

# 2013 VPDES Permit Annual Report

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Prepared by

Fairfax County, Virginia  
VPDES Permit No. 0088587

Submitted to

Virginia Department of Environmental Quality

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The following annual report is submitted to the Virginia Department of Environmental Quality (DEQ) in compliance with Fairfax County's Virginia Pollutant Discharge Elimination System (VPDES) permit. The permit was issued on January 24, 2002, and expired on January 24, 2007. The county is currently operating under an administrative continuance of the existing permit in anticipation of permit renewal. This report covers the previous calendar year from January 1, 2013, through December 31, 2013, and describes the activities performed to satisfy the county's permit requirements.

**NOTE:** Annual Report requirements as specified in Part I.C.4 of the permit are indicated below by **bold** section headings and the stormwater program requirements as specified in Part I sections B.1, C.1, C.2 and C.3 of the permit are in *italics* directly beneath the applicable section heading.

#### **a) Watershed Management Program Implementation**

*The permittee shall develop and implement Watershed Management Plans to maintain water quality and manage environmental resources within the county's watersheds (B.1).*

Starting with the Little Hunting Creek Watershed Management Plan in 2003, the county embarked on a watershed planning initiative that assessed the needs of and resulted in proposed improvements for the county's 30 watersheds over approximately the next 25 years. The watershed management planning process is one component of the county's MS4 Program and is part of the Fairfax County Board of Supervisors' Environmental Agenda. The overarching goals for the watershed plans are:

1. Improve and maintain watershed functions in Fairfax County, including water quality, habitat and hydrology.
2. Protect human health, safety and property by reducing stormwater impacts.
3. Involve stakeholders in the protection, maintenance and restoration of County watersheds.

A total of 13 plans, which cover all 30 watersheds, were developed during this watershed planning initiative. The plans were developed with the assistance of the community through public meetings and individual plan stakeholder groups. This public involvement process helped to ensure that the plans meet the needs in the watershed and have the support of county residents. The county completed and adopted six watershed plans between 2005 and 2008 as part of the first round of planning. By early February 2011, the seven remaining watershed management plans were completed and adopted by the Fairfax County Board of Supervisors. Attachment 1 lists the 13 county watershed management plans and their year of adoption by the Board of Supervisors.

Five of the retrofits projects completed in 2013 were specific recommendations identified in the watershed management plans. A full summary of retrofit projects can be found in section a.4.

It is anticipated that structural projects proposed in the plans will be primarily funded from the Stormwater Services fund and from the Pro Rata Share Drainage Construction fund. The number of projects selected for implementation annually will be determined as part of the annual budgetary process. Efforts to include implementation of non-structural projects and policy recommendations from the watershed plans are ongoing.

### **a.1) Structural and Source Controls**

*The Municipal Separate Storm Sewer System and any storm water structural controls shall be operated in a manner that reduces the discharge of pollutants to the maximum extent practicable (B.1.a).*

#### **a.1 (a) Report all inspections performed on SWM facilities and BMP Ponds.**

In 2013 the county inspected 1,459 (87.5 percent) of the 1,668 county-maintained stormwater management (SWM) and best management practice (BMP) facilities at least once. In 2013 the county inspected 736 (approximately 20 percent) of the 3,716 privately-maintained facilities, with the goal of inspecting all privately-maintained facilities at least once during the permit cycle as required by the permit.

#### **a.1 (b) Report all maintenance performed on SWM facilities and BMP Ponds.**

In 2013 the county cleaned and/or mowed 1,364 dam embankments, including 52 regional ponds which were maintained four times each during the calendar year. Cleaning involves removing trash, sediment, and debris from the trash rack, control structure, and all inflow channels leading to the control structure. At each stormwater management facility, deposited sediment is removed from the trickle ditch upstream of the control structure and disposed of offsite. The cleaning helps keep the facility functioning properly by conveying water and performing the BMP function as it was designed. The county completed 2,760 maintenance work orders to correct deficiencies in publicly maintained SWM/BMP facilities. The overall number of work orders increased from 2012 to 2013 due to an increase in LID facility maintenance and additional preventative maintenance on county maintained ponds.

### **a.2) Areas of New Development and Significant Redevelopment**

*The permittee shall comply with and enforce all components of the County's Comprehensive Land Use Plan that are relevant to storm water discharges. The goals of such controls shall be to limit increases in the discharge of pollutants from storm water as a result of development and significant re-development (B.1.b).*

The Comprehensive Plan, as amended through 2013, provides explicit support for better site design and low impact development (LID) measures, and opportunities to implement such measures are explored during the zoning process. A 2010 Area Plan amendment for the Tysons Corner Urban Center included recommendations for attainment of LEED stormwater design credits and retention of at least the first inch of rainfall on-site for zoning applications proposing significant increases in development density/intensity. Plan amendments for the Annandale and Baileys Crossroads Community Business Centers also included recommendations for attainment of the LEED stormwater design credits for some or all development and redevelopment proposals. A more recent Plan amendment for a transit station area near Dulles Airport was adopted in 2013 and included guidelines for optimization of stormwater management for development proposals exceeding a specific threshold of intensity. This Comprehensive Plan guidance helps staff to negotiate for measures such as reductions in proposed impervious cover and LID measures that will serve to reduce stormwater discharges.

The Department of Planning and Zoning (DPZ) provides a full range of environmental review, and does not track stormwater efforts independently from other environmental efforts. In coordination with other DPZ staff and staff from other county agencies, DPZ accepted and reviewed 68 rezonings

and related applications (e.g., amendments), 38 special exceptions and amendments, and 124 special permits and amendments in fiscal year 2013 for environmental considerations.

### **a.3) Roadways**

*Public streets, roads, and highways maintained by the permittee shall be operated and maintained in a manner to minimize discharge of pollutants, including those pollutants related to deicing or sanding activities (B.1.c).*

The Virginia Department of Transportation (VDOT), which is covered by a separate Phase II MS4 permit, is responsible for maintenance and operation of public roads (interstate, primary, secondary, and residential) in Fairfax County. The county is only responsible for maintaining several miles of discontinuous road segments, many of which are unpaved. A significant component of Fairfax County's roadways program is sweeping parking lots associated with county facilities such as government centers, libraries, public schools (funded by Fairfax County Public Schools), fire stations, police stations, health centers, bus transit facilities, park and ride lots, commuter rail stations, public housing facilities, and staffed park locations.

In an effort to limit the discharge of pollutants from parking lots into the county's streams, the county provides sand and chemical treatment only when dictated by safety. The county sweeps material from each treated parking area once annually during the spring. As part of a continued effort to limit the discharge of pollutants from county facilities, the county developed and finalized Standard Operating Procedures (SOPs) for both Snow Removal Operations and Street Sweeping in 2013. These SOPs are intended to be used county-wide by Fairfax County agencies.

The county's parking lot sweeping program is currently carried out by three organizations: Department of Public Works and Environmental Services (DPWES), Department of Housing and Community Development (DHCD), and Fairfax County Park Authority (FCPA). DPWES sweeps parking lots at county government and public schools sites as well as paved county road segments, where feasible. DHCD sweeps parking lots on residential developments such as apartment complexes, townhouse developments, group homes, and senior facilities that are owned and operated by DHCD. FCPA maintains (plows and/or treats) essential use parking areas at staffed park locations and commuter parking lots on a case-by-case basis to remove snow and provide for safe driving and footing. In 2013 more than 1,167 cubic yards of material were removed from 140 county government facilities, 182 public schools sites, 41 residential sites, 26 essential use areas at parks, and 33 county-maintained road segments through sweeper trucks and hand sweeping.

