



City of Fairfax, Virginia

VSMP GENERAL PERMIT for
Small Municipal Separate Storm Sewer Systems
Permit # VAR040064

YEAR 4 ANNUAL REPORT
July 2016 -June 2017



Public Works - Stormwater
10455 Armstrong Street
Room 200
Fairfax, VA 22030

October 1, 2017

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I. BACKGROUND

In accordance with the requirements of Permit Number VAR040064, an annual report is hereby submitted for the City of Fairfax General Permit for Small Municipal Separate Storm Sewer Systems (MS4). A link to the MS4 Program Plan can be found at www.fairfaxva.gov on the Municipal Separate Storm Sewer System (MS4) webpage. A copy of the signed certification (VSMP General Permit Registration Statement) is attached in Appendix A. This Annual Report covers all information required by the permit as described in 9VAC25-890, but is not intended to describe all activities the City performed, programs the City implements, or plans the City has made or is making. In some cases, there are permit requirements that the City has not included in this annual report, but omissions of non-required information should not be taken as an indication that the City is not fulfilling those requirements.

a. City Name	City of Fairfax, Virginia
b. Permit Number	VAR040064
c. Reporting Period	Year 4: July 1, 2016 to June 30, 2017
d. Modifications of Roles and Responsibilities	There are no modifications to the City's roles and responsibilities during this permit term.
e. New outfalls	There have been no new MS4 outfalls added within the City during the fourth permit year.

II. SELF ASSESSMENT

The following section provides brief summaries of the status of the Permit Year 4 conditions for each of the six minimum control measures. Additional documentation can be found in the referenced appendices. An assessment of requirements for Permit Section I can be found in this report in Section VII.

Table 1 of the SMS4 General Permit lists one “Program Update Requirement” to be completed by 48 months after permit coverage (end of Year 4). The City’s demonstration of compliance with this goal and each of the minimum control measures is described in the sections that follow.

Program Update Requirement (from Table 1 of SMS4 General Permit)	Permit Section	Compliance Demonstrated in Annual Report Section
Outfall Map Completed - (Minimum Control Measure 3 - Illicit Discharge Detection and Elimination) - Applicable to new boundaries identified as “urbanized” areas in the 2010 Decennial Census	Section II B 3 a (3)	Section II. g.
SWPPP Implementation - (Minimum Control Measure 6 - Pollution Prevention/Good Housekeeping for Municipal Operations)	Section II B 6 b (3)	Section II. g.

a. Minimum Control Measure #1 – Public Education and Outreach

The goals of this minimum control measure are to 1) increase the public’s knowledge about steps that can be taken to reduce stormwater pollution, 2) increase the public’s knowledge of hazards associated with illegal discharges including pertinent legal implications, and 3) implement strategies that target audiences most likely to have significant stormwater impacts.

i. Status of Compliance

BMP	Task	Permit Year Implement/ Complete	Measurable Goal/ Report Item	Comments
1A	Identify at least 3 high priority water quality issues that contribute to the discharge of stormwater	Year 1	Lists of education/ outreach activities for the high priority water quality issues, # of people reached	See Appendices B-1a and B-1b.
1B	Increase public education on reducing stormwater pollution	Year 1	Lists of education/ outreach activities related to stormwater pollution, # of people reached	The <i>Cityscene</i> newsletter, NVRC Survey, Sustainability in Fairfax City’s Urban Forest Presentation. Links located on City’s Website. Also see Appendices B-1a, B-1b, B-1c, and B-1d.

ii. **BMP Appropriateness**

The identified BMPs and activities associated with this minimum control measure are meeting the goals and are therefore appropriate methods of educating and involving the public.

iii. **Progress towards Goal**

There were no new update requirements specified for the fourth year of the permit under this Minimum Control Measure (see Table 1 of General Permit). All updates and requirements completed during the first year were continued during the fourth year where appropriate. The City continues to promote public education and involvement through both online newsletters and the City's website, www.fairfaxva.gov. Annually, the Only Rain NVRC Survey is conducted. This helps the City understand the public's views to better plan outreach activities, while simultaneously making residents aware of watershed pollution as the survey is conducted. *Cityscene* newsletters, published monthly by the City of Fairfax, contain articles regarding issues such as contractor debris, recycling, and leaf collection. The City's website is also an excellent educational resource. There, pages can be found addressing resident involvement in protecting water resources, energy saving tips for homeowners, as well as stormwater and stream information. MS4 permits submitted since 2009 are also available on the site. The Northern Virginia Clean Water Partners estimated the total public education and outreach program impressions (number of times an advertisement appeared on a computer, television, or mobile device screen) reached over 42 Million for the year. Education and outreach activities are documented in Appendices B-1a through B-1d. Appendix B-1a of this report contains the annual summary of activities conducted by the Northern Virginia Clean Water Partners. Appendix B-1b is the City of Fairfax Environmental Sustainability Committee's Annual Report. The annual NVRC Survey results are located in Appendix B-1c, and a presentation on Sustainability in Fairfax City's Urban Forest is available in Appendix B-1d.

b. Minimum Control Measure #2 – Public Involvement/Participation

The goals of this minimum control measure are to increase the public's involvement by the City promoting/sponsoring/etc. a minimum of four local activities annually. These activities are aimed at reducing pollutant loads and improving water quality while providing opportunities for local public participation.

i. Status of Compliance

BMP	Task	Permit Year Implement/ Complete	Measurable Goal/Report Item	Comments
2A	Provide Online Access to the MS4 Program Plan and Annual Reports	Year 1	Date of posted program, confirmation of formats available, verification of web link	http://www.fairfaxva.gov/government/public-works/stormwater-and-floodplain-management/ms4-permit
2B	Participate in Four Local Activities	Year 1	List of local activities in which the City has participated	<ol style="list-style-type: none"> 1) City Environmental Sustainability Committee 2) Stream Spring Cleanup 3) Fall Festival 4) Member of the Northern Virginia Clean Water Partners 5) Northern Virginia Rain Barrel Program

ii. BMP Appropriateness

The identified BMPs and activities associated with this minimum control measure are meeting the goals and are therefore appropriate methods of soliciting public involvement.

iii. Progress towards Goal

There were no new update requirements specified for the fourth year of the permit under this Minimum Control Measure (see Table 1 of General Permit). All updates and requirements completed during the first year were continued during the fourth year where appropriate. The City continues to encourage public participation. The City is a member of the Northern Virginia Clean Water Partners to prevent pollution and manage stormwater. The City has an Environmental Sustainability Committee, composed of nine people, that meets the first Wednesday of every month to help the City continue to move in a sustainable direction. A Stream Spring Cleanup, as well as a Fall Festival promoting environmental awareness, are held each year. The City’s website outlines different BMPs required of private stormwater facilities as well as a Watershed Management Plan. The City participates in the Federal Emergency Management Agency’s (FEMA) National Flood Insurance Program (NFIP) and has adopted the Chesapeake Bay ordinance. MS4 permits submitted since 2009 are also available on the City’s website.

c. Minimum Control Measure #3 – Illicit Discharge Detection and Elimination

The goals of this minimum control measure are to locate and map all outfall or point of discharge locations, perform field screenings to determine and eliminate sources of illicit discharges, and to prohibit non-stormwater discharges by ordinance or other legal mechanisms.

i. Status of Compliance

BMP	Task	Permit Year Implement/ Complete	Measurable Goal/Report Item	Comments
3A	Maintain City Storm Sewer System Map	Year 1	Dates of storm sewer map updates and the current map	The City prepares system updates and GIS revisions.
3B	Maintain MS4 Outfall Data Information Table	Year 4	Dates of MS4 Outfall Data Information Table updates and current data table	All City maintained outfalls were located during Year 1
3C	Conduct System Screening for Illicit Discharge Detection	Year 1	Total number of outfalls screened, screening results, and detail of any follow-up actions	50 outfalls were screened; pictures of each outfall screened are in Appendix B-3a. Potential illicit discharges were reported to the Fire Dept.; investigation summaries are completed on Spill Report forms, found in Appendix B-3c.
3D	Investigate and Address Illicit Discharges	Implement Revised Procedure in Year 2	Investigation summary of any suspected illicit discharges	An IDDE Field Investigation Form is in Appendix B-3b. In Year 4, Spill Reports were used for follow-up investigations; Spill Reports are located in Appendix B-3c
3E	Notify Downstream MS4 Operators of Any Physical Interconnections	Year 2	List of written notifications to applicable downstream MS4 operators	Notifications were sent to neighboring MS4s. Letters found in Appendix B-3d

ii. BMP Appropriateness

The identified BMPs and activities associated with this minimum control measure are meeting the goals and are therefore appropriate methods of preventing, detecting, and eliminating illicit discharges.

iii. Progress towards Goal

The fourth year of the permit under this Minimum Control Measure (see Table 1 of General Permit) requires that the outfall map must be completed for all outfalls located within the boundaries identified as “urbanized” areas in the 2010 Decennial Census found in Appendix B-3e. All updates and requirements completed during the first year were continued during the fourth year where appropriate. A Standard Operating Procedures document for illicit discharge screening procedures and an IDDE review were completed in accordance with the Year 1 requirements.

Citizens are told to report illicit discharges to the City of Fairfax Fire Marshall or the Police Department. Contact information can be found on the City’s website on the “Quick Reference Numbers” page (<http://www.fairfaxva.gov/government/city-manager/quick-reference-numbers>). A spill or release report is then completed and the problem is addressed. Completed spill reports are found in Appendix B-3c.

All City maintained outfalls were located during Year 1, and semi-annual screening is performed on all outfalls. Downstream MS4 operators have been notified if physical interconnections exist. Notification letters can be found in Appendix B-3d.

d. Minimum Control Measure #4 – Construction Site Stormwater Runoff

This minimum control measure addresses discharges from land disturbing activities by ordinance, published erosion and sediment control standards, site inspections, and other legal measures.

i. Status of Compliance

BMP	Task	Permit Year Implement/ Complete	Measurable Goal/Report Item	Comments
4A	Administer City E&S land disturbing permits	Year 1	# of land disturbing activities, # of acres disturbed, # of permits distributed	8 land disturbing activities, 5.8 acres disturbed. See reports in Appendix B-4b.
4B	City Construction Site Inspection	Year 1	# of E&S inspections and findings	216 E&S inspections were performed. 4 Notice to Comply and 3 Stop Work Orders were issued
4C	Provide Training for City Construction Site Inspection Staff	Year 1	Total # of staff members, # of staff members certified as E&S inspectors	4 staff members/ 4 E&S inspectors
4D	Ensure VSMP Permits are Issued for Projects Meeting State Established Thresholds	Year 1	# of grading permits approved, # of VSMP Permits issued	9 grading permits approved, 10 VSMP Permits issued

ii. BMP Appropriateness

The identified BMPs and activities associated with this minimum control measure are meeting the goals and are therefore appropriate methods of preventing discharge of pollutants in construction site runoff.

iii. Progress towards Goal

The City of Fairfax continues to provide the following forms for construction sites through the Department of Public Works:

- Inspection Reports,
- Warning Letter,
- Notice to Comply,
- Stop work Order,
- Ordinance Summons, and
- Violation Dismissed Notice.

Examples of the above documents can be found in Appendix B-4a. Land Disturbance Permits and BMP agreements are to be approved by the City. An approved grading permit list can be found in Appendix B-4b of this report and a BMP Maintenance agreement can be found in Appendix B-5d.

The City of Fairfax addresses post-construction runoff on new development over one acre, development that disturbs 2,500 square feet or greater, but less than one acre, located in a Chesapeake Bay Preservation Area, and new development with more stringent regulatory size thresholds by utilizing inspections and ordinances located in the City of Fairfax Year 1 Annual Report Appendix C-4 and C-5.

The City of Fairfax addresses required design criteria for stormwater runoff controls in accordance with appropriate water quality and quantity design criteria in Part II of 9VAC25-870, any additional applicable state and local design criteria at project initiation, and any department-approved standards and specifications by utilizing inspections located in the City of Fairfax Year 1 Annual Report Appendix C-4 and the Public Facilities Manual for the City of Fairfax (available online: <http://www.fairfaxva.gov/government/public-works/public-facilities-manual>).

The City of Fairfax addresses inspection, operation, and maintenance verification of stormwater management facilities not owned by the MS4 operator by requiring the owner to develop a recorded inspection schedule and maintenance agreement allowable under state or local law or other legal mechanism, implementing a schedule designed to inspect all privately owned stormwater management facilities that discharge into the MS4 at least once every five years, enforcing maintenance responsibilities if maintenance is neglected, and utilizing strategies other than maintenance agreements to promote the long-term maintenance of stormwater control measures.

The City of Fairfax addresses inspection, operation, and maintenance verification of stormwater management facilities owned by the MS4 operator by providing for long-term operation and maintenance, conducting annual inspections, conducting maintenance as necessary by utilizing inspections (example form located in Appendix

B-5) and ordinances located in the City of Fairfax Year 1 Annual Report Appendix C-4 and C-5.

The City of Fairfax addresses MS4 Program Plan Requirements by updating the MS4 Program Plan to include a list of the applicable legal authorities to ensure compliance with the minimum control measure, written policies and procedures utilized during design of stormwater facilities, written inspection policies and procedures utilized during inspections, written procedures for inspection, compliance, and enforcement to ensure maintenance of private and operator owned stormwater facilities, and the roles and responsibilities of the departments in implementing the minimum control measure.

The City of Fairfax addresses stormwater management facilities that discharge into the MS4 by creating an electronic database to include the facility type, owner, location, including latitude, longitude and the sixth order hydrologic unit code, acres treated, date brought online, name of any impaired water segments within each HUC, date of the most recent inspection, and whether a maintenance agreement exists.

e. Minimum Control Measure #5 – Post Construction Stormwater Management in New Development and Redevelopment

This minimum control measure addresses post construction stormwater runoff by means of design criteria, inspection and documentation.

i. Status of Compliance

BMP	Task	Permit Year Implement/ Complete	Measurable Goal/Report Item	Comments
5A	Inspect permanent Post-Construction Stormwater Runoff	Year 1	Annual stormwater management facility inspection summary	A sample letter to a BMP owner requiring inspection is in Appendix B-5a. An Inspection Checklist is in Appendix B-5b and an Inspection Report is in Appendix B-5c.
5B	Provide Long-Term Maintenance for Operator Owned Facilities	Year 1	Long-term City maintenance of stormwater management facilities	Maintenance & Monitoring Agreement in Appendix B-5d
5C	Require permanent Management of Post-Construction Runoff	Year 1	Implement and track post-construction stormwater management	Maintenance & Monitoring Agreement in Appendix B-5d

BMP	Task	Permit Year Implement/ Complete	Measurable Goal/Report Item	Comments
5D	Create and Maintain an Electronic Database of All Permanent Stormwater Management Facility	Year 1	Update the database	8 new facilities came on-line in Year 4. List is in Appendix B-5e.
5E	Maintain City Facility Inspection Database	Year 1	Track and Report findings and results of facility inspections	All 364 BMP facilities were inspected and 4 enforcement actions were taken (required maintenance)
5F	Provide Training for City Inspection Staff	Year 1	Stormwater management facility inspection training agenda and attendance roster	Training plan is in Appendix B-6
5G	Develop Methods to Address Individual Residential Lot Special Criteria	Year 1	Explanation of enforceable methods, List of educational resources	

ii. BMP Appropriateness

The identified BMPs and activities associated with this minimum control measure are meeting the goals and are therefore appropriate methods of protecting water quality from development and redevelopment.

iii. Progress towards Goal

There were no new update requirements specified for the fourth year of the permit under this Minimum Control Measure (see Table 1 of General Permit). All updates and requirements completed during the first year were continued during the fourth year where appropriate. Performance measures for FY 2017 can be found on the City’s website (<http://www.fairfaxva.gov/government/public-works/performance-measures>). The City has samples of letters sent to owners regarding annual maintenance as well as example Inspection Reports and Zoning Enforcement forms in Appendix B-5.

The City has developed stormwater management programs through databases, GIS, and Spreadsheets. These are updated on an as needed basis in order to remain current with field conditions.

A list of new facilities can be found in Appendix B-5e.

The City continues to educate homeowners on the long-term maintenance of stormwater control measures designed to treat runoff from individual residential lots.

f. Minimum Control Measure #6 – Pollution Prevention/Good Housekeeping for Municipal Operations

This minimum control measure requires the implementation of proper training and standard operating procedures for daily operations tasks to be completed while limiting or eliminating the risk of illicit discharges on municipal facilities.

i. Status of Compliance

BMP	Task	Permit Year Implement/ Complete	Measurable Goal/Report Item	Comments
6A	Develop SWPPP's for all Identified "High Priority" Facilities	Year 4	Identify "High-Priority" Facilities in Year 1, Develop SWPPP by Year 4	The SWPPP can be found at the City of Fairfax Property Yard Facility.
6B	Implement Turf and Landscape Nutrient Management Plans (NMPs)	Year 4	Identify areas in Year 1, implement in accordance with schedule per Section II B 6 c (75% Year 4)	Of the required 28 acres within the city, 21 acres (75%) of the city are covered by NMPs.
6C	Provide Training Plan for City Staff and Contractors	Year 1	Summary of Training Plan, Summary Report of Training Events	The Training plan is in Appendix B-6.
6D	Develop Written Good Housekeeping and Pollution Prevention Protocols for Daily Municipal operations and Maintenance	Year 2	Written good housekeeping and pollution prevention protocols	These procedures continued to be followed by City staff

ii. BMP Appropriateness

The identified BMPs and activities associated with this minimum control measure are meeting the goals and are therefore appropriate methods of providing for pollution prevention and good housekeeping for the City's operations.

iii. Progress towards Goal

The City of Fairfax addresses operations and maintenance activities by minimizing or preventing pollutant discharge from daily operations, equipment maintenance, pesticides, herbicides, and fertilizers utilizing inspections and regulations located in the City of Fairfax Year 1 Annual Report Appendices C-4, C-6, and D. High priority facilities were identified using GIS records. The only high priority facility identified in the City of Fairfax is the property yard at the public works facility. A GIS map of this property can be in Appendix D of the City of Fairfax Year 1 Annual Report. This facility's SWPPP can be found at the City of Fairfax Property Yard Facility 3410 Pickett Road.

A GIS analysis was performed to determine all lands owned by the City where nutrients are applied to a contiguous area greater than one acre. A map of these properties can be found in the City of Fairfax Year 1 Annual Report, in Section III of Appendix D. 75% of all identified acres have been covered by draft Turf and Landscape Nutrient Management Plans in accordance with the Year 4 permit requirements.

A Training Plan was created and has been updated to include specific departments and positions who must receive training, as well as a list of example training events. The training plan also includes a section on contractor compliance. Due to recent changes in department staff and responsibilities, the training plan is in need of another update. It is also awaiting approval by City Council. The training plan is attached to this report in Appendix B-6.

The City of Fairfax encourages recycling and waste reduction, and a recycling rate report is completed every year. The city collects refuse and recyclable items from all single family homes once a week at no charge; businesses are required to provide a recycling system for their occupants, employees, and vendors. Leaf pickup is also provided by the City. Literature and regulations regarding recycling procedures can be found on the City's website on the "Refuse & Recycling" page (<http://www.fairfaxva.gov/government/public-works/operations-division/refuse-recycling>).

g. Additional Year 4 Permit Requirements

Under the general permit (see table 1) the additional requirements for Year 4 include Outfall Map Completed – (Minimum Control Measure 3 – Illicit Discharge Detection and Elimination) – Applicable to new boundaries identified as “urbanized” areas in the 2010 Decennial Census and SWPPP Implementation – (Minimum Control Measure 6 – Pollution Prevention/Good Housekeeping for Municipal Operations). The completed outfall map and SWPPP can be found in Appendices B-3e and The City of Fairfax Property Yard Facility.

i. Status of Compliance

A completed Outfall Map was developed for Year 4 from applicable new boundaries identified as “urbanized” areas in the 2010 Decennial Census. The map and information table can be found in Appendix B-3e. A Facilities SWPPP was developed and implemented for the City of Fairfax property yard at the public works facility. This SWPPP can be found at the City of Fairfax Property Yard Facility 3410 Pickett Road.

ii. BMP Appropriateness

The Outfall Map and SWPPP associated with this requirement are meet all requirements and were therefore implemented in Year 4.

iii. Progress towards Goal

The Outfall map has been developed and completed and the SWPPP implementation began or will begin 90 days after submittal unless changes are requested.

III. INFORMATION COLLECTED

George Mason University (GMU) and the City of Fairfax have an agreement for sample collection and analysis. Results of the sample analysis are in Appendix C.

IV. SUMMARY OF YEAR FIVE ACTION PLAN

Storm water activities planned for the next reporting cycle are as follows:

Minimum Control Measure	Year 5 Activity
MCM #1	<ul style="list-style-type: none"> • Continue implementation of public education and outreach activities
MCM #2	<ul style="list-style-type: none"> • Continue implementation of public involvement/participation activities
MCM #3	<ul style="list-style-type: none"> • Continue illicit discharge enforcement
MCM #4	<ul style="list-style-type: none"> • Enforce annual inspections for privately owned SWM/BMP facilities within the City of Fairfax. • Inspect all City owned BMP/SWM facilities
MCM #5	<ul style="list-style-type: none"> • Continue implementation of Year 1, 2, 3 and 4 goals
MCM #6	<ul style="list-style-type: none"> • Perform street sweeping • Perform storm drainage outfall maintenance • Continue storm drain marking program
NMP Implementation	<ul style="list-style-type: none"> • In accordance with Year 5 requirements listed in Table 1 of the SMS4 permit, the City will finalize and begin implementation of a NMP on contiguous areas of more than one acre.
Additional Operations and Maintenance Activities	<ul style="list-style-type: none"> • Northfax Storm Drainage (Under Construction) • Neighborhood Drainage Projects- Mclean Ave Construction • Burke Station Road storm sewer design (Under Construction) • Ditchline and Outfall Rehab • Storm drain maintenance • Driveway storm pipe replacements • Roberts Road sidewalk/drainage project (design)

V. CHANGES TO CORRECT DEFICIENCIES

The City does not intend to substantially modify or replace any of the Minimum Control Measures, BMPs, or measurable goals shown in this report.

VI. NOTICE OF RELIANCE ON OTHER ENTITIES

The City of Fairfax will not be relying on any other entity to satisfy any permit obligations.

There are no new or terminated signed agreements between City of Fairfax and any third party to implement all or portions of the permit's minimum control measures. The Virginia Department of Transportation (VDOT) operates a stormwater system that may have interconnections with the City of Fairfax's stormwater system. Letters to other entities documenting this possibility are in Appendix B-3d.

VII. APPROVAL STATUS OF PROGRAMS PURSUANT TO SECTION II C

a. Section I B 9 requirements

There have been no updates completed to the MS4 Program Plan. The new information regarding the TMDL WLA was updated in the 2010-2011 permit cycle, and is on-going.

b. Agreements

There are no new or terminated signed agreements between City of Fairfax and any third party to implement all or portions of the permit's minimum control measures.

VIII. TOTAL MAXIMUM DAILY LOAD INFORMATION

Section I of the General SMS4 Permit requires compliance with applicable TMDLs, including the Chesapeake Bay TMDL. TMDLs for streams draining any portion of the City are listed in the table below (except the Chesapeake Bay TMDL). Pursuant to the requirements of I.B., Special conditions for approved TMDLs other than the Chesapeake Bay TMDL, action plans have been developed for non-Chesapeake Bay TMDLs. The action plans for TMDLs approved between 2008 and 2013 were requirements for Year 3 and are included in Appendices B-7a-c.

The Chesapeake Bay TMDL requirements include annual reporting requirements after the initial plan development and implementation. In Year 3, the City of Fairfax implemented control measures to reduce total nitrogen, phosphorus, and suspended solids discharges. All control measures are explained further in Section II.B.e. and its associated Appendices.

TMDL Project	Pollutant(s)	EPA Approval Date	SWCB Approval Date	Date on Cover of Final Report	City vs County
Accotink Creek (Lower)	E. Coli	12/18/2008	4/28/2009	September 2008	Refers to City twice (once for City developing restoration project and another for radio announcement). Questionable as to whether this applies to City of Fairfax.
Accotink Creek Watershed	Fecal Coliform	5/31/2002	6/17/2004	April 2002	“Headwaters of Accotink Creek are in the City of Fairfax, VA and the creek flows for approx. 10.9 miles before it drains into Lake Accotink...”
Potomac River Watershed PCB	PCB	10/31/2007	4/11/2008	September 28, 2007	Refers to City of Fairfax.

TMDL Project	Pollutant(s)	EPA Approval Date	SWCB Approval Date	Date on Cover of Final Report	City vs County
Bull Run	Sediment	9/26/2006	6/27/2007	June 2006	Referred to City of Fairfax and gives WLA.
Difficult Run	Sediment	11/07/2008	4/27/2009	August 2008	City referred to as a point source and says is covered by MS4 permits.
Difficult Run	E. coli	11/07/2008	4/28/2009	April 25, 2008	Refers to City in TMDL, but unclear.
Occoquan River Watershed	E. coli	11/15/2006	7/31/2008	August 2006	City has a WLA assigned.
Popes Head Creek	Sediment	9/26/2006	6/27/2007	August 2006	In TMDL, and are "permitted to discharge."

APPENDICES

Appendix A

Certification – VSMP General Permit Registration Statement



City of Fairfax

10455 Armstrong Street
Fairfax, VA 22030
Department of Public Works
(703) 385-7846
(703) 591-5727 (FAX)

Jeffery Selengut

Department of Conservation and Recreation

900 East Main Street, 8th Floor, Pocahontas Building
Richmond, VA 23219-3558

March 27, 2013

Re: VSMP General Permit Registration Statement for MS4 Stormwater Discharges

Dear Mr. Selengut,

Please find the attached VSMP General Permit Registration Statement for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (DRC Form 199-148) and currently implemented Program Plan for the City of Fairfax.

We understand that DCR will bill the City at a later date for the registration fee. Therefore, the applicable fee form (DCR 199-145) is not included with this submittal.

If you have any questions or require additional information, please contact me at 703-385-7810.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Summers', written over a large, faint watermark of the seal of the City of Fairfax.

David Summers, Director of Public Works



VSMF GENERAL PERMIT REGISTRATION STATEMENT FOR STORMWATER DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS [VAR04]

(Please Type or Print All Information)

(The applicable fee specified in Form DCR 199-145 must additionally be submitted to the address given in that form to obtain coverage)

1. Regulated Small MS4

Name: City of Fairfax

Type: City County Incorporated Town Unincorporated Town College or University
 Local School Board Military Installation Transport System Federal or State Facility Other

Location (County or City): Fairfax, Virginia

2. Regulated Small MS4 Operator

Name: City of Fairfax

Address: 10455 Armstrong Street

City: Fairfax State: VA Zip: 22030

3. Hydrologic Unit Code(s) as identified in the most recent version of Virginia's 6th Order National Watershed Boundary Dataset currently receiving discharges or that have potential to receive discharges from the regulated small MS4:

020700100402 PL30 Accotink Creek
020700100401 PL29 Pohick Creek 020700081004 PL22 Difficult Run

4. Attach a description of the estimated drainage area, in acres, served by the regulated small MS4 discharging to any impaired receiving surface waters listed in the most recent Virginia 305(b)/303(d) Water Quality Assessment Integrated Report, and a description of the land use of each such drainage area. See Attachment A.

5. Any TMDL waste loads allocated to the regulated small MS4 (this information may be found at <http://www.deq.state.va.us/tmdl/develop.html>): See Attachment A.

6. The name(s) of any regulated physically interconnected MS4s to which the regulated small MS4 discharges.

Fairfax County
George Mason University Virginia Department of Transportation

7. A copy of the MS4 Program Plan that includes:

a. A list of BMPs that the operator proposes to implement for each of the stormwater minimum control measures and their associated measurable goals pursuant to 4VAC50-60-1240, Section II B; that includes:

i. A list of the existing policies, ordinances, schedules, inspection forms, written procedures, and other documents necessary for BMP implementation; and

ii. The individual, department, division, or unit responsible for implementing the BMP;

b. The objective and expected results of each BMP in meeting the measurable goals of the stormwater minimum control measures;

c. The implementation schedule including any interim milestones for the implementation of a proposed new BMP; and

d. The method that will be utilized to determine the effectiveness of each BMP and the program as a whole.

8. List all existing signed agreements between the operator and any applicable third parties where the operator has entered into an agreement in order to implement minimum control measures or portions of minimum control measures.

The City has an annual contract with George Mason University for stream monitoring.

9. The name, address, telephone number and e-mail address of either the principal executive officer or ranking elected official as defined in 4VAC50-60-370.

Robert Sisson, City Manager

City Hall Room 316, 10455 Armstrong Street, Fairfax, VA 22030

703-385-7850 Robert.Sisson@fairfaxva.gov

10. The name, position title, address, telephone number and e-mail address of any duly authorized representative as defined in 4VAC50-60-370.

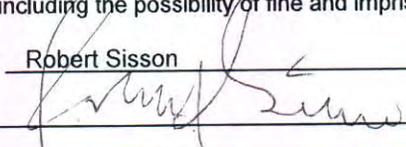
Christina Alexander, Stormwater Resource Engineer

City Hall, Room 200, 10455 Armstrong Street, Fairfax, VA 22030

703-273-3067 Christina.Alexander@fairfaxva.gov

11. **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."

Print Name: Robert Sisson Title: City Manager

Signature:  Date: 3/28/13

For Department of Conservation and Recreation Use Only

Accepted/Not Accepted by: _____ Date: _____

Basin _____ Stream Class _____ Section _____ Special Standards _____

**VSMMP GENERAL PERMIT REGISTRATION STATEMENT FOR STORMWATER
DISCHARGES FROM SMALL MUNICIPAL SEPARATE STORM SEWER SYSTEMS
For
City of Fairfax**

4. Impaired Waters Drainage Area

The majority of the City of Fairfax, Virginia lies within the impaired Accotink Creek Watershed. There are approximately 10 miles of stream channel along Accotink Creek and its tributaries in the City of Fairfax. Approximately 3,600 acres, within the City of Fairfax, discharge to Accotink Creek. Land use within this drainage area is primarily dense urban residential and commercial.

5. TMDL Wasteload Allocations**TMDL ACTION PLANS (TMDLS APPROVED PRIOR TO JULY 2008)**

Applicable TMDL Project	Pollutant	SWCB Approval Date	Fairfax City WLA
Accotink Creek Watershed	Fecal Coliform	6/17/2004	N/A
Bull Run	Sediment	6/27/2007	14.2 tons/yr*
Popes Head Creek	Sediment	6/27/2007	22.6 tons/yr*
Potomac River Watershed	PCB	4/11/2008	0.0843 g/yr**

*Allocation shared between City of Fairfax and VDOT Urban Area MS4s.

**Represents a 5% reduction represented by the Margin of Safety which is expected to be achieved by the proposed 93% reduction in atmospheric deposition of PCBs.

TMDL ACTION PLANS (FOR TMDLS APPROVED JULY 2008-JUNE 2013)

Applicable TMDL Project	Pollutant	SWCB Approval Date	Fairfax City WLA
Difficult Run	Sediment	4/27/2009	3,595 tons/yr*
Difficult Run	E. Coli	4/28/2009	9.44E+12 cfu/yr*
Occoquan River Watershed	E. Coli	7/31/2008	1.03E+10 cfu/yr**

*Allocation shared between the City of Fairfax MS4 and Fairfax County, Town of Vienna, Total VDOT, Fairfax County Public Schools, and GW Memorial Parkway MS4s.

**Allocation shared between the City of Fairfax and VDOT Urban Areas MS4.

Virginia Pollution Discharge Elimination System General Permit for Small MS4's

MS4 PLAN March, 2013

1. **Owner:** City of Fairfax, Virginia
2. **Owner Information:** Address- 10455 Armstrong Street, Fairfax, VA 22030
City Manager, Robert Sisson
703-385-7850
3. **Receiving Waters:** The majority of the City of Fairfax, Virginia lies in the Accotink Creek Watershed. Out of the city's total area of 6 square miles, approximately 1 square mile of peripheral areas drains to the adjacent County of Fairfax. Accotink Creek flows from its origin within the City of Fairfax southeast through Fairfax County to its confluence with the Potomac River at Gunston Cove. The city's major stream channel segments include the North and Central forks of Accotink Creek. The South fork of Accotink Creek is known as Daniels Run. There are approximately 10 miles of stream channel along Accotink Creek and its tributaries in the City of Fairfax.
4. **Best Management Practices (BMPs) proposed to meet minimum control measures under 9 VAC 25-750-50 Part IIB.**

(1) Public education and outreach on storm water impacts

The City of Fairfax already has in place a public education and outreach program on stormwater impacts. This effort began in 1994 when the City of Fairfax voters approved funds for Stormwater Management Improvements. Since this time, city staff has provided environmental education materials on stream restoration at public meetings and sponsored field walks along city streams. More recently, the city and EPA are working on a pilot program to further refine the City Watershed Management Plan. The city has also updated its website to include information on environmental projects and programs. Proposed future public education and outreach programs include:

- a. Continued development of the citywide watershed plan.
- b. Stream monitoring program performed through contract by George Mason University
- c. Enhanced environmental education information to be distributed through the city's monthly newsletter, website and cable station.
- d. Continuation of the storm drain marker program.
- e. Additional educational materials on proper lawn fertilization techniques.

- f. Further education on the importance of proper disposal of pet waste citing the city's existing Pet Waste Ordinance (articles have already appeared in the monthly city newsletter on this issue).
- g. Continue to provide information on proper disposal of hazardous waste and recycling information.
- h. Resident input for the ongoing stream restoration work.

(2) Public involvement/participation

The City of Fairfax has a long-standing history of involving the public with all capital projects. The public involvement process starts prior to any project being funded. Once project funding is appropriated, city staff holds public meetings to discuss the preliminary planning aspects of the project. The impetus behind these meetings is to educate the public on the project and to gain public input and participation. Most recently, the city is working with residents and a consultant in preparing stream restoration plans for areas of Accotink Creek.

To ensure that we contact all interested citizens we have started a special mailing list of those citizens that have shown interest in the city's environmental projects. We also advertise all meetings in the city's monthly newsletter, city website and on the city cable channel. This approach ensures that we inform all interested citizens so that they can become involved in our environmental projects. The city will continue to enhance public involvement and participation through the implementation of new programs such as the volunteer stream-monitoring program and the city storm water management plan which are posted on the City's website.

(3) Illicit discharge detection and elimination

The city's GIS inventory of the storm sewer infrastructure provides the location of all city storm drainage structures and includes a connectivity layer showing the connections of all the pipes from the start of the system to the outfall location. This information is being used to further develop and implement the city's plan to detect and eliminate illicit discharges into our MS4. Chapter 110-211 of the city's ordinance currently prohibits the dumping of non-stormwater discharges into the storm system. The city will continue to work to develop a program that includes the following components:

- Procedures for locating priority areas most likely to have illicit discharges.
- Methods to detect and trace the source of illicit discharges.
- Means to remove the source of any illicit discharges.
- Continuation of the storm drain marker program.
- Continued development of the city's program to provide a mechanism for citizens to report illicit discharges. City residents can contact the City of Fairfax Fire Marshal at 703 385 7830 or the Police Department at 703 385 7924 to report illicit discharges and improper dumping.

- Provide outreach materials to businesses and citizens on the hazards associated with illegal dumping and improper disposal of waste.
- Regulation and prohibition of discharges not covered under the VPDES permit.
- Enforcement procedures – the Zoning Administrator enforces chapter 110-211 of the City Code in conjunction with the Fire Marshal and Public Works Department
- Procedures for program evaluation and assessment.

(4) Construction site storm water runoff control

The City of Fairfax will continue to develop, implement and enforce a program to reduce pollutants in any storm water runoff to our system from construction activities that result in a land disturbance of greater than 2,500 square feet in accordance with State and City of Fairfax code requirements for erosion and siltation control programs.

The current City of Fairfax Public Facilities Manual includes a storm water management section. This section contains the items required under this permit that relate to land development. The Public Facilities Manual references and requires all developers to adhere to the guidelines stated in the City of Fairfax Code, the most recent Virginia Erosion and Sediment Control Handbook and the Virginia Stormwater Management Handbook. The City of Fairfax Public Facilities Manual also includes design guidelines to protect natural streams from the harmful effects of increased storm water volumes and velocity resulting from development. The document also provides guidelines to determine the most appropriate BMPs. The Public Facilities Manual was adopted by the City Council in January of 2007. The City of Fairfax has established in-house procedures for:

- Site Plan Review of construction plans that consider potential water quality impacts. The city's Chesapeake Bay Preservation section of the Zoning Code requires that all post-development non-point source pollution runoff loads shall not exceed the predevelopment load based upon average land cover conditions within the city of 45 percent. Pollution loads must be calculated and the BMP selected for the express purpose of controlling nonpoint source pollution. Redevelopment of any site not currently served by water quality best management practices shall achieve at least a ten percent reduction of nonpoint source pollution in runoff compared to the existing runoff load from the site. Post-development runoff from any site to be redeveloped that is currently served by water quality best management practices shall not exceed the existing load of nonpoint source pollution in surface runoff. If existing facilities can be shown to achieve the current standard of nonpoint source pollution control, the site will be considered as being served by water quality BMP's. Structural BMP's must always be maintained in working order, performing at the design levels of service. The applicant's site engineer

shall provide the original structural design and maintenance schedule and verify that the structure is performing at the design level of service.

- Adherence to the Chesapeake Bay Preservation requirements, which establish sanctions to ensure compliance.
- Construction site operators to implement appropriate erosion and sediment control best management practices.
- Construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste at the construction site that may cause adverse impact to water quality.
- Site inspection and enforcement of erosion and sediment control measures.
- The receipt and consideration of information submitted by the public.

As required, the City of Fairfax continues to develop a program to track regulated land disturbing activities and submit the information for the reporting period, to include the total number of regulated land disturbing activities and total disturbed acreage. The City of Fairfax will also enforce the requirement that construction site operators secure a VPDES construction permit.

(5) Post-construction storm water runoff in new development and redevelopment

The City of Fairfax will continue to develop, implement and enforce a program to address storm water runoff from all new development and redevelopment projects. This program will ensure that controls are in place that will prevent or minimize water quantity and quality impacts as required. Other aspects of the city's program and ordinances include:

- Implementation of strategies which include a combination of structural and/or non-structural BMPs to address post-construction runoff from new and redevelopment projects. Information and guidance is available in the City of Fairfax Public Facilities Manual.
- City requirement for a detention volume equal to the additional runoff volume caused by the land alteration using a design storm of ten years for two hour storm duration with predevelopment levels based on 1974 land conditions.
- City Ordinance requirement that post-development runoff from any site to be redeveloped that is currently served by water quality best management practices shall not exceed the existing load of nonpoint source pollution in surface runoff. If existing facilities can be shown to achieve the current standard of non-point source pollution control, the site will be considered as being served by water quality BMP's.
- Structural Storm Water Management/Best Management Practice (SWM/BMP's) must always be maintained in working order, performing at the design levels of service. The applicant's site engineer shall provide the original structural design and maintenance schedule and verify that the structure is performing at the design level of service.

- City Ordinance requirement that where SWM/BMP's are utilized – require that regular or periodic maintenance be performed to ensure that these facilities continue to function as they were designed, the property owner shall ensure such maintenance by providing the city with a maintenance agreement and surety bond in an amount determined by the zoning administrator. The surety bond shall comply with the requirements of chapter 2; article VI, division 2 of this Code. The agreement and surety shall be subject to the approval of the zoning administrator and the city attorney.
- The city's Public Facilities Manual provides design standards and principles to preserve open space and natural resources, minimize the creation of new impervious areas and limit increases in post-development runoff peak rates, frequency, and volume. The manual also provides guidelines that assist the user in determining the appropriate BMPs.
- The city now requires that owners of all permanent SWM/BMP structures in the City of Fairfax complete annual inspection report and return it to the city. These reports are reviewed by city staff and the SWM/BMP owner is required to make any repairs that are necessary.
- The City has developed a list of SWM and BMP structures which currently number 111 and 56 respectively and have the following information:
 - Type of BMP installed;
 - Mailing address of Owner and location of the SWM/BMP
 - Annual inspection Reports.

Information on the number of acres treated by each SWM/BMP has been added for new developments.

(6) Pollution prevention/good housekeeping for municipal operations

The City of Fairfax will continue to develop and implement an operation and maintenance program with the ultimate goal of preventing or reducing pollutant runoff from municipal operations into the storm sewer system. The city currently has set guidelines on employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances and storm water system maintenance.

City of Fairfax employees follow the requirements specified in the Virginia Erosion and Sediment Control Handbook and the Virginia Stormwater Management Handbook. Training materials from the EPA, the State of Virginia, and other relevant organizations are used in conjunction with the current city guidelines.

For city funded capital projects, are required to pass through the same site plan review process as followed by a private development. This ensures that all city projects meet the city's own ordinances and guidelines for land development.

Examples of city installed BMPs include an oil/water separator at the city property yard and low impact development type filters in the parking lot at city hall. The new City Hall Annex and the new Police Station have rain gardens and limited curbing to allow water to flow to grassy areas for infiltration. In addition, 2 Filterra units have been installed at City Hall for phosphorus removal.

On-going City of Fairfax Storm Water Management Programs

- Catch Basin Cleaning Program- all basins cleaned once a year. Trouble spots checked after each storm.
- BMP Inspection Program- All public and private BMPs are on an annual inspection cycle.
- Street Sweeping- Main Roads- weekly from March to December.
Downtown area- weekly all year
Subdivisions- once during April, June and September
- Stream Restoration Program- provides for the bioengineering restoration of city stream corridors. The City has contracted the engineering consulting firm RK&K, to evaluate and analyze the erosion in the North Fork of Accotink Creek and Daniels Run and recommend stream restoration projects, to reduce erosion and preserve the creek. This work started in January of 2007 and the City is currently in possession of the final report from RK&K and will recommend projects based on the report's findings when funding becomes available.
- City Inspectors are E & S State Certified.

5. Measurable Goals for BMPs

The City of Fairfax will develop, implement and enforce a storm water management program (SWMP) to reduce the discharge of pollutants from the MS4 to the maximum extend practicable, to protect water quality and to satisfy the appropriate water quality requirements of the clean Water Act and the State Water Control Laws. The SWMP will include the six minimum control measures outlined in the VPDES general permit regulations.

The City of Fairfax has a Watershed Management Plan Dated July 2005 which is posted on the City website. This information would then be used to prepare strategies and regulations for the SWMP.

Schedule and Goals for specific BMPs

(1) Public Education and Outreach

Enhancement of Public Education and Outreach Programs- Ongoing

Goals: The City of Fairfax has contracted the services of the George Mason University to monitor city streams and provide reports quarterly on the condition of the city streams. These reports will be posted on the city website to inform the public about the condition of city's streams.

To provide information to citizens on the condition of the city's streams by publishing annual reports of streams water quality conditions so that stream water quality can be tracked and recorded.

The storm drain marker program- On-going

Goals: The goals of this program will be to provide storm drain markers on all city storm drains indicating that no dumping is allowed. Information is also provided to inform citizens that anything dumped into the storm drain system can eventually drain to the Chesapeake Bay. In order to assist with this program and provide an opportunity for public involvement, citizens are continually invited to help with this effort.

Development of City of Fairfax Watershed Plan - Completed

Goals: The City has worked with the EPA on refining future projects related to the City's watershed plan. Projects will be proposed in the FY 13/14 budget.

(2) Public involvement/participation

Development of City of Fairfax of Fairfax Watershed Plan- completed

Goals: Refer to Section (1) above.

(3) Illicit discharge detection and elimination- On-going

Yes, the GIS layer showing the city's storm water infrastructure from inlets to outfalls with connection of pipes and direction of flows has been installed and is operational and available to departments on the city's main computer system. However, the data is current to 2004

Goals: To update the GIS layer of the city's storm water infrastructure with information to keep the system current as new storm water facilities are added to the city's system.

Current and proposed future procedures include:

- Citizen notification process to alert the city Police and Fire Departments to any reported incidents. City website includes direct e-mail access for reporting of violations by citizens. Reports are also taken by phone with access to the police dispatcher for after hour calls reporting illicit discharges.

- The city takes legal action to prosecute violators when they can be identified.
- Future plans to expand the public education program on illicit discharges.

(4) Construction site storm water runoff control –On-going

Goals: The City of Fairfax continues to refine site plan review procedures to consider potential storm water impacts, water quality impacts and erosion and sediment controls. Current review procedures require conformance with the Virginia Storm Water Handbook and the Virginia Erosion and Sediment Control Handbook. Improving the methods of implementation and enforcement of erosion and sediment controls during construction is also on-going. In addition, city site inspectors are certified through the Virginia Erosion and Sediment Control program. The City of Fairfax Public Facilities Manual was adopted by the City Council in 2007. Future editions will include more information on construction site storm water runoff control issues and requirements.

(5) Post-construction storm water runoff in new development and redevelopment– On-going

Goals: The city will continue to review and refine its ordinances to address storm water runoff from new development and redevelopment. The Public Facilities Manual and Storm Water Management Plan documents will include refinements to the city’s design standards to preserve open space and natural resources. In addition, these documents will provide enhanced information on strategies to minimize new impervious areas and methods to limit and control increase in post-development runoff peak rates and volume.

(6) Pollution prevention/good housekeeping for municipal operations – On-going

Goals: Current City of Fairfax procedures require city crews to meet Virginia Erosion and Sediment Control regulations pertaining to reducing pollutant runoff from municipal operations into the storm sewer. To ensure compliance with these regulations, the city continues to work to enhance employee training on pollution prevention and good housekeeping techniques into municipal operations.

6. Responsible Persons for Implementing and Coordinating the Program: Peter T. Millard, City Engineer, 703-246-6330 and Christina Alexander, Stormwater Resource Engineer, 703-273-3067

7. Certification- For signed certification; see # 11 on the permit registration application.

Appendix B-1a

MCM #1 – Public Outreach and Education by Northern Virginia Clean Water Partners



Northern Virginia Clean Water Partners

2017 Summary

WORKING TOGETHER FOR HEALTHY STREAMS AND RIVERS

Polluted stormwater runoff is the number one cause of poor water quality in streams and rivers in Northern Virginia. When it rains, the water runs off streets, yards and parking lots and picks up pesticides, grass clippings, fertilizer, bacteria, and oil from driveways and parking lots. All of this pollution enters the storm drains on the street and is discharged directly to a stream. The runoff is not filtered or sent to a wastewater treatment facility.

To reduce the impacts of stormwater pollution, the Northern Virginia Clean Water Partners came together to change human behaviors through a public education campaign.

About the Partnership

The Northern Virginia Clean Water Partners is comprised of a group of local governments, drinking water

and sanitation authorities, and businesses working together to inform individuals about the pollution potential of common activities, so that individuals can take direct action to reduce pollution.

To meet this goal, the Partners work together to:

- Identify high priority water quality issues for the region;
- Identify the target audience(s) for outreach;
- Educate the region's residents on simple ways to reduce pollution around their homes;
- Monitor changes in behavior through surveys and other data collection techniques; and
- Pilot new cost-effective opportunities for public outreach and education.

Membership is voluntary and each member pays annual dues to fund the program. By working together

the partners are able to leverage their funds to develop and place bilingual educational products with common messages and themes, thereby extending the campaign's reach.

Only Rain Down the Storm Drain is the motto of the partnership.

The 2017 campaign satisfied MS4 (Municipal Separate Storm Sewer System) Phase I and Phase II permit requirements for stormwater education and documenting changes in behavior.

For more information visit www.onlyrain.org



2017 Campaign Overview and Accomplishments

In 2017, the Northern Virginia Clean Water Partners selected the following three high priority water quality issues to focus on for the Campaign:

- bacteria,
- nutrients, and
- illicit discharge of chemical contaminants.

The Partners identified the target audiences for these issues as pet owners, homeowners with a lawn or garden, and home mechanics.

The Campaign used television, print, internet advertising and the Only Rain Down the Storm Drain website to distribute messages linked to specific stormwater problems, such as proper pet waste disposal, over fertilization of lawns and gardens and proper disposal of motor oil.

In addition to the multi-channel media campaign, partners participated in local events to raise awareness and encourage positive behavior change in residents. The television and internet ads featured the well-known national symbol of non-point source pollution; the rubber ducky.



42,768,486	Total household television impressions*
2,090,152	Total digital impressions (internet banner ads and in-stream video ads)
114,769	Number of times the ads aired from July 2016- June 2017
37,489	Visits to the www.onlyrain.org website
500	Online Annual Survey Responses
>75%	Percent of target audience reached

**Impressions are the number of times an ad appeared on a single television or computer screen.*

Throughout the campaign year, the Partners made the following efforts to educate the public and promote awareness of stormwater pollution:

- From July 2016 through June 2017, aired four Public Service Announcements on 32 English language cable TV channels, and four Spanish speaking channels a total of **41,434** times. The ads featured messages on the importance of picking up pet waste and general household stormwater pollution reduction measures aired
- The campaign also featured banner ads on Xfinity.com and Cox.com websites that promote the same messages as the cable TV ads.

- Featured two full day, full page ads for Only Rain on the sign-in pages for Xfinity.com.



- Conducted an online survey of 500 Northern Virginia residents to determine the effectiveness of the ads, aid in directing the future efforts of the campaign, and to reveal any changes in behavior.
- Continued to update and maintain the Northern Virginia Clean Water Partners website.

Annual Survey Highlights

Findings in the 2017 survey include:

- 24% of respondents recalled seeing the ad after watching the video. This is a significant increase from 2016 (16%).
- Of those who recalled the ads, 19 percent state they now pick up their pet waste more often, six percent state that they now properly dispose of motor oil, and 14 percent state they plan to fertilize fewer times per year.
- When shown the Only Rain Down the Storm Drain logo, 62 percent of the respondents recognized it compared to 54 percent in 2013. This increase is statistically significant and indicates that awareness of the logo has increased over time.
- The **four** channels that were most strongly associated with recall of the ad were Cartoon Network (43% of those who watched this channel recalled the ad), Animal Planet (36%), History Channel (34%), and National Geographic (32%). In fact, the highest numbers of impressions (2.8 million) were delivered on Cartoon Network.
- 38 percent of the respondents felt they were most prevented from taking action to protect clean water because they didn't know what to do.
- The majority of respondents (64%) indicated that email newsletters with reminders and quick tips and/or online resources would help them take action to protect clean water.
- Interestingly, the number of respondents who prefer to receive information from online sources has decreased from a high of 57 percent in 2012 to 40 percent in 2016. Television (19%), newspaper and community newsletters were equally preferred information sources. This suggests that a future outreach effort might include reaching homeowners through their Community Associations.

Understanding Behaviors

In addition to capturing responses to questions regarding the effectiveness of the campaign, this year's survey honed in on the current behaviors and attitudes of Northern Virginia residents as they relate to pet waste management, lawn care, and motor oil disposal. Responses to these questions support the development of future messages and targeted promotion.



Main cause of water pollution...

Survey respondents ranked fertilizers and pesticides as the #1 cause of water pollution.



Where stormwater goes...

79 percent of residents surveyed stated that stormwater goes to the Potomac River, the Chesapeake Bay, or to local streams.

90% stated the actions of

individuals are important in protecting water quality in local streams, the Potomac River, and the Chesapeake Bay.

70% would be more likely to

take actions to reduce the amounts of pollutants they personally put into storm drains, after learning that polluted water runoff is the number one cause of local water pollution.

95% believe it is important for

local governments to spend more money on protecting water quality.

The most important reason dog owners are motivated to pick up their pet's waste is because "It's what good neighbors do". The number of respondents choosing "It causes water pollution" as the most important reason to pick it up has fluctuated but was the second most common reason in 2017.

Consistent with the past six years, almost a third of lawn and garden owners fertilize their lawns two or more times per year. An equal number never fertilize their lawns. Among those who fertilize once a year, 18 percent fertilize in the spring and only five percent fertilize in the fall. This suggests that there is room to educate residents of Northern Virginia that fertilizing in the fall is better for local waterways.

About half of the respondents reported using an herbicide to treat weeds in their lawn or garden.

Among those who fertilize their lawn, 75 percent have never had or were not sure if their soil had been tested for fertility or pH and fifty five percent reported using a slow release fertilizer.

Consistent with the past six years, the majority of respondents take their vehicle to a service station for oil changes (82%) or take used oil to a gas station or hazmat facility for recycling (11%). Three percent of Northern Virginians reported storing used motor oil in their garage, placing it in the trash or dumping it down the storm drain.



Only Rain Down the Drain

www.onlyrain.org

For more information:

Corey Miles
Senior Environmental Planner
703-642-4625
3040 Williams Drive, Suite 200
Fairfax, VA 22031
cmiles@novaregion.org

2017 Northern Virginia Clean Water Partners

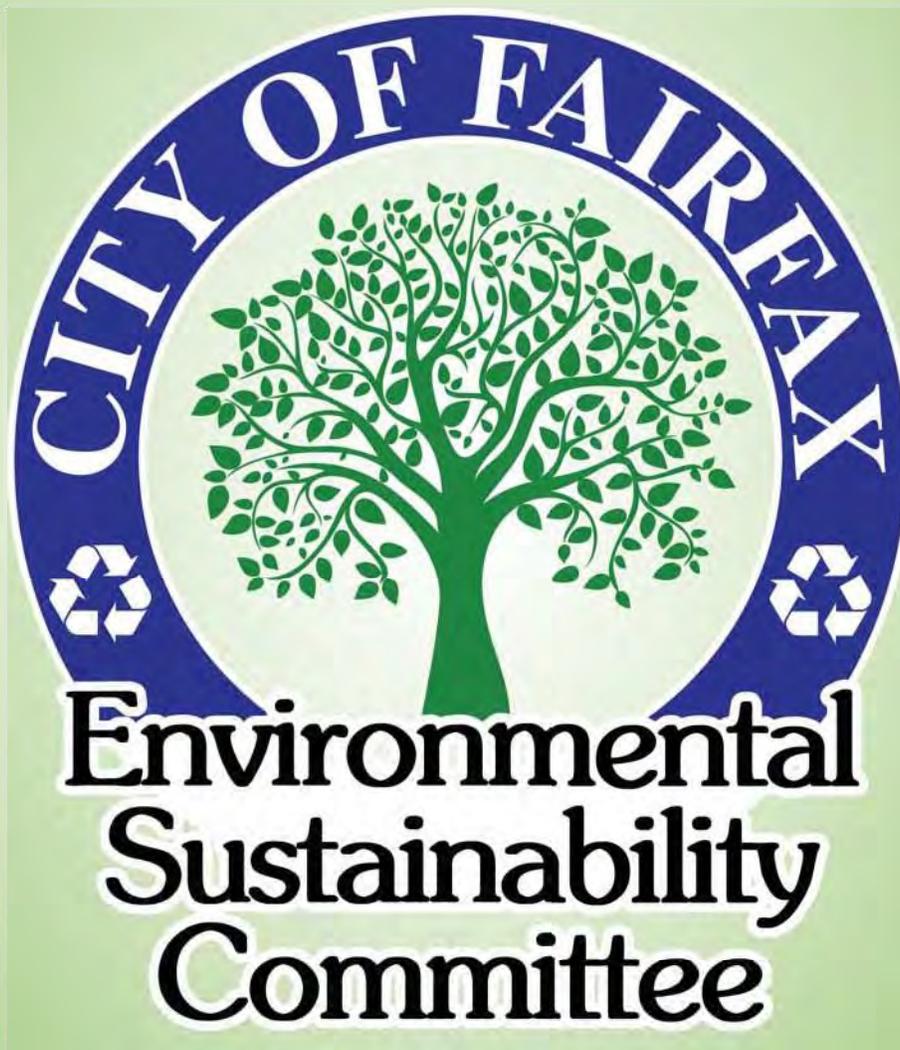
- Fairfax County | Arlington County | Loudoun County | Stafford County | Fairfax Water |
- City of Alexandria | Loudoun Water | City of Fairfax |
- Town of Herndon | City of Falls Church | Town of Leesburg | Town of Vienna |
- Town of Dumfries | Doody Calls | Northern Virginia Regional Commission | George Mason University | Virginia Coastal Zone Management Program | Fairfax County Public Schools | Prince William County Public Schools |
- Northern Virginia Soil and Water Conservation District



Appendix B-1b

MCM #1 – City of Fairfax Environmental Sustainability Committee’s Annual Report

CITY OF FAIRFAX
ENVIRONMENTAL SUSTAINABILITY COMMITTEE
2016 ANNUAL REPORT



Committee Members:

Tim Killian (Chair)
Bruce Knight
Susan Crate
Jon Buttram
Charish Bishop

Judy Fraser (Vice-Chair)
Adam Basinger
Mark Chandler
Michael Lee



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INTRODUCTION

This report summarizes the areas the Environmental Sustainability Committee (ESC) has focused on in the past year, identifies current programs and initiatives as well as unmet challenges that the City faces.

During 2016, the ESC focused on energy efficiency, invasive species and park stewardship, fuel storage tanks, pollinators, and development reviews. Several of our committee meetings were used as a platform for expert speakers in the area of pollinators, fuel storage tanks, and invasive plants. In addition, we received briefings on the 2035 Comprehensive Plan, the Paul VI High School Property Redevelopment, and the City of Fairfax Earth Day Program. The ESC supported Fairfax High School (FHS) environmental programs and the environmental club at Lanier Middle School. The ESC membership roster is now full as two new members were appointed in 2016 to fill vacancies from 2015.

COMMITTEE ADMINISTRATION

The nine-member Committee is currently complete as the two vacant positions at the end of 2015 were filled with two new members (Michael Lee and Charish Bishop) who were appointed in March and June 2016 respectively. In June, Tim Killian was re-elected by the Committee to serve in the role of ESC Chair for a second term. In addition, Judy Fraser was elected to serve as Vice-Chair. Stefanie Kupka, the City's Sustainability Coordinator, is the ESC's staff liaison and provides administrative support to the committee. Several citizens informally support and advise the Committee on a regular basis and this number has grown in the last year. In addition, the Committee includes a student representative from FHS, Marianna Lipold.

The ESC met with the City Council for a work session in February 2016 to present the 2015 Annual Report. In addition, the ESC met with City officials and other working groups for briefing and discussions on topics including the Earth Day Event activities and the 2035 Comprehensive Plan. Peg Weis, Parks and Recreation, provided an overview of the activities to be included as part of the Earth Day Program at Providence Park. Cindy Petkac, Planning Division Chief, briefed the ESC on the development of the new Comprehensive Plan.

OUTREACH AND EDUCATION

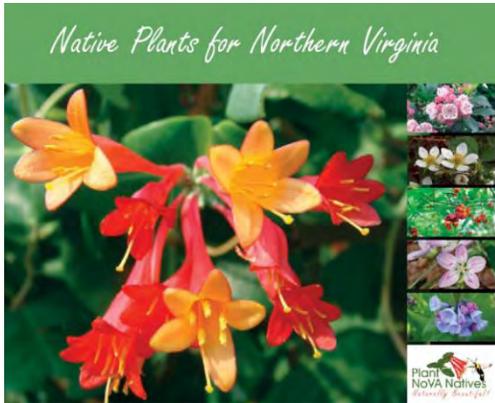
As part of its outreach efforts, the Committee sponsored the sixth annual Earth Art Show, supported Solarize NoVA through participation and yard signs, provided funding for Bike to Work Day, and had an informational booth at the Fall Festival. Further, several ESC meetings were platforms for the *Protecting Our Natural Environment* Speaker Series where Committee members and city residents listened to presentations from experts in the fields of pollinators, fuel storage tank management, and invasive plant species at Blenheim.

This year the Earth Art Show was held at City Hall from April 16 to 30 and included over 75 pieces of artwork from Daniels Run, Providence and Lanier. The Committee awarded prizes to two students from each school, and with the help of Cameron's, a city bakery, and city staff, held a reception on April 27 in honor of the artists in our schools.



The ESC's Fall Festival participation was a great success due to a well-attended booth. The 2016 themes included invasive plants, native plants, and waste reduction & recycling. ESC members and citizen supporters distributed handouts on stormwater and pollution concerns, recycling information, composting, and invasive plant species. The ESC booth featured a recycling game where residents identified waste streams that could be recycled and those that should be disposed as municipal solid waste. In addition, FHS Green Club participants and ESC members dressed up as the "bag monster" in an effort to share environmental concerns presented by plastic bags.





The ESC also provided space for the FHS Green Club whose volunteers helped staff our booth. Donations from the offering of the *Native Plants for Northern Virginia* guides at the ESC booth benefited the Green Club.

The Sustainability Coordinator, Stefanie Kupka, worked on the development and implementation planning for the web-based Neighborhood and Workplace Sustainability Challenges in cooperation with several cities across the country under an innovative grant award. As part of the grant, a web based application was created, which registers and tracks the scores of participants that complete sustainability activities. A website user manual and implementation manual was also developed. The City is in the process of customizing the website and planning for implementation. The ESC reviewed and provided comments on the draft activity lists associated with the Challenge modules. There are three modules of activities that focus on challenging residents and businesses to be 'green', 'healthy', and 'involved'. As part of implementation planning, Stefanie worked with four George Mason students. The students assisted with the development of social media marketing strategies and content, which will be used to help promote the Challenges and engage participants.

SCHOOLS

The City of Fairfax schools receives support from the ESC through funding of school-based ECO-Club or Green Club projects, through ESC coordinated events and through its close liaison with the School Board via the School Board representative. The ESC maintains close ties with the Green/ECO Clubs to promote environmental education efforts at the four schools. These educational programs emphasize environmental stewardship, energy efficiencies, technologies and resource protection.



As noted earlier in this report, the ESC sponsored and coordinated with city students for the Earth Art show on April 27th. In addition, City students supported the ESC at the Committee's Fall Festival booth. The ESC embraces every opportunity to reach out to the next generation of environmentally in-tuned professionals and leaders. To accomplish this, the ESC includes a student liaison from FHS.

Throughout the year the ESC recognized the City's school's successes with multiple environment-related courses of studies and club activities that met the educational and character building needs of our students. To this end the ESC appreciated our schools' many environmental projects, awards and achievements including; the Virginia Naturally school award, national and regional environment related competitions in urban forestry, watershed conservation, and environmental protection and wind power technologies.

City schools continued to excel in environmental sustainability projects and competitions, placing first, third, sixth, seventh and eighth out of 10 places in the 2016 Caring for Our Watershed Competition at George Mason University and earning the Eco-Schools USA Green Flag Award from the National Wildlife Federation. City schools have extensive environmental education programs that included the restoration of approximately 50% of school grounds back to native plant and wildlife habitat at Daniels Run.

Every school year, students participate in a minimum of one grade-specific project such as creating and maintaining red wiggler worm bins, planting bulbs, growing submerged aquatic vegetation, and raising American Shad. In addition, classes visit a vegetable garden in the fall and again in the spring to plant seeds, harvest crops, and learn all about plant parts, functions, pollination and additional life processes lessons. School-wide efforts in recycling and composting has reduced the amount of waste by 4,790 lbs. since beginning the initiative's inception.



The ESC was pleased to support and fund a team of Lanier Middle School Students with their Eco Journey project. The students presented a 3D design model of an idealized community that utilized sustainable development principles. The design was based on the actual topographic location of Kamp Washington area in the City of Fairfax. The students presented their project to a full

house at the June ESC meeting. It was evident that the students put a lot of hard work and thought into this project. Lanier Middle School Science Teacher, Faiza Alam, provided guidance and support throughout the project.

ENERGY EFFICIENCY

The City teamed up with Local Energy Alliance Program (LEAP) and the Northern Virginia Regional Commission (NVRC) to participate in the Solarize NoVA program, which took place March 15 through May 15, 2016. The Solarize NoVA program provided the community with free solar assessments; free home energy check-ups; and the ability to purchase solar

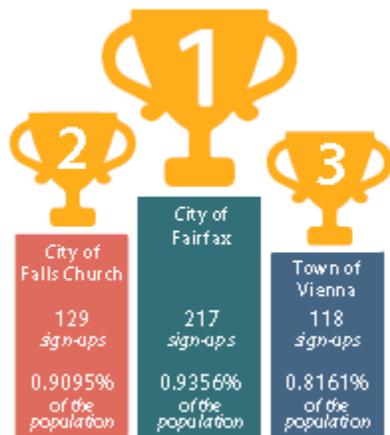


Photo Voltaic systems at a discounted price and with a pre-negotiated contract. Several ESC members took advantage of the free solar assessments for their homes, and featured signs in their yard promoting the program.

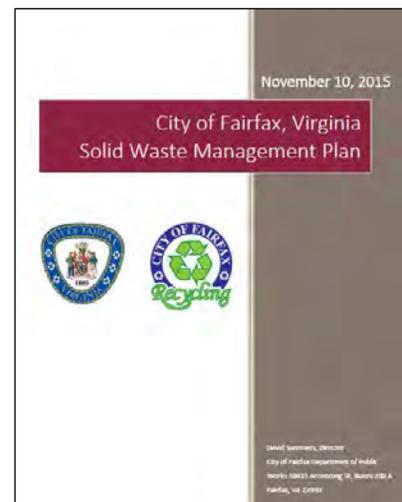
The City of Fairfax held a friendly competition with Falls Church and Vienna to see whose community could get the greatest number of sign-ups as a percentage of the overall population. The City of Fairfax won the competition with 217 sign-ups, which represents 0.9356% of the population. The campaign resulted in the installation of nine solar installations in 2016.

The City of Fairfax will be participating in the Spring 2017 Solarize NoVA program, which is scheduled to run from April 18 through June 30.

RECYCLING AND SOLID WASTE

In 2015, the City of Fairfax contracted Gershman, Brickner & Bratton, Inc. to develop a new Solid Waste Management Plan (SWMP). The SWMP was approved by the Mayor and City Council on November 10, 2015.

The ESC expresses continual support for the Solid Waste and Recycling Coordinator position identified in the report. Currently, the City Sustainability Coordinator serves in this role but with only hours needed to address the mandatory reporting requirements to the state. For the SWMP to function as intended, this position must at least be filled by 0.5 Full-Time Employee Equivalent (FTEE).



2035 COMPREHENSIVE PLAN

The June meeting was a forum for Cindy Petkac, Planning Division Chief, to present to the ESC and guests information on the development of the 2035 Comprehensive Plan. The ESC received an overview of the Comprehensive Plan process, public engagement strategy, chapter outline, content areas, and schedule. The ESC offered the Planning Division Chief several initial recommendations such as:

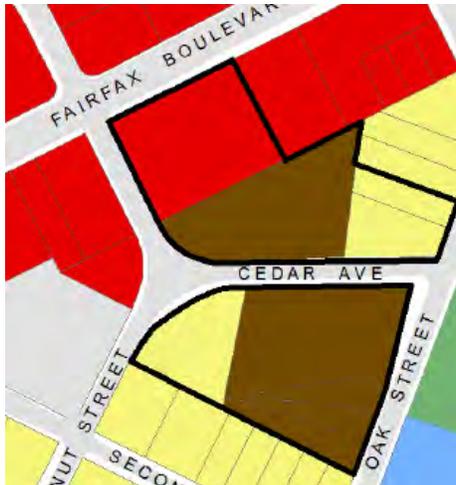
- Incorporating desired aspects of the Fairfax Boulevard Plan into the new Comprehensive Plan;
- Revise the Chapter 4 title to “Natural Environment” and integrate sustainability as a theme throughout the document;
- Providing clear definitions for open space, green space, recreation areas, etc.; and
- Incorporate into the plan the identification of pervious/impervious area; waste reduction and recycling; stream health and water quality; green space connectivity; invasive plants and tree canopy.

In September, the ESC submitted comments to the Planning Commission regarding the draft Vision Statement to the 2035 Comprehensive Plan. Our review resulted in a position that the document identified many qualities for the City of Fairfax that we agreed were reflective of what we hope our City exhibits in 2035. However, we did offer some recommendations that we thought would improve the Vision Statement.



DEVELOPMENT REVIEW AND COMMENT

The ESC sought and took advantage of the opportunity to review and comment on several proposed City redevelopment projects. The committee reviewed the Generalized Development Plan (GDP) for the Breezeway/Fairfax Gardens Redevelopment (Avalon Fairfax City) and the Davies Property at 4131 Chain Bridge Road.



In February, members of the ESC met to review and discuss the **Breezeway/Fairfax Gardens Redevelopment** (Avalon Fairfax City) by Cooley LLC. The group reviewed the set of Rezoning/Special Exception/Special Use Plan drawings and the Cooley LLC Avalon Fairfax City resubmission package dated January 19, 2016. Subsequently, the ESC submitted comments to the City Planner in March. Comments addressed considerations for stormwater management impact, green space, tree plan and canopy, connectivity, and incorporating energy efficiency and water usage elements from Leadership in Energy and Environmental Design (LEED).

Members of the ESC met in June to review the plans for the **Davies Property Project**. Comments were then submitted to Mayor and City Council in July. The committee identified various recommendations that include”

- Offsite tree mitigation;
- Adding green space by extending the bike trail from the east end of Breckinridge Road to along the south side of the Davies property;
- Increasing the number of trees and shrubs along the public walk-ways of Chain Bridge road and University Road; and
- Seeking a LEED Silver rating.



