



ANNUAL REPORT
(October 1, 2005 – September 30, 2006)

DISTRICT OF COLUMBIA
NPDES PERMIT No. DC. 0000221 MUNICIPAL SEPARATE
STORM SEWER SYSTEM

August 17, 2007



**GOVERNMENT OF THE DISTRICT OF COLUMBIA
WASHINGTON, DC**

**Municipal Separate Storm Sewer System
NPDES Permit No. DC0000221**

**ANNUAL REPORT
(October 1, 2005 – September 30, 2006)**

August 17, 2007



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Cover Photo: Bioretention cell on Benning Road designed to treat bridge runoff before entering the Anacostia River



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LIST OF ACRONYMS AND ABBREVIATIONS

AFV	Alternative Fuel Vehicle
AWRC	Anacostia Watershed Restoration Committee
AWS	Anacostia Watershed Society
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
CSO	Combined Sewer Overflow
CWA	Clean Water Act
District	District of Columbia
DCMR	District of Columbia Municipal Regulations
DCPS	District of Columbia Public Schools
DCRA	Department of Consumer and Regulatory Affairs
DDOE	District Department of the Environment
DDOT	District Department of Transportation
DOH	Department of Health
DPR	Department of Parks and Recreation
DPW	Department of Public Works
EE-CARS	Environmental Education for the Compliance of Automotive Repair Shops
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FHWA	Federal Highway Administration
FY	Fiscal Year
GAO	Government Accounting Office
GIS	Geographic Information System
GPS	Global Positioning System

GSA	General Services Administration
HWD	District Department of the Environment Hazardous Waste Division
ICPRB	Interstate Commission on the Potomac River Basin
IPM	Integrated Pest Management
LID	Low Impact Development
LQG	Large Quantity Generator
MAR	Master Address Repository
MOU	Memorandum of Understanding
MS4	Municipal Separate Storm Sewer System
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NWF	National Wildlife Federation
NWS	National Weather Service
OCTO	Office of the Chief Technology Officer
OPM	Office of Property Management
PCB	Polychlorinated Biphenyl
PEPCO	Potomac Electric Power Company
Permit	National Pollutant Discharge Elimination System Permit
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SGC	Schoolyard Greening Consortium
SQG	Small Quantity Generator
SWEEP	Solid Waste Education and Enforcement Program

SWM	Stormwater Management
TMDL	Total Maximum Daily Load
USDA ARS	U.S. Department of Agriculture, Agricultural Research Service
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WASA	District of Columbia Water and Sewer Authority
WLA	Waste Load Allocation
WPCCP	Water Pollution Control Contingency Plan
WPD	Watershed Protection Division
WPS	Worker Protection Standards
WQD	Water Quality Division

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- F. DPW Pamphlet: Bulk Trash and Household Hazardous Waste

ATTACHMENT A. COMPACT DISK WITH ELECTRONIC FILES

1. 2007 Agency Compliance Plan.pdf
2. Clean City Initiative Report 2006.pdf
3. 21 DCMR § 534 Water Quality and Pollution.pdf
4. DDOE - General Information and Guidelines for Submission of Project Plans.pdf
5. Draft Water Quality Division Enforcement and Compliance Manual.pdf
6. DOH - Nonpoint Source Management Plan II.pdf
7. Environmental Education for the Compliance of Auto Repair Shops (EE-CARS).pdf
8. EPA Guidance Part 2 – NPDES Permit Applications for Discharges from MS4.pdf
9. Evaluation of BMPs for Reduction of Transportation-Related Stormwater Pollution.pdf
10. Hazardous Waste Management Regulations.pdf
11. Hickey Run Action Plan.pdf
12. Memorandum of Understanding, December 2000.pdf
13. Preliminary Draft Soil Erosion and Sedimentation Guidebook.pdf plus Appendix A
14. SOP - Enforcement of Soil Erosion and Sedimentation Control and Storm Water Management Regulations.pdf
15. SOP – Soil Erosion and Sediment Control and Storm Water Management Inspection.pdf
16. SOP - Strategic Plan - Hazardous Waste Division.pdf
17. 2003 District of Columbia Standards and Specifications for Soil Erosion and Sediment Control.pdf
18. Storm Water Management Guidebook, 2003.pdf
19. Storm Water Management Semi-Annual Report - June 2007.pdf
20. EPA Letter of Acceptance December 18, 2006
21. DDOE WQD MS4 Illicit Discharge Detection and Elimination Program.pdf
22. The Environmental Enforcement Process in the District of Columbia.pdf
23. District NPDES Municipal Separate Storm Water System Permit No. DC0000221.pdf

DISTRICT OF COLUMBIA
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGE PERMIT

I. BACKGROUND

The Government of the District of Columbia (District) submits this Annual Report on stormwater pollution control for fiscal year (FY) 2006 (October 1, 2005 – September 30, 2006) in compliance with the requirements established in 40 Code of Federal Regulations (CFR) 122.42(c) and the District's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Water System Permit No. DC0000221 (Permit). The Permit allows discharges of stormwater from the Municipal Separate Storm Sewer System (MS4) to the Potomac and Anacostia Rivers and their tributaries in accordance with the conditions of the Permit. A copy of the Permit is found as Attachment A-23 on the enclosed CD. The purpose of the District's MS4 program is to reduce pollutant loadings from the MS4 to receiving waters, and to contribute towards meeting District water quality standards and the approved Total Maximum Daily Loads (TMDLs) for those waters. This Annual Report details MS4 Permit-related activities conducted by District agencies during FY 2006 to reduce and control pollutant discharge from the MS4 to the Potomac and Anacostia Rivers and their tributaries. The District agencies responsible for implementing the activities required by the Permit are the District Department of the Environment (DDOE), District of Columbia Water and Sewer Authority (WASA), Department of Public Works (DPW), and District Department of Transportation (DDOT).

This Annual Report is submitted together with the 2007 Implementation Plan and the 2007 Discharge Monitoring Report in compliance with the reporting requirements defined in Parts III.A, III.B, III.C, III.D, IV.A.I, VI, and IX.B of the Permit.

The format of the 2007 Annual Report has been reorganized from that of the 2006 Annual Report to be more reader-friendly and to highlight accomplishments. The report contains sections in the following order: Background, Overview, and Standard Permit Conditions (Permit Administration Legal Authority, Source Identification, Monitoring Program, Management Programs, TMDL Waste Load Allocation (WLA) Plans, Funding, and Fulfillment of the Clean Water Act (CWA)). Highlights of the MS4 program during FY 2006 are provided in the Overview-Summary of Findings section of this report. The report is organized based on the

headings of the Permit to document accomplishments for specific requirements stated in the Permit.

I.A MS4 Permit

The U.S. Environmental Protection Agency (EPA) issued the MS4 Permit to the District on April 19, 2000, effective for a three-year term. The Permit allows discharges from the MS4 to the Potomac and Anacostia Rivers and their tributaries in accordance with the conditions of the Permit. On October 19, 2002, the District applied to renew the Permit and submitted an upgraded Stormwater Management (SWM) Plan for approval. The SWM plan describes the District’s plan to control pollutant discharge from the MS4 to the Potomac and Anacostia Rivers and their tributaries. On August 19, 2004, EPA renewed the District’s MS4 Permit for a five-year term. Table 1 presents the time line of events pertaining to the Permit.

The 2004 Permit requires significant new activities, with its emphasis shifting from planning (in the original term NPDES permit) to implementation of plans submitted by the District. In particular, the Permit requires the District to demonstrate measurable progress towards compliance with the TMDL assigned to the MS4 for these watersheds including activities outlined in the Anacostia River and Rock Creek TMDL WLA Implementation Plans.

Table 1. Permit Time Line of Events.		
Date	Event	Summary
April 2000	EPA issues MS4 Permit	Information gathering, planning, program development, and a requirement to control stormwater pollution
December 2000	District Agencies sign a Memorandum of Understanding (MOU)	Interagency agreement between the Department of Health (DOH), DPW, and WASA that delegates responsibilities of permit-related activities.
		Mandates the preparation of an annual Agency Compliance Plan, which sets forth each agency’s proposed budget plan dedicated to MS4 Permit compliance activities. The 2007 Agency Compliance Plan is found as Attachment A-1 on the enclosed CD.
June 2001	Stormwater Permit Compliance Amendment Act of 2000 (DC Law No. 13-311) becomes effective	Created a Stormwater Administration within WASA and established WASA as the lead agency to coordinate actions among other District agencies in connection with permit compliance activities.
		Authorized WASA to collect a flat stormwater fee from retail water customers within the District.
		Established an Enterprise Fund from the stormwater fee to reimburse participating agencies for costs incurred because of MS4 Permit mandated activities. Activities include administration, operations, and capital projects.

Table 1. Permit Time Line of Events.		
Date	Event	Summary
June 2001 (cont.)	Stormwater Permit Compliance Amendment Act of 2000 (DC Law No. 13-311) becomes effective (cont.)	Designated DOH, DPW, and WASA responsible for the MS4 permit.
		Requires the preparation of a Semi-Annual Report to the Mayor and the DC Council that describes the activities undertaken in the previous six months and outlines activities planned for the following six months.
July 2001	WASA begins collection of Stormwater Fee (Enterprise Fund)	<p>WASA began collecting the stormwater fee with the July billing cycle:</p> <ul style="list-style-type: none"> • Single-Family: \$7 per year • Multi-Family: 1.4 percent of water bill • All other properties: 2.0 percent of water bill
October 2002	DDOT assumes DPW Permit-related responsibilities	Newly formed DDOT assumed selected permit-related activities previously allocated to DPW.
August 2004	EPA renews MS4 Permit	Requires a shift from planning and development of programs to implementation.
		Requires the District to demonstrate significant progress towards pollutant reductions.
		Requires the development of TMDL WLA Implementation Plans for Anacostia River and Rock Creek watersheds.
		Requires the District to prepare an Annual Report, Implementation Plan, and Discharge Monitoring Report annually for submission to EPA.
		A new matrix of activities based on the 2004 Permit is currently being developed by the Task Force Agencies. The MOU is also being revised to reflect the requirements of the new permit and changes in the allocation of responsibilities among District agencies.
February 2006	DDOE assumes DOH Permit-related responsibilities	Newly formed DDOE assumed all permit-related activities previously allocated to the Water Quality and Watershed Protection Divisions within DOH.
February 2007	DDOE becomes administrator of the Stormwater Program	District legislation established DDOE as the new administrator of the District's Stormwater Program.
		DDOE coordinates activities among other District agencies including DPW, DDOT, and WASA.
		WASA continues to collect the stormwater fee first established in 2001.

I.B. Memorandum of Understanding

The Stormwater Administration executed a MOU on December 14, 2000, with the Permittee (City Administrator representing the Mayor), the Chief Financial Officer of the District, DOH, DPW, and WASA. The MOU assigns responsibilities among the foregoing parties for compliance with the Permit, and it continues as a coordination mechanism among the signatories in complying with the Permit. In October 2002, the newly formed DDOT took on some of the

responsibilities formerly assigned to DPW. In February 2006, DDOE was formed and took over the responsibilities of DOH's Water Quality Division (WQD) and Watershed Protection Division (WPD) within the MOU. Based on the Permit requirements, the parties to the MOU developed a matrix of activities assigning responsibilities among the foregoing parties for compliance with the Permit. A copy of the MOU is found on the enclosed CD as Attachment A-12.

I.C Stormwater Task Force

In 2002, the Stormwater Task Force was established to help the District's stormwater management programs to comply with the MS4 NPDES permit. The Stormwater Task Force is comprised of four District agencies (DDOE, DDOT, DPW and WASA). Representatives of the agencies met monthly throughout FY 2006. These public agencies have implementation, enforcement, and oversight responsibilities for required stormwater activities outlined in the permit.

I.D TMDL WLA Implementation Plans

On February 19, 2005, the District submitted the Anacostia River Watershed TMDL WLA Implementation Plan to EPA in compliance with the 2004 MS4 Permit. The TMDL WLA Implementation Plan for the Rock Creek Watershed was delivered on August 19, 2005. These plans analyze the cost effective methods for reducing pollutants discharged from the MS4. Both plans have been approved by EPA; therefore, the implementation schedule and budget provided in each of the TMDL WLA Implementation Plans are approved to begin in FY 2007. District agencies and WASA have begun implementing these activities, as described in Section III.F of this report.

I.E Annual Reporting

The District has conducted a variety of activities geared towards compliance with the Stormwater Permit requirements as outlined in the compliance matrix (Schedule A of the MOU). In FY 2006 the District submitted the 2006 Annual Report, the 2006 Implementation Plan, and the 2006 Discharge Monitoring Report to EPA on August 19, 2006 (per requirements of the Permit).

The Annual Report described MS4 permit-related activities conducted by District agencies during FY 2005, while the Implementation Plan projected activities scheduled for FY 2007 through FY 2009. The Discharge Monitoring Report included the analytical laboratory results of discharge samples collected during calendar year 2006. EPA accepted the 2006 Annual Report

and the 2006 Implementation Plan on December 18, 2006. A copy of the letter accepting these deliverables is included on the CD accompanying this document (Attachment A-20).

This 2007 Annual Report includes information on other MS4 related activities, such as the District's administrative and regulatory actions and the capital improvements of stormwater facilities.

A copy of the most recent Semi-Annual Report (June 2007) is provided on the attached CD (Attachment A-19). A copy of this document is also available at the Martin Luther King, Jr. Library, located at 9th and G Streets, NW in the District or at the Stormwater Management Division website: <http://www.ddoe.dc.gov>.

I.F Permit Administration

DDOE was designated by the 2006 DDOE Establishment Act as the MS4 Permit Administrator. EA Engineering, Science, and Technology, Inc. under contract with WASA is currently providing engineering consulting and administrative support for the MS4 Permit-related activities until September 30, 2007.

II. OVERVIEW: SUMMARY OF ACTIVITIES

This Annual Report delineates the achievements made in FY 2006 addressing the required provisions of the Permit. The following subsections summarize the activities of FY 2006.

II.A Source Identification

The existing MS4 infrastructure mapping and outfall location data have been combined to develop a database. Final verification of the District outfalls has been completed. There are approximately 800 outfalls in the District, of which 410 are located in the MS4 area. A database of these outfalls is complete. The outfall coordinates obtained by Global Positioning System (GPS) have been recorded in the MS4 Program outfall database. Concurrent with the outfall verification program, illicit discharge inspections were conducted and a database of outfalls with dry weather flow has been created. The Office of the Chief Technology Officer (OCTO)-Geographic Information Systems (GIS) maintains the most comprehensive GIS information for the District. Selected DDOE personnel have been trained in the use of the District's GIS. Information on the District GIS Program is available at: www.dcgis.dc.gov.

II.B Monitoring Program

The 2007 Discharge Monitoring Report includes data and analysis of the Rock Creek monitoring program, including the dry weather monitoring program and the wet weather screening program.

The District continues to implement a water quality monitoring program for oil and grease in the Hickey Run watershed; samples were collected in FY 2006. Auto repair facilities continue to be targeted for education on proper disposal of waste oil.

Throughout FY 2006, DDOE continued to work toward the installation of a large trash trap and oil separator at the Hickey Run outfall located on the property of the National Arboretum. In response to a request by the National Arboretum, a toxicity analysis was completed in 2006 and preliminary designs for Best Management Practices (BMPs) were completed.

II.C Management Programs

II.C.1 Commercial, Residential, and Federal and District Government Areas

The District has developed and continues to implement a program to control stormwater discharges from commercial, residential, federal and District-government areas. The

management plan for stormwater pollution control on commercial, residential and federal and District government areas entails a mixture of programs emphasizing structural and non-structural BMPs and educational programs. Stormwater pollution control activities by District agencies not party to the Permit are listed in Appendix A. The District provides guidelines, such as the *2003 District of Columbia Standards and Specifications for Soil Erosion and Sediment Control* and the *Storm Water Management Guidebook*, that have been developed to help control stormwater pollution from commercial, residential, federal and District government areas. In FY 2006, the revised and updated versions of the *2003 District of Columbia Standards and Specifications for Soil Erosion and Sediment Control* and *Storm Water Management Guidebook*, 2003 were finalized and will be distributed in the near future. The 2003 versions are found as Attachments A-17 and A-18, respectively on the CD provided with this report.

Programs and/or activities related to Permit compliance include:

- Functional landscaping programs, such as the use of structural BMPs and riparian buffer zones on new roadway construction.
- Low Impact Development (LID) practices.
- Catch basin cleaning, maintenance of the MS4, street sweeping, and leaf collection.
- Rain leader disconnection.
- Education programs on pet wastes, fertilizers, and landscaping.
- Methods of measuring the performance of activities.
- Strengthening erosion control for new construction.
- Continuing to work with federal and District facilities in order to implement and maintain stormwater pollution controls on new and re-build construction.

II.C.2 Industrial Facilities

The establishment of a comprehensive database of industrial facilities in the District and the initiation of the wet weather screening program are primary components of the Industrial Facilities Program. The implementation of the management plan for industrial facilities will help to control and reduce stormwater pollution from industrial facilities in accordance with the requirements of the CWA. The industrial facilities database is a compilation of industrial facilities within the MS4 area.

II.C.3 Construction Sites

DDOE has an inspection and enforcement program for construction sites in commercial and

residential areas and is working continually to strengthen its erosion control program for new construction. The management plan for stormwater pollution control on construction sites emphasizes the review and approval process for erosion and sediment control plans, and the inspection and enforcement procedures of the construction permitting program, as well as construction site and plan educational programs, traffic pollution control strategies, and air pollution compliance activities.

DDOE has refined and updated the District's automated database system for tracking stormwater management facilities inspected for maintenance to include tracking of construction projects with stormwater management BMPs. The number of inspections of construction sites increased to over 7,300 in FY 2006.

II.C.4 Flood Control Projects

During FY 2006, DDOE in collaboration with OCTO performed an analysis to determine the percentage of impervious surface on the District floodplains. Flood Insurance Rate Maps (FIRMs) for the District are currently being revised by the Federal Emergency Management Agency (FEMA) using the latest technologies and the most current data.

II.C.5 Monitor and Control of Pollutants from Municipal Landfills and Other Municipal Waste Facilities

There are no active landfills within the boundaries of the District. DPW is currently upgrading SWM systems to control pollutants in stormwater discharges from its two existing municipal waste transfer stations.

II.C.6 Monitor and Control of Pollutants from Hazardous Waste Sites

DDOE continues to update federal and District facilities information as needed based on the MS4 monitoring effort. DDOE has prepared a database that includes facilities in the District that are registered with federal and state regulators because they generate, store, or have released hazardous materials.

DDOE continues to conduct inspections of Resource Conservation and Recovery Act (RCRA) hazardous waste facilities to determine compliance with hazardous waste regulations. DDOE conducted inspections at several RCRA Small or Large Quantity Generator (RCRA-SQG or RCRA-LQG) facilities within the District between October 1, 2005 and September 30, 2006.

II.C.7 Pesticides, Herbicides, and Fertilizer Applications

The DDOE Pesticide Management Program outlines the mission, goals and implementation of the regulations that affect commercial applications of pesticide and herbicides. The program outlines the requirements for certification and training for the application of pesticides and herbicides in the District. The program also outlines requirements for enforcement actions and programs for protecting endangered species, ground water, and workers. Revised District pesticide regulations (20 DCMR §§ 20-25) are currently being reviewed by the Pesticide Group at EPA Region III. Control of pesticide, herbicide, and fertilizer applications has also been integrated into the Public Education Program.

II.C.8 Deicing Activities

The District has completed a comparison of deicing products and studies of alternative chemicals and deicing techniques. Brine solution was recommended as a viable alternative to sodium chloride in each of the studies reviewed. Based upon the comparison of deicing products the District uses a 23 percent sodium and 77 percent water solution as a pretreatment on bridge surfaces to reduce pollutant loading to receiving waters from deicing activities. Brine is currently stored at the maintenance facility located at 401 Farragut Street, NE. This facility implements stormwater management controls from the site to minimize pollutant runoff to local water bodies.

II.C.9 Snow Removal

Dumping of snow in areas adjacent to water bodies, wetlands, or drinking water sources is not part of the District's snow management plan, and will be avoided except as necessitated by extreme emergencies. The snow removal plan is being reviewed for applicability; no revisions are planned. Although there were several occasions when snow plowing was necessary, no snow removal from DC streets was necessary during FY 2006.

II.C.10 Detect and Remove Illicit Discharges

DDOE and WASA maintain an illicit discharge detection program, issue notices of violation as needed, and monitor corrective actions taken by violators. Illicit connections not corrected are referred to the Plumbing Inspection Branch, Building and Land Regulation and Administration, Department of Consumer and Regulatory Affairs (DCRA) for enforcement action. Illicit connection detection and enforcement procedures have been developed in conjunction with the

dry weather screening, inspection of BMPs, and public education programs. These procedures were part of the *Draft Water Quality Division Enforcement and Compliance Manual* (Attachment A-5 on the enclosed CD) but have now been replaced with: *The Environmental Enforcement Process in the District of Columbia* (Attachment A-22 on the enclosed CD). This draft was discussed in the upgraded SWM Plan submitted in October 2002.

WASA continues to conduct the floatables reduction program utilizing skimmer boats on the Potomac and Anacostia Rivers. Activities to remove floatable debris and trash from the rivers as well as accumulated trash on river banks continue five days a week using skimmer boats and support boats.

II.C.11 Enforcement Plan

DDOE enforcement procedures are now addressed in *The Environmental Enforcement Process in the District of Columbia*. This document details the written enforcement strategy outlining how enforcement actions, such as violation notices, notices of infraction, and stop work orders, are issued and adjudicated. The strategies outlined in the manual provide the standard operating procedures for inspection and enforcement efforts within the District.

During FY 2006, the Inspection and Enforcement Branches within the Water Quality and Water Protection Divisions started to use a GIS based tool to locate SWM facilities. The use of the GIS tool has improved efficiency in conducting inspections for maintenance.

DDOE investigates illicit discharges and enforces the District water quality regulations. During FY 2006, DDOE personnel investigated 17 illicit discharge complaints, all of which were resolved.

II.C.12 Public Education

WASA, DDOT, DPW and DDOE conduct public education activities related to stormwater pollution. During FY 2006, the Stormwater Administration presented cash awards to two students who presented projects on stormwater-related issues at the District-wide Mathematics, Science and Technology Fair at McKinley Technology High School. Public education programs continue to include an environmental education resource center, public meetings, environmental fairs, conservation education, teacher training workshops, and grants for promoting pollution prevention. In addition, all MS4 reports were formatted and converted into PDF files for easy uploading into the new MS4 website within the DDOE website.

II.D Program Funding

On September 9, 2002, the Stormwater Advisory Panel submitted a report to the Council of the District of Columbia that fulfilled the requirement of DC Official Code § 34-2202.06c. The Code required that the Stormwater Advisory Panel prepare “comprehensive recommendations to the Council that identify the best means by which that District of Columbia could meet all present and future Federal regulatory and Permit requirements pertaining to the discharge of stormwater into receivable waters.”

