

2012 VPDES Permit Annual Report

Prepared by

Fairfax County, Virginia
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Virginia Department of Conservation and Recreation

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call the Stormwater Planning Division at 703-324-5500, TTY 711.

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The following annual report is submitted to the Virginia Department of Conservation and Recreation (DCR) 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, 2012, through December 31, 2012, 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.

In November 2012 the county held a second meeting for watershed advisory groups and other public interests to give a status update on implementation of the watershed plans and the broader stormwater management program. The presentation is available online at <http://www.fairfaxcounty.gov/dpwes/watersheds>. Six of the retrofits projects completed in 2012 were specific recommendations identified in the watershed management plans. A full summary of retrofit projects can be found in 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 2012 the county inspected 374 (24 percent) of the 1,541 county-maintained stormwater management (SWM) and best management practice (BMP) facilities at least once. In 2012 the county inspected 664 (18 percent) of the 3,720 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 2012 the county cleaned and/or mowed 1,285 dam embankments, including 50 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 477 maintenance work orders to correct deficiencies in publicly maintained SWM/BMP facilities in 2012.

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 2011, 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. 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 102 rezonings and related applications (e.g., amendments), 42 special exceptions and amendments, and 94 special permits and amendments in fiscal year 2012 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.

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, or Park Authority). 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 2012 more than 775 cubic yards of material were removed from 338 county government and public schools sites, 41 residential sites, 26 essential use areas at parks, and 30 county-maintained road segments through sweeper trucks and hand sweeping. The amount of material removed in 2012 was less than in 2011 (1,842 cubic yards) due to a milder winter and lighter road treatment required for public safety.

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 12 retrofit projects to enhance stormwater management functionality in 2012. 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). The results of the county's retrofit efforts are summarized below:

- Projects were completed in five of the 30 county watersheds: Accotink Creek (four), Difficult Run (four), Pohick Creek (two), Scotts Run (one) and Sugarland Run (one).
- Six of the projects were retrofitting opportunities specifically mentioned in county watershed management plans.
- The impervious area treated by the retrofits totals more than 200 acres; the total area treated was more than 300 acres.

- Combined, the 12 retrofits are estimated to remove nitrogen, phosphorus, and sediment at rates of approximately 409 pounds/year, 262 pounds/year, and 601 tons/year, respectively.
- The approximate cost of these retrofits is more than \$2.5 million.

Retrofit project documentation is maintained by the Maintenance and Stormwater Management Division and the Stormwater Planning Division of DPWES, the Park Authority and the Northern Virginia Soil and Water Conservation District.

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, 2006.

In 2012 Park Authority staff worked to reduce the amount of mowed turf areas and improve stream buffers at several park sites around the county to promote water and air quality and provide additional wildlife habitat. Staff discontinued mowing at Confederate Fortifications Historic Site and Johnny Moore Stream Valley Park (11.8 acres), Chapel Road Park (2.61 acres), George Mason Park (0.55 acres), Newton Commons Park (1.50 acres) and Pinecrest Golf Course (3 acres).

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. To date there are 21 certified nutrient management plans for parklands, covering a total of about 1,670 acres. An additional 188 acres of parkland were operated under nutrient management plans prepared by a Virginia state-certified nutrient management planner from the Northern Virginia Soil and Water Conservation District (NVSWCD). Three plans are under development for golf courses, but there are no completed certified nutrient management plans for golf course acres at this time.

a.6) Illicit Discharges and Improper Disposal

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 a.12 below for related dry weather screening program activities and findings);

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

Of the 106 representative MS4 outfalls selected for screening in 2012, illicit discharges were identified at six. Investigations are ongoing for 12 other representative MS4 outfalls where flow was detected during the initial screening. 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 (FHMIS) section enforces County Code Chapters 62, 105 and 106 in conjunction with the Department of Public Works and Environmental Services and the Department of Planning and Zoning. FHMIS also issues criminal citations during investigations of hazardous materials incidents. Chapter 62 establishes that the Fire Marshall and all permitted members of the Fire Marshall'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 discharge of sanitary wastes into the MS4 are implemented and documented in the Wastewater Management 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 2012, 208 miles of old sewer lines and 12 miles of new sewer lines were inspected, resulting in the identification of sanitary sewer lines and manholes needing repair and rehabilitation. In 2012, 31.43 miles (165,950 feet) of sanitary sewer lines were rehabilitated, bringing the total length of sewer lines repaired over the past ten years to 213.76 miles (1,128,661 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 Department of Health as having non-repairable, malfunctioning septic systems. In 2012 four Extension and Improvement projects were completed consisting of approximately 5,360 linear feet of eight-inch gravity sanitary sewer, approximately 3,863 feet of 1.5-inch to 2.5-inch diameter low-pressure sanitary sewer including six individual grinder pumps, and sanitary sewer connections for 68 existing homes and three vacant properties.