The ESC also reviewed the second set of submission plans in November and developed draft comments, but delayed submission when the working session with Mayor and City Council was pushed back.

IDI Group representatives, David S. Houston (Blank Rome LLP), Pat Rhodes (IDI Group), and Bill Zink (Christopher Consultants) attended the March ESC Meeting to discuss the **Paul VI High School Property Redevelopment**. They discussed the process for developing a master plan and soliciting input from community and city officials. ESC members used the opportunity at this meeting with IDI Group to offer some initial recommendations, such as:

- Incorporating innovative stormwater management strategies to improve the water quality of nearby streams;
- Adding woodland areas to help control stormwater runoff through more permeable surfaces for rainwater capture and infiltration; and
- Consideration of native plants, low impact design, green building standards, solar energy, connectivity, water conservation, and repurposing materials from the current development.



The entitlement process was expected to extend into early 2017 and then the site plan process would begin which would take another year. The ESC expects to be involved with providing input and recommendations on behalf of the Mayor and City Council in 2017.

In 2017, the ESC welcomes further reviews of future development/redevelopment projects in support of the City's environmental and sustainability goals. In addition, the ESC will continue to refine the project review checklist use to both help identify projects of interest to the committee and aid the review and comment development process.

INVASIVE PLANT SPECIES, TREES, LAND AND PARK STEWARDSHIP

The ESC funded a project to plant native plants at the Historic Blenheim/Civil War Interpretive Center. Considering the potential for this location as a demonstration area to show the community how an area can be improved with invasive plant removal and native plantings, the Committee unanimously approved this request from ESC member Judy Fraser and Valerie Morgan, City resident and member of the Community Appearance Committee. Ms. Morgan removed overgrown invasive plants. The ESC funding served to replace the invasive species with

dozens of native plants and provided signage to educate the public on native plants.

The September meeting was held at Blenheim, where Ms. Morgan reported on her efforts and how the ESC funding was used. This was followed by with a well-attended tour of the new native plant garden where she shared the fruits of her time spent removing invasive plant species and planting the new native plants with ESC members and guests.

The ESC expresses continual support for funding a full-time Arborist position for the City. The technical skills and planning guidance provided by this position would reverse a recent declining trend in the management of our tree inventory and urban forest. Our trees are a very important part of the appearance of our community and provide several ecological and health benefits.

POLLINATORS

Fairfax resident, beekeeper, and ESC volunteer, Frank Linton, provided an overview of honey bees and beekeeping at the October meeting. Mr. Linton has kept honey bees since 2005 and is an Eastern Apiculture Society (EAS) certified Master Beekeeper. Due to Mr. Linton's efforts, beekeeping is allowed in the City of Fairfax and homeowners may host beehives, sponsor beehives, or become beekeepers themselves.



Mr. Linton's presentation addressed the importance of honey bees due to their role in pollinating about one-third of the food we eat, including most fruits, vegetables, nuts, and berries. Most plants require insect pollination, mostly frequently by bees. These plants provide numerous environmental benefits, for example, they produce oxygen, prevent erosion, and purify water."

Honey bees and other pollinators are at risk from multiple causes including habitat loss, invasive species, pollution, misuse of pesticides, and climate change. The risk to the honey bee population is high as nearly half of the managed honey bee colonies in the United States died in 2015. Homeowners can do several things to provide pollinator-friendly habitat, such as:

- letting weeds and other yard plants blossom,
- planting pollinator-friendly, and
- providing habitats for native bees.

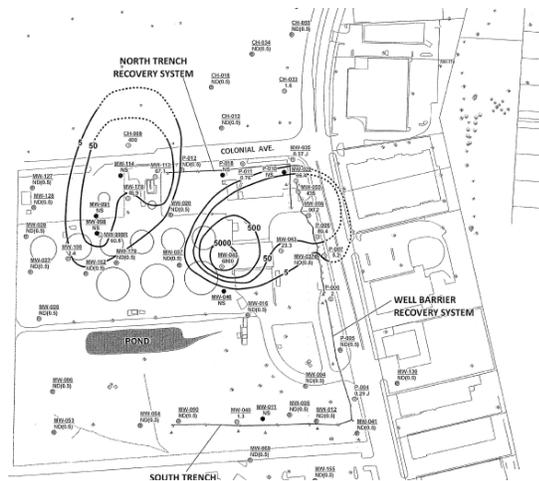


To attract pollinators, gardeners can use a wide variety of plants that bloom from early spring into late fall, include plants native to your region, and eliminate pesticides whenever possible.

FUEL STORAGE TANKS

In November, Andrew Wilson, Fire Marshal, briefed the ESC on the history of the aboveground fuel storage tanks at the Fairfax tank farm complex on Pickett Road. There are four oil distribution companies that occupy the complex: Motiva Enterprises, Amoco Oil Company, Citgo Petroleum Corporation and Old Dominion Terminal LLC. To provide a sense of the complex's capacity, the Motiva Enterprises operation alone has nine two-million-gallon Aboveground Storage Tanks (AST) that supply petroleum at a rate of one million gallons per day.





The presentation included an overview of the release resulting from an underground piping petroleum leak at the former Star Enterprise Terminal and now Motiva Enterprises Terminal on Pickett Road that was discovered in 1990. The leak resulted in a petroleum-contaminated groundwater plume that extended 2000-feet from Pickett Road to the Mantua community. Under EPA's direction, construction of a groundwater remediation system to clean up the petroleum-contaminated groundwater began shortly thereafter and began operation in 1991. There are two major components of the remediation system, one located inside the Motiva Enterprises Terminal, and the other located in the community side known hereby as the Mantua system.

Further, Mr. Wilson provided an overview of the Virginia Department of Environmental Quality Revised Facility and AST Regulations affecting the Fairfax tank farm complex. The AST regulations were revised on November 1, 2015. The AST regulations were revised primarily to incorporate new performance standards for certain aboveground storage tanks (1 million gallon or more AST facilities) located in the City of Fairfax as mandated by the 2011 General Assembly (CH 884 of the 2011 Acts of Assembly). By July 1, 2021, the impacted facilities must satisfy specific requirements for strength testing, and release prevention barriers.

CONCLUSION

The Committee members are residents and/or business members who have volunteered to serve on the ESC to help the City improve its environmental sustainability. In its seventh year, the ESC has become better known and more visible throughout the community, but the members see that much greater awareness of issues of environment and sustainability issues is needed to encourage additional active partners to protect and support our natural resources. We welcome more opportunities to review and comment on proposed development projects in the City. The ESC anticipates providing input into the Environmental Sustainability Chapter of the Fairfax City 2035 Comprehensive Plan. Further, we are excited to support the roll out of Workplace and Neighborhood Sustainability Challenges, Sustainability Procurement "Playbook" and STAR Leading Indicators Pilot Project grant initiatives.

As always we will continue to share our insights and raise awareness about environmental issues



including stormwater management, solid waste/recycling, energy efficiency, local effects of climate change, invasive plant species and other issues and challenges that affect our City's sustainability goals.

The City's sustainability ultimately will rely on proactive leadership and an engaged and informed citizenry. The Committee appreciates input from residents and welcomes all interested parties at ESC meetings. We thank the City Council and Mayor for their continuing support and staff members for their attentiveness to our concerns as we all work together to improve the current and future sustainability of the City and its residents.



2017 WORK PLAN

There are certain key activities inherent in the ESC charter and in consideration of our support to the City's Sustainability Coordinator that will be on our agenda for 2017. These activities involve items that continue to be and will likely always be recurring on our yearly work plan such as support of school environmental programs at all of the City schools, reviewing and commenting on land use and development proposals, and providing recommendations for the General Assembly legislation package (e.g., reduction or elimination of bottled water and plastic shopping bags).

In addition, the ESC expects to be involved in several new activities and initiatives on the City calendar for 2017. The ESC plans to play a role on the Advisory Committee for integrating sustainability into the 2035 Comprehensive Plan. We will support the implementation of the Workplace and Neighborhood Sustainability Challenges, Sustainability Procurement "Playbook" and STAR Leading Indicators Pilot Project grant initiatives. The ESC will advise Mayor and City Council on budget considerations such as the hiring of a Solid Waste and Recycling Coordinator as identified in the Solid Waste Management Plan and a full-time Arborist. The ESC will also begin to identify the specific ways that global climate change is impacting our community.

The ESC 2017 environmental and sustainability priorities are:

- Provide City Council with sustainability recommendations on new commercial and municipal development and renovation projects
- Integrate environmental and sustainability opportunities into the 2035 Comprehensive Plan
- Promote understanding and awareness of the City's natural resources
- Support stormwater management actions and policies
- Identify opportunities to educate citizens on energy, environmental and sustainability issues
- Support City solid waste and recycling program implementation

Appendix B-1c

MCM #1 – 2017 Only Rain NVRC Survey

Northern Virginia Regional Commission 2017 Only Rain NVRC Survey

Summary Report of Findings

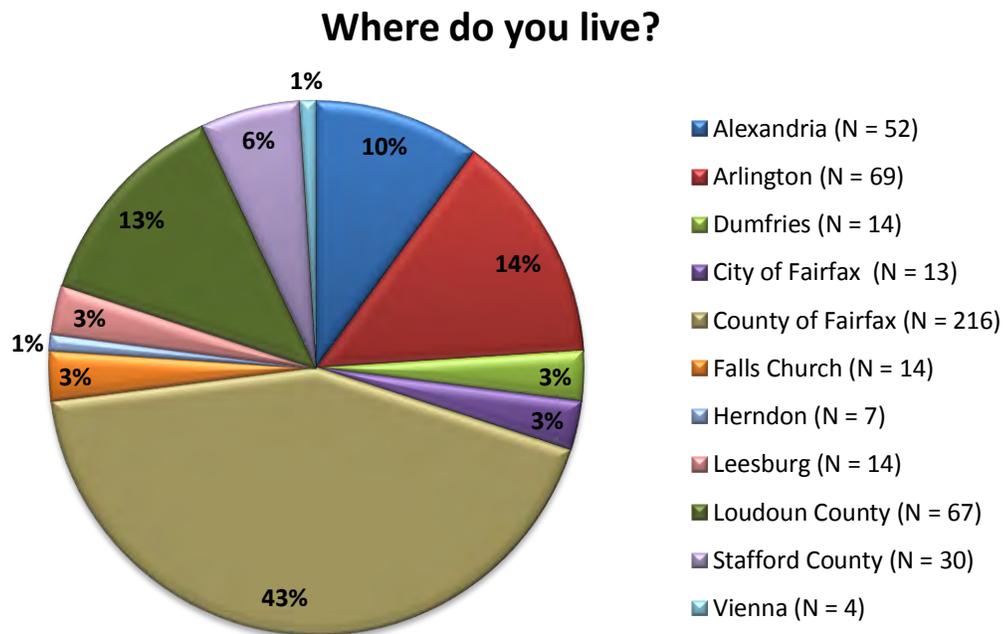
7/13/2017

Amplitude Research, Inc.

Study Methodology & Respondent Characteristics

The Northern Virginia Regional Commission (NVRC) hired Amplitude Research, Inc. to conduct a survey of residents of northern Virginia to measure beliefs and attitudes related to pollution of the Potomac River and Chesapeake Bay.

Amplitude Research administered the study online beginning on June 5, 2017. In the end, 500 surveys were completed by web panelists who live in one of the areas of Virginia shown in the chart below. (In the legend, “N =” indicates the number of respondents in each city, county, or town.)



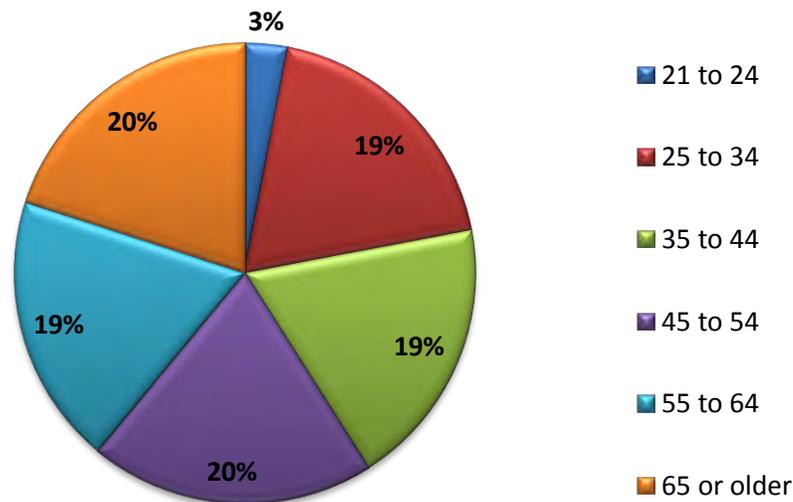
Later in this report, the results for some of the questions are “broken out” by area, in addition to presenting the results for the total sample. However, the specific areas listed above were grouped together into larger areas so that each larger area used for analysis had a reasonable number of respondents.

Residents from Leesburg and Loudoun County were combined into a single category labeled “**Leesburg / Loudoun**,” since the town of Leesburg lies within Loudoun County. Another category used for analysis was “**Dumfries / Stafford**,” since Dumfries lies just north of Stafford County. Although Dumfries is not located within Stafford County, it is closer to Stafford than to the other counties covered in the survey. (There were too few survey respondents living in Dumfries to examine the results for Dumfries separately.) The City of Fairfax, Falls Church, Herndon, and Vienna were combined with Fairfax County to create the category “**Fairfax Inclusive**,” since these cities and towns lie within the Fairfax County area. Although the City of Fairfax and City of Falls Church are distinct areas, their location falls within the larger area circumscribed by Fairfax County.

Alexandria and Arlington each had a sufficient number of respondents so that each of these areas can be examined separately.

The minimum age to participate in the survey was 21. As shown in the chart below, each age group was well represented in the survey. Although a small proportion were age 21 to 24, this category has fewer years than the other categories shown. For analysis purposes later in this report, the categories “21 to 24” and “25 to 34” were combined into the broader category of “21 to 34.”

Which category includes your age?



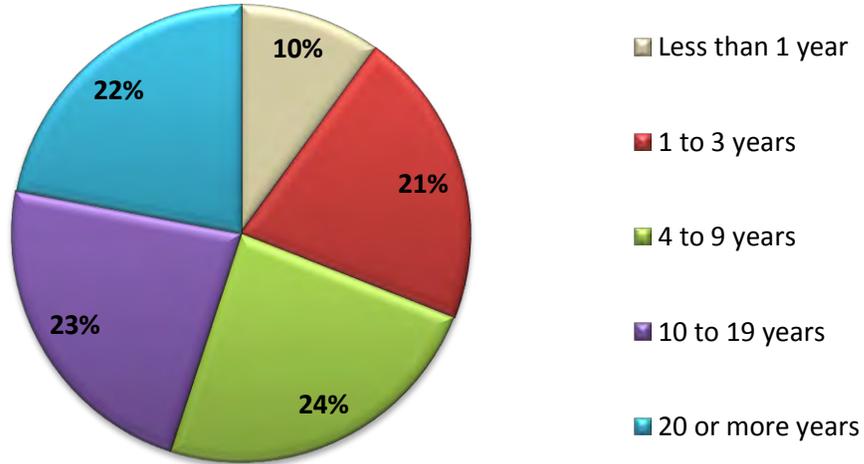
The survey respondents were split between males (48%) and females (52%), while approximately three-fourths (75%) indicated that they own their residence, and 25% reported renting.

The first chart on the next page shows how long respondents have lived in their current residence, and the second chart shows how long they have lived in northern Virginia. On the page after that, results are shown for the type of residence.

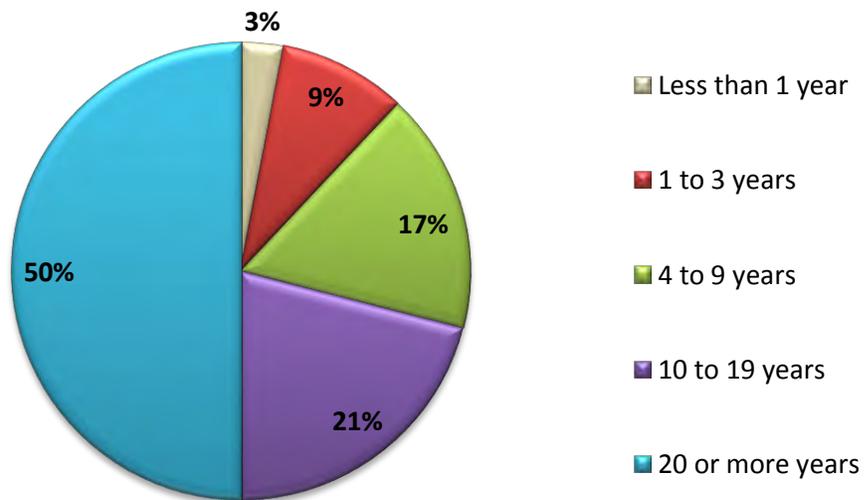
A survey was conducted in each year between 2011 and 2016 that included many of the same or similar questions, targeted the same geographic area, and had a similar demographic mix as in this 2017 study. Later in this report, comparisons between years are shown where appropriate. Initially, the title used for the study was “NVRC Resident Survey.” Starting in 2013, the study title was changed to “Only Rain NVRC Survey,” since a new question was added about awareness of the “Only Rain” logo.

In 2017, a minimum quota of 8% of the total sample was set for those who are of Hispanic heritage to ensure sufficient representation and to allow analysis of results specifically among Hispanic respondents.

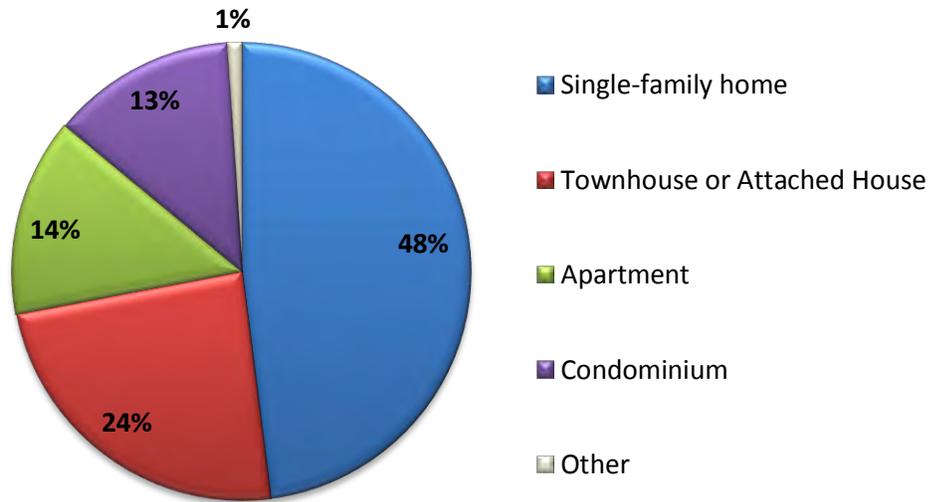
For how many years have you lived in your current residence?



For how many years have you lived in Northern Virginia?



Which of the following best classifies your current residence?



Sampling Variability

While examining the survey findings, it is helpful to keep in mind that the results are based on a sample and are therefore subject to sampling variability, often referred to as “sampling error.” The degree of uncertainty for an estimate (e.g., a particular percentage from the survey) arising from sampling variability is represented through the use of a margin of error. A sampling margin of error at the “95% confidence level” can be interpreted as providing a 95% probability that the interval created by the estimate plus and minus the margin of error contains the true value. (The “true” value would be known only if everyone in the target market was surveyed rather than just a sample.) In addition to sampling variability, results may be subject to various sources of non-sampling error (e.g., non-response bias, respondent misinterpretation of question wording, etc.). The degree of non-sampling error is not represented by the sampling margin of error and is usually unknown.

For a “sample size” of 500 survey respondents, the “maximum” margin of sampling error for percentages from the survey is +/- 4.4 percentage points at the 95% confidence level. Here, “maximum” refers to the margin of error being highest for proportions from the survey near 50%, while the margin of error declines as percentages get further from 50%. For example, given the same sample size of 500 respondents, a result from the survey near 10% or 90% would have a margin of sampling error of +/- 2.6 percentage points.

The margin of sampling error increases as the sample size decreases. Thus, when a question is asked of only a subset of the total sample, the associated margin of sampling error is larger than that quoted above. Also, even if a question is asked of all respondents, when examining results for a particular subgroup, the margin of sampling error depends on the number of respondents in that subgroup. For example, the “maximum” margin of sampling error would be +/- 9.8 percentage points at the “95% confidence level” when based on a subgroup of 100 survey respondents. In some parts of this report, results are shown for subgroups that include a fairly small number of respondents, and caution is recommended when thinking about these findings.

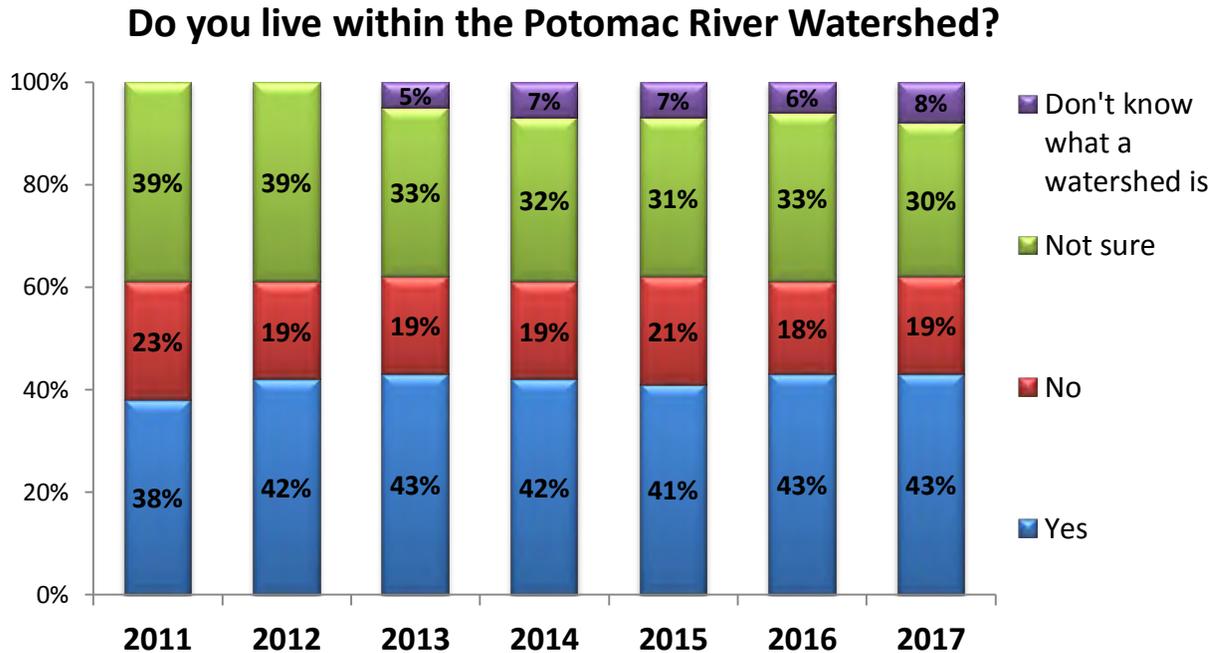
This suggests that results for different subgroups can be considered “similar” when the differences are small (i.e., small enough to be within the range of sampling error).

Results from different years can be considered similar when differences between the years are small. If the difference between two years is referred to as “statistically significant,” this essentially means that the difference in the survey results is large enough to be highly confident (i.e., at the “95% confidence level”) that there has been a real change. That is, a “statistically significant” difference in the survey results from one year to the next is larger than what would usually be expected from sampling error alone.

In this report, when a result from 2017 is described as “significantly” higher (or lower) than the result from a previous year, this means that the difference between these years is “statistically significant.” Also, when one subgroup is described as “more likely” (or “less likely”) than another subgroup to answer in a particular way, this is based on a statistically significant difference.

Potomac River Watershed

- Early in the survey, respondents were asked if they lived within the “Potomac River Watershed.” As shown in the chart below, slightly more than four-in-ten (43%) in 2017 believed that they did in fact live within the Potomac River Watershed. Similar proportions held this belief in previous years.



- Nearly four-in-ten each year were not sure if they lived within the Potomac River Watershed or did not know what a watershed is. (The response option “I do not know what a watershed is” was first added in the 2013 survey.)
- When breaking the results out by area, as shown in the table below, Arlington had a significantly higher proportion answering “Yes” than Fairfax Inclusive and Dumfries / Stafford.

Live Within Potomac River Watershed	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Dumfries / Stafford
Yes	46%	59%	38%	48%	34%
No	11%	10%	22%	19%	27%
Not sure	35%	28%	31%	26%	32%
Don't know what a watershed is	8%	3%	9%	7%	7%
<i>N = number of respondents</i>	52	69	254	81	44

- As shown in the next table, those who have lived in northern Virginia for less than 4 years were less likely than others to say they live within the Potomac River Watershed.

Live Within Potomac River Watershed	Have Lived in Northern Virginia < 4 Years	4 to 9 Years	10 to 19 Years	20 or More Years
Yes	29%	41%	47%	46%
No	23%	25%	14%	18%
Not sure	38%	27%	33%	28%
Don't know what a watershed is	10%	7%	6%	8%
<i>N = number of respondents</i>	61	83	103	253

- Those age 45 or older were more likely than others to believe that they live in the Potomac River Watershed.

Live Within Potomac River Watershed	Age 21 to 34	35 to 44	45 to 54	55 to 64	65 +
Yes	29%	31%	54%	46%	56%
No	26%	24%	18%	12%	15%
Not sure	34%	37%	19%	37%	25%
Don't know what a watershed is	11%	8%	9%	5%	4%
<i>N = number of respondents</i>	109	96	99	95	101

- When examining the results by other subgroups, males were more likely than females and homeowners were more likely than renters to believe that they live within the Potomac River Watershed. Those of Hispanic heritage were less likely than others to hold this belief.

Live Within Potomac River Watershed	Male	Female	Homeowners	Renters	Hispanic Respondents
Yes	53%	34%	47%	31%	28%
No	18%	20%	18%	22%	25%
Not sure	23%	37%	29%	35%	32%
Don't know what a watershed is	6%	9%	6%	12%	15%
<i>N = number of respondents</i>	242	258	376	124	40

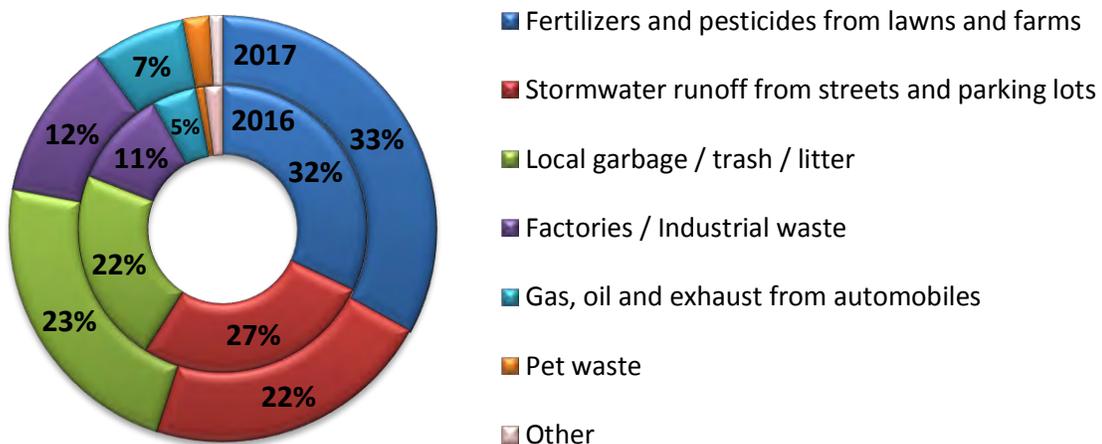
- Those living in an apartment were less likely than others to indicate that they live within the Potomac River Watershed.

<i>Live Within Potomac River Watershed</i>	Single- family Home	Townhouse	Apartment	Condo
Yes	47%	41%	30%	49%
No	20%	16%	25%	17%
Not sure	27%	35%	35%	26%
Don't know what a watershed is	6%	8%	10%	8%
<i>N = number of respondents</i>	242	118	71	65

Beliefs About Local Water Pollution

- When asked what they thought was the “Number one” cause of pollution in local streams, the Potomac River, and the Chesapeake Bay, the most frequently selected response option was “Fertilizers and pesticides from lawns and farms.” A similar question was asked in past years, but there were several wording changes to the response options in the 2016 survey. (However, “Fertilizers and pesticides from lawns and farms” was still the option selected most often in previous years.)

What do you think is the number one cause of pollution in local streams, the Potomac River, and the Chesapeake Bay?



- The proportion selecting “Stormwater runoff from streets and parking lots” was lower in 2017 than in 2016, but the difference was not quite large enough to be statistically significant.
- Tables on the next page (and following pages) show the results broken out by various subgroups of the total sample. For example, the proportion selecting fertilizers and pesticides from lawns and farms increased with time living in the area and age. Also, males and homeowners were more likely than others to select this item.

**Believed #1 Cause
of Local Water
Pollution**

	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Dumfries / Stafford
Fertilizers and pesticides from lawns and farms	23%	31%	34%	40%	25%
Stormwater runoff from streets and parking lots	25%	36%	22%	15%	11%
Local garbage / trash / litter	19%	17%	24%	23%	32%
Factories / Industrial waste	21%	9%	11%	11%	14%
Gas, oil and exhaust from automobiles	12%	4%	6%	6%	11%
Pet waste	0%	3%	1%	4%	7%
Other	0%	0%	2%	1%	0%

N = number of respondents 52 69 254 81 44

**Believed #1 Cause
of Local Water
Pollution**

**Have Lived
in Northern
Virginia
< 4 Years**

4 to 9 Years

**10 to 19
Years**

**20 or More
Years**

Fertilizers and pesticides from lawns and farms	21%	24%	31%	38%
Stormwater runoff from streets and parking lots	23%	23%	22%	21%
Local garbage / trash / litter	26%	18%	25%	23%
Factories / Industrial waste	15%	18%	12%	10%
Gas, oil and exhaust from automobiles	10%	15%	5%	5%
Pet waste	3%	2%	3%	1%
Other	2%	0%	2%	2%

N = number of respondents 61 83 103 253

**Believed #1 Cause
of Local Water
Pollution**

	Age 21 to 34	35 to 44	45 to 54	55 to 64	65 +
Fertilizers and pesticides from lawns and farms	15%	23%	33%	41%	52%
Stormwater runoff from streets and parking lots	20%	17%	24%	22%	27%
Local garbage / trash / litter	29%	32%	26%	17%	10%
Factories / Industrial waste	16%	19%	9%	8%	9%
Gas, oil and exhaust from automobiles	15%	7%	7%	5%	0%
Pet waste	4%	1%	0%	3%	2%
Other	1%	1%	1%	4%	0%

N = number of respondents 109 96 99 95 101

**Believed #1 Cause
of Local Water
Pollution**

	Male	Female	Homeowners	Renters	Hispanic Respondents
Fertilizers and pesticides from lawns and farms	40%	26%	37%	19%	22%
Stormwater runoff from streets and parking lots	25%	19%	22%	23%	18%
Local garbage / trash / litter	18%	27%	20%	30%	30%
Factories / Industrial waste	9%	15%	12%	14%	22%
Gas, oil and exhaust from automobiles	4%	10%	6%	10%	5%
Pet waste	2%	2%	2%	2%	3%
Other	2%	1%	1%	2%	0%

N = number of respondents 242 258 376 124 40

**Believed #1 Cause
of Local Water
Pollution**

**Single-
family
Home**

Townhouse

Apartment

Condo

Fertilizers and pesticides from lawns and farms	36%	35%	21%	28%
Stormwater runoff from streets and parking lots	19%	24%	22%	26%
Local garbage / trash / litter	20%	21%	34%	24%
Factories / Industrial waste	15%	8%	14%	9%
Gas, oil and exhaust from automobiles	7%	7%	6%	8%
Pet waste	1%	3%	3%	3%
Other	2%	2%	0%	2%

N = number of respondents

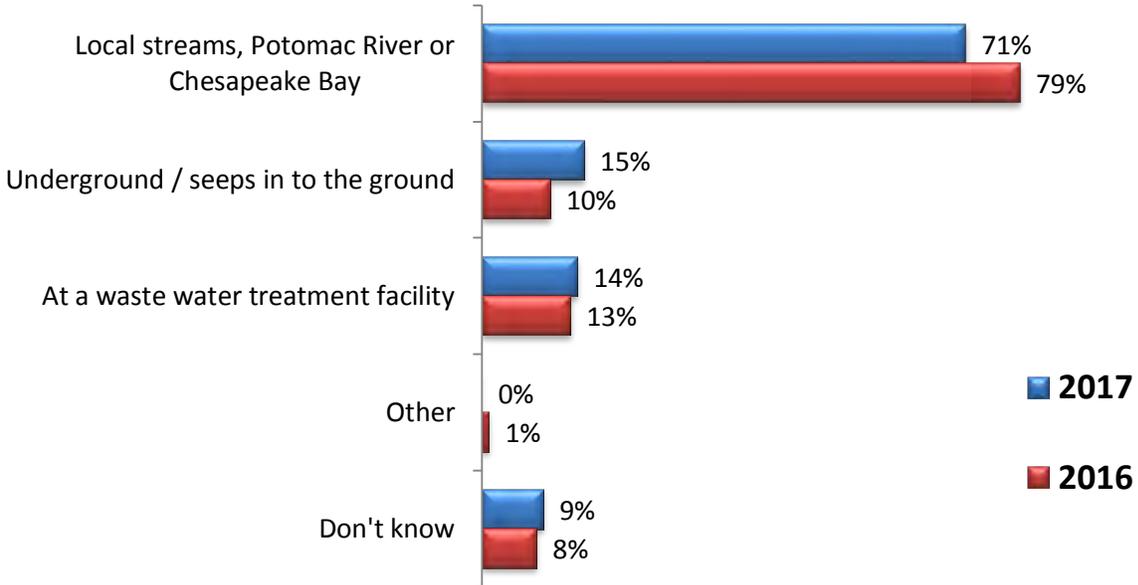
242

118

71

65

"Stormwater" runoff is rain or other water that flows into the street, along the gutter and into the storm drain. To the best of your knowledge, where do you believe storm water eventually ends up?



- “Local streams, Potomac River or Chesapeake Bay” was selected most often as where stormwater is believed to end up. Prior to 2016, this response option was shown as two options with “Local streams” separate, so the 2016 and 2017 results are not comparable to the past for this question. Results by various subgroups are shown below and on the next page. For example, those from Arlington were more likely than others to select local streams, Potomac River or Chesapeake Bay. Males were also more likely than females to select that response, while females and renters were more likely than others to select underground / seeps in to the ground. Those of Hispanic heritage were more likely than others to select waste water treatment facility.

Believed Destination of Stormwater	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Dumfries / Stafford
Local streams, Potomac River or Chesapeake Bay	60%	91%	70%	69%	61%
Underground / seeps in to the ground	15%	9%	17%	11%	14%
At a waste water treatment facility	21%	13%	11%	16%	25%
Don't know	8%	0%	13%	9%	9%
<i>N = number of respondents</i>	52	69	254	81	44

Believed Destination of Stormwater	Have Lived in Northern Virginia < 4 Years			
		4 to 9 Years	10 to 19 Years	20 or More Years
Local streams, Potomac River or Chesapeake Bay	67%	65%	72%	73%
Underground / seeps in to the ground	21%	19%	13%	12%
At a waste water treatment facility	25%	13%	17%	11%
Don't know	10%	13%	6%	9%
<i>N = number of respondents</i>	61	83	103	253

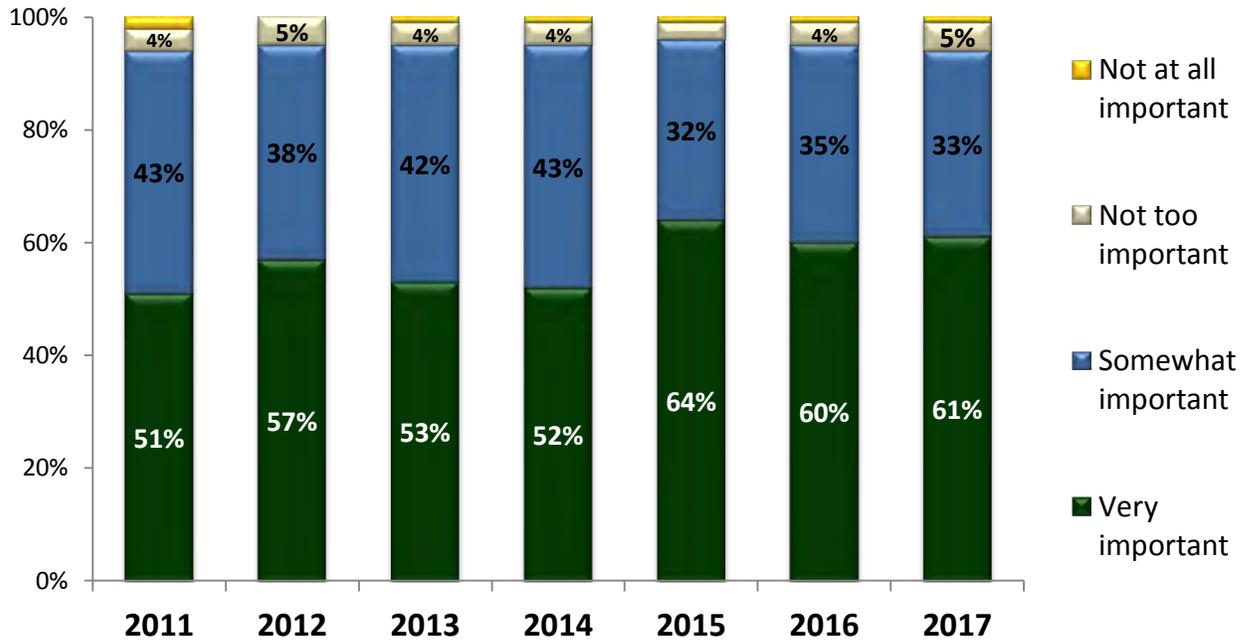
Believed Destination of Stormwater	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Local streams, Potomac River or Chesapeake Bay	65%	68%	71%	73%	78%
Underground / seeps in to the ground	28%	17%	11%	11%	6%
At a waste water treatment facility	21%	16%	18%	9%	6%
Don't know	9%	11%	8%	7%	11%
<i>N = number of respondents</i>	109	96	99	95	101

Believed Destination of Stormwater	Gender		Homeownership		Ethnicity
	Male	Female	Homeowners	Renters	Hispanic
Local streams, Potomac River or Chesapeake Bay	79%	63%	72%	69%	63%
Underground / seeps in to the ground	9%	20%	11%	24%	18%
At a waste water treatment facility	12%	17%	14%	15%	28%
Don't know	7%	11%	8%	14%	8%
<i>N = number of respondents</i>	242	258	376	124	40

<i>Believed Destination of Stormwater</i>	Single- family Home	Townhouse	Apartment	Condo
Local streams, Potomac River or Chesapeake Bay	69%	77%	66%	74%
Underground / seeps in to the ground	14%	10%	27%	11%
At a waste water treatment facility	14%	11%	21%	14%
Don't know	10%	6%	11%	9%
<i>N = number of respondents</i>	242	118	71	65

- When asked the question below, the proportion rating “Very important” in 2017 did not differ significantly from 2015 and 2016, but it was significantly higher than in 2011, 2013, and 2014.

How important do you think it is for local governments to spend more money on protecting water quality?



- The majority from each area felt it was “Very important” for local governments to spend more money on protecting water quality.

Importance of Local Water Quality Spending	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Dumfries / Stafford
Not at all important	4%	0%	1%	1%	0%
Not too important	6%	1%	4%	9%	2%
Somewhat important	17%	45%	34%	30%	36%
Very important	73%	54%	61%	60%	62%
<i>N = number of respondents</i>	52	69	254	81	44

- In each of the subgroups covered in the tables on the next page, a majority gave a rating of “Very important.”

Importance of Local Water Quality Spending	Have Lived in Northern Virginia < 4 Years			
	4 to 9 Years	10 to 19 Years	20 or More Years	
Not at all important	2%	2%	0%	1%
Not too important	6%	8%	1%	5%
Somewhat important	36%	30%	38%	31%
Very important	56%	60%	61%	63%
<i>N = number of respondents</i>	61	83	103	253

Importance of Local Water Quality Spending	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Not at all important	2%	0%	2%	1%	0%
Not too important	4%	5%	3%	7%	4%
Somewhat important	36%	41%	32%	28%	29%
Very important	58%	54%	63%	64%	67%
<i>N = number of respondents</i>	109	96	99	95	101

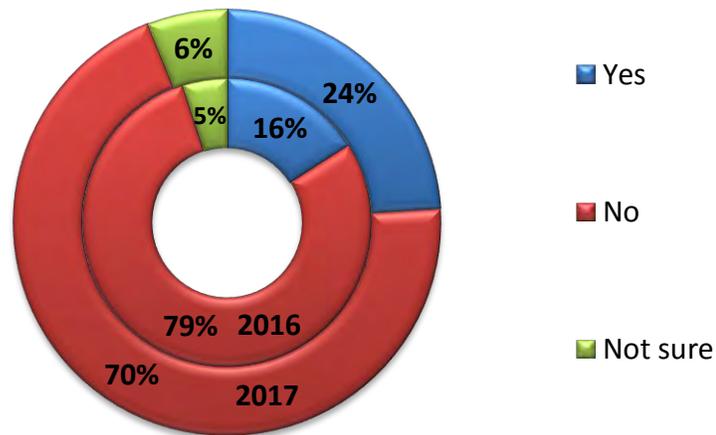
Importance of Local Water Quality Spending	Gender		Homeownership		Hispanic Respondents
	Male	Female	Homeowners	Renters	
Not at all important	1%	1%	1%	1%	3%
Not too important	8%	1%	5%	2%	5%
Somewhat important	37%	30%	33%	33%	22%
Very important	54%	68%	61%	64%	70%
<i>N = number of respondents</i>	242	258	376	124	40

Importance of Local Water Quality Spending	Home Type			
	Single- family Home	Townhouse	Apartment	Condo
Not at all important	1%	1%	3%	0%
Not too important	6%	3%	2%	3%
Somewhat important	36%	27%	32%	35%
Very important	57%	69%	63%	62%
<i>N = number of respondents</i>	242	118	71	65

Advertising

- In 2016 and 2017, a video of an advertisement featuring “rubber duckies” was presented in the survey, and respondents were asked if they had seen it on TV or the Internet. The proportion recalling it in 2017 (24%) was significantly higher than in 2016 (16%).

Please view the video above. Have you seen this ad, or a similar one on TV or the Internet about reducing water pollution?



- The proportion recalling the ad by area ranged from 12% to 32%, with Leesburg / Loudoun having a significantly higher result than Arlington. As shown on the next page, the proportion recalling the ad was sizeable for each subgroup, although males were more likely than females to report recall.

Saw TV / Internet Ads on Reducing Water Pollution	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Dumfries / Stafford
Yes	17%	12%	25%	32%	25%
No	73%	85%	68%	61%	73%
Not sure	10%	3%	7%	7%	2%
<i>N = number of respondents</i>	52	69	254	81	44

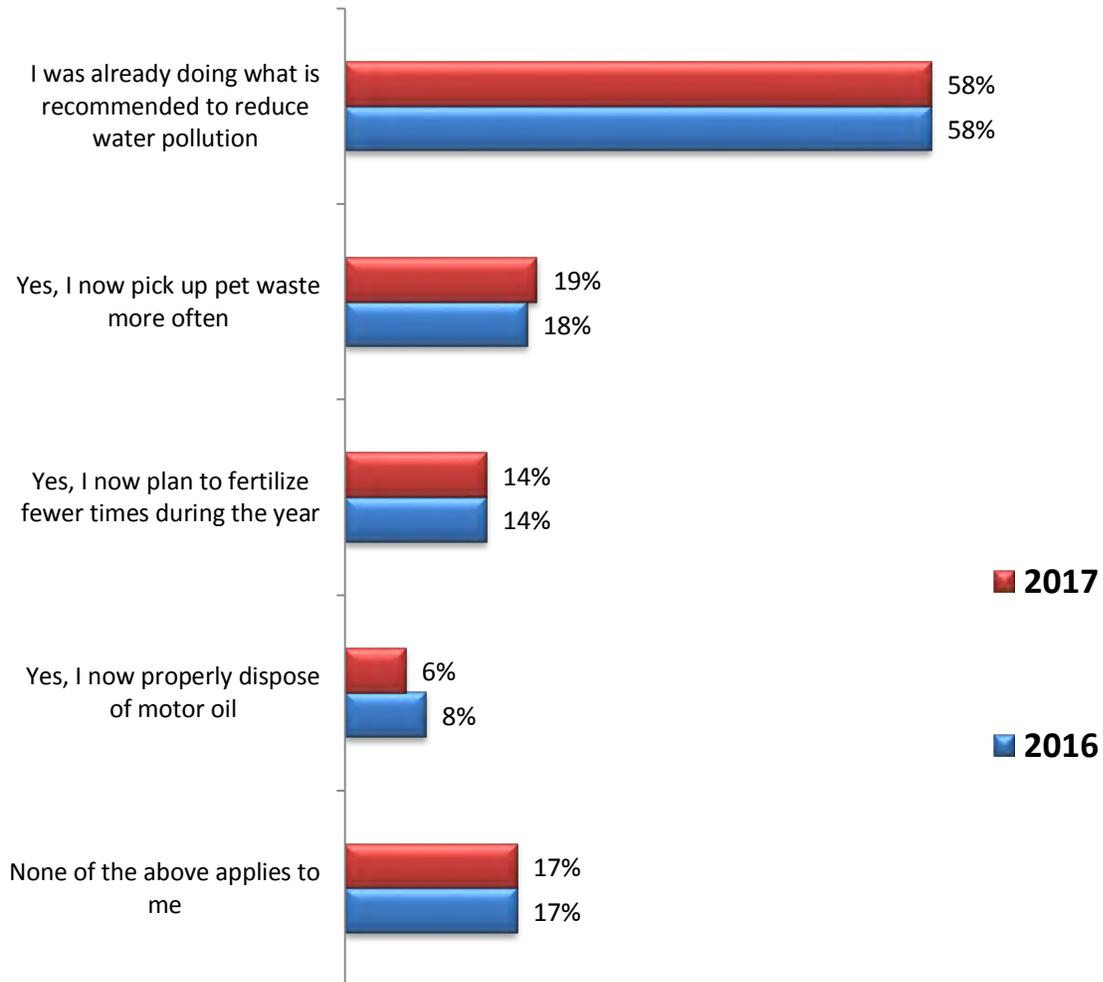
Saw TV / Internet Ads on Reducing Water Pollution	Have Lived in Northern Virginia < 4 Years			
		4 to 9 Years	10 to 19 Years	20 or More Years
Yes	20%	28%	17%	26%
No	77%	64%	75%	68%
Not sure	3%	8%	8%	6%
<i>N = number of respondents</i>	61	83	103	253

Saw TV / Internet Ads on Reducing Water Pollution	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Yes	31%	22%	22%	21%	21%
No	63%	73%	76%	72%	68%
Not sure	6%	5%	2%	7%	11%
<i>N = number of respondents</i>	109	96	99	95	101

Saw TV / Internet Ads on Reducing Water Pollution	Gender		Homeownership		Hispanic Respondents
	Male	Female	Homeowners	Renters	
Yes	29%	18%	23%	26%	32%
No	66%	74%	72%	64%	50%
Not sure	5%	8%	5%	10%	18%
<i>N = number of respondents</i>	242	258	376	124	40

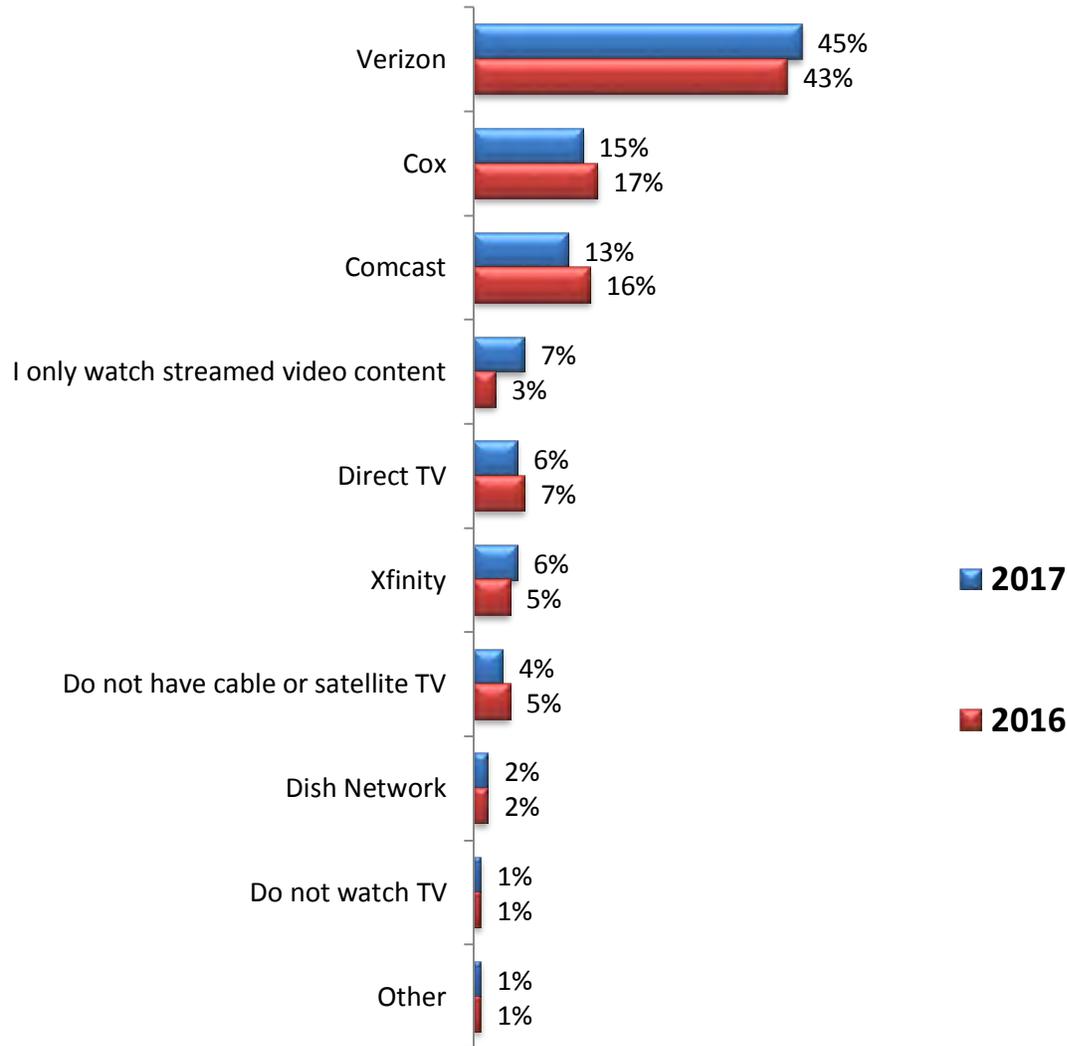
Saw TV / Internet Ads on Reducing Water Pollution	Home Type			
	Single- family Home	Townhouse	Apartment	Condo
Yes	27%	25%	24%	9%
No	68%	68%	68%	85%
Not sure	5%	7%	8%	6%
<i>N = number of respondents</i>	242	118	71	65

Did seeing this ad make you take action on your property to prevent water pollution?



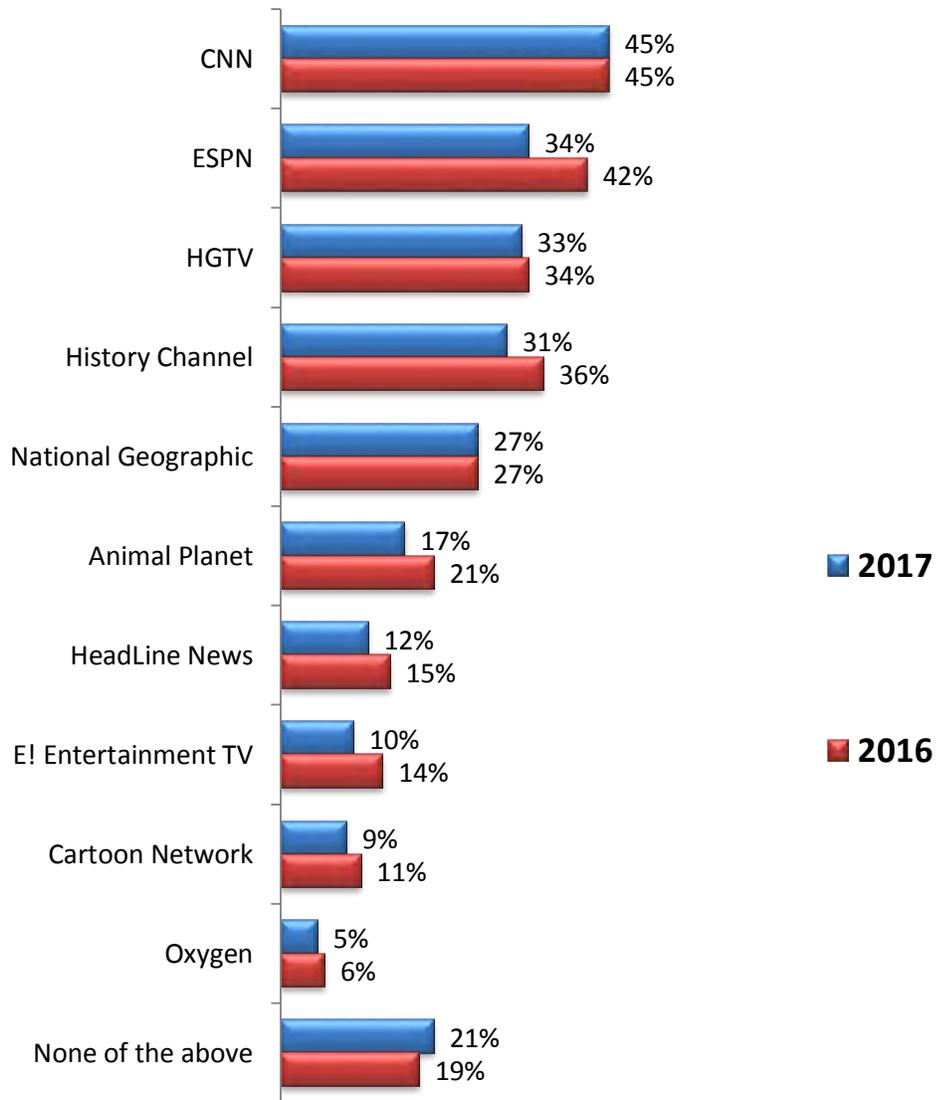
- The results for the question above were similar in 2016 and 2017. However, this question was asked only of those who recalled the advertising. Since the proportion recalling the ad was higher in 2017 than in 2016, the results above apply to larger number of respondents in 2017.

What TV service provider do you use?



- Verizon was selected most often (by 45% in 2017) as their TV service provider.
- Based on a separate analysis (not shown in chart), Verizon had the highest share in four out of five of the areas: 56% in Leesburg / Loudoun, 52% in Fairfax Inclusive, 44% in Arlington, and 30% in Dumfries / Stafford. However, Comcast had the largest share (40%) in Alexandria.
- One reason for adding the question above to the 2016 survey was to determine if recall of the ad differed by TV provider. Based on a separate analysis (not shown in chart), it turns out that TV recall was similar across providers. When looking at the providers with at least 30 respondents using the provider, the proportion recalling the ad was 29% among Verizon customers, 26% among Direct TV customers, 25% among Comcast customers, and 20% among Cox customers.

Which channels have you watched in the past 30 days?

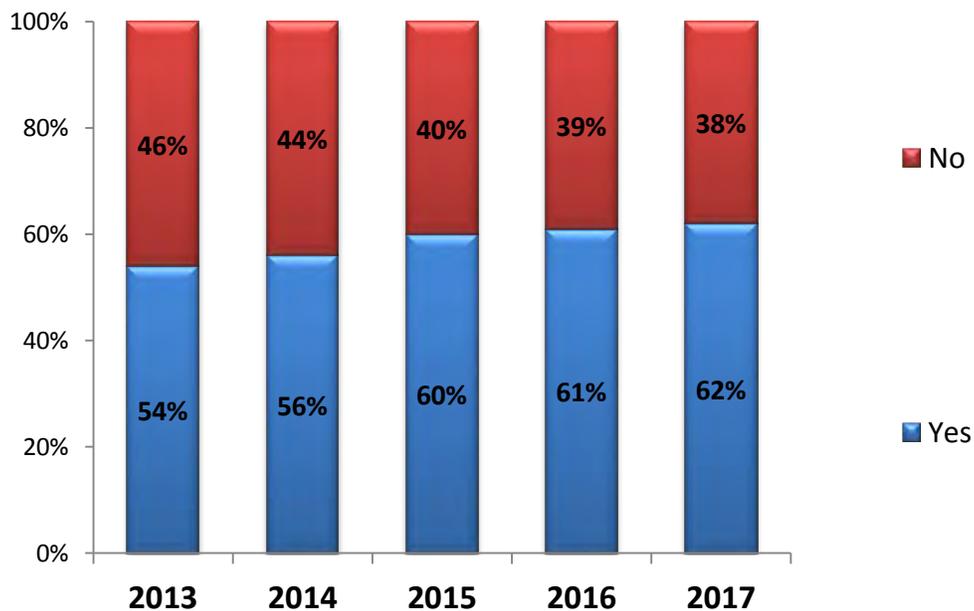


- CNN (45%) was selected most often as a channel watched within the past 30 days.
- One reason for adding the question above to the 2016 survey was to determine if recall of the ad differed by channels watched. Based on a separate analysis (not shown in chart), for four of the channels, their viewers were significantly more likely than others to recall the ad that was shown in the survey: Cartoon Network (43% of those who watched this channel recalled the ad), Animal Planet (36%), History Channel (34%), and National Geographic (32%).
- Among those who watched *none* of the channels above, only 13% recalled the ad.

- The logo below was shown to all respondents regardless of whether they had seen advertising or not, and more than half of the total sample recognized the logo. The difference between 62% in 2017 and 54% in 2013 was statistically significant. However, the 2017 result did not differ significantly compared to the results in 2014 through 2016.



Have you seen the logo above anywhere?



- Results for the question above in 2017 by subgroup are shown on the next page. Interestingly, awareness was significantly lower in Dumfries / Stafford. This was the case last year as well, and this suggests that there is room for increasing awareness in this area.

Have Seen Logo	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Dumfries / Stafford
Yes	73%	81%	62%	59%	27%
No	27%	19%	38%	41%	73%
<i>N = number of respondents</i>	52	69	254	81	44

Have Seen Logo	Have Lived in Northern Virginia < 4 Years	4 to 9 Years	10 to 19 Years	20 or More Years
Yes	54%	69%	68%	60%
No	46%	31%	32%	40%
<i>N = number of respondents</i>	61	83	103	253

Have Seen Logo	Age 21 to 34	35 to 44	45 to 54	55 to 64	65 +
Yes	66%	65%	57%	67%	57%
No	34%	35%	43%	33%	43%
<i>N = number of respondents</i>	109	96	99	95	101

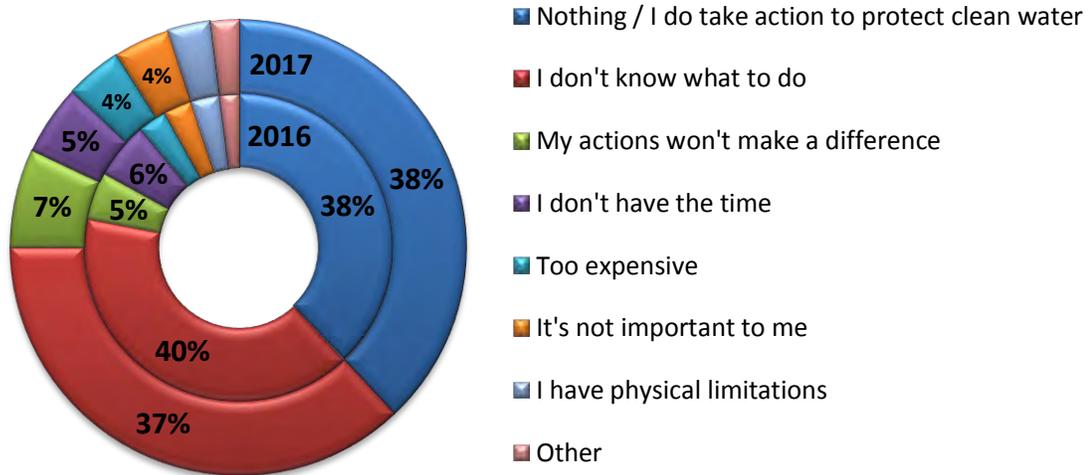
Have Seen Logo	Male	Female	Homeowners	Renters	Hispanic Respondents
Yes	68%	57%	64%	59%	63%
No	32%	43%	36%	41%	38%
<i>N = number of respondents</i>	242	258	376	124	40

Have Seen Logo	Single-family Home	Townhouse	Apartment	Condo
Yes	60%	67%	61%	65%
No	40%	33%	39%	35%
<i>N = number of respondents</i>	242	118	71	65

Protecting Clean Water

- In 2017 and 2016, nearly four-in-ten (38%) felt nothing prevents them from taking action to protect clean water.

What most prevents you from taking action to protect clean water?



- Females and renters were more likely than others to select “I don’t know what to do.” The proportion selecting “Nothing / I do take action to protect clean water” increased with age.

Most Prevents Action	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Dumfries / Stafford
Nothing	34%	47%	39%	36%	32%
I don't know what to do	29%	42%	38%	33%	36%
Won't make a difference	9%	7%	7%	1%	9%
I don't have the time	4%	3%	6%	6%	9%
Too expensive	6%	0%	4%	6%	7%
It's not important to me	8%	0%	2%	8%	5%
Physical limitations	8%	0%	3%	6%	2%
Other	2%	1%	1%	4%	0%
<i>N = number of respondents</i>	52	69	254	81	44

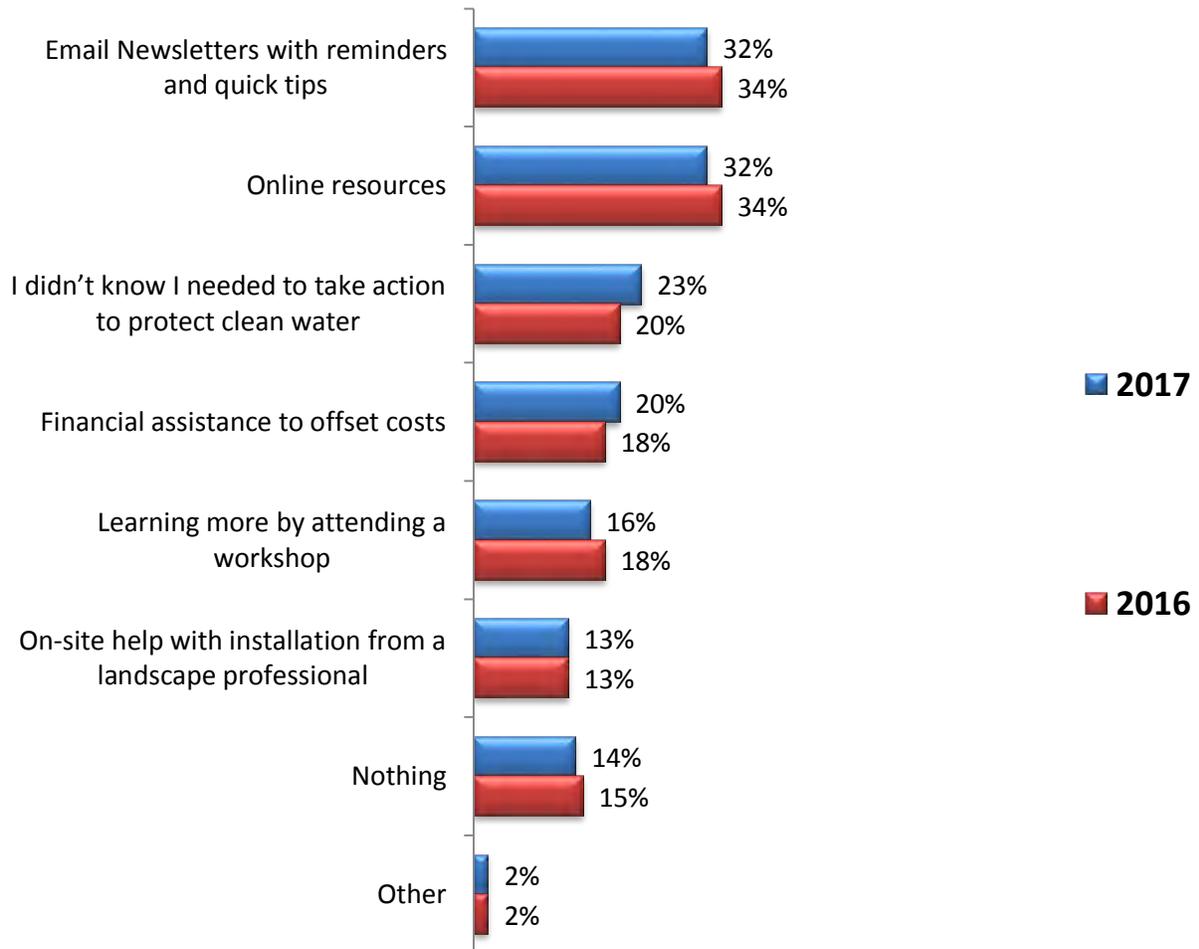
Most Prevents Action	Have Lived in Northern Virginia < 4 Years			
		4 to 9 Years	10 to 19 Years	20 or More Years
Nothing	28%	36%	38%	42%
I don't know what to do	39%	35%	39%	36%
Won't make a difference	10%	7%	6%	6%
I don't have the time	5%	7%	7%	4%
Too expensive	3%	6%	6%	3%
It's not important to me	8%	4%	2%	3%
Physical limitations	5%	5%	1%	4%
Other	2%	0%	1%	2%
<i>N = number of respondents</i>	61	83	103	253

Most Prevents Action	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Nothing	23%	26%	39%	51%	53%
I don't know what to do	45%	37%	43%	33%	26%
Won't make a difference	10%	10%	5%	3%	6%
I don't have the time	9%	7%	4%	4%	2%
Too expensive	5%	7%	5%	3%	1%
It's not important to me	4%	5%	2%	2%	5%
Physical limitations	4%	5%	1%	2%	4%
Other	0%	3%	1%	2%	3%
<i>N = number of respondents</i>	109	96	99	95	101

Most Prevents Action	Gender		Homeownership		Hispanic Respondents
	Male	Female	Homeowners	Renters	
Nothing	41%	36%	42%	25%	25%
I don't know what to do	32%	41%	33%	47%	32%
Won't make a difference	8%	6%	7%	6%	8%
I don't have the time	6%	5%	6%	5%	12%
Too expensive	4%	5%	4%	4%	10%
It's not important to me	4%	3%	4%	3%	5%
Physical limitations	3%	3%	2%	8%	5%
Other	2%	1%	2%	2%	3%
<i>N = number of respondents</i>	242	258	376	124	40

Most Prevents Action	Single-family Home	Townhouse	Apartment	Condo
Nothing	40%	47%	20%	37%
I don't know what to do	35%	33%	45%	43%
Won't make a difference	6%	5%	11%	8%
I don't have the time	5%	4%	7%	8%
Too expensive	5%	3%	4%	2%
It's not important to me	4%	5%	1%	0%
Physical limitations	3%	3%	9%	0%
Other	2%	0%	3%	2%
<i>N = number of respondents</i>	242	118	71	65

What would help you to take action to protect clean water?



- In 2017 and 2016, approximately one-third indicated that email newsletters with reminders and quick tips and/or online resources would help them take action to protect clean water.
- Results by subgroup are shown on the following pages.

