



DISTRICT OF COLUMBIA

**2008 NONPOINT SOURCE
POLLUTION PROGRAM**

ANNUAL REPORT

March 2009

District of Columbia
Department of the Environment
Watershed Protection Division



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I. Mission and Goals of the District of Columbia's Nonpoint Source Program

The aim of the District of Columbia's Nonpoint Source Program is to establish Washington, DC as an innovator in the prevention and control of nonpoint source pollution in the urban environment. Our Program protects District watersheds from nonpoint source pollution, safeguarding the city's water and soil resources as well as the health and welfare of citizens using those resources. The Program works in partnership with other government agencies, environmental organizations, citizens and private industry to increase stakeholder awareness and involvement in the clean-up efforts along the Anacostia River, Chesapeake Bay and other local waterways. The Program's education and outreach efforts equip city residents with knowledge and tools to help them prevent nonpoint source pollution in their neighborhood streams.

The Nonpoint Source Program has set long-term goals and the short-term milestones that mark progress toward these goals in its *District Nonpoint Source Management Plan II* (2000) aimed at reducing nonpoint source pollution from urban runoff, construction, and hydrologic/habitat modification. They are:

- Support activities that reduce pollutant loads from urban runoff, construction activity, combined sewer overflows and trash disposal for the purpose of attaining present designated uses by 2015 and future designated uses by 2025.
- Support programs and activities that strive to restore and maintain healthy natural habitat, species diversity and necessary base flow to all of the Anacostia River tributaries by 2015 and to all surface waters of the District of Columbia by 2025 by restoring degraded watersheds and preserving healthy ones.
- Coordinate the District Nonpoint Source Program efforts with other District, federal, not-for-profit, environmental advocacy, private sector programs and adjoining jurisdictions to deliver the best possible nonpoint source pollution prevention and control services in the District of Columbia with the resources available.
- Carry out effective information and education campaigns on nonpoint source pollution prevention to targeted audiences who live, work, teach or visit in the District of Columbia and its watersheds, reaching at least ten thousand (10,000) individuals each year.

II. Executive Summary

This annual report is written in response to *Sections 319 (h)(8) and (11) of the Clean Water Act (33 USC 1329)*, for the purpose of documenting progress made in fiscal year 2008 by the District of Columbia in implementing its *Nonpoint Source Management Plan II: Addressing Polluted Runoff in an Urban Environment* (2000).

The District of Columbia's Nonpoint Source Program continues to make significant progress toward achieving its goals. Accomplishments in fiscal year 2008 include the following:

- Regulated construction activities throughout the District by conducting a total of 9,030 inspections. In combination with 361 enforcement actions, this work ensured compliance with the most current stormwater, sedimentation and erosion control laws.
- Completed the third year of vegetation monitoring for the Heritage wetland project.
- Participated alongside P.G. County, Montgomery County, Army Corps of Engineers and Metropolitan Washington Council of Governments in the development of the Anacostia Comprehensive Plan to restore the Anacostia watershed.
- Installed stormwater sampling stations on Oxon Run and Watts Branch to monitor the effectiveness of the upcoming Watts Branch stream restoration project.
- Enhanced environmental education in the District by providing Meaningful Watershed Educational Experiences to 3,591 District school children; conducting the second annual Schoolyard Greening Tour for teachers and residents; hosting several environmental education training sessions for teachers and District of Columbia Environmental Education Consortium members; and providing funding, training and technical support toward the development of schoolyard greening sites at five District schools.
- Installed nine *RiverSmart Homes* demonstration sites – one in each Ward of the city. DDOE installed an additional demonstration site in the Pope Branch watershed to officially launch its *RiverSmart Homes* pilot program.

III. The District of Columbia's Nonpoint Source Program

In 1990, the government of the District of Columbia formed its Nonpoint Source Program to address the control and prevention of nonpoint source pollution impacting the District's surface and ground waters. In January 1998, the nonpoint source regulatory program was transferred to the District of Columbia Department of Health, under the Environmental Health Administration. As part of this programmatic realignment, the District of Columbia established the Watershed Protection Division in October 1998. Watershed Protection Division is the division responsible for the Nonpoint Source Management Program. In November 2005 the District of Columbia City Council voted to create a new District Department of the Environment (DDOE). The Watershed Protection Division now resides under the Office of Natural Resources within the District Department of the Environment (DDOE).

DDOE assesses the health of all significant waterbodies in the District, and prioritizes water quality improvement efforts based on data gathered from water quality monitoring. DDOE then characterizes waterbody impairments and threats; these characterizations are included in the District of Columbia's Section 305(b) reports as required by the federal Clean Water Act. The reports describe many of the District waterbodies as not supporting their swimmable (primary contact recreation) and fishable (fish consumption) designated uses.

Urban stormwater runoff is a prevalent source of pollutants to District of Columbia waterbodies. Primary nonpoint source pollutants of concern include nutrients, sediment, toxicants, pathogens and hydrocarbons. The few waterbodies that partially or fully support a designated use are also threatened by nonpoint source pollutants. A process to rank watersheds for nonpoint source implementation in the District, conducted by the District Nonpoint Source Program in 1995, determined that the Anacostia River and its tributaries should receive highest priority, followed closely by Rock Creek and its tributaries. For over a decade, the District of Columbia has been using a watershed approach to raise awareness and unite public and private sector resources to tackle the water quality problems of the Anacostia River.

To properly address the water quality problems associated with the District's urban environment, the District amended its approved Nonpoint Source Management Plan (1989) and created the *Nonpoint Source Management Plan II, Addressing Polluted Runoff in an Urban Environment*, (2000). This document outlines a comprehensive strategy for managing nonpoint source pollution in an urban environment in an effort to restore beneficial uses by the year 2025. The Plan sets goals and objectives of specific milestones that will be achieved.