The Advisory Panel reported that the 2000 MOU provided an effective framework for allocating and coordinating the efforts of the District’s agencies to meet regulatory requirements, but the current rate structure may require adjustments in order to meet the potential increase in costs expected with the 2004 MS4 Permit. The Advisory Panel recommended that a study be performed to evaluate fee structures based on the amount of impervious surface area, as well as other stormwater fee structures in use by jurisdictions in the Mid-Atlantic Region and throughout the United States.

The District’s Stormwater Permit Compliance Amendment Act of 2000 established a Stormwater Permit Compliance Enterprise Fund to provide money for implementing the activities required by the 2004 MS4 Permit. Starting July 1, 2001, WASA began collecting a stormwater fee for the Enterprise Fund based on the following schedule:

- Single-Family Residence: \$7 per year.
- Multi-Family Residence: 1.4 percent of water and sewer bill.
- All other properties: 2.0 percent of water and sewer bill.
- \$3.1 million/year, which was the estimated cost of the activities required to comply with the 2000 MS4 permit.

This fee structure was designed to raise \$3.1 million/year. It is now estimated that approximately \$7.2 million per year will be required for FY 2008. The current revenue from the stormwater user fee (approximately \$3.1 million per year) will not sustain these activities. WASA will undertake an impervious area rate study during the next fiscal year to restructure the stormwater fee.

III. STANDARD PERMIT CONDITIONS

III.A Next Permit Cycle

The District's Permit is scheduled for re-issuance in August 2009, but all current Permit requirements will stay in force until a new permit is issued.

III.B Permit Administration

An organization chart for the agencies responsible for MS4 permit compliance is shown in Table 2. The responsibilities of each agency are set forth in an inter-agency MOU contained on the accompanying CD (Attachment A-12). The MOU is currently being updated to reflect the requirements contained in the 2004 MS4 Permit.

III.C Legal Authority

Performance Standard: The District maintains the legal authority to control MS4 discharges through the application of the regulations provided in the District of Columbia Municipal Regulations (DCMR). In addition, the District developed and maintains the legal authority to enforce erosion and sediment control and the control of stormwater pollution within the MS4 drainage area.

MS4 Discharges

The MS4 Permittee has the legal authority to control all discharges into the waters of the District under the Storm Water Permit Compliance Amendment Act of 2000, D.C. Official Code §34-2202.02(a) *et. seq.*, the Water Pollution Control Act of 1984, D.C. Official Code § 8-103.01 *et. seq.*, and the Soil Erosion and Sedimentation Control Act of 1977, codified in 21 DCMR §§ 500-507, and the implementing regulations in DCMR Title 21 Chapters 5 and 11.

Erosion and Sediment Control

The Water Pollution Control Act of 1984, as amended, D.C. Official Code § 8-103.01 *et. seq.*, and the Sedimentation Control Act of 1977, as amended, codified in 21 DCMR §§ 500-507 provide the legal authority to enforce the erosion and sediment control provisions of the SWM Plan.

Table 2. Agencies Responsible for District of Columbia MS4 Permit Compliance.

Responsible Agency*	Compliance Activity
DDOE	MS4 program administration
	Source identification
	Wet/dry weather monitoring program
	Wet weather screening program
	Flood control
	Pollutant control from hazardous waste sites
	Pesticide, herbicide, and fertilizer application
	Promoting LID practices
	Illicit discharge detection
	Sediment erosion control
	Inspection/enforcement
WASA	Floatables reduction program
	Catch basin cleaning
	Illicit discharge detection
DPW	Street sweeping
	Seasonal leaf and holiday tree collection program
	Household hazardous waste collection
	Stormwater management at municipal waste transfer stations
DDOT	Pollutant reduction from vehicles and roadways
	LID practices
	Deicing and snow removal
All Agencies	Public outreach and education
	Annual reporting to EPA and Mayor
	Monthly Task Force meetings

*Department addresses:

DDOE: District Department of the Environment, 51 N Street, Fifth Floor, NE, Washington, DC 20002

DDOT: District Department of Transportation, 64 New York Avenue, NE, Washington, DC 20002

DPW: Department of Public Works, 2000 14th Street, Washington, DC 20009

WASA: Water and Sewer Authority, 5000 Overlook Avenue SW, Washington, DC 20032

Illicit Discharges

Removal of illicit connections to the MS4 is enforced through the Plumbing Inspection Branch of DCRA. Enforcement authority prohibiting the dumping of used motor vehicle fluids is provided in D.C. Official Code § 8-103.07(e).

In FY 2006, there were no additional laws added to the legal authority of the District regarding SWM. The current laws are deemed adequate to provide compliance with the Permit. However, several regulations under went revision during FY 2006 including Integrated Pest Management (IPM) and SWM regulations.

III.D Source Identification

Part II of the Permit describes the requirements for Source Identification. The permit requires the District to compile and submit information and significant changes affecting the MS4 due to land use activities, population estimates, runoff characteristics, major structural controls, landfills, publicly owned lands, and industries. A summary of these compliance activities follows.

III.D.1 Land Use Activities

The District is highly urbanized, with little available land for further development. The MS4 drainage area contains approximately 26,500 acres (two-thirds of the District). The combined sewer overflow (CSO) drainage area encompasses approximately 12,640 acres (one-third of the District). All new development and development of existing areas is subject to the District's stormwater regulations with a review by DDOE. The land use and impervious area must be indicated on all plans submitted to DDOE for review and inspection. No single development plan reviewed to date has sufficient land area to make a significant impact to the MS4 system. The cumulative impacts of the proposed and new developments reviewed in FY 2006 have not resulted in a significant change for the existing land use activities in the portion of the District served by the MS4. Table 3 provides the existing land use by planning area in the District (MS4 and CSO).

III.D.2 Population Estimates

The Bureau of the Census reported in the 2000 Census of Washington, DC that there were 572,059 people residing within the District. A population estimate for 2005 projected that the population could decline by 3.7 percent to 551,136 and then decline by an additional 3.9 percent to 529,785 for 2010, the year of the next complete census. While the population decline over the past five years is not considered significant with respect to sources of pollution in stormwater, a continued trend in population reduction could result in future change. Additional details of the 2000 U.S. Census for the District can be found at <http://www.census.gov/>.

III.D.3 Runoff Characteristics

As noted in Section III.D.1, no significant changes in land use activities were identified in FY 2006. Therefore, no significant changes in runoff characteristics were identified in the MS4 drainage area as a result of land use activities.

Table 3. Acres of Existing Land Use by Planning Area, 2005.

	Capitol Hill	Central Washington	Far Northeast & Southeast	Far Southeast & Southwest	Lower Anacostia Waterfront/Near Southwest	Mid City	Near Northwest	Rock Creek East	Rock Creek West	Upper Northeast	Citywide	Percent (%)
Road Rights-of-Way	759	899	1,338	906	477	628	716	1,311	1,760	1,223	10,018	25
Single Family Detached Homes	6	0	775	164	7	15	84	919	2,324	641	4,936	13
Single Family Attached Homes/ Row Homes	520	10	641	328	30	497	340	606	290	611	3,874	10
Low-Rise Apts.	43	10	436	555	106	136	110	85	185	189	1,856	5
High-Rise Apts.	4	26	20	44	26	59	65	25	109	25	402	1
Commercial	97	448	129	63	122	144	220	106	170	296	1,795	5
Industrial	5	16	12	5	42	21	6	16	0	295	418	1
Local Public Facilities	72	47	154	441	47	54	75	131	67	102	1,110	3
Federal Facilities (excl. parks)	47	481	4	1,067	409	1	1	412	283	76	2,781	7
Institutional	42	67	71	117	22	142	249	163	659	730	2,262	6
Permanent Open Space	296	678	1,321	729	533	141	354	878	2,011	1,038	7,980	20
Rail, Communication, Utilities	1	36	223	74	11	97	6	83	4	321	857	2
Vacant	66	58	179	188	51	36	33	22	111	99	843	2
TOTAL LAND	1,958	2,776	5,305	4,687	1,884	1,971	2,259	4,757	7,982	5,645	39,225	100.0
<i>Water</i>	<i>117</i>	<i>509</i>	<i>135</i>	<i>1,791</i>	<i>1,295</i>	<i>46</i>	<i>239</i>	<i>19</i>	<i>313</i>	<i>89</i>	<i>4,554</i>	
TOTAL	2,075	3,284	5,440	6,474	3,179	2,017	2,498	4,776	8,288	5,735	43,766	

Source: Office of Planning, Comprehensive Plan District Elements, December 2006

III.D.4 Major Structural Controls

Ongoing maintenance of the MS4 infrastructure including structural controls is conducted to ensure consistent performance of MS4 components. There have been no major structural controls

added or removed from the MS4 conveyance system in FY 2006. Table 4 provides a list of traditional and non-traditional BMPs by structure type and the number within the District for FY 2006.

Table 4. Number of Stormwater Facilities by Structure Type Designation, FY 2006.

BMP	BMP Structure Type	Number
Aqua-Shield/Filter	Dry Detention Pond and Hydrodynamic Structures	3
Basin, Detention	Water Quality	1
Basin, Retention	Water Quality	2
Baysaver	Dry Detention Pond and Hydrodynamic Structures	18
Bioretention	Filtering Practice	5
Catch Basin	Water Quality	21
Downstream Defender	Dry Detention Pond and Hydrodynamic Structures	2
Dry Pond	Dry Detention Pond and Hydrodynamic Structures	1
Dry Well	Dry Detention Pond and Hydrodynamic Structures	7
Enviro-pod	Catch basin insert	1
Ex-filtration trench	Filtering Practice	3
Filters/Tree Box	Filtering Practice	2
Green Roof	Impervious Surface Reduction/Non-structural Practices	11
Infiltration Trench	Infiltration Practice	17
Leaching Tank	Filtering Practice	4
Modified Manhole	Dry Detention Pond and Hydrodynamic Structures	4
Modular Rain Tank	Filtering Practice	1
Oil-Grit Separator	Dry Detention Pond and Hydrodynamic Structures	1
RainStore System	Infiltration Practice	5
Sandfilter	Filtering Practice	6
Sandfilter, bisected CMP	Filtering Practice	1
Sandfilter, underground	Filtering Practice	37
Storm Chamber System	Infiltration Practice	1
Stormceptor	Dry Detention Pond and Hydrodynamic Structures	10
Stormfilter	Dry Detention Pond and Hydrodynamic Structures	24
Underground Retention	Infiltration Practice	6
Vegetated Biofilter, Swale, Strip	Filtering Practice	2
Water Quality Inlet	Dry Detention Pond and Hydrodynamic Structures	10
Water Quality Manhole	Dry Detention Pond and Hydrodynamic Structures	3
Water Quality Swale	Dry Detention Pond and Hydrodynamic Structures	2
Total		211

Source: BMP Types defined from information provided on the Chesapeake Bay Tributary Tools website:
http://www.chesapeakebay.net/info/wqcriteria/tributary_tools.cfm#resources

III.D.5 Landfills

There are no active landfills within the District.

III.D.6 Publicly Owned Lands

The National Park Service (NPS) is the primary public entity holding land within the MS4 area of the District. According to Government Accounting Office (GAO) Report No. GAO-05-378, NPS manages 356 Federal properties in the District covering approximately 6,735 acres of land. A majority of NPS properties are referred to as circles, squares and triangles less than one acre in size; however, parks and parkways represent approximately 93 percent of the total acreage for the 356 properties.

The U.S. Department of Agriculture Agricultural Research Service (USDA ARS) runs the National Arboretum. The Arboretum is 446 acres in size and has not increased or decreased in size in the past five years.

The DC Department of Parks and Recreation (DPR) also controls acreage in the District. The Parks and Recreation Master Plan website (<http://www.bakerprojects.com/dprmsterplan/>) states that there are approximately 1,000 acres of land managed by DPR. The amount of publicly owned lands in the District has increased slightly as the federal government transfers lands over to the District. Table 5 presents the acreage of publicly owned land in 2006.

Table 5. Acreage of Publicly Owned Lands as of 2006.

Agency	Total Acres
National Park Service	6,735
United States Department of Agriculture Agricultural Research Service	446
DC Department of Parks and Recreation	~1,000
DC Housing Authority	280

III.D.7 Industries

No significant changes in industrial activity were identified in FY 2006. The Industrial Facilities Database has been updated and is discussed in detail in Section III.F.2 of this report. The database will continue to be used to track changes in industrial activity in the District.

III.D.8 Electronic Mapping

Existing mapping of the separate storm sewer conveyance system has been digitized and combined with the data regarding storm sewersheds and outfall locations to create a database of

the MS4 infrastructure. Final verification of the District outfalls has been completed. The database contains information including outfall size, type and condition. There are approximately 800 outfalls in the District, of which 410 are located in the MS4 area. Table 6 presents the number of outfalls in the MS4 by watershed. The remaining outfalls are located outside of the MS4.

Table 6. Number of Outfalls Identified by Watershed.

Watershed	Number of Outfalls
Anacostia River	155
Potomac River	127
Rock Creek	128

The MS4 Program has made progress toward becoming an integrated planning and management tool using GIS. Additional information is provided in Section III.D.9 of this report.

III.D.9 GIS Stormwater Model

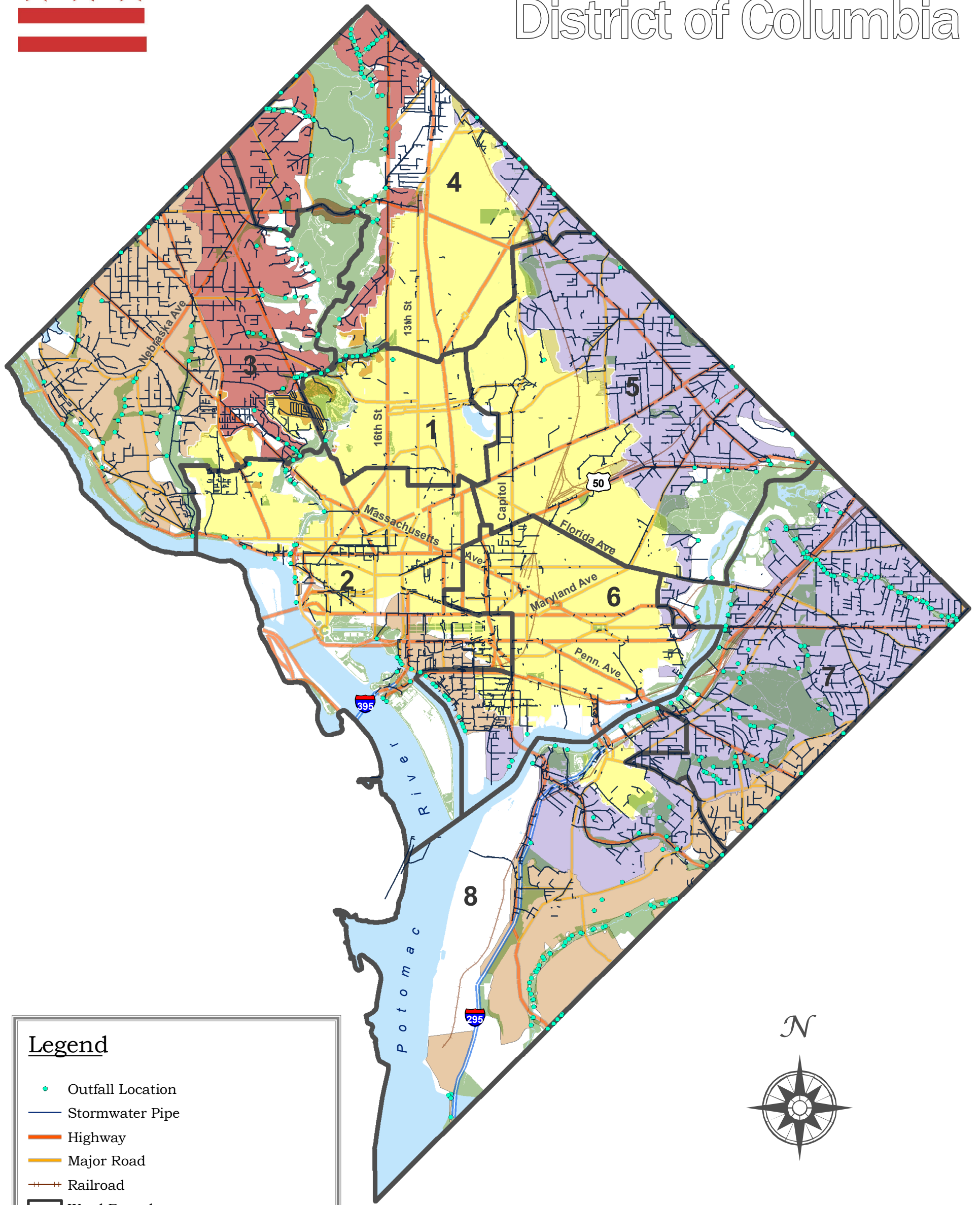
Part V of the Permit describes reporting requirements for the development of a GIS stormwater model. The stormwater pollution control model uses GIS to compile information concerning the District. Specific GIS information regarding the MS4 system, outfall inspection, pollutant estimates provided by the District and federal government agencies have been added to the MS4 data.

Performance Standard: The District maintains a database of existing mapping information and updates the database as pertinent data are developed.

The stormwater pollution control model is being improved to better model stormwater pollution control in the District. Work continues on using the model to estimate pollutant loadings for the District's watersheds. Please refer to Section IV.D.10 for more information on modeling. Basic geographic information compiled to date is included in Table 7.



Washington District of Columbia



Legend

- Outfall Location
- Stormwater Pipe
- Highway
- Major Road
- Railroad
- Ward Boundary
- Anacostia Watershed - MS4
9,460 Acres (51%)
- Potomac Watershed - MS4
5,658 Acres (30%)
- Rock Creek Watershed - MS4
3,562 Acres (19%)
- Combined Sewer Overflow (CSO) Area
- Park or Forest Area



0 2
Miles

Figure 1. Infrastructure and Outfall Locations

Table 7. OCTO-GIS Information.

Basic Geographic Information Compiled – DC Base Map Layer
District Boundaries
DC property (Schools, DPR, Housing)
Street maps and names
Schools
Federal building locations
Waterway and water body information
Zoning information
Floodplains
Field Verification Information
MS4 piping system
Outfall location information (type, size, condition)*
Storm drain locations
GIS Data from the MS4 Task Force Agencies
Structural BMP locations
Non-structural BMP locations
School yard and community gardens
Illicit discharge and inspection activities
DPW street sweeping routes
DDOT BMP installations on roadway projects
WASA catch basin maintenance work

* Conducted by EA Engineering, Science, and Technology Inc. under contract to WASA

The conveyance system has been field verified using GPS equipment to provide GIS input to the District’s infrastructure database. Field work including, verification of the outfall location, size, and status, in conjunction with dry weather flow and illicit discharge inspections, was completed in FY 2006.

Additional information (such as the industrial facility database, location of structural improvements, etc.) will be added to the database as it is received.

DDOE has refined and updated the DC automated database system for tracking stormwater management facilities inspected for maintenance to include tracking of construction projects with stormwater management BMPs. The Stormwater Pollution Tracking Database is being developed and will contain all existing and potential new databases pertaining to activities that the District’s agencies conduct to reduce stormwater pollution. Protocols and strategies are being developed to migrate and transfer Microsoft Access databases into a more robust database. The main database-client interface will allow the user to easily compare accomplishments during the

reporting year. The database system now contains data for BMPs developed since the inception of the program in 1988 and has enabled faster and more efficient rescheduling of inspection and retrieval of maintenance records.

FY 2007 Goals: To compile additional GIS data from other District agencies.

III.D.10 TMDL Modeling

The TMDLs for District waters have been developed using well known water quality modeling tools such as Hydrological Simulation Program - FORTRAN, Water Quality Analysis Simulation Program, and Environmental Fluid Dynamics Computer Code. These models were used to estimate loads from point and nonpoint sources, simulate fate and transport of contaminants, and develop allocations. The models and various technical approaches used are described in the relevant TMDL documents. The TMDL documents are available at DDOE website at:

<http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,495456.asp>.

III.E Monitoring Program

III.E.1 Outfall and Instream Monitoring

Part IV of the Permit specifies representative sampling locations for each of the three subwatersheds designated within the MS4 area of the District: Anacostia River, Potomac River, and Rock Creek. One subwatershed is monitored in each calendar year on a rotating basis. Each of the sites is to be monitored for at least three wet weather events per year. At sites with dry weather flows, dry weather screening samples are collected two times per year as part of the District's dry weather screening program. Sampling was conducted in the Anacostia River and Potomac River watersheds and partially reported in the 2006 DMR. Additional data collected for the Anacostia River and Potomac River monitoring stations since the submission of the 2006 DMR forms and report (August 15, 2006) are presented in this report. These data complete the minimum required three wet weather events for this particular watershed. Nine sites were sampled within the Anacostia watershed in 2006 and seven sites were sampled in the Potomac River watershed in 2005-2007.

Ten stations are monitored for the Rock Creek watershed. Six of these stations were approved by EPA Region III Director in a letter dated March 9, 2003 and they have been incorporated in the Permit in section IV.A.1. Four additional sites were added by the District to better

characterize discharges from MS4 to Rock Creek. The Rock Creek watershed will be sampled during calendar year 2007 and reported in the accompanying 2007 DMR.

Figure 2 presents the locations of the monitoring sites. According to the Permit, each site is to be monitored for at least three wet weather events per year. At sites with dry weather flows, dry weather screening samples are collected twice a year as part of the District's dry weather screening program.

Each of the subwatersheds is sampled on a three-year rotational basis, as required by the Permit. The data collected will be used to generate water quality trends analyses for each subwatershed and for each sample station. To date, only the Anacostia River subwatershed has had more than one sample rotation.

Photo documentation of stormwater sampling at the Anacostia River and Potomac River sampling stations is provided in Appendix B.

Rainfall

Rainfall during FY 2006 varied from month to month. Below normal precipitation was recorded in September and November 2005 and February, March, May, and August of 2006 based on precipitation recorded at Ronald Reagan Washington National Airport. September 2005 was the driest month on record (0.11 inches of rain) until March 2006 when only 0.05 inches of rain fell. Record high precipitation occurred in October 2005 as well as in June and September 2006. Excessive rainfall resulting from tropical storm Tammy fell in the District over the period October 6-8, 2005. The elevated June 2006 rainfall was due to tropical depression Alberto; September's rainfall was due to rainfall resulting from tropical storm Ernesto. Monthly average and observed rainfall recorded at the Ronald Reagan Washington National Airport are summarized for FY 2006 in Figure 3.