Help Take Action	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Dumfries / Stafford
Email Newsletters with reminders and quick tips	33%	32%	34%	30%	25%
Online resources	37%	32%	31%	33%	34%
I didn't know I needed to take action to protect clean water	21%	19%	25%	22%	23%
Financial assistance to offset costs	25%	22%	20%	12%	20%
Learning more by attending a workshop	12%	13%	18%	17%	11%
On-site help with installation from a landscape professional	17%	12%	14%	10%	7%
Other	4%	1%	2%	1%	5%
Nothing	13%	13%	13%	16%	16%
<i>N = number of respondents</i>	52	69	254	81	44

Help Take Action	Have Lived in Northern Virginia < 4 Years	4 to 9 Years	10 to 19 Years	20 or More Years
Email Newsletters with reminders and quick tips	26%	33%	30%	34%
Online resources	41%	36%	40%	26%
I didn't know I needed to take action to protect clean water	34%	17%	24%	22%
Financial assistance to offset costs	26%	25%	19%	16%
Learning more by attending a workshop	20%	20%	14%	15%
On-site help with installation from a landscape professional	23%	18%	17%	6%
Other	3%	1%	2%	2%
Nothing	8%	8%	12%	18%
<i>N = number of respondents</i>	61	83	103	253

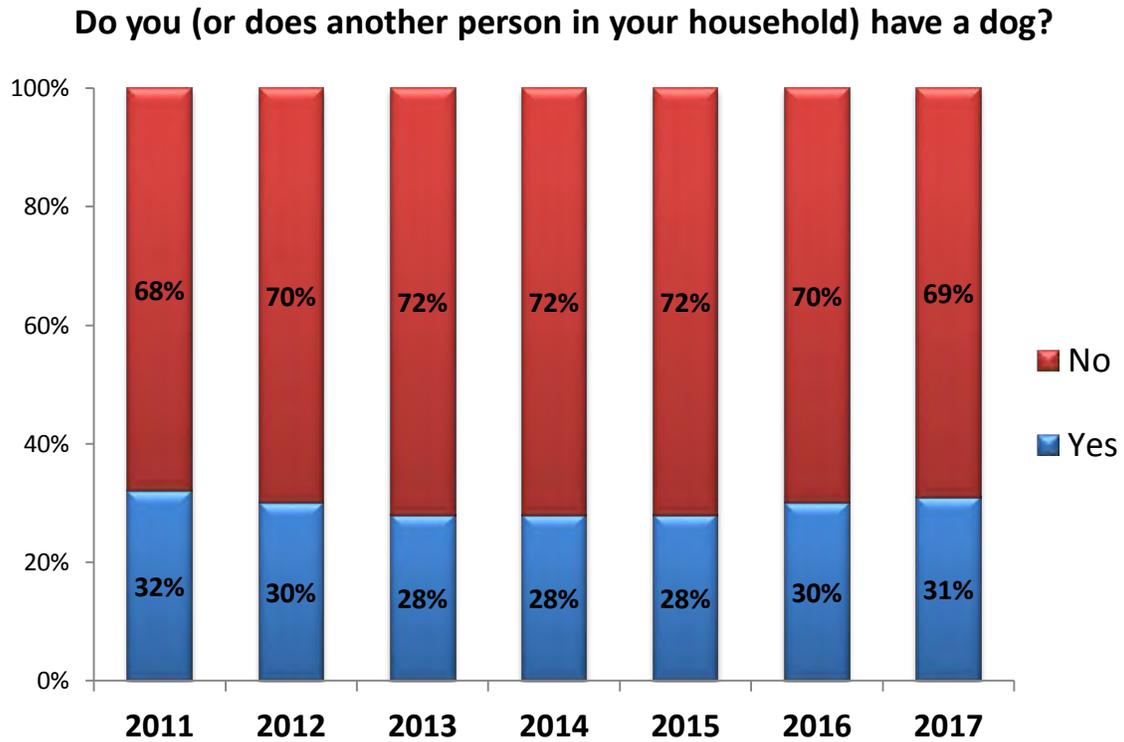
Help Take Action	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Email Newsletters with reminders and quick tips	31%	20%	34%	41%	34%
Online resources	37%	30%	37%	33%	24%
I didn't know I needed to take action to protect clean water	27%	32%	21%	19%	16%
Financial assistance to offset costs	29%	25%	21%	9%	12%
Learning more by attending a workshop	20%	19%	14%	14%	13%
On-site help with installation from a landscape professional	17%	20%	12%	11%	3%
Other	2%	1%	3%	3%	1%
Nothing	7%	6%	13%	14%	29%
<i>N = number of respondents</i>	109	96	99	95	101

Help Take Action	Gender		Homeownership		Hispanic Respondents
	Male	Female	Homeowners	Renters	
Email Newsletters with reminders and quick tips	30%	34%	33%	29%	28%
Online resources	31%	34%	32%	32%	48%
I didn't know I needed to take action to protect clean water	19%	27%	22%	27%	20%
Financial assistance to offset costs	17%	22%	19%	22%	25%
Learning more by attending a workshop	13%	19%	16%	17%	13%
On-site help with installation from a landscape professional	10%	15%	13%	13%	18%
Other	2%	2%	2%	2%	0%
Nothing	19%	9%	13%	15%	8%
<i>N = number of respondents</i>	242	258	376	124	40

Help Take Action	Single-family Home	Townhouse	Apartment	Condo
Email Newsletters with reminders and quick tips	29%	40%	30%	31%
Online resources	30%	40%	37%	22%
I didn't know I needed to take action to protect clean water	22%	19%	28%	28%
Financial assistance to offset costs	19%	19%	20%	22%
Learning more by attending a workshop	15%	18%	15%	18%
On-site help with installation from a landscape professional	16%	8%	14%	6%
Other	2%	3%	1%	2%
Nothing	15%	10%	14%	14%
<i>N = number of respondents</i>	242	118	71	65

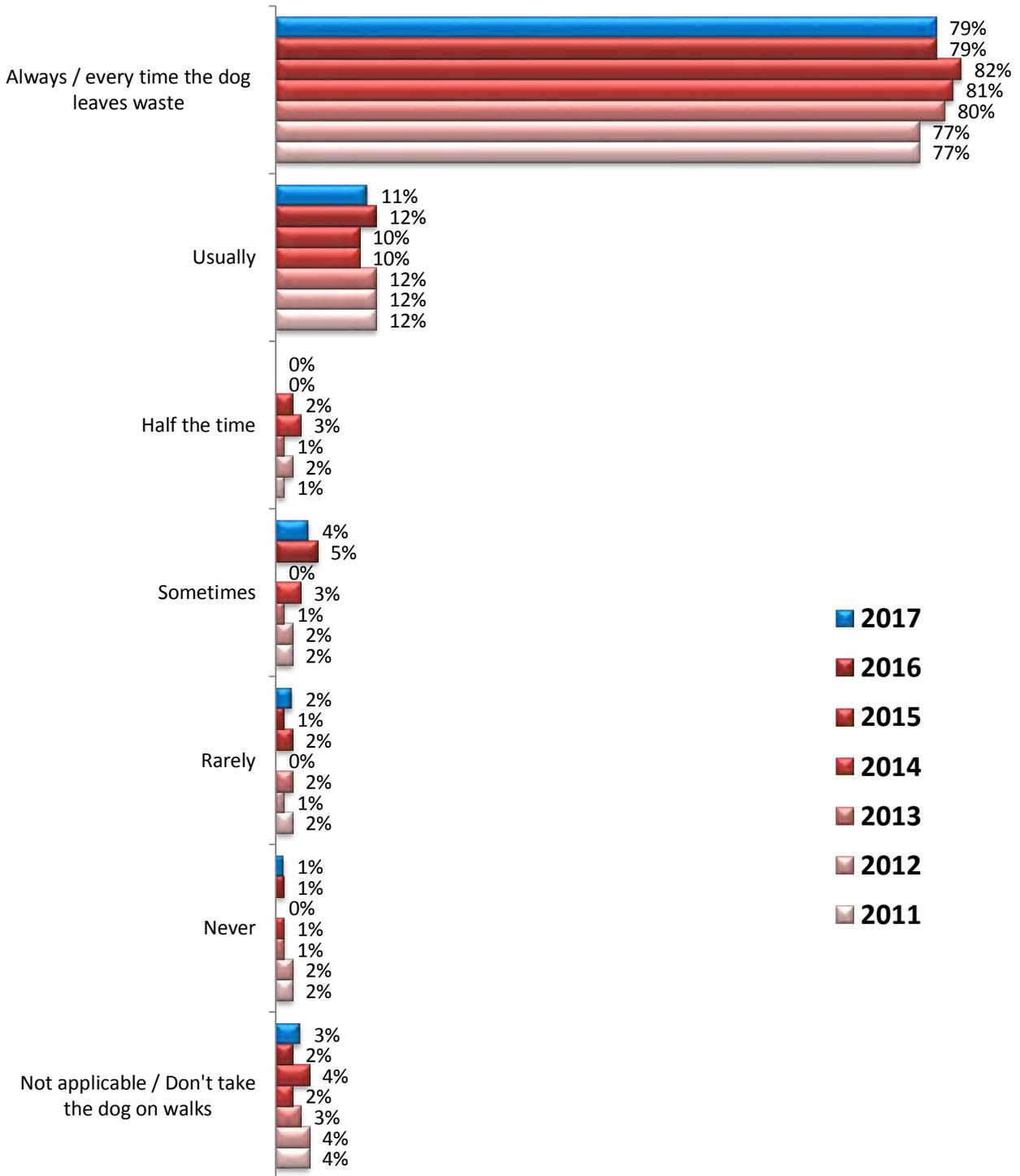
Behavior Among Dog Owners

- More than one-fourth each year indicated that they have a dog (or someone else in their household has a dog).



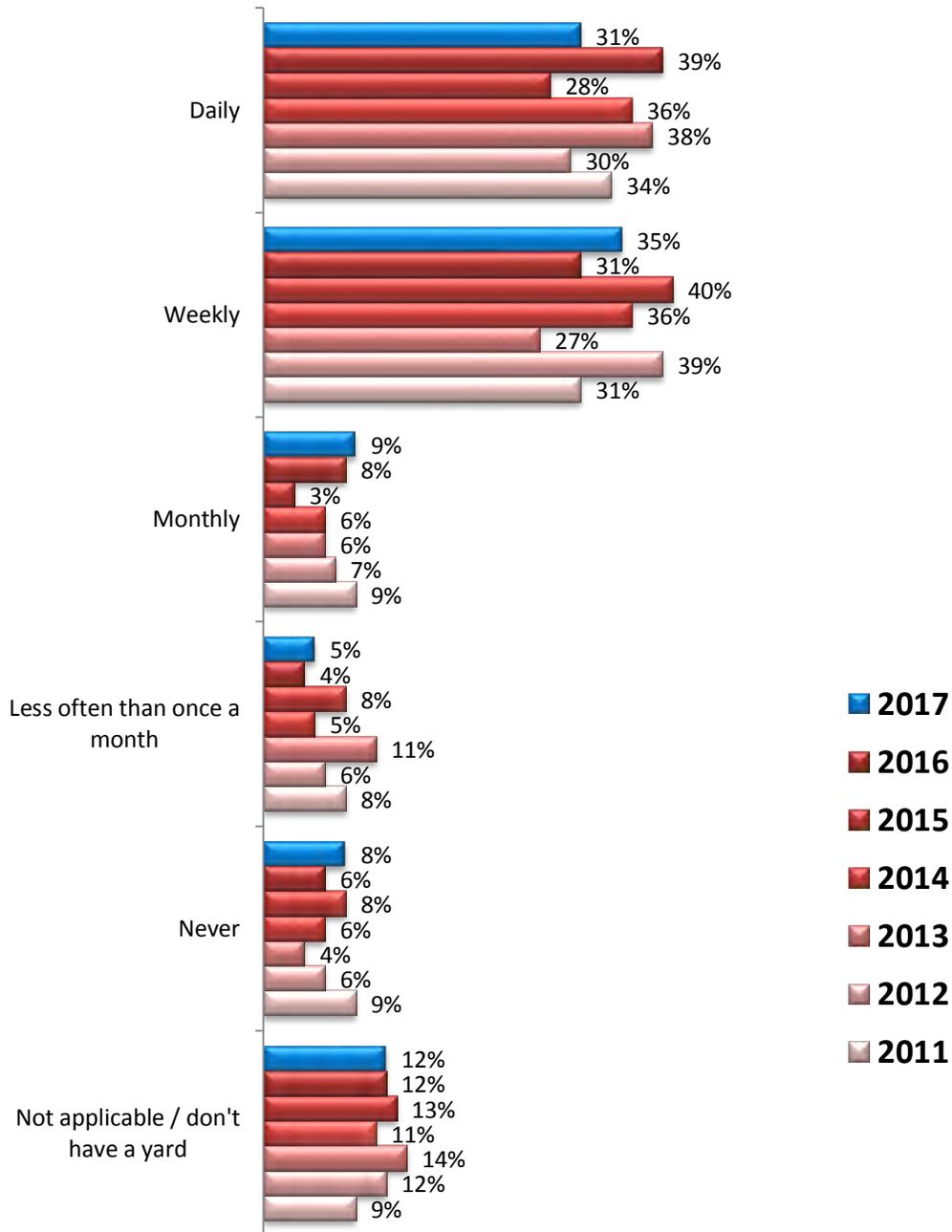
- On the following pages, results are shown for questions about how often dog owners pick up after their dogs and what motivates them to do so.

When taking your dog(s) for a walk, how often do you pick up after your dog(s)?



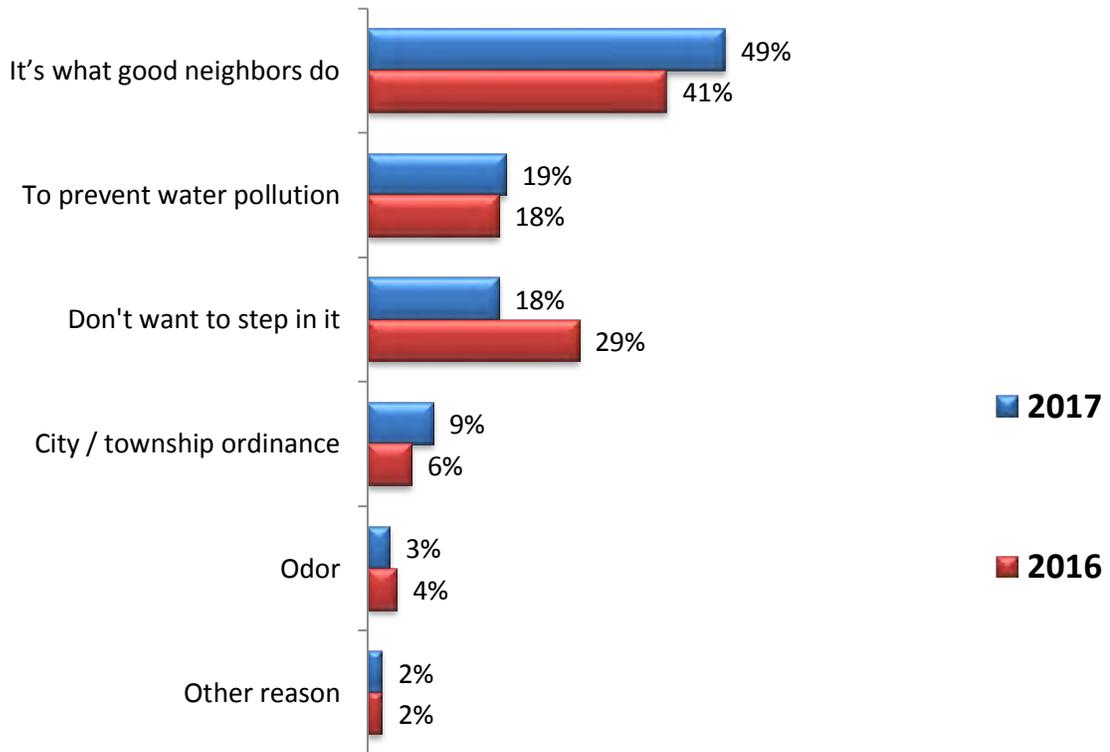
- Nearly eight-in-ten (79%) in 2017 indicated that they *always* pick up after their dog(s) when taking the dog(s) for a walk.

How often do you (or does someone else from your household) remove dog waste from your yard?



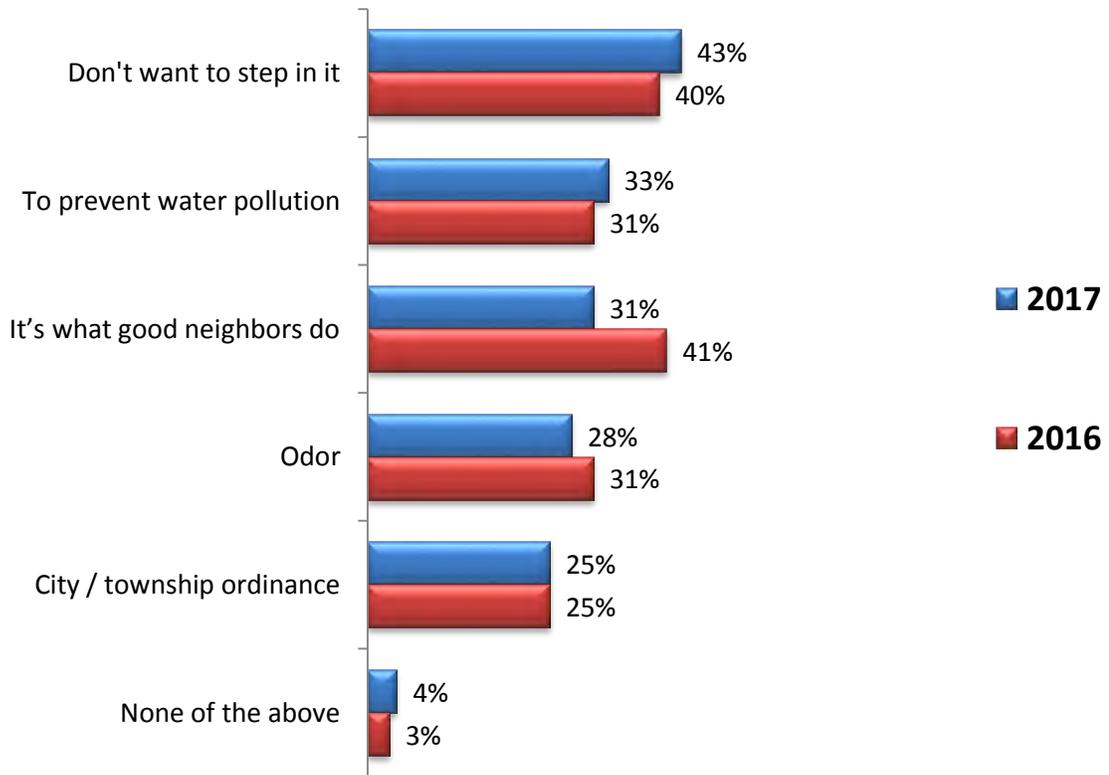
- In their own yard, the majority removed pet waste daily or weekly.
- There was some fluctuation from year to year in the proportions reporting daily and weekly removal of dog waste from their yard, but recall that this question was asked only of dog owners, and the sample size of dog owners is lower than the total sample size, while the margin of error is higher for a lower sample size.

What is the most important reason to pick up after your dog(s)?



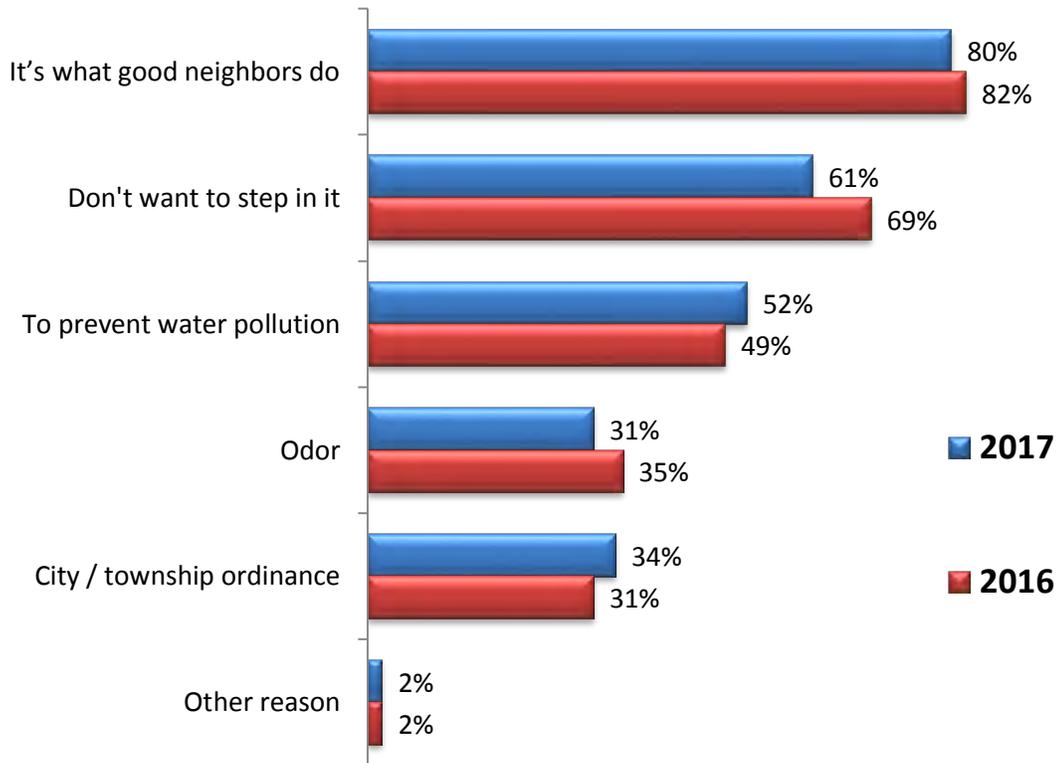
- When asked about the “Most important reason” for picking up after their dog(s), nearly half (49%) selected “It's what good neighbors do.”
- Nearly one-in-five (19% in 2017 and 18% in 2016) selected “To prevent water pollution” as the most important reason for picking up after their dog.

What other reasons (if any) have motivated you to pick up after your dog(s)?



- In addition to the *most* important reason for picking up after their dog(s) as shown on the previous page, respondents were also asked to select any other reasons that motivate them. As shown in the chart above, an additional 33% selected “To prevent water pollution” as a motivation. When combining results in the chart above with the chart on the previous page, a total of 52% in 2017 were motivated to pick up after their dog(s) in order “To prevent water pollution,” as shown on the next page.

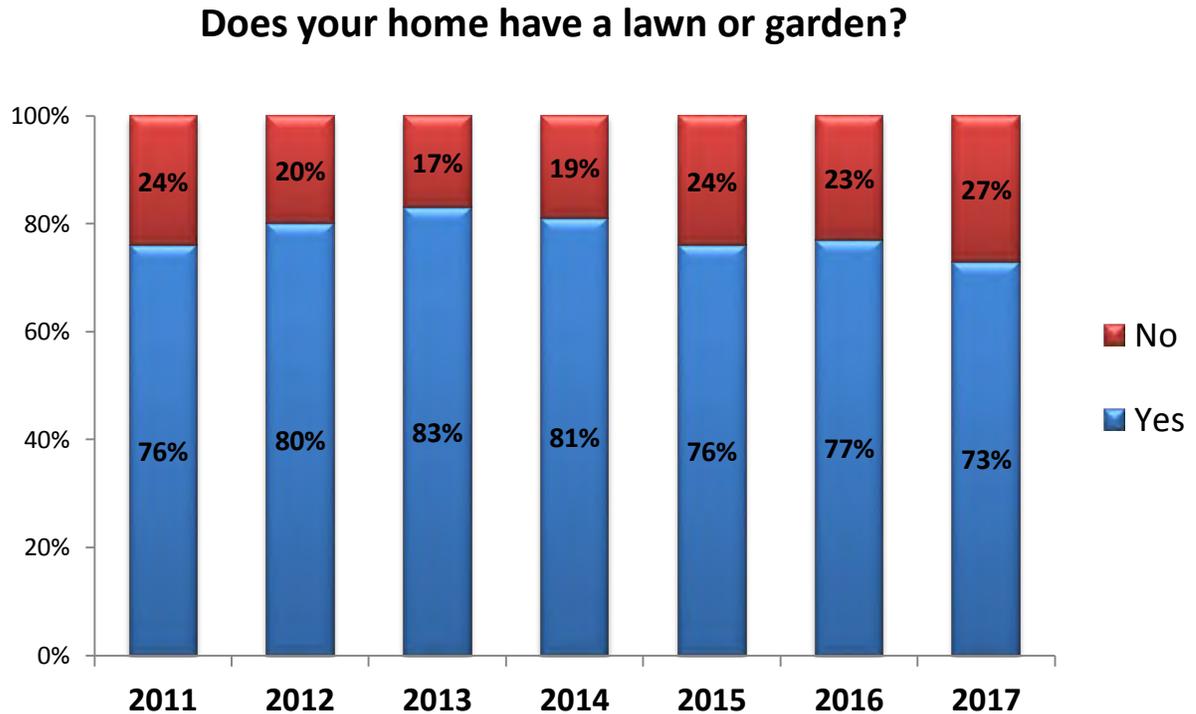
Most important + other reasons motivating dog owners to pick up after your dog(s):



- While it is encouraging to see that approximately half (52%) were motivated to pick up after their dog by wanting to prevent water pollution, this also means that approximately half were not thinking about water pollution in this context.

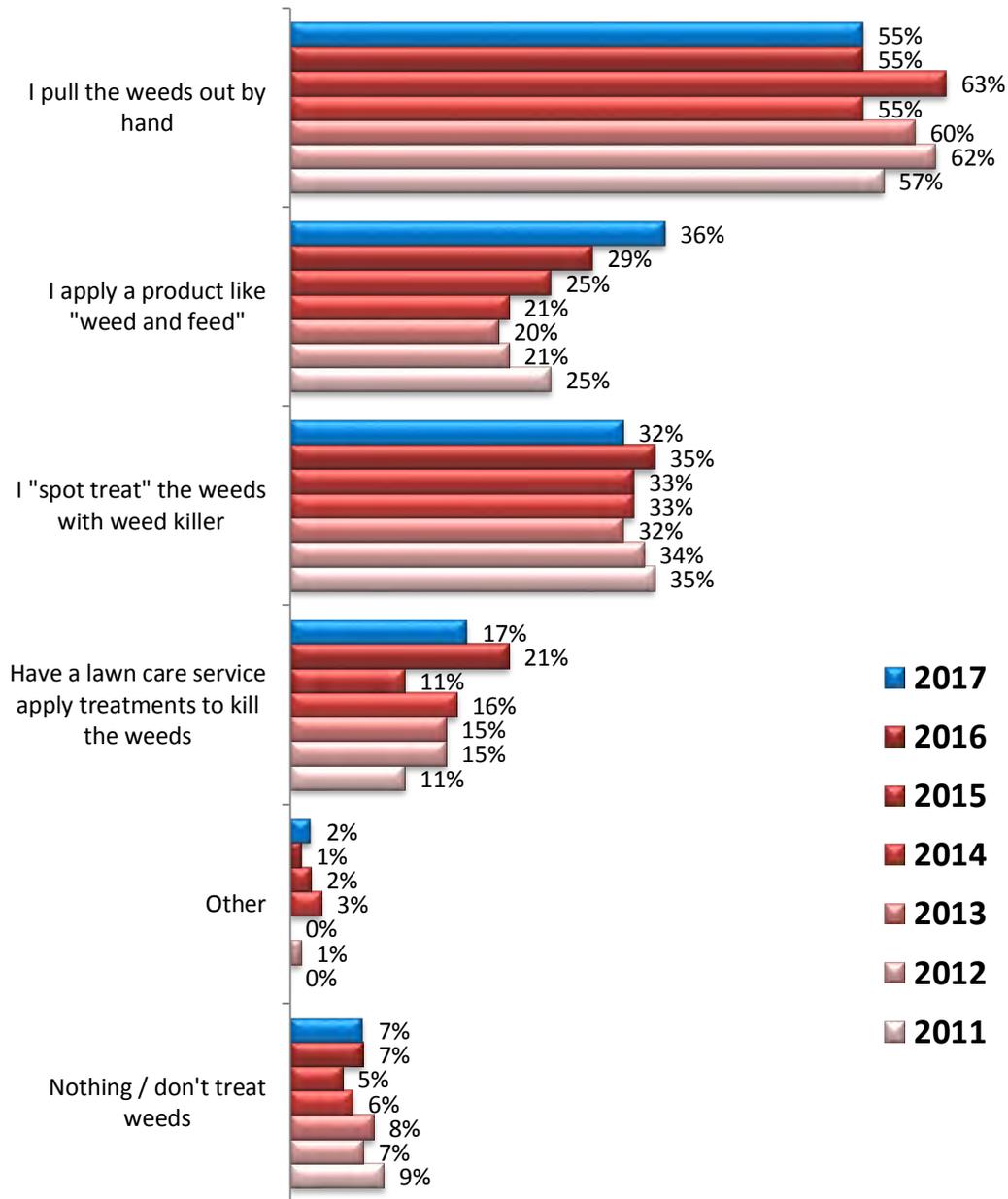
Behavior Related to Lawns & Gardens

- Nearly three-fourths (73%) of the survey respondents in 2017 indicated that their current home has a lawn or garden.



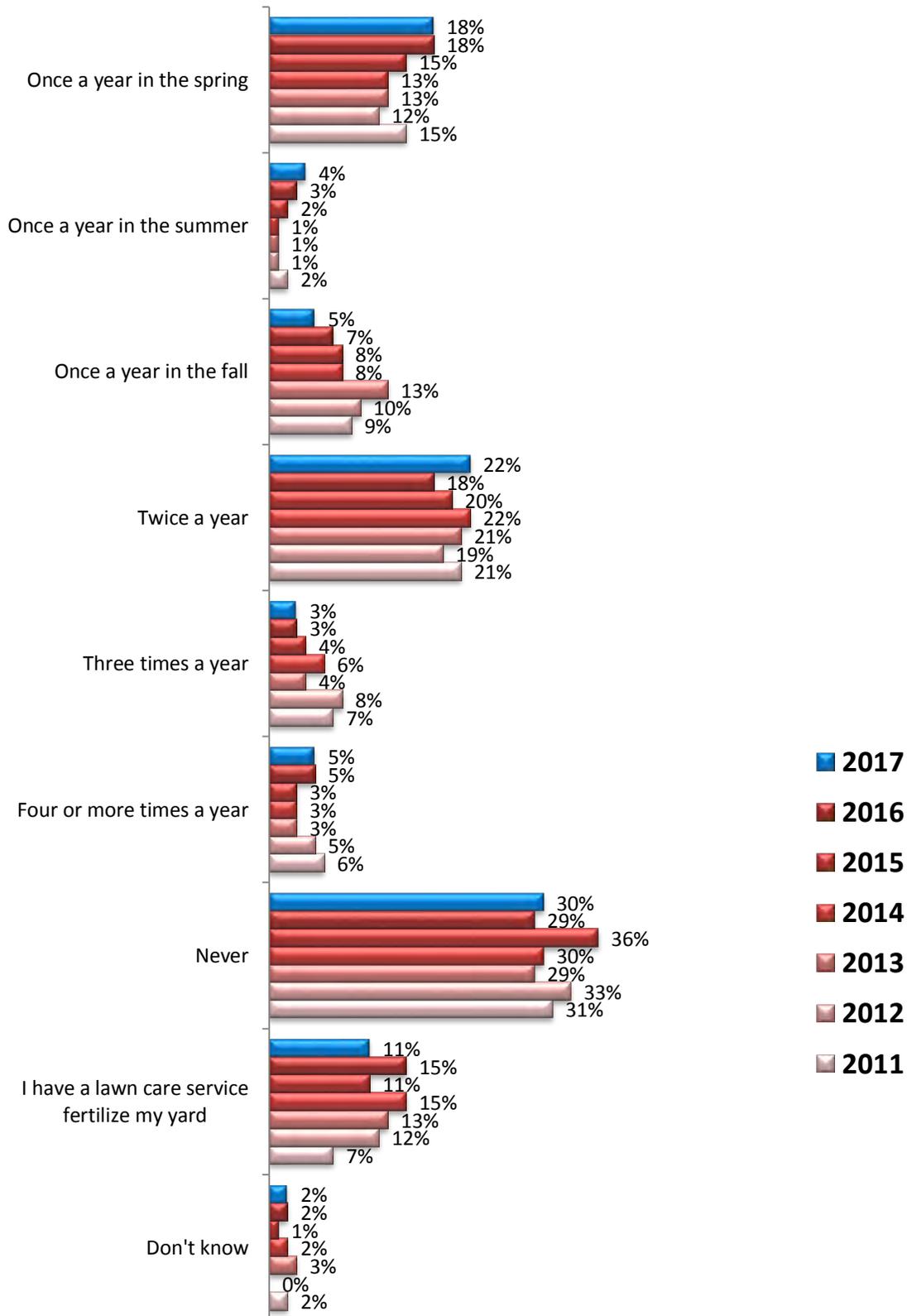
- In a separate question, of the respondents who have a lawn or garden, two-thirds (66%) in 2017 identified themselves as the primary person taking care of the lawn or garden. Several questions about lawns and gardens were then asked only of these respondents (i.e., primary person in the household who takes care of the lawn or garden).

How do you treat weeds in your lawn or garden?



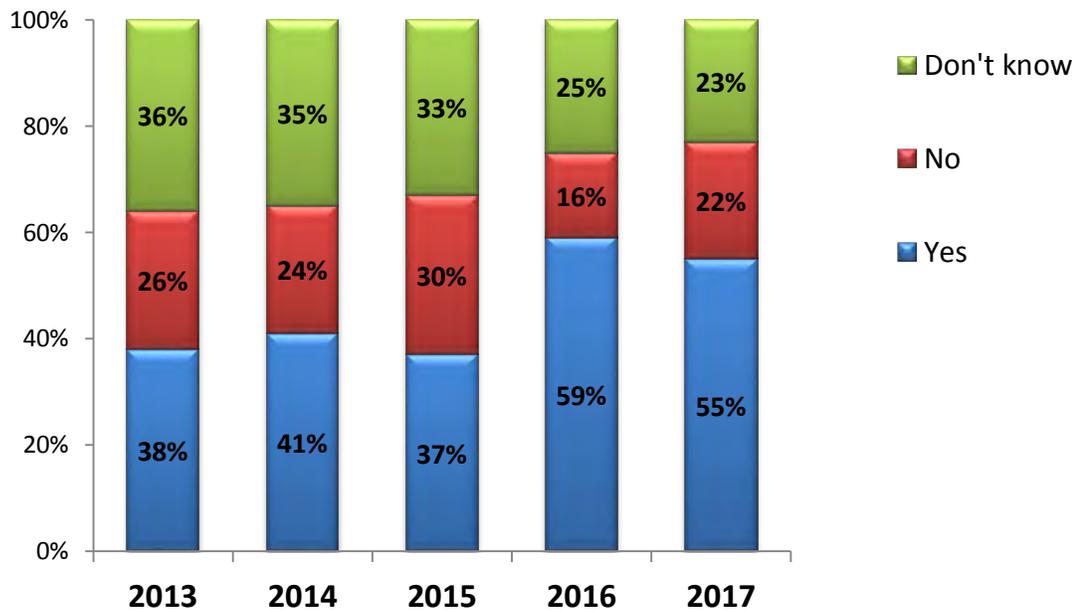
- When dealing with weeds, more than half (55%) in 2017 reported pulling them out by hand.
- However, it was possible to report more than one way of dealing with weeds. Slightly more than one-third (36%) in 2017 reported using “weed and feed.”
- On the next page, a chart shows how often northern Virginia residents fertilize their lawn.

Which of the following best describes how often you fertilize your lawn?

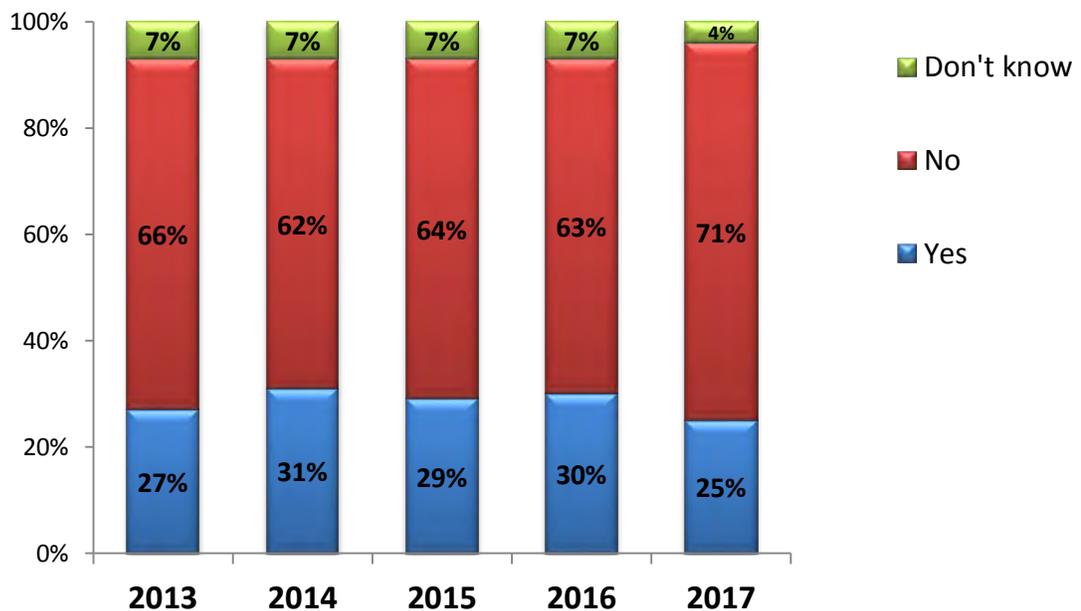


- The next two questions were first asked in the 2013 survey. These results are based only on those who fertilize their lawn (or have a lawn service fertilize their lawn) at least once a year. However, before 2016, the wording for the first question referred to “slow release N fertilizer.” In 2016, the “N” was removed, and this may have impacted the results.

Do you use a slow release fertilizer?



Have you ever had your soil tested for fertility or pH?



Behavior Related to Changing Vehicle Oil

- When asked about changing the oil in their car or truck, eight-in-ten or more each year reported that they use an oil change service, while 11% in 2017 reported taking old motor oil to a gas station or hazmat facility for recycling. A small number of respondents selected other response options. Because the number selecting some response options was very small, the results are shown in the tables below, with the frequency (number of respondents selecting each response) and the percentage.

2017: When you need to change the oil in your car or truck, what do you do with the old motor oil?

	<i>Frequency</i>	<i>Percent</i>
I don't change the oil myself / I take it to a garage / oil change service	410	82.0%
Take the old motor oil to a gas station or hazmat facility for recycling	57	11.4%
Store it in my garage	10	2.0%
Put it in the trash	6	1.2%
Dump it in the gutter or down the storm sewer	2	.4%
Other	5	1.0%
Don't own a car or truck	10	2.0%
Total	500	100.0%

2016: When you need to change the oil in your car or truck, what do you do with the old motor oil?

	<i>Frequency</i>	<i>Percent</i>
I don't change the oil myself / I take it to a garage / oil change service	399	79.8%
Take the old motor oil to a gas station or hazmat facility for recycling	65	13.0%
Store it in my garage	9	1.8%
Put it in the trash	8	1.6%
Other	2	0.4%
Don't own a car or truck	17	3.4%
Total	500	100.0%

2015: When you need to change the oil in your car or truck, what do you do with the old motor oil?

Frequency *Percent*

I don't change the oil myself / I take it to a garage / oil change service	426	85.2%
Take the old motor oil to a gas station or hazmat facility for recycling	54	10.8%
Store it in my garage	4	0.8%
Put it in the trash	3	0.6%
Don't own a car or truck	13	2.6%
Total	500	100.0%

2014: When you need to change the oil in your car or truck, what do you do with the old motor oil?

	<i>Frequency</i>	<i>Percent</i>
I don't change the oil myself / I take it to a garage / oil change service	426	85.2%
Take the old motor oil to a gas station or hazmat facility for recycling	50	10.0%
Put it in the trash	5	1.0%
Store it in my garage	4	0.8%
Other	1	0.2%
Don't own a car or truck	14	2.8%
Total	500	100.0%

2013: When you need to change the oil in your car or truck, what do you do with the old motor oil?

	<i>Frequency</i>	<i>Percent</i>
I don't change the oil myself / I take it to a garage / oil change service	427	85.4%
Take the old motor oil to a gas station or hazmat facility for recycling	57	11.4%
Put it in the trash	3	0.6%
Dump it in the gutter or down the storm sewer	2	0.4%
Store it in my garage	1	0.2%
Don't own a car or truck	10	2.0%
Total	500	100.0%

2012: When you need to change the oil in your car or truck, what do you do with the old motor oil?

Frequency *Percent*

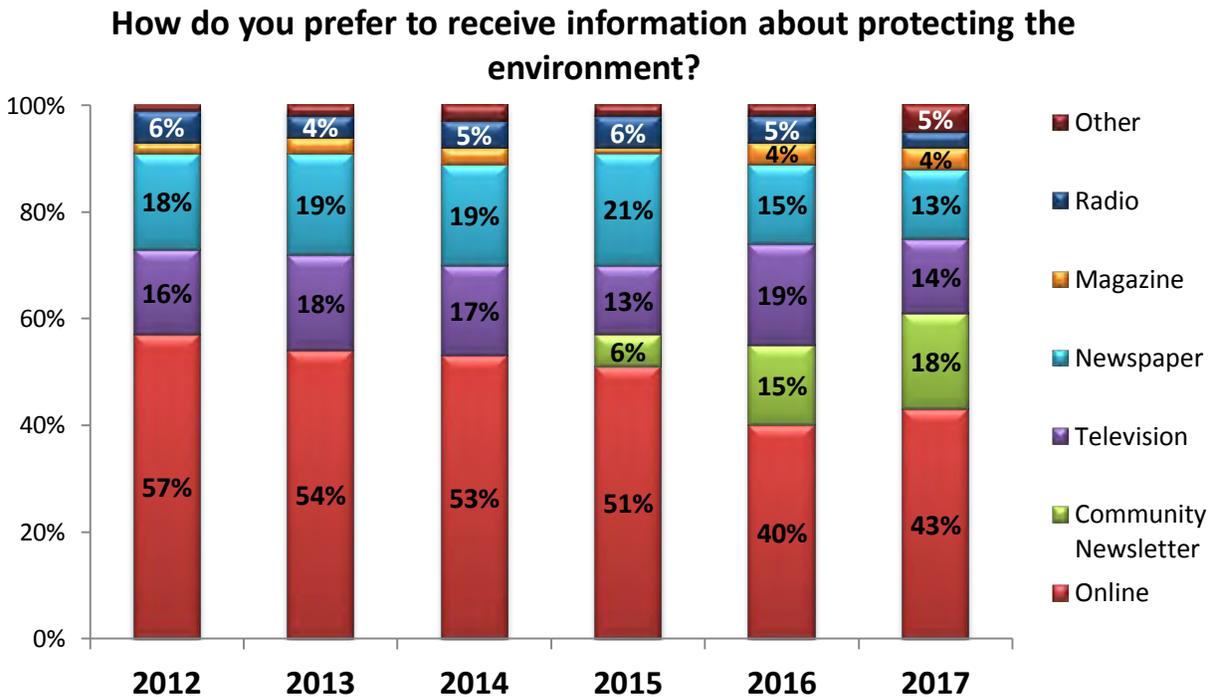
I don't change the oil myself / I take it to a garage / oil change service	426	85.2%
Take the old motor oil to a gas station or hazmat facility for recycling	49	9.8%
Store it in my garage	3	0.6%
Put it in the trash	2	0.4%
Other	2	0.4%
Don't own a car or truck	18	3.6%
Total	500	100.0%

2011: When you need to change the oil in your car or truck, what do you do with the old motor oil?

	<i>Frequency</i>	<i>Percent</i>
I don't change the oil myself / I take it to a garage / oil change service	413	82.6%
Take the old motor oil to a gas station or hazmat facility for recycling	60	12.0%
Put it in the trash	2	0.4%
Other	2	0.4%
Don't own a car or truck	23	4.6%
Total	500	100.0%

Preference for Receiving Information

- The wording for the question below was changed in the 2016 survey. In previous years, the question was, “How do you prefer to receive information?” without a reference to protecting the environment. (“Community Newsletter” was first added as an option in 2015.)



- In each of the areas included in the survey, more preferred to receive information online than preferred to receive information from other particular sources, as shown below. This was true for other subgroups as well.

Preference for Receiving Information	Alexandria	Arlington	Fairfax Inclusive	Leesburg / Loudoun	Dumfries / Stafford
Online	54%	48%	43%	32%	38%
Community Newsletter	17%	16%	17%	25%	23%
Television	8%	15%	16%	15%	14%
Newspaper	13%	17%	13%	9%	16%
Magazine	4%	1%	3%	7%	7%
Radio	0%	1%	5%	1%	0%
Other	4%	2%	3%	11%	2%
<i>N = number of respondents</i>	52	69	254	81	44

Preference for Receiving Information	Have Lived in Northern Virginia < 4 Years			
		4 to 9 Years	10 to 19 Years	20 or More Years
Online	46%	37%	50%	41%
Community Newsletter	28%	24%	16%	15%
Television	8%	16%	13%	16%
Newspaper	10%	11%	9%	17%
Magazine	6%	7%	4%	2%
Radio	0%	4%	2%	4%
Other	2%	1%	6%	5%
<i>N = number of respondents</i>	61	83	103	253

Preference for Receiving Information	Age				
	21 to 34	35 to 44	45 to 54	55 to 64	65 +
Online	51%	49%	41%	41%	33%
Community Newsletter	18%	21%	22%	17%	14%
Television	13%	15%	15%	13%	17%
Newspaper	6%	4%	9%	17%	30%
Magazine	8%	5%	2%	2%	2%
Radio	2%	3%	4%	4%	2%
Other	2%	3%	7%	6%	2%
<i>N = number of respondents</i>	109	96	99	95	101

Preference for Receiving Information	Gender		Homeownership		Hispanic Respondents
	Male	Female	Homeowners	Renters	
Online	43%	43%	41%	49%	47%
Community Newsletter	14%	22%	20%	15%	17%
Television	16%	13%	14%	16%	20%
Newspaper	16%	11%	14%	10%	3%
Magazine	4%	4%	4%	2%	8%
Radio	3%	3%	3%	3%	0%
Other	4%	4%	4%	5%	5%
<i>N = number of respondents</i>	242	258	376	124	40

Preference for Receiving Information	Single-family Home	Townhouse	Apartment	Condo
Online	43%	37%	48%	46%
Community Newsletter	15%	27%	10%	23%
Television	14%	17%	14%	13%
Newspaper	17%	9%	15%	6%
Magazine	5%	3%	4%	3%
Radio	2%	3%	3%	6%
Other	4%	4%	6%	3%
<i>N = number of respondents</i>	242	118	71	65

Appendix: Questionnaire

2017 Only Rain NVRC Survey

INTRODUCTION:

Welcome, and thank you for participating in this important research survey.

S1. Are you:

- Male
- Female

S2. Which of the following categories includes your age?

- Under 18 **[END SURVEY]**
- 18 to 20 **[END SURVEY]**
- 21 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 to 64
- 65 to 74
- 75 or older

S3. Do you own or rent your home?

- I own my home
- I rent my home
- Neither **[END SURVEY]**

S4. Do you live in the state of Virginia?

- Yes
- No **[END SURVEY]**

S5. Which of the following best describes where you live (county or city or town)?

- Alexandria
- Arlington
- Dumfries
- City of Fairfax
- Fairfax County
- Falls Church
- Herndon
- Leesburg
- Loudoun County
- Stafford County
- Vienna
- None of the above **[END SURVEY]**

S6. Which of the following describes your ethnicity? (Please select all that apply)

- African American / Black
- American Indian / Alaska Native
- Asian
- Hispanic / Latino
- Native Hawaiian / Pacific Islander
- White / Caucasian
- Other

Q1. Which of the following best classifies your current residence?

- Single-family home
- Townhouse or attached house
- Apartment
- Condominium
- Mobile home or manufactured home
- Cooperative
- Other

Q2. For how many years have you lived in your current residence?

- Less than 1 year
- 1 to 3 years
- 4 to 9 years
- 10 to 19 years
- 20 or more years

Q3. For how many years have you lived in Northern Virginia?

- Less than 1 year
- 1 to 3 years
- 4 to 9 years
- 10 to 19 years
- 20 or more years

Q4. Do you live within the Potomac River Watershed?

- Yes
- No
- Not Sure
- I do not know what a "watershed" is

Q5. What do you think is the number one cause of pollution in local streams, the Potomac River, and the Chesapeake Bay? (Please select only one)

- Factories / Industrial waste
- Fertilizers and pesticides from lawns and farms
- Local Garbage / trash / litter
- Gas, oil and exhaust from automobiles
- Pet waste
- Stormwater runoff from streets and parking lots
- Other: _____

Q6. "Stormwater" runoff is rain or other water that flows into the street, along the gutter and into the storm drain. To the best of your knowledge, where do you believe storm water eventually ends up?

- At a waste water treatment facility
- Local streams, Potomac River or Chesapeake Bay
- Underground / seeps in to the ground
- Don't know
- Other: _____

Q7. Do you (or does another person in your household) have a dog?

- Yes **[CONTINUE WITH Q8]**
- No **[SKIP TO Q11]**

Q8. When taking your dog(s) for a walk, how often do you (or someone else from your household) pick up waste after your dog(s)?

- Always / every time the dog leaves waste
- Usually
- Sometimes
- Rarely
- Never
- Not applicable / I don't take the dog(s) on walks

Q9. How often do you (or does someone else from your household) remove dog waste from your yard?

- Daily
- Weekly
- Monthly
- Less often than once a month
- Never
- Not applicable / don't have a yard

[SKIP OVER Q10a/b IF NEVER OR NOT APPLICABLE IN BOTH Q8 AND Q9]

Q10a. What is the most important reason to pick up after your dog(s)? (Please select only one)

- City / township ordinance
- Don't want to step in it
- To prevent water pollution
- It's what good neighbors do
- Odor
- Other reason
- None / no reason to **[SKIP TO Q11]**

Q10b. What other reasons (if any) have motivated you to pick up after your dog(s)? [PROGRAMMING NOTE: DON'T SHOW WHAT WAS SELECTED IN Q10a]

- City / township ordinance
- Don't want to step in it
- To prevent water pollution
- It's what good neighbors do
- Odor
- None of the above

Q11. Does your home have a lawn or garden?

- Yes **[CONTINUE WITH Q12]**
- No **[SKIP TO Q17]**

Q12. Are you the primary person who takes care of the lawn or garden?

- Yes **[CONTINUE WITH Q13]**
- No **[SKIP TO Q17]**

Q13. How do you treat weeds in your lawn or garden? (Select all that apply)

- I apply a product like "weed and feed" that contains weed treatment and fertilizer
- I "spot treat" the weeds with weed killer
- I pull the weeds out by hand
- I have a lawn care service apply treatments to kill the weeds
- Other
- Nothing / I don't treat weeds / leave the weeds alone

Q14. Which of the following best describes how often you fertilize your lawn?

- Once a year in the spring
- Once a year in the summer
- Once a year in the fall
- Twice a year
- Three times a year
- Four or more times a year
- Never **[SKIP TO Q16]**
- I have a lawn care service fertilize my yard
- Don't know

Q15. Do you use a slow release fertilizer in your lawn or garden?

- Yes
- No
- I don't know

Q16. Have you ever had your soil tested for fertility or pH?

- Yes
- No
- I don't know

Q17. What most prevents you from taking action to protect clean water?

- It's not important to me
- I don't have the time
- Too expensive
- My actions won't make a difference
- I don't know what to do
- I have physical limitations
- Nothing / I do take action to protect clean water
- Other: _____

Q18. What would help you to take action to protect clean water? (Select all that apply)

- On-site help with installation from a landscape professional
- Learning more by attending a workshop
- Online resources
- Financial assistance to offset costs
- Email Newsletters with reminders and quick tips
- I didn't know I needed to take action to protect clean water
- Nothing
- Other: _____

Q19. When you need to change the oil in your car or truck, what do you do with the old motor oil?

- I don't change the oil myself / I take it to a garage / oil change service
- Take the old motor oil to a gas station or hazmat facility for recycling
- Store it in my garage
- Put it in the trash
- Dump it in the gutter or down the storm sewer
- Dump it down the sink
- I don't own a car or truck
- Other

Q20. How important do you think it is for local governments to spend more money on protecting water quality?

- Not at all important
- Not too important
- Somewhat important
- Very important

----- Page Break -----

Q21. What TV service provider do you use?

- Comcast
- Cox
- Direct TV
- Dish Network
- Verizon
- Xfinity
- Do not have cable or satellite TV
- Do not watch TV
- I only watch streamed Video Content (ex. Netflix, Hulu, YouTube, Chromecast, etc.)
- Other

Q22. Which of these channels have you watched in the past 30 days? (Select all that apply)

- Animal Planet
- Cartoon Network
- CNN
- E! Entertainment TV
- ESPN
- HeadLine News
- History Channel
- HGTV
- National Geographic
- Oxygen
- None of the above

----- Page Break -----

Q23. Please view the video above. Have you seen this ad, or a similar one on TV or the Internet about reducing water pollution?

- Yes **[CONTINUE WITH Q24]**
- No **[SKIP TO Q25]**
- Not sure **[SKIP TO Q25]**

Q24. Did seeing this ad make you take action on your property to prevent water pollution?
(Select all that apply)

- Yes, I now pick up pet waste more often
- Yes, I now plan to fertilize fewer times during the year
- Yes, I now properly dispose of motor oil
- I was already doing what is recommend to reduce water pollution
- None of the above applies to me



Q25. Have you seen the logo above anywhere? (Show Only Rain logo)

- Yes
- No

Q26. How do you prefer to receive information about protecting the environment? (Please select only one)

- Magazine
- Newspaper
- Community newsletter
- Online
- Radio
- Television
- Other: _____

Appendix B-1d

MCM #1 –Sustainability in Fairfax City’s Urban Forest Presentation



Sustainability in Fairfax City's Urban Forest

Jim McGlone

Urban Forest Conservationist



Past Sustainability Efforts

- Early 70s - Sewage
 - Solution: hook into regional system
- 90s and 00s - Storm water
 - Solution: Stream Restoration







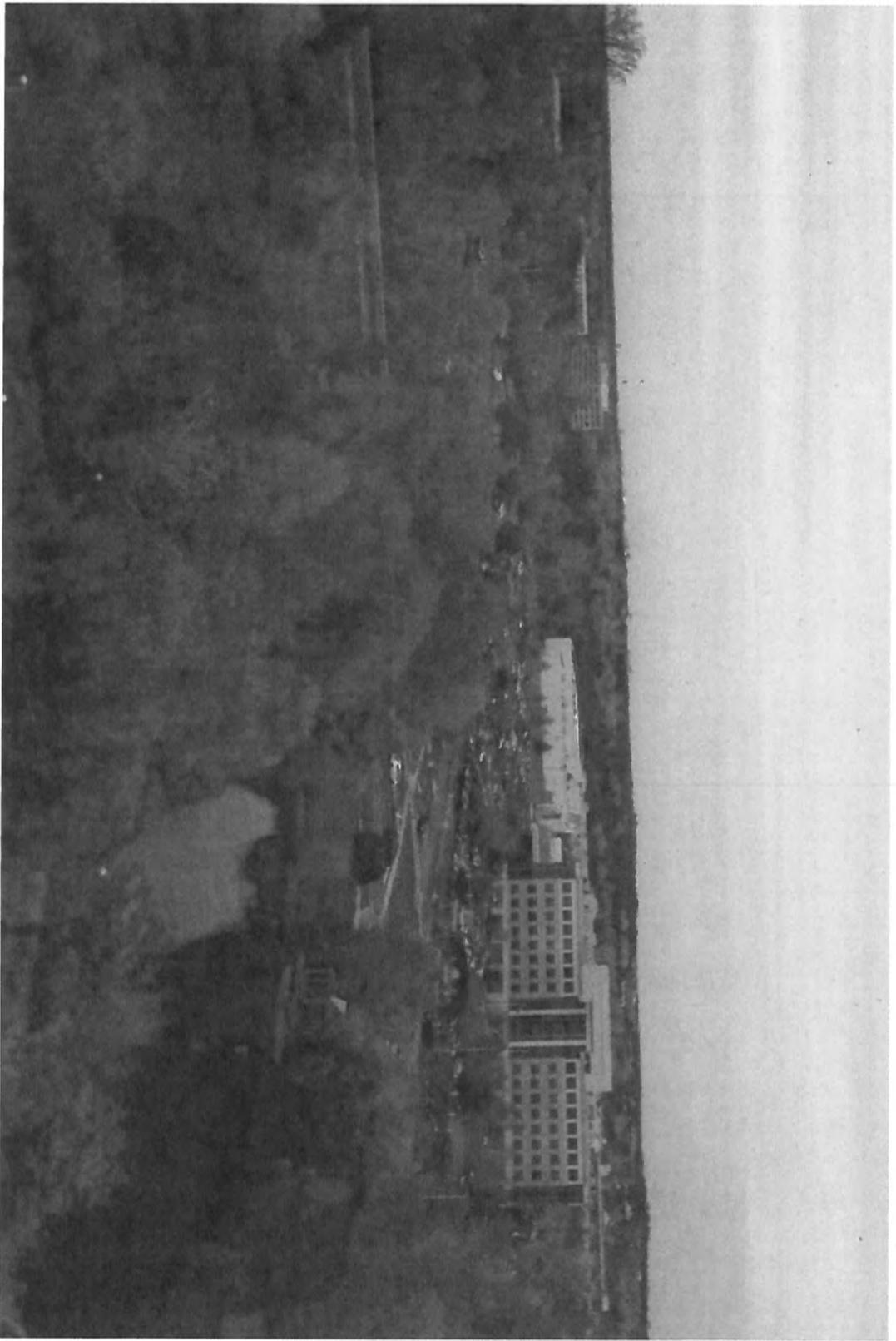
URBAN FORESTS

Urban Forest

- Urban – man made; forest – nature
- Urban – adjective modifying the noun forest
- Forest a system consisting of:
 - Living –plants, animals, bacteria, fungi
 - Non-living – minerals, water, air, light
 - Interactions between and among
- An urban forest is a forest dominated by people and their constructs



The Urban Forest





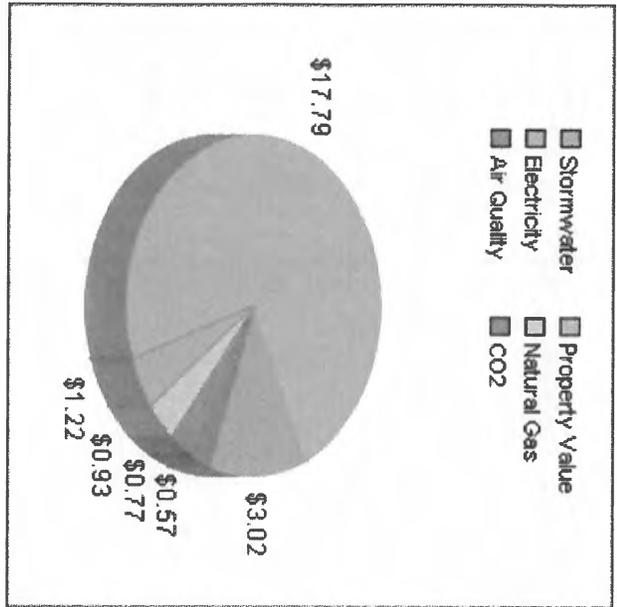
Ecosystem Sustainability Benefits

- *Improve Air Quality*
- *Manage stormwater*
- *Store Carbon*
- *Provide habitat for animals*
- *Recycle oxygen*

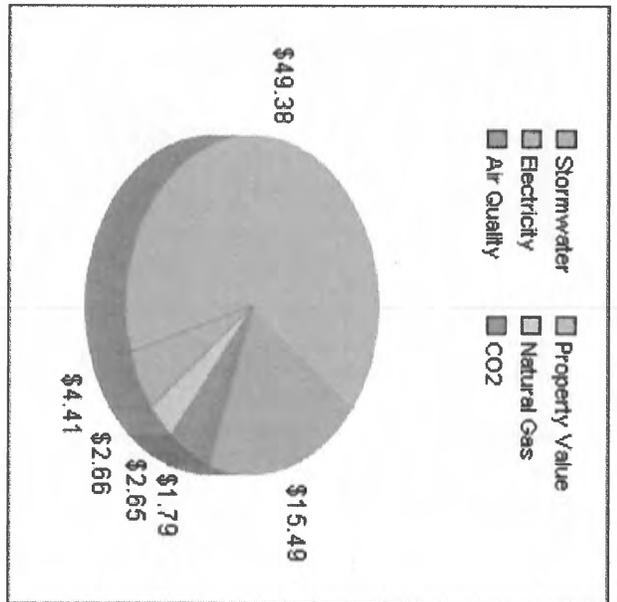


Sustainability Benefits Cont.

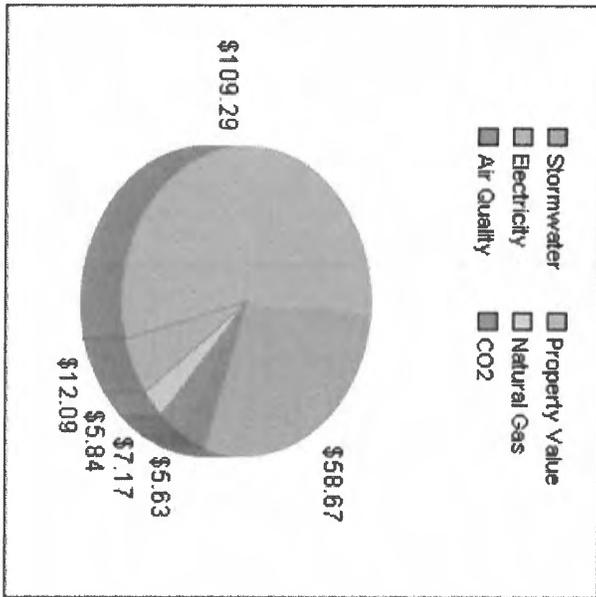
- Provide habitat for people
 - Lower energy costs through shading and ambient cooling
 - Higher property values, lower vacancy rates, better employee retention, lower crime rates
 - Stress reduction, better health, reduced ADHD, improved immune system functioning, reduces the incidence and severity of anxiety and depression
 - Less direct input – fertilizer, fuel, water, time
 - Support IPM



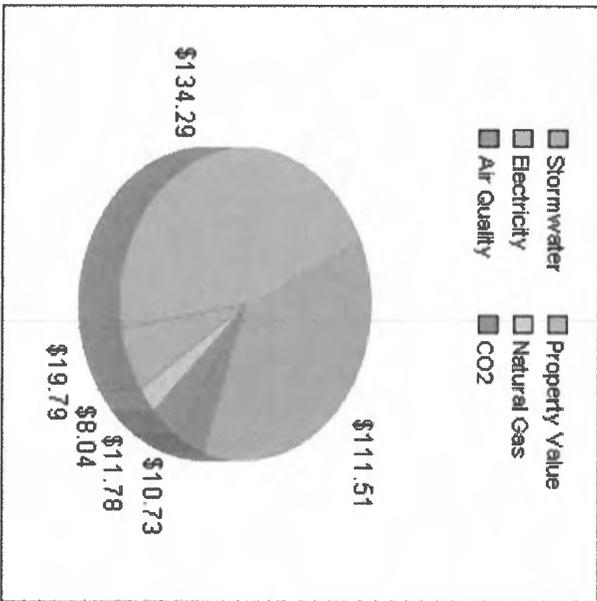
5 inch \$24/year



10 inch \$76/year

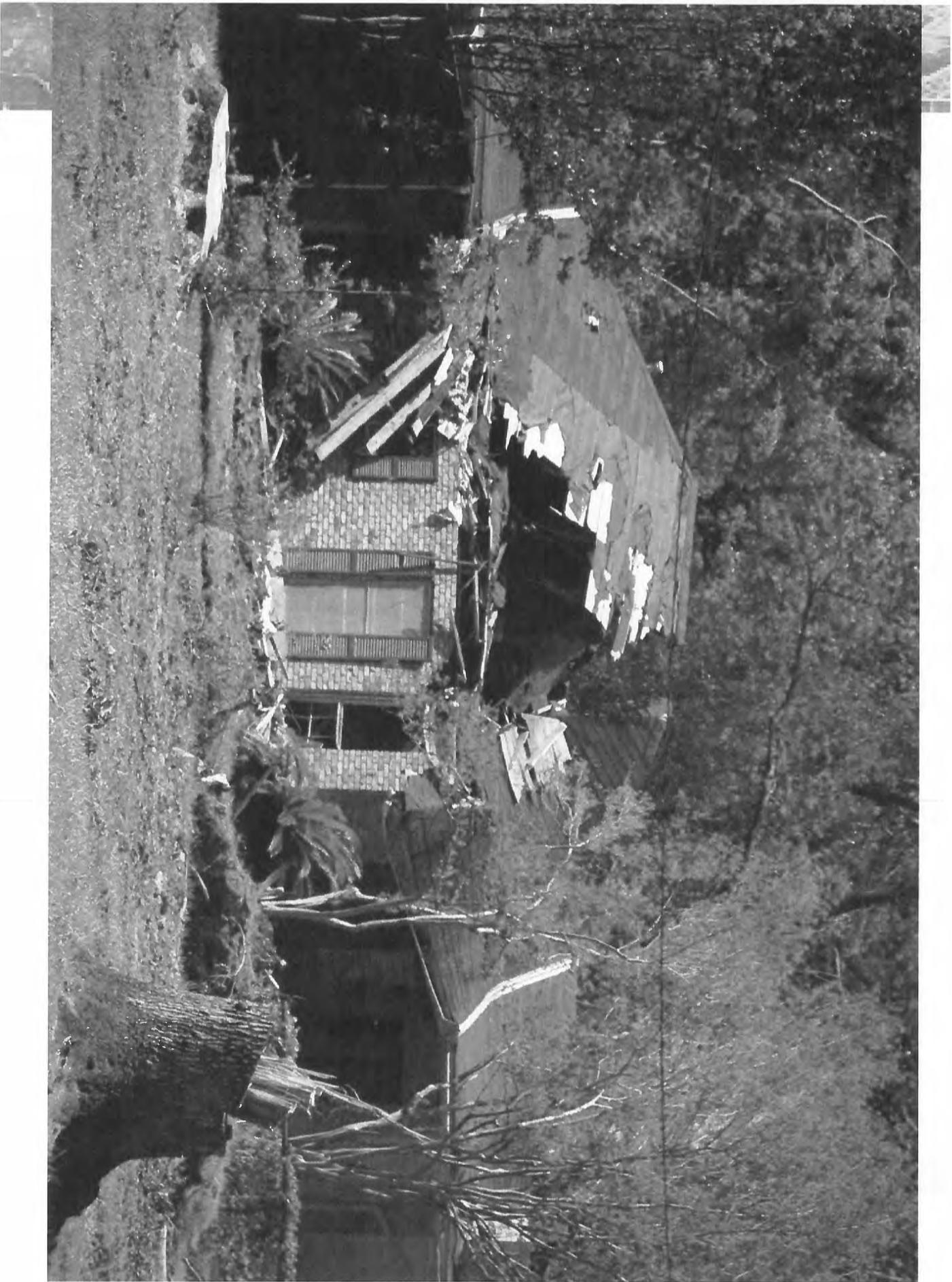


20 inch \$199/year



30 inch \$296/year

Red Maple in a single family home setting.
 Using National Tree Benefit Calculator
<http://www.treebenefits.com/calculator/>



Urban Forest Issues

Street Trees

- Restricted rooting space & compacted soil
- Equipment damage
- Drought
- Road salt
- Poor architecture
- Insects / disease

Park Trees

- Deer
- Non-Native invasive plants
- Insects / disease
- Poor soils
- Equipment damage





STREET TREES

Right Tree in Right Place

Site considerations

- Function
- Growing conditions
 - Soil
 - Volume
 - Nutrients
 - Compaction
 - Water availability
 - Heat
- Surrounding area
 - Hardscape near roots
 - Crown space

Tree considerations

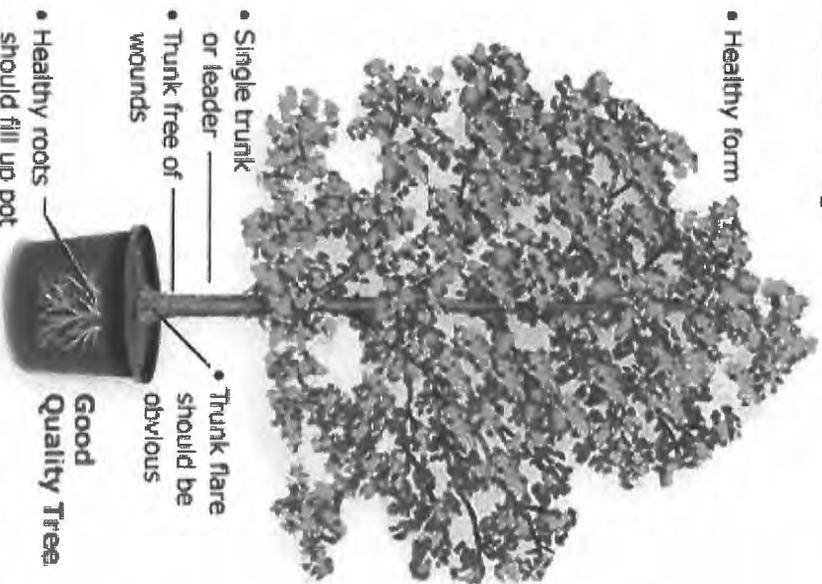
- Ultimate size
- Rooting habits
- Crown shape
- Debris
 - Fruit
 - Flowers
- Adaptations
 - Salt tolerance
 - Low oxygen



Select a Good Quality Tree at the Nursery

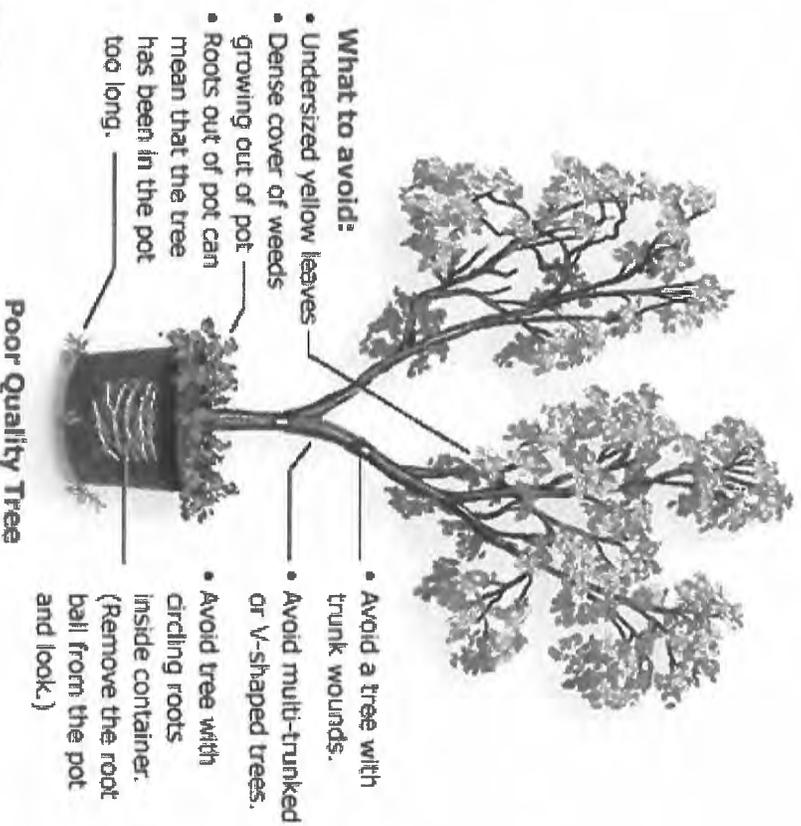
A High Quality Tree Has:

- Enough sound roots to support healthy growth.
- A single, central trunk or leader
- A trunk free of mechanical wounds and wounds from incorrect pruning.
- A strong form with well-spaced, firmly attached branches.
- Leaves with good color and no obvious insect or disease damage



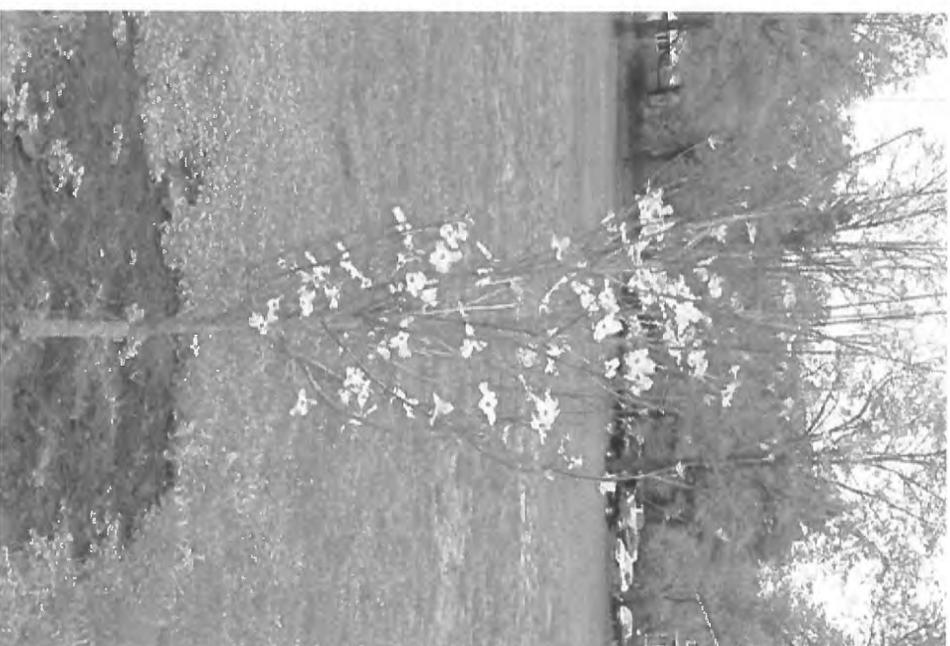
A Low Quality Tree Has:

- Crushed or circling roots in a small root ball or small container.
- A trunk with wounds from mechanical impacts or incorrect pruning.
- A weak form in which multiple stems squeeze against each other or branches squeeze against the trunk.