The District employs both regulatory and non-regulatory approaches to reach its nonpoint source milestones. DDOE programs that fall under regulation and enforcement include the:

- Stormwater Management Program
- Soil Erosion and Sediment Control Program
- Floodplain Management Program
- Compliance and Enforcement Program

These programs aim to ensure that any development or construction activities occurring within the District properly control potential erosion or runoff from their sites and properly adhere to all federal and city laws relating to floodplains and waterways. In addition, these programs ensure that Best Management Practices (BMPs) are installed correctly and receive appropriate maintenance and upkeep. Non-regulatory programs include:

- Wetland and river habitat creation and restoration programs
- Use of Low Impact Development (LID) innovative Best Management Practices technology
- Education and outreach programs
- Pollution prevention programs
- Use of sustainable practices

Through these non-regulatory programs, the District educates community members about nonpoint source pollution and how their actions contribute to it, with the ultimate goal of changing personal behavior for an effective long-term solution. Additionally, the District tests and develops innovative approaches to urban nonpoint source pollution reduction, increases acceptance and implementation of Low Impact Development, and provides

support and financial incentives for citizens wishing to implement LID and pollution prevention techniques.

The District also develops partnerships and collaborations to address the issue of nonpoint source pollution. In recent years, the District has worked closely with federal agencies to ensure that nonpoint source pollution prevention is addressed on both city and federal lands.



Overall, the nonpoint source management strategy attempts to change the mindset and actions of individuals and communities, elected leaders and agency heads; to concentrate activities on targeted tributaries; and to strictly enforce regulations that protect the District's water quality and natural resources. The District does not shoulder the entire load, but rather enlists assistance from many stakeholders and partners, in an effort to deliver clean water and healthy watersheds to the citizens of the Capitol city and its visitors.

A. Sediment, Stormwater, Floodplain Management, and Low Impact Development

Highlights

- Reviewed 2,291 construction plans for compliance with sediment and stormwater pollution control.
- Processed environmental impact screening forms for 16 projects.
- Developed a guidance document and DVD for four Low Impact Development practices used in the District.

Construction Plan Review

In fiscal year 2008, to meet its objective of reducing the amount of untreated stormwater from construction sites, Watershed Protection Division reviewed 2,291 construction plans for compliance with sediment and stormwater pollution control. This review process led to the approval of 2,063 of these plans.

Watershed Protection Division processed 209 requests for flood zone determinations at various properties in the city. Flood zone information is critical in determining the availability of flood insurance and eligibility for federal assistance in the event of natural disasters caused by floods. Additionally, Watershed Protection Division processed 85 requests for information on soil characteristics and reviewed and approved approximately 85 geotechnical reports to assess the suitability of soils for various construction projects.

Environmental Impact Regulation

In fiscal year 2008, Watershed Protection Division reviewed environmental impact screening forms for 16 projects.

LID Guidance Manual and DVD

The stormwater LID best management practices maintenance and operational DVD and guidance manual are close to being completed. The guidance manual will serve as a stand-alone LID resource and not simply an accompanying manual that must be viewed with the DVD. The DVD will include the following eight (8) modules:

1. River Smart
2. RiverSmart Trailer
3. RiverSmartHomes
4. RiverSmart Maintenance
5. Constructing an Infiltration Device
6. Constructing Permeable Pavers
7. Constructing Rain Gardens
8. Installing a Rain Collection System

The guidance manual describes LID practices featured in the film *RiverSmart*, which will debut on March 16 at the E Street Cinema as part of the upcoming DC Environmental Film Festival. A second screening will be held at the University of the District of Columbia on March 18 at 5:00 p.m., followed by a panel discussion.

B. Inspection and Enforcement

Highlights

- Improved compliance with District of Columbia soil erosion and sediment control and stormwater management regulations by conducting 9,030 inspections, increasing the number well beyond the WPD's annual target rate of 6,880.
- Continued the review of stormwater management regulations. Once this review to strengthen existing regulations is completed, the document will be submitted to the Office of the Attorney General for review and approval.
- Improved customer satisfaction by investigating and resolving one-hundred percent of the 212 citizen complaints relating to soil erosion control and drainage problems in a timely manner.

Compliance

During fiscal year 2008 Watershed Protection Division improved compliance with District of Columbia soil erosion and sediment control and stormwater management regulations by conducting 9,030 inspections and issuing 361 enforcement actions.

Watershed Protection Division minimized pollution in stormwater runoff to the Anacostia and Potomac rivers and their tributaries by inspection of 317 stormwater management facilities and 132 post-maintenance inspections to ensure proper maintenance of these facilities. Stormwater management facilities were restored on an as-needed basis and appropriate enforcement actions were taken to ensure compliance.

Watershed Protection Division has improved customer satisfaction by investigating and resolving one-hundred percent of the 212 citizen complaints relating to soil erosion control and drainage problems in a timely manner.

Regulatory Improvement

The Director of the District Department of the Environment has given notice of the intent to adopt the proposed amendments for soil erosion and sediment control and stormwater management in Chapter 5 of Title 21 of the District of Columbia Municipal Regulations (DCMR) (Water Quality and Pollution). The proposed amendments to the regulations encourage environmentally friendly stormwater management and will strengthen the Department's stormwater management and sediment and erosion permitting procedures. Specifically, these amendments would promote the use of low impact development practices such as rain gardens, cisterns, green roofs and other green technology best management practices to control and treat stormwater. The amendments would also require that a responsible person on the construction site be trained in soil erosion and sediment control; that persons responsible for the maintenance of stormwater management facilities use Department-approved contractors; that fees be increased to defray the cost of reviewing plans and conducting inspections; that the posting of a bond be required until construction of the stormwater management facility is successful; and would authorize property owners to conduct off-site stormwater management mitigation or pay an off-site stormwater management mitigation fee for deficiencies in managing the water quality volume due to technical conditions on the site.

In addition, these amendments would incorporate the Anacostia Waterfront Corporation's enhanced environmental stormwater management standards for publicly funded construction undertaken within the Anacostia Waterfront Development zone. In the Anacostia Waterfront Corporation Development Zone, surface water runoff volume must be reduced by one inch (1"), and an additional two inches (2") treated; in the rest of the District, surface water runoff volume must be reduced by three quarters of an inch (3/4") and the remaining one quarter inch (1/4") treated.

The proposed regulations will also regulate land disturbing activities to minimize erosion and sedimentation to prevent sediment deposition to the waters of the District of Columbia and to the District's sewer system.

Finally, these proposed regulations will implement the prohibition set forth in D.C. Official Code Section 8-103.07(e) on the discharge of used motor oil to any District sewer by requiring that car dealerships and other businesses install oil/water separators.

