

2008 VPDES Permit Annual Report

Fairfax County, Virginia

VPDES Permit No. 0088587

March 9, 2009

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 January 24, 2002 and expired 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, 2008 to December 31, 2008 and describes all of the activities performed to satisfy the county's permit requirements.

Annual Report requirements as specified in Part I.C.4 of the permit are bold and underlined below and the stormwater program requirements as specified in the permit, Part I sections B.1, C.1, C.2 and C.3 of the permit are in italics under the applicable annual report section.

NOTE: Fairfax County's response to the annual report and permit requirements are indented.

a) Watershed Management Program Implementation

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

Watershed management plans are one component of the Virginia Pollutant Discharge Elimination System Permit requirements and are part of the Fairfax County Board of Supervisors' Environmental Agenda. The goals of the plans include protecting and restoring county streams by identifying strategies to prevent and remove pollution, to support Virginia's commitment under the Chesapeake Bay 2000 Agreement, to help restore the bay, and to replace the current 1970s-era watershed master plans, while preserving property values.

The watershed management planning process includes the following tasks: 1) review and synthesis of previous studies and data compilation; 2) evaluation of current watershed conditions and projection of stormwater runoff from ultimate development conditions; 3) development of non-structural and structural watershed management projects to improve streams; 4) development of capital project implementation options including preliminary cost estimates, cost/benefit analysis, and prioritization; 5) public involvement to gain input, provide education, and build community support ; and 6) documentation of the watershed management plan. Completed watershed plans provide an assessment of watershed conditions, encourage public involvement, and prioritize recommendations for implementation of stormwater management projects.

The development of comprehensive watershed management plans began in 2003 with the Little Hunting Creek Watershed. To date, six watershed management plans have been completed and adopted by the Fairfax County Board of Supervisors (Attachment 1). Combined, these six plans cover more than 50 percent of the land area in the county. Adopted watershed management plans are being implemented. Qualifying projects from the plans are included in Fairfax County's pro rata share program through which funding is collected from the development community to help offset the costs of implementing stormwater controls necessitated by development and redevelopment.

In 2008, work on watershed management plans for the remaining 50 percent of the county continued. The watershed plans are anticipated to be completed by 2010.

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 2008, the county inspected 1,193 county-maintained stormwater management (SWM) and best management practice (BMP) facilities at least once, which represents approximately 96 percent of the 1,237 existing facilities in the inventory at the start of 2008. For practical maintenance considerations, the county has inspected these facilities annually in recent years. This complies with the permit requirement to inspect all county-maintained facilities once during the term of the permit. The county inspected 585 of the 3,164 privately-maintained facilities in 2008 with the goal of inspecting all privately-maintained facilities at least once during the permit cycle as required by the permit.

Records of these activities are maintained by the Maintenance and Stormwater Management Division of the Department of Public Works and Environmental Services.

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

During 2008, the county cleaned and/or mowed 1,027 dam embankments, including 35 regional ponds which were maintained four times each over 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 from the control structure and deposited offsite. The cleaning helps keep the facility functioning properly by conveying water and performing the BMP function as it was designed. The county completed 314 maintenance work orders to correct deficiencies in publicly maintained SWM/BMP facilities. In addition, the county inspected 338 miles of the 1,400 miles of county-maintained storm sewer system (pipes) for deficiencies and wrote 362 orders to correct deficiencies, all of which were completed.

The Maintenance and Stormwater Management Division of the DPWES maintains public SWM and BMP facilities and keeps records of its maintenance activities.

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 Environmental Quality Corridor (EQC) policy in the Policy Plan volume of the county's Comprehensive Plan does not directly address stormwater discharges, but it recommends the preservation and restoration of areas such as floodplains, steep slopes adjacent to streams or floodplains, wetlands connected to stream valleys, minimum stream buffers (variable in width depending on topography), and sensitive habitat areas. While there is no county regulation requiring EQC protection, the application of the EQC policy during the zoning process has been effective in protecting, and in some cases restoring, environmentally-sensitive areas.

On February 25, 2008, the Board of Supervisors adopted an amendment to the Policy Plan to strengthen Comprehensive Plan guidance regarding the protection and restoration of streams and associated buffer areas along stream channels upstream of Resource Protection Areas and Environmental Quality Corridors. This new guidance augments the EQC policy by explicitly encouraging stream and buffer area protection and restoration in these headwaters areas.

The Comprehensive Plan, as amended in 2000, 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. This support helps staff to negotiate for measures such as reductions in proposed impervious cover and the provision of biofiltration facilities (rain gardens) to provide water quality control through infiltration.

The Environment and Development Review Branch of the Department of Planning and Zoning (DPZ), in coordination with other DPZ staff and staff from other county agencies, reviewed 54 rezonings and related applications (e.g., amendments), 68 special exceptions and amendments, and 168 special permits in fiscal year 2008 for environmental considerations.

There are currently four full-time professional positions in the Environment and Development Review Branch, DPZ, devoted to environmental planning. Additional staff resources from other DPZ branches or divisions will occasionally address water quality issues. The branch provides a full range of environmental review, and does not track stormwater efforts independently from other environmental efforts.