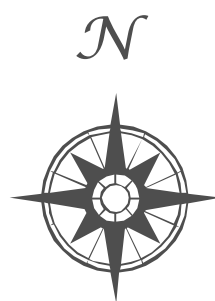


Washington District of Columbia



Legend

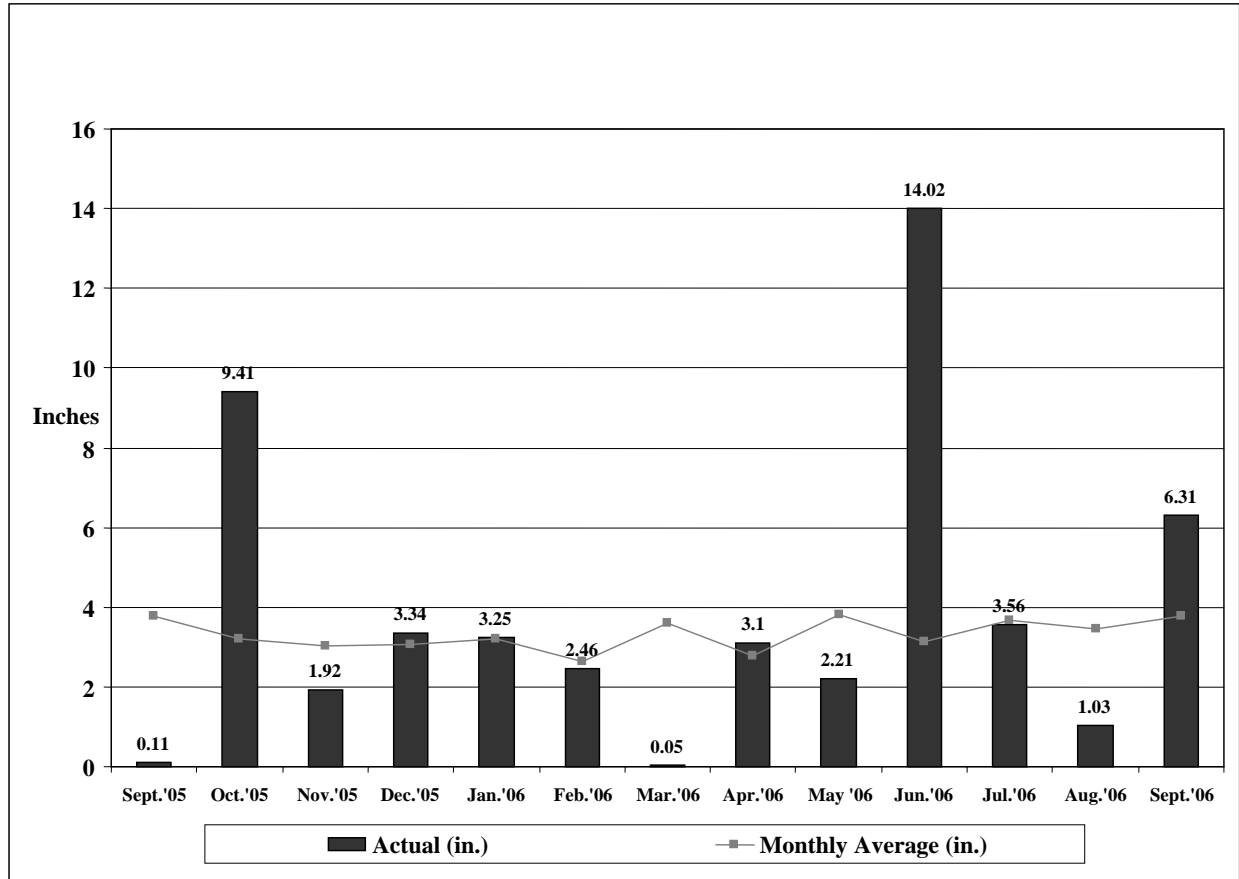
- Monitoring Station
- Highway
- Major Road
- Railroad
- Park or Forest Area



0 2
Miles

Figure 2. MS4 Monitoring Stations for the Potomac River and Anacostia River Watersheds

Figure 3. Average and Observed Monthly Precipitation at Ronald Reagan Washington National Airport for FY 2006.



Source: National Weather Service (NWS) weather station at Ronald Reagan Washington National Airport (COOP ID: 448906)

Hydrology Modeling

Annual runoff for each monitored sewershed was calculated by the Simple Method (EPA 1992) as the product of annual rainfall, a runoff coefficient, and drainage area. Runoff volume was calculated as:

$$R = \sum_{i=1}^{\text{No. of landuse types}} \left(\frac{P}{12} \times CF \times Rv_i \times A_i \right) \quad \text{Equation 1}$$

where

R = Annual runoff (acre-feet)

P = Average annual rainfall (inches)

CF = Correction factor (0.9) to adjust for storms where no runoff occurs (dimensionless)

Rv_i = Runoff coefficient for the land use type (dimensionless)

A_i = Land use area (acres)

Annual precipitation for FY 2006 within the District of Columbia was 52.0 inches as reported by the National Weather Service (NWS) weather station at Ronald Reagan Washington National Airport (COOP ID: 448906). The sewershed area was obtained from the sewershed coverage. A key parameter in Equation 1 is the runoff coefficient (Rv_i), which is directly related to imperviousness and land use. Land use categories, impervious surfaces, and runoff coefficients were calculated for each sewershed and presented in Appendix C.

Water Chemistry

Field measurements of temperature, pH, dissolved oxygen, and residual chlorine were taken at each sample location for each sampling event. Samples were sent to Microbac Laboratories, Inc. for laboratory analysis for additional parameters, as shown on Table 4-1 of the 2006 Discharge Monitoring Report. The analyses of the water samples were used to calculate the annual pollutant loads for each sewershed sampled for both wet and dry weather events. These results are presented in Tables 8 and 9.

Table 8. Load Estimates of 20 Pollutants for the Anacostia River Monitoring Stations, 2005-2006.
 (Load in lb/year unless otherwise noted)

Station	TSS	BOD	TN	TP	FC ^b	O&G	Zn ^c
Stickfoot	548,000	312,000	17,600	2,800	2.66x10 ¹³	ND	708
O Street ^a	18,700	13,300	375	55	4.32 x10 ¹³	691	19
Anacostia High	114,000	58,100	5,760	615	1.67 x10 ¹³	13,900	195
Gallatin	796,000	404,000	13,200	2,230	2.32 x10 ¹³	23,500	910
Varnum	828,000	559,000	39,800	5,080	2.90 x10 ¹³	ND	1,010
Nash Run	4,420	7,590	328	65	4.17 x10 ¹³	ND	25
East Capitol	19,900	24,500	2,540	338	5.11 x10 ¹³	ND	93
Ft. Lincoln	9,380	2,150	70	21	1.52 x10 ¹³	189	8
Hickey Run	114,000	34,600	3,100	177	2.06 x10 ¹³	4,850	223

Station	Pb ^c	Cu ^c	As ^c	PAH 1	PAH 2	PAH 3	Chlordane
Stickfoot	116	377	ND	ND	ND	ND	ND
O Street ^a	4	6	0.42	ND	ND	ND	ND
Anacostia High	39	207	ND	ND	ND	ND	ND
Gallatin	152	148	15	ND	19.8	ND	ND
Varnum	165	342	ND	ND	ND	ND	ND
Nash Run	1	9	ND	ND	ND	ND	ND
East Capitol	12	13	ND	ND	ND	ND	ND
Ft. Lincoln	0.84	2	0.07	ND	ND	ND	ND
Hickey Run	27	37	ND	ND	ND	ND	ND

Station	Heptachlor	Dieldrin	DDT	DDE	DDD	PCBs
Stickfoot	ND	ND	ND	ND	ND	ND
O Street ^a	ND	ND	ND	ND	ND	ND
Anacostia High	ND	ND	ND	ND	ND	ND
Gallatin	ND	ND	ND	ND	ND	ND
Varnum	ND	ND	ND	ND	ND	ND
Nash Run	ND	ND	ND	ND	ND	ND
East Capitol	ND	ND	ND	ND	ND	ND
Ft. Lincoln	ND	ND	ND	ND	ND	ND
Hickey Run	ND	ND	ND	ND	ND	ND

TSS: total suspended solids; BOD: biochemical oxygen demand; TN: total nitrogen; TP: total phosphorus; FC: fecal coliform bacteria; O&G: oil and grease; Zn: zinc; Pb: lead; Cu: copper; As: arsenic; PAH: polycyclic aromatic hydrocarbons; PCBs: total polychlorinated biphenyls

ND: non-detect

^aSample size for each of the monitoring stations is three, with the exception of O Street Pump Station, where construction activities prohibited sampling after the May 2006 collection.

^bUnits are in colony forming units (CFU)/year

^cTotal recoverable metals

**Table 9. Load Estimates of 20 Pollutants for the Potomac River Monitoring Stations
 2005-2006.**
 (Load in lb/year unless otherwise noted)

Station	TSS	BOD	TN	TP	FC ^a	O&G	Zn ^b	Pb ^b
Battery Kemble	33,200	49,000	1,080	287	1.46x10 ¹⁴	ND	57.7	11.9
Foundary Branch	2,970	7,960	734	131	9.03x10 ¹¹	730	10.09	1.37
Dalecarlia	917	818	219	36.2	1.08x10 ¹²	ND	0.672	0.62
Oxon Run	6,800	14,200	758	76.9	4.28x10 ¹¹	1,160	35.6	2.23
Tidal Basin	22,500	22,400	680	145	1.30x10 ¹²	ND	24.1	3.62
Ship Channel	9,620	12,000	ND	76.2	5.64x10 ¹³	6,690	102	82
C&O Canal	1,700	6,220	397	43.9	1.04x10 ¹²	ND	8.73	1.15

Station	Cu ^b	As ^b	PAH 1	PAH 2	PAH 3	Chlordane
Battery Kemble	148	0.79	ND	ND	ND	ND
Foundary Branch	6.07	0.19	ND	ND	ND	ND
Dalecarlia	1.83	ND	ND	ND	ND	ND
Oxon Run	9.23	ND	ND	ND	ND	ND
Tidal Basin	14.3	0.45	ND	ND	ND	ND
Ship Channel	83.5	ND	ND	ND	ND	ND
C&O Canal	6.33	0.51	ND	ND	ND	ND

Station	Heptachlor	Dieldrin	DDT	DDE	DDD	PCBs
Battery Kemble	ND	ND	ND	ND	ND	ND
Foundary Branch	ND	ND	ND	ND	ND	ND
Dalecarlia	ND	ND	ND	ND	ND	ND
Oxon Run	ND	ND	ND	ND	ND	ND
Tidal Basin	ND	ND	ND	ND	ND	ND
Ship Channel	ND	ND	ND	ND	ND	ND
C&O Canal	ND	ND	ND	ND	ND	ND

TSS: total suspended solids; BOD: biochemical oxygen demand; TN: total nitrogen; TP: total phosphorus; FC: fecal coliform bacteria; O&G: oil and grease; Zn: zinc; Pb: lead; CU: copper; As: arsenic; PAH: polycyclic aromatic hydrocarbons; PCBs: total polychlorinated biphenyls

ND: non-detect

^aUnits are in colony forming units (CFU)/year

^bTotal recoverable metals

III.E.2 Hickey Run

Hickey Run is a small tributary to the Anacostia River. The headwaters of Hickey Run are part of the MS4 with four outfalls located close together. Through these four outfalls, the storm sewer gives way to an open stream channel. The stream then flows through the National Arboretum for less than a mile before meeting the Anacostia River.

Illegal dumping of oil and grease has historically plagued the stream. Above the open stream, there are a number of automobile repair shops and gas stations, many of which do not properly dispose of waste oil. Also, oil and grease flush into the storm sewer system during rainstorms. While much of the oil and grease originates from nonpoint sources in

the upper half of the Hickey Run watershed upstream from the two outfalls, these pollutants find their way to the storm sewer system and are thus classified as point sources in the Hickey Run TMDL. Figure 4 depicts the locations of the auto repair shops and outfalls within the Hickey Run storm sewershed.

Compliance Summary

Performance Standard: The stormwater pollution control program for Hickey Run emphasizes compliance with the Hickey Run TMDL for oil and grease. Activities for FY 2006 continued to emphasize the work that DDOE already had underway:

- Monitor Hickey Run for oil and grease on a rotating basis with the Anacostia watershed monitoring stations, and
- Design and install BMPs near New York Avenue under a cooperative agreement DDOE holds with the National Arboretum through the USDA ARS.

Monitoring

Performance Standard: The District monitors an outfall in the Hickey Run watershed. Samples are collected every three years. The results are presented in the annual Discharge Monitoring Reports. The Permit stipulates that ambient water quality monitoring of Hickey Run should continue at its current location.

In FY 2006, three wet-weather monitoring samples were collected from Hickey Run; none of the samples exceeded the water quality standard for oil or grease. Auto repair facilities continue to be targeted for education on proper disposal of waste oil.

Cooperative Agreement with the National Arboretum

Performance Standard: The District has a MOU with the National Arboretum for the conceptual design and construction of BMPs for the Arboretum.

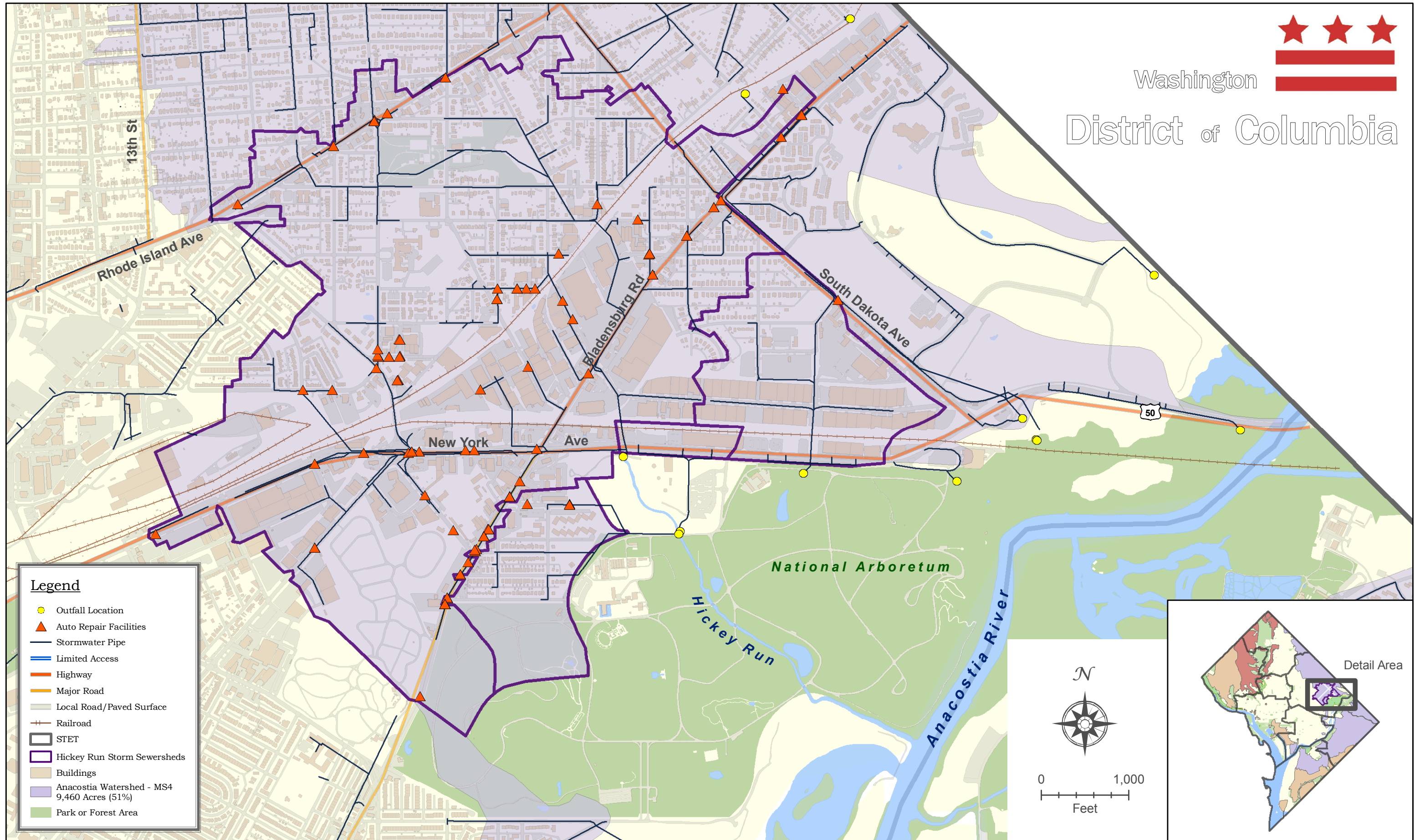


Figure 4. Hickey Run Storm Sewershed and Auto Repair Facilities

The District has a MOU with the USDA ARS, to design and install BMPs within the National Arboretum for the purpose of improving the water quality of Hickey Run. USDA ARS hired a contractor, who made recommendations and prepared a design package. USDA ARS used Earth Tech, Inc. as the primary contractor and Ecologix as a stakeholder subcontractor to provide a conceptual design for a BMP device or system to be installed on Hickey Run. USDA ARS also considered recommendations from the Center for Watershed Protection. In FY 2006, USDA ARS continued working with the Army Corps of Engineers to establish a design and build contract for the next phase of the BMP structures. It is anticipated that the design will be completed and installation will begin during the second half of 2007.

Design of Hickey Run BMP and Monitoring Plan

Performance Standard: The District continues to coordinate with the National Arboretum to finalize the design and installation of BMPs within the National Arboretum. The design and construction of BMPs for the National Arboretum is in the hands of USDA ARS.

During FY 2006, USDA ARS contracted with Earth Tech, Inc., through Naval Facilities Engineering Command Washington, to provide a conceptual design for a stormwater control structure device/pollution abatement system for the stream. When installed, it is anticipated that the system will meet regulatory requirements for stormwater discharges.

- In December 2005, Earth Tech completed the conceptual design for the installation of BMPs within the National Arboretum. When progress resumes and the structures are installed, they will handle oil, grease and floatables to meet the TMDL limits:
 - Two structural BMPs will be installed downstream of the New York Avenue outfall; maximum treatment will be the 6-month storm, or 98 cubic feet per second.
 - Oil and grease: 80-90 percent of free floating oil (current TMDL is 27 pounds per day);
 - Floatables: 90 percent or more of floatable trash (current load is estimated at 10 gallons per day).

U. S. Fish and Wildlife Service MOU and Assessment

A watershed and stream assessment was conducted by the U. S. Fish and Wildlife Service (USFWS) on Hickey Run watershed. This document was the basis for discussions with the National Arboretum on potential restoration of Hickey Run and/or its tributaries. DDOE worked with USFWS to finalize the “Hickey Run Watershed and Stream

Assessment” in late 2005. The Assessment yielded extensive technical findings that will be applied to forthcoming decisions on stream restoration. DDOE, USFWS and the National Arboretum met on several occasions to try to find consensus on design options. As of early 2007, the Arboretum has agreed to allow USFWS to move ahead with 100 percent restoration designs for one tributary to the main stem of Hickey Run (Springhouse Run). USFWS continued working with a National Arboretum landscape architect to meet specific arboretum aesthetic concerns.

In summary, the Hickey Run Watershed provides a sub-watershed to model the impacts of the stormwater management program. The watershed has been monitored as part of the Anacostia watershed rotation, it has BMPs nearing final design stage, and it has been subject to an extensive educational awareness campaign under the Environmental Education for the Compliance of Automotive Repair Shops (EE-CARS) Program. In this manner, the Hickey Run watershed provides an opportunity to both assess the effectiveness of the District’s stormwater management program and meet the requirements of the CWA. The EE-CARS document is available at the DDOE website and as Attachment A-7 on the CD enclosed with this report.

III.F Management Programs

The District continues to monitor existing structural BMP and LID projects as well as implement new projects in the MS4 area.

III.F.1 Commercial, Residential, and Government Areas

Part III.B.1 of the Permit requires the District to implement the October 19, 2002 SWM Plan and to reduce the discharge of pollutants into the District MS4 from residential, commercial, Federal and District-owned areas. The District has developed and continues to implement a program to control stormwater discharges from federal and District government areas. The District does not have jurisdiction over federal lands to require the installation of structural retrofits to control stormwater pollutants from federal lands. Some federal properties have their own NPDES permits such as Bolling Air Force Base. District regulations require federal agencies to comply with the District’s erosion and sediment control regulations with respect to new construction and re-construction on federal properties in the District. In addition, DDOE signed agreements with DDOT and the General Services Administration (GSA), which require federal contractors working on buildings or highway improvements to comply with the District’s erosion and sediment control regulations. DDOE also reviews construction plans submitted by DPW, DDOT and WASA with respect to these erosion and sediment control requirements.

The management plan for stormwater pollution control on commercial, residential and federal and District government areas entails a mixture of programs emphasizing structural and non-structural BMPs and educational programs:

- District regulatory requirements, such as the *District of Columbia Standards and Specifications for Soil Erosion and Sediment* and the *Storm Water Management Guidebook, 2003*.
- Functional landscaping programs, such as the use of structural BMPs and riparian buffer zones on new roadway construction.
- LID practices.
- Catch basin cleaning, maintenance of the MS4, street sweeping, and leaf collection.
- Rain leader disconnection.
- Education programs on pet wastes, fertilizers, and landscaping.
- Methods of measuring the performance of activities.
- Strengthening erosion control for new construction.
- Continuing to work with federal and District facilities in order to implement and maintain stormwater pollution controls on new and retrofit construction.

The following sections detail progress for each activity in FY 2006.

DC Stormwater Manual

Performance Standard: The District requires engineering standards and specification to be followed by all District builders.

The *District of Columbia Soil Erosion and Sediment Control Standards and Specifications* (2003) and the District's *Stormwater Management Guidebook* are followed by all District builders, whether private, commercial, federal or District, for all new and rebuild construction sites. These manuals, which are available to the public at the DDOE offices, encourage builders to use stormwater BMPs for new and rebuild construction through the plan review process.

FY 2006 Activities: A draft contractual agreement for the expansion of the *Storm Water Management Guidebook, 2003* was completed during FY 2006 and is being reviewed by staff for technical sufficiency.

- During FY 2006, 860 customers were provided technical assistance on issues related to stormwater management and erosion and sediment control.

- During FY 2006, 15 copies of the *Storm Water Management Guidebook*, 23 copies of the *2003 District of Columbia Standards and Specifications for Sediment Control Manuals*, and 8 copies on CD were distributed to the public.
- The Erosion and Sediment Control Guidebook was still in process for revision during FY 2006 pending the completion of regulatory updates and revisions.

FY 2007 Goals: The District will continue promotion of stormwater BMP and LID practices in construction plans including education on District standards and specifications for erosion and sediment control, stormwater management plans and the DC building permit process.

Functional Landscaping

Performance Standard: The District encourages developers through training sessions to incorporate functional landscaping techniques in their site development plans.

FY 2006 Activities: During FY 2006, DDOE continued to encourage developers to incorporate functional landscaping techniques in their site development plans through pre-design meetings held for all pre-development or development projects. No formal training for developers occurred during FY 2006. Developers are encouraged to incorporate functional landscaping techniques into their development on a continual basis during pre-development meetings with DDOE plan review engineers.