C. Habitat Restoration and Creation

Highlights

In 2008, the Watershed Protection Division continued the stakeholder outreach, planning, design and monitoring required for the habitat restoration projects. Highlights of the year are:

- Conducted the third year of vegetation monitoring for the Heritage wetland project.
- Participated in the development of the Anacostia Comprehensive Plan with neighboring jurisdictions, the Army Corps of Engineers (ACE), and the Metropolitan Washington Council of Governments (MWCOG).
- Selected a design consultant for the Broad Branch stream daylighting.
- Continued design of the Pope Branch stream restoration project in concert with partners.
- Signed an agreement with National Resources Conservation Service (NRCS) for the construction management of the Watts Branch stream restoration project.
- Installed two stormwater monitoring stations in Oxon Run and Watts Branch.
- Solicited and received approval from the National Park Service to install a regenerative outfall in Rock Creek Park.

Anacostia Watershed Comprehensive Plan

DDOE is an active participant alongside P.G. County, Montgomery County, ACE, and MWCOG in the development of a comprehensive multi-stakeholder watershed restoration plan for the Anacostia watershed. The first step involved developing a subwatershed restoration action plan for the Sligo Creek subwatershed. For the District, subwatershed plans will be developed for the Anacostia mainstem as well as the Watts Branch, Fort Dupont and Popes Branch tributaries. The template will be duplicated for the other subwatersheds and tidal areas of the Anacostia. This planning process will increase the level of action in the Maryland portion of the watershed as well as the District portion. It is expected that projects listed in the plan will begin to be funded in 2010.

Broad Branch Daylighting

DDOE worked with the National Park Service (USNPS), and the District Department of Transportation (DDOT) to select a consultant to develop designs for the daylighting of Broad Branch in the Rock Creek watershed. The process was notable for the consensus that was built among these major stakeholders.

DDOE also held a public meeting to inform the community about the effort and to get their feedback. The meeting was well attended and included a District Councilmember. DDOE will oversee the design of this project with active input from USNPS and DDOT.

Installation of Stormwater Sampling Stations on Oxon Run and Watts Branch

As a way of monitoring the effectiveness of the upcoming Watts Branch stream restoration project, DDOE installed two ISCO stormwater sampling stations in 2008. These stations also have multi-parameter probes to take physical water characteristics. DDOE has already captured over seven storm events and has sent the water samples off to be analyzed. The Oxon Run station will act as a reference site and will also be useful when future projects in the Oxon Run subwatershed take place.



Watts Branch Restoration Project

The Watts Branch stream restoration designs were completed in 2008. Extensive coordination with DCWASA, the Deputy Mayor's Office for Planning and Economic Development and relevant nonprofits was ongoing. One major achievement was the signing of the MOU between DDOE and NRCS that spells out the contracting and project management responsibilities and transfers funds for the project. Another was the MOU between NRCS and USFWS spelling out some project oversight roles. Both agreements required extensive legal review and both were necessary before any construction work can commence. DDOE is working to obtain the required FEMA permit prior to beginning construction, which is expected in late 2009.

Regenerative Outfalls in Rock Creek Park



DDOE, Watershed Protection Division, solicited and received approval and support from USNPS to design and construct a regenerative outfall in a small ephemeral stream that is currently severely eroded due to concentrated runoff from Oregon Avenue, NW. DDOE hopes that this project will become an example of how to address erosion in a manner that treats stormwater runoff, enhances base flow to receiving streams and creeks, and helps to restore predevelopment hydrology in these highly altered urban watersheds. USNPS's enthusiastic support of this

approach is significant given the fact that many erosion problems exist on National Park Service land. The approach can be seen in the adjacent picture where the "treatment" blends into the neighboring landscape.

D. Environmental Education and Outreach

Highlights

- DDOE and partners provided Meaningful Watershed Educational Experiences to approximately 3,591 District school children. Each student spent an average of 22 hours participating in the learning experience.
- Developed five new schoolyard conservation sites at District schools through the *RiverSmart Schools* Program formerly called “Greener Schools, Cleaner Water Program.”
- Organized the second DC School Garden Week and showcased five DC Public Schools on a schoolyard greening tour as part of the week-long activities.
- Conducted an evaluation workshop for environmental education providers in the District of Columbia.
- Completed the first year of the B-Wet, National Oceanic and Atmospheric Administration grant award in partnership with DC Public Schools and several DC Environmental Education Consortium partners, providing training to teachers and Meaningful Watershed Education Experiences to DC Public School fourth graders.

RiverSmart Schools

DDOE continues to work with schools selected for the schoolyard conservation sites program, entitled *RiverSmart Schools*. This program provides teachers with the training and resources necessary to install conservation sites on their school grounds and utilize them for outdoor environmental education focused on the protection and restoration of local watersheds and the Chesapeake Bay. Formerly the program was called *Greener Schools, Cleaner Water*. The name has been changed to complement WPD’s *RiverSmart Homes* Program. In 2008 *RiverSmart Schools* accomplished the following:

Teacher Training:

Twenty teachers in attendance from all five schools received 12 hours of training. The first training focused on: an overview of the program; how to assess and evaluate a schoolyard site; a show-and-tell from a past participant; an overview of how the schoolyard projects can improve water quality and reduce pollution to the Chesapeake Bay; and how to build and maintain a schoolyard conservation site team. The second

training focused on: designing a schoolyard conservation site; presentations by schools on individual site assessments; and a presentation on site design and design elements. The final training focused on: individual school site draft designs; lessons on soil testing for nutrients, pH, and organic content; a presentation on various native plants; and an overview of the permitting process. All of the participating schools ended the training with a schoolyard conservation site team in place, a better understanding of site assessment and design, and a draft site plan.

Educational Benefits:

A total of 504 students were taught lessons on butterflies and caterpillar habitat, native plants, the concept of a watershed and wetland functions, planting techniques, and schoolyard assessments. These lessons were meant to help integrate the schoolyard conservation sites into the curriculum, and to show the teachers activities and lesson plans that meet the District of Columbia Public Schools' standards of learning while using the outdoors as a learning laboratory. The students, along with a host of parents, teachers and volunteers, contributed several hundred hours of work to these sites during the Community Action Days.