New Tree Maintenance

- Supplemental watering for 1 year per inch caliper
- Structural pruning
- Mulching
- Nutrient/pest management as needed



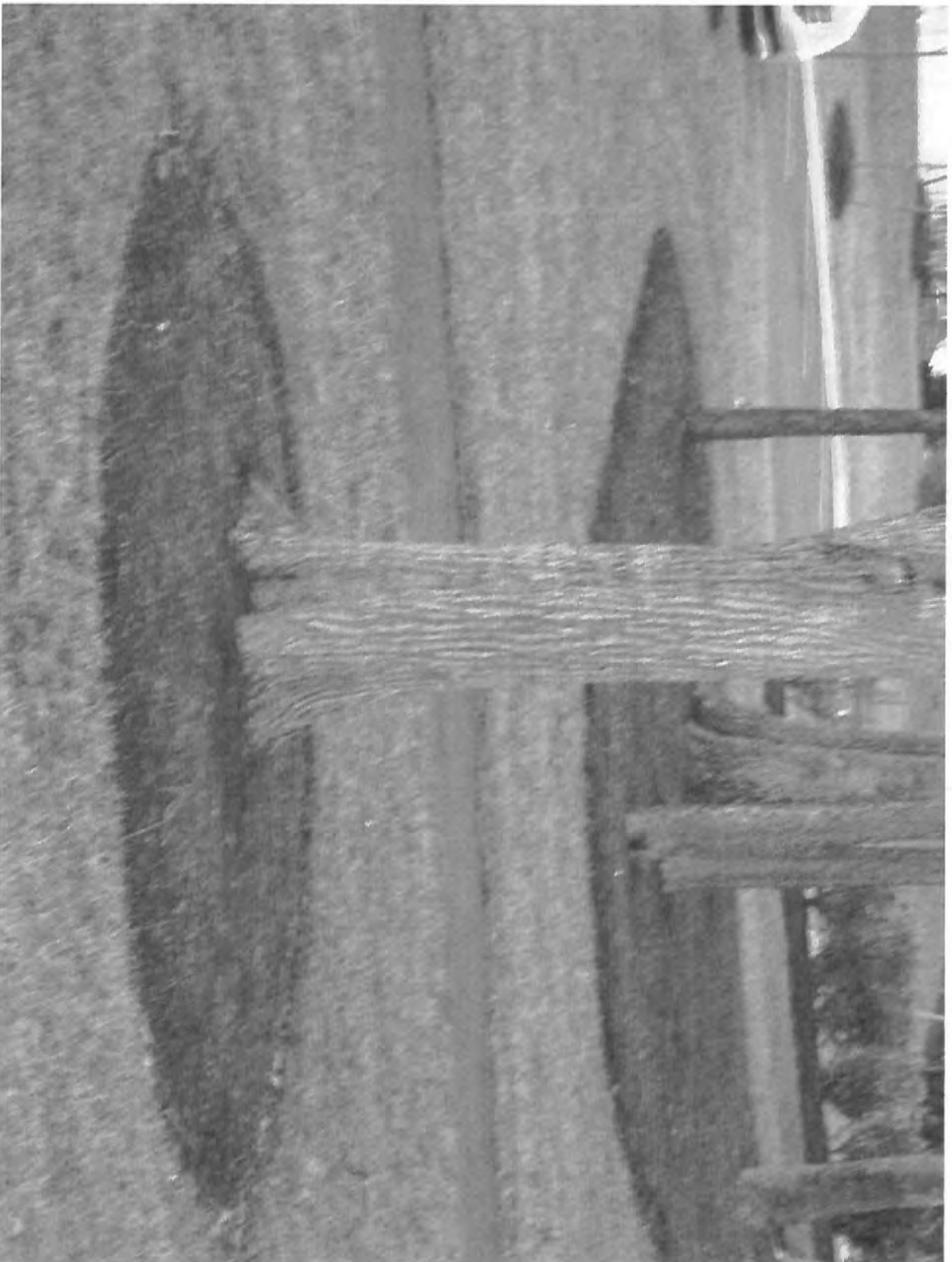
Older Tree Maintenance



- Pruning
- Mulching
- Nutrient/pest management as needed
- Risk assessment
- Mitigation as needed



Mulching





PARK TREES

Deer & Invasive Plants



Native Trees

- Primary benefit is to wildlife
- May affect human habitat benefits
- Air and water benefits don't depend on origin
- Use native trees in parks and non-invasive trees in streets





URBAN FOREST MANAGEMENT

Have a Plan



USNA
Urban Forest System
Urban Forest System

Independent Chapter for Urban
A 1 member, Non-Profit
National Urban Forestry SA
Chapter of American
Address: USA
DC, 20017
http://www.usna-urban.org

7-11



Strategic Plan Elements

- A. Vision/Goals/Mission – Where You Want To Be
- B. Initial Assessment – Where You Are
 - A. Street trees / parks
 - B. Ordinances
 - C. Tree resources
 - A. Personnel
 - B. Equipment
- C. Actions – How to get from B to A



Tactical Plan

- Define and prioritize work
- Budget
- Training
- Data maintenance
- Evaluation of progress



Emergency Management Plan





i-Tree

Tools for Assessing and Managing
Community Forests

Get the Tools.



Google Custom Search

Username Password

Forgot Username or Password?

Search

Login

Register



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Applications

Utilities

Resources

Support

News

i-Tree Applications

i-Tree Urban Forest Assessment Applications

- [i-Tree Eco](#)
- [i-Tree Streets](#)
- [i-Tree Hydro \(beta\)](#)
- [i-Tree Vue](#)
- [i-Tree Design](#)
- [i-Tree Canopy](#)
- [System Requirements](#)

The 2014 version of i-Tree offers several urban forest assessment applications including i-Tree Eco, i-Tree Streets and i-Tree Vue. i-Tree Design and i-Tree Canopy are accessible online assessment tools.

Based on years of US Forest Service research and development, these innovative applications provide urban forest managers and advocates with tools to quantify ecosystem services and benefit values of community trees at multiple scales. The ability to articulate the significance of community trees in terms of pollution mitigation, storm water run-off reduction, carbon sequestration and storage and more has allowed i-Tree users to improve tree management, plan strategically, increase community awareness, engage decision makers and build new partnerships.

Click on the "Learn more" links to further explore the i-Tree Applications or see the new Guide to Assessing Urban Forests.

i-Tree Eco

i-Tree Eco provides a broad picture of the entire urban forest. It is designed to use field data from complete inventories or randomly located plots throughout a community along with local hourly air pollution and meteorological data to quantify urban forest structure, environmental effects and value to communities.



Dr. Dendro will enter any of your tree-related questions.



Dr. Dendro (on right) with former graduate student Butler (left, now with USDA Forest Service) and Gough (center, now a Professor at Virginia Commonwealth University).

Ask Dr. Dendro a question.

For tree identification questions please feel free to attach digital photos. Be sure and indicate what region of the country the plant is from, whether it is wild or in a yard, and any other information you noticed about the plant.

- ID Keys
- vTree App
- WPINA DVD
- Street Tree Selector
- Campus Trees
- Links
- Quiz
- Doctor Dendro

owers in
rn Idaho

For whatever reason, repeated studies have shown that urban trees improve the quality of life in a built environment.

Improved quality of life means more tax revenue, fewer services and happier people, all of which leads to re-election.



Trees can be a great benefit to a municipality, but there is a cost to maintaining the urban forest. If the forest is not maintained it will become a bane rather than a boon.

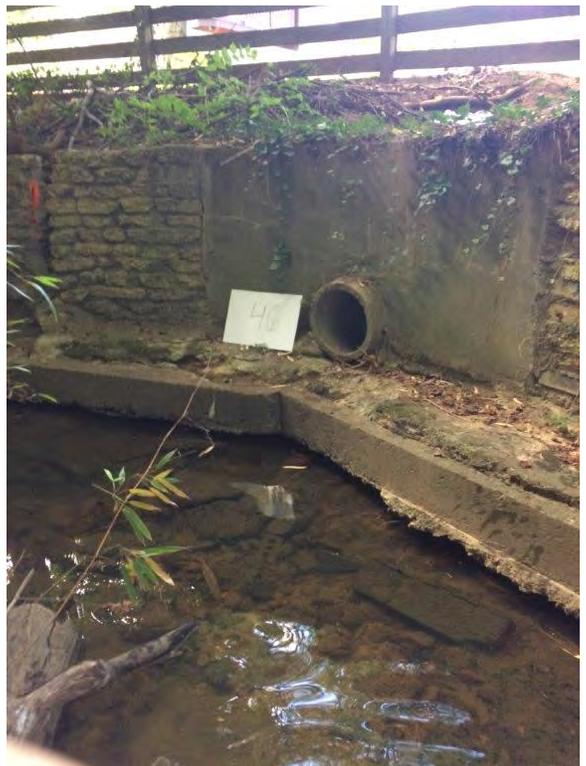


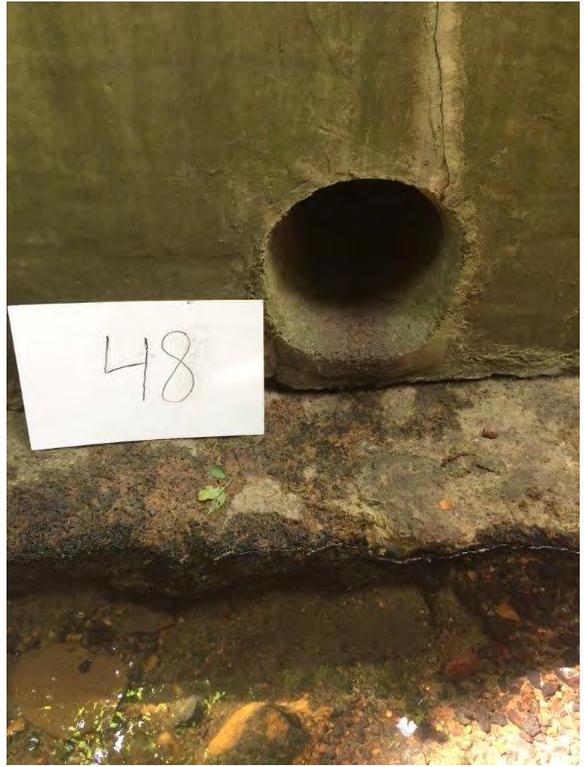
Appendix B-3a

MCM #3 – Pictures of Outfalls Screened in Year 4





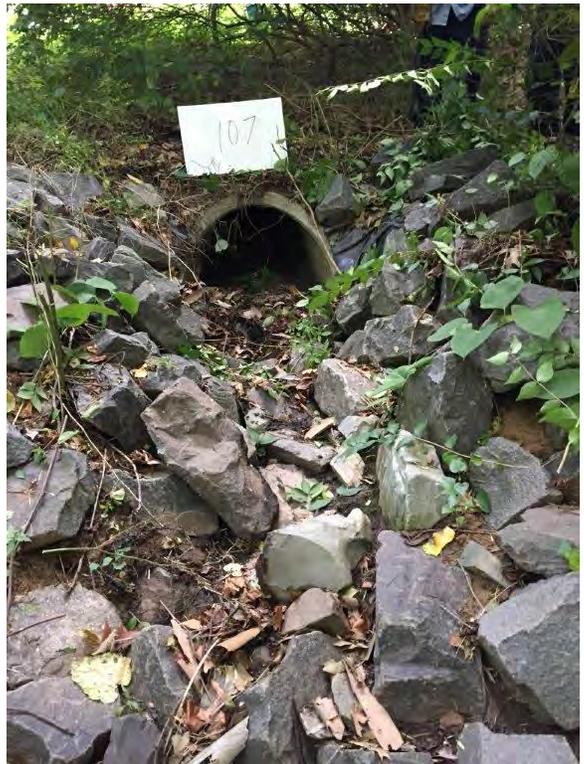






















Appendix B-3b

MCM #3 – IDDE Field Investigation Form

POTENTIAL ILLICIT DISCHARGE FIELD SHEET

Section 1: Background Data

Description / Location of Suspected Illicit Discharge:	
Date of Observation: ____ / ____ / ____	Time (Military):
Name(s) of Observer(s):	
Has it rained in the last 72 hours? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Land Use in Drainage Area (Check all that apply):	
<input type="checkbox"/> Industrial	<input type="checkbox"/> Institutional
<input type="checkbox"/> Ultra-Urban Residential	<input type="checkbox"/> Open Space
<input type="checkbox"/> Suburban Residential	<input type="checkbox"/> Woods
<input type="checkbox"/> Commercial	Other: _____ Known Industry: _____
Estimate the Flow Rate (cfs) _____	
<input type="checkbox"/> Drip	<input type="checkbox"/> Flow < 1 CFS
<input type="checkbox"/> Steady Drip	<input type="checkbox"/> Flow > 1 CFS
<input type="checkbox"/> Stream	

Section 2: Discharge Structure Description

LOCATION	MATERIAL	SHAPE	NUMBER	DIMENSIONS
<input type="checkbox"/> Closed Pipe	<input type="checkbox"/> RCP <input type="checkbox"/> CMP	<input type="checkbox"/> Circular	Number of Pipes _____	<u>Circular Pipe</u>
	<input type="checkbox"/> PVC <input type="checkbox"/> HDPE	<input type="checkbox"/> Elliptical		Diameter: _____ (in.)
	<input type="checkbox"/> Steel	<input type="checkbox"/> Box		<u>Elliptical or Box Pipe</u>
	<input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____		Width (in.): _____
				Height (in.): _____
<input type="checkbox"/> Open Drainage (Channel)	<input type="checkbox"/> Concrete	<input type="checkbox"/> Trapezoidal		Depth: _____ ft.
	<input type="checkbox"/> Earthen	<input type="checkbox"/> Parabolic		Top Width: _____ ft.
	<input type="checkbox"/> Rip-Rap	<input type="checkbox"/> Other: _____		Bottom Width: _____ ft.
	<input type="checkbox"/> Other: _____			
Flow Description	<input type="checkbox"/> Trickle <input type="checkbox"/> Moderate <input type="checkbox"/> Substantial <input type="checkbox"/> None			
Structure Condition	<input type="checkbox"/> Good <input type="checkbox"/> Minor Damage (e.g. chipping, erosion) <input type="checkbox"/> Needs Repair (not functioning properly)			
	<input type="checkbox"/> Buried			

POTENTIAL ILLICIT DISCHARGE FIELD SHEET

Section 3: Physical Indicators for Outfalls

INDICATOR	CHECK IF PRESENT	DESCRIPTION	COMMENTS
Odor	<input type="checkbox"/>	<input type="checkbox"/> Sewage <input type="checkbox"/> Rancid/sour <input type="checkbox"/> Sulfide <input type="checkbox"/> Petroleum/gas <input type="checkbox"/> Chlorine <input type="checkbox"/> Other: _____	
Color	<input type="checkbox"/>	<input type="checkbox"/> Clear <input type="checkbox"/> Brown <input type="checkbox"/> Gray <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Red <input type="checkbox"/> Other: _____	
Turbidity	<input type="checkbox"/>	<input type="checkbox"/> Cloudy <input type="checkbox"/> Opaque <input type="checkbox"/> Other: _____	
Floating Objects (Does Not Include Trash)	<input type="checkbox"/>	<input type="checkbox"/> Sewage (Toilet Paper, etc.) <input type="checkbox"/> Suds <input type="checkbox"/> Petroleum (Oil Sheen) <input type="checkbox"/> Other: _____	
Deposits / Stains	<input type="checkbox"/>	<input type="checkbox"/> Oily <input type="checkbox"/> Flow Line <input type="checkbox"/> Paint <input type="checkbox"/> Bleached Soil <input type="checkbox"/> Other: _____	
Vegetation	<input type="checkbox"/>	<input type="checkbox"/> Excessive growth <input type="checkbox"/> Inhibited growth <input type="checkbox"/> Other: _____	
Damage to Outfall Structures	<input type="checkbox"/>	<input type="checkbox"/> Concrete cracking <input type="checkbox"/> Concrete spalling <input type="checkbox"/> Peeling paint <input type="checkbox"/> Metal corrosion Other: _____	

Section 4: Source of Discharge

Source of Illicit Discharge (if known): _____

Comments: _____

Appendix B-3c

MCM #3 – Hazardous Material Spill Reports



**CITY OF FAIRFAX FIRE DEPARTMENT
OFFICE OF THE FIRE MARSHAL
SPILL OR RELEASE REPORT
FOR HAZARDOUS MATERIAL INCIDENT**

Date of Event: 4/3/2017 **Date of Report:** 4/5/2017

Time of Event: 1134 hrs

Location of Incident: 11001 Lee Hwy (Physical location – Intersection of Main St. and Chestnut St in the right-of-way along the north side of Main St.)

F.D. Incident Number: 20170931270

Companies Responding: FM44, FM42, FM41, FM45, HM440, HMS440

Investigation Number: 20170931270

Type of Incident: Hazmat - Diesel

Product released: Diesel Fuel **Amount:** Unknown

What happened to cause the release or spill:

A contractor working for the City of Fairfax was operating along Main St. in the 10900 block. The scope of work involved boring a 48in diameter hole to set the foundation for a traffic signal pole. The final required depth to dig was approximately 16ft. The excavation proceeded past a 24" diameter concrete storm drain located at about a ten foot depth. At approximately 11.5ft the auger bit struck a solid object and broke the drilling rod. When the auger was removed the workers on site encountered water contaminated with a dark liquid and the odor of a petroleum product.

Representatives from the City Fire Marshal's Office went to the scene and were assisted by HM440/HMS440 from Fairfax County. Hazmat personnel determined that the product found was Diesel Fuel Lot E/F based on the onsite sampling. The visible product was found to be a thin layer resting on top of water at the bottom of the excavated hole.

Atlas Environmental was contacted and a vacuum truck recovered approximately 52 gallons of water contaminated with Diesel Fuel.

This event was located perimeter of an old gas station which had 5 underground fuel tanks. The most likely source of the diesel fuel is residual product from a closed case on this site (DEQ PC #2005-3238). The site had been the location of a gas station prior to 1980. The tanks from that gas station were removed in 2005 for the construction of a new building on the site. The product noted during this event was most likely trapped in the gravel bed below the storm drain line.

VADEQ approval given to remove any addition Diesel Fuel, water contaminated with product, and contaminated soil. Approval also provided to continue work and fill the excavated hole with concrete.

Responsible Party: City of Fairfax

How many injuries occurred during this event if any: 0 Civilians, 0 Fire Fighters.

What area was affected by this event?

Soil level approximately 10ft below the roadway surface of Main Street. Unknown extent of product contained in soil at this level.

What corrective action has been initiated?

Ground water contaminated with Diesel fuel pumped from bored hole by Atlas Environmental, contaminated soil collected by Atlas Environmental, hole filled with concrete based on VADEQ approval, and signal pole construction allowed to continue.

4/5/17 Suppliment – Approximately 275 gal of water containnated with Diesel fuel was removed from the bored hole today. The boring operation continued and all disturbed soil was capurated and taken off site by Atlas Environmental. The hole was filled with concrete and finished for placement of the signal light pole.

Where facility procedures violated? N/A

Was a Fire Code Notice of Violation Issued: No **Section:** N/A

Photos taken: Yes **Evidence Taken:** No

Weather Conditions: Cloudy, 63 °F

Status: Closed **Final Action:** Closed - Report

What other agencies have been notified: VADEQ, Fairfax Co. Department of Health

F.D. Units on scene: FM44, FM42, FM41, FM45, HM440, HMS440

Amount expended: Atlas Environmental clean-up service - \$2,673.29

Amount Recovered: \$ 0

Total property loss: \$ 0.0

This report filed by: Lt. Bryan Lynch

Signature of Investigator:  **Date:** 4/27/17

Report reviewed by: CAPT  **Date:** 5/1/17



**CITY OF FAIRFAX FIRE DEPARTMENT
OFFICE OF THE FIRE MARSHAL
SPILL OR RELEASE REPORT
FOR HAZARDOUS MATERIAL INCIDENT**

Date of Event: 7/1/2016 **Date of Report:** 7/5/2016

Time of Event: **Location of Incident:** 3560 Chain Bridge Rd

F.D. Incident Number: 20161831740 **Companies Responding:** RE433, FM44

Investigation Number: 20161831740

Type of Incident: Fuel Spill

Product released: Gasoline **Amount:** <10 gallons

What happened to cause the release or spill: Customer drove away from gas pumps with fueling nozzle still in vehicle. The nozzle dislodged and gasoline was discharged onto the ground.

Responsible Party: Unidentified customer of the Shell Station

How many injuries occurred during this event if any: Civilians: 0 Fire Fighters: 0

What area was affected by this event? Paved area around fuel pump #4 and the area leading to the entrance from Chain Bridge Rd. Gasoline appeared to have discharged onto the ground creating a running spill that extended to the curb gutter at the intersection of Chain Bridge Rd and Orchard St.

What corrective action has been initiated? Closely monitoring fuel activities of customers and have sufficient spill mitigation materials to handle spill. Maintain minimum quantities of absorbent as directed by the approved SPCC for the facility.

Where facility procedures violated? Yes, minimum quantities of absorbent were not maintained on site.

Was a Fire Code Notice of Violation Issued: Yes, for corrective actions and instructions on submittal of written notice of the spill to the City of Fairfax Fire Marshal's Office.

Section: SFPC 5001.3.3.4/5001.3.3.15

Photos taken: Yes **Evidence Taken:** No

Weather Conditions: Cloudy, 88 °F

Status: Closed - Accidental **Final Action:** Closed - Accidental

What other agencies have been notified: N/A

F.D. Units on scene: RE433, FM44

Amount expended: \$ 0 Amount Recovered: \$ 0

Total property loss: \$ 0

Additional Incident Information

The station attendant stated that a customer drove away from the pump with the nozzle still in the filler neck of the vehicle. When the nozzle dislodged from the vehicle and fell to the ground it began to discharge gasoline from the intact nozzle. The attendant noticed this occurred and activated the emergency shut-off for the fuel pumps. He then went out and placed the nozzle back on the fuel pump before retrieving approximately 5 cups of absorbent. He applied the absorbent to the area immediately around the fuel pumps and called 911. He estimated that approximately (9) gallons of gasoline was discharged on the ground during this process. Based on the spill profile and reports from RE433, I estimate the spill amount to be approximately (4-5) gallons.

Follow up site visits conducted on 7/4/16 and 7/6/16 to ensure proper procedures for reporting and correction actions were taken to adhere to the SPCC for the facility.

This report filed by: Lt. Bryan Lynch

Signature of Investigator:  **Date:** 7/12/16

Report reviewed by: CAPT  **Date:** 7/14/16



**CITY OF FAIRFAX FIRE DEPARTMENT
OFFICE OF THE FIRE MARSHAL
SPILL OR RELEASE REPORT
FOR HAZARDOUS MATERIAL INCIDENT**

Date of Event: 10/20/2016 **Date of Report:** 10/24/2016

Time of Event: 1103 hrs **Location of Incident:** 3250 Old Pickett Rd

F.D. Incident Number: N/A **Companies Responding:** FM 44

Investigation Number: FM2016294001

Type of Incident: Cooking Oil Spill

Product released: Waste Cooking Oil **Amount:** 2 gal

What happened to cause the release or spill: Overfill of waste cooking oil tank

Responsible Party: Michael Lee, Owner/Manager

How many injuries occurred during this event if any: None

What area was affected by this event? Rear parking lot of property

What corrective action has been initiated? Ordered immediately clean up of visible product on the ground using absorbant. Off-load of full tank and verification of tank ingerity by contracted waste oil service company.

Where facility procedures violated? N/A

Was a Fire Code Notice of Violation Issued: Yes **Section:** 5704.2.7.10

Photos taken: Yes **Evidence Taken:** No

Weather Conditions: Cloudy, 73 °F

Status: Closed **Final Action:** Closed-Report

What other agencies have been notified: N/A

F.D. Units on scene: FM 44

Amount expended: \$ 0.0 **Amount Recovered:** \$ 0.0

Total property loss: \$ 0.0

This report filed by: Lt. Bryan Lynch

Signature of Investigator: 

Date: 10/24/16

Report reviewed by: 

Date: 10/28/16



**CITY OF FAIRFAX FIRE DEPARTMENT
OFFICE OF THE FIRE MARSHAL
SPILL OR RELEASE REPORT
FOR HAZARDOUS MATERIAL INCIDENT**

Date of Event: 4/21/2017

Date of Report: 4/25/2017

Time of Event: 23:44 Location of Incident: 3410 Pickett Rd

F.D. Incident Number: 20171113414 Companies Responding: RE433

Investigation Number: 20171113414

Type of Incident: Fuel Spill

Product released: Diesel Fuel Amount: 25 Gallons

What happened to cause the release or spill: Operate error

Responsible Party: Robert Booth

How many injuries occurred during this event if any: 0 Civilians, 0 Fire Fighters.

What area was affected by this event? Vehicle fueling area

What corrective action has been initiated? Clean up

Where facility procedures violated? Yes

Was a Fire Code Notice of Violation Issued: No Section: N/A

Photos taken: Yes Evidence Taken: No

Weather Conditions: Overcast, °F

Status: Closed Final Action: Closed

What other agencies have been notified: Yes, DEQ

F.D. Units on scene: RE433

Amount expended: \$ 0.0 Amount Recovered: \$ 0.0

Total property loss: \$ 0.0

This report filed by: Capt G. Orndoff

Signature of Investigator: _____

Date: _____

4/25/17

Report reviewed by: _____

Date: _____

Appendix B-3d

MCM #3 – Notices to Potential Interconnected Stormwater Systems



City of Fairfax

10455 Armstrong Street
Fairfax, VA 22030
Department of Public Works
(703) 273-33067
(703) 591-5727 (FAX)

Virginia Department of Transportation
Mr. Roy T. Mills
Location and Design Division
State Stormwater Program Planner
(804) 786-9013

October 2017

Subject: MS4 Permit; Notice of Potential Physically Interconnected Stormwater Systems

Dear Mr. Mills,

The City of Fairfax is a Phase II small MS4 located in Fairfax County, VA. The City of Fairfax is covered under the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems. (Registration VAR040064)

The purpose of this letter is to notify you of the potential interconnected stormwater systems operated by VDOT, and the City of Fairfax. Under the MS4 Permit requirements, the City of Fairfax is required to notify all downstream regulated MS4 stormwater systems that are physically interconnected. At this time the City of Fairfax has not identified any points where the City discharges into any VDOT regulated stormwater systems, therefore this is just a notification and no action on your part is required.

If you have any questions or need any additional information please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'CA', is written over a light blue horizontal line.

Christina Alexander
Project Manager/Environmental Engineer
(703)273-3067
Christina.Alexander@fairfaxva.gov



City of Fairfax

10455 Armstrong Street
Fairfax, VA 22030
Department of Public Works
(703) 273-33067
(703) 591-5727 (FAX)

County of Fairfax
Stormwater Planning Division
12000 Government Center Pkwy.
Fairfax, VA 22035

October 2017

Subject: MS4 Permit; Notice of Potential Physically Interconnected Stormwater Systems

Dear MS4 Permit Manager,

The City of Fairfax is a Phase II small MS4 located in Fairfax County, VA. The City of Fairfax is covered under the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems.

The purpose of this letter is to notify you of the potential interconnected stormwater systems operated by Fairfax County, and the City of Fairfax. Under the MS4 Permit requirements, the City of Fairfax is required to notify all regulated MS4 stormwater systems that are physically interconnected. At this time the City of Fairfax has not identified any points where the City discharges into any Fairfax County regulated stormwater systems, therefore this is just a notification and no action on your part is required.

If you have any questions or need any additional information please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "CA", is written over a light blue horizontal line.

Christina Alexander
Project Manager/Environmental Engineer
(703)273-3067
Christina.Alexander@fairfaxva.gov



City of Fairfax

10455 Armstrong Street
Fairfax, VA 22030
Department of Public Works
(703) 273-33067
(703) 591-5727 (FAX)

George Mason University
Facilities Planning Division
4400 University Dr.
Fairfax, VA 22032
(703) 993-2520

October 2017

Subject: MS4 Permit; Notice of Potential Physically Interconnected Stormwater Systems

Dear MS4 Permit Manager,

The City of Fairfax is a Phase II small MS4 located in Fairfax County, VA. The City of Fairfax is covered under the Virginia Stormwater Management Program (VSMP) General Permit for Discharges of Stormwater from Small Municipal Separate Storm Sewer Systems.

The purpose of this letter is to notify you of the potential interconnected stormwater systems operated by George Mason University, and the City of Fairfax. Under the MS4 Permit requirements, the City of Fairfax is required to notify all downstream MS4 stormwater systems that are physically interconnected. At this time the City of Fairfax has not identified any points where the City discharges into any George Mason University regulated stormwater systems, therefore this is just a notification and no action on your part is required.

If you have any questions or need any additional information please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read "CA", written over a light blue horizontal line.

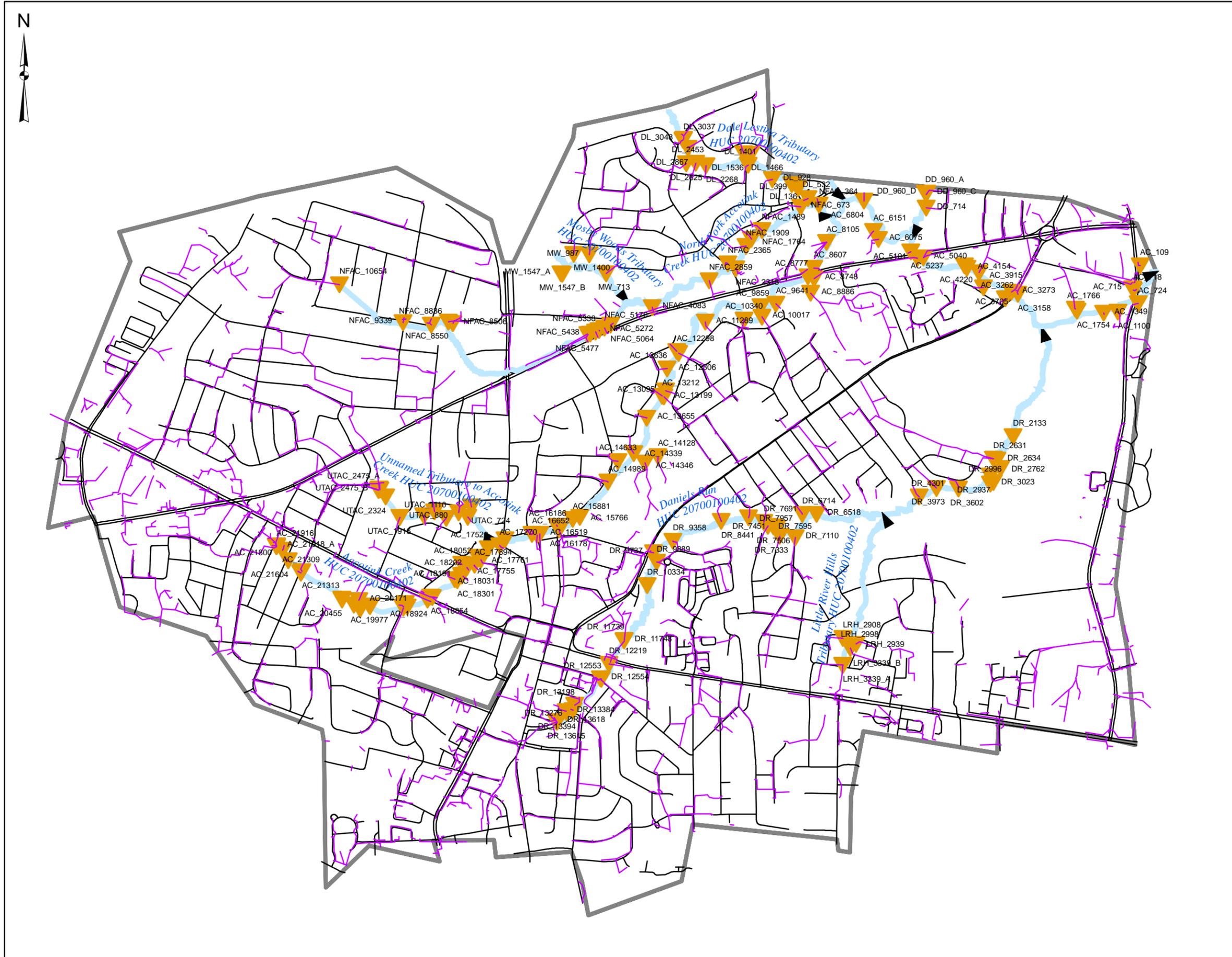
Christina Alexander
Project Manager/Environmental Engineer
(703)273-3067
Christina.Alexander@fairfaxva.gov

Appendix B-3e

MCM #3 – Outfall Map



2013 Outfall Location and Assessment



Legend

- SW Connectivity
- ▼ Identified Structure Outfalls
- ▶ USGS Stream
- City Boundary



IDENTIFIER	ACREAGE SERVED	RECEIVING WATER	TMDL(s)
AC_10017	19.97	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_10340	16.49	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_109	0.90	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_1100	3.81	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_11289	1.99	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_12298	2.10	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_12306	25.53	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_12636	1.47	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_13095	1.56	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_13199	24.90	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_13212	9.00	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_1349	10.73	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_13655	8.55	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_14128	11.93	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_14339	3.96	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_14346	8.52	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_14633	11.45	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_14989	11.49	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_15766	3.71	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_15881	1.67	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_16178	16.13	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_16186	1.45	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_16519_16565	34.74	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_16652	24.22	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_17132	1.93	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_17270	1.72	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_17526	0.88	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_1754	0.16	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_1766	13.89	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_17755	2.03	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_17761	15.15	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_17894	5.96	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_18031	0.38	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_18052	1.23	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_18191	0.08	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_18202	0.89	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_18301	2.17	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_18335	4.59	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_18832	48.34	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_18854	3.66	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_18924	3.80	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_19293	5.57	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_19307	0.79	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_19350	0.03	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_19353	0.71	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_19362	67.01	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY

AC_19955	1.49	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_19977	0.47	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_20095	1.09	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_20171	1.25	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_20237	1.72	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_20455	0.92	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_20463	0.68	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_21309	1.64	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_21313	0.80	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_21604	1.60	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_21800	1.13	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_21916	38.04	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_21918_AB	144.07	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_3158	2.94	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_3262	4.18	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_3273	29.36	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_3705	2.09	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_3915	4.52	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_4154	1.12	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_4220	28.39	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_5040	7.98	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_5101	19.78	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_5237	0.35	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_6075	1.22	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_6151	1.69	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_6804	9.36	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_715	37.78	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_718	0.32	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_724	11.59	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_8105	2.37	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_8607	1.41	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_8748	8.37	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_8886	31.13	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_9641	3.91	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
AC_9859	2.38	ACCOTINK CREEK (IMPAIRED)	CHESAPEAKE BAY
DD_714	10.37	DRAPER DRIVE TRIBUTARY	CHESAPEAKE BAY
DD_960_ABCD	382.27	DRAPER DRIVE TRIBUTARY	CHESAPEAKE BAY
DL_136	0.80	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_1401	1.99	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_1466	5.94	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_1536	10.12	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_2268	5.73	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_2453	2.96	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_2625	23.52	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_2867	2.56	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_3037	2.73	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_3048	6.26	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY

DL_399	0.95	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_532	1.10	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DL_928	2.68	DALE LESTINA TRIBUTARY	CHESAPEAKE BAY
DR_10334	2.19	DANIELS RUN	CHESAPEAKE BAY
DR_11739	3.56	DANIELS RUN	CHESAPEAKE BAY
DR_11748	2.28	DANIELS RUN	CHESAPEAKE BAY
DR_12219	3.26	DANIELS RUN	CHESAPEAKE BAY
DR_12553	9.94	DANIELS RUN	CHESAPEAKE BAY
DR_12554	10.34	DANIELS RUN	CHESAPEAKE BAY
DR_13198	1.68	DANIELS RUN	CHESAPEAKE BAY
DR_13276	0.58	DANIELS RUN	CHESAPEAKE BAY
DR_13384	1.49	DANIELS RUN	CHESAPEAKE BAY
DR_13394	0.20	DANIELS RUN	CHESAPEAKE BAY
DR_13615	2.15	DANIELS RUN	CHESAPEAKE BAY
DR_13618	19.87	DANIELS RUN	CHESAPEAKE BAY
DR_13621	88.12	DANIELS RUN	CHESAPEAKE BAY
DR_2133	22.00	DANIELS RUN	CHESAPEAKE BAY
DR_2631	68.72	DANIELS RUN	CHESAPEAKE BAY
DR_2634	0.47	DANIELS RUN	CHESAPEAKE BAY
DR_2762	15.36	DANIELS RUN	CHESAPEAKE BAY
DR_2937	0.59	DANIELS RUN	CHESAPEAKE BAY
DR_2996	120.33	DANIELS RUN	CHESAPEAKE BAY
DR_3023	3.57	DANIELS RUN	CHESAPEAKE BAY
DR_3602	2.54	DANIELS RUN	CHESAPEAKE BAY
DR_3973	5.98	DANIELS RUN	CHESAPEAKE BAY
DR_4301	1.40	DANIELS RUN	CHESAPEAKE BAY
DR_6518	0.57	DANIELS RUN	CHESAPEAKE BAY
DR_6714	7.40	DANIELS RUN	CHESAPEAKE BAY
DR_7110	65.32	DANIELS RUN	CHESAPEAKE BAY
DR_7333	1.06	DANIELS RUN	CHESAPEAKE BAY
DR_7451	2.61	DANIELS RUN	CHESAPEAKE BAY
DR_7506	0.65	DANIELS RUN	CHESAPEAKE BAY
DR_7595	4.86	DANIELS RUN	CHESAPEAKE BAY
DR_7691	7.84	DANIELS RUN	CHESAPEAKE BAY
DR_7957	5.37	DANIELS RUN	CHESAPEAKE BAY
DR_8441	12.09	DANIELS RUN	CHESAPEAKE BAY
DR_9358	13.45	DANIELS RUN	CHESAPEAKE BAY
DR_9737	25.19	DANIELS RUN	CHESAPEAKE BAY
DR_9889	22.40	DANIELS RUN	CHESAPEAKE BAY
LRH_2908	9.46	LITTLE RIVER HILLS TRIBUTARY	CHESAPEAKE BAY
LRH_2939	1.53	LITTLE RIVER HILLS TRIBUTARY	CHESAPEAKE BAY
LRH_2998	12.24	LITTLE RIVER HILLS TRIBUTARY	CHESAPEAKE BAY
LRH_3339_A	57.71	LITTLE RIVER HILLS TRIBUTARY	CHESAPEAKE BAY
LRH_3339_B	3.26	LITTLE RIVER HILLS TRIBUTARY	CHESAPEAKE BAY
MW_1400	2.80	MOSBY WOODS TRIBUTARY	CHESAPEAKE BAY
MW_1547_A	1.63	MOSBY WOODS TRIBUTARY	CHESAPEAKE BAY
MW_1547_B	6.10	MOSBY WOODS TRIBUTARY	CHESAPEAKE BAY

MW_713	20.87	MOSBY WOODS TRIBUTARY	CHESAPEAKE BAY
MW_987	28.77	MOSBY WOODS TRIBUTARY	CHESAPEAKE BAY
NFAC_10654	79.10	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_1489	2.82	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_1764	9.01	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_1909	8.81	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_2315	1.12	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_2365	1.50	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_2859	2.62	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_364	0.47	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_4083	8.19	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_5064	0.67	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_5176	12.35	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_5272	0.18	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_5338	6.05	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_5438	3.24	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_5477	41.74	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_673	3.83	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_8506	7.97	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_8550	6.23	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_8836	3.18	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
NFAC_9339	21.05	NORTH FORK ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_1110	4.24	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_1326	18.63	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_1510	6.43	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_1916	2.84	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_2324	0.65	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_2475_A	5.11	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_2475_B	15.20	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_2475_C	152.59	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_2475_D	14.76	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_713	1.65	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_724	10.88	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY
UTAC_880	2.59	UNNAMED TRIBUTARY TO ACCOTINK CREEK	CHESAPEAKE BAY

Appendix B-4a

MCM #4 – VSMP Inspection Report, Warning Letter, Notice to Comply, Stop Work Order, Ordinance Summons, and Violation Dismissed Notice

Filing No: SW14XXXX



**City of Fairfax
Department of Public Works**

10455 Armstrong St, Room 200
Fairfax, VA 22030
703 273 6073

Date Issued:

07/01/14

VSMP INSPECTION REPORT

To:

An inspection of the site at Location/Address on 07/01/14 revealed the presence of the following violation(s):

The following corrections are required:

Notice is hereby given that the violations stated above shall be corrected on or before 07/01/14 at 9:00 AM.
The site will be reinspected at that time.

Failure to address the above violation(s) will result in a Warning Letter, Notice to Comply and/or Stop Work Order being issued. Please contact this department if there are any questions.

VSMP
Inspector

Satoshi Eto

VSMP
Administrator

Christina Alexander

Filing No: SW14XXXX

**City of Fairfax
Department of Public Works**

Date Issued:

07/01/14



10455 Armstrong St
Fairfax, VA 22030
703 273 6073

VSMP WARNING LETTER

To:

An inspection of the site at **Location/Address** on **07/01/14** revealed the presence of the following violation(s):
A VSMP Inspection Report was sent on 07/01/14.

The following corrections are required:

Notice is hereby given that the violations stated above shall be corrected on or before **07/01/14** at **9:00 AM**.
The site will be reinspected at that time.

Failure to comply with this notice will result in a Notice to Comply or Stop Work Order, or other legal enforcement action by the City of Fairfax to implement the appropriate corrections. Please contact this department if there are any questions.

VSMP
Inspector _____
Satoshi Eto

VSMP
Administrator _____
Christina Alexander

Filing No: SW14XXXX



City of Fairfax
Department of Public Works

10455 Armstrong St
Fairfax, VA 22030
703 273 6073

Date Issued:
07/01/14

VSMP NOTICE TO COMPLY

To:

An inspection of the site at Location/Address on 07/01/14 revealed the presence of the following violation(s):
A VSMP Inspection Report / Warning Letter was sent on 07/01/14.

The following corrections are required:

Notice is hereby given that the violations stated above shall be corrected on or before 07/01/14 at 9:00 AM.
The site will be reinspected at that time.

Failure to comply with this notice will result in a Stop Work Order and/or other legal enforcement action by the City of Fairfax to implement the appropriate corrections. Please contact this department if there are any questions.

VSMP _____
Inspector Satoshi Eto

VSMP _____
Administrator Christina Alexander

Filing No: SW14XXXX



City of Fairfax
Department of Public Works

10455 Armstrong St
Fairfax, VA 22030
703 273 6073

Date Issued:
07/01/14

VSMP STOP WORK ORDER

To:

An inspection of the site at Location/Address on 07/01/14 revealed the presence of the following violation(s).
A VSMP Inspection Report / Warning Letter / Notice to Comply was sent on 07/1/14

You are hereby ordered to stop all land-disturbing activities on the above referenced project until the specified corrective measures have been taken. If work is not begun to correct this violation by 07/01/14, further legal action will be taken. Upon completion of the corrective action, the order shall be immediately lifted. Continuing land disturbing activities in disregard of this Order shall constitute a violation of City Code Sec 110-291(e).

The following corrections are required:

Please contact this department if there are any questions.

VSMP
Inspector _____
Satoshi Eto

VSMP
Administrator _____
Christina Alexander

Filing No: SW14XXXX

City of Fairfax

Date Issued:

07/01/14



VSMP ORDINANCE SUMMONS

To:

You are charged with violating City Code as follows:

Location of Violation: Location/Address

Description of Violation:

Violation of:

- City Code Sec 110-287(a)1 – Failure to obtain VSMP Permit prior to engaging in land disturbing activity. - \$2500 / violation / day
- City Code Sec 110-287(d)1 – VSMP permit non-compliance - \$2500 / violation / day
Description:
- City Code Sec 110-291(d) – Continued land disturbing activity in disregard of Stop Work Order issued by Administrator. - \$2500/ violation / day
- City Code Sec 110-294(a) – Illicit discharges - \$1000 / violation / day

Penalty:

Cumulative Penalty: violation dates & types

You are required to respond by 07/01/14 in one of the following ways:

1. **To Pay Penalty and Waive Your Right to a Hearing:**
 - Check the "Admit Violation" or "No Contest" box below; checking either of these boxes and signing this ticket is a waiver of trial, is an admission of liability, and has the same force and effect as a court judgment, but is not a criminal conviction for any purpose.
 - Correct the violation and certify that the violation has been corrected by signing below;
 - Make check payable to City of Fairfax. Print filing number noted above on the check. Payment may be made by mail or in person, at; Treasurer's Office, City Hall, 10455 Armstrong Street, Room 208, Fairfax, VA 22030.
2. **To stand trial for the violation(s) shown on this summons:**
 - Check the "Contest in Court" box below and mail this completed notice to the Dept of Public Works, City Hall, 10455 Armstrong St, Fairfax, VA 22030.

FAILURE TO RESPOND AS NOTED ABOVE WILL RESULT IN THE ISSUANCE OF A SUMMONS TO APPEAR IN COURT

COMPLETE AND SIGN: Admit No Contest Contest in Court

Name: _____

I hereby certify under penalty of law, that I have answered as indicated above, and have corrected the violation that I have admitted to or for which I have pleaded no contest.

Signature: _____ Date: _____

Certificate of Service

I personally observed the violation noted and state that I am an employee of the Department of Public Works, that a true copy of this ticket was mailed to the last known address of the respondent or the respondent's agent and/or posted at the site of the infraction, and know this ticket to be true to the best of my knowledge.

Signature: _____ Date: _____

Director of Public Works _____ Date: _____

Filing No: SW14XXXX

**City of Fairfax
Department of Public Works**

Date Issued:
07/01/14



10455 Armstrong St
Fairfax, VA 22030
703 385 7828

Violation Dismissed

To:

A reinspection of the site at **Location/Address** on **07/01/14** revealed that the following violation(s) have been corrected to the satisfaction of the Office of Site Inspections.

Your cooperation in this matter is appreciated and Public Works will continue to monitor this site to ensure compliance with VSMP requirements.

VSMP
Inspector

Satoshi Eto

VSMP
Administrator

Christina Alexander

Appendix B-4b

MCM #4 – List of Approved Grading Permits

Project Number	Project Type	Action	Description Line 1	Apply Date	Project Address	Owner Name	Applicant Name
16100026	PERMIT-G	APP 10/16	MAJOR/NEW SFD/.25 AC	10/06/2016	4096 ORCHARD DR	CONLEY REAL ESTATE LLC	CONLEY REAL ESTATE LLC
16020077	PERMIT-G	APP 10/16	MAJOR/TRAIL UPGRADE/.35 ACRES	02/23/2016	3333 OLD PICKETT RD	CITY OF FAIRFAX	CITY OF FAIRFAX
16110034	PERMIT-G	APP 11/16	MAJOR/ VEHICLE PREP CENTER/ 2340 SF	11/15/2016	11165 FAIRFAX BLVD	MGB PROPERTIES LLC	MGB PROPERTIES LLC
16020095	PERMIT-G	APP 11/16	MAJOR/NEW SFD/.19ACRES	02/25/2016	9711 ASHBY RD	LEWIS DAVID C & KATHY C	LEWIS DAVID C & KATHY C
16120001	PERMIT-G	APP 7/17	MAJOR/NEW STORAGE FACILITY/1.67 ACRES	12/01/2016	3180 DRAPER DR	TROTTER HAYNIE S & KOONTZ WILLIAM	EZ STORAGE
16060097	PERMIT-G	APP 8/16	MAJOR/NEW SFD/14455SF	06/23/2016	10708 OAK PL	RAKIBUDDIN AHMEN	RAKIBUDDIN AHMEN
1606007	2 PERMIT-G	APP 8/16	MAJOR/REDEVELOPMENT/2.8 ACRES	06/20/2016	9450 SILVER KING CT 9474	RJL ASSOCIATES INC	RJL ASSOCIATES INC
17010018	PERMIT-G	APP 1/17	CANOPY ADDITION & TIRE STORAGE INFILL/ .15AC	01/09/2017	3609 JERMANTOWN RD	BOARD OF SUPERVISORS FAIRFAX COOUNTY	BOARD OF SUPERVISORS FAIRFAX COOUNTY

Appendix B-5a

MCM #5 – Letter to BMP Owner

SAMPLE SWM/BMP LETTER



City of Fairfax

*10455 Armstrong Street
Fairfax, Virginia 22030-3630*

Date

Addresss

Re: Stormwater Management/Best Management Practice
(Also referred to as SWM/BMP)

Dear Sir:

This letter is sent to advise you that the City may pursue enforcement action against the owner of the property located at ADDRESS, for failure to properly maintain the on-site Stormwater Management/Best Management Practice (SWM/BMP) system.

Virginia Administrative Code Sections 4VAC50-60-150 and 9 VAC 10-20-120 require annual inspection and certification that SWM/BMP facilities are properly maintained. Inspectors with the city's Department of Public Works are available to meet with property-owners or their representatives to make recommendations to ensure proper SWM/BMP function and reporting to satisfy the State Code requirements. Inasmuch as your facility is on private property, the City cannot perform the inspection for you, but can provide guidance and answer questions. For more information on inspection requirements please see the city's webpage at <http://www.fairfaxva.gov/Environment/StormWaterMgmt.asp>.

Enclosed is a copy of the SWM/BMP inspection report, found on the city website listed above, that needs to be filled out but a qualified inspector. Additionally attached, for your information, is a list of qualified inspectors used in the past. Failure to send in your inspection report within 30 days of receiving this letter, will result in a Notice of Violation (Notice) issuance to the site. Notice of Violation fines begin at \$200 and may increase to \$500. Typically, it is less costly to obtain the inspection than to pay any accrued penalty fine amounts.

SAMPLE SWM/BMP LETTER

If you have any questions about the rules for inspections or any additional questions please contact me at 703.273.3067 or Christina.Alexander@fairfaxva.gov .

Respectfully,

Christina Alexander
Stormwater Resource Engineer, Public Works

Attachments
Enclosure

Cc: Peter Millard
David Summers
Michelle Coleman

Appendix B-5b

MCM #5 – BMP Inspection Checklist

BMP ID: _____	DATE: ___/___/___	ASSESSED BY: _____
----------------------	--------------------------	---------------------------

SITE NAME: _____
ADDRESS: _____

SECTION 1- BACKGROUND INFORMATION (GIS)

BMP TYPE : <input type="checkbox"/> Dry Detention Pond <input type="checkbox"/> Dry Swale <input type="checkbox"/> Wetland <input type="checkbox"/> Extended Detention Pond <input type="checkbox"/> Wet Swale <input type="checkbox"/> Level Spreader <input type="checkbox"/> Wet Pond <input type="checkbox"/> Grass Channel <input type="checkbox"/> WQ Inlet <input type="checkbox"/> Filter (specify: _____) <input type="checkbox"/> Dry Well <input type="checkbox"/> Proprietary Device <input type="checkbox"/> Infiltration (specify: _____) <input type="checkbox"/> Permeable Pavement <input type="checkbox"/> Other <input type="checkbox"/> Check if structure is underground <input type="checkbox"/> Bioretention	YEAR CONSTRUCTED: _____ OWNERSHIP <input type="checkbox"/> Public <input type="checkbox"/> Private <input type="checkbox"/> Unknown
--	---

SECTION 2- FIELD VISIT

Rain in last 48 hrs? Yes No Evidence of high water table (e.g., excessive soil saturation)? Yes No

OUTLET CHARACTERISTICS

PRIMARY OUTLET STRUCTURE:	<input type="checkbox"/> N/A – infiltration w/ no outlet <input type="checkbox"/> Pipe <input type="checkbox"/> Riser <input type="checkbox"/> Weir <input type="checkbox"/> Large Storm Overflow <input type="checkbox"/> Open channel <input type="checkbox"/> Large Storm By-pass <input type="checkbox"/> Other: _____
OUTLET FEATURES:	<input type="checkbox"/> N/A <input type="checkbox"/> Trash Rack <input type="checkbox"/> Pond Drain <input type="checkbox"/> Inverted outlet pipe <input type="checkbox"/> Hooded outlet <input type="checkbox"/> Anti-vortex device <input type="checkbox"/> Perforated pipe <input type="checkbox"/> Gravel Diaphragm <input type="checkbox"/> Micropool outlet <input type="checkbox"/> Multiple outlet levels <i>Outlet includes restrictor?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No
OUTLET STRUCTURE CONDITIONS:	Erosion at Outlet: <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Outlet Clogging: <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Structural Problems: <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe
CONDITIONS AT OUTFALL:	<input type="checkbox"/> Stream <input type="checkbox"/> Closed storm sewer <input type="checkbox"/> Surface channel <input type="checkbox"/> Road ditch <input type="checkbox"/> Other: _____ <input type="checkbox"/> Unknown Active Erosion: <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Odor: <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Trash: <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Algae: <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Sedimentation: <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Other WQ Problems: <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe

Emergency Spillway Type: Channel Riser Overflow Weir Other: _____

SOIL OR FILTER MEDIA

TYPE OF FILTER/INFILTRATION MEDIA: (check all that apply)
 Soil mix _____(in) Sand _____(in) Gravel _____(in) Large Stone _____(in)
 Organic material _____(in) Other _____ N/A Unknown
Avg. depth of sediment build-up on surface? _____ (in)

SOIL MEDIA SAMPLE: <i>Note – Complete during site investigation, if applicable</i> Dominant Soil Type <input type="checkbox"/> Clay <input type="checkbox"/> Loam <input type="checkbox"/> Sand <input type="checkbox"/> Sand/Loam Is the soil homogenous? <input type="checkbox"/> Yes <input type="checkbox"/> No	Comments:
--	------------------------------

VEGETATION

GENERAL OBSERVATIONS: <input type="checkbox"/> Landscaped <input type="checkbox"/> Aquatic Bench <input type="checkbox"/> Invasive Species <input type="checkbox"/> Plant Diversity	TYPE OF GROUND COVER (% of Surface Area in Plan View up to low Outlet): <i>Note – All percentages should sum up to 100 %.</i> ____ Trees ____ Grasses/Perennials ____ Ponded water ____ Other: _____ ____ Managed Turf ____ Bare Soil ____ Shrubs ____ N/A ____ Gravel/stone ____ Mulch ____ Emergent wetland
--	--

Depth of mulch, if present: Hardwood _____(in) Pine Straw _____(in) Other _____(in)
Rate degree of shading of BMP Surface Area by trees: Well Shaded Some Shading No Shading N/A

INLET CHARACTERISTICS

INLET #1: Diameter/Width: _____ (in)		TYPE OF INLET: <input type="checkbox"/> Open Channel <input type="checkbox"/> Closed Pipe <input type="checkbox"/> Sheet Flow <input type="checkbox"/> Curb Cut <input type="checkbox"/> Other: _____	Elevation difference between bottom of inlet and BMP surface: _____ (in)
INLET SUBMERSION: <input type="checkbox"/> Complete <input type="checkbox"/> Partial <input type="checkbox"/> None		INLET CONDITIONS: Inlet Erosion <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Inlet Clogging <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Structural Problems <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe	Comments:
INLET #2: Diameter/Width: _____ (in)		TYPE OF INLET: <input type="checkbox"/> Open Channel <input type="checkbox"/> Closed Pipe <input type="checkbox"/> Sheet Flow <input type="checkbox"/> Curb Cut <input type="checkbox"/> Other: _____	Elevation difference between bottom of inlet and BMP surface: _____ (in)
INLET SUBMERSION: <input type="checkbox"/> Complete <input type="checkbox"/> Partial <input type="checkbox"/> None		INLET CONDITIONS: Inlet Erosion <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Inlet Clogging <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Structural Problems <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe	Comments:
INLET #3: Diameter/Width: _____ (in)		TYPE OF INLET: <input type="checkbox"/> Open Channel <input type="checkbox"/> Closed Pipe <input type="checkbox"/> Sheet Flow <input type="checkbox"/> Curb Cut <input type="checkbox"/> Other: _____	Elevation difference between bottom of inlet and BMP surface: _____ (in)
INLET SUBMERSION: <input type="checkbox"/> Complete <input type="checkbox"/> Partial <input type="checkbox"/> None		INLET CONDITIONS: Inlet Erosion <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Inlet Clogging <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Structural Problems <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe	Comments:
INLET #4: Diameter/Width: _____ (in)		TYPE OF INLET: <input type="checkbox"/> Open Channel <input type="checkbox"/> Closed Pipe <input type="checkbox"/> Sheet Flow <input type="checkbox"/> Curb Cut <input type="checkbox"/> Other: _____	Elevation difference between bottom of inlet and BMP surface: _____ (in)
INLET SUBMERSION: <input type="checkbox"/> Complete <input type="checkbox"/> Partial <input type="checkbox"/> None		INLET CONDITIONS: Inlet Erosion <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Inlet Clogging <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe Structural Problems <input type="checkbox"/> None <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe	Comments:

PRETREATMENT

TYPE OF PRETREATMENT <i>(check all that apply)</i> <input type="checkbox"/> None <input type="checkbox"/> Sediment Forebay (_____ ft ³) <input type="checkbox"/> Grass Channel <input type="checkbox"/> Riprap Channel or Apron <input type="checkbox"/> Grass Filter Strip <input type="checkbox"/> Plunge Pool? <input type="checkbox"/> Stone Diaphragm <input type="checkbox"/> Other: _____	PRETREATMENT FUNCTION <input type="checkbox"/> By design <input type="checkbox"/> Incidental Is pretreatment functioning? <input type="checkbox"/> Yes <input type="checkbox"/> No Is sediment removal necessary? <input type="checkbox"/> Yes <input type="checkbox"/> No Signs of pretreatment bypass? <input type="checkbox"/> Yes <input type="checkbox"/> No Signs of flow of sediment from pretreatment to BMP? <input type="checkbox"/> Yes <input type="checkbox"/> No Severity: <input type="checkbox"/> Slight <input type="checkbox"/> Moderate <input type="checkbox"/> Severe
---	--

GENERAL DESIGN

BMP FEATURES <i>(check all that apply)</i> <input type="checkbox"/> Maintenance Access <input type="checkbox"/> Fence <input type="checkbox"/> Multi-cell <input type="checkbox"/> Micropool <input type="checkbox"/> Impermeable Liner <input type="checkbox"/> Underdrain <input type="checkbox"/> Clean Out <input type="checkbox"/> Observation Well Is water present in observation well? <input type="checkbox"/> Yes <input type="checkbox"/> No Depth: _____ ft <input type="checkbox"/> Pond Drain <input type="checkbox"/> Other: _____	
CONVEYANCE THROUGH BMP <input type="checkbox"/> No Defined Channel <input type="checkbox"/> Low Flow Channel <input type="checkbox"/> Concrete <input type="checkbox"/> Eroded <input type="checkbox"/> Earthen <input type="checkbox"/> Other _____	Is BMP designed with a Permanent Pool? <input type="checkbox"/> Yes <input type="checkbox"/> No

PERFORMANCE

GENERAL PROBLEMS: (check all that apply)

- | | | |
|--|---|--|
| <input type="checkbox"/> Maintenance Needed | <input type="checkbox"/> Erosion at Embankments | <input type="checkbox"/> Permanent Pools not stable |
| <input type="checkbox"/> Water Bypass of Inlet | <input type="checkbox"/> Erosion within Facility | <input type="checkbox"/> Inadequate vegetation |
| <input type="checkbox"/> Water Bypass of Outlet | <input type="checkbox"/> Deposition within Facility | <input type="checkbox"/> Dead or Diseased Vegetation |
| <input type="checkbox"/> Incorrect Flow Paths | <input type="checkbox"/> Inappropriate Ponding of Water | <input type="checkbox"/> Too many invasive plants |
| <input type="checkbox"/> Short-circuiting of treatment mechanism | <input type="checkbox"/> Clogged Pond Drain/Underdrain | <input type="checkbox"/> Trees on Embankment |
| <input type="checkbox"/> No or ineffective treatment | <input type="checkbox"/> Clogged Media | <input type="checkbox"/> Failing structural components |
| <input type="checkbox"/> Ineffective pretreatment | <input type="checkbox"/> Inappropriate media material | <input type="checkbox"/> Safety issue (Note: _____) |
| <input type="checkbox"/> Others _____ | <input type="checkbox"/> Inappropriate underlying soil (infiltration) | |

- WATER QUALITY IN FACILITY:** N/A
- Algae None Slight Moderate Severe
- Odor None Slight Moderate Severe
- Turbidity None Slight Moderate Severe
- Color Normal Abnormal: _____

- EVIDENCE OF:**
- Geese
- Animal Burrows
- Mosquitoes
- BMP Alteration

PROBLEM		1=NONE	2 - FEW	3 – SEVERAL	4-SEVERE
TRASH		No evidence of trash	A few pieces of trash throughout BMP	Trash accumulation near inlet/outlet	Lots of trash in BMP or BMP used for storage
BMP BANK EROSION		No noticeable erosion	Slight erosion < 5% of bank affected	Moderate erosion ~15% of bank affected	Banks severely eroded, >25% of bank affected
SEDIMENT DEPOSITION		No sediment deposition	Areas of minor sediment deposition	Areas of some deposition, may be severe near inlet/outlets	Lots of deposition resulting in pond bottom clogging
SURFACE SLOPE		0-1% BMP surface slope	1-3% BMP surface slope or steeper slopes with check dams,	3-5% BMP surface slope with no check dams,	>5% surface slope;
SIDE SLOPES		BMP side slopes 3:1 or flatter	BMP side slopes 2:1	Steep BMP side slopes	Risk of side slope failure
STRUCTURAL		No evidence of structural damage	Minor problems (e.g., bank slump, eroded channels)	Moderate structural problems –failure pending	Structural failures (e.g., bank failure, blowout)
VISIBILITY		High visibility, near high-traffic areas	Some visibility, near traffic areas	Limited visibility, near low traffic areas	No visibility, behind buildings or fences
ACCESSIBILITY		Maintained access area for vehicles	Access area designated, but not maintained	Access for vehicles not designated	Access for vehicles not possible
VEG COVER		No mowing in/around BMP	Mowing along BMP edges but areas of no mow in BMP bottom	Mowed turf vegetation	BMP bottom has large areas of bare soil
		Dense plant cover (>75%)	Plant cover, 50-75%	Some plant cover, 25-50%	Sparse vegetative cover (<25%),
VEG HEALTH	TREES	Healthy and established	Slightly stressed	Stressed	Dead
	GROUND COVER	Healthy and established	Slightly stressed	Stressed	Dead
	SHRUBS	Healthy and established	Slightly stressed	Stressed	Dead
	EMERGENT WETLAND	Healthy and established	Slightly stressed	Stressed	Dead

OVERALL PERFORMANCE SCORE (circle one number)

Excellent design and function, no general problems with performance	BMP is well designed, but is undersized or has a few performance problems	BMP is adequately designed, several problems with performance are noted	Poor BMP design, severe performance problems or failure
10	9	8	7
6	5	4	3
2	1		

FIELD NOTES

GOOD OR INTERESTING FEATURES:

PHOTO #'S:

POOR OR PROBLEMATIC FEATURES:

PHOTO #'S:

SECTION 3 – DESIGN PLAN VERIFICATION

PLAN AVAILABLE: As-built Other: _____

Do field observations match design plans/as-builts? Describe any differences.