The Health Department mailed 14,957 flow diversion valve reminder notices in 2012. 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 2012, 1,467 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 42 new alternative onsite sewage systems approved in 2012, bringing the total number of alternative systems in Fairfax County to 718. It is required that each of these systems is inspected annually by a licensed operator and a report be 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 requirement 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).

The FRD Hazardous Materials Response Team (HMRT), when requested by Fire Department first responders, 911 dispatch protocols or the Fire Marshal's Office, 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. The Fire Department's 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 2012 Fire and Hazardous Materials Investigative Services (FHMIS) section received 562 complaints. Approximately 253 of the complaints involved the actual release of various petroleum or chemical substances. Of the 253 releases, most involved the release of petroleum products including diesel fuel (30), home heating fuel oil (53), gasoline (12), motor oil (13), or hydraulic oil (28). Other releases investigated involved antifreeze, paint, sewage, waste water discharges, water treatment chemicals and mercury. Storm drains or water ways were involved in 21 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.

FHMIS monitors, on a long-term basis, contaminated sites that have a potential for the contaminant coming in contact with surface waters or storm water 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 2012 the Hazardous Materials Technical Support Branch of FHMIS monitored 36 oversight cases. Most of these oversight files involve contaminated underground storage tank sites.

Fire and Rescue 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. Fire and Rescue periodically updates its Hazardous Material Emergency Response Plan.

a.8) Industrial & High Risk Runoff

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

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

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).

Fairfax County's efforts regarding the permit requirements related to Industrial and High Risk Runoff are also presented in sections a.12.b and a.12.c of this report, which contain a discussion of the county's Wet Weather and Industrial and High Risk Runoff Monitoring Program.

In 2012 the Stormwater Planning Division updated its list of high risk industrial and commercial properties that drain to the county's MS4. There are currently 34 facilities that are covered under a VPDES general permit and eight facilities that are covered under a VPDES individual permit that drain to Fairfax County's MS4. In addition, there is currently one facility with a no-exposure certification. Of the 42 permitted facilities, seven are county facilities. As required by the permits, each county facility has developed and is implementing a stormwater pollution prevention plan (SWPPP), which includes spill prevention and response procedures.

a.9) Construction Site Runoff

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.

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).

In 2012 a total of 710 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 reports listing these individual sites were provided on a monthly basis to the Virginia Department of Conservation and Recreation (DCR).

Fairfax County's E&S control program is fully approved by DCR and is implemented by Land Development Services (LDS). In 2012, 26,617 E&S inspections were performed through the county's Alternative Inspection Program on all sites under construction. Those E&S inspections represent 54.7 percent of the 48,622 total site inspections that were performed by Site Development and Inspection Division (SDID) personnel. The site inspections total also includes 2,160 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 2012 SDID wrote 605 "2030" 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 2012 SDID issued 69 violations and 54 of those were later cleared. SDID is working to resolve the remaining 15 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 2012 the branch received 247 total complaints. In most instances, there was either no violation or there was timely compliance if a violation was cited. The branch issued 24 Resource Protection Area (RPA) violations and 38 land disturbance violations. The branch undertook 20 criminal proceedings to ensure compliance, with two proceedings resulting in fines issued by the court.

The county sponsors an annual Land Conservation Awards program to recognize the developers, contractors, site superintendents, and site inspectors who demonstrated an exemplary effort during the past year in the installation and maintenance of erosion and sediment control measures on construction projects and preservation of natural resources (such as trees, wetlands and Resource Protection Areas). In 2012, eight sites were nominated for awards in the following categories: Large Commercial, Small Commercial, Small Single Family Residential and Infill Lot. One Large Commercial, one Small Commercial and one Infill Lot were selected for awards. In addition, one site was recognized as the Best Protected Environmentally Sensitive Site of the year. The 2012 Land Conservation Awards program was held on January 18, 2013, an Outstanding Superintendent, an Outstanding Engineering Firm, and an Outstanding Contractor were also recognized. These awards are valued by recipients in the construction industry and provide incentives to do excellent work. County employees were also recognized with awards for Outstanding E&S County Inspectors and Outstanding E&S County Reviewers.