2008 Conservation Sites Installed:

1. JC Nalle Elementary School created a butterfly and caterpillar habitat in the shape of a butterfly. Approximately 500 plants of 21 different native species were brought in to provide food and shelter for adult butterflies as well as caterpillars and eggs. A butterfly bath was installed as the water source, utilizing rocks and oyster shells to supply essential minerals that butterflies require. Trees and shrubs were installed on the west side of the garden to block the prevailing winds and allow a nice calm space for butterflies to visit. The site utilizes a very sunny space. Some of the plants included are the following: butterfly-weed, common milkweed, eastern columbine, wild blue indigo, thread-leaf coreopsis, joe-pye weed, oxeye sunflower, great blue lobelia, cardinal flower, boneset, NY aster, coastal panic grass, bee balm, horsemint, black-eyed Susan, wrinkle-leaf goldenrod, sweet pepperbush, spicebush, flowering dogwood, and eastern redbud.

2. Miner Elementary School created a peace garden and an outdoor learning lab. The space will provide students with a colorful oasis to escape from the hustle and bustle of city life. In addition it will provide an outdoor space where teachers bring their students for lessons. The teachers and students chose plants that will provide habitat for songbirds and butterflies as well as bring a variety of color to the schoolyard. Compacted soil from a grassy area was removed and replaced with topsoil. Students, parents and volunteers planted 450 flowers and grasses, with several different species of plants. The shrubs and trees included spicebush, sweet pepperbush, red bud, forest pansy redbud, and white fringetree.

3. Chamberlain Public Charter Elementary School designed a pollinator/ songbird garden with space for benches and outdoor lessons. The site had been a drab looking front lawn which when transformed brought much praise and many questions from the public. The goal of the garden was to connect the students to the outdoors and provide a place of beauty that will be helpful to the environment. Walkways were installed by laying out

filter cloth topped by three inches of mulch and bordered by scalloped red bricks. There were eight large trees planted along with 500 native plants. Signs describing the different habitat features of the garden along with benches and a sundial put the finishing touches on a great green space for the school and the community.

4. Shepherd Park created small terraces on a steep hillside along Jonquil St., correcting an erosion problem. The terraces will be used to grow native grasses, perennials and edibles. The idea is to introduce the students to methods of cultivation used by the international community, while allowing the students to plant and eat their own food. Additionally the use of native grasses and perennials will help reduce erosion and provide habitat for insects and birds. They installed border bricks for the front walkway and planted trees, cleaned-up existing garden areas, and spread mulch. Once Shepherd gets full approval from DDOT, work in the winter will focus on creating handicapped accessible walkways to prevent people from walking through the garden areas. Shepherd will also work to create the planting beds using the lasagna method so that the roots of existing street trees are not disturbed. Planting of perennials and shrubs will occur in the spring of 2009.

5. The Two Rivers Public Charter school site is very complex and challenging because the site is very small and is approximately 98% impervious with only a very small strip of grass between the street and the sidewalk. The initial work focused on getting a landscape plan, and finding additional funding to complete the project. Two Rivers was awarded a grant from the Chesapeake Bay Trust to help install trees and tree pits, build raised planter boxes, install a rain barrel, and acquire native plants. This funding, combined with additional resources that the school has acquired from Lowe's Inc., will allow the project team to create a substantial project. The removal of asphalt and construction will occur in the winter of 2009 and planting will occur in the spring of 2009.

Follow-up Schools:

To fortify and sustain the development of schoolyard conservation sites in the District, schools previously in the program are selected to receive \$1,000 to maintain and enhance their existing sites. Meetings have occurred with the 2008 follow-up schools (Kamit Public Charter School, LaSalle Elementary School and Sharpe-Health School) to determine how they will spend their funds for maintaining their sites. Kamit Public Charter School has spent funds on tools to maintain their garden area. LaSalle ES has purchased additional wetland plants and mulch for their garden. Follow-up phone calls to the schools will be made in the winter to ensure that all the money is spent by the spring.

District of Columbia Environmental Education Consortium (DCEEC)

Watershed Protection Division continues providing leadership to the DC Environmental Education Consortium. The following activities and tasks were accomplished in 2008 to strengthen organizational networking, training and knowledge for DC environmental organizations and teachers:

Schoolyard Greening Committee

- Organized the second DC School Garden Week in October 2008 and conducted these activities:
 - (a) Held a kick-off event at Ann Beers Elementary School attended by 100 parents, students and community members showcasing their butterfly garden and student engagement in the garden through art and language arts.
 - (b) Held the annual schoolyard greening bus tour, attended by 12 participants, showcasing LaSalle/Backus Education Center (French drain, wetland and meadow); Ann Bears ES (labyrinth and butterfly garden); Kimball ES (native plant & pollinator garden with green roof kiosk); Kamit Charter HS (courtyard garden with a rain garden and raised beds); and CentroNia Pre-K Incentive Program (vegetable and herb raised-bed garden).
 - (c) Hosted the first walking tour of three of the Capitol Hill Cluster Schools: Watkins ES (a series of theme gardens surrounding the school); Brent ES (an outdoor classroom with edible raised beds); and John Tyler ES (removal of asphalt for a number of native trees).
 - (d) Sponsored a photo-garden contest with 100 student submissions, and presented prizes to 13 student winners at the Martin Luther King Jr. Library.
 - (e) Held school garden work days at Ann Beers ES, Miner ES and McKinley HS and involved 250 students and volunteers.
 - (f) Received press coverage on cable television, channel 99 and in the *DC Urban Gardeners* and *Washington Gardener* magazine.
- Sponsored a tour of the Tuckahoe ES schoolyard garden in Arlington, VA for 12 educators.
- Expanded the Schoolyard Greening listserv to include 194 members.
- Created a Flickr photo site of schoolyard projects at:
<http://www.flickr.com/photos/dcschoolyardgreening/collections>
- Compiled a list of garden books available through the DC Public Library.
- Expanded national network of meetings with people from REAL Gardens, Earth Partnership for Schools, and others.