### **a.4) Retrofitting**

*Receiving water quality impacts shall be assessed for all storm water management facilities. When the permittee determines water quality impact, they shall continue to evaluate and implement retrofitting existing storm water management facilities and areas without stormwater controls (B.1.d).*

Fairfax County agencies completed 15 retrofit projects to enhance stormwater management functionality in 2013. While the majority of the projects involved dry extended detention pond retrofits, the county also employed urban filtration practices (such as installation of pervious pavement or bioretention). The results of the county's retrofit efforts are summarized as follows:

- Projects were completed in nine of the 30 county watersheds: Cameron Run (two), Cub Run (one), Difficult Run (two), Pimmit Run (one), Pohick Creek (four), Popes Head (two), Sandy Run (one), Scotts Run (one) and Sugarland Run (one).
- Five of the projects were retrofitting opportunities specifically mentioned in county watershed management plans.
- The impervious area treated by the retrofits totals approximately 250 acres while the total area treated was more than 830 acres.
- Combined, the 15 retrofits are estimated to remove nitrogen, phosphorus, and sediment at rates of approximately 1,300 pounds/year, 210 pounds/year, and 93,800 pounds/year, respectively.
- The approximate cost of these retrofits is more than \$4.9 million.

Retrofit project documentation is maintained by the Maintenance and Stormwater Management Division (MSMD) and the Stormwater Planning Division (SWPD) of DPWES, FCPA and the Northern Virginia Soil and Water Conservation District (NVSWCD).

#### **a.5) Pesticides, Herbicide, and Fertilizer Application**

*The permittee will implement controls to reduce the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied to public right of ways, parks, and other municipal property. The permittee shall develop and implement a program within one year of the effective date of the permit to achieve the above goal (B.1.e).*

County agencies involved in the administration of public rights-of-way, parks and other municipal properties currently have some form of nutrient and pest management plans and either implement the plans themselves or have contractors implement them. County personnel and private contractors follow the Virginia Department of Conservation and Recreation's nutrient management guidelines, the Virginia Department of Agriculture's guidelines, and the Virginia Pesticide Control Act.

Fairfax County Park Authority continued to maintain and monitor previous riparian buffer enhancement projects installed during the last five years. To date there are 37 projects on parkland throughout the county that have focused on the conversion of mowed grass to areas of native trees and shrubs typical of riparian areas.

The Park Authority currently has two Virginia state-certified nutrient management planners on staff, one for parks and a recently certified planner for golf courses. Two nutrient management plans were completed for golf courses in 2013 while five plans are currently under development. To date FCPA has nutrient management plans for approximately 515 acres of golf courses and 252 acres of natural turf athletic fields with an additional 31 acres managed under an integrated pest management plan. An additional 872 acres of FCPA managed turf do not receive any fertilization or pesticide application.

An additional 188 acres of parkland were operated under nutrient management plans prepared by a Virginia state-certified nutrient management planner from NVSWCD.

## **a.6) Illicit Discharges and Improper Disposal**

*Non-storm water discharges to the Municipal Separate Storm Sewer System will be effectively prohibited (B.1.f).*

### **a.6 (a) Report all identified illicit dischargers. This shall include site inspections and a description of any follow-up activities associated with illicit dischargers (see section a.12 below for related dry weather screening program activities and findings);**

Of the 108 representative MS4 outfalls selected for screening in 2013, illicit discharges were identified at five. Fairfax County's efforts regarding the permit requirements related to Illicit Discharges and Improper Disposal are also presented in section a.12 (a) of this report, which contains a discussion of the county's Dry Weather Screening Program.

The Fire and Rescue Department's (FRD) Fire and Hazardous Materials Investigative Services (FHMS) section enforces County Code Chapters 62, 105 and 106 in conjunction with DPWES and DPZ. FHMS also issues criminal citations during investigations of hazardous materials incidents. Chapter 62 establishes that the Fire Marshal and all permitted members of the Fire Marshal's staff have police powers to investigate and prosecute certain offenses including those related to storage, use, and transportation of hazardous materials and hazardous waste, and environmental crimes. Chapters 105 and 106 contain provisions that address illicit discharges to state waters and the county's storm drainage system. Procedural Memorandum No. 71-01, Illegal Dump Site Investigation, Response, and Cleanup, outlines the process of follow-up action for non-emergency incidents of illegal dumping; establishes action under County Code Chapter 46, Health or Safety Menaces; and provides referrals for action on complaints that are neither public health hazards nor regulated.

Programs that can help to prevent, detect, and eliminate illicit discharges of sanitary wastes into the MS4 are implemented and documented by the Wastewater Management (WWM) business area of DPWES. The Sanitary Sewer Infiltration Abatement Program conducts wastewater flow measurements and analysis to identify areas of the wastewater collection system with excessive inflow/infiltration problems, and uses closed circuit television (CCTV) to inspect trunk sewer mains in an effort to specifically identify defective sewer lines for repair and rehabilitation. In 2013, 1,227,280 linear feet of old sewer lines and 46,780 linear feet of new sewer lines were inspected, resulting in the identification of sanitary sewer lines and manholes needing repair and rehabilitation. In 2013, 147,307 linear feet of sanitary sewer lines were rehabilitated, bringing the total length of sewer lines repaired since the permit was issued in 2002 to 1,275,960 linear feet.

The Sanitary Sewer Extension and Improvement Program addresses pollution abatement and public health considerations by providing sanitary sewer service to areas identified by the Health Department as having non-repairable, malfunctioning septic systems. In 2013 four Extension and Improvement projects were completed consisting of approximately 8,200 linear feet of gravity sanitary sewer, approximately 1,320 feet of low-pressure sanitary sewer including 11 individual grinder pumps, and sanitary sewer connections for 97 existing homes and seven vacant properties.

The Health Department mailed 14,963 flow diversion valve reminder notices in 2013. The notices are sent to homeowners on the anniversary of the installation of their septic system to remind them to turn their flow diversion valve once a year. The notice also reminds homeowners to pump out their septic tank every three to five years.

In 2013, 1,471 non-compliance letters were mailed to owners of homes that have not pumped out their septic tank during the five-year period required in Chapter 68.1 of the Fairfax County Code and the Chesapeake Bay Preservation Area Designation and Management Regulations. If a homeowner fails to comply, a follow-up letter is mailed to them informing them that action will be taken under the regulations to insure their septic tank is pumped out as required.

There were 70 new alternative onsite sewage systems approved in 2013, bringing the total number of alternative systems in Fairfax County to 786. It is required that each of these systems is inspected annually by a licensed operator and a report is filed with the Health Department. Regulations for these systems went into effect December 7, 2011. The Health Department will notify all owners of alternative onsite sewage systems who are not in compliance with the operation and maintenance requirements of the regulations.