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 county is responsible for maintaining approximately 5 miles of road segments and the parking lots of roughly 100 public facilities such as government centers, libraries, fire stations, police stations, health centers, bus transit facilities, park and ride lots, and commuter rail stations. In an effort to limit the discharge of pollutants from parking lots into the county's streams, the county provides sand and chemical treatment (e.g., magnesium chloride) only when dictated by safety and sweeps the material from parking lots after the winter season. Annual parking lot sweeping typically begins in March and continues until each county site has been thoroughly swept. In 2008, the county removed approximately 177 cubic yards of material from 95 sites (totaling nearly 159 acres) through its parking lot sweeping program. The parking lot at one other site, a fire station, was cleaned by Fire and Rescue Department staff.

a.4) Retrofit

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).

In 2008, the county retrofitted 14 existing stormwater management facilities to provide enhanced water quality benefits. Twelve projects were part of a countywide effort to retrofit ponds with new galvanized trash racks and BMP plates. The retrofits were designed to reduce the discharge of floatables downstream and maintain the functionality of the ponds. A non-functioning dry stormwater management pond at South Run RECenter was repaired and expanded to reduce peak

flows and phosphorus loading during storm events. Dredging of Lake Accotink began in 2006. Approximately, 195,000 cubic yards of material was removed by project completion in September 2008. The project included enhancement of existing wetland and creation of over one acre of wetland.

The county maintained four other ponds in 2008. The county removed a total of 374 cubic yards of sediment from three ponds in the Compton Heights and Foxfield communities to restore pond capacity. The principle spillway pipe was repaired on a fourth pond at Huntsman Lake.

Retrofit documentation is maintained by the Maintenance and Stormwater Management Division and the Watershed Projects Implementation Branch of DPWES as well as Fairfax County Park Authority.

The Regional Stormwater Management Plan (adopted 1989) currently identifies 150 sites for building regional ponds that would control stormwater runoff to reduce peak flow rates, prevent erosion and flooding, and improve water quality. Although innovative stormwater management practices are being explored and applied throughout the county, construction of regional ponds continues to be an option used by the county to retrofit areas needing stormwater controls. In 2008, one new regional stormwater management facility was substantially completed, which provides water quality control for 344 acres. Facilities in Fairfax County's Regional Stormwater Management Plan program are tracked and documentation is maintained by the Stormwater Planning Division of DPWES.

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).

The county has developed and distributed to agencies that are involved in the administration of public rights-of-way, parks and other municipal properties a draft document containing Fairfax County Nutrient and Pesticide Management Plans as part of the continued collaboration between the County agencies to implement nutrient and integrated pest management practices. The Nutrient Management Plan (NMP), the Site Specific Nutrient Management Plan Content document and the Integrated Pest Management (IPM) plan, are intended to meet Fairfax County's Virginia Pollutant Discharge Elimination System (VPDES) Phase I, Municipal Separate Storm Sewer System (MS4), permit requirement to "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." These plans provide a basis for site specific NMP and pest specific IPM plans.

These plans were developed using the previously developed "Guidelines for Nutrient Management" (2006) and "Guidelines for Integrated Pest Management" (2006) as well as a summary document entitled "Summary of Pesticide, Herbicide, and Fertilizer Use in Fairfax County and Recommendations for Alternatives" (2006). These guidelines and the summary document provide the following: 1) information on how much and what type of pesticides, herbicides and fertilizers are applied by the county to public rights-of-way, parks and other municipal property in the county; 2) encouragement to reduce the discharge of pollutants related to the storage and application of pesticides, herbicides and fertilizers applied in the county; 3) recommendations for nutrient management; 4) guidelines and information on the specific

practices appropriate to developed landscapes, lawns and turf, and pesticide handling; and 5) discussion and examples of the Integrated Pest Management (IPM) approach.

Many agencies in the county 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 training and certification guidelines, the Virginia Department of Agriculture's guidelines for certification and training of pesticide applicators, and the Virginia Pesticide Control Act, 2006. In addition many agencies are also collecting information on the application rates and total annual usage of pesticides, herbicides and fertilizers (PHF).

The county conducts site inspections and soil tests prior to any application of pesticides, herbicides or fertilizers. In addition the county uses natural landscaping where ever possible.

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 No. 12 below for dry weather screening):

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

The Fire and Rescue Department's (FRD) Hazardous Materials and Investigative Services section aggressively 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, and issues criminal citations during the investigations of hazardous materials incidents. 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 entry 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 2008, 251 miles of old sewer lines and 11 miles of new sewer lines were inspected, resulting in the identification of sanitary sewer lines and manholes needing repair and rehabilitation. In 2008, approximately 69,804 feet of sanitary sewer lines were rehabilitated, bringing the total length of sewer lines repaired over the past ten years to 1,262,329 feet (252 miles).

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 2008, one Extension and Improvement project was completed consisting of 3,266 linear feet of eight inch sanitary sewer, 73 grinder pumps, and 19,500 linear feet of force main, and providing sanitary sewer connections to 112 existing homes.

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 Fire and Rescue Department responds to all 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 or another system, such as VDOT's). The department's Hazardous Materials and Investigative Services (HMIS) 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. HMIS also maintains a contract with a major commercial hazardous materials response company to provide additional containment and clean-up support for large-scale incidents.