Outreach Committee

- Maintained and updated the DCEEC website, www.dcnaturally.org.
- Developed the two Teachers Night events at the U.S. Botanic Gardens--one in February with 110 teachers, and one in October with 125 teachers and 40 exhibitors in attendance.
- Updated Point of Contact (POC) list comprised of over 70 DCPS teachers.
- Compiled two POC mailings to DCPS, charter and public schools.
- Created a teacher listserv of 350 and a principal's listserv of 30.

Education Committee

- Strengthened communication with DCPS by attending the New Teacher Orientation and Principal's Orientation. Manned a DDOE and DCEEC booth,

- talking to teachers and principals, soliciting their participation in programs and distributing information about environmental education programs.
- Conducted a six-hour training for DCEEC members and community leaders on “Evaluating Environmental Education Programs.” This workshop was taught by Dr. Emma Norland and attended by 25 educators from 10 organizations. The training was designed to help educators select an evaluator, know the different kinds of evaluations, and understand the different instruments used in evaluation.
 - Represented DCEEC on the Science Technology, Engineering and Math coalition.
 - Conducted a 2009 B-Wet grant application workshop for 15 participants.
 - Attended two DCPS science teachers’ meetings, distributing the Meaningful Watershed Education Experience DVD and talking about watershed education programs available to schools.

Collaboration Committee

- Conducted a poster presentation on *RiverSmart Homes* at the 2008 North America Association for Environmental Education Conference in Kansas.
- Provided DC representation on the Urban Ecology Collaborative’s (UEC) Education Workgroup and Green Jobs Network.

Meaningful Watershed Educational Experiences

Hard Bargain Farm



In 2008 Watershed Protection Division sponsored three Meaningful Watershed Education Experiences at Hard Bargain Farm in Accokeek, Maryland, with a total of 84 fifth-grade students attending the overnight experience.

National Oceanic and Atmospheric Administration (NOAA) Grant

The first year of the new 4th grade watershed grant funded by National Oceanic and Atmospheric Administration enabled the Watershed Protection Division to sponsor 598 Meaningful Watershed Education Experiences for District school children and train 29 teachers from 14 schools.

The kick-off and training event for the grant was held at the U.S. Botanic Gardens on February 5, 2008. The training covered the concepts of watersheds, land use, habitats, and restoration. The Teacher Exchange culminating event for the year was held on June 3 at McKinley HS. The Science Director for DCPS was in attendance along with the program evaluator and teachers in the program. Teachers made presentations on their

programs, activities, water quality data collection and lesson plans and discussed the strengths and weaknesses of the program.

Environmental Events

- Organized the annual Anacostia River Environmental Education Fair, which was cancelled due to heavy rain.
- Participated in the Kenilworth Aquatic Gardens Lily Festival, Energy Earth Week, Anacostia River Cleanups, DC Green Festival, Ward 7 Eco Fest, DC School Garden Week, Teachers Night and Summer Youth Green Jobs.
- Conducted two Project Learning Tree workshops, one Wet in the City workshop, one Integrated Pest Management workshop and two Green Jobs workshops with 146 educators, community gardeners and group leaders participating.
- Provided two to three hours of watershed education for each of three schools, serving approximately 220 students as a part of the Watershed Protection Division Summer Environmental Education Outreach Program.
- Installed a native plant garden at McKinley HS with approximately 100 students and 30 AmeriCorps volunteers.
- Provided materials and approximately 50 judges for 10 DCPS science fairs.
- Conducted three social marketing focus groups in Pope Branch for the *RiverSmart Homes* Project.

E. Pollution Prevention

Highlights

- DDOE is coordinating the District's effort to restore the Anacostia River, working with other District agencies and taking on its own departmental initiatives.
- The Clean Marina Program hosted a boater education workshop on bilge cleaning, environmentally responsible winterizing, and holding tank maintenance and pumpouts. Approximately 50 people attended from 11 marinas and clubs, DC Harbor Patrol, DDOE and the National Park Service.
- The DDOE has installed nine *RiverSmart Homes* demonstration sites – one in each Ward of the city and an additional demonstration site in the Pope Branch watershed where it is piloting the program on a large scale.
- In 2008 the Watershed Protection Division installed approximately 800 stormdrain markers.

DC Integrated Pest Management Program

The District Department of the Environment (DDOE) and the Department of Parks and Recreation (DPR) partnered in the early fall of 2008 to host a pilot garden IPM workshop aimed at reducing chemical use and improper fertilization on gardens and lawns. The workshop informed gardeners about the judicious use of pesticides, herbicides and fertilizers. IPM garden bags were distributed to the 25 participants.

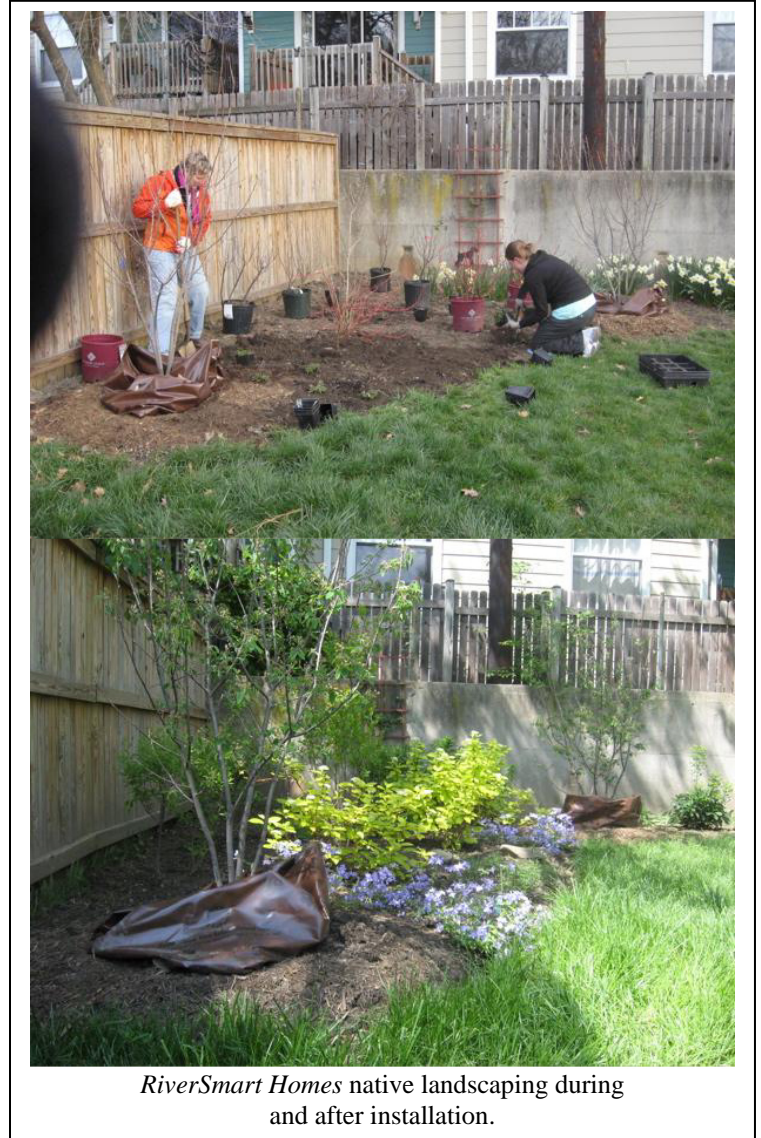
Based on the success of that workshop, DDOE is now piloting a workshop series scheduled to launch in March of 2009. The workshop series will cover garden IPM, stormwater management and sustainability topics.

