoff is a leading source of water pollution.

We want your input!

In development of a final action plan, the Town of Herndon is soliciting public input on its draft Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan. Comments will be received beginning October 10 – October 25, 2019 by email: publicworks@herndon-va.gov or mail comments to: Department of Public Works, Attn: TMDL Action Plan, 777 Lynn Street, Herndon, VA 20170.

| Date | Comment | Town Response |
|---|---|---|
| 10/10/2019 | "I'm glad to see the town is proactively addressing Stormwater management. My simple suggestion is this… Wherever there is a stream, creek or lick that feeds into the water system and there is a pedestrian pathway nearby, ensure that there are adequate trash receptacles available. For example, third Street between Cavalier Drive and Monroe Street passes over Folly lick. That is a site where trash is frequently thrown into the stream. If there were a trashcan there it would be used and the amount of garbage reduced." | No changes to the plan are required since the comment does not address sediment or nutrients. However, floatables are a pollutant of concern and the Town will follow up on this suggestion. |