#### **a.7) Spill Prevention and Response**

*A program to prevent, contain, and respond to spills that may discharge into the Municipal Separate Storm Sewer System shall be implemented. The spill response program may include a combination of spill response actions by the permittee (and/or another public or private entity), and legal requirements for private entities within the permittees' jurisdiction (B.1.g).*

When requested by first responders, 911 dispatch protocols or the Fire Marshal's Office, FRD's Hazardous Materials Response Team (HMRT) responds to reported incidents of hazardous material releases, spills and discharges in the county (regardless of whether the material has potential to enter the county-operated MS4, another system such as VDOT's, or waters of the state). The department maintains and tracks firefighter training/certification under OSHA 29 CFR 1910.120 (q) and NFPA 472. HMRT personnel receive regular training in pollution prevention and are equipped to initiate spill control measures to reduce the possibility of hazardous materials reaching the MS4. Resources available to personnel include personal protective equipment, technical tools and equipment for spill control, and absorbent products such as pads and booms for spill containment. The Fire Marshal's Office maintains a contract with a major commercial hazardous materials response company to provide additional containment and clean-up support for large-scale incidents.

In 2013 FHMIS received 579 complaints. Approximately 264 of the complaints involved the actual release of various petroleum or chemical substances. Of the 264 releases, most involved the release of petroleum products including diesel fuel (37), home heating fuel oil (30), gasoline (18), motor oil (28), or hydraulic oil (21). Other releases investigated involved antifreeze, paint, sewage, waste water discharges, water treatment chemicals and mercury. Storm drains or water ways were involved in 31 of the releases. Documentation of individual releases and the county's responses is maintained by FHMIS.

In both emergency and non-emergency spills that reach the MS4, FHMIS enforces appropriate codes and ordinances to ensure that responsible parties take appropriate spill control and cleanup actions to protect and restore the environment.

Fire and Hazardous Materials Investigative Services section of FRD monitors, on a long-term basis, contaminated sites that have a potential for the contaminant coming in contact with surface waters or stormwater management facilities. As a part of the oversight program, FHMIS, as an agent of the Director of DPWES, accepts, reviews and processes requests to discharge treated groundwater from remedial activities at contaminated sites into county storm sewers. FHMIS then monitors the discharge for the duration of the agreement. In 2013 the Hazardous Materials Technical Support

Branch of FHMIS monitored 8 oversight cases. Most of these oversight files involve contaminated underground storage tank sites.

The Fire and Rescue Department continued to maintain membership in the Fairfax Joint Local Emergency Planning Committee (FJLEPC), which includes representatives of Fairfax County, the City of Fairfax, and the towns of Vienna and Herndon. FRD periodically updates its Hazardous Material Emergency Response Plan.

#### **a.8) Industrial & High Risk Runoff**

*A program to identify and control pollutants in storm water discharges to the Municipal Separate Storm Sewer System (municipal landfills; other treatment, storage, or disposal facilities for municipal waste; hazardous waste treatment, storage, disposal and recovery facilities; facilities that are subject to EPCRA Title III, Section 313) and any other industrial or commercial discharge the permittee determine are contributing a substantial pollutant loading to the Municipal Separate Storm Sewer System shall be implemented under this program (B.1.h).*

##### **a.8 (a) Report on all inspections of any new or previously unidentified facilities.**

The County has drafted a standard operating procedure (SOP) to identify and control pollutants in stormwater discharges to the MS4 from IHRR facilities and created two new positions for the purpose of conducting inspections of these facilities. In 2013 SWPD hired two Code Specialists and continued program development by conducting preliminary site visits as a test-run of the draft SOP. The preliminary site assessments provided valuable information for the continuing development of the IHRR program and results are being used to further refine the draft SOP.

New educational materials were also developed to assist businesses with identifying and controlling stormwater runoff and will be provided to facilities during inspections.

##### **a.8 (b) Report an updated list of all industrial storm water sources and VPDES permitted facilities that discharge into the MS4.**

In 2013 SWPD updated its list of facilities holding Virginia Pollutant Discharge Elimination System (VPDES) permits. There are currently 40 facilities that are covered under a VPDES general permit and seven facilities covered under a VPDES individual permit that drain to Fairfax County's MS4. A spreadsheet was developed to track discharge monitoring reports (DMRs) that are submitted by these facilities to the County and is discussed in more detail in section a.12 (c).

Additionally, as part of the process initiated to improve the IHRR inspection program, the County developed a database of all facilities that have the potential to discharge to the MS4. The database of potential dischargers is currently being used and refined to identify those industrial and high-risk facilities that have the potential to contribute a significant pollutant loading to the County's MS4.

### **a.9) Construction Site Runoff**

*A program to reduce the discharge of pollutants from construction sites (land disturbing activities equal to or greater than one acre) shall be implemented under this program (B.1.i).*

#### **a.9 (a) Report all Erosion and Sediment Control Plans the permittee has approved for sites disturbing greater than 1 acre of land for that year.**

In 2013 a total of 856 erosion and sediment (E&S) control plans for projects that would disturb a land area of 2,500 square feet or more were submitted and approved. Written monthly reports listing these individual sites were submitted to DEQ.

Fairfax County's E&S control program is fully approved by DCR and is implemented by Land Development Services (LDS). In 2013, 23,619 E&S inspections were performed through the county's Alternative Inspection Program on all sites under construction. Those E&S inspections represent 54.5 percent of the 43,305 total site inspections that were performed by Site Development and Inspection Division (SDID) personnel. The site inspections total also includes 2,110 projects that were inspected for purposes other than strictly E&S control (e.g., pre-construction, streets, sanitary sewer, storm sewer, and project release).

In 2013 SDID wrote 514 "20/30" E&S control reports, which identify the E&S control deficiencies developers must correct within five days. Failure to comply within the specified time frame can result in issuance of a violation to the developer. In 2013 SDID issued 68 violations and 58 of those were later cleared. SDID is working to resolve the remaining 10 violations either through implementation of required corrections or initiation of court action. SDID held 202 escrows for either landscaping or stabilization issues.

The Land Disturbance and Post Occupancy Branch of LDS investigates complaints alleging violations of Fairfax County's Erosion and Sediment Control Ordinance (Chapter 104). The branch also investigates complaints alleging violations of the county's Chesapeake Bay Preservation Ordinance (Chapter 118). In 2013 the branch received 250 total complaints. In most instances, there was either no violation or there was timely compliance if a violation was cited. The branch issued 23 Resource Protection Area (RPA) violations and 44 land disturbance violations. The branch undertook four criminal proceedings to ensure compliance. Currently ten RPA violations and 27 land disturbance violations are being resolved while the remaining 26 violations (both RPA and land disturbance) have been addressed.

The county sponsors an annual Land Conservation and Tree Preservation Awards program to recognize developers, designers, site superintendents, and contractors whose projects demonstrate an exemplary effort in E&S control and a commitment to tree preservation and planting in Fairfax County. The 2013 program gave awards to seven of twelve project sites nominated in the following categories: Large Commercial, Small Commercial, Large Single Family Residential, Small Single Family Residential, Special Project, and Linear Project. In addition, two sites were recognized as the Best Protected Environmentally Sensitive Site of the year and six sites received awards for Tree Planting and Preservation. An Outstanding Developer, Engineering Firm, Contractor, and Superintendent were also recognized. County employees were also recognized with awards for Outstanding E&S County Inspectors and Outstanding E&S County Reviewers. These awards are valued by recipients in the construction industry and provide incentives to do excellent work in protecting our natural resources.