Residents may report complaints about erosion and sedimentation to the county by phone or through email. 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 the Virginia Department of Environmental Quality (DEQ) on July 24, 2002, in accordance with the permit, and has been updated with each annual report as shown in Attachment 2. Fairfax County is comprised of an area of 399 square miles (land and water) as identified on 436 tax map grids. During the initial five-year permit cycle (completed in 2005), Fairfax County staff field verified the location of the storm drainage conveyance system on each tax map grid, identified storm sewer pipes, outfalls and associated appurtenant structures, and created a GIS-based data layer. The requirements in the plan have been fulfilled and the infrastructure inventory will continue to be updated in accordance with the permit.

During 2012 the GIS inventory was continuously updated with new as-built plans and field verification of system location and components within identified easements. Over 70 as-built construction plans were digitized along with the completion of an infrastructure review project

covering 419 tax grids that confirmed maintenance responsibility, completeness and spatial accuracy. Routine maintenance of the GIS-based stormwater easement database has continued through 2012.

The county continued implementation of its infrastructure inspection and rehabilitation program. Two thousand two hundred pipe segments and 4,000 storm structures were inspected with video and photo documentation in 2012. Under the rehabilitation program, more than 50 miles of pipe were videoed. The videos document the existing structural and service conditions of the interior of the storm drainage system. The inspection efforts represent 292 miles, or 23 percent of the storm drainage network being photographed or screened for obvious deficiencies. The inventory continues to be assessed for ongoing repair of identified deficiencies. In addition, more than 5,100 feet of storm pipe in the county's storm system inventory 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 Stormwater Planning Division (SWPD), the Solid Waste Management Program (SWMP), Fairfax County Park Authority (FCPA) and Northern Virginia Soil and Water Conservation District (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 2012 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 in Attachment 3.

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.l.1).

In 2012 the county selected 106 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 46 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, 23 required follow-up investigations because they exceeded the allowable limit for at least one pollutant. Of the 23 sites that required a retest, 11 have been completed. Upon retesting these sites, seven 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 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 there was no flowing water.

One of the track downs had very minimal flow and the source could not be determined. One of the sites resulted in finding that a building's cooling tower had sprung a leak and was draining down through the roof drains. The cooling tower has since been fixed and the discharge eliminated. Another trackdown resulted in finding that a cooling tower on a second building had its drain pipe left open. The drain has since been closed which has eliminated the discharge. Another trackdown found that an interior water feature of a building had its drain valve accidentally left open. The building engineer closed the valve which resulted in elimination of the discharge. One retest resulted in finding that a T-shirt company located in the City of Fairfax had one of its drains connected to stormwater instead of sanitary. The dye from the company that should have been going to sanitary instead was turning the stream blue. The County and City staff are working with the company to correct the problem. The remaining two trackdowns are from fluoride exceedances and have been followed up to buildings and are assumed to be cooling tower discharges. The remaining 12 trackdowns are currently being investigated and consist of exceedances in pH, copper and fluoride limits.

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/Monitoring was conducted during 2012 using the previously developed "Wet Weather Site Selection and Screening Plan" (2006). Eight sites have been monitored twice each for the analytes listed in Appendix A of the county's MS4 permit and for metals. The preliminary water quality analysis indicates that the runoff from the eight sites is not a significant source of pollutants to the MS4. The Wet Weather Screening Program selected and field screened 20 sites and will monitor a total of 10 sites. These sites were identified in industrial, commercial and other high risk areas and ranked according to the county land use code and potential to contribute pollutants to the MS4.

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).

This part of the permit is satisfied through the Wet Weather Screening Program described in the preceding section, a.12 (b).

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 2012 wet weather water quality monitoring continued at the two water quality monitoring sites, Henderson Road in Occoquan (OQN) and Kingsley Avenue in Vienna (VNA) in accordance with Fairfax County's Watershed Water Quality Monitoring Program submitted on January 24, 2003. Samples were tested for concentrations of nine constituents of concern. Table 1 contains the median, high and low concentrations of each of the nine constituents during the eight-year period from 2005 to 2012.