RiverSmart Homes

One of the greatest needs and challenges for the District of Columbia is to reduce water pollution by affecting behavioral change at the individual household level. The District has recognized that without convincing homeowners to adopt nonpoint source pollution prevention techniques on their properties the city will have a difficult time achieving its water pollution reduction goals.

RiverSmart Homes is an incentive-based program that encourages homeowners to install low-cost residential Best Management Practices (BMPs) and institute green landscape management practices that help improve local water quality. The specific landscape enhancements offered through *RiverSmart Homes* include:

1. Disconnecting downspouts and installing rain barrels;
2. Disconnecting downspouts and installing rain gardens;
3. Planting large shade trees;
4. Removing impervious areas and replacing them with pervious surfaces; and
5. Instituting native landscaping and integrated pest management programs.



RiverSmart Homes native landscaping during and after installation.

RiverSmart Homes has the potential to improve all of the city's watersheds and foster pollution awareness and environmental stewardship in District of Columbia homeowners. As a result of this program, the DDOE, in part through 319 grant funds, has installed nine *RiverSmart Homes* demonstration sites – one in each Ward of the city and an additional demonstration site in the Pope Branch watershed where it is piloting the program on a large scale.

The District Department of the Environment, working with the EPA, chose to pilot *RiverSmart Homes* in the Pope Branch watershed of the District of Columbia. Located in southeast Washington, DC, Pope Branch is a 1.6-mile, first-order tributary of the Anacostia River. The entire stream lies within DC city boundaries. The primary land uses of the 250-acre watershed are parkland and residential lands. Pope Branch is listed on the 303-D List for bacteria, organics, and metals. Pope Branch watershed's relatively high homeownership levels, its moderate size, and its diversity in race and income levels will allow the DDOE to develop and hone its outreach messages for various audiences.



Two types of permeable pavement installed at a demonstration home.

In May of 2008 the DDOE officially started its pilot of the *RiverSmart Homes* program in the Pope Branch watershed. In October of 2008 a *RiverSmart Homes* demonstration site was completed in the watershed and in November of 2008 an open house was held for residents living in the pilot area.



A rain garden treating rooftop runoff from this *RiverSmart Home*.

To date, the DDOE has performed over 60 stormwater audits for interested homeowners to identify ways that they can reduce stormwater pollution from their property; DDOE has a waiting list of approximately 40 more homes to audit over the winter.

The first non-demonstration *RiverSmart Homes* sites will be installed in Pope Branch starting this winter and the DDOE anticipates that it will have at least 100 sites installed by the fall of 2009 (10 percent of homes in the watershed).

Once the *RiverSmart Homes* landscape enhancements are installed on the homeowner's property, the DDOE plans to help participants properly care for their landscaping enhancements and to encourage them to install additional BMPs on their property.



District of Columbia Mayor Adrian Fenty at the launch of the *RiverSmart Homes* program.



A 132-gallon rain barrel installed at a demonstration site.

Although the *RiverSmart Homes* program has not been advertised outside of the pilot area, word has spread about the program and the DDOE already has a list of around 500 interested homeowners throughout the city. It is anticipated that the program will be available city-wide in the late fall of 2009.

Partners & Funding

The Friends of Rock Creek's Environment, Casey Trees, DC Greenworks, the Alliance for the Chesapeake Bay, Natural Resource Designs, and Government of the District of



Proud *RiverSmart Homes* homeowners

Columbia have all contributed to the success of the *RiverSmart Homes* program. Furthermore, this program could not have succeeded without the input from dozens of Pope Branch community members who filled out surveys and participated in focus group meetings, along with the demonstration site

homeowners throughout the city who have opened their homes to the DDOE to run tours showcasing *RiverSmart Homes* practices.

Of the Section 319 funding that DDOE has received, \$142,500 was spent designing and installing *RiverSmart Homes* demonstration sites and \$56,000 will be spent in the coming months developing a system for continuing outreach to *RiverSmart Homes* homeowners, in addition to honing the *RiverSmart Homes* social marketing campaign.

Pope Branch Outreach Social Marketing Pilot Project

The Pope Branch community provided input and direction toward shaping the development of the *RiverSmart Homes* program that will eventually be offered city-wide. The program helps homeowners reduce stormwater runoff from their properties by providing \$1,200 to subsidize landscape enhancements which include shade trees, rain barrels, rain gardens and native plant gardens and pervious pavers. The community participated in the social marketing of this program by filling out surveys at church and Civic association meetings, and from door to door visits conducted by DDOE staff members and Americorps volunteers. The survey tested residents' knowledge and attitudes about the environment. Three focus groups were conducted in February of 2008 that gave further guidance as to how the *RiverSmart Homes* program should be carried out. An EPA social marketing consultant helped to develop the survey and facilitated the focus groups. The following suggestions and responses from the surveys and focus groups were used in developing the program:

- Residents would like contractors to install practices
- Residents would participate in a cost-share plan

- Multiple practices would be accepted by the homeowners
- Site visits could be conducted on properties
- Signs and other pieces of information could be distributed to neighbors promoting the program
- A video with testimonials from participants could be developed

Anacostia River Restoration

DDOE is coordinating the District's efforts to restore the Anacostia River. This entails both working with other District agencies and taking on its own departmental initiatives. DDOE's current initiatives can be broken down into five areas:

1) Reducing pollution through reducing stormwater flows:

- DDOE is coordinating with other agencies to install LID on District lands including:
 - OPEFM – Woodson S.H.S.
 - FEMS – 2 green roofs on engine houses.
 - OPM – municipal building green roofs.