Residents may report complaints about erosion and sedimentation to the county by phone or through e-mail. Residents can visit the following website to find contacts for specific land development issues:

<http://www.fairfaxcounty.gov/dpwes/publications/urbanfor.htm>

#### **a.10) Storm Sewer Infrastructure Management**

*A program to maintain and update the accuracy and inventory of the storm sewer system shall be implemented. The permittee shall submit to the Department of Environmental Quality, Northern Virginia Office a plan and schedule by which the entire storm sewer Infrastructure will be mapped. The plans and schedule shall be submitted within 180 days of the effective date of this permit (B.1.j).*

A Storm Sewer Infrastructure Management Plan and Schedule was submitted to DEQ on July 24, 2002, in accordance with the requirements of the permit. Fairfax County staff field verified the location of the storm drainage conveyance system on 436 tax map grids covering 399 square miles. The effort identified storm sewer pipes, outfalls and associated appurtenant structures, and resulted in the development of a GIS-based data layer which was completed in 2005. The requirements in the plan have been fulfilled and the infrastructure inventory is now continuously updated in accordance with the permit.

During 2013 the GIS inventory was updated with new as-built plans and field verification of system components within identified easements. Over 115 as-built construction plans were digitized while continuing efforts to review the inventory's completeness and spatial accuracy resulted in updates to 197 tax map grids. Routine maintenance of the GIS-based stormwater easement database continued through 2013.

The county continued implementation of its infrastructure inspection and rehabilitation program. Over 13,000 pipe segments and over 12,000 storm structures were inspected with ground surface inspections and video or photo documentation during 2013. Under the rehabilitation program, more than 950,400 linear feet of pipe were videoed. The videos document the existing structural and service conditions of the interior of the storm drainage system. All of the inspection efforts represent more than 2.3 million linear feet, or one-third of the storm drainage network being photographed or screened for obvious deficiencies. The inventory continues to be assessed for ongoing repair of identified deficiencies. As a result of the inspection efforts, 19,387 linear feet of storm pipe were rehabilitated or repaired through replacement or by lining entire pipe segments using cured-in-place pipe lining methods.

#### **a.11) Public Education**

*A public education program shall be implemented (B.1.k).*

Fairfax County's public education program is an essential component of stormwater management. The program raises awareness about stormwater challenges throughout the county and offers opportunities for residents to become involved in efforts to restore and protect Fairfax County's local waterways, the Occoquan Reservoir, the Potomac River and the Chesapeake Bay. A number of county organizations contribute to the public education program including SWPD, Solid Waste Management (SWM), FCPA and NVSWCD as well as the regional Clean Water Partners (CWP). County staff used a variety of methods to provide public education including in-person presentations, print publications, television, radio and online resources.

In 2013 the county's public education program reached several thousand adults and children including public school students, homeowners, businesses and members of the general public. The program addressed topics such as watersheds; recognition and reporting of illicit discharges into the MS4; proper management and disposal of wastes, pesticides, herbicides and fertilizers; and stream cleanups and other stewardship opportunities. A detailed listing of public education efforts is included in Attachment 2.

## **a.12) Monitoring Programs**

### **a.12 (a) Report on the Dry Weather Screening Program; (1) Number of outfalls inspected and test results; (2) Follow-up activities to investigate problematic areas and illicit dischargers.**

*The permittee shall continue ongoing efforts to detect the presence of illicit connections and improper discharges to the Municipal Separate Storm Sewer System. Representative outfalls of the entire Municipal Separate Storm Sewer System must be screened at least once during the permit term. Screening methodology may be modified based on experience gained during actual field screening activities and need not conform to the protocol at 40 CFR 122.26(d)(1)(iv)(D). Sample collection and analysis need not conform to the requirements of 40 CFR Part 136 (B.1.1.1).*

In 2013 the county selected 108 MS4 outfalls for dry weather screening in accordance with the general protocol outlined in "Fairfax County Dry Weather Screening Program: Site Selection and Screening Plan" (September 2012). Physical parameters were recorded at each outfall. Water was found to be flowing at 58 of the outfalls, and was tested for a range of pollutants (conductivity, surfactants, fluoride, pH, phenol, copper, and temperature) using field test kits. Of the outfalls tested, 10 required follow-up investigations because they exceeded the allowable limit for at least one pollutant. Upon retesting these sites, five continued to exceed the screening criteria, and further testing was conducted in an attempt to track down the source. This track down procedure consisted of using the county's GIS mapping system. A map of the county's storm drainage system was printed from GIS and used to track the storm network upstream of each site. Staff recorded observations of flowing water and surrounding land use, and tested the water where flow was found. This procedure was followed up the network of storm sewer pipes until the source was found or flowing water was no longer found.

Three of the track downs are being investigated with Fairfax Water as potential water line leaks. One of the leaks has been located while the other two are still being investigated. A fourth track down identified an illicit connection of the sanitary line serving a set of townhomes to the storm sewer network. The connection was eliminated with the help of Fairfax County's Department of Code Compliance. The fifth and final track down was initiated due to high chlorine readings and the source was identified as water line cleaning associated with construction activities at a VPDES permitted construction site. Section I.A.1.b) of the county's permit authorizes discharges regulated by a separate VPDES permit and the activity was complete upon arrival to the site therefore no action was taken.

**a.12 (b) Report on the Wet Weather Screening Program; (1) Number of outfalls inspected and test results; (2) Follow-up activities to investigate problematic areas and illicit dischargers.**

*The permittee shall investigate, and address known areas within their jurisdiction that are contributing excessive levels of pollutants to the Municipal Separate Storm Sewer System. The Permittee shall specify the sampling and nonsampling techniques to be used for initial screening and follow-up purposes. Sample collection and analysis need not conform to the requirements of 40 CFR Part 136 (B.1.1.2).*

Wet Weather Screening was conducted during 2013 using the “Wet Weather Site Selection and Screening Plan” (2006). Two sites were monitored over two storm events. Samples were analyzed for total suspended solids (TSS), turbidity, ortho-phosphorous, total phosphorous, total Kjeldahl nitrogen, nitrate-nitrite, ammonia, chemical oxygen demand (COD), hardness, total petroleum hydrocarbons and for the metals copper, cadmium, lead, zinc, nickel and chromium. These two sites were part of a larger suite of 10 targeted sites that were monitored during 12 storm events over an 18-month period between 2011 and 2013. These sites were primarily identified in industrial and commercial areas and were ranked according to their county land use code and potential to contribute pollutants to the MS4.

The water quality analysis indicates that the runoff from the 2013 sites is not a significant source of pollutants to the MS4. Levels of two pollutants, copper and zinc, were elevated in the majority of storms at most of the 10 sites throughout the study period. Elevated copper and zinc concentrations are common in urban and suburban runoff (Davis, Shokouhian and Ni, 2001).<sup>1</sup>

**a.12 (c) Report on the Industrial and High Risk Runoff Monitoring Program**

*The permittee may include monitoring for pollutants in storm water discharges to the Municipal Separate Storm Sewer System which include: municipal landfills; other treatment, storage, or disposal facilities for municipal waste; hazardous waste treatment, storage, disposal and recovery facilities; facilities that are subject to EPCRA Title III, Section 313. Monitoring may also be required on other industrial or commercial discharges the permittee determines are contributing a substantial pollutant loading to the Municipal Separate Storm Sewer System. Permittee may require the industrial facility to conduct self-monitoring to satisfy this requirement (B.1.1.3).*

As mentioned in section a.8, Fairfax County has continued improvement of the IHRR inspection program and refinement of a draft SOP to identify and control pollutants in stormwater discharges to the MS4 from IHRR facilities.