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 2012, as in 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 2012 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 2012

Constituent	Vienna Median	Vienna High	Vienna Low	Occoquan Median	Occoquan High	Occoquan Low	Differences Statistically Significant?
NH ₃ -N	0.18	0.73	0.00	0.01	0.27	0.00	YES
COD	53	292	22	23	122	0	YES
<i>E. Coli</i>	901	200000	0	583	38000	27	YES
Fecal Strep	6500	129000	100	925	51000	18	YES
NO ₃ +NO ₂ -N	0.73	1.64	0.16	0.42	0.73	0.10	YES
TDS	128	836	51	100	160	71	YES
TKN	1.65	11.30	0.48	0.58	2.41	0.00	YES
TP	0.30	1.61	0.06	0.06	0.80	0.00	YES
TSS	52.50	1207.00	4.90	15.75	485.00	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 2012

Constituent	Vienna Winter	Occoquan Winter	Vienna Spring	Occoquan Spring	Vienna Summer	Occoquan Summer	Vienna Fall	Occoquan Fall	Vienna Annual	Occoquan Annual
NH ₃ -N	0.118	0.002	0.102	0.026	0.087	0.008	0.092	0.007	0.399	0.043
COD	32.839	3.596	32.139	14.810	24.727	3.975	80.754	10.488	170.5	32.9
<i>E. Coli</i>	0.407	0.119	9.837	11.165	90.323	6.989	24.149	6.605	124.715	24.878
Fecal Strep	2.348	0.485	25.669	9.663	67.770	19.920	69.229	6.641	165.086	36.530
NO ₃ +NO ₂ -N	0.323	0.075	0.404	0.113	0.391	0.098	0.407	0.115	1.525	0.402
TDS	94.153	19.562	69.483	25.147	44.123	25.241	92.256	33.437	300.0	103.4
TKN	0.785	0.071	1.565	0.343	0.773	0.164	0.901	0.198	4.025	0.775
TP	0.120	0.006	0.107	0.091	0.151	0.020	0.388	0.047	0.766	0.163
TSS	43.503	2.025	47.525	55.767	45.228	10.848	123.654	24.753	252.9	93.4

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 2012: 39 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 two Coastal Plain reference sites in the Kane Creek watershed of Fairfax County. Of these 39 randomly selected sites, a total of 19 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 39 randomly selected macroinvertebrate sites suggest that approximately 85 percent of the county's waterways are classified as "fair", "poor" or "very poor" condition (23 percent, 31 percent and 31 percent, respectively) based on a decrease in biological integrity of streams. Of the 19 sites sampled for fish, 68 percent were classified as "fair", "poor" or "very poor" condition for fish communities. The monitoring program is part of the framework to evaluate future changes and trends in watershed conditions.

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 2012 the multi-agency trash workgroup (consisting of representatives from the Stormwater Planning Division, Division of Solid Waste, Northern Virginia Soil and Water Conservation District and Clean Fairfax Council) continued to test and refine the Trash Assessment For Improved Environments (TAFIE) stream condition assessment protocols and data forms. As part of a cooperative effort to evaluate litter problems prior to a stream restoration project in Flatlick Branch, NVSWCD completed a TAFIE survey in a 100-foot reach within the project site. Surveyors counted 193 pieces of trash, mostly plastics. Six bags of trash were removed. Valuable information about the types and probable sources of trash was also recorded. Phase I of this stream restoration project will be occurring in 2013. The workgroup plans to reach out to retailers/vendors located near the site to raise awareness of the litter issue and encourage support for the upcoming restoration project.

Other TAFIE assessments conducted in 2012 included sites at Accotink/Royal Thomas Way (spring and fall), Providence REC Center (spring and fall), Huntley Meadows (spring) and Shaw Park Court (fall).