- In FY 2006, DDOT continued its efforts to develop functional landscape tree planting specifications sensitive to stormwater as well as compatible and consistent with roadway and bridge design and construction. In FY 2006, DDOT partnered with Casey Trees in developing an intern position at the DDOT office to review and develop tree planting specifications. The intern worked directly with the Urban Forestry Administration, a sector within DDOT, to develop the specifications. The drafting of specifications will continue into FY 2007.
- DDOT is continuing to update the Design and Engineering Manual and Standard Drawings and Specifications to include stormwater and pollution reduction BMPs.
- DDOT is developing the Anacostia Waterfront Initiative Transportation Architecture Design Standards. Forty-seven of 130 elements offer LID opportunities of which 18 are actual LIDs. The elements in the manual will be tested and assessed prior to standardization for citywide implementation. DDOT expects finalization of the

standards by the end of FY 2007 with implementation in FY 2008, pending the necessary review and approval.

FY 2007 Goals: The District will continue to provide training, guidance, and recommendations to developers, professional engineers, architects, homeowners, and government officials regarding functional landscaping techniques.

Low Impact Development Practices

Performance Standard: The District promotes the use of LID techniques throughout the District through plan review and educational activities.

FY 2006 Activities: The District continued to promote, encourage, and review the use of LID techniques throughout the District through plan review and educational activities that focus on LID practices. The District continued to review and approve SWM plans encouraging the use of LID techniques in stormwater projects. Photographs of several LIDs projects are provided in Appendix D.

Several LID projects were completed during FY 2006. Table 10 contains the list of LID projects completed in the MS4 and CSO areas. Estimated nutrient load reductions were calculated where appropriate.

The District's LID review and inspection activities in FY 2006 included the following:

- The District reviewed 220 plans, of which 132 were located in the MS4 area, and 70 of those were LID projects. The plan reviews served to promote or encourage the use of LIDs across the District.
- Nine federal projects reviewed involve LIDs and together control 8 acres of runoff.
- DDOE staff attended and presented at the EPA Regional States Meeting, 2006.
- During FY 2006, 23 Environmental Impact Screening Forms and one Environmental Impact Statement were reviewed.
- The District provided technical assistance to 860 customers on issues related to stormwater management and erosion and sediment control.
- Developers filed 11 Notice of Intent Applications for compliance with EPA's Construction General Permit during FY 2006.

Table 10. Total Nitrogen, Total Phosphorus and Total Suspended Sediment Load Reductions by Specific LID Projects Sponsored by DDOE to Date

District of Columbia Location (CSO and MS4 areas)	BMP Type ^(3,4)	Treatment Area (Acres)	Total Nitrogen Load Reduction ^(1,2,5) (lbs/year)	Total Phosphorus Load Reduction ^(1,2,6) (lbs/year)	Total Suspended Sediments Load Reduction ^(1,2,7)
Ketcham Elementary School, 1919 15 th Street, SE	Bioretention Cell Draining Roof	0.0459	0.009	No Atmospheric Deposition Component	No Atmospheric Deposition Component
River Terrace Elementary School, 420 34 th Street, NE	Bioretention Cell Draining Roof	0.0275	0.003	No Atmospheric Deposition Component	No Atmospheric Deposition Component
US National Park Service Head Quarters, Anacostia Drive, SE	Bioretention Cell	0.1377	2.6	0.3	146.4
Ross Elementary School, R Street, NW	Parking Pavers	0.1377	2.6	0.3	219.5
Bancroft Elementary School, 1755 Newton Street, NW	Bioretention Cell	0.4591	8.5	1.1	731.8
Peabody Elementary School, 425 C Street, NE	Parking Pavers	0.0092	0.2	0.0	14.6
Backus Middle School, 5171 South Dakota Avenue, NE	Bioretention Cell	0.1607	3.0	0.4	256.1
Architect of the Capitol, 1 st and D Streets, NE	Bioretention Cell	0.1033	1.9	0.2	164.6
Minnesota Avenue Metro Station	2 Large Bioretention Cells	0.4591	8.5	1.1	731.8
Benning Road Bridge LID	Bioretention Cell	0.4132	7.7	1.0	658.6
Human Rights Campaign, Rhode Island Avenue, NW	Green Roof	0.0459	0.009	No Atmospheric Deposition Component	No Atmospheric Deposition Component
Casey Trees Endowment Fund, 1425, K Street, NE	Green Roof	0.0803	0.028	No Atmospheric Deposition Component	No Atmospheric Deposition Component
American Society of Landscape Architects, 636 Eye Street, NW	Green Roof	0.0689	0.021	No Atmospheric Deposition Component	No Atmospheric Deposition Component
JBG Office Building, 51 Louisiana Avenue, NW	Green Roof	0.2755	1.200	No Atmospheric Deposition Component	No Atmospheric Deposition Component

District of Columbia Location (CSO and MS4 areas)	BMP Type ^(3, 4)	Treatment Area (Acres)	Total Nitrogen Load Reduction ^(1, 2, 5) (lbs/year)	Total Phosphorus Load Reduction ^(1,2,6) (lbs/year)	Total Suspended Sediments Load Reduction ^(1,2,7)
Columbia Heights Recreation Center, 180 Girard Street, NW	Green Roof	0.0217	0.001	No Atmospheric Deposition Component	No Atmospheric Deposition Component
Trinidad Recreation Center, 1380 Childress Street, NE	Green Roof	0.1001	0.044	No Atmospheric Deposition Component	No Atmospheric Deposition Component
Riggs LaSalle Recreation Center, 501 Riggs Road, NE	Green Roof	0.0918	0.037	No Atmospheric Deposition Component	No Atmospheric Deposition Component
TOTALS		2.6	35.3	4.4	2923.3

Notes: 1. Assuming urban stormwater concentrations of 172 mg/L total suspended solids, 0.26 mg/L total phosphorus, and 2.00 mg/L total nitrogen; and 41 inches of annual rainfall. Also assuming 100% pollutants mobilized at first half-inch rain event or less.
 2. $L = 0.226 * R * C * A$, where L = Annual load (lbs), R = Annual runoff (inches), C = Pollutant concentration (mg/L), A = Area (acres), 0.226 = Unit conversion factor.
 3. Assuming removal efficiencies of 50 percent for total nitrogen, 40 percent for total phosphorus, and 90 percent for total suspended solids for green roofs and bio-cells.
 4. For green roofs, assuming nitrogen pollution rates are strictly the sum of organic wet and dry deposition and that removal efficiencies are equivalent to that of bioretention cells.
 5. Deposition rates for nitrogen originated from National Atmospheric Deposition Program 2004 data (<http://nadp.sws.uiuc.edu>; <http://nadp.sws.uiuc.edu/amaps2/ndep/amaps.html>). Deposition rates of 4.36 pounds/acre⁻¹ of total inorganic nitrogen (wet and dry deposition) assumed (or 5.5 Kg/Ha⁻¹ year) for Washington, D.C.
 6. There is no measured atmospheric deposition component available for phosphorus; therefore, there is no phosphorus loading to rooftops and as such pollution removal efficiencies are not calculable.
 7. There is no readily available atmospheric deposition component for sediment to urban roof tops, and therefore pollution removal efficiencies are not calculable.

During FY 2006, DDOE compiled a list of green roof projects in the District from the plan review database and from the WPD grants database. The plan review database contains projects that are regulated through the submission of plans because they are over 5,000 sq. ft. in area. GIS was used to determine those located within the MS4 or CSO drainage areas. Six projects in the MS4 drainage area will cover an area of approximately 6 acres (265,588 sq. ft.) and are listed in Table 11; 20 additional projects in the CSO drainage area will cover an area of approximately 22 acres (848,157 sq. ft.). The list of projects as presented in Table 11 has not as yet been verified as to implementation status; verification will occur during FY 2007. The geographic location of the green roof projects can be accessed at the DC Atlas website: <http://citizensatlas.dc.gov>

Table 11. Green Roof Projects in the MS4 Drainage Area

Location	Treatment Area (sq. ft.)
2900 Cathedral Avenue, NW	211,360
2846 Davenport Street, NW	5,248
1375 Missouri Avenue, NW	33,300
3417 Massachusetts Avenue, NW	10,680
2000 Half Street, SW	3,000
4598 MacArthur Boulevard, NW	2,000
Total Drainage Area	265,588

District LID work focused on specific regions and watersheds of the District and included the continuation of design and planning for several projects. In FY 2006:

- Watts Branch Watershed: Plans for the bioretention retrofits designed under a subgrant received by the non-profit group Washington Parks and People have been completed. The retrofits will be integrated into park redesign by Walter Pierce Park and the Anacostia Waterfront Corporation. The retrofits will treat approximately one-half acre of impervious surface when constructed.
- Fort Dupont Watershed: A DDOE-issued grant to the non-profit group Sustainable Community Initiative has provided funds for the construction of LID retrofits in Fort Dupont. These retrofits will treat the runoff from 2 large parking lots and the runoff from approximately 400 yards of roadway in the upper watershed, resulting in the treatment of approximately 3.95 acres of impervious surface.
- Pope Branch Watershed: Retrofits in the Pope Branch watershed have been designed and will be constructed in FY 2007. Two sites have been selected and when completed will treat approximately one acre of impervious surface. The grant for this project was awarded to DC Greenworks, which is working in partnership with Ecosite.
- DDOE received four proposals for District-wide LID demonstration projects. The two proposals that will be funded are:
 - The Friends of Takoma Recreation Center to construct a rain garden/bio-retention cell of approximately 1,000 square feet to reduce runoff from six tennis courts at the Takoma Recreation Center, 300 Van Buren Street, NW, and

- The LaSalle Elementary School for construction of a 6,235-square foot green roof on the school.
- DDOE is working with the USDA Natural Resources Conservation Service (NRCS) through the 2006 LID Grant and Construction Program to provide approximately \$800,000 grant money for LID stormwater control BMPs to be designed, permitted and built in the District.
- DDOT retained Howard University Engineering School to evaluate sand filters and BaySaver structures. The monitoring program, which was completed in FY 2006, determined the removal efficiencies for metals, nutrients, hydrocarbon compounds, suspended sediments and dissolved solids. The data demonstrated removal efficiencies of 86 percent for total suspended solids and 90 percent for total dissolved solids. The bioretention pond received flow from only one catch basin instead of two as originally designed.
- Because the SNOOT™ water seal device interfered with WASA catch basin cleaning operations, Water Seal devices are used in catch basins within the CSO to trap gas from the combined sewers. Monitoring of the performance of the catch basins is continuing as part of a pilot test project to determine maintenance requirements and the efficiency of the structures in reducing pollution from stormwater runoff. When the pilot project is completed (expected by the end of FY 2008), selected catch basin structures will be made part of DDOT Design and Construction Standards for implementation in all DDOT's projects.
- During FY 2006, DDOT worked with developers of the Southeast Federal Center in designing, constructing and maintaining LID and have adopted a new permeable pavement material for installation as part of the South Capitol Street Improvements.
- In late FY 2006, DDOT constructed two prototype water quality catch basins. They are located on the southeast and southwest corners of the intersection of 17th and S Streets, SE.
- DDOT reported in FY 2006 that the two water quality bioretention structures constructed in FY 2005 at F Street, SE and at Minnesota Avenue and 33rd Street, NE are working properly and efficiently removing floatables, trash, oil and grease compounds, and suspended solids.

- During FY 2006, DDOT began the construction and installation of six bioretention cells and approximately 900 feet of bioswales for the Anacostia Riverwalk Trail project.
- DDOT continued to expand its bicycle and pedestrian transportation programs with major trails: the Metropolitan Branch Trail and the Anacostia Riverwalk Trail. As part of the trails program, DDOT continues to install bicycle-friendly sewer grates and to conduct bicycle safety education and enforcement activities. DDOT has also begun the procurement process for the design of water quality stormwater management control facilities for the Watts Branch Bicycle Trail.

In FY 2005, DDOE awarded a grant to LID Center, a local non-profit organization, to produce an educational brochure. The brochure was finalized in late 2006 and will be distributed during 2007.

In FY 2006, DDOE and DDOT staff participated in the following training and/or seminars:

- Two DDOT staff attended the National Flood Insurance Program sponsored by the DC Emergency Management Agency and DDOE. The target audience was other DDOT and DDOE engineers.
- Two DDOT staff attended the Chesapeake Bay Watershed Restoration Fair and had a booth displaying DDOT's efforts to improve water quality. The target audience included other environmental and state agencies as well as the general public.
- One DDOT staff attended the Federal Highway Administration (FHWA) Green Highway Conference and had a booth displaying DDOT's efforts to improve water quality for a target audience of FHWA and state engineers.
- DDOE staff presented a PowerPoint presentation on "Retrofitting for NPDES Compliance-Lessons Learned" at the Mid-Atlantic Chapter/International Erosion Control Association's 12th Environmental Conference, Workshop and Trade Show, Ocean City, Maryland, October 31-November 2, 2005.
- Two staff engineers from the Plan Review Branch attended the MAC/International Erosion Control Association Conference and presented a program "Retrofitting for NPDES Compliance Lessons Learned".

- Staff attended a presentation on “Cost-effectiveness of Low Impact Development in Urban Landscapes” by eDesign Dynamics.
- Staff from the Plan Review Branch attended “National Environmental Policy Act and Project Development,” a workshop presented by FHWA.
- Representatives of ABT, Inc. presented a program on innovative stormwater management systems to ten DDOE Watershed Protection Division staff.

FY 2007 Goals: The District will work with non-profit organizations to implement LID projects throughout the city. The District will continue to send technical staff to conferences and workshops.

Catch Basin Cleaning and Street Sweeping Activities

Performance Standard: The District conducts routine catch basin cleaning and street sweeping activities.

FY 2006 Activities: During FY 2006, the District continued catch basin cleaning activities (clean each catch basin once every six months to a year). The District continued street sweeping activities (sweep each of the District’s streets as often as once every week to no less than once each month). DPW will identify improvements in sweeping frequency/techniques to reduce pollutant loading in the MS4 by evaluating street sweeping practices and schedules.

DPW is responsible for street sweeping activities in the District, while WASA conducts catch basin cleaning as part of its maintenance of the MS4 conveyance infrastructure, and DDOT maintains the federal roadways through a contractor. Beginning in October 2005, DDOT’s Street and Bridge Maintenance Group took over contractor responsibilities for cleaning and green space maintenance of the federal highways in the District on a weekly basis. DPW continues to provide street sweeping services for the remaining streets and roads in the District. DPW’s evening street cleaning and other night operations are managed through a single facility at New Jersey Avenue and “K” Streets, SE. Three basic methods are used to clean and sweep streets: mechanical street sweeping, truck crews, and litter vacuum personnel.

In FY 2006, DPW and WASA continued to implement street sweeping and catch basin activities, respectively. Catch basin cleaning and sweeping are coordinated to the maximum extent practicable to minimize pollutant discharges into receiving waters. A

total of 60,413 miles of streets, freeways, and highways were cleaned mechanically, and 8,273 miles of streets and roadways were cleaned manually during FY 2006. DPW collected 1,728 tons from alley sweeping activities and 6,632 tons from litter receptacles. Street sweeping, litter receptacles, and alley cleaning work yielded 14,119 tons of collected debris. Also in FY 2006, DPW added five high-efficiency sweepers in September 2006.

Street Sweeping Activities

Table 12 illustrates the six-year trend of street sweeping activities. The number of alley and street miles doubled in 2002 with the purchase of new equipment, including litter vacuum carts for the manual collection of litter. Street miles increased through FY 2004. The tonnages collected are influenced by the number of warm days permitting outside activities and the response of the public to both anti-littering in the streets and alleys and the continued use of trash cans.

Table 12. Six-Year Trend Results of Street Sweeping Activities.

Fiscal Year	Street Miles	Alley Miles	Litter Receptacles	
			Number	Tonnage
2001	34,000	8,751	4,000	3,400
2002	74,490	16,400	4,000	8,920
2003	102,181	41,238	4,050	9,516
2004	103,163	13,354	4,050	9,346
2005	91,649	20,897	4,500	7,755
2006	72,468	N/A	4,200	6,632

N/A = Not available

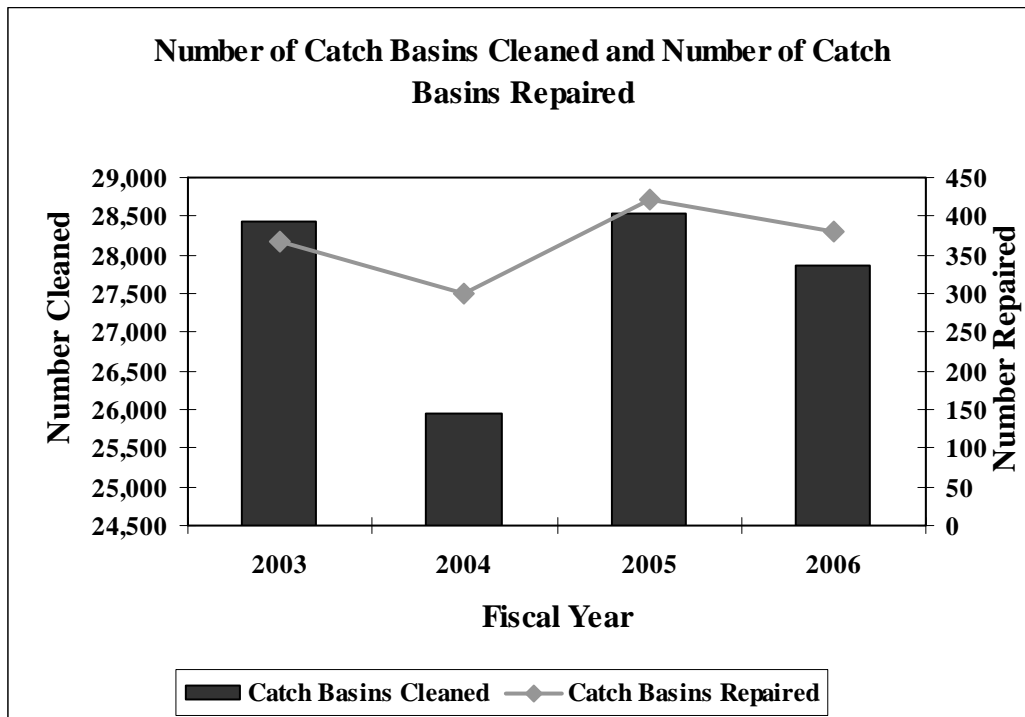
Catch Basin Cleaning Activities

WASA currently conducts the operation and maintenance of pipes and conduits carrying stormwater flow. There are approximately 25,000 catch basins located within the public right-of-way in the District. Approximately two-thirds of these catch basins are in the MS4 area, with the remainder in the CSO area. WASA’s cleaning program does not differentiate between the two systems and works to keep all catch basins clean. Catch basins located on the District’s federal interstate roadway system are currently cleaned and maintained by DDOT’s Street and Bridge Maintenance Group.

Crews operate on a predetermined schedule, cleaning catch basins by ward. During each work day, six two-man crews clean approximately 22 catch basins each. In FY 2006, WASA crews cleaned 27,857 basins for an average cleaning frequency of once every 12 months. .Based on the OCTO GIS database, approximately 12,130 are in the MS4. WASA crews repaired 379 basins as part of the basin repair program during FY 2006. Repair tasks vary from resetting the tops of the catch basins to redesigning the catch basin to avoid damage, to rebuilding the entire structure.

Figure 5 shows the four-year trend for the cleaning and repair of the District catch basins. The number of catch basins cleaned and repaired has remained relatively constant since FY 2003.

Figure 5. Four-Year Trend of Catch Basins Cleaned and Repaired.



FY 2007 Goals: The new high-efficiency sweepers will be added to the existing DPW fleet and will cover approximately 75 miles of highway. A comprehensive street sweeping study will be completed. Catch basin cleaning activities will continue at current levels.

Coordination of Leaf Collection

Performance Standard: The District conducts curbside collection of leaves from District residences.

FY 2006 Activities: DPW activities were conducted through their Leaf and Holiday Tree Program, including the seasonal curbside vacuum collection of leaves from residences in the District. Residents rake leaves into piles, place leaves into a tree box space in the front of their property, or bag leaves and place them in the tree box. Leaves are then vacuumed by one of the District's leaf vacuum trucks. DPW coordinates the leaf and holiday tree collections through the following activities:

- Prior to leaf collections district residents are mailed a flyer, which can be found on the web at <http://www.dpw.dc.gov/dpw/cwp/>.
- The districts within the eight wards comprising the District have leaves collected twice during the collection season on specified days from each ward-district.
- Leaf collection activities for FY 2006 were conducted from November 6, 2005 through January 12, 2006.

As a result of the Leaf and Holiday Tree Program, 9,588 tons of leaves and holiday trees were collected during the collection season as indicated in the Clean City Initiative Report prepared by DPW (Attachment A-2 on the enclosed CD). These tonnages represent leaves primarily collected by the vacuum trucks. The resulting tonnage from two bagged leaves "blitz" weekends conducted during the leaf collection season are also included in the total tonnage of leaves collected for FY 2006. DPW composted 5,300 tons (55 percent) of the leaves and trees collected during the 2006 leaf collection season activities.

Figure 6 shows the five-year trend of leaf collection activities in the District. Leaf tonnage increased in 2004 and decreased in 2005. For FY 2005 and FY 2006, leaf collection has been relatively constant.

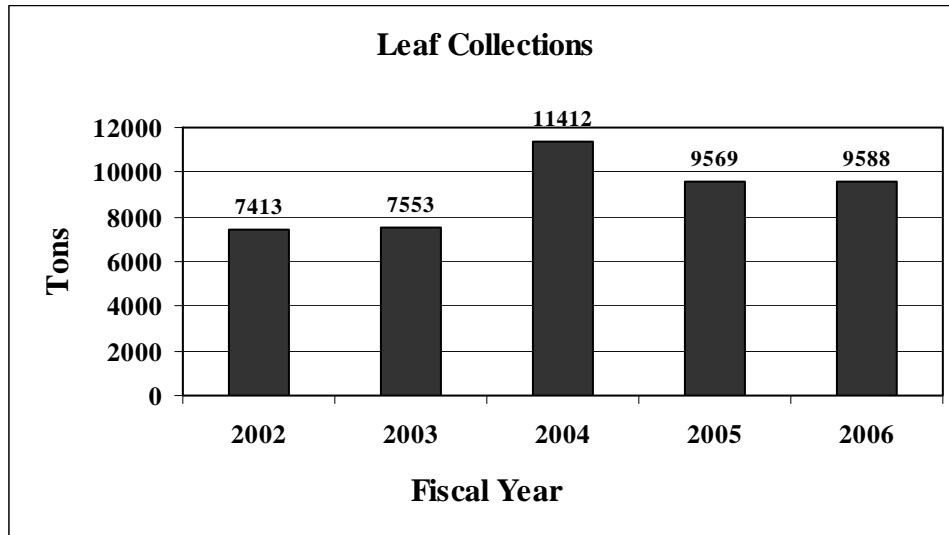
Rain Leader Disconnect Program

Performance Standard: The District will allow disconnection of rain leaders in new construction and existing buildings so that runoff can be channeled to localized

infiltration areas. The Rain Leader Disconnect Program was developed to reduce stormwater runoff from government, commercial, and residential activities.