In 2008, HMIS received 415 complaints. Approximately 340 of the complaints involved the actual release of various petroleum or chemical substances. Of the 340 releases, 243 involved the release of either diesel fuel (45), home heating fuel oil (63), gasoline (48), motor oil (42), or hydraulic oil (45). Other releases investigated involved antifreeze, paint, sewage, mineral oil, and mercury. Storm drains were involved in 43 of the releases.

In both emergency and non-emergency spills that reach the MS4, HMIS enforces appropriate codes and ordinances to ensure that responsible parties take appropriate spill control and cleanup actions to protect and restore the environment, as well as to recover costs incurred by the county for initial emergency response to the incident.

HMIS 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, HMIS, 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. HMIS then monitors the discharge for the duration of the agreement. In 2008, the Hazardous Materials Technical Support Branch of HMIS started the year with 50 oversight files. During the year, 49 new oversight files were opened, and 42 were closed. Most of these oversight files involve contaminated underground storage tank sites. A few of the sites have been monitored for over 15 years. Fifty-seven oversight files will be carried into 2009.

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).

The county has not located any new or unidentified industrial facilities that discharge directly into the county's MS4.

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

Fairfax County's Division of Solid Waste Disposal and Resource Recovery (DSWDRR) operates two landfills on county property that are covered under a VPDES General Permit: the I-95 Landfill located at 9850 Furnace Road in Lorton (registration number VAR051076) and the I-66 Transfer Station/Closed Landfill located at 4618 West Ox Road in Fairfax (registration number VAR051074). Both permits expire on June 30, 2009.

The final phase of the I-95 Closure Project was completed during the summer of 2007 and certified by the Virginia Department of Environmental Quality. An engineered cap covers 250 acres of the portion of the landfill containing municipal solid waste. Stormwater is managed more efficiently and infiltration is reduced significantly, in turn providing for less generation of leachate. The final cover system also minimizes the need for post-closure maintenance.

Phase IIB of the I-95 Area Three Lined Landfill Project continues to accept ash from the Energy/Resource Recovery Facility (E/RRF) located at the I-95 Complex and a similar facility in Alexandria. This 7.5-acre cell will likely be filled in 2009. It consists of a bottom lining system that includes two feet of low-permeability soil, a double synthetic liner (60-mil HDPE) system, and a leachate collection and detection system. In 2009, intermediate protective cover will be placed over significant portions of the filled areas to minimize leachate production, and design work on an additional final cap for portions of Phase IIB will begin.

Phase IIIA, a new 7-acre cell consisting of three different liner systems and a composite drainage network to transport leachate, was opened in September 2008. It is covered with a rain cap laid over a protective soil layer (protecting the liner system). Approximately one acre of rain cap was removed to allow for placement of ash on a full time basis. Leachate from the new ash filling area is collected by drainage standpipes that tie directly into the leachate collection trench. Stormwater is separated from leachate by soil berms and rain cap.

Stormwater improvements at the I-66 Transfer Station continued in 2008 with the ongoing construction of the new Citizen's Disposal Facility (CDF). Stormwater coming into contact with disposal activity is being collected by numerous new stormwater inlets and a new drainage network built into the asphalt pad. The stormwater retention pond constructed in 2007 is now tied into the new drainage system and is fully functional. Final tie-ins of the new drainage system with the existing drainage system will be completed in 2009.

Training in pollution prevention is provided for facility staff. Pollution Prevention Plans are maintained at each facility and are updated when conditions change. Additionally, spill kits are readily available at each location.

Staff performs quarterly visual inspections of the stormwater outfalls located at the I-95 Landfill and the I-66 Transfer Station/Closed Landfill. Annual benchmark sampling is performed during the monitoring year. Water quality tests conducted to satisfy VPDES permit conditions have shown satisfactory results. Test results and inspection reports are maintained on file at the facility's administration offices. The costs for the required VPDES monitoring, testing, and other related activities are included as part of the operating budget for each facility and are not funded separately. This is because most of the activities required by the VPDES permit are also required under the operating permits granted by VADEQ.

DSWDRR incurs other costs not directly associated with stormwater management but of importance to the stream environment. Annual VPDES expenditures are estimated to be \$180,000 for the I-95 facility and \$90,000 for the I-66 facility (closed).

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 2008, a total of 670 Erosion and Sediment Control (E&S) plans were submitted and approved for projects that would disturb a land area of 2,500 square feet or more. Written reports were provided to Virginia Department of Conservation and Recreation (DCR) informing them of these individual sites on a monthly basis.

Fairfax County's Alternative Inspection Program, established in cooperation with the DCR, resulted in 32,168 E&S inspections in 2008 on all sites under construction. Staff issued 670 'notices to comply with the approved plans' noting the deficiency found in each case and the respective corrective action required. There were 188 notices of violation given to developers who failed to take the required corrective action. Criminal proceedings were started in 16 cases. The county's E&S program is fully approved by DCR.

In April 2008, the county in conjunction with the Heavy Construction Contractors Association conducted an Erosion and Sediment Control Forum for developers, contractors and engineers. The focus of the forum was to update participants with current and new E&S regulations on land development projects.

Several E&S control training sessions for citizen and Home Owner Association groups were conducted by county staff in 2008. In 2008, a class for the Engineers and Surveyors Institute was held on E&S control design, installation, inspection and maintenance considerations. This class was conducted for practicing engineers and local municipal agencies working in land development.