As part of the effort to screen for possible discharges of significant pollutants, the Code Specialists review DMRs submitted to the County by facilities holding VDPES permits. SWPD worked with DEQ to establish procedures for coordination regarding facilities that fail to submit DMRs to the County and facilities that discharge significant pollutant loadings to the County’s MS4. In 2013 the county did not receive DMRs from 11 permitted facilities and subsequently notified DEQ.

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<sup>1</sup> Davis, Allen P., Shokouhian M., and Ni, S. 2001. Loading estimates of lead, copper, cadmium, and zinc in urban runoff from specific sources. *Chemosphere*, Volume 44, Issue 5, August 2001, Pages 997-1009

**a.12 (d) Report on the Watershed Monitoring Program; (1) Monitoring plan; (2) Summarize the implementation including, Storm Event Data, Station test results, Seasonal Loadings and Yearly Loadings.**

*The permittee shall develop a long-term monitoring plan and trend analysis to verify the effectiveness and adequacy of control measures in the County's Storm Water Management Plan and to identify water quality improvement or degradation. The permittee shall submit an approvable monitoring program to the Department of Environmental Quality no later than one year from the effective date of this permit. The program shall be implemented within two years of the effective date of the permit. Monitoring shall be conducted on representative stations to characterize the quality of storm water in at least two watersheds during the term of this permit (C.1).*

In 2013 storm event sampling continued at the two monitoring sites, Henderson Road in Occoquan (OQN) and Kingsley Avenue in Vienna (VNA) in accordance with Fairfax County's Watershed Water Quality Monitoring Program (2003). Samples were tested for concentrations of nine constituents identified in Attachment A of the permit. Table 1 contains the median, high and low concentrations of each of the nine constituents during the eight-year period from 2005 to 2013.

In addition, statistical analyses using the Mann-Whitney 2-sample test were performed to determine if there were significant differences between constituent concentrations at the two stations. In 2013, as in 2012, 2011 and 2010, the analysis found significant statistical differences for concentrations of all of the nine constituents measured at the two sites. In addition, seasonal and annual unit-area constituent loadings for 2013 were calculated and are presented in Table 2.

**Table 1: Results of statistical analysis to determine if there is a significant difference between observed constituent concentrations at Vienna and Occoquan Stations for 2005 through 2013**

Constituent	Vienna Median	Vienna High	Vienna Low	Occoquan Median	Occoquan High	Occoquan Low	Differences Statistically Significant?
NH <sub>3</sub> -N	0.18	0.73	0.00	0.00	0.27	0.00	YES
COD	55	292	22	23	122	0	YES
<i>E. Coli</i>	1214	200000	0	583	59100	20	YES
Fecal Strep	6700	129000	100	925	51000	18	YES
NO <sub>3</sub> +NO <sub>2</sub> -N	0.73	1.64	0.16	0.42	0.73	0.10	YES
TDS	122	836	51	100	160	71	YES
TKN	1.73	11.30	0.48	0.60	2.41	0.00	YES
TP	0.30	1.61	0.06	0.06	0.80	0.00	YES
TSS	53	1207	4.9	18	485	1.40	YES

All constituent units are expressed in milligrams per liter, other than *E. coli* and Fecal Strep which are in colonies per 100 milliliters. Statistical significance was based on a Mann-Whitney 2-sample test at a 0.1 significance level.

**Table 2: Computed seasonal and annual unit-area constituent loadings at monitored locations for 2013**

Constituent	Winter Vienna	Winter Occoquan	Spring Vienna	Spring Occoquan	Summer Vienna	Summer Occoquan	Fall Vienna	Fall Occoquan	Annual Vienna	Annual Occoquan
NH <sub>3</sub> -N	0.150	0.002	0.155	0.032	0.106	0.007	0.109	0.009	0.519	0.050
COD	42	5	47	20	31	4	96	12	215	41
<i>E. Coli</i>	0.51	0.11	25.06	13.75	92.25	13.33	28.59	7.82	146.41	35.05
Fecal Strep	2.97	0.61	34.77	11.94	69.21	23.76	82.06	7.65	189.01	43.96
NO <sub>3</sub> +NO <sub>2</sub> -N	0.41	0.09	0.54	0.16	0.39	0.10	0.48	0.14	1.83	0.49
TDS	119	25	95	36	45	25	109	40	368	126
TKN	0.99	0.09	2.18	0.46	0.89	0.18	1.07	0.23	5.13	0.96
TP	0.15	0.01	0.18	0.12	0.17	0.02	0.46	0.06	0.96	0.20
TSS	55	3	67	70	62	12	146	29	330	114

All loadings are expressed in pounds per acre, except for *E. coli* and Fecal Strep which are in billions of colonies per acre. To compute total loads in pounds or billions of colonies, unit-area loading was multiplied by the drainage area of the monitoring station in acres.

**a.12 (e) Report on the Bioassessment Monitoring Program; (1) Monitoring plan; (2) Summarize test results.**

*The permittee can use and is encouraged to use a rapid bioassessment monitoring program to demonstrate the effectiveness of the stormwater management plan. The program will be implemented within one year of the effective date of the permit and an approvable program must be submitted within six months of the effective date of the permit (C.2).*

A probability-based site selection sampling methodology was used to identify randomly-selected stream bioassessment locations throughout Fairfax County. These sites were stratified and proportionally distributed throughout the county based on Strahler stream order applied to all

perennially flowing streams in Fairfax County. This methodology eliminates any site selection bias and is commonly used as a cost-effective way of obtaining a statistically defensible determination of stream conditions at a countywide scale.

A total of 52 sites were sampled for benthic macroinvertebrates in 2013: 40 sites randomly selected within Fairfax County as part of the annual probabilistic monitoring program; 11 Piedmont reference locations in Prince William National Forest Park; and one Coastal Plain reference site in the Kane Creek watershed of Fairfax County. Of the 40 randomly selected sites, a total of 16 sites were also sampled for fish. Multi-metric Indices of Biological Integrity (IBIs) have previously been developed for both the aquatic benthic macroinvertebrate and fish communities within Fairfax county. IBI results from the 40 randomly selected macroinvertebrate sites suggest that approximately 32.5 percent of the county's waterways are classified as being in "excellent" or "good" condition while 67.5 percent are classified as "fair," "poor" or "very poor" based on a decrease in biological integrity of the streams. Of the 16 sites sampled for fish, 50 percent were classified as having fish communities that are in "fair," "poor" or "very poor" condition. The biological monitoring program is part of the framework to evaluate future changes and trends in watershed conditions at the county scale.