FY 2007 Goals: The District will continue to increase tonnage of leaves and holiday trees collected and increase the volume of leaves composted.

Figure 6. Five-Year Trends for the Leaf and Holiday Tree Collection Program.



FY 2006 Activities: According to the District of Columbia Construction Codes Supplement, all roof drainage must flow into the separate storm sewer or combined sewer. In new construction activities, this regulation is currently enforced during the plan review prior to construction and during the site inspection process. For existing buildings, these regulations are enforceable as a result of the discovery of illegal connections to the sanitary sewer system in the separate sewer system area.

Changes were made to the Plumbing Section of Chapter 7 of the International Existing Building Codes (Section P-1101.2.1 and P-1101.2.2 of the District of Columbia Building Code Supplement of 2003) to allow the disconnection of downspouts in existing buildings that are undergoing alterations and repairs, provided the estimated cost of such repairs equals or exceeds the assessed value of the property before the start of the alterations and repairs, and provided the existing downspouts are connected to a sanitary or a combined sewer system.

During FY 2006, DDOE reviewed and updated the rain barrel database which now contains approximately 130 records. A follow-up survey will be conducted in FY 2007 to determine if the rain barrels are being used properly and efficiently.

FY 2007 Goals: The District will continue the monitoring of the existing rain leader disconnections and will work on a homeowner/outreach/incentive program to encourage property owners to adopt small stormwater reduction practices.

Education of Public on Pet Wastes, Fertilizing, and Landscaping

Performance Standard: The District maintains a program to develop and distribute public education materials regarding the control of pet wastes, the use of fertilizers, and the promotion of landscaping practices.

These programs are discussed under Section III.F.12

Methods of Measuring the Performance of Activities

Performance Standard: The District has taken steps to develop a formalized system to measure the performance of stormwater management activities to reduce pollution loading to receiving waters. The demonstration of water quality improvements requires a thorough understanding of the existing water quality throughout the MS4.

FY 2006 Activities: The District continued monitoring the performance of stormwater management activities to reduce pollution loading to the Anacostia and Potomac River watersheds. Significant progress has been made in this area including:

- Use of the Master Address Repository (MAR) geocoder to determine if a project is located within the MS4 or CSO areas of the District,
- Verification of the MS4 database system,
- Estimating pollutant loading using the Simple Method equation for constituent seasonal and annual loads,
- Enhancing regulatory and promotional programs with respect to the use of BMPs, and
- Developing a financial tracking system to better define stormwater related expenses.

FY 2007 Goals: The District will continue to refine measurement tools to provide the necessary performance metrics for establishing a method to measure performance of MS4 activities. The District will continue to develop the Stormwater Pollution Tracking

Database that will contain all existing and potential new databases pertaining to District agencies' activities that will ultimately reduce storm water pollution.

Strengthening Erosion Control Programs for New Construction

Performance Standard: The District maintains a plan review erosion control program for new construction coupled with a field inspection program to ensure compliance with the District erosion control regulations.

FY 2006 Activities: During FY 2006, DDOE continued to review plans, inspect construction sites, and implement the inspection and enforcement program as part of the sediment and erosion control program for compliance with erosion and sediment control and SWM regulations. DDOE WPD promoted its *District of Columbia Standards and Specifications for Soil Erosion and Sediment Control and Storm Water Management Guidebook, 2003*.

This program is discussed under Section III.F.3 Management Plan for Construction Sites.

FY 2007 Goals: DDOE will hire two full-time inspectors to increase new construction review and field inspection to ensure compliance with the District's erosion control regulations.

Federal Facilities Program

Performance Standard: The District maintains consent agreements between District and federal agencies to comply with the District sediment and erosion control requirements.

DC laws specify that all builders, including federal contractors, must follow the sediment and erosion controls, including sediment and erosion controls on new and re-build construction sites. The Water Pollution Control Act of 1984, as amended, D.C. official Code § 8-103.01 *et.seq.*, and the Soil Erosion and Sedimentation Control Act of 1977, as amended, codified in 21 DCMR §§ 500-507 provide the legal authority to enforce the erosion and sediment control provisions of the SWM program.

FY 2006 Activities: GSA and DDOE signed a consent agreement in FY 2000 that requires work under contracts through GSA to comply with the same sediment and erosion control requirements as commercial, residential, and industrial operations in the District. This consent agreement assists the District in ensuring that federal facilities comply with the Soil Erosion and Sediment Control Act. DDOE and GSA continue to

work under this agreement, and a number of federal facilities with NPDES permits for stormwater discharges were inspected during FY 2006.

The District continued to implement existing agreements with District and federal agencies. In FY 2006, DDOE reviewed 10 stormwater BMP plans for proposed projects on federal facilities. These projects included a variety of BMP types. These proposed projects are located in all District quadrants (NE, NW, SE, and SW); however, four of the projects were located specifically in the MS4 area. Approximately eight acres in the MS4 were impacted by these proposed projects. Table 13 presents the types of BMPs proposed for federal properties and the District quadrant they are located in.

FY 2007 Goals: The District will maintain consent agreements with federal agencies for compliance with erosion control regulations including the review of stormwater BMP plans.

Table. 13 BMP Types on Federal Properties, FY 2006

BMP Type	Federal Agency	D.C. Quadrant Location
Surface Sand Filter	USDA	NE
Catch Basin Insert	Not Identified	SW
Catch Basin Insert	Not Identified	SW
Catch Basin Insert	Not Identified	SW
Double Water Quality Inlet	Not Identified	NW
Modified Catchment Manhole	Not Identified	NW
Catch Basin with Water Seal	Georgetown University	NW
Baysaver	Bolling Air Force Base	SE
Baysaver (with 36-inch HDPE detention system)	Amputee Training Center	NW
Baysaver	Fort McNair	SW

District Facilities Program

Information specific to DDOT is provided in Section III.F.3.

Continuance of Current Programs

Information about agency-specific cooperative programs is provided in Section III.F.12.

III.F.2 Industrial Facilities

Part III.B.2 of the Permit requires the District to implement a program to monitor and control pollutants in stormwater discharged to the District's MS4 from industrial facilities, and to continue to maintain and update the industrial facilities database.

The management plan of stormwater pollution control from industrial facilities emphasizes the tracking of facilities through a database system, the monitoring and inspection of industrial facilities, and the District's spill prevention and response program. Compliance activities are provided in the following six areas:

- Industrial facilities database,
- Solid waste transfer stations,
- Hazardous waste treatment, disposal and/or recovery plants,
- Industrial facilities subject to Superfund Amendments and Reauthorization Act (SARA) Title III or the Emergency Planning and Community Right-to-Know Act (EPCRA),
- Industrial facilities with a discharge to the MS4,
- Wet-weather screening program,
- Spill prevention, containment and response program, and
- Review and approval process.

Industrial Facilities Database

Performance Standard: The District maintains a database of industrial facilities with standard discharge and stormwater NPDES permits for the purpose of establishing baseline facility information and supporting MS4 related monitoring efforts. The database includes a listing of facilities in the District (whether on private, federal or District properties) that are registered with federal and state regulators and generate, store, or have released hazardous materials. Information for this database is collected from site verification and GIS analysis. Site verification is conducted periodically by DDOE WQD staff by updating basic information such as location, facility name, description of services, contact person and phone numbers, etc. Field verified information undergoes further GIS analysis to determine the sewersheds and particular outfalls related to facilities comprising the database. The database framework also allows for relating compliance inspection information for each facility. Currently there are 505 individual facilities in the database. These facilities provide different services such as automotive

repair, car/truck rentals, dry cleaners, building supplies, laboratory and health care, restaurants, gas/oil stations, collection and transfer stations, etc. The database can be searched based on services, possible potential pollutants, outfalls, sub-watersheds, wards, and zip codes.

FY 2006 Activities: In FY 2006, DDOE maintained its database of over 500 facilities in the District, 15 of which have individual or site-specific stormwater federal NPDES permits. One additional permitted facility is located in Virginia but is included in the District's permit universe because pipes from the facility extend into the District's tidal zone. Five of the permitted sites are located in the MS4 service area (not counting the District permit for the MS4 itself). The list of facilities is provided in Appendix E.

DDOE also updated the Hickey Run subwatershed facilities database with the results of the automotive facilities location verification survey during FY 2006. The automotive industry was targeted for facilities inspections during FY 2006; however, DDOE did not administer targeted surveys to any other business sectors during the reporting period. Surveys associated with the EE-CARS Program, which targeted the automotive repair industry in Ward 5, were concluded in 2004. The EE-CARS manual is available on the DDOE website: <http://www.ddoe.dc.gov>.

FY 2007 Goals: To continue tracking facilities and expanding the industrial facilities database.

Solid Waste Transfer Stations

The District's government does not operate any solid waste disposal sites within the District. Instead, municipal solid waste collected by DPW is deposited at two municipal waste transfer stations and then transferred out of the District for disposal at licensed facilities. Private companies also operate two transfer stations in the District. These four facilities are located in the MS4 area. The locations of these facilities are provided in Table 14.

Pollution from stormwater runoff at the municipal transfer facilities is being managed under the Solid Waste Facility Permit Act. DCRA, DDOE, and DPW enforce these regulations as part of their responsibility to manage pollution from stormwater runoff at municipal waste facilities within the District.

Table 14. Locations of Municipal and Private Solid Waste Transfer Stations within the MS4.

Municipal Solid Waste Transfer Facilities		
4900 Bates Road, NE.		
3200 Benning Road, NE		
Private Solid Waste Transfer Facilities		
Name	Operator	Location
Brentwood	Consolidated Waste Industries, Inc.	1220 W Street, NE
Queens Chapel	Waste Management	2160 Queens Chapel Road, NE

Hazardous Waste Treatment, Disposal, and/or Recovery Plants

Performance Standard: The industrial facilities database includes a listing of facilities in the District that generate, store, or have released hazardous materials. Information for this database is collected from site verification and GIS analysis.

FY 2006 Activities: Presently, the U.S. Navy’s Naval Research Laboratory in Southwest DC is the District’s only active regulated RCRA Treatment Storage and Disposal Facility. There are 20 RCRA LQGs and 60 RCRA SQGs (not including 484 conditionally exempt generators) within D.C. RCRA regulations outline handling, storage, and spill control requirements at those facilities.

Facility addresses were used to determine whether the facilities are part of the MS4 area.

- The one Treatment Storage and Disposal Facility in the District that appeared in EPA’s RCRA Info database is not located in the MS4 service area.
- There were 60 SQGs in the RCRA Info database. Based on facility addresses provided, there are 24 facilities in the MS4 service area and 36 outside the MS4 service area.
- In FY 2006, no spills were reported to DDOE from these sites.

Inspection and monitoring of hazardous waste facilities is the responsibility of DDOE’s Hazardous Waste Division (HWD), which has procedures in place to investigate sites and spills. These procedures include notification and coordination with DDOE of any

incidents that impact the city's water resources. According to recent data from EPA's Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), there are 32 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) facilities in the District (Appendix E).

Based on facility addresses, there are 17 facilities or more within the MS4 area. Due to the transient nature of some CERCLA facilities, they cannot be mapped or field verified. Several CERCLA facilities that could not be mapped for inclusion in the facility database were determined to have been of a transient nature.

FY 2007 Goals: The District will continue tracking and verifying database information on RCRA sites within the District.

Industrial Facilities Subject to Superfund Amendments and Reauthorization Act Title III or the Emergency Planning and Community Right-to-Know Act

In accordance with the Permit, the District tracks industrial facilities within the District that are subject to regulation under CERCLA. Six years after CERCLA was enacted, SARA amended it. SARA Title III, also known as EPCRA, requires facilities to report on the storage, use or release of certain chemicals and provides for information about potentially dangerous chemicals being made available to the public. One of the means EPA uses to make information available is through the CERCLIS database.

- There are currently 32 CERCLA sites registered with federal and state regulators within the District. The list includes private and federally owned sites. The list of sites is given in Appendix E.
- Of the 32 sites, only the Washington Navy Yard is on the final National Priorities List.

Industrial Facilities with a Discharge to the MS4

DDOE staff reviewed a list of industrial facilities in the District in preparation for an intensive field study to verify NPDES permit holders.

- Five out of the 16 industrial facilities with individual or site-specific NPDES permits are located in the MS4 service area.
- Nine facilities (not counting the MS4 or the facility located in Virginia) are in the CSO area.

DDOE performed inspections of automotive facilities with field verification.

Wet Weather Screening Program

The Wet Weather Screening Program as defined in Section IV.C of the Permit is being implemented as part of the Wet Weather Outfall Monitoring Program and in conjunction with the illicit discharge detection program.

Performance Standard: This program is required to determine the source(s) of pollutants that contaminate stormwater runoff.

FY 2006 Activities: The District continued to evaluate, upgrade, and implement the wet weather screening program. Screening procedures were developed and included in the Quality Assurance Project Plan (QAPP) which is presented in detail in the 2006 Discharge Monitoring Report.

FY 2007 Goals: The District will continue the wet weather screening program including the QAPP and present detailed results in future Discharge Monitoring Reports.

Spill Prevention, Containment and Response Program

FY 2006 Activities: The District continues to implement the *Water Pollution Control Contingency Plan* (WPCCP), which outlines procedures for notifying the incident commander and the trustees of the natural resources in the event of a spill and procedures for oil and hazardous substances emergency response. DDOE continues to perform compliance and enforcement activities in accordance with EPA regulations under the CWA and District regulations under the District of Columbia Water Pollution Control Act that address illegal discharge of potentially hazardous materials. Because of funding constraints, during FY 2006, the District continued to operate under the WPCCP established in 1999. DPW, DDOT and WASA have existing in-house spill response training for their employees. DPW and DDOT coordinate spill prevention, containment, and response activities with DDOE.

FY 2007 Goals: The District will continue to perform compliance and enforcement activities in accordance with EPA regulations.

III.F.3 Construction Site Activities

Part III.B.3 of the Permit is titled “Management Plan for Construction Sites” and details the permit requirements for control of stormwater pollutants from construction sites in the District.

The management plan for stormwater pollution control on construction sites emphasizes the review and approval process, and the inspection and enforcement procedures of the construction permitting program, as well as construction site and plan educational programs, traffic pollution control strategies, and air pollution compliance activities. A summary of these compliance activities includes:

- The review and approval process
- Inspection and enforcement procedures
- Site inspections and loading estimates
- Educational measures

Review and Approval Process

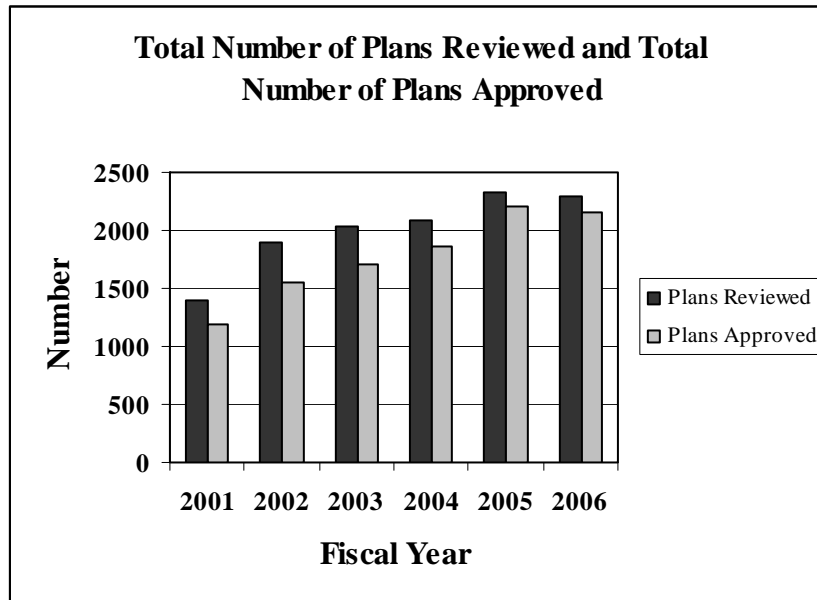
Performance Standard: The District reviews and approves construction plans through its “One-Stop Permitting Center”. Plan review and site inspections are coordinated with DDOE enforcement staff and DCRA to ensure that deficiencies in the permit process are corrected when they are encountered. DDOE Technical Services Branch has staff stationed at the “One-Stop Permit Center” at DCRA to provide assistance to customers and to ensure that permit applications, construction plans, and environmental forms and documents meet regulatory requirements. Each year DDOE staff are given refresher training to improve efficiency and effectiveness in plan review.

FY 2006 Activities: District agencies continue to provide a “One-Stop Permitting and Business Center” for the approval of plans and to provide quality control of reviewed plans. Minor projects are reviewed at the permit center and are either approved or rejected. Plans for major or more complex projects are reviewed and approved at the DDOE main office. During 2006, DDOE reviewed approximately 2,488 construction plans for compliance with sediment and stormwater pollution control. This review process led to the approval of 2,320 of these plans. DDOE processed 83 requests for information on soil characteristics and reviewed approximately 84 geotechnical reports to assess soil suitability for various construction projects.

Figure 7 shows the six-year trend of projects reviewed and approved through the “One Stop Permitting and Business Center”. The approved projects indicate the number of projects that have been reviewed under the most recent stormwater regulations, which require both stormwater volume and water quality control. The number of plans reviewed and approved leveled off in 2006 after increasing in each of the preceding years.

The number of plans reviewed and approved is dependent on development and re-development trends in the District.

Figure 7. Six-Year Trend in Projects Reviewed and Approved.



During FY 2006:

- Four staff engineers from the DDOE Technical Review Branch attended a hands-on training workshop provided by the Center for Watershed Protection and sponsored by the University of Washington.
- DDOT hosted a mandatory four-hour Erosion and Sediment Control Training session for DDOT Engineers, Engineering Technicians and Inspectors. The trainees were trained to apply the DDOE Draft Soil Erosion and Sediment Control Guidebook principles to projects and to inspect projects for proper installation of erosion and sediment controls.
- Staff provided one-half day workshops on Sediment Control and Stormwater Management Plan Review Process and Permit Administration for DDOT engineers.

FY 2007 Goals: The District will continue to review and approve SWM plans and to provide staff refresher training to continually improve efficiency for review and provision of technical assistance.

Inspection and enforcement procedures

This program is discussed under Section III.F.11 Enforcement Plan.

Site inspections and loading estimates

This program is discussed under Section III.F.11 Enforcement Plan.

Educational measures

This program is discussed under Section III.F.12 Public Education.

Roadways

Performance Standard: The District operates and maintains the local roadways to reduce the discharge pollutants resulting from vehicular traffic from its SWM systems.

Other activities conducted by MS4 Task Force agencies included actions to reduce the amount of pollutants resulting from traffic on public roads that enter SWM systems throughout the District.

FY 2006 Activities: DDOT assigned two Transportation Project Engineers to focus on the development of new stormwater pollution control design standards, review sediment and erosion control plans, coordinate with DDOE and develop standard drawings for DDOT planned projects, and repair operations. During FY 2006, DDOT Stormwater Management Team worked on the design features for BMPs for a Truck Wash facility in Ward 5.

DPW has elected to purchase alternative fuel vehicles (AFVs) to reduce particulate vehicle emissions that contribute to stormwater runoff. DPW currently has purchased 551 AFVs that are powered by natural gas or E-85 (85 percent ethanol, 15 percent gasoline).

III.F.4 Flood Control Projects

The District Floodplain Management Program of the DDOE Watershed Protection Division reviews plans for development projects located in District floodplains. Evaluations are made on quantity control and potential water quality impacts for proposed flood management projects according to the laws and regulations that govern the District Floodplain Management Program:

1. D.C. Law No. 2-23 (The District of Columbia Soil Erosion and Sedimentation Control Act of 1977)
2. D.C. Law No. 1-64 (The District of Columbia Applications Insurance Implementation Act of 1976); D.C. Code 5-301; Mayor's Order 84-193, dated November 2, 1984
3. D.C. Law No. 8-36 (The District of Columbia Environmental Policy Act of 1989)
4. D.C. Law No. 6-216 (Construction Codes Approval and Amendments Act of 1986)
5. Clean Water Act, 33 U.S.C. 1251 *et. seq.*
6. The District of Columbia Water Pollution Control Act of 1984, D.C. Official Code § 8-103.01 *et. seq.*
7. 21 DCMR § 5 (D.C. Soil Erosion and Sediment Control Stormwater Management Regulations)

Part III.B.4 of the Permit details the permit requirements for documenting and evaluating flood control projects in the District.

The management plan for stormwater pollution control through flood control management emphasizes the following:

- Water quality impact and beneficial use assessment.
- Existing flood control devices retrofit assessment.
- Floodplain mapping.
- Floodplain development procedures and reviews.
- Impervious surfaces evaluation.

DDOE processed approximately 473 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.

Existing Flood Control Devices Retrofit Assessment

The District of Columbia operates and maintains flood control devices including BMPs, pump stations, flood and tide gates, weirs, canals, and stormwater collection and conveyance systems. The District has levees located at Potomac Park, Lincoln Memorial,

Constitution Avenue, Fort McNair, and along Anacostia Park. The levees are inspected annually and maintained by the United States Army Corps of Engineers (USACE). Privately owned and maintained flood and tide gates are located in Washington Harbor at the Georgetown Waterfront Development. The flood and tide gates are used under high water conditions in the Potomac River to control flooding in the harbor area. Two grade control structures constructed at Watts Branch to control peak flows and sediment movement to alleviate repetitive downstream flooding are maintained by the District.

The District Floodplain Management Program of WPD evaluates quantity control and potential impacts on water quality for proposed flood management projects. The quantity control and water quality evaluation is conducted following the laws and regulations that govern the District Floodplain Management Program.

FY 2006 Activities: No retrofitting of the levees or flood and tide gate structures is planned. However, according to the National Capital Planning Commission's Federal Capital Improvements Program for FY 2007-2012, there is a flood protection project for downtown, Washington, D.C. that consists of retrofitting the existing levees between the Lincoln Memorial and Washington Monument.

The Watts Branch stream restoration project plans are at 65 percent design stage. The stream restoration project for Watts Branch proposes the construction of step-pool structures in front of the existing downstream grade control structures. During a stream assessment conducted by USFWS, the segment of the tributary located upstream of the grade control structures was found to be stable, with little channel and bank erosion and a well-developed riparian buffer. No restoration of that segment is necessary at present.

Floodplain Mapping

Performance Standard: The District coordinates with FEMA in identifying District areas prone to flooding.

FY 2006 Activities: Flood hazard mitigation and floodwater pollutant removal requires identification of at-risk areas through floodplain mapping. Through the nation's flood insurance policy, FEMA has developed floodplain maps for all areas of the United States. The FEMA Q3 FIRMs for the District are currently being revised by FEMA using the latest technologies and most current data, and incorporating updated studies based on Light Detection and Ranging topography and new hydraulics. New digital FIRMs will be developed that will be compatible with GIS.