2) Reducing trash flowing into the Anacostia:

- DDOE completed an Anacostia Trash Survey that looked at the types and sources of trash flowing to the River and has contracted to create Anacostia Trash Total Maximum Daily Load.
- We have also started work on creating three trash-free tributaries:
 - Watts Branch – we are installing a floating trash trap called a “Bandalong”.
 - Ft. Dupont – we are installing 100 storm drain inserts/screens to capture trash before it hits the Anacostia River.
 - Nash Run – we are installing an innovative trash fence with the cooperation of the National Park Service.

3) Reducing Anacostia pollution through regulations and their enforcement:

- DDOE has revised stormwater regulations that are soon to be promulgated which put an emphasis on the installation of LID.
- DDOE is helping craft changes in stormwater fee structure which will help the City better address stormwater pollution into the future.
- DDOE has developed and issued Pollution Prevention (P2) plan standards for District agencies. These plans will help standardize the prevention of, and response to pollutant spills from District operations.

4) Seeking additional funding to support Anacostia restoration efforts:

- DDOE helped seek and is overseeing the use of \$1,000,000 federal funds for Anacostia Restoration Efforts. These efforts include:
 - The maintenance of currently installed LID as a green jobs initiative.

- The creation of “Community Greening Center” in Marvin Gaye Park that provides trees and native plants to nearby residents at a reduced cost.
- The demonstration and maintenance of trash technologies (mentioned above).
- DDOE is helping oversee the use of the \$500,000 CSX Settlement for restoration efforts.
- DDOE is requesting \$3-\$6 million dollars for LID through Congressional Stimulus Package.

5) *Monitoring the District’s progress towards a cleaner Anacostia River:*

- We have installed continuous water quality monitoring stations (<http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,497570.asp>) on the Anacostia River.
- We are developing an Environmental Management System to better track the efforts of DDOE and its sister agencies.
- We are developing EPA “data node” for better tracking and reporting.

Clean Marina Program

The Clean Marina program, a partnership among the Watershed Protection Division, the USNPS/National Capital Region, and marinas in the District, is a voluntary program through which marina operations become more environmentally responsible and marina managers educate the boating public on environmentally responsible boating practices. The program encourages marina, boatyard, and boat club operators, as well as the boating public to take further steps to reduce pollution and protect and improve environmental quality. Because marinas abut and are actually in the District’s waters, almost everything that takes place there has the potential to affect water quality. Actions by individual boaters, through maintenance, operation, and storage of recreational vessels, can affect air and water quality. Marinas have the potential to reduce pollution to the District’s environment by adopting practices that reduce the amount of waste produced as well as the way waste is handled.

In 2008, the DC Clean Marina Program conducted the following outreach activities:

- Hosted a boater education workshop focused on bilge cleaning, environmentally responsible winterizing, and holding tank maintenance and pumpouts. Approximately 50 people attended, with representatives from 11 marinas and clubs, the DC Harbor Patrol, the District Department of the Environment, and the National Park Service.
- Had a booth at the Washington Boat Show and shared information and printed materials with attendees about environmentally responsible boating and pollution prevention.
- Had a booth at the Cherry Blossom Festival event held on April 5 on the waterfront of the Washington Channel. The information passed out and visible on display complemented information provided by the U.S. Coast Guard and the DC Harbor Patrol.

The Washington Sailing Marina, a facility located on Virginia land, with its boats in District waters, joined the DC Clean Marina program. It is working to be certified as a Clean Marina early in FY09. One new marina was certified as a Clean Marina and five marinas and clubs were re-certified.

WPD Storm Drain Marker Program

Watershed Protection Division created a new marker design for the Storm Drain Marker Program. In 2008, the Watershed Protection Division installed approximately 800 storm drain markers with around 300 individuals from various volunteer groups, focusing



on the targeted watersheds of Pope Branch and Watts Branch with the DC Green Summer Youth Program. It was determined that, out of the 23,917 storm drains installed in the city, approximately 950 of them are marked with a storm drain marker, or approximately 4.0% of storm drains are marked.

Urban Tree Canopy Goal

Over the past year the Watershed Protection Division has been working with the District Department of Transportation, the Urban Forestry Administration, the Metropolitan Washington Council of Governments, and Casey Trees to develop an urban tree canopy goal for the city, analyzing the current District tree canopy to see what is present, what is possible, and what is practical. WPD and its partners have also held outreach meetings with the major landholders in the District to make them aware of this effort and to get them involved. In the upcoming year those collaborating will announce a goal for the city and will develop an implementation plan for the goal.

Low Impact Development Charrettes

The Watershed Protection Division organized a series of meetings with several District agencies to explore the impediments to installing Low Impact Development on District lands and work to overcome those impediments. The agencies involved included the Office of Planning, the Department of Transportation, the Department of Parks and Recreation, the Office of Property Management, and the Department of Public Works. The major obstacles to LID installation identified were unfamiliarity with the technologies and maintenance of LID after its installation. WPD addressed the first of these concerns by agreeing to demonstrate several different LID techniques on different agency lands. The techniques to be demonstrated include green alleys, bioretention in triangle parks, tree box bioretention, and bioretention in curb bump-outs. The WPD was also able to address the issue of maintenance by creating a memorandum of understanding whereby the District Department of the Environment would maintain the LID for the first two years (while it becomes established) and provide training to agencies for its maintenance after that time. In 2009, the first of these demonstration projects should be installed around the city.