The county sponsors an annual Land Conservation Awards program to recognize the developers, contractors, site superintendents and site inspectors who demonstrated an exemplary effort in controlling erosion and sediment on construction projects during the past year. Each year, the Northern Virginia Soil and Water Conservation District fields a team of judges who inspect sites that were nominated in the spring and fall. The following January, awards are presented for outstanding single family residential, commercial, infill, linear, and special development projects, as well as for best protected environmentally sensitive area,. These awards are valued by recipients in the construction industry and are an incentive to do excellent work. In 2008, fifteen projects were nominated, and six received awards (one of the six projects received awards in two categories). Seven individuals and one engineering firm were recognized for their work. The 2008 Annual Land Conservation Awards program was held on January 23, 2009.

A 24-hour hotline established by Department of Public Works and Environmental Services continues to be a means for citizens to report complaints about erosion and sedimentation. More information is available with regard to reporting environmental concerns or possible violations of Fairfax County Environmental Regulations at DPWES' Web site:

<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 permit, and has been updated with each annual report (Attachment 2). The requirements in the plan have been fulfilled and the infrastructure inventory will continue to be updated in accordance with the permit.

The inventory of stormwater management and storm sewer facilities is tracked through the use of the county's Geographic Information System (GIS). The county's 400-square-mile jurisdiction is currently divided into 436 tax map grids. The documented inventory of storm drainage infrastructure has been digitized in GIS format for management and identification purposes, and the county is continually field-verifying the inventory, verifying ownership, and maintaining/updating the GIS layer.

a.11) Public Education

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

Fairfax County has more than one million residents, and its public education program is an essential component of stormwater management. The program raises awareness about stormwater issues facing the county, educates residents about watersheds and stormwater management, and offers opportunities for residents to become involved in efforts to restore and protect Fairfax County's waterways. Educational presentations also help residents to recognize connections between water quality problems in local streams and impacts on the Occoquan Reservoir, the Potomac River, and the Chesapeake Bay. A summary of the education activities conducted in 2008 follows.

- County employees presented the basics of stormwater management and watersheds to various groups including homeowners' associations, school groups (teachers and students), civic associations, Fairfax Master Naturalist trainees, Master Gardeners, and Northern Virginia Community College students.
- The county educated and involved residents who would benefit from or be otherwise affected by stormwater management projects proposed for construction in their neighborhoods.
- County employees from Stormwater Management, Solid Waste Management, and Wastewater Management supported Celebrate Fairfax and Fall for Fairfax, two annual events sponsored by the county, with exhibits to raise awareness about environmental issues and encourage watershed-friendly behaviors.
- County employees conducted public outreach at Board of Supervisor's town meetings, resource fairs and environmental fairs.
- Fairfax County participated as an exhibitor and environmental educator at the Boy Scout Camporee at Lake Fairfax Park.
- Solid Waste Management provided financial and operational support for the annual Earth Day/Arbor Day event at Northern Virginia Regional College, and had a booth at the event to educate about recycling practices in the county.

- Huntley Meadows Park staff (FCPA) held their annual Wetlands Awareness Day to educate citizens on the importance of maintaining healthy wetlands.
- Stormwater Management continued to air podcast messages through the county web site for a weekly audience of about 350 listeners on topics such as general lawn care, erosion and sediment control, and illegal dumping to storm drains.

Fairfax County continued to provide opportunities for public school students to learn about watersheds. The following programs were continued in 2008:

- Approximately 14,000 seventh grade students took a course titled "Investigations in Environmental Science." Students studied basic ecology concepts and how to apply them to their local watershed and the Chesapeake Bay ecosystem. Stormwater Management partnered with Fairfax County Public Schools to implement the Meaningful Watershed Field Experience (MWFE) Program, which incorporates field trips for the seventh grade class and creates a hands-on learning experience that calls for the students to collect data on and analyze a variety of water quality parameters. Stormwater Management trained Life Science teachers in the county's water quality monitoring techniques and program; local, state, and federal policies surrounding watershed protection; and stewardship opportunities offered by the county for teachers and students.
- A course in geosystems includes a section on the hydrologic cycle and a study of the effect of economic and public policy on natural resources. This course exposes students to specific environmental projects across the county.
- Students in advanced courses in biology and environmental science complete school-based projects that examine geomorphologic changes, nonpoint source pollution and stream monitoring.
- Fairfax County's Stormwater Management, Wastewater Management, and Solid Waste Management programs partnered to implement a Sewer Science program for high school students. The program promotes an understanding of stormwater, its relationship with wastewater and solid wastes, how the water and the land are connected, and how each individual can make a difference in the health of the environment. In 2008, about 50 presentations were made to over 691 students in nine schools, with audiences ranging from individual classes to entire schools.