During 2012 the workgroup outlined a public education plan for TAFIE for 2013. Requested 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:

- “Report a Litterer” reports (via anonymous fill-in form at Clean Fairfax website or the “Report a Litterer” hotline – 106
- Total number of clean up events either planned or supported – 67
- Total number of volunteers at clean up events – 2,343
- Total number of volunteer hours – 6,652
- Cubic yards of garbage collected – 1,004

The county continued to provide support and staff for various stream and river cleanup events. In the spring of 2012 approximately 110 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 the Department of Solid Waste’s SCRAPBook and the Fairfax County Park Authority’s Parktakes Magazine, as well as on the internet. Staff from the Stormwater Planning Division, Division of Solid Waste, Wastewater Management Division, Fairfax County Park Authority and the Northern Virginia Soil and Water Conservation District participated in these cleanups. More than 2,270 volunteers removed an estimated 49,475 pounds of bagable trash and 21,285 pounds of bulk trash. An estimated 11,315 plastic shopping bags were counted.

According to Clean Virginia Waterways, a total of 801 volunteers participated in the International Coastal Cleanup in Fairfax County during September and October 2012. At 36 sites, 17,421 pounds of trash and marine debris were removed. Plastic bags, beverage bottles, food wrappers and containers, and litter from recreational activities and fast food consumption (i.e. cups, plates, forks etc.) were the most commonly collected trash items in the county.

The Fairfax County Park Authority organized and/or assisted with a number of stream cleanups in 2012:

- Riverbend Park: three watershed cleanups with a total of 140 people
- Fairfax Trails and Streams cleaned Pimmit Run stream valley on a regular basis along with two big cleanups spring/fall.
- Burke Lake Park: High school cross country teams organized a lake shore cleanup day and collected approximately 50 bags of lake shore trash. Several patrons also collected lakeside trash.
- Lake Accotink Park: Staff organized two Watershed Clean-up Days on April 14 and October 13, 2012. The two cleanup days attracted more than 130 volunteers. The Mobile Crew removed 17.9 tons of debris from the lake at the marina in April. They removed 40.5 tons from the lake at the marina in November. Throughout the year, the park supported numerous individual and small-group volunteers who collected trash in the park. Friends of Accotink Creek organizes bi-annual cleanups at twelve points along Accotink Creek, in Fairfax County and Fairfax City parks. Northern Virginia Kayak Club conducted an Earth Day clean-up; they went out on their kayaks and removed litter from the lake.
- Huntley Meadows Park: Over 100 bags of trash were removed from the park during five separate stream cleanups in 2012 that included Dogue Creek, Barnyard Run and Little Hunting Creek watersheds.

NVSWCD and Division of Solid Waste assisted in a cleanup of Little Hunting Creek in April 2012 where 139 volunteers picked up 245 bags of trash, 27 tires and 49 shopping carts.

The county continued to promote the “Adopt a Stream” program. The Stormwater Planning Division 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 the Department of Conservation and Recreation 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 DCR outlining the commitments of each jurisdiction and upon DCR issuing a new permit. In 2009 the county and Public Schools drafted a memorandum of understanding outlining the roles and responsibilities of each jurisdiction that pertain to specific requirements of the MS4 permit. In 2012 both parties continued to monitor changes in the county’s draft permit requirements which may impact specific terms of the MOU.

In 2012 the county continued to implement the existing MS4 program per its current Phase I permit. Likewise, Fairfax County Public Schools continued to implement its existing Phase II permit (VAR040104). Public Schools completed and submitted its Annual Report to DCR in August 2012.

The County’s MS4 Program was inspected by EPA on June 8 and 9, 2011 and received an administrative order (AO) from EPA on November 1, 2012. The AO directed the County to take steps to address aspects of the Industrial and High Risk Runoff and Construction Site Runoff inspection programs. The County responded to the AO on November 30, 2012 and identified the following steps that have been initiated to attain compliance with paragraphs 21.a. and 21.b. of the AO.

21.a. The respondent shall immediately take steps to ensure that inspectors identify sources of pollutants, and assess management practices for controlling pollutants from Industrial & High Risk Runoff discharges that may enter the MS4.