USACE performed new detailed studies on critical unmapped areas of the Anacostia River, Barnaby Run, Broad Branch, East Creek A, East Creek B, Fenwick Branch, Tributary to Fenwick Branch, Fort Dupont Creek, Melvin Hazen Branch, Creek along Normanstone Drive, Oxon Run, Pinehurst Run, Pope Branch, Rock Creek, and Watts Branch.

FY 2007 Goal: The District will continue coordination with FEMA and other partners and stakeholders regarding the District's floodplain management program.

Floodplain Development Procedures and Reviews

Performance Standard: The District reviews and assesses the impact of flood control projects.

The MS4 Permit requirements for floodplain development procedures and review are met through the promulgation of Title 20 (Chapter 31- Flood Hazard Rules) of the DCMR. These regulations describe in detail how projects proposed in floodplains will be reviewed to ensure proper consideration of pollutant reduction in flood-prone areas. Together, these rules regulate, restrict, or prohibit certain uses, activities, and development, which alone or in combination with current or future uses will cause unacceptable increases in flood heights, velocities, and frequencies.

FY 2006 Activities: The District reviewed development within the District floodplain as provided in 20 DCMR Chapter 3100 and the DOH *Nonpoint Source Management Plan II* (Attachment A-6 on the enclosed CD). Of the 132 proposed projects reviewed for MS-4 areas, none were located in a floodplain or a flood-prone area.

FY 2007 Goal: The District will continue review of development projects in the Development and Activity Database maintained by the Office of Planning.

Impervious Surfaces Evaluation

Performance Standard: The District reviews and assesses the impervious area on lots undergoing construction or re-construction.

The permit requires the collection of data on the percentage of impervious area located in floodplain boundaries for all existing and proposed development. Since the effective date of the Permit, this has been done for proposed developments through the construction plan information submitted with construction permit applications under 20 DCMR and the Water Pollution Control Act of 1984, D.C. Official Code § 8-103.01 *et. seq.* DDOE

has initiated a program to collect data to evaluate impervious surfaces for both proposed and existing development in floodplains.

FY 2006 Activities: DDOE, in collaboration with OCTO, performed an analysis to determine the percentage of impervious surface on the District floodplains using FEMA Q3 flood data for three floodplain types: 100-year with velocity hazard (Zone A), 100-year floodplain (Zone AE), and 500-year floodplain (Zone X500). Features analyzed included buildings, sidewalks, and roads. The resulting percentage of total impervious surface area that is within the floodplains was calculated using GIS and is summarized in Table 15.

Table 15. Impervious Surface Analysis of Floodplains.

	Total Impervious Area (sq.ft.)	Total Area, Excluding Water (sq. ft.)	Percentage Impervious Area
Zone A	581,948 (0.02 sq. mi.)	3,529,384 (0.12 sq. mi.)	16.49%
Zone AE	17,151,553 (0.6 sq. mi.)	843,602,241 (3.03 sq. mi.)	20.27%
Zone X500	20,667,372. (0.7 sq. mi.)	49,849,324 (1.79 sq. mi.)	41.46%
Complete City (sq. mi.)	26.43	61.31	43.10%

FY 2007 Goal: The District will continue review of development projects in the Development and Activity Database maintained by the Office of Planning to allow continued updating of the amount of proposed impervious surface added to the floodplains (through projected development) to ensure consideration of pollutant reduction in the floodplains.

III.F.5 Monitor and Control of Pollutants from Municipal Landfills or Other Municipal Waste Facilities

Part III.B.5 of the Permit pertains to the Control of Pollution from Municipal Landfills and Other Municipal Waste Facilities. The management plan for stormwater pollution control with respect to municipal landfills and municipal waste facilities emphasizes:

- Municipal waste reduction, and
- The prioritization of municipal waste reduction controls.

Performance Standard: The District maintains its municipal solid waste transfer stations in order to minimize the stations' stormwater impacts and to keep up with increasing waste and recyclable loads in the District.

FY 2006 Activities: DPW worked to control pollutants in runoff from municipal waste facilities, including waste transfer stations and equipment storage and maintenance facilities, by finishing the refurbishment of the municipal solid waste transfer stations at Fort Totten and Benning Road and continuing the evaluation of additional LID elements to be incorporated at the Fort Totten and Benning Road transfer stations.

Municipal Waste Reduction Program

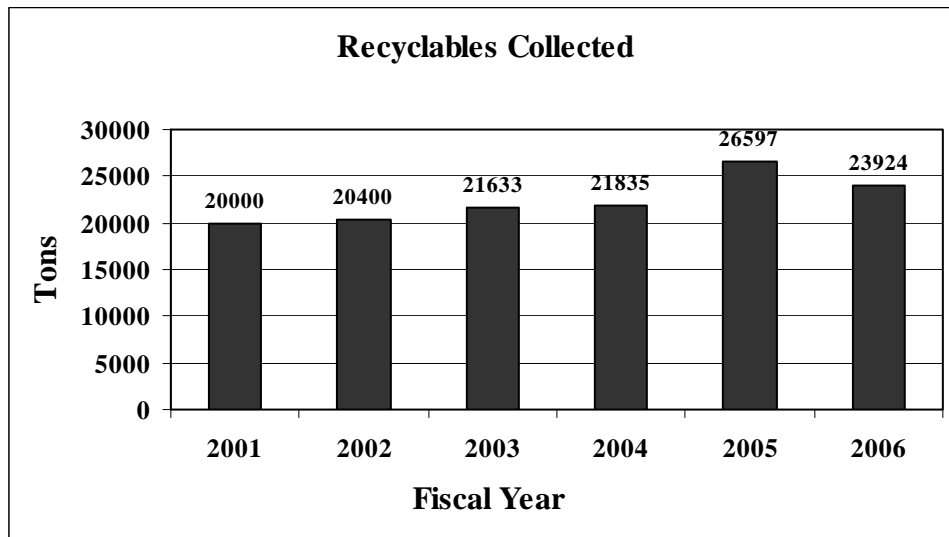
The Municipal Waste Reduction Program was developed to identify measures to evaluate, inspect, enforce, monitor, and reduce pollutants in stormwater discharges from facilities that handle municipal waste including sewage sludge. Regulatory programs directly supporting the District's nonpoint source stormwater protection and waste reduction efforts include DDOE's *Nonpoint Source Management Plan II*, which cites the Solid Waste Management and Multi-Material Recycling Act of 1988. This Act requires the recycling of certain wastes, thereby materially reducing the activities at waste handling facilities, further reducing stormwater pollution. The District provides recycling service to residential and multi-family residences of three or fewer dwelling units and requires commercial businesses and government offices to have a private recycling contractor. In FY 2006, DPW collected an estimated 137,620 tons of solid waste, plus 23,924 tons of recyclables from the residential population.

Figure 8 shows the six-year trend of increasing recyclable collection tonnage collected by the District.

The District does not operate any solid waste disposal sites within the District. Instead, municipal solid waste collected by DPW is deposited at either the I-95 Energy Resource Recovery Facility or private landfills in Virginia.

In FY 2006, the District completed refurbishing the municipal solid waste transfer station at Benning Road, including improvements in the paving and drainage systems, with minor projects still to be completed. Fort Totten has had necessary repairs to the structure, but it is awaiting a complete renovation. The land surface within the District waste handling facilities is predominantly paved and/or highly developed. In FY 2006, the District waste handling facilities were swept with mechanical sweepers several times per week.

Figure 8. Six-year Trend in Recyclables Collected.



The management program for the municipal facilities targets the nonpoint source runoff with particular focus on the control of pollutants that build up on the paved and/or developed portions of the facility site. DPW is developing a program to provide water quality control at the District municipal waste facilities including waste transfer stations and equipment storage and maintenance facilities.

The District established a solid waste facility permitting process for private solid waste transfer stations, which includes performance standards for operators of transfer stations. This process is under review to incorporate best practices from cities across the country.

Prioritization of Municipal Waste Reduction Controls

The Permit requires the District to develop priorities and procedures for implementing control measures for pollutant reduction at sites within the District's MS4. The initial phase of the program included procedures to evaluate, inspect, and monitor regulated sites. Based on the evaluation of the results of this monitoring, the District's solid waste management now includes waste reduction, recycling, and disposal.

FY 2007 Goals: The District will continue to maintain and update the municipal solid waste transfer stations to reduce impacts to stormwater, including completion of the Fort Totten Transfer Station.

III.F.6 Monitor and Control of Stormwater Pollutants from Hazardous Waste Sites

Part III.B.6 and Part III.B.10 of the Permit outline the requirements for monitoring and control of pollutants from hazardous waste sites. The management program for stormwater pollution control from hazardous waste sites emphasizes identification and mapping of facilities and monitoring of stormwater discharges.

Performance Standard: The District is active in identifying and monitoring hazardous waste from the industries and businesses within the District.

FY 2006 Activities: The formal procedures DDOE uses to control the impact and extent of hazardous waste on the MS4 are discussed in: *Hazardous Waste Division Administration, Hazardous Waste Management Strategic Plan for Enhancement of Environmental Health, and Standard Operating Procedures*. Based on established procedures in this document DDOE developed inspection protocols to govern field investigations, including the investigation of facilities that generate or store hazardous waste. The *Hazardous Waste Division Administration, Hazardous Waste Management Strategic Plan for Enhancement of Environmental Health, and Standard Operating Procedures* can be found as Attachment A-16 on the enclosed CD.

Illicit discharge detection is another component of the program to identify facilities that contribute a substantial pollutant loading to the MS4. Identifying and sampling discharges from connections provides information that may identify hazardous waste facilities with illicit connections. In FY 2006, DDOE MS4 staff conducted 17 illicit discharge investigations and of those, one incident occurred at Walter Reed Army Medical Center (Ward 4). Walter Reed Army Medical Center is a facility listed in the RCRA/CERCLA database for hazardous materials.

DDOE HWD conducts inspections of RCRA hazardous waste facilities to determine compliance with hazardous waste regulations. HWD conducted a total of 45 inspections at several RCRA-SQG and LQG facilities within the District between October 1, 2005 and September 30, 2006. While HWD inspections do not directly address water quality, inspectors reported spills (that could pose a water quality threat) to DDOE or WASA for further water quality investigation.

FY 2007 Goal: The District will continue to identify and monitor hazardous waste from industries and businesses within the District through the use of inspections and investigations in water quality.

Industrial Facilities Database

This program is discussed under Section III.F.2.

III.F.7 Pesticides, Herbicides, and Fertilizer Application

Part III.B.7, Part III.B.10, and Part III.B.12 of the Permit outline the requirements for pesticide, herbicide, and fertilizer application. The management plan for stormwater pollution control of pesticides, herbicides and fertilizers entails a mixture of programs emphasizing efforts to control pesticide, herbicide, and fertilizer applications. A summary of these activities is provided and includes control programs for pesticide, herbicide and fertilizer application on District and private property as well as public educational programs specifically targeting these environmental pollutants. Details of the public education program on pesticides, herbicides and fertilizer application are provided in Section III.F.12.

FY 2006 Activities: The District worked to control pesticide, herbicide, and fertilizer runoff, and the use of other toxic substances as detailed in the SWM Plan and existing regulations. As part of the IPM Program, the District continued to provide information about educational programs to private property owners through pamphlet distribution to residents.

Pesticide, Herbicide, and Fertilizer Application Activities

Performance Standard: The District's Pesticide Program is active in educating and training the public on the correct handling and application of pesticides and herbicides.

As of FY 2006, the District has 1,235 pesticide applicators certified in various categories.

FY 2007 Goals: The District will continue to educate the public on the appropriate use of pesticides, herbicides, and fertilizers to reduce these substances in the MS4; to train District applicators in the safe use and handling of pesticides, herbicides and fertilizer; and to coordinate with the EPA on Federal Worker Protection Standards (WPS). In addition, DDOE will work with Office of Property Management (OPM) to replace the use of pesticides with environmentally friendly alternatives.

Pesticide Control Program on District Property

The Pesticide Program goal is to train and certify pesticide applicators in the safe use and handling of pesticides and to promote the incorporation of IPM principles with a reduction in pesticide use as a goal. The Pesticide Control Program is implemented by DDOE. The agency routinely inspects stores that have the potential to sell pesticides to monitor the products that are for sale and to determine their registration status. This program also continues to regulate pesticide use in the District by certifying and licensing applicators and conducting compliance inspections both routine and “for cause”.

The District does not have IPM regulations established; however, the current pesticide regulations (20 DCMR, Chapter 22) are being revised to include guidelines for IPM. A draft of the revised regulations is currently under review at the Attorney General’s Office followed by promulgation and EPA will be notified. Product compliance with Federal WPS requirements are monitored through marketplace inspections for high-risk pesticides. Part of this monitoring may involve documentary and physical sampling for verification of labeling compliance. The District will coordinate with EPA on Phase I and Phase II of the WPS initiative.

Pesticide Control Program on Private Property

DDOE provides educational outreach to private property owners to better inform them about the proper use and disposal of pesticides, herbicides, and fertilizers, and safer alternative methods. The program distributes pamphlets to residents that provide information on environmentally sound practices with regard to the use of pesticides in the yard or garden, the introduction of “good” pests into the garden, lawn care services, the District Nutrient Management Program, and IPM.

Source Characterization Screening

Performance Standard: The District waters are tested regularly for the presence of pesticides, herbicides and fertilizers.

FY 2006 Activities: Pesticides are monitored as part of the overall wet- and dry-weather outfall monitoring program. In previous years, pesticides have been detected in some of the samples collected from the outfalls. In FY 2006, no pesticides were detected at any monitoring sites within the Anacostia and Potomac River watersheds.

Additional details of sampling activities are included in Section III.D of this report. Analytical results for pesticides can be found in the 2006 Discharge Monitoring Report.

FY 2007 Goal: The District will continue to monitor sites within the MS4 for the presence and levels of pesticides, herbicides, and fertilizer chemicals.

III.F.8 Deicing Activities

Section III.B.8 of the Permit, “Deicing Activities”, details the permit requirements to minimize the impact of deicing materials on water quality.

The management plan for stormwater pollution control in deicing activities emphasizes:

- Evaluation of deicer materials,
- Application of deicer materials, and
- Deicer materials storage facilities.

Evaluation of Deicer Materials

Performance Standard: The District actively seeks to use the most effective and environmentally safe products available while keeping the streets and highways of the District ice free.

The District continued to use a brine solution on bridge surfaces to reduce pollutant loading to receiving waters from deicing activities.

Application of Deicer Materials

Performance Standard: The District is active in keeping the streets and highways of the District ice free. DDOT will use a brine pretreatment solution on bridge surfaces to reduce pollutant loading to receiving waters. Application rates and techniques will be evaluated as per the comparison study, and modifications will be made to the deicing program as necessary.

FY 2006 Activities: DDOT’s primary obligation in snow management and deicing activities is to provide for the safe movement of emergency vehicles and other vehicular traffic as quickly as possible following winter storms. DDOT employs a variety of techniques, including plowing, salt application and deicing chemical application on various roads, depending on the amount and type of precipitation expected. DDOT uses a brine pretreatment solution on bridge surfaces to reduce sodium chloride use and

pollutant loadings to receiving waters. The brine solution is 23 percent sodium and 77 percent water. The use of the brine pre-treatment provides a 20-30 percent reduction in the amount of salt used during winter months for control of snow and ice. In FY 2006, due to mild meteorological conditions, DDOT did not use any saline solution in the District.

DDOT has completed 90 percent design of the brine manufacture and snow truck wash facility to produce brine for use as a pre-treatment for snow and ice. The design for the facility will be completed in the fourth quarter of FY 2007, and the facility will be constructed at the DDOT W Street Salt Dome Facility, 1241-1245 W Street, NE. It is expected to take six months to complete construction.

FY 2007 Goals: The District will continue to use a brine pretreatment solution to provide a reduction in the amount of salt used during the winter months and will continue to design and construct the brine manufacture and salt truck wash facility.

Deicer Materials Storage Facilities

Performance Standard: The District utilizes stormwater management facilities at its salt storage sites to control runoff and water quality from the sites.

The District operates four salt storage facilities. At all of the facilities, the run-off is controlled by a stormwater management facility to reduce the amount of pollutants. Three of the four facilities are located within the MS4 area. The fourth location, 1241 W Street, NE, is within the CSO area. The locations of the three facilities inside the MS4 area are (1) Potomac Avenue and R Street, SW; (2) Fort Drive, NW, east of Fort Reno Reservoir, and (3) 401 Farragut Street, NE. All DDOT salt dome storage facilities are constructed with stormwater BMP structures for load discharge reductions.

FY 2007 Goal: DDOT will continue inspection and maintenance of the salt storage facility per the SWM maintenance plan.

III.F.9 Snow Removal

Permit Part III.B.9 requires the Permittee to establish a program and operating plan to ensure excessive quantities of snow and ice control materials do not enter the District's water bodies. The management plan for stormwater pollution control through snow removal emphasizes the snow and deicer control program.

Snow Control Program

Performance Standard: The District implements its snow removal and deicing program operating plan to ensure safe passage on its roadways using deicing materials that provide the minimum impact practicable to the stormwater runoff from snow and ice that enters the MS4.

FY 2006 Activities: The District snow removal program is discussed on the DDOT web site at the following link: <http://ddot.dc.gov/ddot/cwp/view,a,1256,q,564154.asp>.

DDOT regularly prepares a Performance Measures Report that includes targets and achievements for a number of performance measures, including snow removal. In the FY 2006 snow-season, DDOT was not required to remove snow from the roadways; only snow plowing was required.

FY 2007 Goal: To continue to provide efficient snow removal and safe roadways within the District while providing the minimum impact to the stormwater runoff entering the MS4.

Alternative Snow Stockpile Areas

Performance Standard: Currently no plans to develop an alternate snow removal plan exist.

The District's current snow removal and deicing program is designed to avoid snow deposits in areas adjacent to water bodies, wetlands, and areas near public or private water wells except during a declared snow emergency. The plan is routinely reviewed for its applicability, and there is no need to revise the plan at this time.

FY 2007 Goals: No program goals are necessary at this time.

III.F.10 Management Plan to Detect and Remove Illicit Discharges

Part III.B.10 of the Permit pertains to the Management Plan to Detect and Remove Illicit Discharges.

The stormwater pollution control management plan for detection and removal of illicit discharges entails a mixture of program activities that include the following:

- Illicit discharge detection and elimination.
- Floatables reduction.
- Waste collection.

- Inspection plan.
- Enforcement plan.
- Spill response plan.

Illicit Discharge Detection and Elimination

Performance Standard: The District maintains an illicit discharge program designed to detect and eliminate illicit discharges within the District. DDOE, WASA, and DPW conduct activities related to illicit discharge detection and elimination.

The District continued an ongoing program to detect illicit discharges as required by the SWM Program and the Permit, prevent improper disposal into the storm sewer system as required by federal regulations, and work with District agencies on a multi-program effort to improve environmental compliance of automotive repair shops. DDOE WQD's MS4 Illicit Discharge Detection and Elimination Program details the ongoing program and is found as Attachment A-21 on the enclosed CD.

The DPW Solid Waste Education and Enforcement Program (SWEEP) seeks to maintain clean private and public spaces by investigating illegal dumping complaints, overgrown lots, poor trash containerization and other sanitation violations. Generally, SWEEP staff will try to work with property owners to bring the property into compliance with the District code. If SWEEP staff cannot obtain voluntary compliance from a property owner, the Department may clean the property and charge the property owner twice the cost of the cleanup effort. This cost will be added to the property owner's next property tax bill. The SWEEP program is authorized for a staff of 36 field investigators.

DDOE has implemented an ongoing program to detect illicit discharges and to prevent improper disposal into the storm sewer system as required by federal regulations. DDOE personnel continued to investigate potential illicit discharges in response to reports by citizens or government personnel. Generally, a citizen might be prompted to make a call to the District of Columbia Office of Emergency Management upon noticing a suspicious color or odor to streams or upon witnessing illegal waste dumping. Office of Emergency Management directs calls about these types of complaints to DDOE. DDOE personnel collect information about the location and physical characteristics of the discharges in preparation for a site visit. Often DDOE is able to respond immediately by sending their personnel into the field. Depending on the characteristics of the discharge described, DDOE might alternatively refer the case to another appropriate District agency (e.g., in the case of water main breaks or other sewer infrastructure problems WASA is contacted

to resolve the problem). Depending on the extent and site of the discharge, federal entities such as EPA, U.S. Coast Guard, or NPS may be called upon for assistance with sample analysis, investigation, or containment.

In FY 2006, DPW SWEEP made 13,168 actions for illegal dumping complaints, overgrown lots, poor trash containerization and sanitation violations. The sites investigated were located throughout the entire District.

DDOE WQD staff conducted 17 illicit discharge investigations in FY 2006. Investigations were conducted to discover the nature and sources of potential discharges to numerous water bodies including Watts Branch, Washington Ship Channel, Gallatin Run, Rock Creek, and the Potomac River. As a result of the 17 investigations, DDOE issued one Notice of Inspection, two Notices of Violation and one verbal Site Directive as a result of the illicit discharge incidents. The majority of the investigations were initiated based on complaints or reports from citizens, other District departments, or District contractors engaged in MS4-related field activities (Table 16).

DDOE also visually inspected MS4 outfalls and the waters to which they discharge in efforts to detect and eliminate illicit discharges in selected sewersheds. WASA personnel also performed visual inspections while maintaining catch basins and the MS4 infrastructure.

The District was limited in its efforts to prevent and eliminate suspected illicit discharges to the MS4 through compliance inspections of individual facilities. Due to limited staffing, illicit discharge inspections were limited to complaint-driven inspections as listed in Table 17.

The District continued its efforts to verify the locations of MS4 outfalls and record latitude and longitude coordinates using GPS. If MS4 flow was observed during the investigation, investigators conducted tests for free and total chlorine when possible/accessible.

During FY 2006, final verification of the District outfalls was completed. There are approximately 800 outfalls in the District, of which more than half (410) are located in the MS4 area.

Table 16. Complaint-Driven Illicit Discharge Investigations in FY 2006.