The Fairfax County Solid Waste Management Program (SWMP) plays an important role in protecting surface water resources through its outreach efforts to promote responsible waste management practices. The SWMP supports education of residents and businesses about how they can reduce the volume of waste generated, dispose of it properly and recycle more of it. Education is conducted in a variety of forums as described below:

- The SWMP is responsible for the county's Household Hazardous Waste (HHW) Management Program where residents are provided the opportunity to properly dispose of hazardous waste (such as used motor oil, antifreeze and other automotive fluids) at no charge instead of pouring it down a storm drain or placing it in the trash. The program is supported by funding generated by the SWMP at a cost of about \$600,000 each year. The SWMP has two permanent HHW facilities and five roving HHW collection events at various locations around the county to encourage the use of the program.
- Plans are in progress to ensure that compact fluorescent lamps (CFLs), other fluorescent lamps and televisions with cathode ray tubes are appropriately managed. County residents were able to take CFLs and other fluorescent lamps to either of the county's HHW facilities at no charge or to any of the five one-day HHW collection events SWMP hosted around the county in 2008. The SWMP prepared an educational brochure about the lamps and made the publication available online. Nine electronics recycling events were conducted in Fairfax County in 2008. Since 2002, the program has kept over 1,000

tons of obsolete electronics out of the county's energy-from-waste facility, preventing the potential for the dispersion of pollutants in the air or their discharge to surface waters.

- The SWMP continues to work closely with the Northern Virginia Regional Commission on a regional public information program entitled "KnowToxics," to educate business owners about their responsibility to comply with federal and state regulations that require proper disposal or recycling of spent fluorescent lamps, rechargeable batteries, computers and related electronics.
- In 2008, the SWMP continued a rechargeable battery recycling program, in collaboration with the industry-funded Rechargeable Battery Recycling Corporation Program to make collection boxes available at offices of all members of the Fairfax County Board of Supervisors and at major county buildings.

In partnership with the Northern Virginia Regional Commission and surrounding jurisdictions, Fairfax County implemented a region-wide radio outreach campaign to raise awareness among residents about harmful non-point source pollutants and actions residents can take to help protect the water quality of local streams and the Chesapeake Bay. Calendar year 2008 marked the fourth consecutive year of the campaign, with "The Call" radio advertisement airing 1,064 times on eight radio stations, including one Spanish-speaking station. A statistically-designed telephone survey conducted before and after the campaign revealed the following about the overall reach of the effort and the effectiveness of the ad at changing behaviors:

- Ninety-six percent of the respondents stated that the role of individuals in maintaining water quality is "very" or "somewhat" important.
- Among residents who heard the ad (48 percent of the sample), 15 percent said they were more careful with fertilizer and 11 percent said they picked up after their pet more often after hearing the ad.
- Eighty-one percent of people hearing the ad said they thought it would be effective in changing behavior.
- Consistent with the 2007 survey, one in three residents stated that they fertilize their lawn. However, less than a quarter of the respondents have ever tested their soil prior to applying fertilizer.

In addition, the partners continue to promote complementing print, video- and web-based products (www.onlyrain.org) to aid in raising the awareness of Northern Virginia residents about behaviors that contribute to non-point source pollution and the actions residents can take to protect local and regional water quality.

The cost of the 2008 campaign was \$181,500, which was funded by 14 local governments and sanitary and drinking water authorities. Fairfax County's contribution was \$93,450. In addition to the local contributions, the partners received approximately \$300,000 in negotiated unpaid media from the participating radio stations.

In 2008, the Northern Virginia Soil and Water Conservation District continued its popular public education programs, including the Storm Drain Marking Program and the Rain Barrel Program:

- Fiscal year 2008 marked the third year of the county-wide storm drain marking initiative that is staffed by NVSWCD and funded by Fairfax County (at approximately \$12,000/year for plastic markers and glue). The objective of the initiative is to facilitate environmental stewardship among Fairfax County residents and educate the public about non-point source pollution prevention. During each storm drain marking project, volunteers engage in outreach among their peers (e.g., through distributing educational fliers door-to-door), then place the pre-printed labels with a "no dumping" message on their neighborhood storm drains. In calendar year 2008, the Storm Drain Marking Program coordinated 30 projects that placed markers on 2,644 storm drains and educated

28,331 households on ways they personally could take action to protect water quality. Each household received a flyer about the causes and prevention of nonpoint source pollution, and how to properly dispose of used motor oil, pet waste, paint, fertilizer, yard debris and other pollutants. A partnership with the Kingstowne HOA is resulting in ongoing education of its 13,000 homes. In 2008, HOA staff published an article in the community's monthly magazine and organized a project with a Girl Scout troop and resident volunteers that resulted in labeling 132 storm drains in Kingstowne. The district anticipates that Fairfax County will continue to fully fund the storm drain marking initiative in FY 2009, at an annual cost of approximately \$15,000-\$18,000. Therefore, NVSWCD has set a FY 2009 objective of educating 20,000 Fairfax County residents and applying storm drain labels to 3,000 or more storm drains within the county in FY 2009.