- A team comprised of the following County agencies has developed a draft standard operating procedure (SOP) to identify and control pollutants in stormwater discharges to the MS4 from Industrial High Risk Runoff (IHRR) facilities:
 - Department of Code Compliance
 - Department of Information Technology
 - Department of Public Works and Environmental Services
 - Land Development Services
 - Solid Waste Management
 - Stormwater Management
 - Wastewater Management

- Department of Vehicle Services
- Fire and Rescue Department
- Health Department
- Office of the County Attorney
- A database of industrial and high-risk facilities that have the potential to discharge to the County's MS4 has been developed and will be used to prioritize inspections associated with the IHRR program. The database includes facility type, watershed, location, priority classification, contact information, existing permit information and proximity to an impaired waterway, and is geocoded so that all facilities have been mapped in a geographic information system (GIS) layer.
- A spreadsheet has been developed and is being used to track discharge monitoring reports (DMRs) that are submitted to the County from facilities holding Virginia Pollutant Discharge Elimination System (VPDES) permits for discharges of stormwater associated with industrial activity.
- As part of the Fiscal Year 2013 budget which began on July 1, 2012, the Board of Supervisors approved the addition of two new positions for the purpose of conducting IHRR inspections. The County is in the process of filling these two IHRR inspector positions.
- New educational materials are being developed to assist other County agencies with recognizing and reporting IHRR during their inspections.

21.b. The respondent shall immediately take steps to ensure that inspectors fully and accurately document their observations concerning compliance or non-compliance and any changes they make to erosion and sediment control plans during construction site inspections.

Item 18 of the AO states that the Virginia Erosion and Sediment Control Handbook (VESCH) requires that inspection reports contain comments about compliance or non-compliance. While the VESCH does not specify how inspections should be documented, and DCR has found the County's erosion and sediment control program to be fully consistent with Virginia Erosion and Sediment Control Law and Regulations, the County is taking action to ensure that erosion and sediment control inspections during construction are documented more consistently. This action includes the following steps:

- The site inspection database (Site Inspections 2000 or SI2K) is being updated to require an entry from the inspectors for location information and comments regarding compliance or noncompliance for erosion and sediment control inspections.
- Chapter 2 of the Inspector's Handbook (SI2K User Manual) will be updated to require documentation in SI2K of location information and comments regarding compliance or noncompliance.
- Chapter 4 of the Inspector's Handbook (Erosion and Sediment Control) will be updated to include the following:
 - Require documentation in SI2K of any verbal communications regarding erosion and sediment control inspections.
 - Require comments in SI2K and specify the content of the comments for erosion and sediment control inspections.
 - Require the inspector to revise his/her copy of the plan regarding any minor changes in the erosion and sediment control features made during construction. Major revisions

currently require formal submission of a plan revision, and are reviewed by County engineering staff and appropriate outside agencies for compliance with state and local regulations.

These revisions to SI2K and the Inspector's Handbook will be followed by annual training with the inspectors to ensure that revisions result in a change in practice in the field.

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 the Department of Public Works and Environmental Services, nor have other agencies tracked the resources they have expended on programs that contribute towards meeting MS4 permit conditions. For calendar year 2012, the total expenditures in the Stormwater Management business unit from January 1, 2012, through December 31, 2012, 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 2013 budget, the Board of Supervisors approved a stormwater service district levy of \$0.020 (two cents) per \$100 of assessed real estate value to support both staff operating requirements and stormwater capital projects. The stormwater service district will generate approximately \$39.7million in FY 2013 that will be dedicated to funding the entire stormwater management program.

e) Identification of water quality improvements or degradation

As the county approaches build-out, we 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 Stormwater Planning Division office, Fairfax County Public Libraries, and Board of Supervisors District offices. Digital copies are available upon request from the Stormwater Planning Division and are available online at <http://www.fairfaxcounty.gov/dpwes/watersheds>.

Attachment 2: Storm Sewer Infrastructure Management Plan and Schedule

Year of Measurement	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Number of Tax Maps Field-verified During the Year	87	65	69	217	57	83	66	46	122	76	67
Number of Tax Maps Digitized During the Year	87	114	90	145	0	0	0	0	0	0	0
Total Number of Updated Tax Maps (Field-verified and Digitized)	174	179	159	362	134	176	156	118	283	268	258
Number of Tax Maps Remaining To Be Digitized	349	235	145	1	0	0	0	0	0	0	0
Number of Easements Completed (Tax Maps)	N.A.	N.A.	N.A.	15	60	91	230	40	0	0	0
Miles of Storm Sewer Pipes Videoed (by CCTV)	N.A.	N.A.	N.A.	N.A.	43	50	N.A.	10.1	67	17.1	56.8
Tax Maps Reviewed for Storm Structure Maintenance Needs	N.A.	88	66								

N.A means “not applicable.”

Zero (0) indicates that the task has concluded so no additional work was performed during the calendar year.