Soil type in facility N/A Yes No If no, describe:

Pretreatment type and size N/A Yes No If no, describe:

Signage N/A Yes No If no, describe:

Low-flow channel N/A Yes No If no, describe:

Dimensions/volume N/A Yes No If no, describe:

Inlet type, #, and sizing N/A Yes No If no, describe:

Outlet type, #, and sizing N/A Yes No If no, describe:

Vegetation composition N/A Yes No If no, describe:

Other features N/A Yes No If no, describe:

Appendix B-5c

MCM #5 – BMP Inspection Report

SWM/BMP INSPECTION REPORT

FOR CITY USE ONLY

LOCATION OF SWM/BMP:	ACCEPTED () MAINTENANCE ()
ADDRESS OF SWM/BMP :	QUESTIONS () REPAIRS ()
OWNER OR MANAGEMENT CO.:	DATE: ___/___/___
ADDRESS:	REVIEWED BY: _____
INSPECTION COMPANY :	TITLE: _____
ADDRESS :	PHONE # :
INSPECTOR NAME (print) :	PHONE # :
INSPECTOR SIGNATURE :	DATE # :

TYPE OF BMP

Bio-detention ()	Dry Pond ()	Wet Pond ()	Infiltration Trench ()	Underground Detention ()
Storm Ceptor ()	Sand Filters ()	Green Roof ()	Filtterra ()	Vegetated Swale ()

Other, describe :

Inspection Checklist

	Yes	No	N/A
Structural Integrity:			
Does the facility show any signs of settling, cracking, bulging, misalignment, or any other structural deterioration?			
Do embankment, emergency spillways, side slope, or inlet/outlet structure show signs of excessive erosion or slumping?			
Is the inlet and outlet pipe damaged or otherwise not functioning properly?			
Do impoundment and inlet areas show erosion, low spots, or lack of stabilization?			
Are trees or saplings present on the embankment?			
Are animal burrows present?			
Are contributing areas unstabilized with evidence of erosion?			
Do grass areas require mowing and /or are clippings building up?			
Working Conditions			
Are cartridge filters, sand filters, filtterra boxes, and other filters clogged?			
Provide date of last filter replacement. (/ /)			
Is water quality orifice, weir, grate, trash rack completely clear of debris and completely open?			
Does the depth of sediment or other factors suggest a loss of storage volume?			
Is there standing water in inappropriate areas, such as on filters or cartridges after a dry period?			
Is there an accumulation of floating debris and/or trash?			
Other Inspection Items			
Is there evidence of encroachments or improper use of impoundment areas?			
Do the fence gate or other safety device need repair?			
Is there excessive algae growth or has one type of vegetation taken over the facility?			
Is there evidence of oil, grease, or other automotive fluids entering and clogging the facility?			
In rain gardens, is there evidence of soil erosion, does mulch cover the entire area, is specified number and types of plants still in place, or is there evidence of disease or plant stress from adequate or too much watering?			
Is there evidence of fish kill?			

Appendix B-5d

MCM #5 – BMP Maintenance and Monitoring Agreement



BMP AGREEMENT# (to be filled in by staff): _____

**CITY OF FAIRFAX
STANDARD BEST MANAGEMENT PRACTICES (BMP) FACILITIES
MAINTENANCE AND MONITORING AGREEMENT**

THIS AGREEMENT, made and entered into this _____ day of _____, 20 _____, by and between _____, its successors and assigns, hereinafter called (the "Landowner"), and the City of Fairfax, Virginia, a Virginia municipal corporation (the "City");

WITNESSETH:

WHEREAS, the Landowner is the owner of record certain real property located within the City, and described as:

Tax map, block, and lot number

as acquired by deed recorded in the land records of the County of Fairfax, Virginia in Deed Book _____ at Page _____, (the "Property").

WHEREAS, Landowner is proceeding to build on and develop the Property and;

WHEREAS, Erosion and Sediment Control Plan/ Plan of Development/Site Plan/Subdivision Plan (describe fully) _____, (the "Plan"), which is expressly made a part hereof by reference, as approved or to be approved by the City, provides for detention or on-site treatment of stormwater within the confines of the Property and;

WHEREAS, Erosion and Sediment Control Plan/Plan of Development/Site Plan/Subdivision Plan identifies the type of structural best management practices facility or facilities as:

- 1) _____
- 2) _____ 4) _____
- 3) _____ 5) _____

as defined by the Virginia Stormwater Management Handbook and;

WHEREAS, Erosion and Sediment Control Plan/Plan of Development/Site Plan/Subdivision Plan identifies the geographic location (HUC), hydrologic unit code of each facility as:

- 1) _____ (HUC as established in 4 VAC 50-60-10) _____ (USGS HUC)
- 2) _____ (HUC as established in 4 VAC 50-60-10) _____ (USGS HUC)
- 3) _____ (HUC as established in 4 VAC 50-60-10) _____ (USGS HUC)
- 4) _____ (HUC as established in 4 VAC 50-60-10) _____ (USGS HUC)
- 5) _____ (HUC as established in 4 VAC 50-60-10) _____ (USGS HUC)

WHEREAS, Erosion and Sediment Control Plan/Plan of Development/Site Plan/Subdivision Plan identifies the impaired surface water that the best management practices facility is discharging into as:

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____

WHEREAS, Erosion and Sediment Control Plan/Plan of Development/Site Plan/Subdivision Plan identifies the number of acres treated by each facility as:

- 1) Total: _____ Pollutant Removal: TN: _____
Pervious: _____ TP: _____
Impervious: _____ TSS: _____
- 2) Total: _____ TN: _____
Pervious: _____ TP: _____
Impervious: _____ TSS: _____

- | | |
|-------------------|------------|
| 3) Total: _____ | TN: _____ |
| Pervious: _____ | TP: _____ |
| Impervious: _____ | TSS: _____ |
| 4) Total: _____ | TN: _____ |
| Pervious: _____ | TP: _____ |
| Impervious: _____ | TSS: _____ |
| 5) Total: _____ | TN: _____ |
| Pervious: _____ | TP: _____ |
| Impervious: _____ | TSS: _____ |
- and;

WHEREAS, Landowner acknowledges that the City Zoning Ordinance requires that on-site Best Management Practices, facilities, (the "Facilities"), be properly constructed and maintained, inspected on the property and;

WHEREAS, the City requires that the Facilities as shown on the Plan be constructed and adequately maintained by the Landowner.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. The Facilities shall be constructed by the Landowner, in accordance with the plans and specifications as identified in the Plan.
2. Landowner shall maintain the Facilities in good working condition, in a manner to be acceptable to the City, so that the Facilities perform as designed.
3. Landowner, hereby grant permission to the City, its authorized agents and employees, to enter upon the Property and to inspect the Facilities whenever the City deems it to be necessary. The purpose of the inspection shall be to assure safe and proper functioning of the Facilities, berms, outlet structures, pond areas, etc. When deficiencies are noted, the City shall give the Landowner, copies of the inspection report with its findings and evaluations within 30 days.
4. Landowner will submit inspection reports and perform maintenance in accordance with the maintenance schedule for the Facilities including sediment removal as outlined on the approved plans and the following specific requirements:
 - a. Maintenance of the aforementioned facility or facilities shall conform to the maintenance requirements contained in Chapter 9 of the 2013 Stormwater Management Handbook, published by the Virginia Department of Environmental Quality and the Virginia Stormwater BMP Clearinghouse Website, available at <http://www.vwrrc.vt.edu/swc/>
 - b. Inspection of Facilities shall be performed every **12** months by a qualified professional licensed to perform said work in the State of Virginia; an inspection report shall be submitted to the City Stormwater Program Specialist.
5. In the event the City, pursuant to this Agreement, enters upon the Property and takes whatever steps it deems necessary to maintain said Facilities and in performance of said work for labor, use of equipment, supplies, materials and the like on account of the Landowner's failure to perform such work, the Landowner shall reimburse the City, upon demand, within 30 days of receipt thereof for all costs incurred by the City hereunder. It is expressly understood and agreed that the City is under no obligation to maintain or repair said Facilities, and in no event shall this Agreement be construed to impose any such obligation on the City. If not paid within such 30-day period, the City shall have a lien against the Property to the extent permitted by law, in the amount of such costs, plus interest at the highest rate permitted by law.
6. Landowner shall indemnify and hold harmless the City, its officers, agents and employees for any and all damages, accidents, casualties, occurrences or claims which might arise or be asserted against the City for the construction, presence, existence of or maintenance of the Facilities by the Landowner. In the event a claim is asserted against the City, the City

shall promptly notify the Landowner, and the Landowner shall defend, at its own expense, any suit based on such claim. If any judgment or claim against the City shall be allowed, the Landowner shall pay all of the City's costs and expenses in connection therewith, including attorneys' fees.

- 7. Landowner hereby grants permission to the City, its authorized agents and employees, and the Northern Virginia Planning District Commission, its authorized agents, employees and consultants, to enter upon the property, and to install, operate and maintain equipment to monitor the flow rate and pollutant content of the input flow, the effluent, and at intermediate points in the BMP.
- 8. This Agreement shall be recorded among the land records of the County of Fairfax, Virginia, and shall constitute a covenant running with the land/or equitable servitude, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and other successors in interest.

WITNESS the following signatures and seals:

(Landowner) (Seal)

By: _____
Name (type or print)

Attest: _____
Secretary

WITNESS THE FOLLOWING SIGNATURE AND SEAL:

STATE OF _____ County/City/Town of _____ to-wit:

I, the undersigned, A Notary Public in and for the State and County, City or Town aforesaid, do hereby certify that this day personally appeared before me in the State and County, City or Town aforesaid:

(Name) (Title)

whose name(s) is(are) signed to the foregoing and hereunto annexed agreement bearing the _____ day of _____, 2_____, and acknowledged the same before me.

Given under my hand this _____ day of _____, 2_____.

Notary Registration Number#: _____

My Commission expires: _____ day of _____, 2_____.

(Notary Public Signature)

BMP AGREEMENT# (to be filled in by staff): _____

CITY OF FAIRFAX

By: _____
Stormwater Resource Engineer

By: _____
City Attorney – Approved as to Form

By: _____
City Manager

Attest: _____
City Clerk

WITNESS THE FOLLOWING SIGNATURE AND SEAL:

COMMONWEALTH OF VIRGINIA
CITY OF FAIRFAX to-wit:

The foregoing instrument was acknowledged before me this:

_____ day of _____, 2____. by _____, as City
Manager, on behalf of the City of Fairfax, Virginia.

My Commission expires: _____ day of _____, 2____.

Notary Registration Number#: _____

(Notary Public Signature)

Appendix B-5e

MCM #5 – List of BMPs Implemented in Year 4

Property Name	Property Address	BMP ID	BMP Type	Owner	Owner Address	Owner Phone #	Owner Email	Date Last Inspected	Date Installed	Date Maintained	Notes
Ashby Pond Conservatory	9817 Ashby Rd	2011107241	Detention Pond	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/21/16	6/2011	4/2016	
Daniel's Run Elementary School	3705 Old Lee Hwy	1999050105	Underground Detention	City of Fairfax Schools Superintendent, Peter Noonan	10455 Armstrong St Fairfax, VA 22030	703 293 7131	peter.noonan@fairfaxva.gov	3/21/16	1/1999		Buckling noted, 2016, continue to monitor
Draper Drive Park	9797 Beech Dr	2009020166	Bioretention	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/21/16	1/2009		
Draper Drive Park	9797 Beech Dr	2009020167	Infiltration Trench	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/21/16	1/2009		
Draper Drive Park	9797 Beech Dr	2009020168	Infiltration Trench	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/21/16	1/2009		
Fairfax Blvd Parcel	Fairfax Blvd west of Rebel Run	2005050141	Detention Pond	City of Fairfax Dept. of Public Works	10455 Armstrong St #200 Fairfax, VA 22030	703 273 6073	satoshi.eto@fairfaxva.gov	3/22/16	1/2005	9/2016	
Fairfax City Hall	10455 Armstrong St	2005030135	Bioretention	City of Fairfax Dept. of Public Works	10455 Armstrong St #200 Fairfax, VA 22030	703 273 6073	satoshi.eto@fairfaxva.gov	3/21/16	1/2005	9/2016	
Fairfax City Hall	10455 Armstrong St	2005030136	MTD - Filterra	City of Fairfax Dept. of Public Works	10455 Armstrong St #200 Fairfax, VA 22030	703 273 6073	satoshi.eto@fairfaxva.gov	3/22/16	1/2005	9/2016	
Fairfax City Hall	10455 Armstrong St	2005030137	MTD - Filterra	City of Fairfax Dept. of Public Works	10455 Armstrong St #200 Fairfax, VA 22030	703 273 6073	satoshi.eto@fairfaxva.gov	3/22/16	1/2005	9/2016	
Fairfax City Hall	10455 Armstrong St	2005030138	Underground Detention	City of Fairfax Dept. of Public Works	10455 Armstrong St #200 Fairfax, VA 22030	703 273 6073	satoshi.eto@fairfaxva.gov	3/22/16	1/2005	9/2016	
Fairfax City Police Station	3730 Old Lee Hwy	2005031139	Extended Detention Pond	City of Fairfax Dept. of Public Works	10455 Armstrong St #200 Fairfax, VA 22030	703 273 6073	satoshi.eto@fairfaxva.gov	3/21/16	1/2005	9/2016	
Fairfax City Regional Library	10360 North St	2005121147	Underground Detention	City of Fairfax Dept. of Public Works	10455 Armstrong St #200 Fairfax, VA 22030	703 273 6073	satoshi.eto@fairfaxva.gov	3/22/16	1/2005		
Fairfax City Regional Library	10360 North St	2005121148	MTD - Stormfilter	City of Fairfax Dept. of Public Works	10455 Armstrong St #200 Fairfax, VA 22030	703 273 6073	satoshi.eto@fairfaxva.gov	3/22/16	1/2005		
Fairfax County School Bus Lot	3850 Pickett Rd	2013107241	Underground Detention	City of Fairfax Schools Superintendent, Peter Noonan	10455 Armstrong St Fairfax, VA 22030	703 293 7131	peter.noonan@fairfaxva.gov	3/22/16	2/2013		
Fairfax High School	3501 Rebel Run	2005050140	MTD - Stormfilter	City of Fairfax Schools Superintendent, Peter Noonan	10455 Armstrong St Fairfax, VA 22030	703 293 7131	peter.noonan@fairfaxva.gov	3/21/16	1/2005		
Historic Blenheim House	3610 Old Lee Hwy	2007050154	Detention Pond	City of Fairfax Dept. of Historic Resources	10209 Main St Fairfax, VA 22030	703 273 5452	chris.martin@fairfaxva.gov	3/21/16	1/2007	9/2016	
Historic Blenheim House	3610 Old Lee Hwy	2007050155	Bioretention	City of Fairfax Dept. of Historic Resources	10209 Main St Fairfax, VA 22030	703 273 5452	chris.martin@fairfaxva.gov	3/21/16	1/2007	9/2016	
John Trammell Commons	John Trammell Ct	1992090079	Underground Detention	City of Fairfax Dept. of Public Works	10455 Armstrong St Fairfax, VA 22030	703 273 6073	satoshi.eto@fairfaxva.gov	3/22/16	1/1992		
Lanier Middle School	3801 Jermantown Rd	2008120160	Underground Detention	City of Fairfax Schools Superintendent, Peter Noonan	10455 Armstrong St Fairfax, VA 22030	703 293 7131	peter.noonan@fairfaxva.gov	3/22/16	1/2008		CSE Required for next inspection cycle
Old Town Square	10386 Main St	2015107241	Permeable Pavement	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/22/16	4/2015		
Old Town Square	10386 Main St	2015107242	Permeable Pavement	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/22/16	4/2015		
Providence Elementary School	3616 Jermantown Rd	1999108243	Underground Detention	City of Fairfax Schools Superintendent, Peter Noonan	10455 Armstrong St Fairfax, VA 22030	703 293 7131	peter.noonan@fairfaxva.gov	3/22/16	3/1999		
Providence Park	10715 West Dr	2010010174	Bioretention	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/22/16	1/2010		
Providence Park	10715 West Dr	2010010175	Underground Detention	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/22/16	1/2010	9/2016	
Providence Park	10715 West Dr	2010010176	Detention Pond	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/22/16	1/2010		
Providence Park	10715 West Dr	2010010177	Underground Detention	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/22/16	1/2010	9/2016	
Providence Park	10715 West Dr	2010010210	Detention Pond	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/22/16	10/2001		
Stacy C. Sherwood Community Center	3740 Old Lee Hwy	2010109243	Bioretention	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/21/16	1/2010		
Stafford Drive Park	3300 Stafford Dr	2007010152	Bioretention	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/21/16	1/2007	3/2016	
Stafford Drive Park	3300 Stafford Dr	2007010153	Infiltration Trench	City of Fairfax Dept of Parks & Rec	10455 Armstrong St #123 Fairfax, VA 22030	703 385 7858	cathy.salgado@fairfaxva.gov	3/21/16	1/2007	3/2016	

Property Name	Property Address	BMP ID	BMP Type	Owner	Owner Address	Owner Phone #	Owner Email	Date Last Inspected	Date Installed	Last Maint	Notes
10011 Mosby Rd	10011 Mosby Rd	2006106239	Infiltration Trench	David & Alison Wilks	3441 Commission Ct Woodbridge, VA 22192		dwilks@vfnlaw.com	4/18/17	7/2006	6/2015	
10013 Mosby Rd	10013 Mosby Rd	2006107243	Infiltration Trench	James & Jennifer Gear	10013 Mosby Rd Fairfax, VA 22030	703 383 5156 (H) 702 321 3090 (C)	jr.gear@verizon.net	4/18/17	7/2006		
10100 Dwight Ave	10100 Dwight Ave	2017120265	Infiltration Trench	Cantrell & Yvonne Dumas	10100 Dwight Ave Fairfax, VA 22032			6/1/17	11/2016		
10100 Main St	10100 Main St	2004120132	MTD - Filterra	10100 Main St, LLC Attn: John Lewett	4007 Stonewall Ave Fairfax, VA 22032			4/18/17	1/2004	6/2017	
10411 Stratford Ave	10411 Stratford Ave	2004107239	Infiltration Trench	Bruce & Monica Harris	10411 Stratford Ave Fairfax, VA 22030			4/28/17	1/2004		
10413 Stratford Ave	10413 Stratford Ave	2004106243	Infiltration Trench	Tina Brott & Wayne Robinson	10413 Stratford Ave Fairfax, VA 22030			4/26/17	1/2004		
10508 Center St	10508 Center St	2005070143	Infiltration Trench	Brian Kearney	10508 Center St Fairfax, VA 22030	703 615 2403		5/9/17	1/2005	7/2015	
10510 Center St	10510 Center St	2005070142	Infiltration Trench	Anthony & Mary Mont	10510 Center St Fairfax, VA 22030			5/9/17	1/2005	7/2015	
10512 Center St	10512 Center St	2005070144	Infiltration Trench	Ricardo, Ciprian, and Maria Tejada	10512 Center St Fairfax, VA 22030			5/9/17	1/2005	5/2015	
10535 Cedar Ave	10535 Cedar Ave	2016110246	Permeable Pavement	Springbridge Development, LLC	11820 Chanceford Dr Woodbridge, VA 22192	Jordan Stuart 202 316 5575	stujordan@gmail.com	5/9/17	4/2016		
10535 Cedar Ave	10535 Cedar Ave	2016110247	Level Spreader	Springbridge Development, LLC	11820 Chanceford Dr Woodbridge, VA 22192	Jordan Stuart 202 316 5575	stujordan@gmail.com	5/9/17	4/2016		
10535 Cedar Ave	10535 Cedar Ave	2016110248	Planter (Urban Bioretention)	Springbridge Development, LLC	11820 Chanceford Dr Woodbridge, VA 22192	Jordan Stuart 202 316 5575	stujordan@gmail.com	5/9/17	4/2016		
10535 Cedar Ave	10535 Cedar Ave	2016110249	Planter (Urban Bioretention)	Springbridge Development, LLC	11820 Chanceford Dr Woodbridge, VA 22192	Jordan Stuart 202 316 5575	stujordan@gmail.com	5/9/17	4/2016		
10535 Cedar Ave	10535 Cedar Ave	2016110250	Planter (Urban Bioretention)	Springbridge Development, LLC	11820 Chanceford Dr Woodbridge, VA 22192	Jordan Stuart 202 316 5575	stujordan@gmail.com	5/9/17	4/2016		
10535 Cedar Ave	10535 Cedar Ave	2016110251	Planter (Urban Bioretention)	Springbridge Development, LLC	11820 Chanceford Dr Woodbridge, VA 22192	Jordan Stuart 202 316 5575	stujordan@gmail.com	5/9/17	4/2016		
10710 Oak Pl	10710 Oak Pl	2007106239	Infiltration Trench	David Le Hai & Phuong-Mai Thi Nguyen	10710 Oak Pl Fairfax, VA 22030			6/9/17	8/2007	7/2015	
10831 Main St	10831 Main St	1981030011	Underground Detention	10831 Main St, LLC Dr. Gary Dennis	10831 Main St Fairfax, VA 22030	703 273 7795	egad9001@verizon.net	5/2/17	1/1981	9/2015	
10980 Fairfax Blvd	10980 Fairfax Blvd	2009040170	MTD - Filterra	Fairfax Assoc. LLC c/o Helman Holdings LLP	7100 Rutherford Rd Baltimore, MD 21244	Dennis Lee 847 315 4579	dennis.lee@walgreens.com	3/24/17	1/2009	11/2016	
11051-61 Lee Highway	11051-61 Lee Hwy	1987051054	Underground Detention	Lee Highway LP, c/o Lee Highway Associates, LLC	680 Merrimack Cir Palm Beach Gardens, FL 32410	410 365 9924	bob@thebigtv.com	4/4/17	1/1987	7/2016	
3503 Burrows Ave	3503 Burrows Ave	2017121266	Planter (Urban Bioretention)	DDF, LLC	109 Park Washington Ct Falls Church, VA 22046	571 215 9852		5/2/17	6/2016		
3503 Burrows Ave	3503 Burrows Ave	2017121267	Planter (Urban Bioretention)	DDF, LLC	109 Park Washington Ct Falls Church, VA 22046	571 215 9852		5/2/17	6/2016		
3503 Burrows Ave	3503 Burrows Ave	2017121268	Planter (Urban Bioretention)	DDF, LLC	109 Park Washington Ct Falls Church, VA 22046	571 215 9852		5/2/17	6/2016		
3503 Burrows Ave	3503 Burrows Ave	2017121269	Planter (Urban Bioretention)	DDF, LLC	109 Park Washington Ct Falls Church, VA 22046	571 215 9852		5/2/17	6/2016		
3503 Burrows Ave	3503 Burrows Ave	2017121270	Amended Soils	DDF, LLC	109 Park Washington Ct Falls Church, VA 22046	571 215 9852		5/2/17	6/2016		
3503 Burrows Ave	3503 Burrows Ave	2017121271	Planter (Urban Bioretention)	DDF, LLC	109 Park Washington Ct Falls Church, VA 22046	571 215 9852		5/2/17	6/2016		
3503 Burrows Ave	3503 Burrows Ave	2017121272	Amended Soils	DDF, LLC	109 Park Washington Ct Falls Church, VA 22046	571 215 9852		5/2/17	6/2016		
3508 Perry St	3508 Perry St	2016111252	Infiltration Trench	Joel & Diane Braunfeld	3508 Perry St Fairfax, VA 22030			5/2/17	3/2016		
3554 Chain Bridge Rd	3554 Chain Bridge Rd	1985040022	Underground Detention	ELE N. A., LLC.	3900 Jermantown Rd Fairfax, VA 22030	703 402 3355	john@lann.com	3/24/17	1/1985	12/2014	
3554 Chain Bridge Rd	3554 Chain Bridge Rd	1985040023	Underground Detention	ELE N. A., LLC.	3900 Jermantown Rd Fairfax, VA 22030	703 402 3355	john@lann.com	3/24/17	1/1985	12/2014	
3600 McLean Ave	3600 McLean Ave	2007107239	Infiltration Trench	Simon & Kim Yen Chu	3600 McLean Ave Fairfax, VA 22030			3/24/17	12/2007	11/2016	
3617 Chain Bridge Rd	3617 Chain Bridge Rd	2012040200	Infiltration Trench	Tam Tue Duong & Son Kim Hyunh	3617 Chain Bridge Rd Fairfax, VA 22030	703 628 8988	mail24hn@gmail.com	4/28/17	1/2012	7/2016	
3704 Hill St	3704 Hill St	2017126277	Infiltration Trench	Jeffrey & Ginger Souders	3704 Hill St Fairfax, VA 22030			6/7/17	9/2006		
3801 University Dr	3801 University Dr	2008060158	Underground Detention	Commercial Condominium Management Company	8456-A Tyco Rd Tysons Corner, VA 22182	703 564 6513, Jennifer Carr	jennifer@ccmc.ws	6/1/16	1/2008	11/2014	LARGE/HEAVY LIDS, CSE REQ

3801 University Dr	3801 University Dr	2008060159	MTD - Stormfilter	Commercial Condominium Management Company	8456-A Tyco Rd Tysons Corner, VA 22182	703 564 6513, Jennifer Carr	Jennifer@ccmc.ws	6/1/17	1/2008	10/2016	Check RE records; Doctors Investment Group II, LLC?
3900 Jermantown Rd	3900 Jermantown Rd	1986050042	Underground Detention	The Lann Companies, ARG, LLC	3900 Jermantown Rd Fairfax, VA 22030	703 402 3355	john@lann.com	5/2/17	1/1986	11/2014	
3915 Estel Rd	3915 Estel Rd	2016118263	Infiltration Trench	Sang Hoang & Tung-Chau Nguyen	3915 Estel Rd Fairfax, VA 22030			4/18/17	1/2015		
3922-3924 Old Lee Hwy	3922-3924 Old Lee Hwy	1978110241	Infiltration Trench	Combined Court House LLC c/o Combined Properties, Inc.	1023 Thomas Jefferson St NW Ste 700 E Washington DC 20007			5/23/17	7/1978	8/2016	
4004 Virginia St	4004 Virginia St	2015106239	Infiltration Trench	Jayeshkumar & Urmila Desai	4004 Virginia St Fairfax, VA 22032			4/18/17	3/2015		
4004 Virginia St	4004 Virginia St	2015106240	Infiltration Trench	Jayeshkumar & Urmila Desai	4004 Virginia St Fairfax, VA 22032			4/18/17	3/2015		
4014 Burke Station Rd	4014 Burke Station Rd	2004108241	Infiltration Trench	Kevin & Robin Mittler	4014 Burke Station Rd Fairfax, VA 22030			6/7/17	4/2004	7/2016	
4020 Walters Ct	4020 Walters Ct	2009080173	Infiltration Trench	Steven Hawk & Jennifer Harrington	4020 Walters Ct Fairfax, VA 22030			4/13/15	1/2009		
4022 Hallman St	4022 Hallman St	2006108241	Infiltration Trench	Antonio Capizzani & Marcia Loureiro	4022 Hallman St Fairfax, VA 22030			4/7/16	9/2006	7/2016	
4028 Chestnut St	4028 Chestnut St	2010107241	Infiltration Trench	Abraham & Dora Hershkovitz	4028 Chestnut St Fairfax, VA 22030			4/4/17	3/2010		
4100 John Trammell Ct	4100 John Trammell Ct	1992090080	Infiltration Trench	Elizabeth Kifonidis	4100 John Trammell Ct Fairfax, VA 22030			5/9/17	9/1992		
4102 John Trammell Ct	4102 John Trammell Ct	1992090081	Infiltration Trench	Eldor & Judith Pederson	4102 John Trammell Ct Fairfax, VA 22030			5/9/17	9/1992		
4103 Office Building	4103 Chain Bridge Rd	1975107273	MTD - Rooftop Detention	4103 Chain Bridge Rd, LLC	4101 Chain Bridge Rd Ste 110 Fairfax, VA 22030	192 316 5575		6/15/17	4/1975		
4104 John Trammell Ct	4104 John Trammell Ct	1992090082	Infiltration Trench	Ernest & Mary Bubb	4104 John Trammell Ct Fairfax, VA 22030	703 691 4080	mbubb@cox.net	5/9/17	9/1992		
4105 John Trammell Ct	4105 John Trammell Ct	1992090088	Infiltration Trench	Sandra Moshos	4105 John Trammell Ct Fairfax, VA 22030	Charles Spasaro 571 212 0433	csparasro@yahoo.com	5/9/17	9/1992	8/2015	
4106 John Trammell Ct	4106 John Trammell Ct	1992090084	Infiltration Trench	Emmanuel Sigler	4106 John Trammell Ct Fairfax, VA 22030			5/9/17	9/1992		
4107 John Trammell Ct	4107 John Trammell Ct	1992090087	Infiltration Trench	Ronald Cross	4107 John Trammell Ct Fairfax, VA 22030			5/9/17	9/1992		
4108 John Trammell Ct	4108 John Trammell Ct	1992090083	Infiltration Trench	Elizabeth Parks	4108 John Trammell Ct Fairfax, VA 22030			5/9/17	9/1992	9/2016	
4109 John Trammell Ct	4109 John Trammell Ct	1992090086	Infiltration Trench	Timothy & Susan Gibson	4109 John Trammell Ct Fairfax, VA 22030	Tim Gibson 703 691 8379	gibsonetal@gmail.com	5/9/17	9/1992	8/2015	
4110 John Trammell Ct	4110 John Trammell Ct	1992090085	Infiltration Trench	Joseph & Margaret Procaccino	4110 John Trammell Ct Fairfax, VA 22030			5/9/17	9/1992		
4119 Virginia St, Lot 21	4119 Virginia St	2016112253	Infiltration Trench	Kenneth & Marian Strazzeri	4119 Virginia St Fairfax, VA 22030			4/18/17	1/2015	7/2016	
4121 Virginia St, Lot 22	4121 Virginia St	2016114255	Infiltration Trench	Matthew & Rebecca Slaight	4121 Virginia St Fairfax, VA 22030			4/18/17	1/2015	6/2016	
4123 Virginia St, Lot 23	4123 Virginia St	2016113254	Infiltration Trench	Donald Pitchford	4123 Virginia St Fairfax, VA 22030			4/18/17	1/2015		
4125 Virginia St, Lot 24	4125 Virginia St	2016115256	Infiltration Trench	Wellesley & Wandella Lynn	4125 Virginia St Fairfax, VA 22030	703 380 3761		4/18/17	1/2015	7/2016	
4210 Orchard Dr	4210 Orchard Dr	2006109241	Infiltration Trench	Wyatt & Francie Winslow	4210 Orchard Dr Fairfax, VA 22032		wyattwinslow@icloud.com	4/19/17	7/2006	9/2016	
4212 Orchard Dr	4212 Orchard Dr	2006110241	Infiltration Trench	Bethany Lee & Hasan Farkhani	4212 Orchard Dr Fairfax, VA 22032			4/18/17	7/2006	7/2015	
9917 Colony Rd	9917 Colony Rd	2017125276	Infiltration Trench	BNN Capital Investments, LLC	3943 Old Lee Hwy Fairfax, VA 22030	Nasir Noory 703 863 7161	noorynasir@yahoo.com	4/26/17	12/2016		
9959 Main St	9959 Main St	1984120020	Underground Detention	Main St 9959 LLC, c/o Stout & Teague Management Corp.	8001 Forbes Pl, Ste 305 Springfield, VA 22151			4/18/17	1/1984	10/2014	
9959 Main St	9959 Main St	1984120213	MTD - Stormceptor	Main St 9959 LLC, c/o Stout & Teague Management Corp.	8001 Forbes Pl, Ste 305 Springfield, VA 22151			4/18/17	1/1984		
A+ Used Car Sales & Service	9711 Fairfax Blvd	2005020133	Bioretention	Sam Fairfax, LLC c/o Reines RV	10620 Rock Run Dr Potomac, MD 20854	703 392 1100	lindsey@reinesrv.com	3/29/17	1/2005	9/2016	
Additur Building	10509 Judicial Dr	2000107241	Underground Detention	Pond Investments LLC c/o National Realty Partners	365 Herndon Pkwy #106 Herndon, VA 20170	Molly Pumphrey 703 435 3800	mpumphrey@NRPartnersLLC.com	5/23/17	6/2000	10/2015	
Additur Building	10509 Judicial Dr	2000107242	MTD - Stormfilter	Pond Investments LLC c/o National Realty Partners	365 Herndon Pkwy #106 Herndon, VA 20170	Molly Pumphrey 703 435 3800	mpumphrey@NRPartnersLLC.com	6/9/17	6/2000	10/2015	
Affectionate Pet Care	3851 Pickett Rd	2013090235	Infiltration Trench	3851 Pickett Rd, LLC	P.O. Box 2366 Fairfax, VA 22031	703 929 1140	amy@affectionatepetcare.com	4/5/17	12/2011	6/2017	
Apple Federal Credit Union	9701 Main St	2005021134	MTD - Stormceptor	Apple Federal Credit Union Attn: Accounts Payable	P.O. Box 888 Fairfax, VA 22038	Rich Taddeo 708 788 4889	rtaddeo@applefcu.org	4/5/17	1/2005		

Army Navy Country Club	3315 Old Lee Hwy	2010020178	Detention Pond	Army Navy Country Club	Send to Cameron Glen Navy Dr Arlington, VA 22202	703 928 5718	cgiannini18@gmail.com	4/5/17	1/2010	9/2016	
Army Navy Country Club	3315 Old Lee Hwy	2010020179	Detention Pond	Army Navy Country Club	Send to Cameron Glen Navy Dr Arlington, VA 22202	703 928 5718	cgiannini18@gmail.com	4/5/17	1/2010	9/2016	
Autozone	10960 Fairfax Blvd	2013092241	Bioretention	ODW LP c/o Doris Barbe	P.O. Box 1009 Latrobe, PA 15650	Braswell 901 495 242	kimberlye.braswell@autozone.com	3/24/17	2/2009	11/2016	
Avery Park	Mercedes Way	2014108243	Bioretention	Christopher Companies	10461 White Granite Dr, Ste 103, Oakton, VA 22124	Mike Sandkuhler 703 352 5950	msandkuhler@christophercompanies.com	5/2/17	8/2015		
Avery Park	Mercedes Way	2014108244	Bioretention	Christopher Companies	10461 White Granite Dr, Ste 103, Oakton, VA 22124	Mike Sandkuhler 703 352 5950	msandkuhler@christophercompanies.com	5/2/17	8/2015		
Barristers Keepe	Barristers Keepe Cir	1995120096	Underground Detention	Barrister's Keepe HOA c/o Tom Burrell	3484 Barristers Keepe Cir Fairfax, VA 22031	703 927 7580	tom.burrell@verizon.net	6/7/17	1/1995		
Boulevard Courts	Barristers Keepe Cir	1980120009	Infiltration Trench	9917 Joint Venture, LLC	5910 Colchester Rd Fairfax, VA 22030	703 861 2624	pegkip@cox.net	4/26/17	1/1980	7/2016	Postal address changed 2017. Contact may not be the same.
Boulevard Marketplace	10120 Fairfax Blvd	2012010196	MTD - Stormfilter	JDC Boulevard, LLC c/o Rosenthal Properties	1945 Old Gallows Rd, Ste 300 Vienna, VA 22182	Vickie Whitaker 703 893 5263	vwhitaker@rosenthalproperties.com	6/1/17	1/2012	9/2016	
Boulevard Marketplace	10120 Fairfax Blvd	2012010197	MTD - Stormfilter	JDC Boulevard, LLC c/o Rosenthal Properties	1945 Old Gallows Rd, Ste 300 Vienna, VA 22182	Vickie Whitaker 703 893 5263	vwhitaker@rosenthalproperties.com	6/1/17	1/2012	9/2016	
Boulevard Marketplace	10120 Fairfax Blvd	2012010198	Underground Detention	JDC Boulevard, LLC c/o Rosenthal Properties	1945 Old Gallows Rd, Ste 300 Vienna, VA 22182	Vickie Whitaker 703 893 5263	vwhitaker@rosenthalproperties.com	6/1/17	1/2012	9/2016	
Boulevard Marketplace	10120 Fairfax Blvd	2012010199	Underground Detention	JDC Boulevard, LLC c/o Rosenthal Properties	1945 Old Gallows Rd, Ste 300 Vienna, VA 22182	Vickie Whitaker 703 893 5263	vwhitaker@rosenthalproperties.com	6/1/17	1/2012	9/2016	
Boulevard Shopping Center	10700 Fairfax Blvd	2008121161	MTD - Filterra	Shops at Fairfax, LLC	7501 Wisconsin Ave #1500 E Bethesda, MD 20814	Bahram Solhjou 301 986 6172	bahram.solhjou@saulcenters.com	3/24/17	1/2008	9/2015	
Boulevard Shopping Center	10700 Fairfax Blvd	2008121162	MTD - Filterra	Shops at Fairfax, LLC	7501 Wisconsin Ave #1500 E Bethesda, MD 20814	Bahram Solhjou 301 986 6172	bahram.solhjou@saulcenters.com	3/24/17	1/2008	9/2015	
Boulevard Shopping Center	10700 Fairfax Blvd	2008121163	MTD - Filterra	Shops at Fairfax, LLC	7501 Wisconsin Ave #1500 E Bethesda, MD 20814	Bahram Solhjou 301 986 6172	bahram.solhjou@saulcenters.com	3/24/17	1/2008	9/2015	
Boulevard Shopping Center	10700 Fairfax Blvd	2008121164	MTD - Filterra	Shops at Fairfax, LLC	7501 Wisconsin Ave #1500 E Bethesda, MD 20814	Bahram Solhjou 301 986 6172	bahram.solhjou@saulcenters.com	3/24/17	1/2008	9/2015	
Boulevard Shopping Center	10700 Fairfax Blvd	2008121165	MTD - Filterra	Shops at Fairfax, LLC	7501 Wisconsin Ave #1500 E Bethesda, MD 20814	Bahram Solhjou 301 986 6172	bahram.solhjou@saulcenters.com	3/24/17	1/2008	9/2015	
Breckinridge	10401-10417 Breckinridge Ln	1988020068	Detention Pond	Breckinridge HOA, c/o W. Douglas Figg	10451 Breckinridge Ln Fairfax, VA 22030	W. D. Figg 703 359 0589	wdfigg@hotmail.com	5/9/17	1/1988	7/2015	
Cameron Glen	Cameron Glen Dr	2011108243	Underground Detention	Cameron Glen HOA c/o SFMC, Inc.	12084 Cadet Ct Manassas, VA 20109	Wally Coy	cameronglenHOA@gmail.com	4/15/16	12/2011		CSE REQUIRED
Canfield Village Commercial	4290 Chain Bridge Rd	2011110190	MTD - Stormfilter	The Johnson A. Edosomwan LLC	P.O. Box 7282 Fairfax Station, VA 22039		patron@edosroyalestate.com	4/19/17	12/2012		
Canfield Village Commercial	4290 Chain Bridge Rd	2011110191	MTD - Stormfilter	The Johnson A. Edosomwan LLC	P.O. Box 7282 Fairfax Station, VA 22039		patron@edosroyalestate.com	4/19/17	12/2012		
Canfield Village Commercial	4290 Chain Bridge Rd	2011110192	MTD - Stormfilter	The Johnson A. Edosomwan LLC	P.O. Box 7282 Fairfax Station, VA 22039		patron@edosroyalestate.com	4/19/17	12/2012		
Canfield Village Commercial	4290 Chain Bridge Rd	2011110195	Underground Detention	The Johnson A. Edosomwan LLC	P.O. Box 7282 Fairfax Station, VA 22039		patron@edosroyalestate.com	4/19/17	12/2012		
Canfield Village Residential	Edosomwan Ln	2016116257	Stormfilter	Canfield Village HOA, Inc	P.O. Box 7282 Fairfax Station, VA 22039		patron@edosroyalestate.com	4/19/17	1/2014	9/2016	
Canfield Village Residential	Edosomwan Ln	2016116258	Underground Detention	Canfield Village HOA, Inc	P.O. Box 7282 Fairfax Station, VA 22039		patron@edosroyalestate.com	4/19/17	1/2014		
Carolyn Building	10400 Eaton Pl	1978107241	Underground Detention	Polinger Company	1000 Chevy Chase, MD 3935 Wisconsin Ave, Ste 20815			6/1/16	6/1978		CSE REQUIRED
Carolyn Building	10400 Eaton Pl	1978107242	MTD - Rooftop Detention	Polinger Company	1000 Chevy Chase, MD 3935 Wisconsin Ave, Ste 20815	301 968 9130	psquires@polingerco.com	6/15/17	6/1978		Check RE Records: PDC Eaton Pl, LLC
Chancery Square	Governor Yeardley Ln	1994030092	Underground Detention	First Service Residential	11351 Random Hills Rd Ste 500 Fairfax, VA 22030	703 395 1133	president@chancerysquare.net	6/16/16	1/1994		
Chancery Square	Governor Yeardley Ln	1994030093	Underground Detention	First Service Residential	11351 Random Hills Rd Ste 500 Fairfax, VA 22030	703 395 1133	katie.halfhill@fsresidential.com	6/16/16	1/1994		
Chess-Foster Office Building	3900 University Dr	1976107241	MTD - Rooftop Detention	3900 University Associates LC	3975 University Dr #320 Fairfax, VA 22030	Dina 703 385 8900	fostermgt@mris.com	6/7/17	9/1976		
Chick-Fil-A Restaurant	9509 Fairfax Blvd	2013093241	MTD - Stormfilter	Michael Degen	11623 River Meadows Way Fredericksburg, VA 22408			6/7/17	5/2012	8/2016	
Circle Office Building	3204 Old Pickett Rd	1973107241	Infiltration Trench	Sanoy, LLC	P.O. Box 3804 Fairfax, VA 22030		sanoyfairfax@gmail.com	3/29/17	10/1973	12/2015	
Circle Office Building	3204 Old Pickett Rd	1973107259	Rooftop Detention	Sanoy, LLC	P.O. Box 3804 Fairfax, VA 22030		sanoyfairfax@gmail.com	8/2/16	10/1973		
City Square Office Building	10640 Page Ave	1981050012	Underground Detention	10640 Page Ave, LLC	8218 Wisconsin Ave, Ste 402 Bethesda, MD 20814	Lee Miller 301 986 9441	lee@leemiller.com	5/23/17	1/1981		Lee Miller is correct contact. RE contact is to lender.
Clarks Corner	Colonel Mendez Way	2013096241	Underground Detention	CLARKS CORNER HOMEOWNERS Association Inc. c/o Landscape Atlantic	2700 South Nelson St Arlington, VA 22206	703 998 5200	dlawson581@gmail.com	4/18/17	5/2010	5/2016	

Comfort Inn	11180 Fairfax Blvd	1985107241	Detention Pond	Louisiana Hospitality Inc. Virginia Hospitality LLC	1477 Mayhurst Blvd McLean, VA 22102	Mariana 703 591 5900 x7193	gm.va073@choicehotels.com	5/2/17	7/1985	5/2016	Stop by and notify front desk prior to inspection.
Commonwealth Park	4260-66 Chain Bridge Rd	1985100021	Detention Pond	GMU Foundation, Inc. Director of Real Estate	1A3, 4400 University Dr, Fairfax, VA 22030	703 993 8738	droe@gmu.edu	4/19/17	1/1985	6/2015	
Comstock	9734 Main St	1974010001	Underground Detention	Comstock HOA c/o Sam Fisher	3955 Bradwater St Fairfax, VA 22031	703 631 7200	coliver@cmc-management.com	4/18/17	1/1974		
Conley Properties	4096 Orchard Dr	2011050189	Bioretention	Conley Real Estate, LLC, John Manganello	10805 Main St, Ste 700 Fairfax, VA 22030	703 591 5800 x102	john@landdevelopmentconsultants.com	4/18/17	1/2011	10/2016	DELETE 2018, replaced by 2 infiltration.
Courthouse Plaza One	10366-98 Democracy Ln	2013040208	Bioretention	Courthouse Plaza One LLC c/o Willco	7811 Montrose Rd, Ste 200 Potomac, MD 20854			5/23/17	1/2013	8/2015	
Courthouse Professional Center	3921-3951 University Dr	1978108241	Underground Detention	CPC LC c/o Sequoia Management Co	13998 Parkeast Cir Chantilly, VA 20151	703 591 705 972 3402 Sharon Behrens	osmoot@sequoiamtg.com	5/23/17	5/1978	8/2015	
Courthouse Professional Center	3921-3951 University Dr	1978108242	Infiltration Trench	CPC LC c/o Sequoia Management Co	13998 Parkeast Cir Chantilly, VA 20151		osmoot@sequoiamtg.com	5/23/17	5/1978		
Courthouse Square Office Building	10521 Judicial Dr	1981107214	Underground Detention	10521 Judicial Dr LLC	P.O. Box 189 Clifton, VA 20124			5/23/17	7/1981		
Courthouse Square Office Building	10521 Judicial Dr	1981107242	Underground Detention	10521 Judicial Dr LLC	P.O. Box 189 Clifton, VA 20124			5/23/17	7/1981	9/2015	
Credit Union Mortgage Association Headquarters	10800 Main St	1986107241	MTD - Rooftop Detention	Credit Union Mortgage Association, Inc.	10800 Main St Fairfax, VA 22030	Scott Toler 703 425 1204 x112	stoler@cumortgage.net	6/15/17	7/1986		
Crestmont Section I	Courtney Dr	1994107241	Underground Detention	Crestmont Homeowners Association c/o Mr. Dan Ozioli	4114 Trowbridge Ct Fairfax, VA 22030	Dan Ozioli 703 862 8859	dozoli@verizon.net	5/4/16	3/1994		CSE REQUIRED
Crestmont Section I	Courtney Dr	1994107242	Underground Detention	Crestmont Homeowners Association c/o Mr. Dan Ozioli	4114 Trowbridge Ct Fairfax, VA 22030	Dan Ozioli 703 862 8859	dozoli@verizon.net	5/4/16	3/1994		CSE REQUIRED
Crestmont Section I	Courtney Dr	1994107243	Underground Detention	Crestmont Homeowners Association c/o Mr. Dan Ozioli	4114 Trowbridge Ct Fairfax, VA 22030	Dan Ozioli 703 862 8859	dozoli@verizon.net	5/4/16	3/1994		CSE REQUIRED
Crestmont Section I	Courtney Dr	1994107244	Underground Detention	Crestmont Homeowners Association c/o Mr. Dan Ozioli	4114 Trowbridge Ct Fairfax, VA 22030	Dan Ozioli 703 862 8859	dozoli@verizon.net	5/4/16	3/1994		CSE REQUIRED
CubeSmart Self-Storage	3179 Draper Dr	1998020102	Underground Detention	Cubesmart, LP PTA CS #924	P.O. Box 320099 Alexandria, VA 22320		aprudente@cubesmart.com	3/29/17	1/1998	11/2014	
CVS Pharmacy	10090 Fairfax Blvd	1978030007	Underground Detention	Mr. Robert E. Stafford & Assoc. LP	3 Moon Creek Cir Smithfield, VA 23430			4/26/17	1/1978		
CVS Pharmacy	10090 Fairfax Blvd	1978030265	Underground Detention	Mr. Robert E. Stafford & Assoc. LP	3 Moon Creek Cir Smithfield, VA 23430			4/26/17	1/1978		
DC Metro Church	3500 Pickett Rd	1989040070	Underground Detention	DC Metro Church, Inc. Attn: Andy Lloyd	1200 N. Fayette St Alexandria, VA 22314	703 229 4488	alloyd@dcmetrochurch.org	4/18/17	1/1989		
DC Metro Church	3500 Pickett Rd	1989040071	Infiltration Trench	DC Metro Church, Inc. Attn: Andy Lloyd	1200 N. Fayette St Alexandria, VA 22314	703 229 4488	alloyd@dcmetrochurch.org	4/18/17	1/1989		
DC Metro Church	3500 Pickett Rd	1989040072	Infiltration Trench	DC Metro Church, Inc. Attn: Andy Lloyd	1200 N. Fayette St Alexandria, VA 22314	703 229 4488	alloyd@dcmetrochurch.org	4/18/17	1/1989		
DC Metro Church	3500 Pickett Rd	1989040073	Infiltration Trench	DC Metro Church, Inc. Attn: Andy Lloyd	1200 N. Fayette St Alexandria, VA 22314	703 229 4488	alloyd@dcmetrochurch.org	4/18/17	1/1989		
Dominion Virginia Power Fairfax Headquarters	11133 Fairfax Blvd	1985108241	Infiltration Trench	Dominion Virginia Power	11133 Fairfax Blvd Fairfax, VA 22030	Sheldon Arbogast 703 859 0706	sheldon.arbogast@dom.com	4/4/17	10/1985	9/2015	
Dr. Rye's Office Building	10614 Warwick Ave	2003107241	Underground Detention	Donna Rye Rye 5, LLC	5940 Fairview Woods Dr Fairfax Station, VA 22039	Donna Rye 703 855 3393	donnamrye@aol.com	3/29/17	8/2003	11/2016	Check RE Records. Records refer to 10614 Warwick.
Dr. Rye's Office Building	10614 Warwick Ave	2003107242	MTD - Stormfilter	Donna Rye Rye 5, LLC	5940 Fairview Woods Dr Fairfax Station, VA 22039	Donna Rye 703 855 3393	donnamrye@aol.com	3/29/17	8/2003	9/2016	
Dunkin Donuts	9550 Fairfax Blvd	1987020049	Detention Pond	Margaret S.F. Davenport, LLC c/o Dunkin Brands MS 3WB	130 Royall St #100 - PC306136 Canton, MA 02021			3/27/17	1/1987		
Dunkin Donuts	9550 Fairfax Blvd	1987020050	Detention Pond	Margaret S.F. Davenport, LLC c/o Dunkin Brands MS 3WB	130 Royall St #100 - PC306136 Canton, MA 02021			3/27/17	1/1987		
Eaves Fairfax City	10600 Kitty Pozer Dr	1986100046	Underground Detention	Avalon at Providence Park LLC c/o Avalon Bay	671 N Glebe Rd #800 Arlington, VA 22203	703 818 2332	michael_thomas@avalonbay.com	6/9/17	1/1986	9/2015	
Eaves Fairfax City	10600 Kitty Pozer Dr	1986100047	Underground Detention	Avalon at Providence Park LLC c/o Avalon Bay	671 N Glebe Rd #800 Arlington, VA 22203	703 818 2332	michael_thomas@avalonbay.com	4/19/17	1/1986	8/2014	
Erich Office Building	4031 University Dr	1973108242	MTD - Rooftop Detention	Georgetown Partners, LLC c/o Aubinoe Management	7507 Arlington Rd Bethesda, MD 20814			6/15/17	6/1973		
Exxon	10480 Fairfax Blvd	1993070091	MTD - Oil/Grit Separator	Burke Petroleum Realty, LLC	6820 B Commercial Dr Springfield, VA 22151	-	-	6/7/17	1/1993	7/2016	
Exxon	10485 Fairfax Blvd	1998011100	MTD - Stormceptor	GTY-CPG (VA/DC) Leasing, Inc.	Two Jericho Plaza #110, Wing C, Jericho, NY 11753	-	-	4/28/17	1/1998	7/2016	
Fair City Mall	9600-9698 Main St	2014109243	MTD - Filterra	HHH Properties Corp. Attn: Fred Cornett	4001 Williamsburg Ct Fairfax, VA 22032	703 278 8801	fcornett@hhhproperties.net	4/5/17	1/2014	7/2015	
Fair Oaks Square Condominiums	11092-96 Lee Hwy	1987070055	Underground Detention	Fair Oaks Square Condo. Assoc. Sharon Scarce	P.O. Box 644 Centreville, VA 20121	703 209 1550		4/4/17	1/1987		
Fairfax Boulevard Center	9607-9625 Fairfax Blvd	2010120187	MTD - Filterra	9625 Lee Hwy LLC Judy Lothrop	11208 Split Rail Ln Fairfax, VA 22039	703 409 0180	dewarsbmw@yahoo.com	3/29/17	1/2010	7/2016	

Fairfax Boulevard Crossing	9940 Fairfax Blvd	1978050008	Underground Detention	JDC Fairfax Garden, LLC c/o J. Donegan Co.	1760 Reston Pkwy, Ste 210 Reston, VA 20190	703 956 9775	fay@jaydoneganco.com	4/26/17	1/1978		
Fairfax Christian Church	10185 Main St	1989120076	Infiltration Trench	Fairfax Christian Church c/o Chairman of Trust	10185 Main St Fairfax, VA 22030	Carol Owen 703 624 2957	carol7777@aol.com	4/18/17	1/1989	7/2015	Mail reports to Carol Owen: 4600 Olley Ln, Fairfax, VA 22032
Fairfax Christian Church	10185 Main St	1989120077	Infiltration Trench	Fairfax Christian Church c/o Chairman of Trust	10185 Main St Fairfax, VA 22030	Carol Owen 703 624 2957	carol7777@aol.com	4/18/17	1/1989	7/2015	Mail reports to Carol Owen: 4600 Olley Ln, Fairfax, VA 22032
Fairfax City Plaza	9536 Lee Hwy	2016117259	Underground Detention	Fairfax Plaza, LLC	1752 Gilson St Falls Church, VA 22043	202 316 5575				3/2017	
Fairfax City Plaza	9536 Lee Hwy	2016117260	MTD - Filterra	Fairfax Plaza, LLC	1752 Gilson St Falls Church, VA 22043	202 316 5575				3/2017	
Fairfax City Plaza	9536 Lee Hwy	2016117261	MTD - Filterra	Fairfax Plaza, LLC	1752 Gilson St Falls Church, VA 22043	202 316 5575				3/2017	
Fairfax City Plaza	9536 Lee Hwy	2016117262	MTD - Filterra	Fairfax Plaza, LLC	1752 Gilson St Falls Church, VA 22043	202 316 5575				3/2017	
Fairfax Commons	3917 Old Lee Hwy	1987080056	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	5/16/17	1/1987		Maint to be completed 6/2016
Fairfax Commons	3915 Old Lee Hwy	1987080057	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	6/15/17	1/1987	6/2016	Maint to be completed 6/2016
Fairfax Commons	3913 Old Lee Hwy	1987080058	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	6/15/17	1/1987	6/2016	
Fairfax Commons	3911 Old Lee Hwy	1987080059	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	6/7/17	1/1987		Maint to be completed 6/2016
Fairfax Commons	3925 Old Lee Hwy	1987080060	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	6/4/15	1/1987		DNI 2016 - Maint to be completed 12/2018
Fairfax Commons	3923 Old Lee Hwy	1987080061	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	6/15/17	1/1987	6/2016	
Fairfax Commons	3921 Old Lee Hwy	1987080062	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	6/7/17	1/1987		DNI 2016 - Maint to be completed 12/2017
Fairfax Commons	3919 Old Lee Hwy	1987080063	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	6/7/17	1/1987		DNI 2016 - Maint to be completed 12/2017
Fairfax Commons	3929 Old Lee Hwy	1987080064	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	6/15/17	1/1987		DNI 2016 - Maint to be completed 12/2018
Fairfax Commons	3927 Old Lee Hwy	1987080065	MTD - Rooftop Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	6/15/17	1/1987	10/2015	
Fairfax Commons	3917 Old Lee Hwy	1987080066	Underground Detention	Sequoia Management c/o Craig Courtney	13998 Parkeast Cir Chantilly, VA 20151	703 803 9641	ccourtney@sequoiamgmt.com	5/23/17	1/1987	6/2015	
Fairfax County Health Department Lab	10310 Layton Hall Dr	2009030169	MTD - Filterra	Fairfax County Stormwater Management Branch,	10635 West Dr, Fairfax, VA 22030	703 877 2859	karlee.copeland@fairfaxcounty.gov	5/23/17	1/2009	7/2016	
Fairfax County Jermantown Facility	3609 Jermantown Rd	1988107241	Detention Pond	Fairfax County Stormwater Management Branch,	10635 West Dr, Fairfax, VA 22030	703 877 2859	karlee.copeland@fairfaxcounty.gov	5/2/17	8/1988		
Fairfax Crossroads	3601-15 Chain Bridge Rd	1985060030	Underground Detention	CMSI, Inc. Attn: Satish Joshi	P.O. Box 220010 Chantilly, VA 20153	571 247 4304	satish@cmsgmt.com	4/26/17	1/1985	10/2014	SEND PDF COPY OF REPORT 2016 TO VIVEK
Fairfax Crossroads	3601-15 Chain Bridge Rd	1985060031	Underground Detention	CMSI, Inc. Attn: Satish Joshi	P.O. Box 220010 Chantilly, VA 20153	571 247 4304	satish@cmsgmt.com	4/26/17	1/1985	10/2014	SEND PDF COPY OF REPORT 2016 TO VIVEK
Fairfax Crossroads	3601-15 Chain Bridge Rd	1985060265	Underground Detention	CMSI, Inc. Attn: Satish Joshi	P.O. Box 220010 Chantilly, VA 20153	571 247 4304	satish@cmsgmt.com	4/26/17	1/1985		SEND PDF COPY OF REPORT 2016 TO VIVEK
Fairfax Honda-Volvo	11020-11050 Fairfax Blvd	2001107241	Sand Filter	Ursula Andreas	43670 Trade Center Pl, Ste 145 Dulles, VA 20166	Fred Fees 703 409 6199	ffees@rosenthalauto.com	6/9/17	11/2001		
Fairfax Honda-Volvo	11020-11050 Fairfax Blvd	2001107242	Infiltration Trench	Ursula Andreas	43670 Trade Center Pl, Ste 145 Dulles, VA 20166	Fred Fees 703 409 6199	ffees@rosenthalauto.com	3/29/17	11/2001	10/2015	
Fairfax Honda-Volvo	11020-11050 Fairfax Blvd	2001107243	Grass Swale	Ursula Andreas	43670 Trade Center Pl, Ste 145 Dulles, VA 20166	Cary Schwab 703 609 0199	ffees@rosenthalauto.com	3/29/17	11/2001		
Fairfax Junction	11001 Lee Hwy	2000120109	Underground Detention	Fairfax Junction LP, c/o First Allied Corp	270 Commerce Dr Rochester, NY 14623	Don Mongeon 585 359 3000	dmongeon@glazer.com	4/4/17	1/2000	7/2015	
Fairfax Junction	11001 Lee Hwy	2000120110	Underground Detention	Fairfax Junction LP, c/o First Allied Corp	270 Commerce Dr Rochester, NY 14623	Don Mongeon 585 359 3000	dmongeon@glazer.com	4/4/17	1/2000		
Fairfax Junction	11001 Lee Hwy	2000120112	MTD - Stormceptor	Fairfax Junction LP, c/o First Allied Corp	270 Commerce Dr Rochester, NY 14623	585 359 3000 x125	pkinsella@firstalliedcorp.com	4/4/17	1/2000	1/2015	
Fairfax Junction	11001 Lee Hwy	2000120113	MTD - Stormceptor	Fairfax Junction LP, c/o First Allied Corp	270 Commerce Dr Rochester, NY 14623	585 359 3000 x125	pkinsella@firstalliedcorp.com	4/4/17	1/2000	7/2015	
Fairfax Marketplace	10944 Fairfax Blvd	2007060156	Rain Tank	CH Realty VI/R Fairfax Marketplace, LLC	3819 Maple Ave Dallas, TX 75219	703 893 5263	vwhtaker@rosenthalproperties.com	3/24/17	1/2007	7/2016	
Fairfax Marketplace	10930-40 Fairfax Blvd	2007060157	Permeable Pavement	CH Realty VI/R Fairfax Marketplace, LLC	3819 Maple Ave Dallas, TX 75219	703 893 5263	vwhtaker@rosenthalproperties.com	3/24/17	1/2007	8/2015	
Fairfax Nursing Center	10701 Main St	2010100185	MTD - Stormfilter	Fairfax Nursing & Rehab Center, LLC	10701 Main St Fairfax, VA 22030		dpritz@fairfaxnursingcenter.com	4/13/16	1/2010	7/2016	HEAVY LID
Fairfax Nursing Center	10701 Main St	2010100186	MTD - Filterra	Fairfax Nursing & Rehab Center, LLC	10701 Main St Fairfax, VA 22030		dpritz@fairfaxnursingcenter.com	5/2/17	1/2010	7/2016	

Fairfax Oaks	Ridge Ave	1986010036	Underground Detention	Fairfax Oaks HOA c/o John Morris	9612 Ridge Ave Fairfax, VA 22030	703 591 1554	jmorris07@msn.com	4/22/16	1/1986		POSSIBLE CSE REQUIRED
Fairfax Pointe	10955 Fairfax Blvd	2010108241	MTD - Stormfilter	CH Realty VI/R Fairfax Pointe, LLC	3819 Maple Ave Dallas, TX 75219	703 893 5263	ywhitaker@rosenthalproperties.com	4/4/17	10/2010	7/2016	
Fairfax Professional Village	4250 Chain Bridge Rd	2016119264	Infiltration Trench	Commercial Condominium Management Company	8456-A Tyco Rd Tysons Corner, VA 22182	703 564 6513	Jennifer@ccmc.ws	4/19/17	1/1978		Check RE records: UPLA5AC, LLC
Fairfax Racquet Club	9860 Fairfax Blvd	2001080241	Infiltration Trench	Fairfax Racquet Club Inc, c/o Phil Tromans	9860 Fairfax Blvd Fairfax, VA 22030	703 273 9276	ptromans@fairfaxracquetclub.com	4/26/17	3/2002		
Fairfax Racquet Club	9860 Fairfax Blvd	2001080242	Infiltration Trench	Fairfax Racquet Club Inc, c/o Phil Tromans	9860 Fairfax Blvd Fairfax, VA 22030	703 273 9276	ptromans@fairfaxracquetclub.com	4/26/17	3/2002	8/2015	
Fairfax Racquet Club	9860 Fairfax Blvd	2001080243	Infiltration Trench	Fairfax Racquet Club Inc, c/o Phil Tromans	9860 Fairfax Blvd Fairfax, VA 22030	703 273 9276	ptromans@fairfaxracquetclub.com	4/26/17	3/2002	9/2016	
Fairfax Racquet Club	9860 Fairfax Blvd	2001080244	Infiltration Trench	Fairfax Racquet Club Inc, c/o Phil Tromans	9860 Fairfax Blvd Fairfax, VA 22030	703 273 9276	ptromans@fairfaxracquetclub.com	4/26/17	3/2002	9/2016	
Fairfax Surgical Center	10730 Main St	2003010130	Underground Detention	Fairfax Surgical Center LP	10730 Main St Fairfax, VA 22030	703 691 0670 x214	christopher.piper@HCAHealthcare.com	6/9/17	1/2003	9/2014	
Fairfax Surgical Center	10730 Main St	2003010131	Bioretention	Fairfax Surgical Center LP	10730 Main St Fairfax, VA 22030	703 691 0670 x214	christopher.piper@HCAHealthcare.com	5/9/17	1/2003	9/2014	
Fairfax Towne Office Park	10195 Main St	1985090033	Underground Detention	Commercial Condominium Management Company	8496-B Tyco Rd Tysons Corner, VA 22180	703 564 6502	malenny@ccmc.ws	4/18/17	1/1985	2/2015	
Farrcroft	Farrcroft Dr	2013102229	Wet Pond	Association c/o Mr. Todd Farrcroft Homeowners	10082 Daniels Run Way Fairfax, VA 22030	703 591 4666	thfarrcroft@cox.net	6/7/17	5/2000	11/2016	
Farrcroft	Farrcroft Dr	2013102230	Wet Pond	Association c/o Mr. Todd Farrcroft Homeowners	10082 Daniels Run Way Fairfax, VA 22030	703 591 4666	thfarrcroft@cox.net	6/7/17	5/2000		
Farrish Dealership	3163 Roanoke St	1986030039	Underground Detention	Farrish Realty, LP Attn: Kevin Farrish	9610 Fairfax Blvd Fairfax, VA 22030		kevinfarrish@4farrish.com	6/7/17	1/1986	6/2017	
Farrish Dodge/Jeep Dealership	9610 Fairfax Blvd	2010040180	MTD - Filterra	Farrish Realty, LP Attn: Kevin Farrish	9610 Fairfax Blvd Fairfax, VA 22030		kevinfarrish@4farrish.com	4/5/17	1/2010	10/2016	
FB&T Building	4117 Chain Bridge Rd	1998010099	Underground Detention	F&M Bank Northern VA	P.O. Box 167 Winston-Salem, NC 27102			5/9/17	1/1998		
Fifty-Sixty Six Office Building	11150 Fairfax Blvd	1978109243	MTD - Rooftop Detention	50 Jermantown Ltd Ptn c/o Weissberg Corp	1901 N. Moore St #1001 Arlington, VA 22209		gary.gardner@loughlinmanagement.com	6/15/17	11/1978		Check RE records; reference 1901 N. Moore St #1001
Fifty-Sixty Six Office Building	11166 Fairfax Blvd	1978109244	Underground Detention	Guardian Main St, LLC	6000 Executive Blvd #400 North Bethesda, MD 20852	Julie Miller 240 290 9255	jmiller@guardianrealty.com	5/2/17	11/1978	1/2016	
Fifty-Sixty Six Office Building	11166 Fairfax Blvd	1978109245	MTD - Rooftop Detention	Guardian Main St, LLC	6000 Executive Blvd #400 North Bethesda, MD 20852	Julie Miller 240 290 9255	jmiller@guardianrealty.com	6/15/17	11/1978	1/2016	
Fifty-Sixty Six Office Building	11166 Fairfax Blvd	1978109273	Underground Detention	Guardian Main St, LLC	6000 Executive Blvd #400 North Bethesda, MD 20852	Julie Miller 240 290 9255	jmiller@guardianrealty.com	6/1/17	1/2017		
Fifty-Sixty Six Office Building	11150 Fairfax Blvd	1978109274	Underground Detention	50 Jermantown Ltd Ptn c/o Weissberg Corp	28 Blackwell Park Ln #202 Warrenton, VA 20186		gary.gardner@loughlinmanagement.com	5/2/17	1/2017		
Fifty-Sixty Six Office Building, Phase III	11130 Fairfax Blvd	1978109246	Underground Detention	Guardian Main St, LLC	6000 Executive Blvd #400 North Bethesda, MD 20852	Julie Miller 240 290 9255	jmiller@guardianrealty.com	6/15/17	3/1985	1/2016	
Fifty-Sixty Six Office Building, Phase III	11130 Fairfax Blvd	1978109259	Rooftop Detention	Guardian Main St, LLC	6000 Executive Blvd #400 North Bethesda, MD 20852	Julie Miller 240 290 9255	jmiller@guardianrealty.com	5/7/17	3/1985		
First Federal Plaza	4020 University Dr	1976040002	Underground Detention	First Federal S&L, c/o Suntrust Bank	919 E. Main St Richmond, VA 23219	Kevin Hilburn 703 267 0182	kevin.hilburn@suntrust.com	6/1/17	1/1976	12/2014	
Foster Building	3975 University Dr	1986108242	MTD - Rooftop Detention	North Street Associates LC c/o Foster Management	3975 University Dr # 320 Fairfax, VA 22030	703 385 8900	fostermgt@mris.com	6/7/17	11/1986		
Freddy's Steakburger	10030 Fairfax Blvd	2013010207	MTD - Filterra	Mr. Robert E. Stafford & Assoc. LP	3 Moon Creek Cir Smithfield, VA 23430			4/28/17	1/2013		
Freddy's Steakburger	10030 Fairfax Blvd	2013010265	Detention Pond	Mr. Robert E. Stafford & Assoc. LP	3 Moon Creek Cir Smithfield, VA 23430			4/28/17	1/2013	9/2014	
Gatewood Plaza	10201 Fairfax Blvd	1985041024	Underground Detention	DIV SPV Company 5, LLC c/o Lincoln Property Co	12601 Fair Lakes, Ste 1032 Fairfax, VA 22033		qwesley@ipc.com	5/23/17	1/1985		
Gatewood Plaza	10201 Fairfax Blvd	1985041025	Underground Detention	DIV SPV Company 5, LLC c/o Lincoln Property Co	12601 Fair Lakes, Ste 1032 Fairfax, VA 22033		qwesley@ipc.com	5/23/17	1/1985	6/2015	
Giant Grocery Store	11200 Fairfax Blvd	1975108241	Infiltration Trench	North Street Associates LP c/o The Stop & Shop	1385 Hancock St / Real Estate Tax Dept., Quincy, MA 02169			5/2/17	10/1975	4/2016	
Gillco Building	9560 Lee Hwy	2011010188	Soil Amendments	Gillco LLC c/o John Gill	6505 Old Stone Fence Rd Fairfax Station, VA 22039	703 359 0002		3/29/17	1/2011	12/2014	
Haverty's Furniture Store	11151 Lee Hwy	2004109241	MTD - Stormceptor	Haverty Furniture Companies, Inc c/o Marvin	3520 Piedmont Rd NE #410 Atlanta, GA 30305	404 443 4322 (o), 404 204 3908 (f)	wmoza@havertys.com	4/4/17	7/2004	7/2015	
Holiday Inn Express	10327 Fairfax Blvd	1984050017	Underground Detention	Holiday Inn Express Attn: Paul Reyes	10327 Fairfax Blvd Fairfax, VA 22030	703 881 1249	paul.reyes@baywoodhotels.com	4/28/17	1/1984	9/2015	
Holly Park	Sharon Ct	1987107241	Underground Detention	Holly Park HOA Mr. Jay Minsky	9804 Sharon Ct Fairfax, VA 22032	703 273 4956	swampworks@verizon.net	4/18/17	8/1987	5/2017	
Home Depot	3201 Old Lee Hwy	2013094241	MTD - Filterra	Norman & Lane Wong, et al	P.O. Box 105842 Atlanta, GA 30348			3/27/17	2/2004	8/2016	