#### **a.12. (f) Report on the Floatables Monitoring Program**

*The permittee shall conduct surveys of floatables. The intent of the survey is to document the effectiveness of the litter control programs for the Municipal Separate Storm Sewer System. Surveys shall be done in accordance with the following procedures: c) The above may be accomplished through the "Adopt a Stream" program referenced in Part I.B.1.k.2 (C.3.c).*

In 2013 SWPD began to develop a logical model to organize and analyze data collected using the Trash Assessment for Improved Environments (TAFIE) stream condition assessment protocols and data forms. When completed, this will enable TAFIE data collected by the county as well as by volunteer groups to be integrated and compared with stream cleanup data collected using similar methodologies (particularly the Alice Ferguson Foundation's Visible Trash Survey and the International Coastal Cleanup), as well as allow cleanup data to be merged with other permit-related information (for example, stream cleanup results and stream biomonitoring data).

TAFIE forms and guidance were provided to elementary schools and to individuals seeking volunteer services for the Virginia Master Naturalist certification program.

The county continued to work with and support the following organizations that coordinate large and small-scale volunteer cleanups:

- Clean Fairfax Council
- The Alice Ferguson Foundation (Potomac River Watershed Cleanup)
- Clean Virginia Waterways (International Coastal Cleanup)

Clean Fairfax Council documented the following metrics regarding litter and clean-up activities that they organized in 2013:

- "Report a Litterer" reports (via anonymous fill-in form at Clean Fairfax website or the "Report a Litterer" hotline – 125
- Total number of clean up events either planned or supported – 85
- Total number of volunteers at clean up events – 1,223
- Total number of volunteer hours – 6,620

- Pounds of garbage collected – 66,829

The county continued to provide support and staff for various stream and river cleanup events. In the spring of 2013 approximately 86 sites were established throughout the county for the Alice Ferguson Foundation's annual Potomac River Watershed Cleanup. Cleanups were conducted at numerous state, county and local parks, schools, the county wastewater treatment plant and other locations. These cleanups were advertised in publications such as SWM's SCRAPBook and FCPA's Parktakes Magazine, as well as on the internet. Staff from SWPD, SWM, WWM, FCPA and NVSWCD participated in these cleanups. More than 2,211 volunteers removed approximately 89,508 pounds of loose litter and bulk trash from county streams.

According to Clean Virginia Waterways, a total of 959 volunteers participated in the International Coastal Cleanup in Fairfax County during September and October 2013. Nearly 13,000 pounds of trash and marine debris were removed from beaches and shorelines. Plastic bags, beverage bottles, food wrappers and containers, and litter from recreational activities and fast food consumption (i.e. cups, plates, etc.) were the most commonly collected trash items in the county.

Fairfax County Park Authority organized and/or assisted with a number of stream cleanups in 2013:

- Sugarland Run Stream Valley Park: Residents organized a stream clean up in April 2013 and removed 25 bags of trash.
- Lake Accotink Park: Staff organized two Watershed Clean-up Days on April 6 and October 19, 2013 that attracted as many as 220 volunteers and removed nearly 2,000 pounds of trash from the Accotink Creek watershed. Separately, Friends of Accotink Creek organized multiple clean-ups at twelve points along Accotink Creek. Throughout the year, the park supported numerous volunteer groups and individuals who collected trash.
- County-wide clean up days were also held on April 6 and October 19, 2013. Participating FCPA sites included: Frying Pan Farm Park, Hidden Oaks Nature Center, Roundtree Park (Holmes Run), Hidden Pond Nature Center (Pohick Creek), Huntley Meadows Park (Little Hunting Creek), Riverbend Visitor Center (Potomac River), Sully Historic Site (Cain's Branch), Walney Visitor Center in Ellanor C. Lawrence Park (Flatlick Branch, Big Rocky Run, Cub Run and Frog Branch).

The county continued to promote the "Adopt a Stream" program. SWPD distributed copies of its Floatables Monitoring Program Brochure to various public offices and during educational activities and outreach events throughout the county. The brochure was also made available on the county Stream Litter website:

<http://www.fairfaxcounty.gov/dpwes/stormwater/streamlitter.htm>

Stream cleanup event organizers were encouraged to record their cleanup information on the Floatables Data Reporting Form (available in the brochure or on the county website) and return the completed form to the county. Cleanup data submitted to the county are entered in the Floatables database.

## **b) Proposed Changes to the Stormwater Management Program**

### *Storm Water Management Program Review and Update (B.4).*

In 2009 Fairfax County and Fairfax County Public Schools proposed to DCR that the two jurisdictions be covered by the county's Phase I MS4 permit. The arrangement would be contingent upon the two jurisdictions submitting formal documentation to the state outlining the commitments of each jurisdiction and upon renewal of the county's Phase I MS4 permit. In 2009 the county and Public Schools drafted a memorandum of understanding (MOU) outlining the roles and responsibilities of each jurisdiction that pertain to specific requirements of the MS4 permit. In 2013, Fairfax County Public Schools was issued a renewed Phase II MS4 permit (VAR040104). Both parties are working to address requirements which may impact specific terms of the draft MOU and are continuing toward finalizing the document.

## **c) Assessments of controls and the fiscal analysis of the effectiveness of new controls established by the Stormwater Management Program**

As the county approaches build-out conditions, it has become increasingly challenging to mitigate the impacts of impervious area and nonpoint source pollution on streams. Several efforts through the existing stormwater management program are helping to reduce or minimize water quality impacts. They include: the mandate of controls (BMPs) by the Chesapeake Bay Preservation Ordinance; development and implementation of Comprehensive Watershed Management Plans; development of a retrofitting program for existing developed areas; and ongoing changes to stormwater management codes, policies, ordinance, and guidelines.

## **d) Annual Expenditures for the Stormwater Management Program and Budget**

The county has not tracked expenditures to meet permit requirements separately from its overall stormwater program administered by DPWES, nor have other agencies tracked the resources they have expended on programs that contribute towards meeting MS4 permit conditions. For calendar year 2013, the total expenditures in the Stormwater Management business unit from January 1, 2013, through December 31, 2013, were \$29.8 million.

In FY 2006 the Board of Supervisors had dedicated the value of one penny of the real estate tax, or approximately \$20 million annually to stormwater capital projects. As part of the FY 2010 Adopted Budget Plan, a new service district was created to support the stormwater management program, as authorized by Virginia Code Annotated Sections 15.2-2400. As part of the FY 2014 budget, the Board of Supervisors maintained a stormwater service district levy of \$0.02 (two cents) per \$100 of assessed real estate value that was previously adopted in FY 2013. The stormwater service district will generate approximately \$41.2 million in FY 2014 that will be dedicated to funding the entire stormwater management program which includes both staff operating requirements and stormwater capital projects.

#### **e) Identification of water quality improvements or degradation**

Fairfax County continues to use the monitoring programs identified within this report to track the water quality of streams within the county. The county also stays abreast of DEQ's water quality assessment program to track and address Total Maximum Daily Loads (TMDLs). To date, the following TMDLs have been established in Fairfax County:

- Bacteria (Fecal Coliform and/or E. coli):
  - Accotink Creek
  - Four Mile Run
  - Bull Run
  - Pope's Head Creek
  - Difficult Run
  - Hunting Creek (includes Cameron Run and Holmes Run)
- Sediment (Benthic Impairment):
  - Bull Run
  - Pope's Head Creek
  - Difficult Run
- PCBs: Tidal Potomac (includes Accotink Creek, Belmont Bay, Dogue Creek, Four Mile Run, Gunston Cove, Hunting Creek, Little Hunting Creek, Occoquan River and Pohick Creek)

The county will continue to implement best management practices to control stormwater pollutants, meet regulatory requirements, and take a holistic approach to watershed restoration and preservation. Efforts include enhanced infrastructure maintenance and inspections, implementation of watershed management plans, a continued construction inspection program, and ongoing outreach efforts to increase public awareness. It is anticipated that these efforts will have a positive long-range impact on the future health of county watersheds, will help to satisfy stream water quality standards and support the goals of restoring both local waterways and the Chesapeake Bay.