Attachment 3: 2012 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
Stormwater and Solid Waste Management Presentations	Watersheds, management of stormwater and solid wastes	High school students	550 students (11 presentations)	Stormwater Management (STW), Solid Waste Management Program (SWMP)
Sewer Science Laboratory	Distinguishing between storm drainage versus sanitary sewer systems	High school students	1,219 students (12 high schools, 44 classes) Demonstrated Sewer Science lab at the three-day 2012 USA Science & Engineering Festival attended by more than 150,000 people	Wastewater Management (WWM)
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)	>2,000 students, >170 adults	Fairfax County Park Authority (FCPA)
Homeschool Watershed Programs	Watersheds	Students	30 children (two programs with 15 children each day)	FCPA
"Rain On My Watershed" School Program	Watersheds	Students	300 students (five programs)	FCPA
"Wetlanders" Summer Camp	Watersheds	7- to 9-year-old children	14 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	638 students from nine schools	FCPA
Johnnie Forte Environmental Grant Program	Annual grants to support environmental projects	Public schools	12 \$500 Environmental Education and Action grants awarded to Fairfax County Public Schools (10 elementary schools and one high school) and one Girl Scout group.	Clean Fairfax Council (CFC), SWMP
"What's That Stuff in the Stream?" Web Page Update	Illicit discharge recognition and reporting	General public		Stormwater Planning Division (SWPD)
Storm Drain Marking Program	Stewardship, nonpoint source pollution, proper disposal of wastes	General public	25 projects, 3,059 storm drains, 10,000 households educated, 500 volunteers contributing 2,500 volunteer hours	Northern Virginia Soil and Water Conservation District (NVSWCD)
Podcasts (aired on Fairfax County website)	Fats, oils and grease (FOG); pet waste, litter, fertilizers	General public	350 listeners per program	Department of Public Works and Environmental Services (DPWES)
Public Service Announcements (County website, television and YouTube)	Plastic bags, "Stormy the Raindrop" watershed education, cigarette butts, flood prevention	General public	9,000 views	DPWES, Fairfax County Channel 16

Public Education Effort	Topics Addressed	Audiences	Statistics	Lead Organizations
Fairfax County's Environmental Facebook Page	Water quality, trash in streams, "Friends of Trees," water reuse, rain barrels, stream restoration	General public	338 "Likes"	DPWES
SlideShare PowerPoint Presentations (online)	Stream restoration	General public	425 views	DPWES
Staff Interviews (Local and National Media)	Stormwater tax district, water quality, the sewer science program, Chesapeake Bay TMDLs, the MS4 permit, illicit discharges, industrial/high risk runoff, drinking water quality, trash and litter, completed projects, rain barrels and more.	General public	Approximately 40 interviews by television, radio and print reporters	STW, WWM, Urban Forestry
Blogs	Pet waste, residential gardening, online quizzes and contests to promote readership	Dog owners, gardeners in Metro-DC area	More than 88,000 blog and Facebook page views	Clean Water Partners (CWP)
Radio Ads	Pet waste, general stormwater pollution reduction measures	General public	2 radio ads, aired on 3 radio stations (incl. one Spanish-language) 236 times, 54,563 listeners	CWP
Onlyrain.org Website	Clean water messages	General public	200 visits (as a result of radio ads)	CWP
Watershed Plan Public Meeting	Watersheds, public involvement	General public	40 to 60 participants	SWPD
Enviroscape® Model Presentations	Watersheds	Children	196 students and scouts (eight presentations)	NVSWCD
Wetlands Awareness Day at Huntley Meadows Park	Healthy watersheds	General public		FCPA
Stormy the Raindrop Activity Books	Stormwater, watersheds, stewardship	Children (Kindergarten through 4 th grade)	1,000 books	SWPD
<i>Stormy the Raindrop's Watershed Journey</i> Puppet Show (filmed)	Stormwater, watersheds, stewardship	Children (Kindergarten through 4 th grade)		SWPD, Channel 16
Flood Protection Newsletter and Web Page	Flood prevention	Residents	20,000 residents (newsletter)	SWPD
Volunteer Stream Monitoring Program	Watershed awareness	General Public	25 to 30 volunteers monitored 25 sites four times per year; 532 residents attended 34 workshops	NVSWCD
<i>Conservation Currents</i> Newsletter	Stream health, stream monitoring, stream restoration, stewardship	General public		NVSWCD
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
Stormy the Raindrop Reusable Bag Giveaway	Litter, stewardship	General public	30 distributed at Hunter Mill District community event	SWPD, Hunter Mill District Supervisor's Office
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	SWMP
<i>Electric Sunday</i> Program	Recycling	County residents	4,000,000 pounds of electronics collected over four years of operation	SWMP