- In 2008, NVSWCD coordinated a regional rain barrel initiative for Northern Virginia in cooperation with the Reston Association, Fairfax County Park Authority, Fairfax County Public Schools, Arlington County, the City of Falls Church, the City of Alexandria and the non-profit, Arlingtonians for a Clean Environment. Thirteen "build-your-own" rain barrel workshops and 4 pre-made rain barrel sales were held in Northern Virginia including one free rain barrel workshop for teachers and one "train the trainer" event. Six hundred thirty-seven people participated in these programs, including 35 volunteers, and 806 rain barrels were distributed. Fifty percent of the program participants were Fairfax County residents, and nine of the programs were held within Fairfax County. NVSWCD also staffed a conservation landscaping display, which included information about rain barrels, at fairs and events throughout Fairfax County
- NVSWCD sponsors a volunteer stream monitoring program, which complements the county's stream bioassessment program. Trained volunteers assess the ecological health of streams by using an enhanced biological monitoring protocol and habitat assessment. Approximately 150 monitors collect data at 20 sites four times a year. This data, which is subject to strict quality assurance standards, confirms findings of monitoring done by county staff, and provides trend data and a first alert in areas where the county may monitor only once in five years. The program also builds awareness of watershed issues among the participants.
- During the spring and summer of 2008, the Neighborhood Ecological Stewardship (NEST) Program sponsored a series of hands-on workshops and land and water explorations that provided an opportunity for residents to get to know and love their natural world. Two hundred sixty-one adults participated in the program. Seventy-three organizations, writers, artists and scientists partnered with the NEST program to provide the wide range of experience in the arts and sciences.

In 2008, NVSWCD also completed two low impact development (LID) demonstrations projects, which had a strong educational component:

- The Falls Hill Residential LID Project installed a series of LID practices on one homeowner's property to demonstrate innovative ways to control stormwater. The community was educated at two workshops and an on-site field day. A Handbook, Residential Low Impact Landscaping, was developed and distributed to help homeowners install their own practices. Staff is providing technical assistance to those who want to improve stormwater control on their properties and mini-grants are available to help them get started. (Grant funding paid for the installation of the LID measures, publishing the handbook and the mini-grants.)
- NVSWCD designed, and FCPA installed, a rain garden retrofit in a depression next to the entrance of Audrey Moore Recreation Center. The depression had a drop inlet that took stormwater runoff directly to a storm drainage system. It was retrofitted as a rain garden with 1,600 sq. feet of surface area. It receives 1.8 acres of drainage, which includes the surrounding grassed and fertilized area and .25 acres of parking lot. A drop inlet inside

the parking lot takes runoff to the rain garden, instead of directly discharging the runoff to the storm drain system.

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 2008, the county selected 63 MS4 outfalls for dry weather screening in accordance with the protocol outlined in the Stormwater Management Program Plan (July 2006), and the county recorded physical parameters at each outfall. Water was found to be flowing at 22 of the outfalls, and was tested for a range of pollutants (ammonia, conductivity, surfactants, fluoride, pH, potassium, phenol, copper and chlorine) using field test kits. Of the outfalls tested, five required follow-up investigations because low levels of copper and fluoride were detected. Upon retesting these sites, three 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 a map of storm drainage and a GPS unit to track the network upstream of sites, recording observations of flowing water and land use, and testing the water where flow was found. This procedure was followed all the way up the network of storm sewer pipes until there was no flowing water. A specific source could be found at only one of the three sites, and was identified as a cooling water discharge from the roof of an office building. DEQ was notified of the discharge and they had a subsequent on-site meeting with the building owner who was required to remedy the situation.

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 and industrial high risk monitoring were conducted twice at one site in Fairfax County in 2008. This site was originally identified using the county's GIS data layers and the procedures outlined in the Stormwater Management Program Plan (July 2006) in 2007 as one of seven industrial and commercial facilities with the greatest potential for discharging pollutants. Sampling consisted of automated sampling in a manhole, which enabled calculations for event mean concentrations as well as for first flush sampling for oil and grease and chemical oxygen demand. The water chemistry data indicated that there was not a significant source of pollution in the stormwater from the site according to the Center for Watershed Protection's Illicit Discharge Detection and Elimination Guidance Manual (October 2004) and the Virginia Water Quality Standards (January 2006).

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 2008, four storms were monitored at each of the two water quality monitoring sites, in accordance with Fairfax County’s Watershed Water Quality Monitoring Program submitted on January 24, 2003. Rainfall, flow, and water quality data were collected. Samples were tested for concentrations of nine constituents of concern (see Table 1). Statistical analyses using the Mann-Whitney 2-sample test, Simple Test, were performed to determine if there were significant differences between constituent concentrations at the two stations, as well as seasonal and annual unit-area constituent loadings.

Tests found significant statistical differences for concentrations of seven of the nine of the constituents measured at the two sites: Ammonia Nitrogen (NH₃-N), Chemical Oxygen Demand (COD), Fecal Strep, Nitrate plus Nitrite Nitrogen (NO₃+NO₂-N), Total Kjeldahl Nitrogen (TKN), Total Phosphorous (TP) and Total Suspended Solids (TSS). The differences for the other two constituents were not statistically significant. Results for the 2005, 2006, 2007 and 2008 sampling years appear in Tables 1 and 2. Monitoring will continue in 2009, and the full data set will be used to determine if the observed high variance in constituent concentrations from the medium/high density residential site can be reduced sufficiently to allow detection of statistically significant differences for other constituents. The data set will also support the development of continuous water quality models that provide more refined prediction of water quality loadings.

Table 1 - Results of statistical analysis to determine if there is a significant difference between observed constituent concentrations at Stations VNA and OQN.