### **Attachment 1: Fairfax County's Watershed Management Plans**

The following is a list of Fairfax County's thirteen watershed management plans. The date of plan adoption is specified as well as the watershed or watersheds that were included in the watershed planning group.

1. Little Hunting Creek Watershed Management Plan (February 2005)
  - Included watershed: Little Hunting Creek
2. Popes Head Creek Watershed Management Plan (January 2006)
  - Included watershed: Popes Head Creek
3. Cub Run and Bull Run Watershed Management Plan (February 2007)
  - Included watersheds: Cub Run and Bull Run
4. Difficult Run Watershed Management Plan (February 2007)
  - Included watershed: Difficult Run
5. Cameron Run Watershed Management Plan (August 2007)
  - Included watershed: Cameron Run
6. Middle Potomac Watersheds Management Plan (May 2008)
  - Included watersheds: Bull Neck Run, Dead Run, Pimmit Run, Scotts Run, and Turkey Run
7. Pohick Creek Watershed Management Plan (December 2010)
  - Included watershed: Pohick Creek
8. Sugarland Run and Horsepen Creek Watershed Management Plan (December 2010)
  - Included watersheds: Sugarland Run and Horsepen Creek
9. Belle Haven, Dogue Creek and Four Mile Run Watershed Management Plan (January 2011)
  - Included watersheds: Belle Haven, Dogue Creek, and Four Mile Run
10. Lower Occoquan Watershed Management Plan (January 2011)
  - Included watersheds: High Point, Kane Creek, Mill Branch, Occoquan, Old Mill Branch, Ryans Dam, Sandy Run, and Wolf Run
11. Nichol Run and Pond Branch Watershed Plan (January 2011)
  - Included watersheds: Nichol Run and Pond Branch
12. Accotink Creek Watershed Management Plan (February 2011)
  - Included watershed: Accotink Creek
13. Little Rocky Run and Johnny Moore Creek Watershed Plan (February 2011)
  - Included watersheds: Little Rocky Run and Johnny Moore Creek

Print copies of final approved plans are available at the SWPD office, Fairfax County Public Libraries, and Board of Supervisors District offices. Digital copies are available upon request from the SWPD and are available online at <http://www.fairfaxcounty.gov/dpwes/watersheds>.

## Attachment 2: 2013 Public Education Program

Public Education Effort	Topics Addressed	Audiences	Statistics	Lead Organizations
Public events (incl. Earth Day/Arbor Day Celebration, Celebrate Fairfax, Fall For Fairfax Kidsfest, 4-H Fair)	Environmental awareness, watershed-friendly behaviors, proper waste management and recycling	General public	Several thousand visitors	Fairfax County
Podcasts (aired on Fairfax County website)	Fats, oils and grease (FOG); pet waste, litter, fertilizers, tree care and tree pests, water reuse, rain gardens and rain barrels, native plants, swimming pools, flood and sanitary sewer backup insurance, flood protection, stream restorations, pollinators and backyard composting	General public	350 listeners per program (each program airs for two weeks)	Department of Public Works and Environmental Services (DPWES)
Fairfax County's Environmental Facebook Page	Water quality, trash in streams, "Friends of Trees," water reuse, rain barrels, stream restoration	General public	458 "Likes"	DPWES
SlideShare PowerPoint Presentations (online)	Stream restoration projects, tree care, rain gardens and rain barrels, flood protection, and water quality	General public	10,908 views	DPWES
Public Service Announcements (County website, television and YouTube)	Plastic bags, "Stormy the Raindrop" watershed education, cigarette butts, flood prevention	General public	17,981 views	DPWES, Fairfax County Channel 16
Stormwater Presentations	Watersheds, management of stormwater and solid wastes	High school students	Over 625 students (29+ presentations)	Stormwater Planning Division (SWPD)
Stormwater Improvement Project Websites	Project information	General public	4 Project specific pages	SWPD
"What's That Stuff in the Stream?" Web Page Update	Illicit discharge recognition and reporting	General public		SWPD
Stormy the Raindrop Activity Books	Stormwater, watersheds, stewardship	Children (Kindergarten through 4 <sup>th</sup> grade)	1,584 books	SWPD
Flood Protection Newsletter and Web Page	Flood prevention	Residents	20,000 residents	SWPD
Stormy the Raindrop Reusable Bag Giveaway	Litter, stewardship	General public	Approx. 700 bags	SWPD
Field Guide	Ecology and Water Quality	Children and teachers (5 <sup>th</sup> grade, Scout troops, Library reference, and homeschool groups)	13,800 5 <sup>th</sup> graders and teachers	SWPD
<i>Stormy the Raindrop's Watershed Journey</i> Puppet Show (filmed)	Stormwater, watersheds, stewardship	Children (Kindergarten through 4 <sup>th</sup> grade)		SWPD, Channel 16
News Releases	Floodplain management plan progress report' Wolftrap Creek restoration, Huntington levee bond referendum, water reuse project completion, Government Center stream restoration wins NACO award, water quality field day workshop	Media	Eight news release sent to the media; resulted in radio and television interviews and newspaper articles with subject matter experts	SWPD, WWM, UFMD

Public Education Effort	Topics Addressed	Audiences	Statistics	Lead Organizations
Staff Interviews (Local and National Media)	Stormwater tax district, water quality, flood mitigations, sanitary sewers, resource protection areas, the Chesapeake Bay TMDLs, the MS4 permit, illicit discharges, industrial/high risk runoff, trash and litter, completed projects, hazardous trees and more.	General public	Approximately 30 interviews by television, radio and print reporters	SWPD, WWM, Urban Forestry
Sewer Science Laboratory	Distinguishing between storm drainage versus sanitary sewer systems	High school students	1,250 students (15 high schools, 45 classes) Two Sewer Science Workshops were also held at the treatment plant	Wastewater Management (WWM)
Clean Fairfax Council Online Information	Litter, environment	General public	75,000 impressions (i.e., web hits, tweets, Facebook)	Clean Fairfax Council
Environmental Clubs Pilot Program	Environment	Elementary school students	Group of 12 attending	Clean Fairfax Council
Support to Fairfax County Visitors' Center	Environment	General public	More than 15,000 auto litter bags, brochures and environmental bookmarks	Clean Fairfax Council
Johnnie Forte Environmental Grant Program	Annual grants to support environmental projects	Public schools	8 Environmental Education and Action grants (between \$500-\$1000) awarded to Fairfax County Public Schools	Clean Fairfax Council (CFC), SWM
Television and Banner Ads and Public Service Announcements	Pet waste, general stormwater pollution reduction measures	General public	4 TV ads, aired on 12 channels (incl. 3 Spanish-language) 1,530 times, 3,768,412 viewers; Banner ads were aired 427,872	Clean Water Partners
Onlyrain.org Website	Clean water messages	General public	400 visits (as a result of banner and TV ads)	Clean Water Partners
Meaningful Watershed Educational Experience (MWEE)	Runoff, water quality, potable water, streams, soils, benthic macroinvertebrates, healthy watersheds, nonpoint and point source pollution, stewardship	Elementary and middle school students; adults (including school staff)	5,740 students, >520 adults and  5,850 students, 500 adults on Park Authority land or Lakefronts taught by college students	Fairfax County Park Authority (FCPA)
Earth and Sky School Program	Weathering, Erosion, Stormwater	5 <sup>th</sup> Grade Students	3,465 students and more than 300 adults	FCPA
"Wetlanders" Summer Camp	Watersheds	7- to 9-year-old children	62 children in week-long camp	FCPA
"Secrets of Soil" Class (two hours) at Green Spring Gardens Park	Soils, effects of development on watersheds, EnviroScape® model, conservation	Students	>600 students	FCPA
Wetlands Awareness Day at Huntley Meadows Park	Healthy watersheds	General public		FCPA
Stream Water Quality Monitoring	Water quality, training for citizen volunteer monitors	General public	Several Resource Management sites	FCPA
Lake and Stream Valley Cleanup Days	Litter, water protection, stewardship	General public	Hosted at five parks	FCPA