Public Education Effort	Topics Addressed	Audiences	Statistics	Lead Organizations
Solid Waste Management Presentations	Solid waste and recycling	Students, community groups, businesses	52 presentations to schools, 45 presentations to community groups and business leaders	SWMP
Solid Waste Management Recycling Web Content	Recycling	General public		SWMP
Solid Waste Management Facility Tours	Solid waste management	General public	35 group tours	SWMP
Regional KnowToxics Program	Federal and state regulations requiring proper disposal or recycling of spent fluorescent lamps, rechargeable batteries, computers and related electronics	Business owners		SWMP, Northern Virginia Regional Commission (NVRC)
Rechargeable Battery Recycling	Recycling	General public	Collection boxes available at County Board of Supervisors' offices and county government buildings	SWMP in collaboration with industry-funded Rechargeable Battery Recycling Corporation Program
SCRAPBook	Compendium of resources dedicated to conducting environment education in schools	Educators		Schools/County Recycling Action Partnership (SWMP, Fairfax County Public Schools)
SCRAPmail	Electronic resource available by email subscription (news, event announcements, updates, reviews of environmental education resources available to county schools)	Teachers, students, school administrators		Schools/County Recycling Action Partnership
Annual <i>Go Recycle</i> Radio Campaign	Recycling	General public	Two weeks of announcements regarding recycling on five major Washington DC radio stations	SWMP, Metropolitan Washington Council of Governments (Fairfax County is a major contributor)
Technical Assistance Site Visits	Drainage and erosion	Homeowners and HOAs	149 site visits	NVSWCD
NVSWCD Website	Managing land, protecting water quality, controlling stormwater, preventing erosion, encouraging native vegetation	Homeowners		NVSWCD
Earth Friendly Suburban Horse Farming Publication	Stewardship	Horse-keeping community	Distributed at events and online	NVSWCD
Conservation Planning	Nutrient management and composting	Horse-keeping operations	Managers of 315.5 acres received education. Fourteen conservation plans included instructions for 4,020 linear feet of new vegetated buffer and 6,395 linear feet of replanted buffers. One plan resulted in 1.5 acres of damaged RPA planted with approximately 520 plants and stream bank re-vegetation using 175 3-foot long live-stakes.	NVSWCD

Public Education Effort	Topics Addressed	Audiences	Statistics	Lead Organizations
"Build-your-own" Composter Workshops	Composting	General public	30 participants constructed 30 tumbler- style composters	NVSWCD
Watershed Friendly Garden Tour (June 2012)	LID practices (that can be adopted at home or area schools)	General public	Nine sites were featured	NVSWCD
Rain Garden Workshops	LID practices	Residents and industry professionals	Educated and trained 59 people	NVSWCD
<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	NVSWCD, FCPA
<i>Residential LID Landscaping Guide</i> (hard copy and electronic formats)	LID, design and installation information, sources of supplies, plant materials	Homeowners	Published	NVSWCD
Northern Virginia Rain Barrel Initiative	LID practices	General public	Eight build-your own rain barrel workshops, four pre-made barrel sales, one "train the trainer" event – 324 participants total, 405 rain barrels distributed	NVSWCD
Artist Rain Barrel Program	LID practices	Students	20 teams of students painted and decorated rain barrels for auction at an Earth Day event	NVSWCD in partnership with Artistic Rain Barrel Program
Clean Fairfax Council Online Information	Litter, environment	General public	50,000 impressions (i.e., web hits, tweets, Facebook)	Clean Fairfax Council
Clean Fairfax Environmental bookmarks	Environment	Children	10,000 bookmarks provided to Fairfax County Library Summer Reading Program	Clean Fairfax Council
Environmental Clubs Pilot Program	Environment	Elementary school students	Group of 10 attending	Clean Fairfax Council
Support to Fairfax County Visitors' Center	Environment	General public	More than 10,000 auto litter bags, brochures and environmental bookmarks	Clean Fairfax Council