Home Depot	3201 Old Lee Hwy	2013094242	MTD - Filterra	Norman & Lane Wong, et al	P.O. Box 105842 Atlanta, GA 30348			3/27/17	2/2004	8/2016	
Home Depot	3201 Old Lee Hwy	2013094243	MTD - Filterra	Norman & Lane Wong, et al	P.O. Box 105842 Atlanta, GA 30348			3/27/17	2/2004	8/2016	
Home Depot	3201 Old Lee Hwy	2013094244	MTD - Filterra	Norman & Lane Wong, et al	P.O. Box 105842 Atlanta, GA 30348			3/27/17	2/2004	8/2016	
Home Depot	3201 Old Lee Hwy	2013094245	MTD - Filterra	Norman & Lane Wong, et al	P.O. Box 105842 Atlanta, GA 30348			3/27/17	2/2004	8/2016	
Inns of Court	10446-62 Armstrong St	1985050026	Underground Detention	National Realty Partners, LLC c/o Molly Pumphrey	365 Herndon Pkwy, Ste 106 Herndon, VA 20170	Molly Pumphrey 703 435 3800	mpumphrey@NRPartnersLLC.com	4/19/17	1/1985	9/2015	
Jaguar/Yorktown Phase I	Yorktown Dr	2013105236	Underground Detention	Courtland Homes at Main St, LC	10675 Main St Fairfax, VA 22030	703 628 7287	tdavis@courtlandhomeslc.com	5/2/17	8/2012		
Jaguar/Yorktown Phase I	Yorktown Dr	2013105237	MTD - Filterra	Courtland Homes at Main St, LC	10675 Main St Fairfax, VA 22030	703 628 7287	tdavis@courtlandhomeslc.com	5/2/17	8/2012	10/2016	
Jaguar/Yorktown Phase I	Yorktown Dr	2013105238	MTD - Filterra	Courtland Homes at Main St, LC	10675 Main St Fairfax, VA 22030	703 628 7287	tdavis@courtlandhomeslc.com	5/2/17	8/2012	10/2016	
Jermantown Square Shopping Center	11180 Lee Hwy	1980107241	Infiltration Trench	Jermantown Sq Ltd Ptn c/o AJ Dvoskin	3201 Jermantown Rd, Ste 700 Fairfax, VA 22030	Jampson Coe 703 246 6109 (o), 703 407 8288 (f)	sampson.coe@dvoskin.com	4/4/17	9/1980	7/2015	
Jiffy Lube	10535 Fairfax Blvd	1982040014	Underground Detention	FJXL LLC, c/o C/J-5, LLC	724 Warrenton Rd #201 Falmouth, VA 22406	540 693 1642 310 634 3600	trockwell@cbjiffylube.com	5/9/17	1/1982	7/2015	
Johnson Crest	Johnson Ct	2013101228	Underground Detention	Richmond American Homes of Virginia, Inc.	12220 Sunrise Valley Dr #400 Reston, VA 20191	Brian Harris 703 390 0916	brian.harris@mdch.com	4/19/17	5/2014		
Johnson Crest	Johnson Ct	2013101241	MTD - Filterra	Richmond American Homes of Virginia, Inc.	12220 Sunrise Valley Dr #400 Reston, VA 20191	Brian Harris 703 390 0916	brian.harris@mdch.com	4/19/17	5/2014		
Jones Street Office Building	10505 Judicial Dr	1979107241	Infiltration Trench	R. Wayne Knox	P.O. Box 17007 Arlington, VA 22216	George Hong 571 643 8256	george.hong1@gmail.com	5/9/17	4/1979	8/2016	
Joshua Coffer Gunnel Building	4010 University Dr	1980108241	Underground Detention	4010 University Drive LLC	2818 Fallfax Dr Falls Church, VA 22042	Mary Kay Humfelt, 703 289 9092	marykay@balmardev.com	6/1/17	10/1980		
Judicial Court	10615 Judicial Dr	1988040069	Underground Detention	Judicial Court Condo Association	10615 Judicial Dr, Unit 101 Fairfax, VA 22030	Jennifer Carr, 703 564 6513 (o), 703 564 6513 (f)	jennifer@ccmc.ws	5/23/17	1/1988	11/2014	
Kamp Washington Park	11170 Lee Hwy	1998107241	Detention Pond	MC Boyz LLC, c/o Clover Contracting, Inc.	11170 Lee Hwy, Ste A Fairfax, VA 22030	703 352 2700	dan@cloverco.com	4/4/17	11/1998	10/2016	
Kindercare Learning Center	9749 Main St	1985100034	Underground Detention	KCP RE, LLC, c/o Greenstreet Partners, LP	2601 S Bayshore Dr 9th Fl Coconut Grove, FL 33133	Steve Kaelber 732 685 7379	skaelber@kicorp.com	4/5/17	1/1985	1/2015	
Kirksey-Simanek Building	10611 Judicial Dr	2013099241	Underground Detention	Kirksey Family LLLP c/o Charles Kirksey	3201 Wheatland Farms Dr Oakton, VA 22124	Charles Kirksey 703 385 0303	FairfaxFamilyDentalCare@gmail.com	5/23/17	12/2010		
Kirksey-Simanek Building	10611 Judicial Dr	2013099242	MTD - Stormfilter	Kirksey Family LLLP c/o Charles Kirksey	3201 Wheatland Farms Dr Oakton, VA 22124	Charles Kirksey 703 385 0303	FairfaxFamilyDentalCare@gmail.com	5/23/17	12/2010		
Kirkwood	Kirktree Ct	1996040097	Underground Detention	Kirkwood HOA c/o Susan Barborek	9802 Kirktree Ct Fairfax, VA 22032	Susan Barborek 703 273 9723	susan@barborek.com	5/23/17	1/1996		
Kirkwood	Kirktree Ct	1996040241	Infiltration Trench	Kirkwood HOA c/o Susan Barborek	9802 Kirktree Ct Fairfax, VA 22032	Susan Barborek 703 273 9723	susan@barborek.com	5/23/17	1/1996		
Layton Hall Redevelopment, Phase I	10320 Layton Hall Dr	2017122273	Amended Soils	Layton Hall Redevelopment Limited Partnership, John Coulter	10675 Main St Fairfax, VA 22030	703 658 6073	lbrummett@courtlandhomeslc.com	6/1/17	7/2016		
Limewood Mews	3703-23 Jenny Lynne Ln	1986090044	Detention Pond	Limewood Mews HOA Attn: Edwin Donovan	3719 Jenny Lynne Ln Fairfax, VA 22030		edwin.donovan@gmail.com	4/26/17	1/1986	6/2016	
Lowes of Fairfax	4080 Jermantown Rd	2015108246	MTD - Contech Jellyfish	Parcel 26-B, LLC c/o Lowes Home Centers, LLC	1000 Lowes Blvd Moorestville, NC 28117		Jlolley@maserconsulting.com	4/4/17	1/2015		
Lowes of Fairfax	4080 Jermantown Rd	2015108247	MTD - Filterra	Parcel 26-B, LLC c/o Lowes Home Centers, LLC	1000 Lowes Blvd Moorestville, NC 28117		Jlolley@maserconsulting.com	4/4/17	1/2015	7/2016	
M&T Bank	9720 Fairfax Blvd	1995100095	Underground Detention	NRK Realty Management, LLC	6345 Westchester Pl Cumming, GA 30040	Fred Caribardi 571 436 4700	fcaribardi@mtb.com	3/27/17	1/1995	8/2015	
Madison Mews	Madison Mews	2013108241	MTD - Bayfilter	Madison Mews Homeowners Association c/o Mr. Fred Krebs	3908 Madison Mews Fairfax, VA 22030		krebs@fredkrebs.com	4/28/17	1/2013	12/2015	
Main Street Bank	10089 Fairfax Blvd	1985052028	Underground Detention	Main Street Bank	10089 Fairfax Blvd Fairfax, VA 22030	703 481 4567		4/26/17	1/1985		
Main Street Bank	10089 Fairfax Blvd	1985052029	MTD - Rooftop Detention	Main Street Bank	10089 Fairfax Blvd Fairfax, VA 22030	703 481 4567		5/16/17	1/1985		
Main Street Marketplace	10250-10334 Main St	2000021107	Sand Filter	Main Street Retail Partners LLC	3333 New Hyde Park Rd New Hyde Park, NY 11042			6/15/17	4/2002		
Mainland Office Building	10680 Main St	1986091045	Underground Detention	Mainland Office Building LLC c/o Rock Crest Group	14800 Conference Center Dr, Ste 201, Chantilly, VA 20151			4/22/16	1/1986		CSE REQUIRED / HEAVY LIDS
Mariott Residence Inn	3565 Chain Bridge Rd	2010042184	MTD - Filterra	WPPI Fairfax RI, LLC c/o White/Peterman Properties	1000 E 80th Pl #700 North Merrillville, IN 46410	Dave Wilson 703 251 3272	dave.wilson@marriott.com	5/24/17	1/2010	7/2015	
Marumen	3250 Old Pickett Rd	1974107241	Infiltration Trench	C J M U, LLC	10209 Glen Chase Ct Fairfax, VA 22032	Michael Lee 703 606 3036	mkleee89@gmail.com	3/29/17	6/1974	4/2017	To become City maintained after rehab.
Mason Oaks	4331-6 Mason Oaks Ct	2002120129	Underground Detention	Mason Oaks HOA c/o Dr. Matt Rice	4232 Mason Oaks Ct Fairfax, VA 22030	805 455 2751	Mason_Oaks@cartomedia.com	4/19/17	1/2002	1/2015	

McLean Estates	McLean Ct	2013090209	Underground Detention	Rosewood Building & Development, LLC James Ballard	P.O. Box 66 Annandale, VA 22003	703 535 6646	vabax@aol.com	3/24/17	1/2013		
Meineke Car Care Center	9881-85 Fairfax Blvd	1985051027	Underground Detention	A&A Services Attn: John Latham	10605 Gaskins Way Manassas, VA 20109	John Latham 703 898 5998	jlatham@hotmail.com	4/28/16	1/1985	10/2015	HEAVY LID.
Miller-Smith Office Building	10565 Fairfax Blvd	1986020037	Underground Detention	Miller-Smith Office Building Mgmt, Robert & Larry Miller	10509 Summit Ave Kensington, MD 20895	897 0800 x106	bewing@uicm.org	4/5/16	1/1986	9/2015	CSE REQUIRED
Miller-Smith Office Building	10565 Fairfax Blvd	1986020038	MTD - Rooftop Detention	Miller-Smith Office Building Mgmt, Robert & Larry Miller	10509 Summit Ave Kensington, MD 20895	897 0800 x106	bewing@uicm.org	6/16/16	1/1986	9/2015	
Miller-Smith Office Building	10565 Fairfax Blvd	1986020243	Underground Detention	Miller-Smith Office Building Mgmt, Robert & Larry Miller	10509 Summit Ave Kensington, MD 20895	897 0800 x106	bewing@uicm.org	8/2/16	1/1986		
Mobil Service Station	10800 Fairfax Blvd	1997010098	MTD - Oil/Grit Separator	Petroleum Marketing Inv. Group	2359 Research Ct Woodbridge, VA 22192	Carlos Lopez 571 346 0056	clopez@eandc.net	6/9/17	1/1997	7/2016	
National Pest Management Office Bldg	10460 North St	2009041171	Underground Detention	National Pest Management Association	10460 North St Fairfax, VA 22030	Susan Pettitt 571 224 0368	spettitt@pestworld.org	4/28/17	1/2009	8/2015	
National Pest Management Office Bldg	10460 North St	2009041172	MTD - Stormceptor	National Pest Management Association	10460 North St Fairfax, VA 22030	Susan Pettitt 571 224 0368	spettitt@pestworld.org	4/28/17	1/2009	8/2015	
New School of Northern Virginia	9431 Silver King Ct	2007108241	Infiltration Trench	Potter Urquhart, LLC	9431 Silver King Ct Fairfax, VA 22031			4/5/17	8/2007	7/2017	
Old Town Plaza	3955 Chain Bridge Rd	2005120145	MTD - Stormfilter	CH Realty III Old Town Village LLC	P.O. Box 5020 New York, NY 11042			5/10/16	1/2005	8/2015	
Old Town Plaza	3955 Chain Bridge Rd	2005120146	MTD - Stormfilter	CH Realty III Old Town Village LLC	P.O. Box 5020 New York, NY 11042			5/10/16	1/2005	10/2014	CSE REQUIRED
Old Town Plaza, Webb Building	10427 North St	2005107241	MTD - Stormfilter	CH Realty III Old Town Village LLC	P.O. Box 5020 New York, NY 11042			6/1/17	1/2005		
One God Ministry	4280-82 Chain Bridge Rd	2006020149	Infiltration Trench	One God Ministry Corp.	P.O. Box 7282 Fairfax Station, VA 22039		patron@edosroyalestate.com	4/19/17	1/2006	9/2015	
Ourisman Fairfax Toyota	10287 Fairfax Blvd	1984060018	Underground Detention	10245 Fairfax Blvd, LLC	6129 Richmond Hwy Alexandria, VA 22303	Vince Thibodeau 703 608 5515	vince@ourismanva.com	5/23/17	1/1984	10/2014	
Ourisman Fairfax Toyota	10245 Fairfax Blvd	1986120048	Underground Detention	10245 Fairfax Blvd, LLC	6129 Richmond Hwy Alexandria, VA 22303	Vince Thibodeau 703 608 5515	vince@ourismanva.com	4/28/17	1/1986	10/2014	
Ourisman Fairfax Toyota	10441 Fairfax Blvd	1987050052	Underground Detention	Thomas & Ernest Higginbotham, Katherine	13418 College Valley Ln Richmond, VA 23233	Vince Thibodeau 703 608 5515	vince@ourismanva.com	6/1/17	1/1987	10/2014	
Ourisman Fairfax Toyota	10441 Fairfax Blvd	1987050243	Underground Detention	Thomas & Ernest Higginbotham, Katherine	13418 College Valley Ln Richmond, VA 23233	Vince Thibodeau 703 608 5515	vince@ourismanva.com	4/28/17	1/1987		
Patient First	10100 Fairfax Blvd	2017123274	MTD - Stormfilter	Robert E Stafford & Associates, LP	3 Moon Creek Cir Smithfield, VA 23430	202 316 5575	dbstaff@charter.net	6/1/17	9/2015		
Patriot Harley Davidson	9739 Fairfax Blvd	2002100125	Bioretention	Sheehy Fairfax Property, LLC	12701 Fair Lakes Cir #250 Fairfax, VA 22033	Vince Sheehy 703 352 5400	vincsheehy@sheehy.com	3/29/17	1/2002	11/2015	
Patriot Harley Davidson	9739 Fairfax Blvd	2002100126	Bioretention	Sheehy Fairfax Property, LLC	12701 Fair Lakes Cir #250 Fairfax, VA 22033	Vince Sheehy 703 352 5400	vincsheehy@sheehy.com	3/29/17	1/2002	11/2015	
Patriot Harley Davidson	9739 Fairfax Blvd	2002100127	Sand Filter	Sheehy Fairfax Property, LLC	12701 Fair Lakes Cir #250 Fairfax, VA 22033	Vince Sheehy 703 352 5400	vincsheehy@sheehy.com	6/7/17	1/2002	11/2015	
Patriot Harley Davidson	9739 Fairfax Blvd	2002100128	MTD - Rooftop Detention	Sheehy Fairfax Property, LLC	12701 Fair Lakes Cir #250 Fairfax, VA 22033	Vince Sheehy 703 352 5400	vincsheehy@sheehy.com	6/15/17	1/2002	11/2015	
Pickett Industrial Park Lot 3M	3729-39 Pickett Rd	1977108243	Infiltration Trench	Elm Street Holdings LLC c/o Rosenthal Properties	1945 Old Gallows Rd Ste 300 Vienna, VA 22182	Vickie Whitaker 703 893 5263	vwhitaker@rosenthalproperties.com	4/18/17	8/1977	1/2016	
Pickett Industrial Park Lot 3N	3701 Pickett Rd	1979108243	Infiltration Trench	Cardaci Properties LLC	11800 Clara Way Fairfax Station, VA 22039			4/18/17	12/1979		
Pickett Road Warehouse	9425 Mathy Dr	1982108243	MTD - Rooftop Detention	Mathy Drive Associates c/o Foster Management Inc.	3975 University Dr # 320 Fairfax, VA 22030	Dina 703 385 8900	fostermgt@mris.com	6/7/17	8/1982		
Pickett Shopping Center	9400-9484 Main St	2016109259	MTD - Filterra	Combined Properties, Ltd. Pickett, LLC	1022 Thomas Jefferson St NW, Ste 700 E Washington, DC 20004	202 316 5575		4/5/17	4/2015		
PNC Bank	10649 Main St	2010041182	Bioretention	The PNC Financial Services Group Attn: Marguerite	806 PNC Bldg, 2nd Fl C6-CPNC-02-4 Washington, DC 20004	202 835 6360	marguerite.benedetto@pnc.com	5/23/17	1/2010		
PNC Bank	10649 Main St	2010041183	MTD - Filterra	The PNC Financial Services Group Attn: Marguerite	806 PNC Bldg, 2nd Fl C6-CPNC-02-4 Washington, DC 20004	202 835 6360	marguerite.benedetto@pnc.com	5/23/17	1/2010	10/2014	
Preserve at Great Oaks	Preserve Oaks Ct	2013103231	Detention Pond	Homeowners Association c/o Mr. Kevin Allexon	3303 Preserve Oaks Ct Fairfax, VA 22030	Kevin Allexon 571 257 9777	kevin.allexon@gmail.com	3/29/17	12/2010		
Professional Center of Fairfax	10875 Main St	1983060015	Detention Pond	Commercial Condominium Management Company	8456-A Tyco Rd Tysons Corner, VA 22182	703 448 6900		4/4/17	1/1983	4/2015	
Providence Hill Professional Building	10301 Democracy Ln	1984108243	Underground Detention	VA Acquisition No 1 LLC National Enterprises Inc.	5440 Morehouse Dr #4000 San Diego, CA 92121			5/18/16	5/1984	7/2015	CSE REQUIRED
Providence Square Condominiums	10328 Sager Ave	2001081115	Sand Filter	American Management of Virginia, Attn: Providence Square Condominiums	10328 Sager Ave Fairfax, VA 22030	Yaskarita Olmos 703 273 5746	providence.square@verizon.net	6/7/17	1/2001		
Providence Square Condominiums	10328 Sager Ave	2001081116	Underground Detention	American Management of Virginia, Attn: Providence Square Condominiums	10328 Sager Ave Fairfax, VA 22030	Yaskarita Olmos 703 273 5746	providence.square@verizon.net	6/7/17	1/2001	8/2016	
Providence Square Condominiums	10328 Sager Ave	2001081117	MTD - Stormceptor	American Management of Virginia, Attn: Providence Square Condominiums	10328 Sager Ave Fairfax, VA 22030	Yaskarita Olmos 703 273 5746	providence.square@verizon.net	5/9/17	1/2001		

Railroad Avenue Office Building	3905 Railroad Ave	1985120035	Underground Detention	Robinson & Thayer, Inc.	3905 Railroad Ave #102 Fairfax, VA 22030	Stuart Thayer 703 591 3700	sthayer@robinsonandthayer.com	5/9/17	1/1985	11/2014	
Railroad Court	Railroad Ct	1989070074	Underground Detention	Railroad Court HOA c/o Mr. M. E. Buck Watkins	10606 Railroad Ct Fairfax, VA 22030	Buck Watkins 703 795 2647	milton.watkins@fairfaxcounty.gov	5/9/17	1/1989	10/2015	
Railroad Square, Office Condominiums	10640 Main St	1989070075	Underground Detention	Railroad Square Condo Assoc. c/o Nicole Properties, Inc.	P.O. Box 644 Centreville, VA 20121	703 209 1550		5/10/16	1/1989		CSE REQUIRED
Red Hot & Blue Restaurant	4150 Chain Bridge Rd	1986109243	Infiltration Trench	Chain Bridge Investment Inc. c/o Red Hot & Blue	4150 Chain Bridge Rd Fairfax, VA 22030	Barry Thompson	kyluca@aol.com	5/9/17	8/1986	10/2015	
Red Lobster Restaurant	10325 Fairfax Blvd	1977020003	Infiltration Trench	Jaks, LLC	16607 Harbour Towne Dr Silver Spring, MD 20905	Curt Sawan 407 701 8256	csawan@redlobster.com	4/26/17	1/1977	9/2015	
Red Lobster Restaurant	10325 Fairfax Blvd	1977020004	Infiltration Trench	Jaks, LLC	16607 Harbour Towne Dr Silver Spring, MD 20905	Curt Sawan 407 701 8256	csawan@redlobster.com	4/26/17	1/1977	9/2015	
Red Lobster Restaurant	10325 Fairfax Blvd	1977020005	Infiltration Trench	Jaks, LLC	16607 Harbour Towne Dr Silver Spring, MD 20905	Curt Sawan 407 701 8256	csawan@redlobster.com	4/26/17	1/1977	9/2015	
Red Maple Court	10617-27 Jones St	1986060043	Underground Detention	Red Maple Court Unit Owner Association	7679 Limestone Dr, Ste 155 Gainesville, VA 20155	George Forst 703 652 6125	gforst@kerxton.com	5/23/17	1/1986	9/2014	
Ridgecrest	Cresence Way	1993040090	Underground Detention	Ridgecrest HOA c/o Bryan Fleming	9803 Cresence Way Fairfax, VA 22032	Bryan Fleming	bfleming3@cox.net	4/18/17	1/1993		
Royal Legacy	Legacy Ln	2013098227	MTD - Filterra	Royal Legacy HOA c/o Mr. Jeffrey Bals	10621 Legacy Ln Fairfax, VA 22030			4/19/17	5/2012		
Royal Legacy	Legacy Ln	2013098243	Underground Detention	Royal Legacy HOA c/o Mr. Jeffrey Bals	10621 Legacy Ln Fairfax, VA 22030			4/19/17	5/2012		
Screen Printing Association International	10015 Main St	19812010010	Underground Detention	Screen Printing Association International	10015 Main St Fairfax, VA 22030	David Pierce 703 385 1335	dpierce@sgla.org	4/18/17	1/1981	8/2014	CSE REQUIRED
Shell Gas Station	11090 Lee Hwy	1992010078	Underground Detention	Cloverdale Limited Ptn	216 S. Payne St Alexandria, VA 22314	Josh Hoffstetter 301 919 0001	josh@petromgt.net	4/4/17	1/1992	7/2015	
Sherwood Plaza	9990 Fairfax Blvd	1984030016	Underground Detention	Structura, LLC	11307 Sunset Hills Rd, Ste A-1 Reston, VA 20190	Rockcrest Group 703 209 0202	swisdom@rockcrest.com	4/26/17	1/1984	7/2015	
Spring Street Business Center	3158-3160 Spring St	1986110243	Underground Detention	Merrifield Circle Corp c/o Jim Audia	1307 Vincent Pl McLean, VA 22101	Jim Audia 703 622 5100	jsaki@aol.com	6/15/17	4/1986		
Spring Street Business Center	3158-3160 Spring St	1986110244	Underground Detention	Merrifield Circle Corp c/o Jim Audia	1307 Vincent Pl McLean, VA 22101	Jim Audia 703 622 5100	jsaki@aol.com	6/15/17	4/1986		
Spring Street Business Center	3158-3160 Spring St	1986110245	Underground Detention	Merrifield Circle Corp c/o Jim Audia	1307 Vincent Pl McLean, VA 22101	Jim Audia 703 622 5100	jsaki@aol.com	6/15/17	4/1986		
Stahl Exotic Animal Veterinary Services	4105 Rust Rd	1992108243	Infiltration Trench	M3Stahl Group LLC	12505 Easter Ln Fairfax, VA 22030	703 281 3750	info@seavs.com	4/4/17	6/1992	11/2016	
Stonewall Estates	Stoughton Rd	2013095243	Underground Detention	Stonewall Estates Homeowners Association c/o Mark Hawkins	9912 Stoughton Rd Fairfax, VA 22032	Mark Hawkins	mehawkinsvt@verizon.net	4/18/17	7/2006	8/2016	
Sundog Productions	3850 Jermantown Rd	2012108243	Infiltration Trench	Parhelion, LLC	3850 Jermantown Rd Fairfax, VA 22030	Cas Shiver 703 978 0041	cas@sunpip.com	5/2/17	1/2012	10/2015	
Sundog Productions	3850 Jermantown Rd	2012108244	Underground Detention	Parhelion, LLC	3850 Jermantown Rd Fairfax, VA 22030	Cas Shiver 703 978 0041	cas@sunpip.com	5/2/17	1/2012		
Sunset Center	11123 Lee Hwy	1987081067	Underground Detention	11123 Lee Hwy Associates c/o Sol Suslovich	200 Central Park South #4C New York, NY 10019			4/7/16	1/1987		CSE REQUIRED
TD Bank	11098 Fairfax Blvd	2012080201	MTD - Stormfilter	H&I Services Inc, c/o TD Bank	12th Fl, London, Ontario N6A 4S2, Thomas Jefferson St NW #700 E. Washington, DC 20002			4/7/16	1/2012		Add plans! HEAVY LID.
TD Bank	9504 Main St	2012081202	MTD - Bayfilter	Turnpike, LLC, c/o Combined Properties	1522 Thomas Jefferson St NW #700 E. Washington, DC 20002	John Frank 202 736 2802 (o)	jfrank@combined.biz	4/5/17	1/2012	11/2014	
Ted Britt Ford	11165 Fairfax Blvd	1986111243	Underground Detention	MGB Properties I, LLC	11165 Fairfax Blvd Fairfax, VA 22030	Mike Andress	mandress@tedbritt.com	4/4/17	5/1986	6/2017	Speak with Timmons on correct BMPs, separating into 5 systems?
Ted Britt Ford	11165 Fairfax Blvd	1986111244	Underground Detention	MGB Properties I, LLC	11165 Fairfax Blvd Fairfax, VA 22030	Mike Andress	mandress@tedbritt.com	4/4/17	5/1986	5/2016	Speak with Timmons on correct BMPs, separating into 5 systems?
Ted Britt Ford	11165 Fairfax Blvd	1986111245	Underground Detention	MGB Properties I, LLC	11165 Fairfax Blvd Fairfax, VA 22030	Mike Andress	mandress@tedbritt.com	4/4/17	5/1986	5/2016	Speak with Timmons on correct BMPs, separating into 5 systems?
Ted Britt Ford	11165 Fairfax Blvd	1986111246	Underground Detention	MGB Properties I, LLC	11165 Fairfax Blvd Fairfax, VA 22030	Mike Andress	mandress@tedbritt.com	4/4/17	5/1986	6/2017	Speak with Timmons on correct BMPs, separating into 5 systems?
Ted Britt Ford Storage Area	11091 Fairfax Blvd	1982109243	Infiltration Trench	MGB Properties III, LLC	11165 Fairfax Blvd Fairfax, VA 22030	Mike Andress	mandress@tedbritt.com	4/4/17	12/1982	7/2017	To be deleted with NOVUS development
Ted Britt Ford Storage Area	11091 Fairfax Blvd	2000020106	Detention Pond	MGB Properties III, LLC	11165 Fairfax Blvd Fairfax, VA 22030	Mike Andress	mandress@tedbritt.com	4/4/17	12/1982	7/2017	To be deleted with NOVUS development
The Crossing Condominiums	Vanderbilt Ct	1994120094	Sand Filter	The Crossing Condominiums Owners Association, c/o Ms. Linda Busak	4101 Oxford Ln Fairfax, VA 22030	Jerry Waldman	boardthecrossingfairfax@gmail.com	6/9/17	1/1994	1/2015	
The Lamb Center	3160 Campbell Dr	2017124275	Permeable Pavement	The Lamb Center	3160 Campbell Dr Fairfax, VA 22030	Dave Larrabee, Director	davelarrabee@thelambcenter.org	6/7/17	5/2016		
The Shops at Fairfax	10710 Fairfax Blvd	1998110104	MTD - Stormceptor	Shops at Fairfax, LLC	7501 Wisconsin Ave #1500 E Bethesda, MD 20814	Bahram Solhjoui 301 986 6172	bahram.solhjoui@saulcenters.com	3/29/17	1/1998	10/2016	
The Shops at Fairfax	10710 Fairfax Blvd	1998110276	Underground Detention	Shops at Fairfax, LLC	7501 Wisconsin Ave #1500 E Bethesda, MD 20814	Bahram Solhjoui 301 986 6172	bahram.solhjoui@saulcenters.com	3/29/17	1/1998		

TitleMax Title Loans	10801 Fairfax Blvd	1986112243	Infiltration Trench	Lee Highway LLC c/o MFI, Inc.	2800 Quarry Lake Dr #340 Baltimore, MD 21209			3/24/17	7/1986		
Town & Country Animal Hospital	9836 Fairfax Blvd	2002060122	Bioretention	Town and Country Animal Hospital, LLC, Attn: Dr. Davis	9836 Fairfax Blvd Fairfax, VA 22030	Andrea Williamson 703 773-2110	tnccfx@gmail.com	4/26/17	1/2002	8/2016	
Town & Country Animal Hospital	9836 Fairfax Blvd	2002060123	Bioretention	Town and Country Animal Hospital, LLC, Attn: Dr. Davis	9836 Fairfax Blvd Fairfax, VA 22030	Andrea Williamson 703 773-2110	tnccfx@gmail.com	4/26/17	1/2002	7/2015	
Truro Episcopal Church	10520 Main St	1985109243	Underground Detention	Episcopal Diocese of Virginia c/o Shannon Johnston,	110 West Franklin St Richmond, VA 23220			4/28/17	4/1985	1/2016	
Truro Episcopal Church	10520 Main St	1985109244	Underground Detention	Episcopal Diocese of Virginia c/o Shannon Johnston,	110 West Franklin St Richmond, VA 23220			4/28/17	4/1985	1/2016	
Truro Episcopal Church	10520 Main St	1985109245	Infiltration Trench	Episcopal Diocese of Virginia c/o Shannon Johnston, Richm	110 West Franklin St Richmond, VA 23220			4/28/17	4/1985	1/2016	
Turnpike Shopping Center	9500-9580 Main St	2012090203	MTD - Filterra	Turnpike, LLC, c/o Combined Properties	10227 Thomas Jefferson St NW #700 E. Washington, DC	John Frank 202 736 2802 (o)	jfrank@combined.biz	4/5/17	1/2012	11/2014	
Turnpike Shopping Center	9500-9580 Main St	2012090204	MTD - Filterra	Turnpike, LLC, c/o Combined Properties	10227 Thomas Jefferson St NW #700 E. Washington, DC	John Frank 202 736 2802 (o)	jfrank@combined.biz	4/5/17	1/2012	11/2014	
Turnpike Shopping Center	9500-9580 Main St	2012090205	MTD - Filterra	Turnpike, LLC, c/o Combined Properties	10227 Thomas Jefferson St NW #700 E. Washington, DC	John Frank 202 736 2802 (o)	jfrank@combined.biz	4/5/17	1/2012	11/2014	
Turnpike Shopping Center	9500-9580 Main St	2012090206	MTD - Filterra	Turnpike, LLC, c/o Combined Properties	10227 Thomas Jefferson St NW #700 E. Washington, DC	John Frank 202 736 2802 (o)	jfrank@combined.biz	4/5/17	1/2012	11/2014	
U.S. Post Office	3601 Pickett Rd	1979109243	Rain Tank	United States Postal Service	3601 Pickett Rd Fairfax, VA 22031	703 978 3504 Jocita Allen	jocita.s.allen@usps.gov	4/5/17	12/1979	7/2016	
U.S. Post Office	10660 Page Ave	2002108243	Underground Detention	United States Postal Service	10660 Page Ave Fairfax, VA 22030	Jon Seckinger 610 280 4019	jseckinger@louisberger.com	6/1/17	8/2002		
U.S. Post Office	10660 Page Ave	2002108244	Sand Filter	United States Postal Service	10660 Page Ave Fairfax, VA 22030	Jon Seckinger 610 280 4019	jseckinger@louisberger.com	6/1/17	2/2002		
United Bank	11185 Fairfax Blvd	1979110243	Underground Detention	Swart Southeast Corner Associates, LP	3400 Fox Mill Rd Oakton, VA 22124	703 227 8081	neal.worthy@bankwithunited.com	4/4/17	8/1979		Facility inaccessible - no access point was constructed. TV inspection required.
Verizon Addition to Fairfax Central Office	10431 Fairfax Blvd	2002020118	Infiltration Trench	Verizon Communications, Inc.	3011 Hungary Spring Rd Richmond, VA 23228	Deb Morton 571 328 0040	deborah.morton@verizon.com	4/28/17	1/2002	12/2016	
Verizon Addition to Fairfax Central Office	10431 Fairfax Blvd	2002020119	MTD - Rooftop Detention	Verizon Communications, Inc.	3011 Hungary Spring Rd Richmond, VA 23228	Deb Morton 571 328 0040	deborah.morton@verizon.com	6/9/17	1/2002	12/2016	
Verizon Addition to Fairfax Central Office	10431 Fairfax Blvd	2002020120	MTD - Rooftop Detention	Verizon Communications, Inc.	3011 Hungary Spring Rd Richmond, VA 23228	Deb Morton 571 328 0040	deborah.morton@verizon.com	6/9/17	1/2002	12/2016	
Verizon Addition to Fairfax Central Office	10431 Fairfax Blvd	2002020121	MTD - Stormceptor	Verizon Communications, Inc.	3011 Hungary Spring Rd Richmond, VA 23228	Deb Morton 571 328 0040	deborah.morton@verizon.com	4/28/17	1/2002	6/2015	
Vet Vision	4103 Rust Rd	1992109243	Infiltration Trench	Vision One Enterprises, LLC	3031 Javier Rd #300 Fairfax, VA 22031			4/4/17	6/1992		
Warwick Park	10520 Warwick Ave	1986040040	Underground Detention	Warwick Park Condo Association	3600 Chain Bridge Rd Fairfax, VA 22030	Bobby Glass	bglass1943@gmail.com	5/9/17	1/1986	9/2015	
Warwick Park	10520 Warwick Ave	1986040041	Underground Detention	Warwick Park Condo Association	3600 Chain Bridge Rd Fairfax, VA 22030	Bobby Glass	bglass1943@gmail.com	5/9/17	1/1986	9/2015	
Wendy's Restaurant	4000 Jermantown Rd	1983108243	Infiltration Trench	DavCo Restaurants, LLC Attn: Maintenance Dept	1657 Crofton Blvd Crofton, MD 21114	Shelly Ellenberger 443 292 3947	sellenberger@wenddavco.com	4/4/17	12/1983	6/2016	
Williamsburg Square	4000-4036 Williamsburg Ct	1978111243	Underground Detention	Williamsburg Square Condo Association c/o Anderson Stapp & Co. Ltd.	4028 Williamsburg Ct Fairfax, VA 22032	Cheryl Allen 703 273 7415	cla4028@aol.com	4/5/17	4/1978	9/2016	
Willow Wood Plaza	10300 Eaton Pl	1987030051	Underground Detention	Association, c/o CIII Asset Management, LLC	5221 N. O'Conner Blvd #600 Irving, TX 75039			5/18/16	1/1987		CSE REQUIRED
Windy Hill	Sharpes Meadow Ln	1998012101	Detention Pond	Windy Hill HOA c/o Mark Machen, President	3571 Sharpes Meadow Ln Fairfax, VA 22030	Mark Machen 703 385 8927	machen5@verizon.net	4/28/17	1/1998	12/2016	
Woodson Square Professional Office Park	9661 Main St	1985070032	Detention Pond	Woodson Square Condo Unit Owners Association c/o Sentry Management, LLC	6395 Little River Tpk Alexandria, VA 22312	David Prutz	dprutz@sentrymgt.com	4/5/17	1/1985	9/2016	
Wrens Courtyard	Wrens Ct	1993030089	Detention Pond	Wrens Courtyard Association, c/o Tom Abbey	10203 Wrens Ct Fairfax, VA 22030	Tom Abbey 703 352 1234	abbeytom@yahoo.com	4/18/17	1/1993	6/2017	

Appendix B-6

MCM #6 – City of Fairfax Draft Training Plan

1.0 Introduction

The purpose of this Training Plan is to identify the training requirements and to provide a schedule and approach for compliance with these requirements under the City of Fairfax municipal separate storm sewer system (MS4) management program. The Department of Public Works - Stormwater is responsible for implementing the MS4 for the City of Fairfax.

1.1 Goals

The Virginia General Permit for Discharges of Stormwater from Small MS4s (General Permit), published at 9 VAC 25-890 et al, has specific requirements for training of City of Fairfax staff and contractors acting on behalf of the City of Fairfax. The General Permit was revised in 2013 and the updated version became effective on July 1, 2013. The City of Fairfax obtained coverage under the 2013 General Permit as General Permit Number VAR040064.

The 2013 General Permit regulations, including the definitions of terms used under this regulatory program, can be found at the Virginia Pollutant Discharge Elimination System Program (VPDES) Permit Regulations: <http://lis.virginia.gov/cgi-bin/legp604.exe?000+reg+9VAC25-890-40>

As required in Section II, Part B.6 of the General Permit, this plan was designed with consideration of the following goals:

- To develop and provide training for staff and ensure contractors are appropriately trained, so both groups that are involved in operations and maintenance activities are enabled to minimize or prevent pollutant discharge from: 1) daily operations such as road, street, and parking lot maintenance; 2) equipment maintenance; and 3) the application, storage, transport, and disposal of pesticides, herbicides, and fertilizers;
- Development of a Training Plan meeting the training requirements provided in Section II, Part B.6.d of the General Permit.

1.2 Objectives

This Training Plan outlines a process for training City of Fairfax staff and requires contractors to support the City's objective of achieving improved water quality through reduced pollutant volumes making their way into water bodies via the City's MS4. Implementation of the actions described in this document should help the City achieve this objective of improving the quality of the waters within the City of Fairfax. This plan will be updated annually and will reflect changes that result from evaluation of the effectiveness of the Training Plan that is outlined in Section 3.5 of this plan.

The Training Plan complies with the General Permit requirements to:

- Utilize written procedures developed under other General Permit requirements as a component of the City of Fairfax’s overall employee training; and
- Identify and document:
 - The positions/employees that need training;
 - The type(s) of training; and
 - The frequency of training.

2.0 MS4 Management Program

Polluted stormwater runoff is commonly transported through MS4s, from which it is often discharged, untreated, into local water bodies. The Commonwealth of Virginia requires operators of MS4s to obtain a permit for their MS4 discharges and develop a stormwater management program. The permit establishes six “minimum control measures” (MCMs) to prevent stormwater pollution in the MS4; they are:

1. Public education and outreach;
2. Public participation/involvement;
3. Illicit discharge detection and elimination (IDDE);
4. Construction site stormwater runoff control;
5. Post-construction stormwater management in new development and re-development on prior developed lands; and,
6. Pollution prevention/good housekeeping for municipal operations.

Among the requirements associated with the sixth MCM listed above, the City of Fairfax must prepare and implement a Training Plan. The City functions and associated training that are covered by this plan are detailed in the remaining sections of this document.

3.0 Permit-Mandated Training

The City of Fairfax’s staff training requirements for compliance with its MS4 permit include language about specific personnel functions and type of training.

The text below provides the requirements from the General Permit.

1. The City of Fairfax shall provide biennial (every other year) training to applicable field personnel in the recognition and reporting of illicit discharges.

2. The City of Fairfax shall provide biennial training to applicable employees in good housekeeping and pollution prevention practices that are to be employed during road, street, and parking lot maintenance.
3. The City of Fairfax shall provide biennial training to applicable employees in good housekeeping and pollution prevention practices that are to be employed in and around maintenance and public works facilities.
4. The City of Fairfax shall ensure that employees, and require that contractors, who apply pesticides and herbicides are properly trained or certified in accordance with the Virginia Pesticide Control Act (§ 3.2-3900 et seq. of the Code of Virginia).
5. The City of Fairfax shall ensure that employees and contractors serving as plan reviewers, inspectors, program administrators, and construction site operators obtain the appropriate certifications as required under the Virginia Erosion and Sediment Control Law and its attendant regulations.
6. The City of Fairfax shall ensure that applicable employees obtain the appropriate certifications as required under the Virginia Erosion and Sediment Control Law and its attendant regulations.
7. The City of Fairfax shall provide biennial training to applicable employees in good housekeeping and pollution prevention practices that are to be employed in and around recreational facilities.
8. The appropriate emergency response employees shall have training in spill responses.

3.1 Affected Staff

The City of Fairfax positions/functions that fall within the areas described in the General Permit requiring training are located in the Departments of Public Works (PW); Departments of Public Works – Operations (DPWO); Parks and Recreation (PR); and Fire Department/Emergency Response Teams (ER). These organizations and the respective applicable training topics are shown in **Table 1**. Specific positions or functions within the different departments are shown in **Table 2**.

Table 1: Required Department Training

City Department	Illicit Discharge Recognition (ID)	Good House-keeping and Pollution Prevention (GHPP)	Certified and /Or Trained, VA Pesticide Control Act (PCA)	Certified Under VA ESC Law (ESC)	Certified SWM Plan Reviewer/ Inspector (SWM)	Spill Response (SR)
Public Works – (PW)				X	X	
Public Works – Operations (DPWO)	X	X	X			
Parks & Recreation (PR)	X	X	X			
Fire Department/ Emergency Response Teams (ER)	X					X

Table 2: Positions Requiring Stormwater Management-Specific Training

POSITION	TRAINING TYPES
Department of Public Works	
Program Manager	ESC, SWM-INSP
Assistant Program Managers	ESC, SWM-INSP
Field Technicians/Program Specialists	ESC, SWM-INSP
Department of Public Works - Operations	
Public Works Stormwater Maint. Supervisor	ID, GHPP, PCA
Public Works staff	ID, GHPP
Parks and Recreation	
Maintenance Staff	ID, GHPP, PCA
Maintenance Supervisors	ID, GHPP, PCA
Fire Department/ Emergency Response Teams	
Career Staff	ID,SR
Volunteer Staff	ID,SR
Contractor Support Staff	varies

Specifically, staff working in the positions listed in **Table 2** above must receive training appropriate to their responsibilities related to stormwater pollution and the reduction or elimination of pollutants entering waters of the City of Fairfax, Virginia. Training must be provided at least biennially. However, to simplify scheduling and to ensure training is current for all affected staff, the City of Fairfax will make training opportunities available on an as needed basis. Turnover in staff and changes in positions occur frequently enough that training needs may need to be evaluated on an annual basis.

3.2 Training Topics

Training may be a combination of in-house, commercially available and/or coordinated course offerings with other MS4-locality training events. The six types of training and the City of Fairfax staff and/or contractors that are subject to the training are explained below. The status of the training provided to the appropriate personnel is also included.

Training events that are continuously conducted, and those that are available to staff and contractors via the internet are summarized in **Table 3**. The 2013 General Permit requires that the City implement and document stormwater management training. In addition to the targeted courses listed below, Virginia's Department of Environmental Quality offers a selection of training courses. Information about these is provided at <http://www.deq.virginia.gov/ConnectWithDEQ/TrainingCertification.aspx>. A partnership, called The Chesapeake Stormwater Network, also provides a selection of pertinent training courses, at <http://chesapeakestormwater.net/> and they have other offerings that are provided at <http://chesapeakestormwater.net/training-library/>.

3.2.1 Illicit Discharge Recognition (ID)

Illicit discharge recognition training is required for selected staff within the DPWO, PR, and ER organizations. Annual review of training needs will be conducted to ensure that all staff is engaging the appropriate training events on no less than a biennial basis. Example opportunities for future training are shown in **Table 3** below.

3.2.2 Good Housekeeping and Pollution Prevention (GHPP)

Good housekeeping and pollution prevention training is required for selected staff within DPWO and PR organizations. Annual review of training needs will be conducted to ensure that all staff is engaging the appropriate training events on no less than a biennial basis. Example opportunities for future training are shown in **Table 3** below.

3.2.3 Certified and/or Trained Under the Virginia Pesticide Control Act (PCA)

Training is required for all applicators. For DPWO staff, this includes only the Public Works Supervisors. For PR staff this includes Maintenance staff and their supervisors doing applications at parks within the City of Fairfax. This function is carried out by a combination of the City of Fairfax employees and contractors for PR. All applicators have their current

certifications and will be required to keep certifications current. Example opportunities for future training are shown in **Table 3** below.

3.2.4 Certified, VA Erosion and Sediment Control Law (ESC)

Training is required for PW staff, including the Program Manager, Assistant Program Managers, and Field Technicians/Program Specialists. All PW staff selected to be certified have their current certifications and will be required to keep them current. Example opportunities for future training, to ensure certifications are maintained, are shown in **Table 3** below.

3.2.5 Stormwater Management (SWM)

Stormwater Management Inspector training is required for PW staff, including the Program Manager, Assistant Program Managers, and Field Technicians/Program Specialists. All appropriate PW staff have their current certifications and will be required to keep them current.

Example opportunities for future training, to ensure certifications are maintained, are shown in **Table 3** below.

A commercial vendor of training packages tailored to compliance with MS4 permits has developed a series of training modules. Information on these options is provided at <http://stormwaterone.com/virginia-stormwater-management> and is not necessarily recommended, but is included here as one of a number of options for City compliance.

3.2.6 Spill Response (SR)

Training is required for Fire Department and Emergency Response Team staff. The Fire Department is a combination career and volunteer system that operates under the City of Fairfax Fire Department and the Fairfax Volunteer Fire Department Inc.

Table 3: Example Course Offerings Available to City of Fairfax Staff and Contractors

Training Type	Example Course Selection / Opportunities
Illicit Discharge Identification	<p>Illicit Discharge Detection & Elimination (webinars available from U.S.EPA) Developing Your IDDE Program (IDDE 101)</p> <p>Conducting Illicit Discharge Detection and Elimination Investigations (IDDE 201)</p> <p>Illicit Discharge Detection and Elimination IDDE 301 - Finding and Fixing Illicit Discharges and Connections</p>
Good Housekeeping and Pollution Prevention	<p>Pollution Prevention/Good Housekeeping (webinars available from U.S.EPA) Killing Two Birds with One Stone: Building a Local Program to Maintain Your Stormwater Practices and Prevent Pollution from Municipal Operations</p> <p>EPA's Stormwater Pollution Prevention Webinar Series: Road Salt Pollution Prevention Strategies</p> <p>Stormwater 101: The Basics</p>
Certified and/or Trained, VA Pesticide Control Act	<p>Pesticides (webinar available from U.S.EPA)</p> <p>U.S. EPA Webcast on Pesticide General Permit (PGP) Requirements for Notice of Intent</p>
Certified, VA Erosion and Sediment Control Law	<p>Erosion & Sediment Control: Basic, Inspector, and Plan Reviewer Courses:</p> <p>http://www.deq.virginia.gov/ConnectWithDEQ/TrainingCertification/ESCTraining.aspx</p>
Certified SWM Inspector	<p>Virginia Stormwater Management Program: Inspector Courses:</p> <p>http://www.deq.virginia.gov/ConnectWithDEQ/TrainingCertification/SWMTtraining.aspx</p>
Certified SWM Plan Reviewer	<p>Virginia Stormwater Management Program: Plan Reviewer Courses:</p> <p>http://www.deq.virginia.gov/ConnectWithDEQ/TrainingCertification/SWMTtraining.aspx</p>

Spill Response	<ul style="list-style-type: none"> • 8 hours of HazMat Awareness training for volunteer First Responder, EMT, Advanced EMT, and Paramedic members within Fairfax City Fire, Rescue, and Emergency Management; • 40 hours of Hazardous Materials Operations training for career and volunteer Firefighters, Technicians, Lieutenants, Captains, Battalion Chiefs, Deputy Chiefs, Assistant Chiefs and Chief of Department within Fairfax City Fire, Rescue, and Emergency Management; • 80 hours of Hazardous Materials Technician training for career firefighter, Technicians, Lieutenants, Capt. and Battalion Chiefs of Fairfax City Fire, Rescue, and Emergency Management personnel assigned to the hazardous materials station; and • 40 hours of Environmental Crimes enforcement training for career law enforcement members of the Fairfax City Fire Marshal's office.
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3.3 Ensuring Contractor Compliance

While the majority of personnel affected by the stormwater management training requirements are employed directly by the City of Fairfax, there are cases where contracted individuals are performing jobs that are subject to stormwater training. The City of Fairfax's procurement office will be notified of the roles and responsibilities shown in **Table 2** of this plan so that they can add language to contracts that speaks to the training required by the General Permit. At a minimum, the Scope of Work for contracted inspectors will require they have the proper training stormwater training for the work being performed.

Appropriate staff will be provided a copy of this plan and their participation in assisting the City with compliance with the training requirements for contracted personnel will be sought.

3.4 Training Frequency and Compliance

As noted previously, training is required on a biennial basis. The City of Fairfax will ensure that this standard is met via a policy of reviewing staff and contractor status not less than annually with triggers for review being:

- upon hiring;
- staff transfers into new/different positions; and

In accordance with the General Permit, the City of Fairfax will keep documentation of each applicable training event for a period of three years. Records will include the date and location, if applicable, of the training; the names of the employees taking the training; and the objective of the training event.

Ideally, the City of Fairfax will include the training needed for compliance with the MS4

requirements within a larger, automated personnel training tracking system. In the absence of such a tracking system, **Table 4** illustrates a spreadsheet format that can be used by the Department of Public Works to track compliance and trigger planning to fulfill training needs.

Table 4: Sample Training History and Schedule for Fairfax City Personnel

Employee or Contractor Name	Department Name	Position Name	Training Category Requirement	Date Completed	Next Training Date Deadline
Joe Smith	PR	Maintenance Tech	Illicit discharge	17-Feb-13	01-Jan-15
			Good housekeeping and pollution prevention	31-Mar-14	01-Feb-16
			Pesticide Control Act	7-May-14	maintain certification
Sue Jones	PW	Engineering Assistant	Illicit discharge	17-Feb-13	01-Jan-15
			Good housekeeping and pollution prevention	none	31-Jul-14
			Pesticide Control Act	20-Jan-14	maintain certification

3.5 Evaluation of Training Plan Effectiveness

Each year PW will review the training accomplished within the identified departments that are subject to stormwater management training requirements. At that time, the staff population requiring training will be compared to actual training received. Additionally, the universe of those included in the plan will be evaluated to confirm that appropriate staff is included in the training planning. Any shortfalls or changes that are identified will be documented and added to this Training Plan.

Appendix B-7a

Difficult Run *E. coli* TMDL Action Plan



Difficult Run

Bacteria TMDL Action Plan

PERMIT NUMBER VAR040064

Submitted to DEQ:

October 2016

INTRODUCTION

The City of Fairfax has prepared this Difficult Run E.Coli (bacteria) TMDL Action Plan to address the Special Condition for approved local TMDLs (Section I.B) in the City's MS4 Permit. The City's approach for preparation of this Action Plan is based on the requirements listed in the MS4 General Permit and DEQ's Draft Local TMDL Action Plan Guidance Document that was released on 4/9/2015. Each of the sections in this Action Plan will address one or more of the required action plan content items as listed on page 4 of DEQ's Draft Local TMDL Action Plan Guidance Document.

TMDL BACKGROUND INFORMATION

1. ***The name(s) of the Final TMDL report(s);***
2. ***The pollutant(s) causing the impairment(s);***
3. ***The WLA(s) assigned to the MS4 as aggregate or individual WLAs.***

[This section of the Action Plan directly addresses Section I.B of the MS4 Permit and DEQ Guidance Document Action Plan Content Items 1-3]

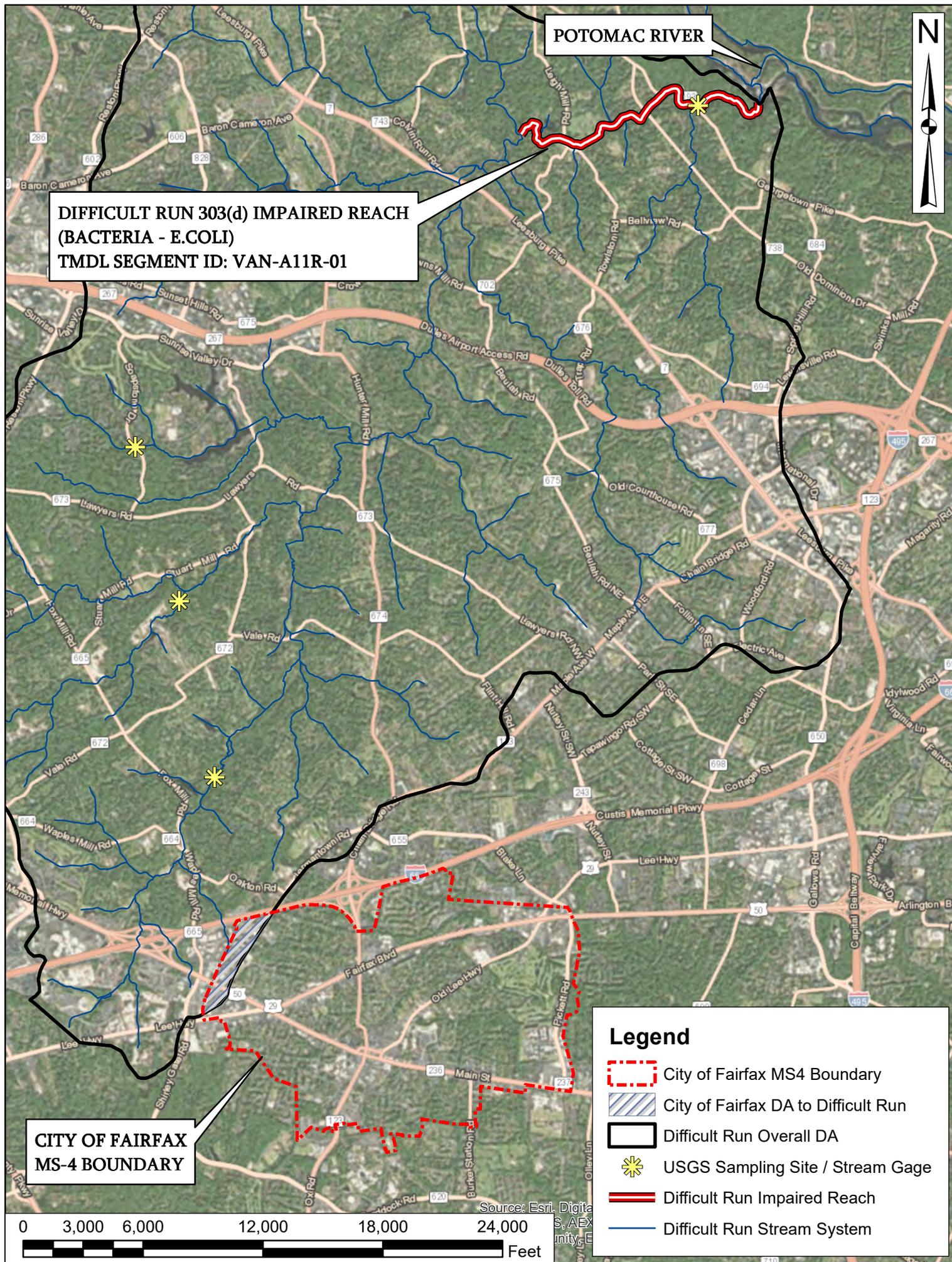
The City of Fairfax was assigned an aggregated Waste Load Allocation (WLA) under the approved TMDL report entitled *Bacteria TMDL for the Difficult Run Watershed, dated April 25, 2008*. The impaired segment of Difficult Run (Segment ID: VAN-A11R-01) begins at the confluence of Captain Hickory Run with Difficult Run and extends 2.93 miles downstream to its confluence with the Potomac River. The watershed is located in (HUC) 02070008 and is within Fairfax County. The segment is listed as impaired on Virginia's Section 303(d) Total Maximum Daily Load Priority List and Report because of violations of the state's water quality standards for E.coli and fecal coliform bacteria. At the time of the initial listing of the Difficult Run segment, the Virginia Bacteria Water Quality Standard was expressed in fecal coliform bacteria; however, the bacteria water quality standard has been changed is now expressed in E.coli. Therefore, the TMDL is expressed in E.coli by converting modeled daily fecal coliform concentrations to daily E. coli concentrations using the following regression based instream translator equation:

$$E.coli \text{ conc. (cfu/100 mL)} = 2^{-0.0172} \times [\text{fecal coliform conc. (cfu/100mL)}]^{0.91905}$$

Analyses of physical, chemical, biological, and observational data indicate that potential key sources of fecal coliform in the stream segment included run-off from point source discharges, residential waste, and wildlife sources. A TMDL was therefore developed for bacteria to address the impairments in Difficult Run. The City of Fairfax (VAR040064), Fairfax County (VA0088587), and Town of Vienna (VAR040066) MS4s were assigned an aggregated WLA in the Final TMDL report as follows:

- Difficult Run TMDL Bacteria WLA (E.coli) = $9.65E+10$ (cfu./day)
- Difficult Run TMDL Bacteria WLA (E.coli) = $9.86E+12$ (cfu./year)

The City's MS4 Boundary, 0.18 square mile contributing drainage area to Difficult Run and the location of the impaired reach in comparison to the City limits is shown in Figure 1. The remainder of this Action Plan will focus on addressing the City's plan for complying with the aggregated WLA assigned to the City under this TMDL.



POTOMAC RIVER

DIFFICULT RUN 303(d) IMPAIRED REACH
(BACTERIA - E.COLI)
TMDL SEGMENT ID: VAN-A11R-01

CITY OF FAIRFAX
MS-4 BOUNDARY

Legend

- City of Fairfax MS4 Boundary
- City of Fairfax DA to Difficult Run
- Difficult Run Overall DA
- ★ USGS Sampling Site / Stream Gage
- Difficult Run Impaired Reach
- Difficult Run Stream System

0 3,000 6,000 12,000 18,000 24,000 Feet

FIGURE 1: CITY OF FAIRFAX CONTRIBUTING DRAINAGE AREA (DA) TO DIFFICULT RUN

SIGNIFICANT SOURCES OF POC(S)

4. **Significant sources of POC(s) from facilities of concern owned or operated by the MS4 operator that are not covered under a separate VPDES permit. A significant source of pollutant(s) from a facility of concern means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL.**

[This section of the Action Plan directly addresses Section I.B.2.d of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 4]

An initial Geographic Information System (GIS) based evaluation was performed to locate all City-owned/operated properties in the Difficult Run watershed. Utilizing the best available GIS shapefile data including parcel boundaries and current/historical activity descriptions, One (1) City-owned/operated property was identified in the Difficult Run watershed. The results of the initial evaluation are documented in Table 1, and the property's respective location within the City is shown in Figure 2.

Table 1. City-owned/operated properties in the Difficult Run Watershed.

GIS ID*	Name	Facility Type	Area (Ac)
1	Kutner Park	Park	10.5
<i>* See Figure 2 for corresponding identifier</i>			

Once the City-owned/operated property was identified, a desktop based Pollutant of Concern (POC) source evaluation was performed utilizing the parcel's land use type, acreage, presence or absence of MS4 outfall(s), current activity description, and site proximity to Difficult Run. The site met the metrics listed above, as well as displayed features visible in the City's aerial imagery that would identify the site as having the potential for an expected pollutant loading greater than the average pollutant loading for the land use identified in the TMDL. Forested areas were weighted higher in this analysis due to the increased presence of wildlife habitats, as were parks, due to recreational field attributes (portable sanitation facilities).

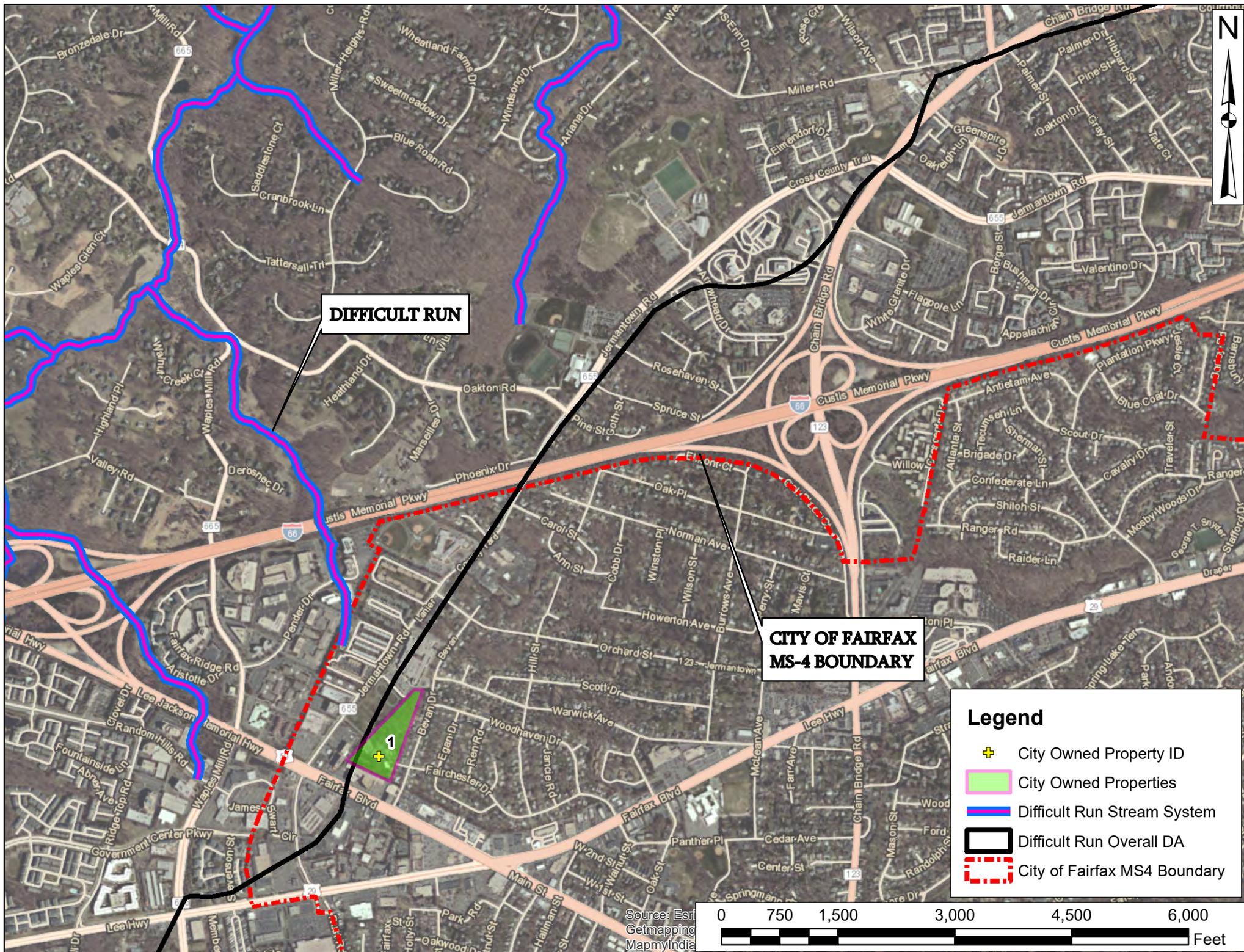


FIGURE 2: CITY OF FAIRFAX MS4 OWNED/OPERATED FACILITIES IN THE DIFFICULT RUN WATERSHED

After the initial desktop analysis was completed, an on-site field reconnaissance was performed to review and assess the on-the-ground conditions for Kutner Park. The site visit was performed to evaluate for potential pollutant of concern (POC) generating activities, as well as drainage patterns, stormwater pollution potential (exposure to precipitation), wild life presence and habitat, and locations of outfalls. The desktop analysis, coupled with the findings from the on-site field reconnaissance, determined that the City-owned/operated property exhibits site features, operations, and pollutant related indicators that could categorize it as “having the potential for an expected pollutant loading greater than the average pollutant loading for the land use identified in the TMDL”. A description of the City-owned/operated facility is as follows:

Kutner Park

Kutner Park (Figure 3) features a wooded pedestrian hiking trail around the park’s perimeter. The wooded area itself contributes to above-average amounts of bacterial loading due to the presence of a wildlife habitat (Figure 4), whereas the walking trail provides a location for residents to walk dogs and subsequently dispose/not dispose of dog waste (Figure 5) which can also increase the potential bacterial loading on-site. The southern end of the park features a picnic pavilion, grill area, playground equipment, soccer field, tennis court, and volleyball court. There is no on-site plumbing, and because of this, portable sanitation facilities (Figure 6) are available for public use for park visitors. The site features mentioned above classify the site as having a higher propensity for an increased bacterial loading.



Figure 3. Kutner Park



Figure 4. Kutner Park Vernal Pool and Wildlife Habitat.



Figure 5. Kutner Park dog waste station along walking trail.



Figure 6. On-site portable sanitation facilities.

Action Plan elements to address significant sources of POC loadings from facilities of concern owned or operated by the MS4 operator

The following subsection outlines the City's proposed means and methods for addressing existing and future significant sources of POC loadings from the facility identified in the subsequent section site analysis.

Kutner Park

To address the potential for significant sources of bacterial loading from Kutner Park, the City plans to implement the following means and methods:

- The City will continue to promote, and maintain, the dog waste disposal stations along the park trail. The City will also add brochure holders to each waste station that contain public education / outreach materials related to the water quality impacts of dog waste.
- The City will address the following items pertaining to all on-site portable sanitation facilities:
 - All facilities will be moved to a level ground surface;
 - All facilities will, wherever possible, be located upon natural ground and not within 5 feet of an impervious surface;
 - All facilities will be anchored down to prevent them from tipping over; and
 - Any damaged facilities will be repaired or replaced immediately.

Section 8 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to address the potential for significant sources of POC loadings from facilities of concern owned or operated by the City. Furthermore, the City plans to continue their current pollution prevention activities at all City properties, as well as incorporate additional pollution prevention activities to address Minimum Control Measure (MCM) 6 of their MS4 Program Plan.

EXISTING OR NEW BEST MANAGEMENT PRACTICES

- 5. Existing or new management practices, control techniques, and system design and engineering methods , that have been or will be implemented as part of the MS4 Program Plan that are applicable to reducing the pollutant identified in the WLA. [This section of the Action Plan directly addresses Section I.B.2.b of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 5]***

Recognizing that bacteria pollutant discharges from the City's MS4 need to be controlled to the maximum extent practicable in order to protect the water quality in Difficult Run, City leaders and staff have incorporated several Best Management Practices (BMPs) into their MS4 Program Plan (revised in 2013), and their subsequent Annual Report(s), that specifically target bacteria and focus on source control. The following is a list of thirty three (33) BMPs that meet the Minimum Control Measures (MCMs) set forth in the City's MS4 Program Plan, and are further developed in their MS-4 Annual Reports, that specifically address the reduction of bacterial pollutant loads for the City's

MS4 (Note: BMPs with an asterisk in their identifier (i.e. 2B*) are from the City's 2015 Annual Report):

- BMP 1.1. Stream Monitoring - The City, in conjunction with George Mason University (GMU), will perform stream monitoring, to include bacteria sampling, to assess stream water quality. The City will publish an annual report related to the findings.
- BMP 1.2. Storm Drain Marker Program - The City will continue to use markers on existing storm drain inlets and place markers on new storm drain inlets. Marker reads "Drains to the Chesapeake Bay, No Dumping".
- BMP 1.3. City of Fairfax Watershed Management Plan - The City will post their Watershed Management Plan, and any updates, to their website to allow public access to watershed management information.
- BMP 1.5. Additional Public Education Material - The City will publish a quarterly newsletter to deliver stormwater program messages and distribute stormwater related information to citizens.
- BMP 1.6. Additional Public Education Material - The City will promote the "Follow the Rubber Ducky" initiative on their website to illustrate the effects of stormwater conveyance and pollution to the public.
- BMP 2.3. Public Education utilizing the City's Stormwater Website - The City will routinely update its webpage to inform residents on activities regarding the City's Stormwater Program, environmental protection, watershed management, and proper waste disposal.
- BMP 2.4. (2B*) Public Outreach and Activities - The City will participate in local public outreach activities including (1) the City Environmental Sustainability Committee; (2) The Spring Cleanup Event; (3) The Fall Festival Event; and, (4) Continue to be a member of the Northern Virginia Clean Water Partners.
- BMP 3.1. Storm Sewer System Map - The City will continue to update and revise their Storm Sewer Outfall Map, located on the City's website, as needed. The City utilizes a Capital Improvement Program (CIP) that includes system updates and GIS based revisions.
- BMP 3.2. Storm sewer line and structure maintenance - The City will maintain their storm sewers and associated structures in order to provide uninhibited flow through the City drainage system.
- BMP 3.3. Illicit Discharge Detection and Elimination (IDDE) - The City will conduct semi-annual system screening on their outfalls for the presence of illicit discharges. The City will utilize their storm sewer GIS layers to help track the total number of outfalls screened and screening results. The City will keep details of any follow up actions.
- BMP 3.4. Illicit Discharge Detection and Elimination Enforcement Procedure - The City will use legal authority to issue summons and prosecute violators for negligence and/or failure to properly report spills.
- BMP 3.5. Spill Reporting to DEQ and DCR - The City will ensure that the responsible party(s) reports spills that reach state waters to the Department of Environmental Quality Response Program (PREP).