Constituent*	Station VNA			Station OQN			Differences Statistically Significant?***
	Median	High	Low	Median	High	Low	
NH ₃ -N	0.21	0.73	0.03	0.02	0.27	0	YES
COD	74	292	22	43	69	2.5	YES
E. Coli	901	200000	18	747	38000	27	NO
Fecal Strep	11400	129000	117	1089	50900	45	YES
NO ₃ +NO ₂ -N	0.72	1.64	0.16	0.45	0.73	0.1	YES

Constituent*	Station VNA			Station OQN			Differences Statistically Significant?***
	Median	High	Low	Median	High	Low	
TDS	128	836	51	101	160	71	NO
TKN	2.01	11.3	0.48	0.57	1.84	0.2	YES
TP	0.37	1.61	0.1	0.06	0.8	0.01	YES
TSS	60	1207	4.9	19	485	1.4	YES

*All constituent units are mg/l, other than *E. coli* and Fecal Strep which are in Colonies per 100 ml.

**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.

Constituent	Unit-area loading *									
	Winter		Spring		Summer		Fall		Annual	
	VNA	OQN	VNA	OQN	VNA	OQN	VNA	OQN	VNA	OQN
NH ₃ -N	0.225	0.005	0.253	0.142	0.148	0.050	0.057	0.013	0.683	0.209
COD	50.354	12.257	84.180	63.621	48.296	13.116	50.869	13.634	233.7	102.6
E. Coli	0.542	0.510	5.881	20.660	149.566	8.550	19.089	13.329	175.078	43.049
Fecal Strep	1.050	2.171	20.032	21.593	106.589	30.554	60.924	12.885	188.596	67.203
NO ₃ +NO ₂ -N	0.542	0.201	0.745	0.531	0.653	0.280	0.221	0.128	2.161	1.139
TDS	148.301	53.888	151.135	98.071	76.961	79.827	51.838	34.397	428.2	266.2
TKN	1.304	0.193	4.645	1.592	1.574	0.535	0.495	0.212	8.018	2.533
TP	0.192	0.015	0.325	0.442	0.301	0.069	0.279	0.075	1.097	0.601
TSS	58.238	4.804	126.215	278.100	103.055	45.308	97.087	39.110	384.6	367.3

*All units are lb/ac, except for *E. coli* and Fecal Strep which are in billion colonies/ac. To compute total loads in lbs or billion colonies, multiply unit-area loading by drainage area of 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 69 sites were sampled in 2008: 40 sites randomly selected within Fairfax County as part of the annual probabilistic monitoring program; 14 trend-monitoring sites in the County; 11 piedmont reference locations in Prince William National Forest Park; two coastal plain reference sites in the Kane Creek watershed of Fairfax County; and two sites monitoring the Kingstowne restoration project. Results from the 40 randomly selected sites suggest that approximately 77 percent of the county's waterways are in "Fair" to "Very Poor" condition based on a decrease in biological diversity. The

monitoring program is part of the framework to establish a baseline to evaluate future changes in watershed conditions.

a.12. (f) Report on the Floatable 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 2008, the Fairfax County Floatables Monitoring Program fulfilled the floatables monitoring requirements of the VPDES permit by continuing to promote the “Adopt a Stream” program and providing support and staff for various stream and river cleanup events. The county distributed copies of its Floatables Monitoring Program Brochure to various public offices and during educational activities and outreach events throughout the county. Approximately 180 brochures were distributed. The brochure was also made available on the Floatables web page. Stream cleanup event organizers were encouraged to record their cleanup information on the Floatables Data Reporting Form (available in the brochure or on the web) and return the completed form to the county. Cleanup data submitted to the county were entered in the Floatables database. Cleanup data were also obtained directly from coordinating organizations and entered in the database. The floatables database was redesigned to improve performance and usability.

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

- The Alice Ferguson Foundation (Potomac River Watershed Cleanup)
- The Virginia Department of Conservation and Recreation
- The International Coastal Cleanup
- The Friends of the Occoquan

In the spring of 2008, there were approximately 111 sites throughout the county established for the Alice Ferguson Foundation’s annual Potomac River Watershed Cleanup. More than 1,620 volunteers removed approximately 1,877 bags of trash and litter. At least 40 stream clean ups were conducted on county parkland. In the fall of 2008, approximately 30 sites were registered within the county for the International Coastal Cleanup.

As in past years, Fairfax County Park Authority sponsored and organized lake and stream valley clean up days in many of its stream valley parks and two of its lake front parks. These day-long volunteer events draw many residents into the creeks, lakes and woods, providing excellent learning opportunities as well as removing large amounts of trash from its streams and water bodies. Also, the Park Authority sponsored programs and hosted citizen groups to do additional stream clean ups and plant or enhance riparian buffers.

The Fairfax County Park Authority administers an Adopting Partners program to encourage stewardship of county parklands. Fairfax Trails and Streams (FTS) is the Adopting Partner for Pimmit Run Stream Valley Park. In 2008, they coordinated large volunteer groups to remove trash and debris during the spring Potomac Watershed Clean Up and again in the fall during Volunteerfest. On a weekly basis, FTS core volunteers clean the stream bed and surrounding grounds, coordinating with Park Authority staff to remove the debris to the landfill and recycling sites. They also monitor the condition of the trail and stream crossings following storms and repair damage as it occurs. Earth Sangha is the Adopting Partner for Marie Butler Leven

Preserve Rain Garden, regularly cleaning the grounds and surrounding drainage area and spring fed stream bed that flows into Little Pimmit Run.

b) Proposed Changes to the Storm Water Management Program

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

The county continued to implement the existing program per the permit.

c) Assessments of controls and the fiscal analysis of the effectiveness of new controls established by the Storm Water 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 Storm Water Management Program and Budget

Department of Public Works and Environmental Services

The county has not tracked expenditures to meet permit requirements separate from its overall stormwater program, nor has it separately tracked the resources other agencies expend on programs that contribute towards meeting MS4 permit conditions. The total expenditures in the Stormwater Management business unit for calendar year 2008 were \$34,650,516. Of this total, the combined operating expenditures for the Stormwater Planning Division and the Maintenance and Stormwater Management Division were \$5,415,979. The capital stormwater expenditures for the Pro Rata Share drainage construction program and the stormwater management program totaled \$29,234,537.