Case*	Location	Watershed	Issue	Resolved
00106	1403 W Street, NE	Anacostia	Discharge from fleet maintenance facility.	Yes
00206	47 th Street and Grant Street, NE	Anacostia	Sewage.	Yes
00306	58 th Street and Blaine Street, NE	Anacostia	Sediment laden discharge at outfall.	Yes
00406	Normanstone Drive and Rock Creek	Rock Creek	Partially exposed sewer line in creek, possible sewer leak.	Yes
00506	Mill Creek	Potomac	Turbid water.	Yes
00606	Hickey Run	Anacostia	Turbid water, foul smell.	Yes
00706	208 Malcolm X Avenue	Anacostia	Unknown non-chlorinated discharge.	Yes
00806	16 th Street and Fort Stevens Drive	Rock Creek	Possible waste water discharge.	Yes
00906	Normanstone Drive and 30 th Street	Rock Creek	Possible sewer leak.	Yes
01006	Walter Reed Army Medical Center	Rock Creek	Cooling water blow-off discharge.	Yes
01106	Oxon Run	Potomac	Abandoned vehicle in stream.	Yes
01206	Military Road and Oregon Avenue	Rock Creek	Diesel fuel spill.	Yes
01306	401 3 rd Street, SW	Potomac	Sediment laden discharge.	Yes
01406	2230 Lawrence Avenue, NE	Anacostia	Runoff/discharge from trash transfer station.	Yes
01506	Klinge Road	Rock Creek	Foul smell.	Yes
01606	Kenilworth Aquatic Gardens	Anacostia	Construction debris, drum, other trash and possible illegal discharge.	Yes

* Note that each case may involve multiple site visits, coordination with DC and/or federal agencies as well as owners/operators of facilities.

Table 17 presents the results from the outfall verification conducted for the past three fiscal years.

Table 17. Results from Outfall Verification FY 2004-FY 2006.

Fiscal Year	Number of Outfalls Screened	Number with Dry Weather Flow	Number Requiring Follow-up
2004	124	23	9
2005	100	37	5
2006	112	22	0

FY 2007 Goals: The District will continue to maintain clean private and public spaces by investigating illegal dumping complaints, overgrown lots, poor trash containerization and other sanitation violations; continue the program to detect illicit discharges as described in

the upgraded SWM Plan and the Permit, and to prevent improper disposal into the storm sewer system as required by federal regulations. DDOE plans to expand inspection of facilities in areas that show high frequency of detections and/or high quantities of pollutants at outfalls (as soon as staffing allows). DDOE personnel will continue to investigate potential illicit discharges in response to reports by citizens or government personnel. Two full-time staff will be hired to assist in this effort.

Floatables Reduction Program

Performance Standard: The District operates a river pollution control program that seeks to reduce the floating debris found in the District's rivers.

The District continued to conduct the Floatables Reduction Program for the Potomac and Anacostia Rivers.

The Anacostia River Floatables Debris Removal Program was initiated in August 1992 to remove floating debris from the Anacostia and Potomac Rivers on a routine basis. The program is operated by the WASA Department of Sewer Services, Inspection and Maintenance Division. The floating debris removal program utilizes a 12,000-lb capacity skimmer boat, a 6,000-lb capacity skimmer boat, and support boats to remove floatable debris from the rivers as well as trash that accumulates on the river banks and in mud flats at low tide. The boat docking area and roll-off containers are located on the west bank of the Anacostia River in the vicinity of M and 14th Streets, SE.

The boats pick up debris five days per week.

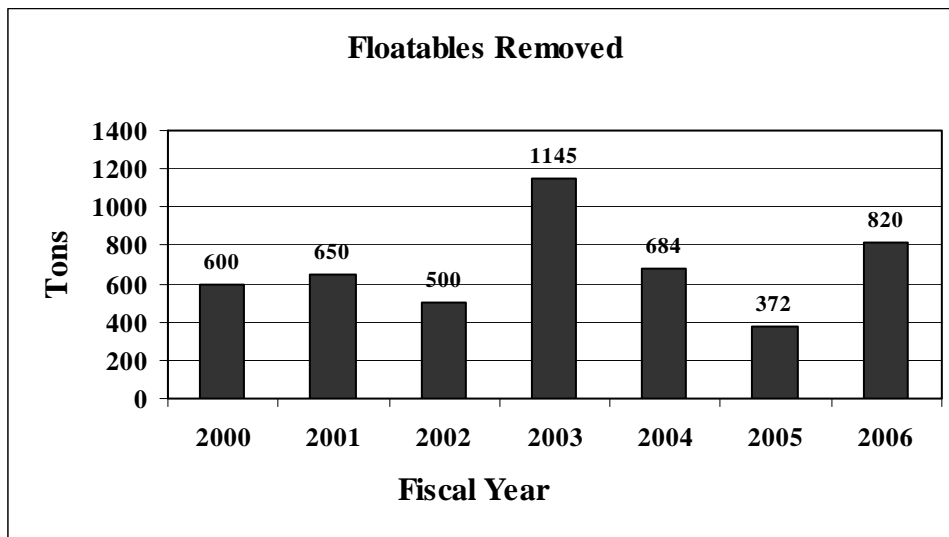
FY 2006 Activities: During FY 2006, the skimmer boats removed 820 tons of debris, representing an increase in the tons of floatables removed in comparison to FY 2005, when 372 tons of debris were collected.

Figure 9 shows the seven-year trend of floatables tonnage removed from the District's rivers. The number of tons removed in FY 2003 had more than doubled from past fiscal years due to the use of skimmer boats that control floatables while repair work on the CSO was taking place.

During FY 2006, DDOE began documenting observations of the Gallatin Run subwatershed in response to a report from the Anacostia Watershed Society (AWS). Floatables were reported entering a portion of Northwest Branch across the border into Maryland from a District MS4 outfall. DDOE compiled existing data on topography,

soils, surface drainage patterns, the separate storm sewer network, land use patterns, locations of individual industrial facilities, and other factors that may have contributed to the presence of floatables. The resulting analysis determined that there was no certainty that the MS4 was the sole source of the floatables. A recommendation for the installation of an on-site BMP was made, and the Gallatin Run subwatershed and the MS4 discharging into Maryland remain under observation.

Figure 9. Seven-Year Trend of Floatables Removed



FY 2007 Goal: The District will continue the Anacostia River Floatables Debris Removal Program for the Anacostia and Potomac Rivers.

Waste Collection Program

Performance Standard: The District provides household hazardous waste collection and seasonal leaf collection each fall.

The Permit prohibits the discharge of used motor vehicle fluids, household hazardous wastes, grass clipping, leaf litter, and animal waste into separate storm sewers. The existing program for the collection of motor vehicle fluids and household hazardous waste has been expanded. Accepted materials include paint, batteries, pesticides, solvents, motor oil, furniture polish, nail polish and remover, and other possibly toxic items.

FY 2006 Activities: During FY 2006, two hazardous waste collection days, where residents may bring hazardous wastes for proper disposal, were conducted by the District.

A third event by DPW, along with an e-cycling week for the collection of electronics for recycling, was also conducted. Collection days were held on October 22, 2005, November 12, 2005 (DPW) and April 22, 2006. The e-cycling event occurred November 15-22, 2005 at the Benning Road Potomac Electric Power Company (PEPCO) Station.

During the October and April waste collection events at Carter Barron Amphitheater, 157 55-gallon drums of waste flammables, paints, oxidizer, pesticides, acids, bases, motor oil, and antifreeze were collected at each event. Also collected were boxes of fluorescent bulbs, mercury thermometers, and dry cell car batteries. Care Environmental Corporation collected and packed the waste for the District. The November collection event sponsored by DPW resulted in the collection of 73 55-gallon barrels of household hazardous waste.

The October and April collection events resulted in the collection of 36 and 39 tons of old consumer electronics, respectively. The DPW-sponsored event in November resulted in the collection of an additional 16 tons of consumer electronics. The November e-cycling event at the Benning Road PEPCO Station collected approximately two tons of electronics for recycling.

Table 18 shows the five-year trend of household hazardous waste reduction in the District. Although the number of scheduled collection events and cars participating was less in FY 2006, the resulting tonnage of household hazardous waste collected was higher than that collected in FY 2005. Public awareness of this program is primarily responsible for the success of the events.

Bagged grass clippings and leaves are collected throughout the year with regular garbage collection. Leaf litter is collected during November, December, and January by DPW utilizing vacuum trucks. A discussion of Leaf and Holiday Tree collection activities is provided in Section III.F.1 of this report.

FY 2007 Goals: The District will strive to increase the number of citizens participating in the household hazardous waste and leaf collection programs through public education and the operation of “collection days” within the District on a bi-annual basis.

Table 18. Five-Year Trend in Household Hazardous Waste Reductions.

Fiscal Year	Collection Events	Participants (No. of Cars)	Household Hazardous Waste (55 gallon drums)	Electronics (tons)
2002	2	1,500	148	4
2003	5	3,178	261	63
2004	6	4,490	249	117.5
2005	6	6,261	375	142
2006	4	4,678	387	93 ^a

^a Includes two tons of electronics collected during an e-cycling collection November 15-22, 2005 at the Benning Road PEPCO station.

Inspection Plan

Performance Standard: The District maintains an inspection program for illicit discharges.

FY 2006 Activities: The District continued with its illicit connection inspection and enforcement program, together with an expanded public education program. The Permit states that the Permittee will use a mix of strategies for the detection and elimination of illicit discharges. DDOE has drafted a targeted enforcement protocol based on the analysis of the results of previous monitoring activities. This protocol targets facility inspection areas that show high frequencies of detection and quantities of pollutants. It describes a stepped process by which inspectors will prioritize the District's water bodies according to level of impairment, correlate the pollutants to broad categories of potential sources, locate individual business that fall under the identified sources, plan compliance inspections for these facilities, and resolve compliance issues.

FY 2007 Goals: The District will continue detection and elimination of illicit discharges through a targeted enforcement protocol for the Inspection Plan.

Enforcement Plan

Performance Standard: The District maintains an enforcement program for illicit discharges.

FY 2006 Activities: The District continued the enforcement plan program to prohibit the discharge or disposal of motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal waste into separate storm sewers. DDOE revised the

Draft Water Quality Division Enforcement and Compliance Manual that describes inspection and enforcement efforts. It has been replaced by *The Environmental Enforcement Process in the District of Columbia*. Copies of both documents are provided on the CD of reference documents included with this report (Attachments A-5 and A-22, respectively). The manual details the written enforcement strategy outlining how enforcement actions, such as violation notices, notices of infractions, and stop work orders, are issued and adjudicated. The strategies outlined in the manual provide the standard operating procedures for enforcement within the District. The manual establishes the guidelines for compliance inspections conducted by DDOE.

Enforcement of illicit connections is accomplished by an initial corrective action notice from DDOE and then referral to the Plumbing Inspection Branch of DCRA for legal enforcement action. The Plumbing Inspection Branch of DCRA is responsible for enforcement of illicit connections as violations of the plumbing codes. A discussion of enforcement activities is provided in Section III.F.11.

The District already has legislation that prohibits the discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal waste into separate storm sewers. The Water Pollution Control Act of 1984 (D.C. Official Code 8-103.07 (e)) provides that no person shall discharge a pollutant to the waters of the District. The Water Pollution Control Act defines “pollutant” as any substance which may alter or interfere with the restoration or maintenance of the chemical, physical, radiological, and biological integrity of the waters of the District; or any dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemicals, chemical wastes, hazardous wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, oil, gasoline and related petroleum products, and industrial, municipal, and agricultural wastes. Implementing regulations at 21 DCMR § 529 control stormwater runoff for oil, grease, organic animal wastes and other discharges that violate the water quality standards of receiving waters in the District.

FY 2007 Goals: The District will continue detection and elimination of illicit discharges through a targeted enforcement protocol of the Enforcement Plan.

Spill Response Plan

Performance Standard: The District has developed and implements the procedures specified in the WPCCP for spills and chemical releases. The District also provides

pollution prevention outreach to managers of facilities and in-house spill training to District agencies.

The Permit discusses implementing procedures to prevent, contain, and respond to spills that may discharge into the MS4, including the training of personnel in spill prevention and response procedures.

The WPCCP provides guidance on timely and effective response to hazardous substance releases that threaten to impact the natural resources of the District. The plan also addresses the pollution and resource assessment, mitigation, cleanup, and follow-up actions resulting from non-permitted discharges. The District continues to operate under the plan developed in 1999. The procedures outlined in the WPCCP are followed for reports of illicit discharges.

Good housekeeping involves using practical, cost-effective methods to identify ways to maintain a clean and orderly facility and keep contaminants out of the separate storm sewer. It includes establishing protocols to reduce the possibility of mishandling chemicals or equipment and training employees in good housekeeping techniques. These protocols must be described in the facility SWM Program and communicated to appropriate facility personnel.

A spill or release episode includes any spillage or leakage of fuel from fuel storage tanks, piping, dispensing equipment, or vehicles. If the spill is less than 25 gallons, the Fuel Services Supervisor is immediately notified. The Fuel Services Supervisor will then follow established DPW procedures to clean up the spill. If the spill is more than 25 gallons, notification is given to the District Underground Storage Tank Division, the DC Fire Prevention Division, and the Fleet Services Administration. Response procedures may include tank gauging, vapor monitoring, groundwater monitoring, and secondary containment. The response procedure will also include sample collection of soil and other material that will be analyzed for known and unknown contaminants. A spill assessment chart will be developed with physical and chemical properties clearly outlined in the response plan. Spill response plans will also include lists of materials containing the following: acid neutralizing agents, oil absorbents, biohazard absorbents, approved absorbents rolls, absorbents containers and fuel tank breathers.

FY 2006 Activities: No further developments occurred during FY 2006 concerning revisions to the WPCCP. One spill was reported to DDOE during FY 2006. In April 2006, a spill of approximately 25 gallons of diesel fuel, hydraulic oil and antifreeze

occurred from a tractor-trailer truck that went off the road into a natural drainage ditch at the intersection of Oregon Avenue and Military Avenue. Runoff from the ditch drains into Rock Creek. DDOE was notified of the spill by the Emergency Health and Medical Services Administration, and DDOE MS4 personnel were sent to the site to ensure that the spill was properly contained and affected soils were adequately treated or removed.

FY 2007 Goals: The District will update its current outreach program on spill prevention for facility managers as well as continue to provide in-house spill response training to District agencies.

III.F.11 Inspection and Enforcement Plan

Inspection and Maintenance Plan

Facility inspections and visual inspections of the sewer system are integral parts of the plan to detect illicit discharges. Inspectors use outfall monitoring data to identify the problem pollutants and where they are appearing in the sewer system. Literature and professional experience can then be used to determine what kinds of sources or activities are associated with the problem pollutants. Concurrently, inspectors can use their knowledge of the sewer system, maps and other resources to begin tracing back to the geographic origin of the pollutants. If a facility is found to be a contributor or potential contributor of the detected pollutants as a result of an inspection, DDOE will attempt to bring it into compliance with stormwater regulations, which might entail education and/or recommendation for fines or other enforcement actions against the facility. New Notice of Inspection forms were developed and printed for enforcement purposes.

The industrial facilities database (discussed in Section III.F.2) and GIS tools under development will be a powerful resource for completing this task. As more facility information (on location and wastes generated) is collected through routine compliance inspections, the District will increase its capacity to quickly identify potential sources of illicit discharges in the geographic area of interest through the data integrated in the GIS. These tools would not only be used in response to illicit discharges that have already occurred, but to direct or focus the routine inspections in a manner that would also facilitate proactive interactions with businesses and prevent illicit discharges.

Industrial Facilities

In FY 2006, DDOE inspected industrial facilities for compliance with stormwater regulations. As a result of the compliance inspections, DDOE issued

- One Notice of Violation and
- Four separate Notices of Inspection and Site Directives to facilities deemed responsible for illicit discharges to the MS4.

Construction Site Inspections and Loading Estimates

Performance Standard: The District conducts inspections for the installation and maintenance of SWM and erosion control devices at commercial, residential and road construction projects. The District also conducts inspections at construction sites and their SWM BMPs. Established BMPs are inspected as per their maintenance activities and records.

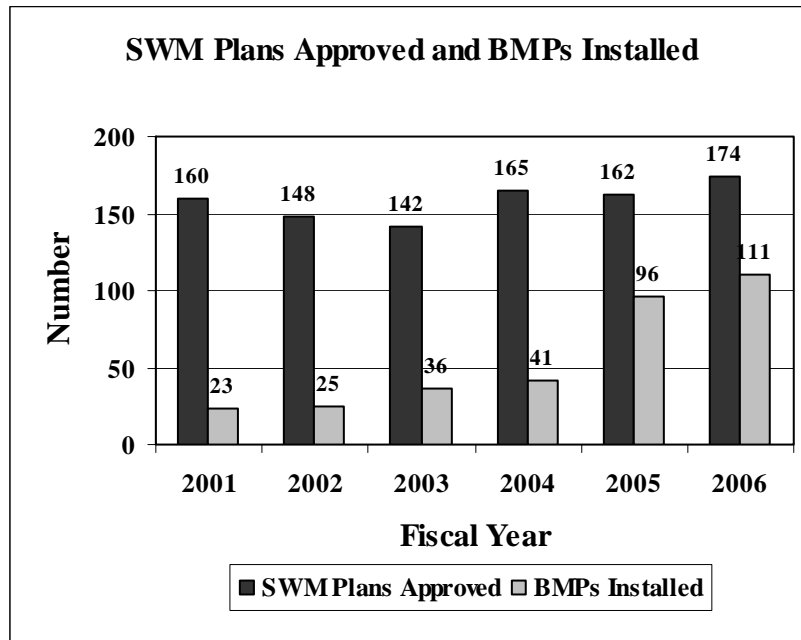
Inspection procedures are outlined in 21 DCMR § 534 *Water Quality and Pollution Regulations* (Attachment A-3 on the enclosed CD) and the Nonpoint Source Management Plan for the District. The legal basis for conducting inspections related to stormwater management is outlined in 21 DCMR § 545. Procedures for conducting an inspection are detailed in the *Standard Operating Procedure for the Enforcement of Soil Erosion and Sedimentation Control and Storm Water Management Regulations* and the *Standard Operating Procedures for Soil Erosion and Sedimentation Control and Storm Water Management Inspection*. Copies of these two documents are provided on the CD of reference documents included with this report (Attachments A-14 and A-15, respectively).

DDOE has refined and updated the District's automated database system for tracking stormwater management facilities inspected for maintenance to include tracking of construction projects with stormwater management BMPs, "Final Inspection" completion and "Final Inspection Notification Letters" to SWM applicants, as well as monitoring receipt of "As-Built Plans" of completed stormwater projects.

The updated database system contains data for BMPs constructed since the inception of the program in 1988 and has enabled faster and more efficient rescheduling of inspections and retrieval of maintenance records.

FY 2006 Activities: Figure 10 presents the six-year trend in stormwater management plans approved and the number of BMPs installed. The number of BMPs installed has increased consistently over the six-year period.

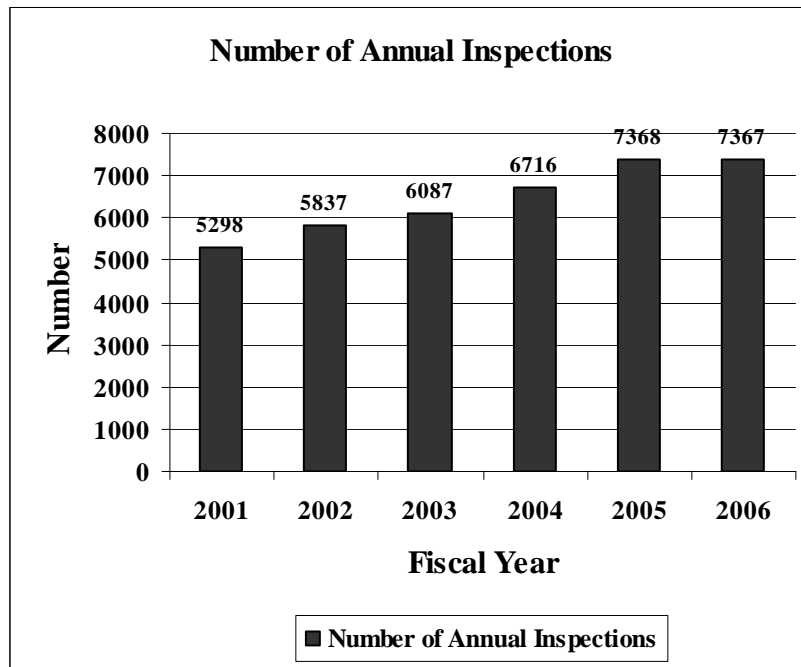
Figure 10. Six-Year Trend in the Number of Stormwater Management Plans Approved and BMPs Installed



DDOE conducts site inspections and calculates loading estimates from construction sites within the District. In FY 2006, DDOE conducted 7,367 inspections at construction sites and issued 293 enforcement actions.

Figure 11 shows the six-year trend of the construction inspection program. The number of inspections in FY 2006 increased 39 percent compared to FY 2001 in order to keep pace with the booming District construction sector.

Figure 11. Six-Year Trend in the Number of Annual Construction Site Inspections



The numbers of enforcement actions and Notices of Infraction have remained relatively stable until FY 2005 as shown on Figure 12. Greater awareness by District agencies to inspect construction sites, as well as awareness by the public to call the District hotline for violations, may be responsible for the increase in the enforcement actions.

In FY 2006, 94 citizen complaints relating to soil erosion and drainage problems were investigated and resolved by DDOE.

DDOE also inspected stormwater management facilities within the District in FY 2006. A total of 221 SWM facilities were inspected and 84 post-maintenance inspections occurred to ensure proper maintenance of the facilities.

Figure 13 shows the trend in the number of SWM facilities inspected each year. Over the past five years, the number of SWM facility inspections has remained relatively constant.

Loading estimates are prepared as part of the plan review process as detailed in the *Stormwater Management Guidebook, 2003*. A copy of the current guidebook is provided on the CD of reference documents included with this report (Attachment A-18). Plan review, site inspection and loading estimates are required for commercial, residential, and road development land uses.