F. Future Challenges and Actions

In fiscal 2009, the District of Columbia's Watershed Protection Division will continue to follow the directive of its Nonpoint Source Management Plan. Planned activities for Nonpoint Source programs include:

Stormwater, Sediment, Floodplain Management and Low Impact Development

- Begin bidding out chosen Low Impact Development projects to pre-qualified design and construction firms.
- Pursue funding from the Chesapeake Bay Targeted Watershed Program to implement a comprehensive Low Impact Development, rainbarrel and stormwater retrofit education program that will involve many District partners.
- Update the District's Floodplain Management Regulations (DCMR 20, Chapter 31) pursuant to changes in the National Flood Insurance Rate Maps (FIRMS).
- Expand the District's *Stormwater Management Guidebook* to reflect new developments in areas such as industrial and commercial pollution prevention planning, redevelopment project design flexibility, low impact design techniques, and non-structural Best Management Practices such as street sweeping, landscaping for stormwater facilities, rooftop treatment, and proprietary stormwater products.
- Use the new Low Impact Development DVD and guidance manual as a prominent part of the stormwater BMP maintenance and training program currently being developed by the UDC Community College.

Inspection and Enforcement

- Improve compliance with District of Columbia soil erosion and sediment control and stormwater management regulations through inspection and enforcement action.
- Provide excellent customer service by investigating and resolving one-hundred percent of citizen complaints relating to soil erosion control and drainage problems in a timely manner.
- Continue, with USDA-Natural Resources Conservation Service, to implement *The Maintenance of a Soil Survey for the District of Columbia* to provide necessary soil data.
- Submit revised soil erosion and sediment control, and stormwater management regulations to the Office of the Attorney General for review and approval.

Habitat Creation and Restoration

- Initiate construction, with DC Water and Sewer Authority (WASA) and DC Department of Parks and Recreation (DPR), of the stream restoration and sewer line replacement project in Pope Branch.
- Attain a conditional letter of map renewal (CLOMR) permit from FEMA in order to begin construction of the Watts Branch stream restoration project.

- Begin work on the Broad Branch stream restoration project.
- Begin design and construction work for a regenerative outfall/erosion control project in Rock Creek Park.
- Continue to identify potential restoration projects in the District.
- Update Oxon Run and Rock Creek watershed implementation plans.

Environmental Education and Outreach

- Implement phase III of the *Watershed Wise DC Fellowship Program* of teacher training and meaningful watershed environmental education experiences for 4th grade students in the District, funded by a new NOAA grant.
- Seek funding for a staff person through NOAA to conduct and expand meaningful watershed education experiences.
- Develop a network of schools with schoolyard conservation sites and school gardens, providing coordination, workshops, funding, and technical assistance.
- Continue to build upon an education collaborative composed of not-for-profit environmental organizations, teachers and government agencies to coordinate environmental education activities in the city.
- Expand funding sources for Meaningful Watershed Education Experiences.
- Strengthen and continue to play a pivotal role in the District of Columbia Environmental Education Consortium.

Pollution Prevention

- Install the first non-demonstration *RiversSmart Homes* sites. It is anticipated that at least 100 homes (10 percent of homes in the watershed) will be served in 2009.
- Work with certified Clean Marinas and marinas seeking certification to increase their pollution prevention activities.
- Continue to implement an Integrated Pest Management campaign targeting community gardeners and homeowners in the District. DDOE is now piloting a workshop series scheduled to launch in March of 2009. The series will cover garden IPM, stormwater management and sustainability topics.
- Continue to use the new Watershed Protection Division tracking system to improve drain marking efficiency, increase numbers of marked drains, and make the information available to other interested groups.

Summary

The highly urbanized setting and the multiplicity of land ownership within DC can present challenges to nonpoint source pollution reduction; however, the same challenges present opportunities to form creative partnerships and test innovative technologies. An ongoing goal of the Nonpoint Source Management Program is to continue development of monitoring and measurement techniques to further assess the effectiveness of nonpoint source pollution control programs. Additionally, the District of Columbia's Watershed

Protection Division is working to further integrate its regulatory and non-regulatory branches.

By strengthening its existing programs and continuing to seek innovative solutions for reducing nonpoint source pollution in an urban setting, the District of Columbia will move steadily toward reaching the goals outlined in its Nonpoint Source Management Plan.

Appendix A: Financial Information

<i>FY 2008 Grant</i>	<i>Source</i>	<i>Federal</i>	<i>Match</i>
Nonpoint Source Implementation	US Environmental Protection Agency	\$1,298,300	
Chesapeake Bay Implementation	US Environmental Protection Agency	\$767,000	\$767,000
Meaningful Watershed Experience	National Oceanic and Atmospheric Administration	\$106,000	\$62,669
Targeted Watershed Grant	US Fish and Wildlife Foundation	\$650,000	

Appendix B: Agency Partners

District of Columbia - Lead Agency:
 Department of the Environment, Watershed Protection Division

District Government:

DC Department of Parks and Recreation (DPR)
 DC Department of Public Works (DPW)
 DC Department of Transportation (DDOT)
 Deputy Mayor's Office for Planning and Economic Development
 DC Office of Planning (OP)
 DC Public Schools (DCPS)
 DC Soil and Water Conservation District (DCSWCD)
 DC Water and Sewer Authority (WASA)

Federal Government:

Architect of the Capitol
 National Park Service (USNPS)
 US Army Corps of Engineers (USACE)
 US Fish and Wildlife Service (USFWS)
 US Department of Agriculture Natural Resources Conservation Service (USDA-NRCS)
 US Environmental Protection Agency (EPA)
 US Environmental Protection Agency, Chesapeake Bay Program (CBP)
 US Geological Survey (USGS)
 Various federal facilities

Local Groups:

Anacostia Watershed Society (AWS)
 Casey Trees Endowment
 DC Greenworks
 FORCE, Washington, DC
 Green Spaces for DC
 Interstate Commission on the Potomac River Basin (ICPRB)
 Living Classrooms of the National Capital Region

Low Impact Development Center, Inc.
Marina Environmental Education Fund (MEEF)
Metropolitan Washington Council of Governments (MWCOG)
Potomac Conservancy
Student Conservation Association (SCA)
Sustainable Community Initiative (SCI)
Washington Parks & People