Public Education Effort	Topics Addressed	Audiences	Statistics	Lead Organizations
Green Spring Gardens Symposiums and Workshops	Climate change, Sustainability, Water conservation and Water quality	General public, County families, Teachers	167 attendees 271 kids and scouts 19 teachers	FCPA = Green Spring Gardens Park
Green Spring Gardens Field Trips	Geology, Erosion & Conservation, Water Cycle, and Water Sheds	Elementary School Students	389 students	FCPA – Green Spring Gardens Park
Storm Drain Marking Program	Stewardship, nonpoint source pollution, proper disposal of wastes	General public	27 projects, 3,478 storm drains, 17,000+ households educated, 550 volunteers contributing 2,000 volunteer hours	Northern Virginia Soil and Water Conservation District (NVSWCD)
Enviroscape® Model Presentations	Nonpoint source pollution prevention, watersheds	Children	821 students and scouts (45 presentations)	NVSWCD
Watershed Calendar	Watershed Events and Trainings	General Public	1000 recipients	NVSWCD
Volunteer Stream Monitoring Program	Watershed awareness, stream health	General Public	30 volunteers monitored 25 sites four times per year; 435 residents attended workshops and field trips	NVSWCD
<i>Conservation Currents</i> Newsletter	Stream health, stream monitoring, stream restoration, stewardship	General public	2,500 copies distributed in print and online	NVSWCD
Technical Assistance Site Visits	Drainage and erosion	Homeowners and HOAs	119 site visits	NVSWCD
Solving Drainage and Erosion Problems Website for Homeowners	Drainage and erosion, controlling runoff	Homeowners	3,000+ views in four months	NVSWCD
NVSWCD Website	Managing land, protecting water quality, controlling stormwater, preventing erosion, encouraging native vegetation	Homeowners	173,944 views by 124,741 visitors	NVSWCD
Earth Friendly Suburban Horse Farming Publication	Stewardship	Horse-keeping community	Distributed at events and online with over 15,000 views of guide and related articles	NVSWCD
Conservation Planning	Nutrient management and composting	Horse-keeping operations	Managers of 907 acres received education. Conservation plans included instructions for 1,815 linear feet of new vegetated buffer and 41,458 linear feet of replanted buffers.	NVSWCD
“Build-your-own” Composter Workshops	Composting	General public	20 participants constructed 15 tumbler-style composters	NVSWCD
Watershed Friendly Garden Tour (June 2013)	LID practices (that can be adopted at home or area schools)	General public	Eight sites were featured with over 100 participants	NVSWCD
Rain Garden Workshops	LID practices	Residents and industry professionals	Educated and trained 57 people	NVSWCD
<i>Residential LID Landscaping Guide</i> (hard copy and electronic formats)	LID, design and installation information, sources of supplies, plant materials	Homeowners	Published	NVSWCD

Public Education Effort	Topics Addressed	Audiences	Statistics	Lead Organizations
Northern Virginia Rain Barrel Initiative	LID practices	General public	Fourteen build-your own rain barrel workshops with 309 participants total, 388 rain barrels. Since 2007 barrels distributed capture 200,000 gallons of stormwater from County roofs annually.	NVSWCD
Artist Rain Barrel Program	LID practices	Students	25 teams of students painted and decorated rain barrels for auction at an Earth Day event	NVSWCD in partnership with Artistic Rain Barrel Program
<i>Rain Garden Design and Construction: A Northern Virginia Homeowner's Guide</i> (hard copy and electronic formats)	LID practices, instructions and calculations needed to build a rain garden	Homeowners	Distributed in print and online with nearly 10,000 downloads	NVSWCD, FCPA
SCRAPmail	Electronic resource available by email subscription (news, event announcements, updates, reviews of environmental education resources available to county schools)	Teachers, students, school administrators	250 subscribers (messages sent quarterly)	Schools/County Recycling Action Partnership
Household Hazardous Waste Management Program	Proper disposal of household hazardous wastes	County residents	Two permanent facilities where residents can dispose of waste at no charge	SWM
<i>Electric Sunday</i> Program	Recycling	County residents	1.2 million pounds of electronic waste for recycling	SWM
Solid Waste Management Presentations	Solid waste and recycling	Students, community groups, businesses	15 presentations to schools reaching more than 2,000 students	SWM
Solid Waste Management Recycling Web Content	Recycling and Source Reduction	General public	83,280 views	SWM
Solid Waste Management Outreach and Facility Tours	Solid waste management	General public	85 events	SWM
Solid Waste Management "listserv"	Trash collection and Leaf Collection	Residents	2,150 subscribers (messages sent monthly)	SWM
Recycling Survey	Bottle and Can recycling	County Chamber of Commerce, the Apartment & Building Owners Association and area collection companies	Fifty-five business respondents	SWM
Shredding Sponsored Events	Document shredding	Residents	9 Shredding events collecting approximately 248,875 pounds	SWM
"Trash Free Potomac" and "Your Litter Hits Close to Home" Advertisements	Litter Prevention	General public	200+ ads on public transportation Ad in the Community & Newcomers Guide	SWM with the Alice Ferguson Foundation
Rechargeable Battery Recycling	Recycling	General public	Collection boxes available at County Board of Supervisors' offices and county government buildings	SWM with industry-funded Rechargeable Battery Recycling Corporation Program

Public Education Effort	Topics Addressed	Audiences	Statistics	Lead Organizations
Annual <i>Go Recycle</i> Radio Campaign	Recycling	General public	Two weeks of announcements regarding recycling on five major Washington DC radio stations	SWM with the Metropolitan Washington Council of Governments
Regional KnowToxics Program	Federal and state regulations requiring proper disposal or recycling of spent fluorescent lamps, rechargeable batteries, computers and related electronics	Business owners		SWM with the Northern Virginia Regional Commission (NVRC)
Solid Waste Managers "train the trainer"	Proper management of universal waste and hazardous waste	Commercial Property Managers and General Public	60 attendees	SWM with NVRC