- BMP 3.6. Spill Investigation from small MS-4 operated properties - The City will investigate spills and potential illicit discharges from small MS-4 operated facilities, in order to determine the cause and enforce corrective action to prevent future occurrences.
- BMP 3.7. Prevention of hazardous / illicit substances into the storm sewer system - The City will continue to provide residents a hazardous waste disposal facility to prevent hazardous/illicit/bacteria producing materials from reaching the storm sewer system.
- BMP 3.8 Sanitary Sewer Overflows - The City will continue, as part of its utilities program, to implement techniques to prevent sanitary sewer overflows.
- BMP 3.9 Sanitary Sewer Improvements - The City will maintain their sanitary sewers and associated structures to provide uninhibited flow, as well as prevent sanitary sewer leaks and overflows throughout the sanitary sewer system.
- BMP 5.1. Public Facilities Manual - The City will continue to provide information to developers through the Public Facilities Manual (PFM) regarding Stormwater and Best Management Practice (BMP) design requirements. The PFM will be updated as required to address changes in design standards.
- BMP 5.2 Stormwater Management Ordinance - The City will continue to follow and update their Stormwater Management Ordinance to meet the provisions set forth in the State Stormwater Requirements and Chesapeake Bay Program Requirements.
- BMP 5.3. Best Management Practice (BMP) and Stormwater Management (SWM) Facility Maintenance - The City will continue to require all publicly and privately owned BMPs and SWM Facilities to be maintained to function as designed. The City will continue to require SWM maintenance plans to be provided on each approved site plan along with an executed stormwater maintenance agreement.
- BMP 5.4. Stormwater management maintenance and inspection - The City will maintain a Post-Development Stormwater Management facility inspection program and will perform annual inspections on these facilities.
- BMP 5.5 Stormwater Management (SWM) Facility and Best Management Practice (BMP) Tracking - The City will track all known permanent SWM and BMP facilities discharging into their regulated MS-4 area. The City will track the following information: (1) Type of structural SWM Facility installed as defined in the VA Stormwater BMP Clearinghouse; (2) Geographic Location (HUC); (3) The impaired surface water that the SWM is discharging in to; (4) The number of acres treated.
- BMP 5.6. Best Management Practice (BMP) and Stormwater Management (SWM) Facility Enforcement Procedures - The City will provide BMPs and SWM facility owners' violation notices when their facilities are not functioning as designed. The City will take enforcement action if the items outlined in the violation notice are not addressed within the City's required time frame.
- BMP 5.7. Stormwater Program Enhancements - The City will continue to enhance stormwater programs to reduce the impacts resulting from new and re-development. The City will continue to encourage the use of new and innovative stormwater strategies such as Low Impact Development (LID) and Environmental Site Design (ESD) through the site plan process

- BMP 5.8. Stormwater Program Enhancements - Employee Training - The City will continue to provide Stormwater Management Facility inspection training for the City's inspection staff.
- BMP 5.9. Stormwater Infrastructure Evaluation and Assessment - The City will evaluate, collect data, and inspect 30,000 feet of storm pipe throughout the MS4 to ensure all infrastructure is functioning as designed.
- BMP 6.1. Leaf Collection - The City will continue to provide special curbside leaf collection services in November and December to prevent decaying leaves from getting into streams, causing blockages, and producing nutrients.
- BMP 6.2. Yard Waste Collection - The City will continue to provide regular yard waste collection services to collect yard waste before it can be transported by stormwater runoff to the City's streams.
- BMP 6.3. - Pollution Prevention Information Posted on City website and flyers distributed to City residents - The City will maintain a Refuse and Recycling website with the most recent version of the City's Solid Waste Management Plan. The website will also provide information to the public on proper solid waste disposal techniques and recycling practices.
- BMP 6.6. Employee Education and Training on Pollution Prevention and Good Housekeeping - The City will continue their employee Pollution Prevention and Good Housekeeping procedures training programs.
- BMP 6.8. (6A*) - Stormwater Pollution Prevention Plans - The City will develop Stormwater Pollution Prevention Plans (SWPPPs) for all City properties identified as "High Priority Facilities".
- BMP 6.9. (6B*) - Implement Turf and Landscape Nutrient Management Plans - The City will identify all areas that need Nutrient Management Plans (NMPs) and implement the plans in accordance with the schedule set forth in Section II.B.6.c of the Stormwater General Permit.
- BMP 6.10. (6D*) - Written Good Housekeeping and Pollution Prevention Protocols for Daily Municipal Operations and Maintenance - The City will develop written good housekeeping measures and pollution prevention standard operating procedures to be incorporated into daily operational activities.
- Other BMPs - Street Sweeping - The City will continue to implement and maintain its Street Sweeping Program.

More detailed descriptions for each BMP can be found in the City's MS4 Annual Reports which are available for download at <http://www.fairfaxva.gov/government/public-works/stormwater-and-floodplain-management/ms4-permit>. The City plans to continue implementation of these BMPs to address the bacteria WLA listed in the aforementioned TMDL. Based on the results of the City's Action Plan assessment methodology (as described in Section 9 of this Action Plan), an adaptive iterative approach will be used to enhance/replace these BMPs to achieve the most effective plan for reducing the discharge of bacteria from the City's MS4 and to meet the assigned TMDL WLA.

LEGAL AUTHORITIES

6. Legal authorities such as ordinances, state and other permits, orders, specific contract language, and inter-jurisdictional agreements applicable to reducing the POCs identified in each respective TMDL.

[This section of the Action Plan directly addresses Section I.B.2.a of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 6]

Along with specific BMPs implemented to address bacteria and focus on source control, the City's political leadership has included several provisions to the City's Code in order to facilitate a reduction in these pollutant discharges. These provisions include:

- Instituting legal ramifications for dog owners that fail to remove dog excrement from public right-of-ways and all properties other than the dog owners under Chapter 6 Article 3 - Section 6-61.(b)
- Prohibiting the ownership of wild, exotic, or vicious animals under Chapter 6 Article 5 - All Sections
- Prohibiting the accumulation of solid waste on vacant lots, private roadways, and other lands within the City under Chapter 38 Article 3 - Section 38-38
- Instituting a creek and channel usage, improvement, and preservation provision to improve natural drainage systems within the City in accordance with 9VAC25-870-66 under Section 110-286 of the City's Stormwater Ordinance

The City has reviewed its MS4 Program Plan and ordinances to evaluate its ability to comply with the Special Condition for approved (other than the Chesapeake Bay TMDL) TMDLs (Section I.B) in the MS4 Permit. Based on this review, it is our opinion that the City of Fairfax does not require any new or modified legal authorities or policies to meet the requirements of this special condition. The following is a list of the City's relevant existing legal authorities and policies:

- City of Fairfax's Code of Ordinance
- City of Fairfax's Stormwater Ordinance - (Chapter 110 Article 2 - Division 11 of the County Code)
- City of Fairfax's MS4 Program Plan
- City of Fairfax's Public Facilities Manual (PFM)

However, the City may choose to coordinate with other adjacent MS4s (Fairfax County and the Town of Vienna) and explore the idea of establishing memoranda of understanding (MOU) to clarify MS4 service boundary lines and inter-jurisdictional responsibilities for POC loads and subsequent required POC load reductions in the future.

ENHANCEMENTS TO PUBLIC EDUCATION, OUTREACH, AND EMPLOYEE TRAINING

7. **Enhancements to public education, outreach, and employee training programs to also promote methods to eliminate and reduce discharges of the POC(s) for which a WLA has been assigned.**

[This section of the Action Plan directly addresses Section I.B.2.c of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 7]

Enhancements to Public Education and Outreach Program

The City continues to implement a public education and outreach program as part of its MS4 Program Plan. The City's Stormwater and Floodplain Management webpage (Webpage) (<http://www.fairfaxva.gov/government/public-works/environment>) is the primary public education and outreach tool utilized for reaching the program's targeted audiences and providing for distribution of educational materials to convey the appropriate messages. The City's webpage has three general sub-section hyperlinks that each contain educational information related to reducing bacterial loading in the Difficult Run Creek watershed. The three hyperlinks, and corresponding public education and outreach materials available at those hyperlinks, are as follows:

- **Stormwater and Floodplain Management Hyperlink**
 - Northern Virginia Clean Water Partners "Only Rain Down the Storm Drain" initiative, as well as corresponding website;
 - The City's MS4 Homepage - with the City's Annual Reports and Outfall Map available for download;
 - The City's Watershed Management Plan
 - The Chesapeake Bay Ordinance and information regarding the Resource Protection Area (RPA) requirements within the City limits; and
 - Information on the City's BMP and Stormwater Management Inspection Program
- **Protecting Water Resources Hyperlink**
 - Contact information for citizens to report illicit discharges;
 - Educational information, including hyperlinks to Federal, State, and Local Stormwater initiatives, on what citizens can do to report and prevent illicit discharges; and
 - Educational information, including hyperlinks to Federal, State, and Local Stormwater initiatives, on what children can do to protect our water resources
- **Virginia Stormwater Management Program (VSMP) Hyperlink**
 - Access to the City's Stormwater Ordinance, as well as any revisions;
 - VSMP related forms, applications, fee forms, and checklists; and
 - The City of Fairfax's VSMP Responsibility Flow Chart

As can be seen from this list, the City has utilized their webpage to compile several different publications and hyperlinks to directly address the pollutant of concern (bacteria) for which a WLA

has been assigned to the City. The City plans to add more public education and outreach materials to their website annually. Furthermore, the City plans on developing and adding a fourth hyperlink to their webpage entitled “Public Education and Outreach Materials”. The hyperlink will provide a separate tab which compiles all existing City publications that directly address the pollutant of concern, as well as add the following materials:

- Environmental Protection Agency (EPA) Outreach Materials (In English and Spanish) - “After the Storm Brochure”, “Make Your Home the Solution to Stormwater Pollution” Brochure, and Children’s Stormwater Stickers
- PDF links to recent City of Fairfax (Cityscene) Newsletters
- PDF links to the City of Fairfax’s Environmental Sustainability Committee Annual Reports
- Outreach materials from the Northern Virginia Clean Water Partners
- Postings regarding City events pertaining to Stormwater Outreach (i.e. “Make your own Rain Barrel” workshop dates)

Along with a fluid Public Education and Outreach hyperlink, all new available publications posted to the hyperlink will also be distributed at future public events. Section 8 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to enhance the City’s Public Education and Outreach Program.

Enhancements to Employee Training Program

Per MCM 6 of the City’s MS4 Program Plan, the City has set guidelines on employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet vehicle and building maintenance, new construction and land disturbance, and stormwater system maintenance. The following is a list of current City employee training activities that specifically address the pollutant of concern (bacteria) for which a WLA has been assigned to the City:

- City Inspectors, Plan Reviewers, and Program Administrators are required to obtain proper certification as necessary under the Virginia Erosion and Sediment Control Law;
- All pertinent staff are required to obtain the Virginia Department of Environmental Quality (DEQ) Stormwater Certifications;
- All pertinent staff utilize training material from the EPA, State of Virginia, and other relevant organizations in conjunction with current City training materials.

Along with the existing City Employee Training Program, the City plans to develop in-house training modules for requisite City staff on Municipal Pollution Prevention Practices and Illicit Discharge Detection and Elimination. Section 8 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to enhance the City’s Employee Training Program.

BMP/MILESTONES IMPLEMENTATION SCHEDULE

**8. A schedule of interim milestones and implementation of the items in 5, 6, and 7.
[This section of the Action Plan directly addresses Section I.B.1.b of the MS4 Permit and DEQ Guidance Document Action Plan Content Items 8]**

As permitted in Section I.B.1 of the MS4 General Permit and referred to in DEQ's Draft Local TMDL Action Plan Guidance Document, the City is proposing to implement this Action Plan in multiple stages over multiple permit cycles using an adaptive iterative approach. This approach will allow the City to gather the necessary data and information to determine the most effective BMPs/management strategies for controlling POC loads along with identifying targeted areas for their implementation to meet the TMDL WLA for bacteria. The following schedule is proposed for implementation of the BMPs and milestone activities included in this Action Plan for the current permit cycle ending on June 30, 2018:

<u>BMP/Milestone Activity</u>	<u>Schedule</u>
Submission of Local TMDL Action Plan to DEQ	October 1, 2016
BMP 1.1. Stream Monitoring	Annually
BMP 1.2. Storm Drain Marker Program	Annually
BMP 1.3. City of Fairfax Watershed Management Plan	Annually
BMP 1.5. Additional Public Education Material - Quarterly Newsletter	Quarterly
BMP 1.6. Additional Public Education Material - Follow the Rubber Duck	Monthly
BMP 2.3. Public Education utilizing the City's Stormwater Website	As-Needed
BMP 2.4. (2B*) Public Outreach and Community Activities	Annually
BMP 3.1. Storm Sewer System Map	As-Needed
BMP 3.2. Storm sewer line and structure maintenance	Annually
BMP 3.3. Illicit Discharge Detection and Elimination (IDDE)	On-Going
BMP 3.4. IDDE Enforcement and Procedures	As-Needed
BMP 3.5. Spill Reporting to DEQ and DCR	As-Required
BMP 3.6. Spill Investigation from small MS-4 Operated Properties	As-Needed
BMP 3.7. Prevention of Illicit substances into storm sewer system	Annually
BMP 3.8. Sanitary Sewer Overflow Prevention	Annually
BMP 3.9. Sanitary Sewer Improvements	Annually
BMP 5.1. Public Facility Manual (PFM) Updates	As-Required
BMP 5.2. Stormwater Management Ordinance	As-Required
BMP 5.3. BMP and SWM Facility Maintenance Program	Annually
BMP 5.4. BMP and SWM Facility Inspections	Annually
BMP 5.5. SWM Facility Tracking	Annually
BMP 5.6. BMP and SWM Facility Enforcement Procedures	As-Needed
BMP 5.7. Stormwater Program Enhancements - LID and ESD Practices	As-Needed
BMP 5.8. Stormwater Program Enhancements - Employee Training	Annually
BMP 5.9. Stormwater Infrastructure Evaluation and Assessment	Annually
BMP 6.1. Leaf Collection	On-Going
BMP 6.2. Yard Waste Collection	On-Going
BMP 6.3. Pollution Prevention Information posted to City Website	On-Going

BMP 6.6. Employee Education on Pollution Prevention / Good Housekeeping	Annually
BMP 6.8. (6A*) Stormwater Pollution Prevention Plans (SWPPPs)	June 30, 2017
BMP 6.9. (6B*) Implement Turf and Landscape Nutrient Management Plans	Annually
BMP 6.10. (6D*) Standard Operating Procedures	June 30, 2015
- Other BMPs. Street Sweeping	Annually
- Develop and Implement Dog Waste Impacts Brochure for Kutner Park	Dec 30, 2016
- Implement Portable Sanitation Facility BMPs (All Sites)	Dec 30, 2016
Develop the "Public Education and Outreach Materials" City Website link	June 30, 2017
Develop in-house Employee Stormwater Pollution Prevention training	Dec 30, 2016
Prepare WQ Monitoring Program for POC Reductions Assessment	Dec 30, 2016
Purchase WQ Monitoring Equipment & Conduct Training	Feb 1, 2017
Commence WQ Monitoring Program	April 1, 2017
Prepare WQ Monitoring Reports	Annually
Prepare Estimate of "End Date" for Compliance with WLA	March 30, 2018
Identify BMPs to be Implemented during Next Permit Cycle (2018-2023)	March 30, 2018

METHODS TO ASSESS TMDL ACTION PLAN

9. Methods to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs.

[This section of the Action Plan directly addresses Section I.B.2.e of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 9]

In order to assess the effectiveness of the City's Difficult Run Bacteria TMDL Action Plan, the City plans to prepare a Water Quality (WQ) Monitoring Program, in conjunction with the on-going City Water Quality Monitoring being performed by George Mason University (GMU), which will be initiated during this permit cycle. The City envisions collecting water quality samples (E.Coli) twice a year from representative MS4 outfalls that discharge to the headwaters of the impaired reach of Difficult Run. The City will utilize the water quality data collected under the monitoring program to: Identify potential sources of discharge of the POC; target locations within the MS4 permit area for implementation of BMPs; and ultimately to assess the overall effectiveness of the Action Plan in reducing the discharge of the POC from the City's MS4.

In accordance with the schedule provided in Section 8 of this Action Plan, the WQ Monitoring Program will be fully developed by December 30, 2016 and documentation of the program details will be submitted to DEQ with the City's subsequent Annual Report which will be due on October 1, 2017. After commencement of the WQ Monitoring Program and appropriate amounts of sampling data become available, the City will analyze the data to determine if any adjustments are necessary to the Action Plan with regards to the BMPs/management strategies for controlling POC loads. This analysis may include utilization of a stormwater runoff/pollutant loading model such as Purdue University's Long Term Hydrologic Impact Analysis (L-THIA) for estimation of the POC loads coming from the City's MS4. At the end of each MS4 permit reporting period, the City will also prepare annual WQ monitoring reports to be included with the City's MS4 Annual Report.

MEASURABLE GOALS AND METRICS TO TRACK COMPLIANCE

- 10. Measurable goals and the metrics that the permittee and Department will use to track those goals (and the milestones required by the permit). Evaluation metrics other than monitoring may be used to determine compliance with the TMDL(s).
[This section of the Action Plan directly addresses Section I.B.1.b of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 10]**

The City intends to demonstrate its progress on implementation of this Action Plan by tracking, monitoring, and reporting on BMP/milestone activity progress in its MS4 Program Annual Report that is submitted to DEQ on October 1st of each permit year. In the Annual Report, the City will provide updates on the status of each of the BMP/milestone activities listed under Section 8 of this Action Plan to include compliance with the proposed schedule. In accordance with the adaptive iterative approach adopted by the City, referenced in this Action Plan, the City may modify/replace BMPs, as necessary, to achieve the most effective plan for reducing the discharge of bacteria from the City's MS4 and meeting the assigned TMDL WLA.

Appendix B-7b

Difficult Run Sediment TMDL Action Plan



Difficult Run

Sediment TMDL Action Plan

PERMIT NUMBER VAR040064

Submitted to DEQ:

October 2016

INTRODUCTION

The City of Fairfax has prepared this Difficult Run Benthic (Sediment) TMDL Action Plan to address the Special Condition for approved local TMDLs (Section I.B) in the City's MS4 Permit. The City's approach for preparation of this Action Plan is based on the requirements listed in the MS4 General Permit and DEQ's Draft Local TMDL Action Plan Guidance Document that was released on 4/9/2015. Each of the sections in this Action Plan will address one or more of the required action plan content items as listed on page 4 of DEQ's Draft Local TMDL Action Plan Guidance Document.

TMDL BACKGROUND INFORMATION

1. ***The name(s) of the Final TMDL report(s);***
2. ***The pollutant(s) causing the impairment(s);***
3. ***The WLA(s) assigned to the MS4 as aggregate or individual WLAs.***

[This section of the Action Plan directly addresses Section I.B of the MS4 Permit and DEQ Guidance Document Action Plan Content Items 1-3]

The City of Fairfax was assigned an aggregated Waste Load Allocation (WLA) under the approved TMDL report entitled *Benthic TMDL Development for Difficult Run, Virginia, dated April 2008*. The impaired segment of Difficult Run (Segment ID: VAN-A11R-01) begins at the confluence of Captain Hickory Run with Difficult Run and extends 2.93 miles downstream to its confluence with the Potomac River. The watershed is located in (HUC) 02070008 and is within Fairfax County. The segment is listed as impaired on Virginia's Section 303(d) Total Maximum Daily Load Priority List and Report due to water quality violations of the general standard (listed as a benthic impairment). Analyses of physical, chemical, biological, and observational data indicate that sediment, due to higher runoff flows, has been identified as the most probable cause of the benthic impairments in the stream segment. A TMDL was therefore developed for sediment to address the benthic impairments in Difficult Run. The City of Fairfax (VAR040064), Fairfax County (VA0088587), Fairfax County Public Schools (VAR040104), Town of Vienna (VAR040066), the Virginia Department of Transportation (VDOT) Urban Area (VAR040062), and the George Washington Memorial Parkway (VAR040111) MS4s were assigned an aggregated WLA in the Final TMDL report as follows:

- Difficult Run TMDL Sediment WLA = 3,663.2 Tons/Year or 7,326,400 lbs./year

The City's MS4 Boundary, 0.18 square mile contributing drainage area to Difficult Run, and the location of the impaired reach in comparison to the City limits is shown in Figure 1. The remainder of this Action Plan will focus on addressing the City's plan for complying with the aggregated WLA assigned to the City under this TMDL.

SIGNIFICANT SOURCES OF POC(S)

4. **Significant sources of POC(s) from facilities of concern owned or operated by the MS4 operator that are not covered under a separate VPDES permit. A significant source of pollutant(s) from a facility of concern means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL.**

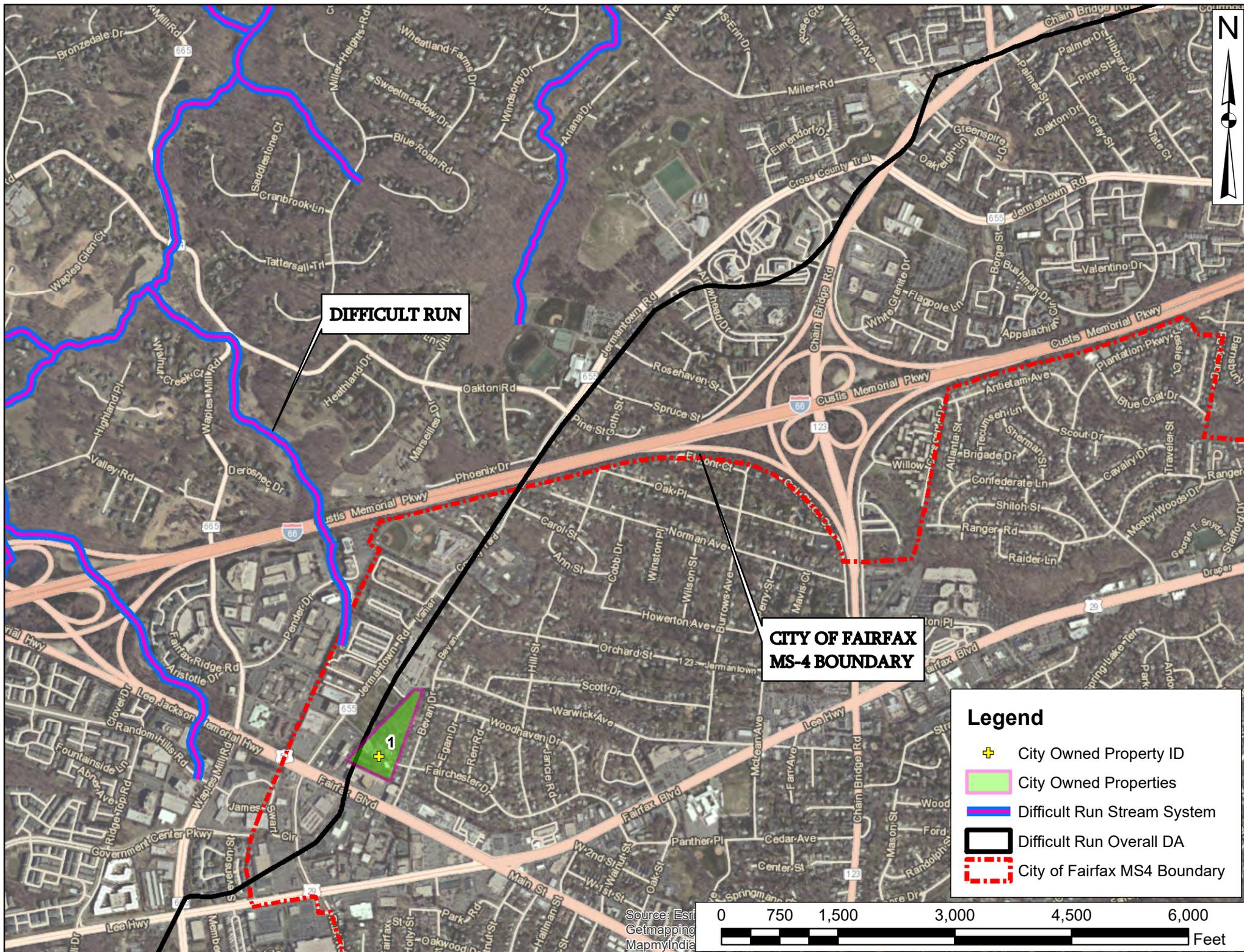
[This section of the Action Plan directly addresses Section I.B.2.d of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 4]

An initial Geographic Information System (GIS) based evaluation was performed to locate all City-owned/operated properties in the Difficult Run watershed. Utilizing the best available GIS shapefile data including parcel boundaries and current/historical activity descriptions, One (1) City-owned/operated property was identified in the Difficult Run watershed. The results of the initial evaluation are documented in Table 1, and the property's respective location within the City is shown in Figure 2.

Table 1. City-owned/operated properties in the Difficult Run Watershed.

GIS ID*	Name	Facility Type	Area (Ac)
1	Kutner Park	Park	10.5

Once the City-owned/operated property was identified, a desktop based Pollutant of Concern (POC) source evaluation was performed utilizing the parcel's land use type, acreage, presence or absence of MS4 outfall(s), current activity description, and site proximity to Difficult Run. The site met the metrics listed above, as well as displayed features visible in the City's aerial imagery that would identify the site as having the potential for an expected pollutant loading greater than the average pollutant loading for the land use identified in the TMDL. Large parks with on-site operational activities were weighted higher in this analysis due to the increased occurrence of material (i.e. aggregate) application and stockpiling, as well as nutrient application practices. Kutner Park was classified as having the potential for an expected pollutant loading greater than the average pollutant loading for the land use identified in the TMDL.



DIFFICULT RUN

**CITY OF FAIRFAX
MS-4 BOUNDARY**

Legend

- + City Owned Property ID
- City Owned Properties
- Difficult Run Stream System
- Difficult Run Overall DA
- City of Fairfax MS4 Boundary



FIGURE 2: CITY OF FAIRFAX MS4 OWNED/OPERATED FACILITIES IN THE DIFFICULT RUN WATERSHED

After the initial desktop analysis was completed, an on-site field reconnaissance was performed to review and assess the on-the-ground conditions for Kutner Park. The site visit was performed to evaluate for potential pollutant of concern (POC) generating activities, as well as drainage patterns, stormwater pollution potential (exposure to precipitation), material storage locations, and locations of outfalls. The desktop analysis, coupled with the findings from the on-site field reconnaissance, determined that Kutner Park exhibits site features, operations, and pollutant related indicators that could categorize it as “having the potential for an expected pollutant loading greater than the average pollutant loading for the land use identified in the TMDL”. A description of the City-owned/operated facility is as follows:

Kutner Park

The majority of Kutner Park (Figure 3) drains to Accotink Creek, with a small portion of the park draining to an unnamed tributary of Difficult Run. The park features a crushed gravel pedestrian hiking trail (Figure 4) around the park’s perimeter. The southern end of the park features a picnic pavilion, grill area, playground equipment, soccer field (Figure 5), tennis court, volleyball court, and community garden (Figure 6). The playground, fields, trail, and gardens are comprised of gravel, dirt, sand and other aggregates that may runoff during storm events and cause enhanced sediment loading. Required maintenance activities associated with the field, trail, and gardens can also increase the potential for sediment loading. The site features mentioned above classify the site as having a higher propensity for an increased sediment loading.



Figure 3. Kutner Park



Figure 4. Kutner Park hiking trail.



Figure 5. Kutner Park Recreational Fields.



Figure 6. Kutner Park Community Gardens.

Action Plan elements to address significant sources of POC loadings from facilities of concern owned or operated by the MS4 operator

The following subsection outlines the City's proposed means and methods for addressing existing and future significant sources of POC loadings from the facility identified in the preceding section site analysis.

Kutner Park

To address the potential for significant sources of sediment loading from Kutner Park, the City plans to implement the following means and methods:

- The City will install permanent covers on all on-site material and aggregate storage bays to abate surface flow run-on
- The City will stabilize and revegetate all denuded areas on-site.
- The City will continue to utilize good housekeeping measures when performing all trail, garden, and recreational field maintenance activities

Section 8 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to address the potential for significant sources of POC loadings from facilities of concern owned or operated by the City. Furthermore, the City plans to continue their current pollution prevention activities at all City properties, as well as incorporate additional pollution prevention activities to address Minimum Control Measure (MCM) 6 of their MS4 Program Plan.

EXISTING OR NEW BEST MANAGEMENT PRACTICES

- 5. Existing or new management practices, control techniques, and system design and engineering methods , that have been or will be implemented as part of the MS4 Program Plan that are applicable to reducing the pollutant identified in the WLA. [This section of the Action Plan directly addresses Section I.B.2.b of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 5]***

Recognizing that sediment pollutant discharges from the City's MS4 need to be controlled to the maximum extent practicable in order to protect the water quality in Difficult Run, City leaders and staff have incorporated several Best Management Practices (BMPs) into their MS4 Program Plan (revised in 2013), and their subsequent Annual Report(s), that specifically target sediment and focus on source control. The following is a list of thirty five (35) BMPs that meet the Minimum Control Measures (MCMs) set forth in the City's MS4 Program Plan, and are further developed in their MS-4 Annual Reports, that specifically address the reduction of sediment pollutant loads for the City's MS4 (Note: BMPs with an asterisk in their identifier (i.e. 2B*) are from the City's 2015 Annual Report):

- BMP 1.1. Stream Monitoring - The City, in conjunction with George Mason University (GMU), will perform stream monitoring to assess stream water quality. The City will publish an annual report related to the findings.
- BMP 1.2. Storm Drain Marker Program - The City will continue to use markers on existing storm drain inlets and place markers on new storm drain inlets. Marker reads "Drains to the Chesapeake Bay, No Dumping".
- BMP 1.3. City of Fairfax Watershed Management Plan - The City will post their Watershed Management Plan, and any updates, to their website to allow public access to watershed management information.
- BMP 1.5. Additional Public Education Material - The City will publish a quarterly newsletter to deliver stormwater program messages and distribute stormwater related information to citizens.
- BMP 1.6. Additional Public Education Material - The City will promote the "Follow the Rubber Duck" demonstration on their website to illustrate the effects of stormwater conveyance and pollution to the public.
- BMP 2.3. Public Education utilizing the City's Stormwater Website - The City will routinely update its webpage to inform residents on activities regarding the City's Stormwater Program, environmental protection, watershed management, and proper waste disposal.
- BMP 2.4. (2B*) Public Outreach and Activities - The City will participate in local public outreach activities including (1) the City Environmental Sustainability Committee; (2) The Spring Cleanup Event; (3) The Fall Festival Event; and, (4) Continue to be a member of the Northern Virginia Clean Water Partners.
- BMP 3.1. Storm Sewer System Map - The City will continue to update and revise their Storm Sewer Outfall Map, located on the City's website, as needed. The City utilizes a Capital Improvement Plan (CIP) that entails system updates and GIS based revisions.
- BMP 3.2. Storm sewer line and structure maintenance - The City will maintain their storm sewers and associated structures in order to provide uninhibited flow through the City drainage system.
- BMP 3.3. Illicit Discharge Detection and Elimination (IDDE) - The City will conduct semi-annual system screening on their outfalls for the presence of illicit discharges. The City will utilize their storm sewer GIS layers to help track the total number of outfalls screened and screening results. The City will keep details of any follow up actions.
- BMP 3.4. Illicit Discharge Detection and Elimination Enforcement Procedure - The City will use legal authority to issue summons and prosecute violators for negligence and/or failure to properly report spills.
- BMP 3.5. Spill Reporting to DEQ and DCR - The City will ensure that the responsible party(s) reports spills that reach state waters to the Department of Environmental Quality Response Program (PREP).
- BMP 3.6. Spill Investigation from small MS-4 operated properties - The City will investigate spills and potential illicit discharges from small MS-4 operated facilities, in

order to determine the cause and enforce corrective action to prevent future occurrences.

- BMP 3.7. Prevention of hazardous / illicit substances into the storm sewer system - The City will continue to provide residents a hazardous waste disposal facility to prevent hazardous/illicit materials from reaching the storm sewer system.
- BMP 4.1. City of Fairfax Erosion and Sediment Control Ordinance No. 2006-17 of the City Code - The City will provide site plan review and on-site Erosion and Sediment (E&S) Control inspections.
- BMP 4.2. VSMP Permits - The City will continue to require construction site owners and operators to obtain a VSMP permit from the State for construction activities resulting in a land disturbance greater than one acre. The City will also continue to require an owner and/or operator to obtain a City specific VSMP Permit for construction activities greater than 2500 square feet, and less than one acre.
- BMP 4.3. E & SC Staff Training - The City will require Inspectors, Plan Reviewers, and Program Administrators to obtain the appropriate certifications as required under the Virginia Stormwater Management Program, and Erosion and Sediment Control Law.
- BMP 4.4 Land Disturbing Activity Reporting - The City will track the number of land disturbing plans and acres disturbed and develop corresponding quarterly reports summarizing these activities.
- BMP 5.1. Public Facilities Manual - The City will continue to provide information to developers through the Public Facilities Manual (PFM) regarding Stormwater and Best Management Practice (BMP) design requirements. The PFM will be updated as required to address changes in design standards.
- BMP 5.2 Stormwater Management Ordinance - The City will continue to follow and update their Stormwater Management Ordinance to meet the provisions set forth in the State Stormwater Requirements and Chesapeake Bay Program Requirements.
- BMP 5.3. Best Management Practice (BMP) and Stormwater Management (SWM) Facility Maintenance - The City will continue to require all public and privately owned BMPs and SWM Facilities to be maintained to function as it was designed. The City will continue to require SWM maintenance plans to be provided on each approved site plan along with an executed stormwater maintenance agreement.
- BMP 5.4. Stormwater management maintenance and inspection - The City will maintain a Post-Development Stormwater Management facility inspection program and will perform annual inspections on these facilities.
- BMP 5.5 Stormwater Management (SWM) Facility and Best Management Practice (BMP) Tracking - The City will track all known permanent SWM and BMP facilities discharging into their regulated MS-4 area. The City will track the following information: (1) Type of structural SWM Facility installed as defined in the VA Stormwater BMP Clearinghouse; (2) Geographic Location (HUC); (3) The impaired surface water that the SWM facility is discharging into; (4) The number of acres treated.
- BMP 5.6. Best Management Practice (BMP) and Stormwater Management (SWM) Facility Enforcement Procedures - The City will provide BMPs and SWM facility owners with violation notices when their facilities are not functioning as designed. The

City will take enforcement action if the items outlined in the violation notice are not addressed within the City's required time frame.

- BMP 5.7. Stormwater Program Enhancements - The City will continue to enhance stormwater programs to reduce the impacts resulting from new and re-development projects. The City will continue to encourage the use of new and innovative stormwater strategies such as Low Impact Development (LID) and Environmental Site Design (ESD) through the site plan process
- BMP 5.8. Stormwater Program Enhancements - Employee Training -The City will continue to provide Stormwater Management Facility inspection training for the City's inspection staff.
- BMP 5.9. Stormwater Infrastructure Evaluation and Assessment - The City will evaluate, collect data, and inspect 30,000 feet of storm pipe throughout the MS4 to ensure all infrastructure is functioning as designed.
- BMP 6.1. Leaf Collection - The City will continue to provide special curbside leaf collection services in November and December to prevent decaying leaves from getting into streams, causing blockages, and releasing nutrients.
- BMP 6.2. Yard Waste Collection - The City will continue to provide regular yard waste collection services to collect yard waste before it can be transported by stormwater runoff to the City's streams.
- BMP 6.3. - Pollution Prevention Information Posted on City website and flyers distributed to City residents - The City will maintain a Refuse and Recycling website with the most recent version of the City's Solid Waste Management Plan. The website will also provide information to the public on proper solid waste disposal techniques and recycling practices.
- BMP 6.6. Employee Education and Training on Pollution Prevention and Good Housekeeping - The City will continue their employee Pollution Prevention and Good Housekeeping procedures training programs
- BMP 6.7. (6A*) - Stormwater Pollution Prevention Plans - The City will develop Stormwater Pollution Prevention Plans (SWPPPs) for all City properties identified as "High Priority Facilities".
- BMP 6.8. (6B*) - Implement Turf and Landscape Nutrient Management Plans - The City will identify all areas that need Nutrient Management Plans (NMPs) and implement the plans in accordance with the schedule set forth in Section II.B.6.c of the Stormwater General Permit.
- BMP 6.9. (6D*) - Written Good Housekeeping and Pollution Prevention Protocols for Daily Municipal Operations and Maintenance -The City will develop written good housekeeping measures and pollution prevention standard operating procedures to be incorporated into daily operational activities.
- Other BMPs - Street Sweeping - The City will continue its Street Sweeping Program.

More detailed descriptions for each BMP can be found in the City's MS4 Annual Reports which are available for download at <http://www.fairfaxva.gov/government/public-works/stormwater-and-floodplain-management/ms4-permit>. The City plans to continue implementation of these BMPs to address the sediment WLA listed in the aforementioned TMDL. Based on the results of the City's

Action Plan assessment methodology (as described in Section 9 of this Action Plan), an adaptive iterative approach will be used to enhance/replace these BMPs to achieve the most effective plan for reducing the discharge of sediment from the City's MS4 and to meet the assigned TMDL WLA.

LEGAL AUTHORITIES

6. Legal authorities such as ordinances, state and other permits, orders, specific contract language, and inter-jurisdictional agreements applicable to reducing the POCs identified in each respective TMDL.

[This section of the Action Plan directly addresses Section I.B.2.a of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 6]

Along with specific BMPs implemented to address sediment and focus on source control, the City's political leadership has included several provisions to the City's Code in order to facilitate a reduction in these pollutant discharges. These provisions include:

- Instituting legal ramifications regarding lack of maintenance and upkeep on all of the privately owned Stormwater Management Facilities and Best Management Practices within the City.
- Enforcing the Chesapeake Bay Preservation Act (CBPA) land disturbing activity requirements which include submission of a land disturbance application package for land disturbing activities greater than 2500 ft² and less than 1 acre. Furthermore, the City also requires land disturbing application packages for single family home development.
- Prohibiting the accumulation of solid waste on vacant lots, private roadways, and other lands within the City under Chapter 38 Article 3 - Section 38-38
- Instituting a creek and channel usage, improvement, and preservation provision to improve natural drainage systems within the City in accordance with 9VAC25-870-66 under Section 110-286 of the City's Stormwater Ordinance

The City has reviewed its MS4 Program Plan and ordinances to evaluate its ability to comply with the Special Condition for approved (other than the Chesapeake Bay TMDL) TMDLs (Section I.B) in the MS4 Permit. Based on this review, it is our opinion that the City of Fairfax does not require any new or modified legal authorities or policies to meet the requirements of this special condition. The following is a list of the City's relevant existing legal authorities and policies:

- City of Fairfax's Code of Ordinance
- City of Fairfax's Stormwater Ordinance - (Chapter 110 Article 2 - Division 11 of the County Code)
- City of Fairfax's MS4 Program Plan
- City of Fairfax's Public Facilities Manual (PFM)

However, the City may choose to coordinate with other adjacent MS4s (Fairfax County, Fairfax County Public Schools, Town of Vienna, VDOT, and the George Washington Memorial Parkway)

and explore the idea of establishing memoranda of understanding (MOU) to clarify MS4 service boundary lines and inter-jurisdictional responsibilities for POC loads and subsequent required POC load reductions in the future.

ENHANCEMENTS TO PUBLIC EDUCATION, OUTREACH, AND EMPLOYEE TRAINING

- 7. Enhancements to public education, outreach, and employee training programs to also promote methods to eliminate and reduce discharges of the POC(s) for which a WLA has been assigned.**

[This section of the Action Plan directly addresses Section I.B.2.c of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 7]

Enhancements to Public Education and Outreach Program

The City continues to implement a public education and outreach program as part of its MS4 Program Plan. The City's Stormwater and Floodplain Management webpage (Webpage) (<http://www.fairfaxva.gov/government/public-works/environment>) is the primary public education and outreach tool utilized for reaching the program's targeted audiences and providing for distribution of educational materials to convey the appropriate messages. The City's webpage has three general sub-section hyperlinks that each contain educational information related to reducing sediment loading in the Difficult Run watershed. The three hyperlinks, and corresponding public education and outreach materials available at those hyperlinks, are as follows:

- **Stormwater and Floodplain Management Hyperlink**
 - Northern Virginia Clean Water Partners "Only Rain Down the Storm Drain" initiative, as well as corresponding website;
 - The City's MS4 Homepage - with the City's Annual Reports and Outfall Map available for download;
 - The City's Watershed Management Plan;
 - The Chesapeake Bay Ordinance and information regarding the Resource Protection Area (RPA) requirements within the City limits; and
 - Information on the City's BMP and Stormwater Management Inspection Program

- **Protecting Water Resources Hyperlink**
 - Contact information for citizens to report illicit discharges;
 - Educational information, including hyperlinks to Federal, State, and Local Stormwater initiatives, on what citizens can do to report and prevent illicit discharges; and
 - Educational information, including hyperlinks to Federal, State, and Local Stormwater initiatives, on what children can do to protect our water resources

- **Virginia Stormwater Management Program (VSMP) Hyperlink**
 - Access to the City’s Stormwater Ordinance, as well as any revisions;
 - VSMP related forms, applications, fee forms, and checklists; and
 - The City of Fairfax’s VSMP Responsibility Flow Chart

As can be seen from this list, the City has utilized their webpage to compile several different publications and hyperlinks to directly address the pollutant of concern (sediment) for which a WLA has been assigned to the City. The City plans to add more public education and outreach materials to their website annually. Furthermore, the City plans on developing and adding a fourth hyperlink to their webpage entitled “Public Education and Outreach Materials”. The hyperlink will provide a separate tab which compiles all existing City publications that directly address the pollutant of concern, as well as add the following materials:

- Environmental Protection Agency (EPA) Outreach Materials (In English and Spanish) - After the Storm Brochure, “Make Your Home the Solution to Stormwater Pollution Brochure, and Children’s Stormwater Stickers”
- PDF links to recent City of Fairfax (Cityscene) Newsletters
- PDF links to the City of Fairfax’s Environmental Sustainability Committee Annual Reports
- Outreach materials from the Northern Virginia Clean Water Partners
- Postings regarding City events pertaining to Stormwater Outreach (i.e. “Make your own Rain Barrel” workshop dates)

Along with a fluid Public Education and Outreach hyperlink, all new available publications posted to the hyperlink will also be distributed at future public events. Section 8 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to enhance the City’s Public Education and Outreach Program.

Enhancements to Employee Training Program

Per MCM 6 of the City’s MS4 Program Plan, the City has set guidelines on employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet vehicle and building maintenance, new construction and land disturbance, and stormwater system maintenance. The following is a list of current City employee training activities that specifically address the pollutant of concern (sediment) for which a WLA has been assigned to the City:

- City Inspectors, Plan Reviewers, and Program Administrators are required to obtain proper certification as necessary under the Virginia Erosion and Sediment Control Law;
- All pertinent staff are required to obtain the Virginia Department of Environmental Quality (DEQ) Stormwater Certifications;
- All pertinent staff utilize training material from the EPA, State of Virginia, and other relevant organizations in conjunction with current City training materials.

Along with the existing City Employee Training Program, the City plans to develop in-house training modules for requisite City staff on Municipal Pollution Prevention Practices and Illicit Discharge Detection and Elimination. Section 8 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to enhance the City's Employee Training Program.

BMP/MILESTONES IMPLEMENTATION SCHEDULE

8. A schedule of interim milestones and implementation of the items in 5, 6, and 7. [This section of the Action Plan directly addresses Section I.B.1.b of the MS4 Permit and DEQ Guidance Document Action Plan Content Items 8]

As permitted in Section I.B.1 of the MS4 General Permit and referred to in DEQ's Draft Local TMDL Action Plan Guidance Document, the City is proposing to implement this Action Plan in multiple stages over multiple permit cycles using an adaptive iterative approach. This approach will allow the City to gather the necessary data and information to determine the most effective BMPs/management strategies for controlling POC loads along with identifying targeted areas for their implementation to meet the TMDL WLA for sediment. The following schedule is proposed for implementation of the BMPs and milestone activities included in this Action Plan for the current permit cycle ending on June 30, 2018:

<u>BMP/Milestone Activity</u>	<u>Schedule</u>
Submission of Local TMDL Action Plan to DEQ	October 1, 2016
BMP 1.1. Stream Monitoring	Annually
BMP 1.2. Storm Drain Marker Program	Annually
BMP 1.3. City of Fairfax Watershed Management Plan	Annually
BMP 1.5. Additional Public Education Material - Quarterly Newsletter	Quarterly
BMP 1.6. Additional Public Education Material - Follow the Rubber Duck	Monthly
BMP 2.3. Public Education utilizing the City's Stormwater Website	As-Needed
BMP 2.4. (2B*) Public Outreach and Community Activities	Annually
BMP 3.1. Storm Sewer System Map	As-Needed
BMP 3.2. Storm sewer line and structure maintenance	Annually
BMP 3.3. Illicit Discharge Detection and Elimination (IDDE)	On-Going
BMP 3.4. IDDE Enforcement and Procedures	As-Needed
BMP 3.5. Spill Reporting to DEQ and DCR	As-Required
BMP 3.6. Spill Investigation from small MS-4 Operated Properties	As-Needed
BMP 3.7. Prevention of Illicit substances into storm sewer system	Annually
BMP 4.1. City of Fairfax Erosion and Sediment Control (E&SC) Ordinance	Annually
BMP 4.2. VSMP Permits	On-Going
BMP 4.3. Staff E&SC Training	On-Going
BMP 4.4. Land Disturbing Activity Reporting	Annually
BMP 5.1. Public Facility Manual (PFM) Updates	As-Required
BMP 5.2. Stormwater Management Ordinance	As-Required
BMP 5.3. BMP and SWM Facility Maintenance Program	Annually

BMP 5.4. BMP and SWM Facility Inspections	Annually
BMP 5.5. SWM Facility Tracking	Annually
BMP 5.6. BMP and SWM Facility Enforcement Procedures	As-Needed
BMP 5.7. Stormwater Program Enhancements - LID and ESD Practices	As-Needed
BMP 5.8. Stormwater Program Enhancements - Employee Training	Annually
BMP 5.9. Stormwater Infrastructure Evaluation and Assessment	Annually
BMP 6.1. Leaf Collection	On-Going
BMP 6.2. Yard Waste Collection	On-Going
BMP 6.3. Pollution Prevention Information posted to City Website	On-Going
BMP 6.6. Employee Education on Pollution Prevention / Good Housekeeping	Annually
BMP 6.7. (6A*) Stormwater Pollution Prevention Plans (SWPPPs)	June 30, 2017
BMP 6.8. (6B*) Implement Turf and Landscape Nutrient Management Plans	Annually
BMP 6.9. (6D*) Standard Operating Procedures	June 30, 2015
- Other BMPs. Street Sweeping	Annually
- Installation of permanent covers on all material/aggregate storage bays	June 30, 2018
- Stabilize and revegetate all denuded areas on-site	Annually
Develop the "Public Education and Outreach Materials" City Website link	June 30, 2017
Develop in-house Employee Stormwater Pollution Prevention training	Dec 30, 2016
Prepare WQ Monitoring Program for POC Reductions Assessment	Dec 30, 2016
Purchase WQ Monitoring Equipment & Conduct Training	Feb 1, 2017
Commence WQ Monitoring Program	April 1, 2017
Prepare WQ Monitoring Reports	Annually
Prepare Estimate of "End Date" for Compliance with WLA	March 30, 2018
Identify BMPs to be Implemented during Next Permit Cycle (2018-2023)	March 30, 2018

METHODS TO ASSESS TMDL ACTION PLAN

9. Methods to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs.

[This section of the Action Plan directly addresses Section I.B.2.e of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 9]

In order to assess the effectiveness of the City's Difficult Run Sediment TMDL Action Plan, the City plans to prepare a Water Quality (WQ) Monitoring Program, in conjunction with the on-going City Water Quality Monitoring being performed by George Mason University (GMU), which will be initiated during this permit cycle. The City envisions collecting water quality samples (TSS) twice a year from representative MS4 outfalls that discharge to tributary streams to the impaired reach of Difficult Run. The City will utilize the water quality data collected under the monitoring program to: Identify potential sources of discharge of the POC; target locations within the MS4 permit area for implementation of BMPs; and ultimately to assess the overall effectiveness of the Action Plan in reducing the discharge of the POC from the City's MS4.

In accordance with the schedule provided in Section 8 of this Action Plan, the WQ Monitoring Program will be fully developed by December 30, 2016 and documentation of the program details will be submitted to DEQ with the City's subsequent Annual Report which will be due on October 1,

2017. After commencement of the WQ Monitoring Program and appropriate amounts of sampling data become available, the City will analyze the data to determine if any adjustments are necessary to the Action Plan with regards to the BMPs/management strategies for controlling POC loads. This analysis may include utilization of a stormwater runoff/pollutant loading model such as Purdue University's Long Term Hydrologic Impact Analysis (L-THIA) for estimation of the POC loads coming from the City's MS4. At the end of each MS4 permit reporting period, the City will also prepare annual WQ monitoring reports to be included with the City's MS4 Annual Report.

MEASURABLE GOALS AND METRICS TO TRACK COMPLIANCE

- 10. Measurable goals and the metrics that the permittee and Department will use to track those goals (and the milestones required by the permit). Evaluation metrics other than monitoring may be used to determine compliance with the TMDL(s).
[This section of the Action Plan directly addresses Section I.B.1.b of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 10]**

The City intends to demonstrate its progress on implementation of this Action Plan by tracking, monitoring, and reporting on BMP/milestone activity progress in its MS4 Program Annual Report that is submitted to DEQ on October 1st of each permit year. In the Annual Report, the City will provide updates on the status of each of the BMP/milestone activities listed under Section 8 of this Action Plan to include compliance with the proposed schedule. In accordance with the adaptive iterative approach adopted by the City, referenced in this Action Plan, the City may modify/replace BMPs, as necessary, to achieve the most effective plan for reducing the discharge of sediment from the City's MS4 and meeting the assigned TMDL WLA.

Appendix B-7c

Occoquan River *E. coli* TMDL Action Plan



Occoquan River Watershed

(Popes Head Creek)

Bacteria TMDL Action Plan

PERMIT NUMBER VAR040064

Submitted to DEQ:

October 2016

CITY OF FAIRFAX, VIRGINIA OCCOQUAN RIVER WATERSHED E.COLI TMDL ACTION PLAN

INTRODUCTION

The City of Fairfax has prepared this Occoquan River Watershed E.Coli (bacteria) TMDL Action Plan to address the Special Condition for approved local TMDLs (Section I.B) in the City's MS4 Permit. The City's approach for preparation of this Action Plan is based on the requirements listed in the MS4 General Permit and DEQ's Draft Local TMDL Action Plan Guidance Document that was released on 4/9/2015. Each of the sections in this Action Plan will address one or more of the required action plan content items as listed on page 4 of DEQ's Draft Local TMDL Action Plan Guidance Document.

TMDL BACKGROUND INFORMATION

1. ***The name(s) of the Final TMDL report(s);***
2. ***The pollutant(s) causing the impairment(s);***
3. ***The WLA(s) assigned to the MS4 as aggregate or individual WLAs.***
[This section of the Action Plan directly addresses Section I.B of the MS4 Permit and DEQ Guidance Document Action Plan Content Items 1-3]

The City of Fairfax was assigned an aggregated Waste Load Allocation (WLA) under the approved TMDL report entitled *Bacteria TMDLs for Popes Head Creek, Broad Run, Kettle Run, South Run, Little Bull Run, Bull Run and the Occoquan River, Virginia dated August 2006*. The City of Fairfax's south western limits drain to the headwaters of Popes Head Creek. Popes Head Creek flows south to its junction with Bull Run, which then joins with the Occoquan River. Because of this, the City is partially within the Occoquan River Watershed and is subject to the aforementioned bacteria TMDL for Popes Head Creek.

The impaired segment of Popes Head Creek (Segment ID: VAN-A23R-02) begins at the confluence of Piney Branch and Popes Head Creek and extends 4.9 miles downstream to the confluence with Bull Run. The segment is listed as impaired on Virginia's Section 303(d) Total Maximum Daily Load Priority List and Report because of violations of the state's water quality standards for fecal coliform bacteria. At the time of the initial listing of the Popes Head Creek segment, the Virginia Bacteria Water Quality Standard was expressed in fecal coliform bacteria; however, the bacteria water quality standard has been changed is now expressed in E.coli. Therefore, the TMDL is expressed in E.coli by converting modeled daily fecal coliform concentrations to daily E. coli concentrations using the following regression based instream translator equation:

$$E.coli\ conc.\ (cfu/100\ mL) = 2^{-0.0172} \times [fecal\ coliform\ conc.\ (cfu/100mL)]^{0.91905}$$

Analyses of physical, chemical, biological, and observational data indicate that potential key sources of fecal coliform in the stream segment included run-off from point source discharges, residential waste, and wildlife sources. A TMDL was therefore developed for bacteria to address the impairments in Popes Head Creek. The City of Fairfax (VAR040064) and Virginia Department of Transportation Urban Area (VAR040062) MS4s were assigned an aggregated WLA in the Final TMDL report as follows:

- Popes Head Creek TMDL Bacteria WLA (E.coli) = $1.03E+10$ (cfu./year)

The City's MS4 Boundary, 0.54 square mile contributing drainage area to Popes Head Creek, location of the impaired reach in comparison to the City, and location of the City limits in comparison to the Occoquan River is shown in Figure 1. The remainder of this Action Plan will focus on addressing the City's plan for complying with the aggregated WLA assigned to the City under this TMDL.

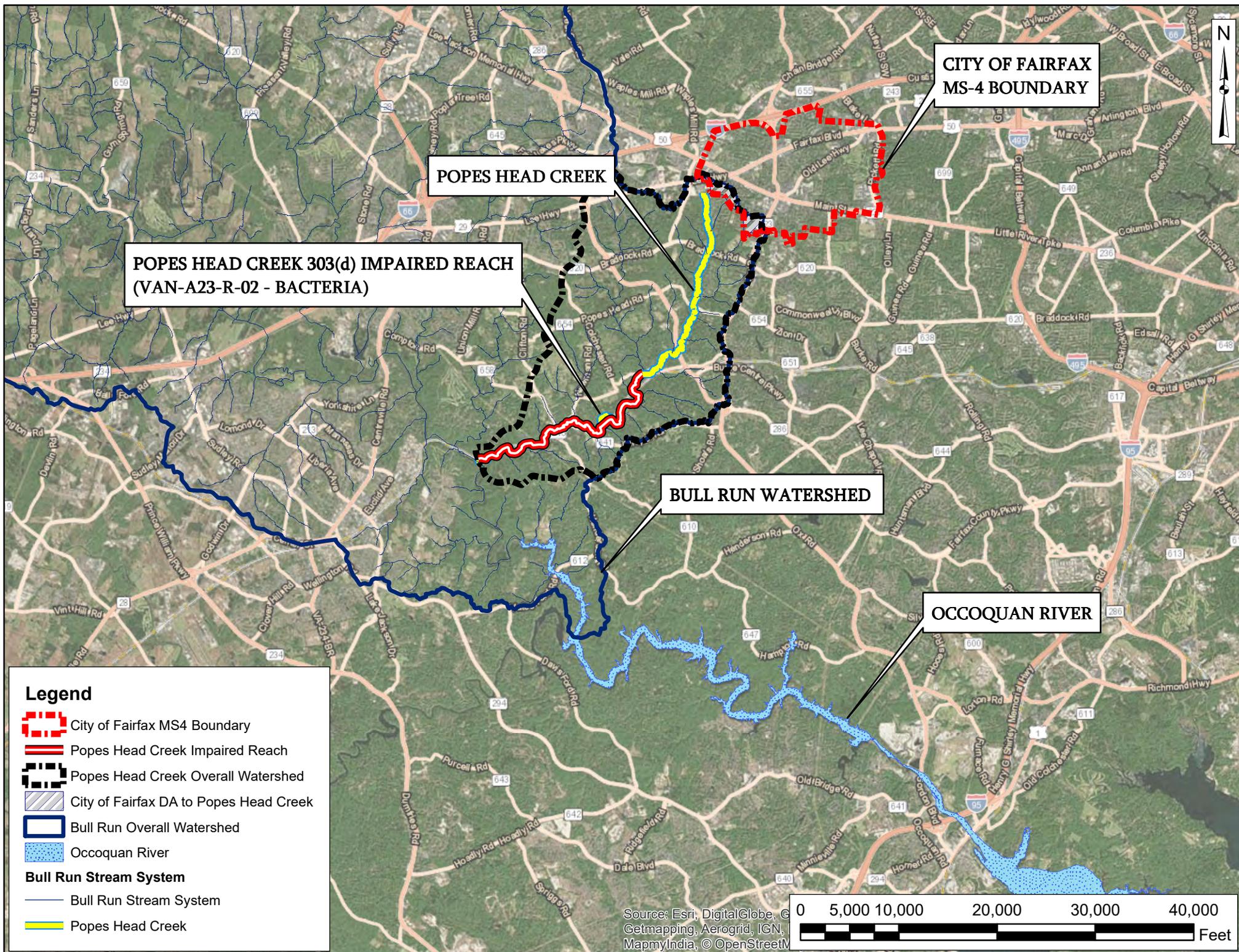


FIGURE 1: CITY OF FAIRFAX CONTRIBUTING DRAINAGE AREA (DA) TO POPES HEAD CREEK (OCCOQUAN RIVER WATERSHED)

SIGNIFICANT SOURCES OF POC(S)

4. **Significant sources of POC(s) from facilities of concern owned or operated by the MS4 operator that are not covered under a separate VPDES permit. A significant source of pollutant(s) from a facility of concern means a discharge where the expected pollutant loading is greater than the average pollutant loading for the land use identified in the TMDL.**

[This section of the Action Plan directly addresses Section I.B.2.d of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 4]

An initial Geographic Information System (GIS) based evaluation was performed to locate all City-owned/operated properties in the Popes Head Creek watershed. Utilizing the best available GIS shapefile data including parcel boundaries and current/historical activity descriptions, Two (2) City-owned/operated properties were identified in the Popes Head Creek watershed. The results of the initial evaluation are documented in Table 1, and each property's respective location within the City is shown in Figure 2.

Table 1. City-owned/operated properties in the Popes Head Creek Watershed.

GIS ID*	Name	Facility Type	Area (Ac)
1	Jester Property	Park	2.0
2	Providence Park	Park	20.0

* See Figure 2 for corresponding GIS ID

Once the City-owned/operated properties were identified, a desktop based Pollutant of Concern (POC) source evaluation was performed utilizing each parcel's land use type, acreage, presence or absence of MS4 outfall(s), current activity descriptions, and site proximity to Popes Head Creek. One (1) site met the metrics listed above, as well as displayed features visible in the City's aerial imagery that would indicate the increased potential for higher bacterial loadings. Forested areas with surface water features were weighted higher in this analysis due to the increased presence of wildlife and waterfowl habitats. Providence Park was identified as the only site having the potential for an expected pollutant loading greater than the average pollutant loading for the land use identified in the TMDL.

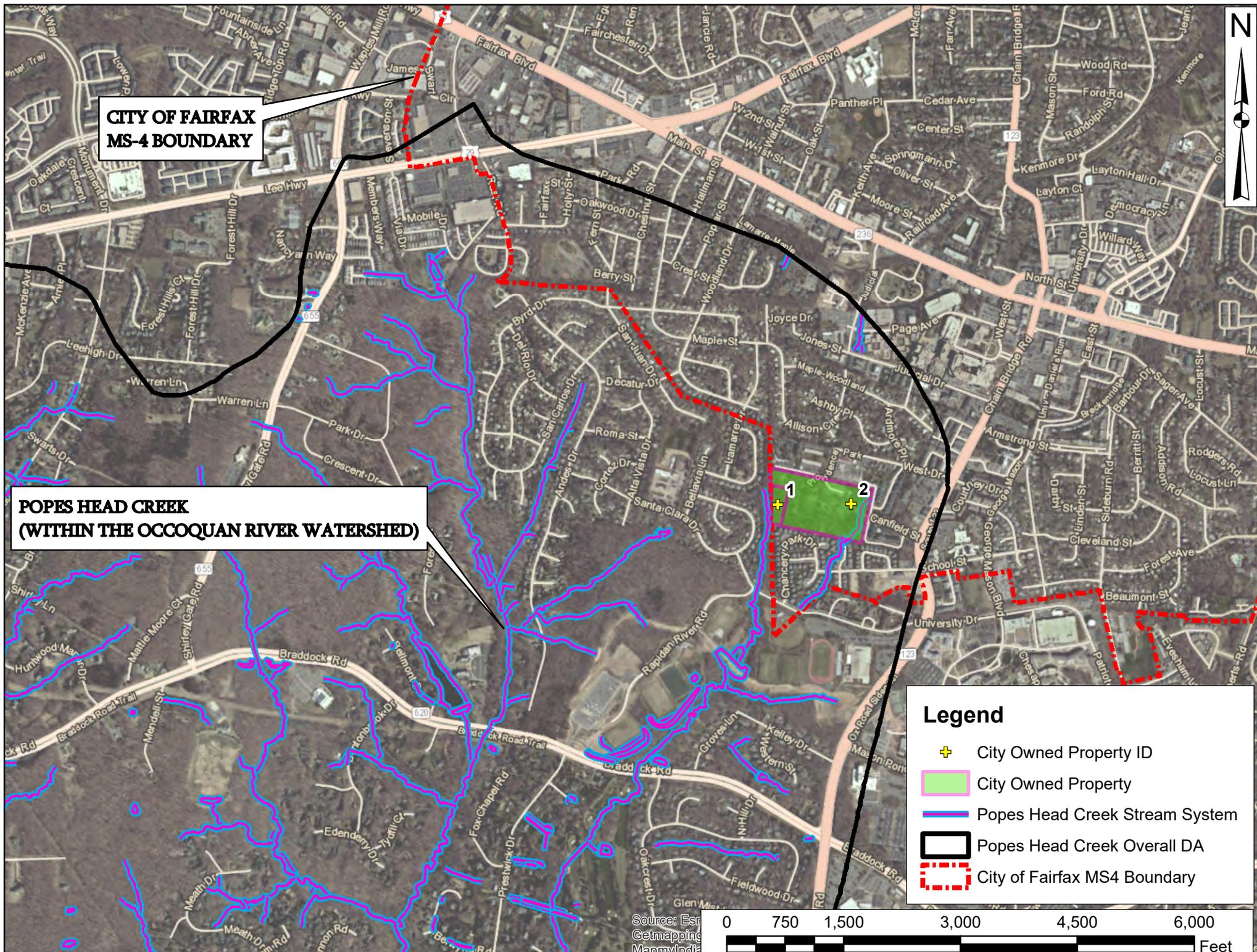


FIGURE 2: CITY OF FAIRFAX MS4 OWNED/OPERATED FACILITIES IN THE POPES HEAD CREEK WATERSHED (OCCOQUAN RIVER WATERSHED)

After the initial desktop analysis was completed, an on-site field reconnaissance was performed to review and assess the on-the-ground conditions for Providence Park. A site visit was performed to evaluate for potential pollutant of concern (POC) generating activities, as well as drainage patterns, stormwater pollution potential (exposure to precipitation), wild life presence and habitat, and locations of outfalls. The desktop analysis, coupled with the findings from the on-site field reconnaissance determined that the park exhibits site features, operations, and pollutant related indicators that could categorize them as “having the potential for an expected pollutant loading greater than the average pollutant loading for the land use identified in the TMDL”. A description of the City-owned/operated facilities is as follows:

Providence Park

The 20 acre Providence Park Site (Figure 3) features multiple recreational fields, a playground, walking trail, tennis courts, small community center, large parking lot, and several intermittent stream channels which act as the headwaters of Popes Head Creek. The park is partially wooded, and the wooded area itself potentially contributes to above-average amounts of bacterial loading due to the possible presence of a wildlife habitat. The on-site walking trail provides a location for residents to walk dogs and subsequently dispose/not dispose of dog waste, which can also increase the potential bacterial loading on-site. There is no on-site plumbing, and because of this, portable sanitation facilities (Figure 4) are available for public use for park visitors. The site features mentioned above classify the site as having a higher propensity for an increased bacterial loading.



Figure 4. On-site portable sanitation facilities.

Action Plan elements to address significant sources of POC loadings from facilities of concern owned or operated by the MS4 operator

The following subsection outlines the City's proposed means and methods for addressing existing and future significant sources of POC loadings from the facility identified in the subsequent section site analysis.

Providence Park

To address the potential for significant sources of bacterial loading from Providence Park, the City plans to implement the following means and methods:

- The City will continue to promote, and maintain, all dog waste disposal stations along the park trail. The City will also add brochure holders to each waste station that contain public education / outreach materials related to the water quality impacts of dog waste.
- The City will address the following items pertaining to all on-site portable sanitation facilities:
 - All facilities will be moved to a level ground surface;
 - All facilities will, wherever possible, be located upon natural ground and not within 5 feet of an impervious surface;
 - All facilities will be anchored down to prevent them from tipping over; and
 - Any damaged facilities will be repaired or replaced immediately.

Section 8 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to address the potential for significant sources of POC loadings from facilities of concern owned or operated by the City. Furthermore, the City plans to continue their current pollution prevention activities at all City properties, as well as incorporate additional pollution prevention activities to address Minimum Control Measure (MCM) 6 of their MS4 Program Plan.

EXISTING OR NEW BEST MANAGEMENT PRACTICES

5. Existing or new management practices, control techniques, and system design and engineering methods , that have been or will be implemented as part of the MS4 Program Plan that are applicable to reducing the pollutant identified in the WLA. [This section of the Action Plan directly addresses Section I.B.2.b of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 5]

Recognizing that bacteria pollutant discharges from the City's MS4 need to be controlled to the maximum extent practicable in order to protect the water quality in Popes Head Creek, City leaders and staff have incorporated several Best Management Practices (BMPs) into their MS4 Program Plan (revised in 2013), and their subsequent Annual Report(s), that specifically target bacteria and focus on source control. The following is a list of thirty three (33) BMPs that meet the Minimum Control Measures (MCMs) set forth in the City's MS4 Program Plan, and further developed in their MS-4 Annual Reports, that specifically address the reduction of bacterial pollutant loads for the City's MS4 (Note: BMPs with an asterisk in their identifier (i.e. 2B*) are from the City's 2015 Annual Report):

- BMP 1.1. Stream Monitoring - The City, in conjunction with George Mason University (GMU), will perform stream monitoring, to include bacteria sampling, to assess stream water quality. The City will publish an annual report related to the findings.
- BMP 1.2. Storm Drain Marker Program - The City will continue to use markers on existing storm drain inlets and place markers on new storm drain inlets. Marker reads "Drains to the Chesapeake Bay, No Dumping".
- BMP 1.3. City of Fairfax Watershed Management Plan - The City will post their Watershed Management Plan, and any updates, to their website to allow public access to watershed management information.
- BMP 1.5. Additional Public Education Material - The City will publish a quarterly newsletter to deliver stormwater program messages and distribute stormwater related information to citizens.
- BMP 1.6. Additional Public Education Material - The City will promote the "Follow the Rubber Ducky" initiative on their website to illustrate the effects of stormwater conveyance and pollution to the public.
- BMP 2.3. Public Education utilizing the City's Stormwater Website - The City will routinely update its webpage to inform residents on activities regarding the City's Stormwater Program, environmental protection, watershed management, and proper waste disposal.