As part of the annual budget, the county Board of Supervisors authorized one penny of the real estate tax to be dedicated to the stormwater management program for FY 2009, totaling \$22.8 million dollars. The Capital program was reduced by approximately \$7.4 million in FY 2009 due to absorbing the General Funded Stormwater and Storm Drainage operations programs. This effectively resulted in the Capital Investment program being reduced to approximately \$15,400,000 in FY2009.

e) Identification of water quality improvements or degradation.

Overall, the stormwater control program has complied with the permit to date. As the county approaches build-out, the county will continue to implement best management practices to control stormwater pollutants, meet regulatory requirements, and achieve holistic watershed restoration and preservation. Efforts include enhanced infrastructure maintenance and inspections, development and implementation of watershed plans, an improved 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 and help meet the goal of restoring the Chesapeake Bay.

ATTACHMENT 1

Status of Fairfax County watershed planning process

<i>Watershed Planning Group</i>	<i>Watershed Name</i>	<i>Total Area (sq. mi.)</i>	<i>Fairfax Co. Area (sq. mi.)</i>	<i>Plan Status</i>
Little Hunting Creek*	Little Hunting Creek	11.0	11.2	Adopted 02/2005
Popes Head Creek*	Popes Head Creek	18.9	18.2	Adopted 01/2006
Cub Run and Bull Run*	Bull Run	9.7	8.4	Adopted 02/2007
	Cub Run	55.3	39.1	
Difficult Run*	Difficult Run	57.7	55.3	Adopted 02/2007
Cameron Run*	Cameron Run	42.0	32.6	Adopted 08/2007
Middle Potomac Watersheds*	Bull Neck Run	2.3	2.3	Adopted 05/2008
	Dead Run	3.1	3.1	
	Pimmit Run	12.6	10.3	
	Scotts Run	6.0	6.0	
	Turkey Run	2.0	2.0	
Little Rocky Run and Johnny Moore Creek**	Johnny Moore Creek	5.3	5.3	Initiated 2007
	Little Rocky Run	7.4	7.4	
Accotink Creek**	Accotink Creek	51.1	37.8	Initiated 2007
Pohick Creek**	Pohick Creek	36.5	34.3	Initiated 2007
Sugarland Run and Horsepen Creek**	Horsepen Creek	23.5	8.8	Initiated 2007
	Sugarland Run	22.5	10.5	
Dogue Creek, Belle Haven and Four Mile Run	Dogue Creek	19.4	13.3	Initiated 2007
	Belle Haven	2.8	2.8	
	Four Mile Run	30.1	2.0	
Lower Occoquan Watersheds**	High Point	6.3	6.3	Initiated 2007
	Kane Creek	4.8	4.8	
	Mill Branch	8.8	8.8	
	Occoquan	3.4	3.4	
	Old Mill Branch	4.4	4.4	
	Ryans Dam	3.6	3.6	
	Sandy Run	8.2	8.2	
	Wolf Run	5.9	5.9	
Nichol Run and Pond Branch**	Nichol Run	7.7	7.7	Initiated 2007
	Pond Branch	8.4	8.4	
* Copies of final approved plans may be found on the specific watershed Web site at www.fairfaxcounty.gov/dpwes/watersheds ** The status of these plans may be found at the above Web site				

VPDES Permit No. VA0088587

Fairfax County Municipal Separate Storm Sewer System (MS4) Permit (Updated 2/13/09)

Storm Sewer Infrastructure Management Plan and Schedule

Permit Requirements - Fairfax County will maintain and update the accuracy and inventory of the storm sewer system that will be accomplished through an infrastructure management plan.

Infrastructure Management Plan - Fairfax County encompasses 399 square miles as identified on 436 tax map grids. Over a 5-year cycle (completed in 2005), Fairfax County has field verified the storm drainage conveyance system on each tax map grid, identified storm sewer pipes, outfalls, and associated appurtenances, and created a GIS-based data layer. The GIS inventory continued to be updated in 2008 by digitizing over 400 as-built construction plans across 90 tax map grids. An additional 500 as-built plans are scheduled to be completed early in 2009. The GIS database of stormwater related easements which was initiated in 2005 was 90 percent complete at the end of 2008. The remaining 40 tax map grids will be completed within the first quarter of 2009.

Infrastructure Rehab Program: Since 2006, Fairfax County developed a Rehab Program that CCTV'd 70 miles of pipe and 4600 structures as well as inspected 5 miles of channels. We designed repairs for 3 miles of pipe and 370 structures. The county is approximately 75 percent through the construction phase of 60 construction rehab projects that totals approximately \$4 million.

Infrastructure Management Schedule