- BMP 2.4. (2B*) Public Outreach and Activities - The City will participate in local public outreach activities including (1) the City Environmental Sustainability Committee; (2) The Spring Cleanup Event; (3) The Fall Festival Event; and, (4) Continue to be a member of the Northern Virginia Clean Water Partners.
- BMP 3.1. Storm Sewer System Map - The City will continue to update and revise their Storm Sewer Outfall Map, located on the City's website, as needed. The City utilizes a Capital Improvement Program (CIP) that includes system updates and GIS based revisions.
- BMP 3.2. Storm sewer line and structure maintenance - The City will maintain their storm sewers and associated structures in order to provide uninhibited flow through the City drainage system.
- BMP 3.3. Illicit Discharge Detection and Elimination (IDDE) - The City will conduct semi-annual system screening on their outfalls for the presence of illicit discharges. The City will utilize their storm sewer GIS layers to help track the total number of outfalls screened and screening results. The City will keep details of any follow up actions.
- BMP 3.4. Illicit Discharge Detection and Elimination Enforcement Procedure - The City will use legal authority to issue summons and prosecute violators for negligence and/or failure to properly report spills.
- BMP 3.5. Spill Reporting to DEQ and DCR - The City will ensure that the responsible party(s) reports spills that reach state waters to the Department of Environmental Quality Response Program (PREP).
- BMP 3.6. Spill Investigation from small MS-4 operated properties - The City will investigate spills and potential illicit discharges from small MS-4 operated facilities, in order to determine the cause and enforce corrective action to prevent future occurrences.
- BMP 3.7. Prevention of hazardous / illicit substances into the storm sewer system - The City will continue to provide residents a hazardous waste disposal facility to prevent hazardous/illicit/bacteria producing materials from reaching the storm sewer system.
- BMP 3.8 Sanitary Sewer Overflows - The City will continue, as part of its utilities program, to implement techniques to prevent sanitary sewer overflows.
- BMP 3.9 Sanitary Sewer Improvements - The City will maintain their sanitary sewers and associated structures to provide uninhibited flow, as well as prevent sanitary sewer leaks and overflows throughout the sanitary sewer system.
- BMP 5.1. Public Facilities Manual - The City will continue to provide information to developers through the Public Facilities Manual (PFM) regarding Stormwater and Best Management Practice (BMP) design requirements. The PFM will be updated as required to address changes in design standards.
- BMP 5.2 Stormwater Management Ordinance - The City will continue to follow and update their Stormwater Management Ordinance to meet the provisions set forth in the State Stormwater Requirements and Chesapeake Bay Program Requirements.
- BMP 5.3. Best Management Practice (BMP) and Stormwater Management (SWM) Facility Maintenance - The City will continue to require all publicly and privately owned

BMPs and SWM Facilities to be maintained to function as designed. The City will continue to require SWM maintenance plans to be provided on each approved site plan along with an executed stormwater maintenance agreement.

- *BMP 5.4. Stormwater management maintenance and inspection* - The City will maintain a Post-Development Stormwater Management facility inspection program and will perform annual inspections on these facilities.
- *BMP 5.5 Stormwater Management (SWM) Facility and Best Management Practice (BMP) Tracking* - The City will track all known permanent SWM and BMP facilities discharging into their regulated MS-4 area. The City will track the following information: (1) Type of structural SWM Facility installed as defined in the VA Stormwater BMP Clearinghouse; (2) Geographic Location (HUC); (3) The impaired surface water that the SWM is discharging in to; (4) The number of acres treated.
- *BMP 5.6. Best Management Practice (BMP) and Stormwater Management (SWM) Facility Enforcement Procedures* - The City will provide BMPs and SWM facility owners' violation notices when their facilities are not functioning as designed. The City will take enforcement action if the items outlined in the violation notice are not addressed within the City's required time frame.
- *BMP 5.7. Stormwater Program Enhancements* - The City will continue to enhance stormwater programs to reduce the impacts resulting from new and re-development. The City will continue to encourage the use of new and innovative stormwater strategies such as Low Impact Development (LID) and Environmental Site Design (ESD) through the site plan process
- *BMP 5.8. Stormwater Program Enhancements - Employee Training* -The City will continue to provide Stormwater Management Facility inspection training for the City's inspection staff.
- *BMP 5.9. Stormwater Infrastructure Evaluation and Assessment* - The City will evaluate, collect data, and inspect 30,000 feet of storm pipe throughout the MS4 to ensure all infrastructure is functioning as designed.
- *BMP 6.1. Leaf Collection* - The City will continue to provide special curbside leaf collection services in November and December to prevent decaying leaves from getting into streams, causing blockages, and producing nutrients.
- *BMP 6.2. Yard Waste Collection* - The City will continue to provide regular yard waste collection services to collect yard waste before it can be transported by stormwater runoff to the City's streams.
- *BMP 6.3. - Pollution Prevention Information Posted on City website and flyers distributed to City residents* - The City will maintain a Refuse and Recycling website with the most recent version of the City's Solid Waste Management Plan. The website will also provide information to the public on proper solid waste disposal techniques and recycling practices.
- *BMP 6.6. Employee Education and Training on Pollution Prevention and Good Housekeeping* - The City will continue their employee Pollution Prevention and Good Housekeeping procedures training programs.

- *BMP 6.8. (6A*) - Stormwater Pollution Prevention Plans* - The City will develop Stormwater Pollution Prevention Plans (SWPPPs) for all City properties identified as "High Priority Facilities".
- *BMP 6.9. (6B*) - Implement Turf and Landscape Nutrient Management Plans* - The City will identify all areas that need Nutrient Management Plans (NMPs) and implement the plans in accordance with the schedule set forth in Section II.B.6.c of the Stormwater General Permit.
- *BMP 6.10. (6D*) - Written Good Housekeeping and Pollution Prevention Protocols for Daily Municipal Operations and Maintenance* -The City will develop written good housekeeping measures and pollution prevention standard operating procedures to be incorporated into daily operational activities.
- *Other BMPs - Street Sweeping* - The City will continue to implement and maintain its Street Sweeping Program.

More detailed descriptions for each BMP can be found in the City's MS4 Annual Reports which are available for download at <http://www.fairfaxva.gov/government/public-works/stormwater-and-floodplain-management/ms4-permit>. The City plans to continue implementation of these BMPs to address the bacteria WLA listed in the aforementioned TMDL. Based on the results of the City's Action Plan assessment methodology (as described in Section 9 of this Action Plan), an adaptive iterative approach will be used to enhance/replace these BMPs to achieve the most effective plan for reducing the discharge of bacteria from the City's MS4 and to meet the assigned TMDL WLA.

LEGAL AUTHORITIES

6. *Legal authorities such as ordinances, state and other permits, orders, specific contract language, and inter-jurisdictional agreements applicable to reducing the POCs identified in each respective TMDL.*

[This section of the Action Plan directly addresses Section I.B.2.a of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 6]

Along with specific BMPs implemented to address bacteria and focus on source control, the City's political leadership has included several provisions to the City's Code in order to facilitate a reduction in these pollutant discharges. These provisions include:

- Instituting legal ramifications for dog owners that fail to remove dog excrement from public right-of-ways and all properties other than the dog owners under Chapter 6 Article 3 - Section 6-61.(b)
- Prohibiting the ownership of wild, exotic, or vicious animals under Chapter 6 Article 5 - All Sections
- Prohibiting the accumulation of solid waste on vacant lots, private roadways, and other lands within the City under Chapter 38 Article 3 - Section 38-38
- Instituting a creek and channel usage, improvement, and preservation provision to improve natural drainage systems within the City in accordance with 9VAC25-870-66 under Section 110-286 of the City's Stormwater Ordinance

The City has reviewed its MS4 Program Plan and ordinances to evaluate its ability to comply with the Special Condition for approved (other than the Chesapeake Bay TMDL) TMDLs (Section I.B) in the MS4 Permit. Based on this review, it is our opinion that the City of Fairfax does not require any new or modified legal authorities or policies to meet the requirements of this special condition. The following is a list of the City's relevant existing legal authorities and policies:

- City of Fairfax's Code of Ordinance
- City of Fairfax's Stormwater Ordinance - (Chapter 110 Article 2 - Division 11 of the County Code)
- City of Fairfax's MS4 Program Plan
- City of Fairfax's Public Facilities Manual (PFM)

However, the City may choose to coordinate with the adjacent MS4 (VDOT) and explore the idea of establishing memoranda of understanding (MOU) to clarify MS4 service boundary lines and inter-jurisdictional responsibilities for POC loads and subsequent required POC load reductions in the future.

ENHANCEMENTS TO PUBLIC EDUCATION, OUTREACH, AND EMPLOYEE TRAINING

7. Enhancements to public education, outreach, and employee training programs to also promote methods to eliminate and reduce discharges of the POC(s) for which a WLA has been assigned.

[This section of the Action Plan directly addresses Section I.B.2.c of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 7]

Enhancements to Public Education and Outreach Program

The City continues to implement a public education and outreach program as part of its MS4 Program Plan. The City's Stormwater and Floodplain Management webpage (Webpage) (<http://www.fairfaxva.gov/government/public-works/environment>) is the primary public education and outreach tool utilized for reaching the program's targeted audiences and providing for distribution of educational materials to convey the appropriate messages. The City's webpage has three general sub-section hyperlinks that each contains educational information related to reducing bacterial loading in the Popes Head Creek watershed. The three hyperlinks, and corresponding public education and outreach materials available at those hyperlinks, are as follows:

- ***Stormwater and Floodplain Management Hyperlink***
 - Northern Virginia Clean Water Partners "Only Rain Down the Storm Drain" initiative, as well as corresponding website;
 - The City's MS4 Homepage - with the City's Annual Reports and Outfall Map available for download;
 - The City's Watershed Management Plan;

- ***Stormwater and Floodplain Management Hyperlink (Continued)***
 - The Chesapeake Bay Ordinance and information regarding the Resource Protection Area (RPA) requirements within the City limits; and
 - Information of the City's BMP and Stormwater Management Inspection Program

- ***Protecting Water Resources Hyperlink***
 - Contact information for citizens to report illicit discharges;
 - Educational information, including hyperlinks to Federal, State, and Local Stormwater initiatives, on what citizens can do to report and prevent illicit discharges; and
 - Educational information, including hyperlinks to Federal, State, and Local Stormwater initiatives, on what children can do to protect our water resources

- ***Virginia Stormwater Management Program (VSMP) Hyperlink***
 - Access to the City's Stormwater Ordinance, as well as any revisions;
 - VSMP related forms, applications, fee forms, and checklists; and
 - The City of Fairfax's VSMP Responsibility Flow Chart

As can be seen from this list, the City has utilized their webpage to compile several different publications and hyperlinks to directly address the pollutant of concern (bacteria) for which a WLA has been assigned to the City. The City plans to add more public education and outreach materials to their website annually. Furthermore, the City plans on developing and adding a fourth hyperlink to their webpage entitled "Public Education and Outreach Materials". The hyperlink will provide a separate tab which compiles all existing City publications that directly address the pollutant of concern, as well as add the following materials:

- Environmental Protection Agency (EPA) Outreach Materials (In English and Spanish) - "After the Storm Brochure", "Make Your Home the Solution to Stormwater Pollution" Brochure, and Children's Stormwater Stickers
- PDF links to recent City of Fairfax (Cityscene) Newsletters
- PDF links to the City of Fairfax's Environmental Sustainability Committee Annual Reports
- Outreach materials from the Northern Virginia Clean Water Partners
- Postings regarding City events pertaining to Stormwater Outreach (i.e. "Make your own Rain Barrel" workshop dates)

Along with a fluid Public Education and Outreach hyperlink, all new available publications posted to the hyperlink will also be distributed at future public events. Section 8 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to enhance the City's Public Education and Outreach Program.

Enhancements to Employee Training Program

Per MCM 6 of the City's MS4 Program Plan, the City has set guidelines on employee training to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet vehicle and building maintenance, new construction and land disturbance, and stormwater system maintenance. The following is a list of current City employee training activities that specifically address the pollutant of concern (bacteria) for which a WLA has been assigned to the City:

- City Inspectors, Plan Reviewers, and Program Administrators are required to obtain proper certification as necessary under the Virginia Erosion and Sediment Control Law;
- All pertinent staff are required to obtain the Virginia Department of Environmental Quality (DEQ) Stormwater Certifications;
- All pertinent staff utilize training material from the EPA, State of Virginia, and other relevant organizations in conjunction with current City training materials.

Along with the existing City Employee Training Program, the City plans to develop in-house training modules for requisite City staff on Municipal Pollution Prevention Practices and Illicit Discharge Detection and Elimination. Section 8 of this Action Plan outlines the milestone dates for implementation of the means and methods proposed to enhance the City's Employee Training Program.

BMP/MILESTONES IMPLEMENTATION SCHEDULE

8. A schedule of interim milestones and implementation of the items in 5, 6, and 7. [This section of the Action Plan directly addresses Section I.B.1.b of the MS4 Permit and DEQ Guidance Document Action Plan Content Items 8]

As permitted in Section I.B.1 of the MS4 General Permit and referred to in DEQ's Draft Local TMDL Action Plan Guidance Document, the City is proposing to implement this Action Plan in multiple stages over multiple permit cycles using an adaptive iterative approach. This approach will allow the City to gather the necessary data and information to determine the most effective BMPs/management strategies for controlling POC loads along with identifying targeted areas for their implementation to meet the TMDL WLA for bacteria. The following schedule is proposed for implementation of the BMPs and milestone activities included in this Action Plan for the current permit cycle ending on June 30, 2018:

<u>BMP/Milestone Activity</u>	<u>Schedule</u>
Submission of Local TMDL Action Plan to DEQ	October 1, 2016
BMP 1.1. Stream Monitoring	Annually
BMP 1.2. Storm Drain Marker Program	Annually
BMP 1.3. City of Fairfax Watershed Management Plan	Annually

BMP 1.5. Additional Public Education Material - Quarterly Newsletter	Quarterly
BMP 1.6. Additional Public Education Material - Follow the Rubber Duck	Monthly
BMP 2.3. Public Education utilizing the City's Stormwater Website	As-Needed
BMP 2.4. (2B*) Public Outreach and Community Activities	Annually
BMP 3.1. Storm Sewer System Map	As-Needed
BMP 3.2. Storm sewer line and structure maintenance	Annually
BMP 3.3. Illicit Discharge Detection and Elimination (IDDE)	On-Going
BMP 3.4. IDDE Enforcement and Procedures	As-Needed
BMP 3.5. Spill Reporting to DEQ and DCR	As-Required
BMP 3.6. Spill Investigation from small MS-4 Operated Properties	As-Needed
BMP 3.7. Prevention of Illicit substances into storm sewer system	Annually
BMP 3.8. Sanitary Sewer Overflow Prevention	Annually
BMP 3.9. Sanitary Sewer Improvements	Annually
BMP 5.1. Public Facility Manual (PFM) Updates	As-Required
BMP 5.2. Stormwater Management Ordinance	As-Required
BMP 5.3. BMP and SWM Facility Maintenance Program	Annually
BMP 5.4. BMP and SWM Facility Inspections	Annually
BMP 5.5. SWM Facility Tracking	Annually
BMP 5.6. BMP and SWM Facility Enforcement Procedures	As-Needed
BMP 5.7. Stormwater Program Enhancements - LID and ESD Practices	As-Needed
BMP 5.8. Stormwater Program Enhancements - Employee Training	Annually
BMP 5.9. Stormwater Infrastructure Evaluation and Assessment	Annually
BMP 6.1. Leaf Collection	On-Going
BMP 6.2. Yard Waste Collection	On-Going
BMP 6.3. Pollution Prevention Information posted to City Website	On-Going
BMP 6.6. Employee Education on Pollution Prevention / Good Housekeeping	Annually
BMP 6.8. (6A*) Stormwater Pollution Prevention Plans (SWPPPs)	June 30, 2017
BMP 6.9. (6B*) Implement Turf and Landscape Nutrient Management Plans	Annually
BMP 6.10. (6D*) Standard Operating Procedures	June 30, 2015
Develop and Implement Dog Waste Impacts Brochure	Dec 30, 2016
Implement Portable Sanitation Facility BMPs	Dec 30, 2016
Develop the "Public Education and Outreach Materials" City Website link	June 30, 2017
Develop in-house Employee Stormwater Pollution Prevention training	Dec 30, 2016
Prepare WQ Monitoring Program for POC Reductions Assessment	Dec 30, 2016
Purchase WQ Monitoring Equipment & Conduct Training	Feb 1, 2017
Commence WQ Monitoring Program	April 1, 2017
Prepare WQ Monitoring Reports	Annually
Prepare Estimate of "End Date" for Compliance with WLA	March 30, 2018
Identify BMPs to be Implemented during Next Permit Cycle (2018-2023)	March 30, 2018

METHODS TO ASSESS TMDL ACTION PLAN

9. Methods to assess TMDL Action Plans for their effectiveness in reducing the pollutants identified in the WLAs.

[This section of the Action Plan directly addresses Section I.B.2.e of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 9]

In order to assess the effectiveness of the City's Occoquan River Watershed Bacteria TMDL Action Plan, the City plans to prepare a Water Quality (WQ) Monitoring Program, in conjunction with the on-going City Water Quality Monitoring being performed by George Mason University (GMU), which will be initiated during this permit cycle. The City envisions collecting water quality samples (E.Coli) twice a year from representative MS4 outfalls that discharge to the impaired reach of Popes Head Creek, which is part of the Occoquan River Watershed. The City will utilize the water quality data collected under the monitoring program to: Identify potential sources of discharge of the POC; target locations within the MS4 permit area for implementation of BMPs; and ultimately to assess the overall effectiveness of the Action Plan in reducing the discharge of the POC from the City's MS4.

In accordance with the schedule provided in Section 8 of this Action Plan, the WQ Monitoring Program will be fully developed by December 30, 2016 and documentation of the program details will be submitted to DEQ with the City's subsequent Annual Report which will be due on October 1, 2017. After commencement of the WQ Monitoring Program and appropriate amounts of sampling data become available, the City will analyze the data to determine if any adjustments are necessary to the Action Plan with regards to the BMPs/management strategies for controlling POC loads. This analysis may include utilization of a stormwater runoff/pollutant loading model such as Purdue University's Long Term Hydrologic Impact Analysis (L-THIA) for estimation of the POC loads coming from the City's MS4. At the end of each MS4 permit reporting period, the City will also prepare annual WQ monitoring reports to be included with the City's MS4 Annual Report.

MEASURABLE GOALS AND METRICS TO TRACK COMPLIANCE

10. Measurable goals and the metrics that the permittee and Department will use to track those goals (and the milestones required by the permit). Evaluation metrics other than monitoring may be used to determine compliance with the TMDL(s).

[This section of the Action Plan directly addresses Section I.B.1.b of the MS4 Permit and DEQ Guidance Document Action Plan Content Item 10]

The City intends to demonstrate its progress on implementation of this Action Plan by tracking, monitoring, and reporting on BMP/milestone activity progress in its MS4 Program Annual Report that is submitted to DEQ on October 1st of each permit year. In the Annual Report, the City will provide updates on the status of each of the BMP/milestone activities listed under Section 8 of this Action Plan to include compliance with the proposed schedule. In accordance with the adaptive iterative approach adopted by the City, referenced in this Action Plan, the City may modify/replace

BMPs, as necessary, to achieve the most effective plan for reducing the discharge of bacteria from the City's MS4 and meeting the assigned TMDL WLA.

Appendix C

Water Quality Monitoring Reports



Water Quality Monitoring Program

City of Fairfax, VA

PERMIT NUMBER VAR040064

Prepared:

January 25, 2017

CITY OF FAIRFAX, VIRGINIA – WATER QUALITY MONITORING PROGRAM

INTRODUCTION & OBJECTIVES

The Water Quality Monitoring Program (WQMP) described in this document will help the City to meet the requirements contained in Section I.B.2.e of the City's Municipal Separate Storm Sewer System (MS4) permit, and Item 9 in the City of Fairfax's DEQ approved TMDL Action Plans. It is designed to assist in assessing the effectiveness of all the City's Local TMDL Action Plans.

Under the program, the City will collect water quality samples to be analyzed for the Pollutants of Concern (POCs), namely Total Suspended Solids (TSS) and Bacteria (E. coli), twice a year from six (6) representative MS4 outfalls located within the drainage sheds of the impaired reaches of Difficult Run, Accotink Creek, and Popes Head Creek. The City will utilize this baseline water quality sampling data to address multiple objectives including: screening for potential sources of the POCs discharging into the City's MS4; targeting locations within the MS4 permit area for implementation of BMPs; educating the public on the potential water quality impacts of their actions and behavior within the MS4 drainage area; and ultimately to aid in assessing the overall effectiveness of the Action Plan in reducing the discharge of the POCs from the City's MS4.

After commencement of the WQMP and appropriate amounts of sampling data have been collected, the City will analyze the data to determine if any adjustments are necessary to the Action Plan with regards to the BMPs/management strategies for controlling POC loads. At the end of each MS4 permit reporting period, the City will also prepare brief annual WQ monitoring summary reports to be included with the City's MS4 Annual Report. The remainder of this document provides more details about the program.

SAMPLING LOCATION / OUTFALL SELECTION

The City of Fairfax has the following six (6) DEQ approved TMDL Action Plans:

- *Difficult Run - (Sediment)*
- *Difficult Run - (E.Coli)*
- *Occoquan River Watershed (Popes Head Creek, Bull Run) – (E.Coli)*
- *Accotink Creek - (F.Coliform)*
- *Bull Run - (Sediment)*
- *Popes Head Creek - (Sediment)*

As described in the City's approved TMDL Action Plans, the City is responsible for controlling the annual discharge loads of these POCs from their MS4 to levels consistent with the Waste Load Allocations (WLAs) assigned to the City in the applicable TMDLs. As such, under the City's WQMP, baseline water quality samples will be collected from representative MS4 outfalls located within the drainage sheds of the impaired reaches of Accotink Creek, Popes Head Creek and Difficult Run. Some of the screening criterion used for selection of representative sampling locations/outfalls is as follows:

Representative MS4 outfalls – In order to estimate the concentrations of these POCs in point source discharges from the City’s regulated MS4 as a whole, samples will be collected from selected representative MS4 outfalls whose drainage areas encompass the typical land uses found throughout the entire MS4 drainage shed.

Outfalls located within the impaired stream segments’ drainage sheds – Because the focus of this WQMP is on controlling the annual POC discharges from the MS4 to levels consistent with the Waste Load Allocations (WLAs) assigned to the City in the applicable TMDLs, only MS4 outfalls that are located within the overlapping drainage sheds of the impaired stream segments will be sampled.

Accessibility & Safety – Selected sampling outfalls must be easily located (and re-located during subsequent sampling events), publically accessible or accessible on private property via appropriate easements, and allow for the collection of water samples safely by two-person sampling teams during wet weather storm events.

Using the aforementioned screening criterion, the City chose the following six representative MS4 outfalls for initial sampling under the WQMP:

Sampling Location #1 (Figure 2.)

Outfall ID: SW-OTFL-89 (*Drainage Area = ± 157.83 Ac.*)
Description: This outfall collects residential drainage from Warrick, Scott, and Orchard Streets, as well as commercial and roadway runoff along Route 50.
Receiving Water Body: Unnamed Tributary to Accotink Creek

Sampling Location #2 (Figure 3.)

Outfall ID: SW-OTFL-51 (*Drainage Area = ± 22.79 Ac.*)
Description: This outfall collects highly impervious, ultra-urban runoff from Chain Bridge Road, University Drive, and, North Street
Receiving Water Body: Directly to Accotink Creek

Sampling Location #3 (Figure 4.)

Outfall ID: SW-OTFL-14 (*Drainage Area = ± 66.65 Ac.*)
Description: This outfall primarily captures runoff from residential drainage and roadway runoff from Tedrich Boulevard and Carolyn Avenue.
Receiving Water Body: Daniels Run (Within the Accotink Creek Stream System)

Sampling Location #4 (Figure 5.)

Outfall ID: SW-OTFL-19 (*Drainage Area = ± 6.48 Ac.*)
Description: This outfall captures runoff from the Fairfax Circle Shopping Center and roadway drainage from Old Lee Highway.
Receiving Water Body: Directly to Accotink Creek

Sampling Location #5 (Figure 6.)

Outfall ID: SW-DIFFICULT RUN-OTFL-1 (*Drainage Area = ± 40.45 Ac.*)
Description: This outfall captures drainage from Kutner Park, Lanier Middle School, as well as drainage from commercial areas along Jermantown Road.
Receiving Water Body: Unnamed Tributary to Difficult Run

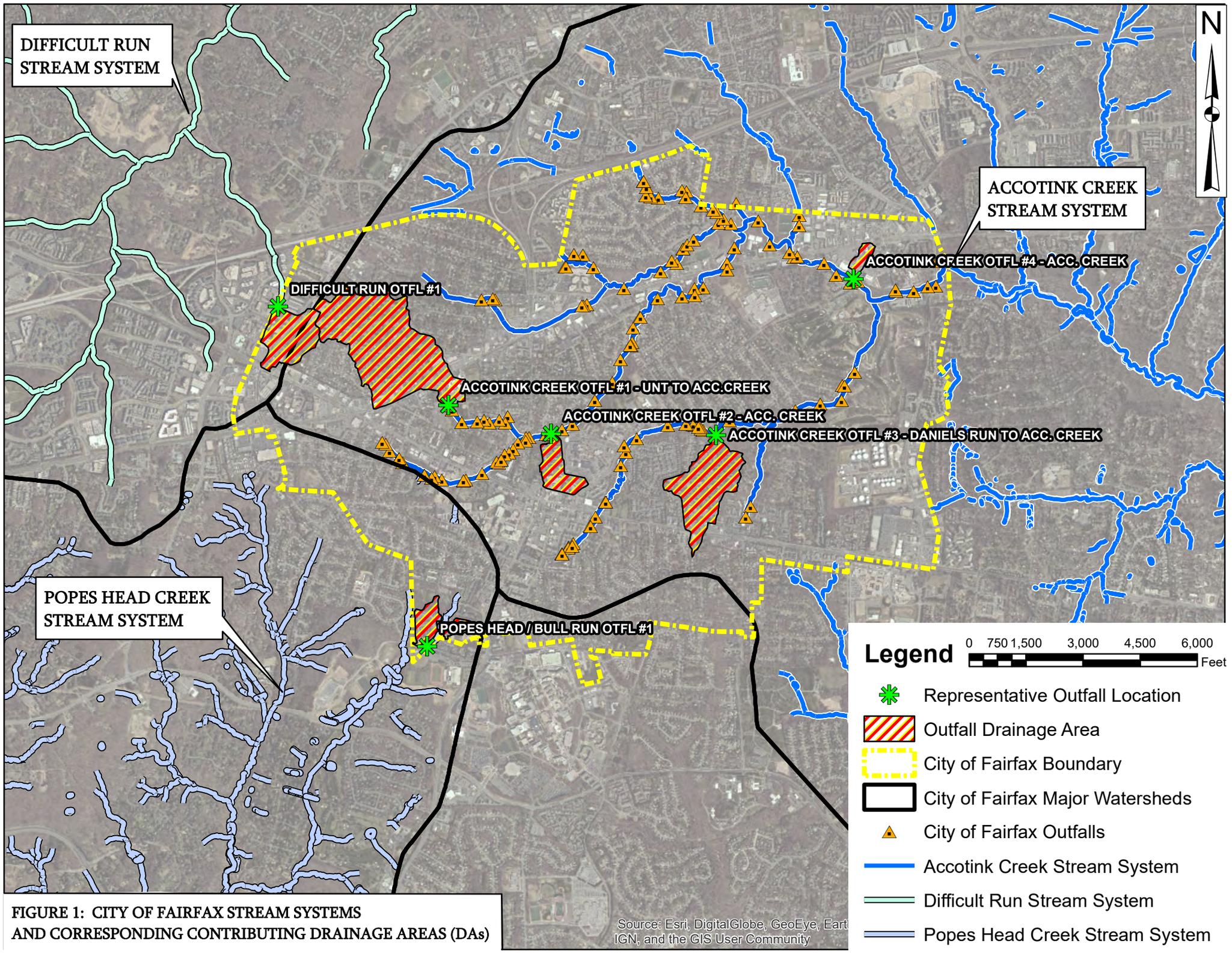
Sampling Location #6 (Figure 7.)

Outfall ID: SW-POPES HEAD / BULL RUN-OTFL-1 (*Drainage Area = ± 19.87 Ac.*)

Description: This outfall captures a large, primarily residential area, as well as drainage from Providence Park.

Receiving Water Body: Unnamed Tributary to the East Fork of Popes Head Creek (Popes Head Creek and Bull Run Stream System)

Figure 1 shows the locations of all six sampling sites on an overall map of the City while Figures 2-7 show specific location maps for each sampling site.



DIFFICULT RUN
STREAM SYSTEM

ACCOTINK CREEK
STREAM SYSTEM

POPES HEAD CREEK
STREAM SYSTEM

DIFFICULT RUN OTFL #1

ACCOTINK CREEK OTFL #4 - ACC. CREEK

ACCOTINK CREEK OTFL #1 - UNT TO ACC. CREEK

ACCOTINK CREEK OTFL #2 - ACC. CREEK

ACCOTINK CREEK OTFL #3 - DANIELS RUN TO ACC. CREEK

POPES HEAD/BULL RUN OTFL #1

Legend 0 750 1,500 3,000 4,500 6,000 Feet

Representative Outfall Location

Outfall Drainage Area

City of Fairfax Boundary

City of Fairfax Major Watersheds

City of Fairfax Outfalls

Accotink Creek Stream System

Difficult Run Stream System

Popes Head Creek Stream System

FIGURE 1: CITY OF FAIRFAX STREAM SYSTEMS AND CORRESPONDING CONTRIBUTING DRAINAGE AREAS (DAs)

Source: Esri, DigitalGlobe, GeoEye, Earth
IGN, and the GIS User Community

Outfall ID	SW-OTFL-89			
Receiving Waters	Unnamed Tributary to Accotink Creek			
Description	This outfall collects drainage primarily from residential lands, with a minor amount of commercial and roadway drainage contributing to the overall outfall discharge.			
Drainage Area (Acres)	157.83 Ac			
Drainage Area Land Use Composition (Ac / %)	Impervious	Pervious	Forest	Open Water
	(65.75 Ac / 41.66 %)	(92.08 Ac / 58.34 %)	(0.00 Ac / 0 %)	(0.00 Ac / 0 %)
Latitude	38° 51' 11.350" N			
Longitude	77° 18' 54.491" W			



FIGURE 2: ACCOTINK CREEK STORMWATER OUTFALL SAMPLING LOCATION #1

Esri, HERE, DeLorme, user community, CNES/Airbus DS, U

Outfall ID	SW-OTFL-51			
Receiving Waters	Directly to Accotink Creek			
Description	This outfall collects drainage from approximately 50% residential land and 50% commercial lands, with a minor amount of roadway drainage.			
Drainage Area (Acres)	22.79 Ac			
Drainage Area Land Use Composition (Ac / %)	Impervious (17.27 Ac / 75.81 %)	Pervious (5.51 Ac / 24.19 %)	Forest (0.00 Ac / 0 %)	Open Water (0.00 Ac / 0 %)
Latitude	38° 51' 3.589" N			
Longitude	77° 18' 20.245" W			



FIGURE 3: ACCOTINK CREEK STORMWATER OUTFALL SAMPLING LOCATION #2

Esri, HERE, DeLorme, user community, Swisstopo, CNES/Airbus DS, U

Legend

- City of Fairfax Mapped Outfalls
- Storm Structures
- Storm Pipes
- Outfall Drainage Area
- Accotink Creek Stream System

Outfall ID	SW-OTFL-14			
Receiving Waters	Daniels Run (Within the Accotink Creek Stream System)			
Description	This outfall collects drainage from primarily residential land and forested areas.			
Drainage Area (Acres)	66.65 Ac			
Drainage Area Land Use Composition (Ac / %)	Impervious (21.49 Ac / 32.25 %)	Pervious (44.53 Ac / 66.81 %)	Forest (0.62 Ac / 0.94%)	Open Water (0.00 Ac / 0 %)
Latitude	38° 51' 2.736" N			
Longitude	77° 17' 25.912" W			

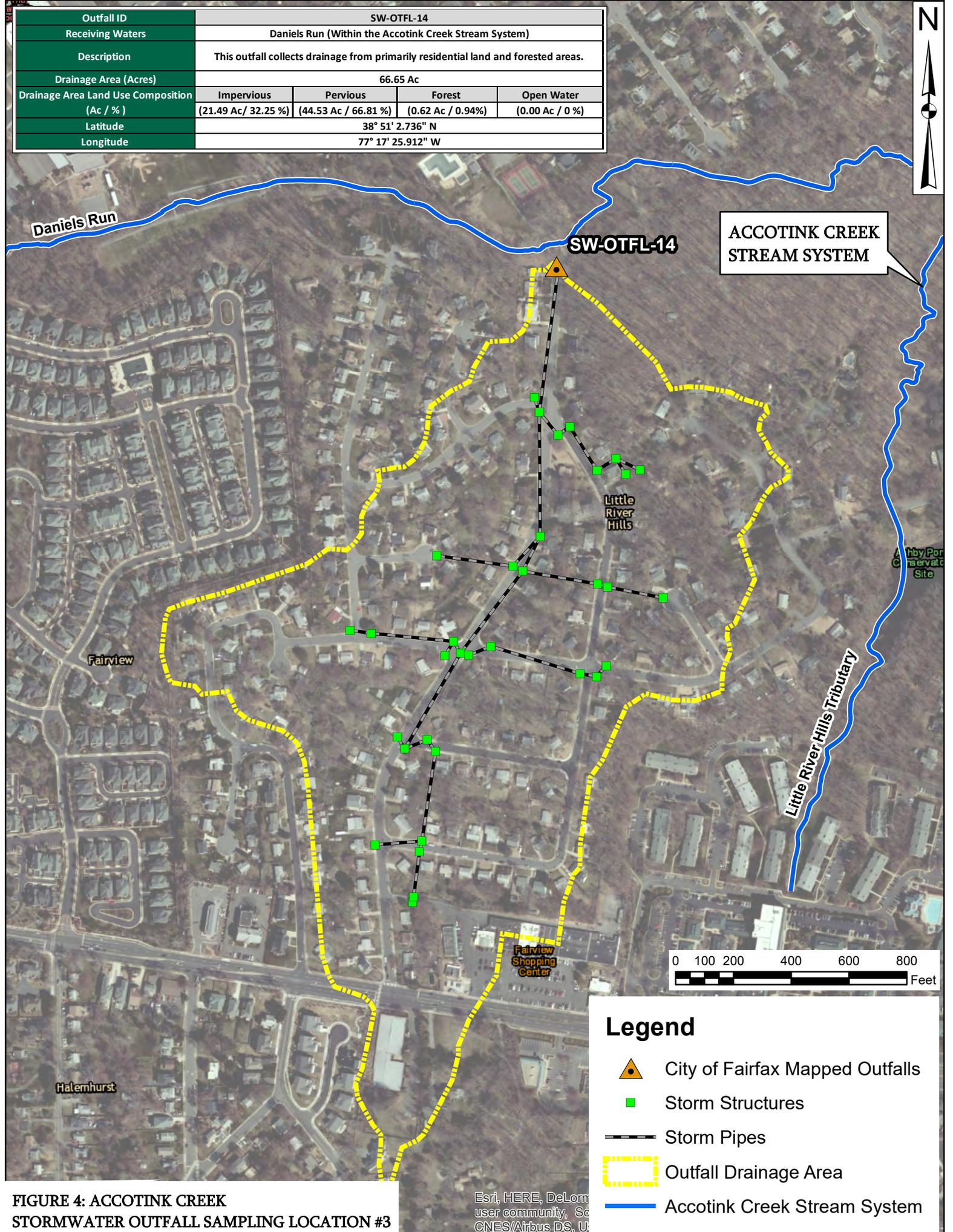
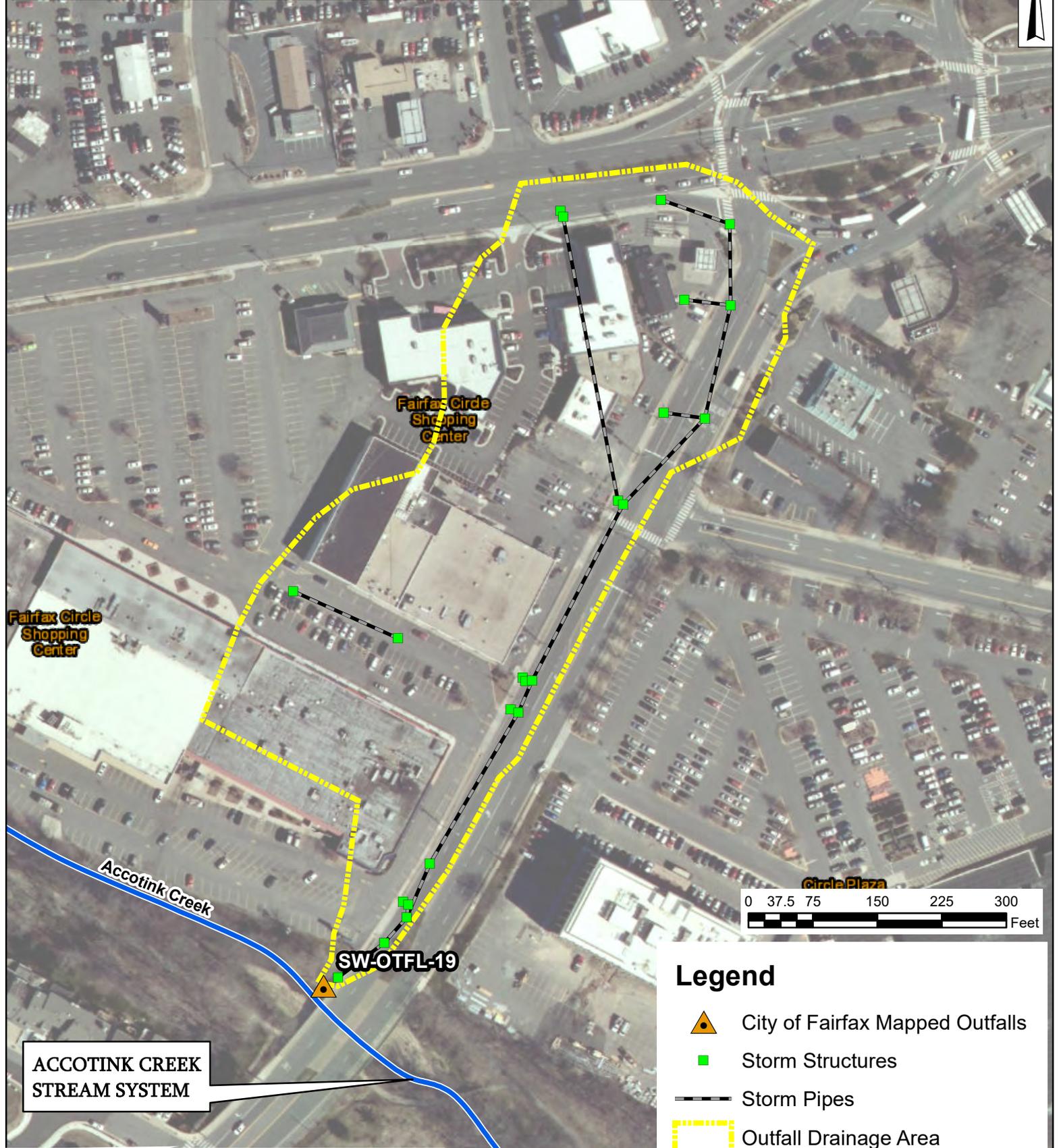


FIGURE 4: ACCOTINK CREEK STORMWATER OUTFALL SAMPLING LOCATION #3

Esri, HERE, DeLorme, user community, Swirex, CNES/Airbus DS, U

Outfall ID	SW-OTFL-19			
Receiving Waters	Directly to Accotink Creek			
Description	This outfall collects drainage from primarily commercial land.			
Drainage Area (Acres)	6.48 Ac			
Drainage Area Land Use Composition (Ac / %)	Impervious	Pervious	Forest	Open Water
	(6.23 Ac / 96.10 %)	(0.25 Ac / 3.90%)	(0.00 Ac / 0 %)	(0.00 Ac / 0 %)
Latitude	38° 51' 42.857" N			
Longitude	77° 16' 39.136" W			



ACCOTINK CREEK
STREAM SYSTEM

Legend

-  City of Fairfax Mapped Outfalls
-  Storm Structures
-  Storm Pipes
-  Outfall Drainage Area
-  Accotink Creek Stream System

**FIGURE 5: ACCOTINK CREEK
STORMWATER OUTFALL SAMPLING LOCATION #4**

Esri, HERE, DeLorme
user community, Sw
CNES/Airbus DS, U

Outfall ID	TG-DIFFICULT RUN OTFL #1			
Receiving Waters	Unnamed Tributary to Difficult Run			
Description	This outfall collects drainage primarily from commercial, residential, and forested land cover. The outfall discharge point is directly upstream from the City's jurisdictional boundary with Fairfax County.			
Drainage Area (Acres)	40.45 Ac			
Drainage Area Land Use Composition (Ac / %)	Impervious (20.48 Ac / 41.66 %)	Pervious (15.80 Ac / 39.05%)	Forest (4.25 Ac / 10.50 %)	Open Water (0.00 Ac / 0 %)
Latitude	38° 51' 37.66" N			
Longitude	77° 19' 50.6" W			



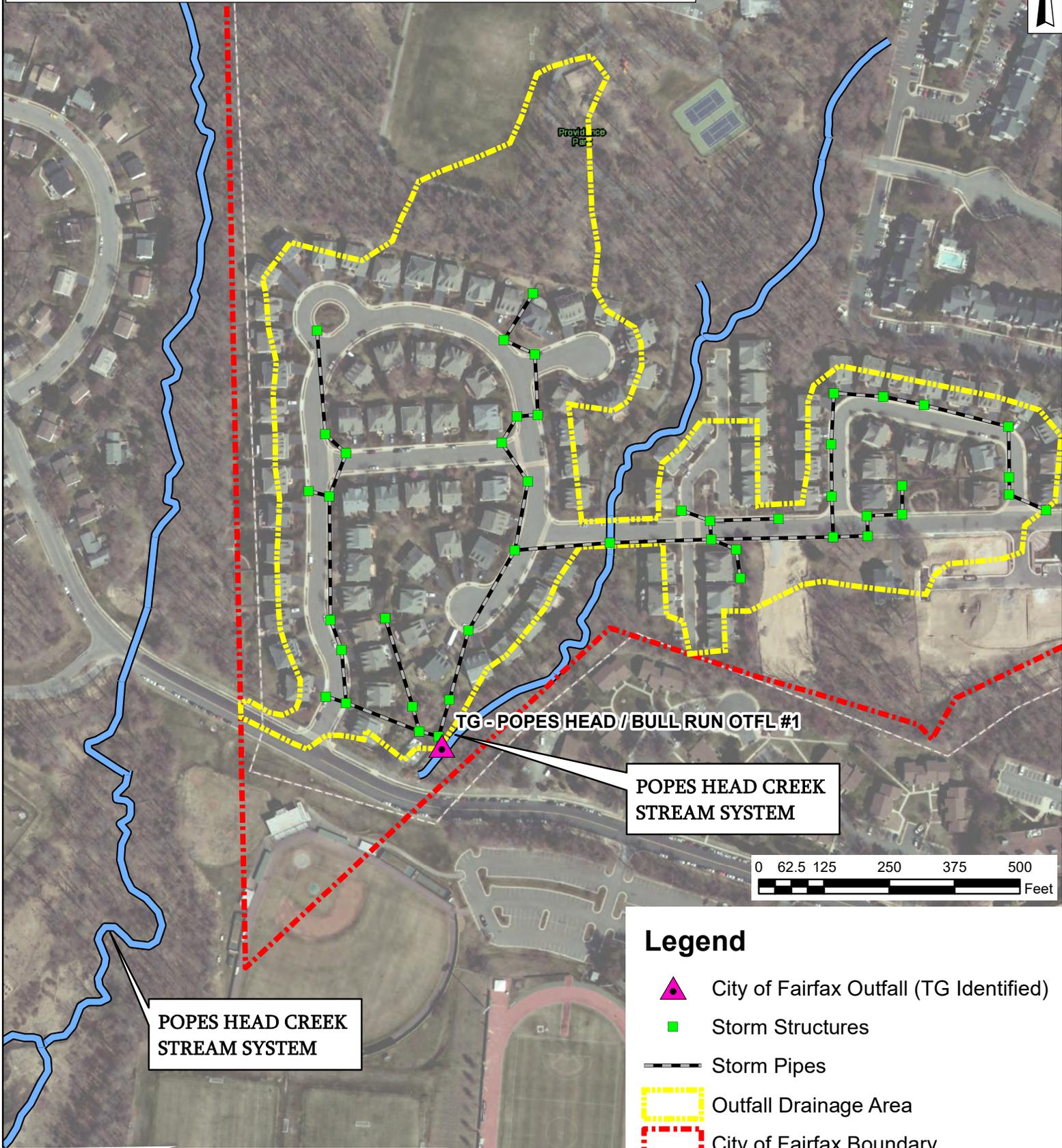
Legend

-  City of Fairfax Outfall (TG Identified)
-  Storm Structures
-  Storm Pipes
-  Outfall Drainage Area
-  City of Fairfax Boundary
-  Difficult Run Stream System

FIGURE 6: DIFFICULT RUN STORMWATER OUTFALL SAMPLING LOCATION #5

Esri, HERE, DeLorme, user community, CNES/Airbus

Outfall ID	TG-POPES HEAD CREEK / BULL RUN OTFL #1			
Receiving Waters	Unnamed Tributary to the East Fork of Popes Head Creek			
Description	This outfall collects drainage primarily from residential and forested/park land . The outfall discharge point is directly upstream from the City's jurisdictional boundary with Fairfax County.			
Drainage Area (Acres)	19.87 Ac			
Drainage Area Land Use Composition (Ac / %)	Impervious (10.07 Ac / 50.71 %)	Pervious (7.71Ac / 38.80%)	Forest (2.09 Ac / 10.50 %)	Open Water (0.00 Ac / 0 %)
Latitude	38° 50' 8.88" N			
Longitude	77° 19' 2.49" W			



Legend

-  City of Fairfax Outfall (TG Identified)
-  Storm Structures
-  Storm Pipes
-  Outfall Drainage Area
-  City of Fairfax Boundary
-  Popes Head Creek Stream System

FIGURE 7: POPES HEAD CREEK / BULL RUN STORMWATER OUTFALL SAMPLING LOCATION #6

Esri, HERE, DeLorme, user community, CNES/Airbus

SAMPLING PARAMETERS AND METHODS

The City was assigned aggregated Waste Load Allocations (WLAs) under the TMDL reports listed in Table 1.

Table 1. City of Fairfax approved TMDL Reports and subsequent aggregated WLAs.

TMDL Waterbody	City of Fairfax Contributing Drainage Area to TMDL Waterbody	TMDL Report Name	TMDL Impairment	WLA	Impaired Stream Segment ID	MS-4s included in Aggregated WLA
Difficult Run	0.18 sq.mi	<i>"Benthic TMDL Development for Difficult Run, Virginia, dated April 2008"</i>	Sediment	3,663.2 Tons/Year	VAN-A11R-01	City of Fairfax, Fairfax County, Fairfax County Public Schools, Town of Vienna, VDOT, the George Washington Memorial Parkway
Difficult Run	0.18 sq.mi	<i>"Bacteria TMDL for the Difficult Run Watershed, dated April 25, 2008."</i>	E.Coli	9.65E+10 (cfu./day); 9.86E+12 (cfu./year)	VAN-A11R-01	City of Fairfax, Fairfax County, Town of Vienna
Occoquan River Watershed (Bull Run, Popes Head Creek)	0.54 sq. mi. to Popes Head Creek	<i>"Bacteria TMDLs for Popes Head Creek, Broad Run, Kettle Run, South Run, Little Bull Run, Bull Run and the Occoquan River, Virginia dated August 2006"</i>	E.Coli	1.03E+10 (cfu./year)	VAN-A23R-02	City of Fairfax, VDOT
Accotink Creek	5.35 sq.mi	<i>Fecal Coliform TMDL for Accotink Creek, Fairfax County Virginia dated April 2002.</i>	Fecal Coliform	0.13 x 10 ¹⁵ col/year fecal coliform	VAN-A15R-02	City of Fairfax, Fairfax County, Town of Vienna
Bull Run	0.54 sq.mi to Popes Head	<i>Benthic TMDL Development for Bull Run, Virginia, dated June 2006.</i>	Sediment	14.2 Metric Tons/Year (31,305.60 lbs./year)	VAN-A23R-01	City of Fairfax, VDOT
Popes Head Creek	0.54 sq.mi to Popes Head	<i>Benthic TMDL Development for Popes Head Creek, Virginia, dated August 2006</i>	Sediment	22.6 Metric Tons/Year (49,824.41 lbs./year)	VAN-A23R-02	City of Fairfax, VDOT

Based on the need to address WLAs for both sediment and bacteria in the City's Local TMDL Action Plan, the City has chosen to test for TSS and E. coli concentrations at each of the six sampling locations under this WQMP. Testing for these two parameters should provide the City with the necessary baseline water quality data to satisfy the objectives of the WQMP as stated earlier.

After consulting several available references including the Virginia *Citizen Water Quality Monitoring Program Methods Manual* dated October 2007 and taking into consideration the available staff and resources to implement the WQMP, the City chose to utilize the following two protocols for measuring bacteria and sediment concentrations in the collected water samples:

- Bacteria – Coliscan Easygel
- Sediment – Residue-non-filterable (TSS) (Standard Method 2540 D-2011)

The Coliscan Easygel (Micrology Labs) method was selected because it is simple to use, cost effective in comparison to other methods, and provides results comparable to DEQ/State labs (according to James Beckley/DEQ as documented in a presentation entitled *Coliscan Easygel: A Useful Tool to Find Bacteria Sources*, www.deq.virginia.gov/Portals/0/DEQ/Water/TMDL/ColiscanEG.pdf). More detailed instructions for utilizing the Coliscan Easygel method (http://www.micrologylabs.com/files/coliscan_water_inst.pdf) and a Coliscan Easygel Color Guide developed by DEQ (http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterQualityMonitoring/CitizenMonitoring/VADEQ_ColisCanID.pdf) can be found in Attachment 1 of this document.

Standard Method 2540 D-2011 for TSS was selected because it is a well-established and recognized method that has been accepted by EPA (per 40 CFR 136) and sample test results utilizing this method can be procured from a Virginia Environmental Laboratory Accreditation Program (VELAP) certified lab located in close proximity to the City of Fairfax. Details of this method can be found at: <https://www.standardmethods.org/store/ProductView.cfm?ProductID=446>.

STORM EVENT SAMPLING FREQUENCY, TIMEFRAMES, AND STAFFING

The City's MS4 is designed to collect stormwater runoff from developed areas within the City and safely convey it to various receiving waters during storm events. Typically the only time that MS4 outfalls have flows present is during rainfall events that are large enough to produce adequate runoff. As such, under this WQMP the City will be collecting water samples at the six selected sampling locations during two of these discrete "runoff producing storm events" each year. To account for potential seasonal variations in POC concentrations, one sampling event will take place between October and March, and a second sampling event will take place between April and September of each year.

The City's designated sampling team leader will be responsible for monitoring the weather to determine if conditions are appropriate for sampling during a given storm event. Appropriate conditions for the purposes of this WQMP means a runoff producing storm event resulting from precipitation greater than 0.25 inches in magnitude and that occurs at least 48 hours from the previous measureable (greater than 0.1 inch rainfall) precipitation event as documented by National Weather Service - Washington/Dulles International Airport, DC (KIAD) gaging station. Sampling will also be limited to daylight hours during weekdays to accommodate City staff work schedules and for safety purposes.

Once it is determined that conditions are appropriate for sampling, the sampling team leader will mobilize the City's two sampling teams to ensure that they are on-site before the outfalls begin to flow. Each sampling team will be responsible for collecting samples at two separate outfall locations. All samples must be captured within the first hour of the storm event to ensure that the "first flush" of potential POCs is captured in the samples.

The City may employ a combination of City staff, volunteers, and/or consultants to staff the two sampling teams (a total of 4 people) required to implement the WQMP. Prior to initiating the sampling program, the City will provide for training of the sampling team members in the safe and proper collection of water samples. The City's designated sampling team leader will also ensure that all required sampling equipment is in proper working order, sample bottles are properly labeled, and that everything is available and ready to be utilized by the sampling teams.

PROCESSING OF SAMPLES & REPORTING

The City's designated sampling team leader will be responsible for processing the samples after they are collected by the sampling teams. Coliscan Easygel bacteria samples will be preserved, incubated, and the counted in accordance with the instructions contained in Attachment 1. The TSS samples will be properly handled and delivered to a VELAP certified lab in accordance with the lab's instructions and required chain-of-custody procedures.

The results of the water quality sample testing will be documented by the City's designated sampling team leader (bacteria) and/or received directly from the lab (TSS), and entered into Microsoft Excel based Water Quality Sample Data Collection Forms specifically developed for this program. Copies of these forms have been provided in Attachment 2 to this WQMP. Once appropriate amounts of sampling data have been collected under the WQMP, the City will analyze the results to determine the next steps to take with their MS4 Permit Program and Local TMDL Action plans.

Attachment 1. Coliscan Easygel Sampling Instructions

Detection of Waterborne Coliforms and Fecal Coliforms with Coliscan® Easygel®

Introduction

The Coliscan Easygel medium is a patented formulation for water testing. It contains a sugar linked to a dye which, when acted on by the enzyme β -galactosidase (produced by coliforms including *E. coli*), turns the colony a pink color. Similarly, there is a second sugar linked to a different dye which produces a blue-green color when acted on by the enzyme β -glucuronidase. Because *E. coli* produces both β -galactosidase and β -glucuronidase, *E. coli* colonies grow with a purple color (pink + blue). The combination of these two dyes makes possible the unique ability to use one test to differentiate and quantify coliforms and *E. coli*. (Because *E. coli* is a member of the coliform group, add the number of purple colonies to the number of pink colonies when counting total coliforms.)

Instructions

1. Either collect your water sample in a sterile container and transport the water back to the test site, or take a measured water sample directly from the source and place directly into the bottle of Coliscan Easygel. Water samples kept longer than 1 hour prior to plating, or any Coliscan Easygel bottle that has had sample placed into it for transport longer than 10 minutes, should be kept on ice or in a refrigerator until plated.
2. Label the petri dishes with the appropriate sample information. A permanent marker or wax pencil will work.
3. Sterilely transfer water from the sample containers into the bottles of Coliscan Easygel (Consult the following table for rough guidelines for inoculum amount). Swirl the bottles to distribute the inoculum and then pour the medium/inoculum mixtures into the correctly labeled petri dishes. Place the lids back on to the petri dishes. Gently swirl the poured dish until the entire dish is covered with liquid (but be careful not to splash over the side or on the lid).

Inoculation of Coliscan Easygel

Water Sources	Inoculum Amount
<u>Environmental:</u> River, lake, pond, stream, ditch	1.0 to 5.0 mL
<u>Drinking water:</u> Well, municipal, bottled	5.0 mL

4. The dishes may be placed right-side-up directly into a level incubator or warm level spot in the room while still liquid. Solidification will occur in approximately 45 minutes.
5. Incubate at 35° C (95° F) for 24 hours, or at room temperature for 48 hours. (see Comments on incubation)

6. Inspect the dishes.
 - a. Count all the purple colonies on the Coliscan dish (disregard any light blue, blue-green or white colonies), and report the results in terms of *E. coli* or Fecal Coliform per mL of water.

Note: To report in terms of *E. coli* or Fecal Coliform per 100 mL of water, first find the number to multiply by:

 1. Divide 100 by the number of mL that you used for your sample.
 2. Multiply the count in your plate by the result obtained from #1.

e.g. For a 3 mL sample, $100 / 3 = 33.3$. So 4 *E. coli* colonies multiplied by 33.3 will be equal to 133.2 *E. coli* per 100 mL of water.
 - b. Count all the pink and purple colonies on the Coliscan dish (disregard any light blue, blue-green or white colonies) and report the results in terms of coliforms per mL of water.

7. Do one of the following prior to disposal in normal trash:
 - a. Place dishes and Coliscan bottles in a pressure cooker and cook at 15 lbs. for 15 minutes. (This is the best method.)
 - b. Place dishes and Coliscan bottles in an oven-proof bag, seal it, and heat in an oven at 300° F for 45 minutes.
 - c. Place dishes and Coliscan bottles in a large pan, cover with water and boil for 45 minutes.
 - d. Place 5 mL (about 1 teaspoon) of straight bleach onto the surface of the medium of each plate. Allow to sit at least 5 minutes. Place in a water-tight bag and discard in trash.

Comments on Incubation

Micrology Laboratories, LLC. in-house studies indicate that **Coliscan** can effectively differentiate general coliforms from ***E. coli*** when incubated at either room temperatures or at elevated temperatures (such as 90-98° F). However, some further explanation may be helpful.

There is no one standard to define room temperature. Most would consider normal room temperature to vary from 68-74° F, but even within this range the growth of bacteria will be varied. Members of the bacterial family **Enterobacteriaceae** (which includes coliforms and ***E. coli****) are generally hardy growers that prefer higher than room temperatures, but which will grow at those temperatures. They tend to grow at a faster rate than most other bacterial types when conditions are favorable. It is therefore logical to try to place inoculated dishes in a "warm" place in a room for incubation if a controlled temperature incubator is not available. It is a very easy task to make an adequate incubator from a box with a 40-60 watt bulb in it to provide heat at an even rate. One can also use a heat tape such as is used to prevent the freezing of pipes in the winter as your heat source.

Our general instructions indicate that incubation times for coliforms (including ***E. coli***) are generally 24-48 hours at elevated temperatures (90-98° F) and 48 or more hours at room temperatures. At elevated temperatures, no counts should be made after 48 hours as any coliforms present will be quite evident by that time and if new colonies form after 48 hours they are most likely not coliforms, but some other type of slow growing organism that should not be included in your data. At room temperatures, the best procedure is to watch the plates by checking them at 10-12 hour intervals until you observe some pink or purple colonies starting to form and then allowing another 24-30 hours for the maturation of those colonies. Since the coliforms (including ***E. coli***) are generally the fastest growing organisms, these will be the first to grow and be counted. Colonies that may show up at a later time are likely to not be coliforms. As you can see, there are advantages to incubating your dishes at elevated temperatures. First, you can count the results earlier. At 95° F, it is often possible to do accurate counts at 18-20 hours of incubation. There is also less probability of variation from batch to batch when the incubation temperatures are kept at one uniform level. And a higher incubation temperature will tend to inhibit the growth of non-coliforms that may prefer lower temperatures.

****E. coli*** is the primary fecal coliform, however, ***Klebsiella*** is sometimes of fecal origin. Other general coliform genera include ***Enterobacter*** and ***Citrobacter***.

Interpretation of Results

This test method utilizes well established, widely accepted criteria for the recognition of coliforms and *E. coli* and proper application of the method will result in accurate results. Therefore, if you suspect that your water is dangerously contaminated based on the results you get using Coliscan Easygel, you should contact your local health department and ask for their help in performing an official assessment of the water.

Non-fecal coliforms are widely distributed in nature, being found both as naturally occurring soil organisms, and in the intestines of warm-blooded animals and humans. Fecal coliforms are coliforms found naturally only in the intestines of warm-blooded animals and humans. Fecal coliform contamination is therefore the result of some form of fecal contamination. Sources may be either animal or human.

General Notes on Differentiating Coliforms and *E. coli*

Generally, water containing *E. coli* (the fecal contamination indicator organism) should not be used for drinking water unless it is sanitized in some manner. Contact your local health department for guidelines regarding *E. coli* and coliforms in recreational waters. Inform them if you suspect that contamination may be occurring from a specific source.

Colonies which have the blue-green color are not exhibiting any β -galactosidase activity (which is evidenced by the pink color). Because of this, they are not considered to be either coliforms or *E. coli* and therefore should be ignored when counting your coliform or *E. coli* colonies. Similarly, colonies which are white are exhibiting neither color-causing enzyme, and should also be ignored.

Colonies on the surface of the plate are exposed to the medium on only the underside of the colony. This causes these colonies to appear with much less of the indicator color. *E. coli* colonies may only have a slight purple tinge to them, and it may appear only in the center of the colony with the remainder of the colony being white. Similarly, coliforms on the surface may be light pink or white with a pink center.

Coliscan and Easygel are registered trademarks of Micrology Laboratories, LLC.

Micrology Laboratories, LLC. PO Box 340 Goshen, Indiana 46527-0340 USA

Phone **574.533.3351** Fax **574.533.3370** E-mail **micrologylabs@juno.com**

Attachment 2. Water Quality Sample Data Collection Forms

Fairfax City Water Quality Monitoring: **Report**

conducted by Potomac Environmental Research and Education Center

George Mason University

Note: Samples were collected on

	Station A	Station B	Station C	Station D
Parameter				
Time	9:28 AM	9:53 AM	10:20 AM	10:40 AM
Temperature (oC)	10.52	11.00	11.78	11.84
Specific Conductance (umho/cm)	348	588	674	629
Dissolved Oxygen (mg/L)	11.52	16.33	10.46	10.05
Dissolved Oxygen (% saturation)	103.5	102.8	96.8	93.1
pH	7.05	7.54	7.38	7.47
Turbidity (NTU)	2.1	2.3	3.2	3.7
Nitrate + nitrite (mg/L as N)	0.414	0.951	1.171	0.929
Total phosphorus (mg/L as P)	0.023	0.023	0.021	0.030
Total suspended solids (mg/L)	3.7	3.3	3.7	4.7
Volatile suspended solids (mg/L)	2.1	2.4	2.1	2.7
Escherichia coli (#/100 mL)	50	180	220	280
Latitude	38.853075	38.860637	38.861766	38.861645
Longitude	77.279314	77.292603	77.277595	77.269913

Station Locations:

Station A: Daniels Run at St Andrews Dr.

Station B: Middle Fork Accotink Cr off Spring Lake Terr

Station C: Accotink Cr just above Old Lee Hwy

Station D: Accotink Cr just below Pickett Rd

Methods

Parameter	Description	Reference
Temperature (oC)	YSI DataSonde 6600 V2 4	EPA 170.1
Specific Conductance (umho/cm)	YSI DataSonde 6600 V2 4	EPA 120.1
Dissolved Oxygen (mg/L)	YSI DataSonde 6600 V2 4	EPA 360.1
Dissolved Oxygen (% saturation)	YSI DataSonde 6600 V2 4	EPA 360.1
pH	YSI DataSonde 6600 V2 4	EPA 150.2
Turbidity (NTU)	YSI DataSonde 6600 V2 4	
Nitrate + nitrite (mg/L as N)	Cd reduction using AQ2	EPA 353.3
Total phosphorus (mg/L as P)	Persulfate digestion AQ2	EPA 365.2 as modified by Wetzel and Likens
Total suspended solids (mg/L)	Gravimetric with Whatman 984AH filters	EPA 160.1 dried to 80oC
Escherichia coli (#/100 mL)	Membrane Filter/Simultaneous Detection	EPA 1604

Fairfax City Water Quality Monitoring: **Report**
 conducted by Potomac Environmental Research and Education Center
 George Mason University
Note: Samples were collected on 1/16/2017

	Station A	Station B	Station C	Station D
Parameter				
Time	10:31	10:44	10:59	11:11
Temperature (oC)	4.94	4.90	5.23	5.55
Specific Conductance (umho/cm)	1069	1440	1839	1572
Dissolved Oxygen (mg/L)	13.64	11.68	11.61	11.41
Dissolved Oxygen (% saturation)	106.7	91.6	91.8	91.5
pH	7.88	8.05	7.96	7.87
Turbidity (NTU)	0.8	4.7	6.4	7.2
Nitrate + nitrite (mg/L as N)	0.432	0.835	1.058	0.882
Total phosphorus (mg/L as P)	0.023	0.039	0.034	0.034
Total suspended solids (mg/L)	1.8	3.0	4.8	4.5
Volatile suspended solids (mg/L)	0.7	1.6	1.9	1.4
Escherichia coli (#/100 mL)	68	200	640	520
Latitude	38.853075	38.860637	38.861766	38.861645
Longitude	77.279314	77.292603	77.277595	77.269913

Station Locations:

- Station A: Daniels Run at St Andrews Dr.
- Station B: Middle Fork Accotink Cr off Spring Lake Terr
- Station C: Accotink Cr just above Old Lee Hwy
- Station D: Accotink Cr just below Pickett Rd

Methods

Parameter	Description	Reference
Temperature (oC)	YSI DataSonde 6600 V2 4	EPA 170.1
Specific Conductance (umho/cm)	YSI DataSonde 6600 V2 4	EPA 120.1
Dissolved Oxygen (mg/L)	YSI DataSonde 6600 V2 4	EPA 360.1
Dissolved Oxygen (% saturation)	YSI DataSonde 6600 V2 4	EPA 360.1
pH	YSI DataSonde 6600 V2 4	EPA 150.2
Turbidity (NTU)	YSI DataSonde 6600 V2 4	
Nitrate + nitrite (mg/L as N)	Cd reduction using AQ2	EPA 353.3
Total phosphorus (mg/L as P)	Persulfate digestion AQ2	EPA 365.2 as modified by Wetzel and Likens
Total suspended solids (mg/L)	Gravimetric with Whatman 984AH filters	EPA 160.1 dried to 80oC
Escherichia coli (#/100 mL)	Membrane Filter/Simultaneous Detection	EPA 1604

Fairfax City Water Quality Monitoring: **Report**
 conducted by Potomac Environmental Research and Education Center
 George Mason University
Note: Samples were collected on 7/18/2016

	Station A	Station B	Station C	Station D
Parameter				
Time	8:28	8:07	9:05	8:48
Temperature (oC)	22.82	22.93	24.27	24.79
Specific Conductance (umho/cm)	262	467	519	454
Dissolved Oxygen (mg/L)	7.14	6.29	7.20	5.36
Dissolved Oxygen (% saturation)	83.0	73.4	86.1	64.6
pH	7.60	7.32	7.56	7.52
Turbidity (NTU)	1.5	4.4	2.3	14.0
Nitrate + nitrite (mg/L as N)	0.34	0.81	1.05	0.51
Total phosphorus (mg/L as P)	0.040	0.036	0.031	0.058
Total suspended solids (mg/L)	2.6	1.8	2.4	7.4
Volatile suspended solids (mg/L)	0.5	0.4	0.4	2.4
Escherichia coli (#/100 mL)	1587	178	170	81
Latitude	38.853075	38.860637	38.861766	38.861645
Longitude	77.279314	77.292603	77.277595	77.269913

Station Locations:

- Station A: Daniels Run at St Andrews Dr.
- Station B: Middle Fork Accotink Cr off Spring Lake Terr
- Station C: Accotink Cr just above Old Lee Hwy
- Station D: Accotink Cr just below Pickett Rd

Methods

Parameter	Description	Reference
Temperature (oC)	YSI DataSonde 6600 V2 4	EPA 170.1
Specific Conductance (umho/cm)	YSI DataSonde 6600 V2 4	EPA 120.1
Dissolved Oxygen (mg/L)	YSI DataSonde 6600 V2 4	EPA 360.1
Dissolved Oxygen (% saturation)	YSI DataSonde 6600 V2 4	EPA 360.1
pH	YSI DataSonde 6600 V2 4	EPA 150.2
Turbidity (NTU)	YSI DataSonde 6600 V2 4	
Nitrate + nitrite (mg/L as N)	Cd reduction using AQ2	EPA 353.3
Total phosphorus (mg/L as P)	Persulfate digestion AQ2	EPA 365.2 as modified by Wetzel and Likens
Total suspended solids (mg/L)	Gravimetric with Whatman 984AH filters	EPA 160.1 dried to 80oC
Escherichia coli (#/100 mL)	Membrane Filter/Simultaneous Detection	EPA 1604

Fairfax City Water Quality Monitoring: **Report**
 conducted by Potomac Environmental Research and Education Center
 George Mason University

Note: Samples were collected on 10/4/2016

downstream, mixed, upstream, upstream,
 samples collected here clear mixed

	Station A	Station B	Station C	Station D		
Parameter						
Time	10:18 AM	11:22 AM	11:05 AM	10:41 AM		
Temperature (oC)	16.80	17.04	17.65	17.82	17.9	18.08
Specific Conductance (umho/cm)	172	366	295	241	261.0	192.00
Dissolved Oxygen (mg/L)	88.00	91.90	85.70	84.80	85.6	86.10
Dissolved Oxygen (% saturation)	8.5	8.9	8.2	8.0	8.1	8.13
pH	7.59	7.61	7.72	7.58	7.3	7.25
Turbidity (NTU)	0.9	2.4	4.5	229.3	5.8	1062.7
Nitrate + nitrite (mg/L as N)	0.51	0.92	0.84	0.60		
Total phosphorus (mg/L as P)	0.037	0.075	0.037	0.155		
Total suspended solids (mg/L)	1.5	1.9	1.5	64.2		
Volatile suspended solids (mg/L)	1.1	1.0	0.6	4.6		
Escherichia coli (#/100 mL)	161.0	580.0	144.0	155.0		
Latitude	38.853075	38.860637	38.861766	38.861645		
Longitude	77.279314	77.292603	77.277595	77.269913		

Station Locations:

- Station A: Daniels Run at St Andrews Dr.
- Station B: Middle Fork Accotink Cr off Spring Lake Terr
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Methods

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Temperature (oC)	YSI DataSonde 6600 V2 4	EPA 170.1
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Dissolved Oxygen (mg/L)	YSI DataSonde 6600 V2 4	EPA 360.1
Dissolved Oxygen (% saturation)	YSI DataSonde 6600 V2 4	EPA 360.1
pH	YSI DataSonde 6600 V2 4	EPA 150.2
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Escherichia coli (#/100 mL)	Membrane Filter/Simultaneous Detection	EPA 1604