Figure 12. Six-Year Trend in Annual Enforcement Actions

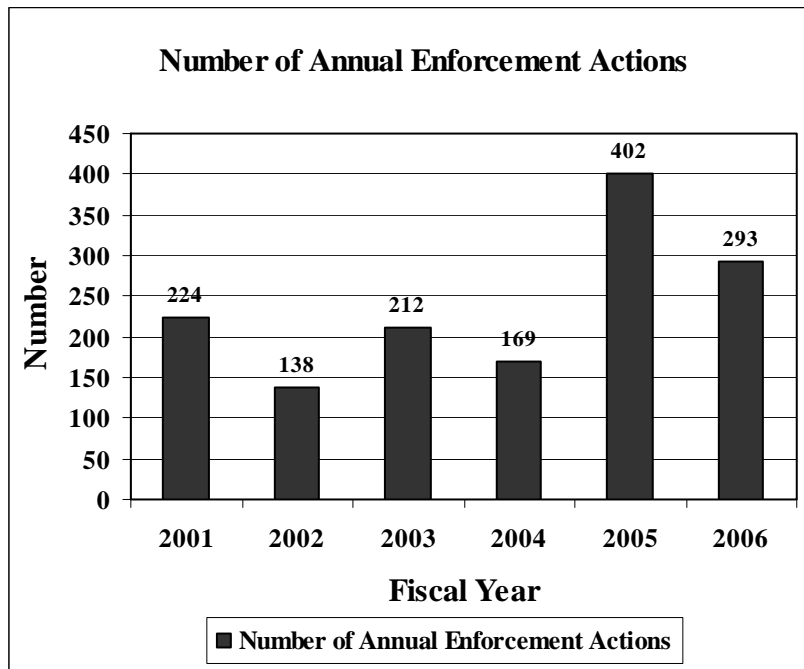
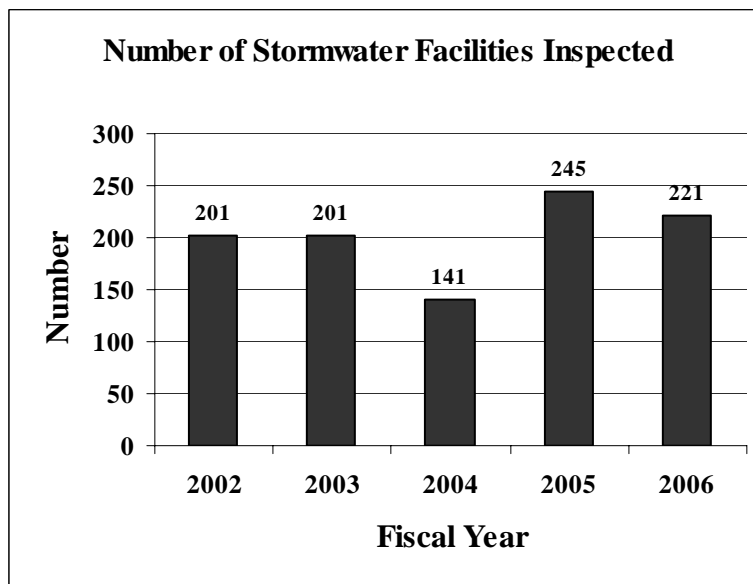


Figure 13. Five-Year Trend for Stormwater Facility Inspections



FY 2007 Goals: The District will continue inspections of commercial, residential, and road construction projects for the maintenance and implementation of erosion control devices and BMPs. DDOE will continue to track SWM facilities inspected and their BMPs through the automated database system.

Preventive Maintenance Inspections for Stormwater Management Facilities

Performance Standard: The District conducts inspections and maintenance of District SWM facilities.

The District continued inspections and necessary maintenance of all District SWM facilities. Coordination between District agencies will continue in conducting inspections, and the District will maintain the database of all SWM facilities and schedules of inspections.

WASA Department of Sewer Services continues to conduct inspections of stormwater control devices, including 15 stormwater pumping stations as part of their routine maintenance program. These maintenance inspections include greasing of bearings, draining condensate, exercising equipment, checking oil levels, visual inspections, and housekeeping.

WASA also performs maintenance on the storm sewer system. These maintenance activities include responding to reports on blockages or defects, the clearing of lateral channels, and ensuring that the outlet structures of the MS4 remain clear.

DCMR §534.2 states that “the owner of the property on which a stormwater management facility has been constructed shall maintain the facility in good condition, and promptly repair and restore whenever necessary all grade surfaces, walls, drains, structures, vegetation, erosion and sediment control measures, and other protective devices.” A maintenance schedule for stormwater management facilities is to be developed and submitted as part of the facility’s stormwater management plan. The District inspects the preventive maintenance of all infiltration systems, swales, retention, or detention structures. Inspections occur three times per year during the first five years of operation and at least once every two years thereafter.

FY 2006 Activities: During FY 2006, WASA performed 360 maintenance inspections on stormwater control devices and/or pumping stations. The SWM facilities inspected for maintenance are located within all four quadrants of the District.

DDOE maintains a SWM facility maintenance database system for tracking BMPs. The database enables more efficient scheduling and retrieval of maintenance records. In FY 2006, DDOE began using the MAR geocoder program to provide accurate address data. A total of 239 records (108 in the MS4) have been found in the maintenance database and geocoded using the program. DDOE will continue to use the MAR tool to verify the

existing addresses of stormwater management facilities located in the maintenance database.

DDOE requires the submittal of a Declaration of Covenant for SWM for residential and business property owners as part of the approval process for new construction activities. These covenants state that the owner must provide a schedule of maintenance activities, the stormwater management devices will be inspected periodically, and the owner will be responsible for correcting any deficiencies noted, at the owner's expense. The SWM facilities, where Covenants were enforced, are located in all four quadrants of the District. It is estimated that approximately 57-60 percent of the facilities inspected for Covenants are within the MS4.

FY 2007 Goals: The District will continue inspections and maintenance of SWM facilities. DDOE will continue to require the submittal of a Declaration of Covenant for SWM facilities for residential and business property owners as part of the approval process for new construction activities.

Enforcement Plan

The Permit in Part III.B.11 requires that the Permittee develop and implement an enforcement plan for carrying out the objectives of the SWM Plan.

Performance Standard: The District implements the stormwater pollution control enforcement plan which emphasizes enforcement activities and resources, documentation of violations, and assessment of enforcement effectiveness.

Enforcement Activities and Resources

Performance Standard: The District uses a database system for SWM facilities maintenance inspection to track the use and maintenance of construction projects with SWM BMPs. The *Environmental Enforcement Process in the District of Columbia* details the written enforcement strategy concerning enforcement actions. A copy is provided on the CD of reference documents included with this report (Attachment A-22).

DDOE has refined and updated the database system for SWM facilities maintenance inspection to include tracking of construction projects with SWM BMPs. The updated database system contains data for BMPs constructed since the inception of the program in 1988 and has enabled faster and more efficient rescheduling of inspection and retrieval of maintenance records.

FY 2006 Activities: As a result of illicit discharge investigations, DDOE personnel issued Notice of Violations and separate Site Directives for corrective actions last year. DDOE referred at least one case to the Plumbing Inspection Branch of DCRA for corrective action. Furthermore, DDOE has allocated three environmental engineers and two environmental specialists in support of these activities. These staff members are fully dedicated to stormwater management issues related to implementation of the SWM Plan and the Permit.

FY 2007 Goals: The District will continue to update the SWM facilities maintenance database for tracking inspections and data on constructed BMPs.

Documentation of Violations

Performance Standard: The District maintains a list of violations of the DCMRs pertaining to stormwater and soil erosion. This listing is reviewed by DDOE staff for needed enforcement actions. The listing of violations and enforcement actions is used as a measure of the effectiveness of the Enforcement Program.

DDOE conducted inspections of construction sites for violations of water quality pollution and soil erosion and sediment control regulations.

FY 2007 Goals: The District will continue to provide for the updating and review of violations of the DCMRs pertaining to stormwater and soil erosion.

Assessment of Enforcement Effectiveness

Performance Standard: The District maintains tracking and effectiveness metrics of its inspection and enforcement actions.

Inspection procedures are outlined in the 21 DCMR § 534 *Water Quality and Pollution Regulations* and the *Nonpoint Source Management Plan* for the District (Attachment A-3 and A-6 respectively). The legal basis for conducting inspections related to stormwater management is outlined in 21 DCMR § 534. Procedures for conducting an inspection are detailed in the *Standard Operating Procedures for Soil Erosion and Sedimentation Control and Storm Water Management Inspection* and the *Standard Operating Procedure for the Enforcement of Soil Erosion and Sedimentation Control and Storm Water Management Regulations* (Attachments A-14 and A-15 respectively).

DDOE has refined and updated the District's automated database system for tracking stormwater management facilities inspected for maintenance, including any tracking of construction projects with stormwater management BMPs. As previously discussed earlier in this Section, the updated database system contains data for BMPs constructed since the inception of the program in 1988 and has enabled faster and more efficient rescheduling of inspection and retrieval of maintenance records. Additional refinements to the automatic database system were made in 2005 and include the use of an Excel database to track "Final Inspection" completion and "Final Inspection Notification Letters" to SWM applicants, as well as monitoring the receipt of "As-Built" plans for completed stormwater projects.

FY 2007 Goals: The District will continue inspections and to update the database system.

III.F.12 Public Education Program

The Permit in Part III.B.12 requires that the District develop a public education program to reduce pollutant loading from the MS4 to receiving waters.

The stormwater pollution control public education program entails a mixture of programs:

- Public web site development and update.
- Education and outreach.
- Household hazardous waste collection and disposal.
- Pesticides, fertilizer and pet wastes program.
- Industrial facility education program.
- Construction site operators' education program.
- Agency cooperation program.
- District-wide science fair: Stormwater Awareness Award.
- Library submittals.

Public Web Site Development

Performance Standard: The Stormwater Management Division maintains a public web site which seeks to discuss all pertinent aspects of the MS4.

FY 2006 Activities: Several pages from the WASA website were updated for future placement into the new MS4 Administration website. In addition to the default opening

page, four pages were maintained. An “Overview” page gives a general synopsis of the Municipal Separate Storm Sewer System. The “MS4 Permit Page” gives information about the current regulations governing MS4s and how WASA is responding. “What Can I Do” gives information on what residents can do to help local water quality. “Contact Information” lists various contacts for additional information and resources for the Combined Sewer System and MS4 related issues.

FY 2007 Goals: DDOE will continue to update, add to, and refine the MS4 website to contain all relevant information including reports, accomplishments and fact sheets. The website will include GIS capabilities

Education and Outreach

Performance Standard: The District provides environment and stormwater awareness outreach programs targeted to teachers, environmental educators and students throughout the District.

FY 2006 Activities: The FY 2006 outreach programs are described in detail below.

Meaningful Watershed Educational Experience

WPD created two educational videos for teachers, environmental educators and school administrators. They both covered ways to provide students with a “Meaningful Watershed Educational Experience”. One was done in a studio talk show format while the other one was shot in the field. They were shown over 20 times each on the D.C. Public Schools (DCPS) cable station channel 99.

A Meaningful Watershed Educational Experience was incorporated into the DCPS Science Standards. Environmental Education Standards for high school students were also included in the Science Standards. This effort was lead by DDOE with support from the District of Columbia Environmental Education Consortium.

A mini \$10,000 training grant was written by DDOE and funded by National Oceanic and Atmospheric Administration (NOAA) to train teachers to provide Meaningful Watershed Educational Experiences for their students. The training was entitled “Watershed Wise DC: On the River, On the Bank” and was attended by 24 educators.

Schoolyard Conservation Sites

A grant was written by DDOE to the NOAA B-Wet Program for the Schoolyard Conservation Sites Program entitled “Greener Schools, Cleaner Water.” The grant was awarded for FY 2007. The new partner for this project will be the Potomac Conservancy.

The schoolyard sites installed in partnership with The National Wildlife Federation were all completed. Five new sites are created annually, while the work on five previously selected sites is being completed; however, new schools were not selected for FY 2006 because of DDOE staff attrition. Details of the work on the sites are presented in the Agency Cooperation Program, Nonprofit/Environmental Group Partnerships section below.

Storm Drain Marker Program

DDOE created a new tracking system for the Storm Drain Marker Program and hosted a 500-volunteer effort to install 700 storm drain markers throughout the District. Through the DC Soil and Water Conservation District’s Storm Drain Marker Program, approximately 2,000 storm drain markers have been installed by students and residents from 16 different organizations. Residents who participated in installing the markers were also given a presentation on the effects of stormwater runoff on the Anacostia and Potomac Rivers.

Summer Environmental Education Enrichment Program

Nine schools and 347 students received from 2 to 3 hours of watershed education during the month of July 2006. Topics covered were Composting and Decomposition, Watersheds, Nonpoint Source Pollution, Leave No Trace, Soils and Aquatic Ecology.

Environmental Education Resource Center

The Environmental Education Resource Center provides resources and materials that teachers and other environmental educators may use to enhance the classroom curriculum and implement conservation projects. During FY 2006, 566 people used the Environmental Education Resource Center, and approximately 8,200 pieces of literature were distributed.

Conservation Education (Project Learning Tree, Project WET, Project WILD)

These internationally recognized programs are utilized to train educators in innovative techniques for exploring a wide range of environmental concepts with students and teaching critical thinking skills that lead to environmental stewardship (grades K-12).

In FY 2006, DDOE coordinated five “WET in the City” teacher workshops with 39 participants and two Project Learning Tree workshops with 21 participants. A total of 46 teachers participated in the Schoolyard Greening workshop.

Pollution Prevention

DDOE issued several grants for support of the Clean Marina Program (below) and to implement IPM at schoolyards and community gardens. DPW distributed a monthly calendar that includes information regarding DPW’s activities (household hazardous waste collection, leaf collection, block cleanups, etc.) to all District citizens.

Clean Marina Program

DDOE and the NPS-National Capital Region partner with marinas in the District to educate the public on environmentally responsible boating practices. The program encourages marina, boatyard, and boat club operators, as well as the boating public, to reduce pollution through maintenance, operation and storage of recreational vessels. The Marine Environmental Education Foundation produced the 2006 Clean Boating Celebration at the James Creek Marina on June 17, 2006, with approximately 300 boaters attending. The District Clean Marina Advisory Committee received an Outstanding National Clean Boating Achievement Award from the Marine Environmental Education Foundation that included a \$5,000 grant to use for expansion of the Clean Boating Program. A Dockwalker training course was held concurrent with the Clean Boating Celebration with 34 boat owners, yacht club officers, and marina staff attending. Approximately, 1800 clean boating kits were assembled, and a portion was distributed during the event.

Schoolyard Habitats Program

DDOE continues to work with DCPS representatives to maintain and utilize schoolyard habitats. To date, DDOE has enrolled 16 schools that are at various stages of constructing schoolyard habitats. In conjunction with the Greener Schools, Cleaner Water Program, an additional five schools are enrolled to plan and construct schoolyard habitats.

Greener Schools, Cleaner Water Program

In FY 2006, DDOE continued to work with six schools previously selected for the Greener Schools, Cleaner Water Program. DDOE obtained 17 proposals from DCPS

from which five schools will be selected to receive funding for the implementation of their proposed projects.

Green Yards, Clean Streams Program

In FY 2006, DDOE began planning the Green Yards, Clean Streams Program that will target homeowners in the District through relevant non-profit organizations and help in implementing various practices (installation of rain barrels and rain gardens, planting large trees, replacing impervious surfaces with pervious surfaces, etc.) in their yards that will reduce stormwater runoff. Proposals received by non-profits will help determine the implementation details for this FY 2007-2008 program.

Table 19 presents the development of educational programs over the last four-year period. The number of programs has doubled with increased numbers of educational programs with the District schools and community groups.

Table 19. Public Education Programs and Activities FY 2003 – FY 2006.

Educational Programs	FY 2003	FY 2004	FY 2005	FY 2006
Environmental Education Resources Center	x	x	x	x
Conservation Education				
• Project Learning Tree	x	x	x	x
• Project WET	x	x	x	x
• Project WILD	x	x	x	
Teacher Training Workshops	x	x	x	x
Pollution Prevention (P2) Program				
• Pollution Minimization Assessment		x	x	x
• IPM materials for community gardeners		x	x	x
• Green Marinas		x	x	x
School Yard Habitats			x	x
Science Fair - Stormwater Awareness Award			x	x
Stormwater Trade Show		x		x
Total Number of Programs	5	9	10	10

In addition to public education and outreach programs, the following events were coordinated in FY 2006:

- DDOE coordinated the 10th Anniversary celebration of the Anacostia Fair attended by over 400 students from 11 District schools. DDOE recognized five individuals and/or groups from 23 participating organizations for their commitment to the environment.

- DDOE participated in the Aquatic Gardens Lily Festival and Energy Earth Week.
- DDOE partnered with other organizations to coordinate and conduct the Annual Anacostia River Cleanup.
- DDOW participated in DC Fish and Wildlife's Anacostia Resource Center Open House. This open house features DC Fish and Wildlife's efforts to move shad and herring so they could spawn in their historic breeding areas in the Potomac River.
- DDOE worked with Casey Trees in development of a model reviewing various scenarios of stormwater runoff in response to several degrees of imperviousness. The model output will contribute towards planning for green roof construction and tree planting within the study area.
- DDOE held the Annual NOAA Youth Summit on October 13, 2006 for 80 Students at McKinley High School. Students planted trees, made rain barrels, prepared a native plant garden bed and learned ways to improve water quality.
- DDOE sponsored seven Hard Bargain Farms Meaningful Bay Watershed Field Experiences for 174 fifth grade students attending the overnight event.
- DDOE provided classroom presentations on how pollutants and trash enter the waterways to:
 - Kelley Miller Middle School
 - Math and Science Middle School – a public chartered school

DDOE continues to play a key role in the DC Schoolyard Greening Consortium (SGC) which was merged with the DC Environmental Education Consortium during FY 2006. The SGC's mission is "to increase and improve schoolyard green spaces to promote ecological literacy and environmental stewardship among students, teachers, school staff, parents, and the surrounding community." The SGC completed the following activities during FY 2006:

- Held the annual schoolyard greening tour in early Fall 2006 attended by 15 people and showcased projects at Cardozo Senior High School, Children's Studio, Leckie Elementary School, Seaton Elementary School, and Stanton Elementary School.

- Conducted an 8-hour schoolyard greening workshop entitled “The Importance of Plants” for 32 teachers covering topics such as herbs, composting, plant structure. Distributed curricula, activities and plants to attending teachers
- Developed the “Schoolyard Greening Portfolio”, a list of all greening projects in District schools.
- Identified K-6 District Public Schools Science Power Standards applicable to schoolyard greening.
- Updated the “Schoolyard Greening Grants for Teachers” list of funding sources and other resources for schoolyard greening.
- Used the Spring Creek Foundation Grant awarded in FY 2005 to hire an intern for one year. The intern focused on improving various aspects of DDOE’s Schoolyard Greening Program by developing lesson plans, helping to organize a garden tour, assembling people for technical assistance to District schools, and assisting in planning a teacher workshop. The intern also worked to develop a SGC website: <http://www.dcschoolyardgreening.org> and to create a document that set standards for environmental education workshops to meet DCPS Science Standards.

Meetings/Training

DDOE staff attended training and meetings during FY 2006 to expand and enrich their capabilities in presenting public education and outreach. The following meetings and training sessions were attended:

- Watershed Stewardship training at the Hartford Glen Environmental Education Center.
- District of Columbia Environmental Education Consortium meetings.
- Anacostia River Business neighborhood cleanup.
- NOAA B-Wet Grant Training.
- Waste Wood Utilization Workshop training.
- DCPS Science Teachers meetings.

Throughout FY 2006, DDOE has been involved in several educational and public outreach efforts, including:

- Anacostia Watershed Citizen Advisory Council meetings —Meetings are held monthly or bi-monthly with various Friends of the Anacostia sub-watershed citizen groups from the District of Columbia and both Prince George's and Montgomery Counties. Meetings focus on improving the quality and functionality of the Anacostia River. Meetings will continue indefinitely and are considered important.
- Public hearings—DDOE attended several public hearings to update District residents on various environmental activities in which DDOE is involved in throughout the District. The public hearings are also a platform for residents to express their concerns with regard to the new activities.
- The DDOE has a subgrant with the LID Center to produce new educational materials on LIDs. DDOE staff is working with the Center to design the material. A finished product is expected in FY 2007.
- Further updates to the DDOE's *Storm Water Management Guidebook, 2003* (Attachment A-18 on the CD).

Household Hazardous Waste Collection and Disposal

Performance Standard: The District maintains a household hazardous waste collection and disposal program.

The District maintained a permanent household hazardous waste collection facility. The District promoted the collection and disposal of household hazardous waste through collection days previously discussed in Section III.F.10. These activities are promoted through the use of a public education pamphlet and press releases discussing solid and household hazardous waste. A copy of the pamphlet is provided in Appendix F.

FY 2007 Goals: The District will continue to provide educational opportunities to District residents to properly dispose of and ultimately reduce the amount of household hazardous waste.

Pesticides, Fertilizer, and Pet Wastes Education Program

Performance Standard: The District continues to provide educational materials as part of its IPM/Nutrient Management Program.

Pesticides: DDOE has developed an education and outreach program entitled “Integrated Pest Management/Nutrient Management.” The purpose of the program is to better inform the public on the proper use and disposal of pesticides and on safer alternatives to pesticides. The programs provide education and outreach activities designed to educate citizens about environmentally sound practices with regard to the use of pesticides in the yard or garden and the introduction of “good” pests into the garden.

District residents are educated on the proper application of pesticides through the IPM. This program gives residents guidance on how to choose an appropriate pesticide, how to choose a pest control company, and what regulatory requirements exist regarding commercial companies applying pesticides. This pamphlet also informs residents that there is a water quality impact associated with the application of too much pesticide.

In FY 2006, DDOE distributed 703 IPM brochures along with 100 DVDs or VHS videos at teacher workshops and other related educational and outreach activities.

Fertilizers: Through DDOE’s nutrient management program, the public is educated about the proper amount of fertilizer to use on a lawn. In addition to fertilizer use, this program addresses the proper way to mow, the use of mulches and the effects of applying too much mulch.

In FY 2006, DDOE distributed educational materials such as Nonpoint Source brochures and videos that provide suggestions on proper lawn fertilization, disposal of household waste, and application of pesticides and herbicides. The materials were primarily distributed through the Environmental Resource Center at environmental events where the target audience is teachers and District residents.

Pet Wastes: DDOE has developed an education and outreach program entitled “Scoop Your Pet’s Poop.” This program is designed to inform citizens of their legal obligation to manage their pet’s waste and to explain the reasons why it is important to do so. Currently there are laws in the District requiring pet owners to remove animal wastes. A brochure outlining the requirement of the law is available to registered pet owners to inform them that runoff from animal waste is a source of nutrient pollution in the waters of the District.

In FY 2006, DDOE distributed approximately 2,496 Pooper Scooper brochures concerning pet wastes to DPR, the DC Animal Shelter, Martin Luther King, Jr. Public Library, public events, and teacher training workshops.

FY 2007 Goals: The District will continue to educate District residents on the proper use and disposal of pesticides and fertilizers as well as the proper disposal of pet wastes through the “Pooper Scooper” Program.

Industrial Facilities Education Program

Performance Standard: The District provides industrial facilities with educational materials, seminars and conferences regarding the proper handling and storage of chemicals.

FY 2006 Activities: The District continued the industrial facility outreach program including the distribution of pamphlets on preventing discharges to Hickey Run. DDOE performed outreach to industrial facilities through seminars and conferences for managers. DDOE personnel used inspections to promote awareness of the proper methods of chemical storage. Based on what they observe on-site, inspectors can make facility-specific recommendations to improve their compliance with stormwater regulations.

FY 2007 Goals: The District will continue to disseminate educational materials and information through seminars and workshops to the industrial facilities within the MS4 drainage area.

Construction Site Operators’ Education Program

Performance Standard: The District provides educational materials to construction site operators.

Educational training for construction site operators is conducted during the site inspection process. This training includes distribution of the District’s *Stormwater Management Guidebooks* and the *Erosion & Sediment Control Handbook* (Appendix A-18 and A-13 on the CD respectively), and addresses particular needs and questions of the operators. These books outline the regulatory requirements of the District for construction activity.

FY 2006 Activities: In FY 2006, DDOE distributed 17 guidance manuals demonstrating the proper maintenance of sand filter water quality structures and 8 copies of a video that illustrates the proper maintenance of the sand filter, which is a commonly used BMP on construction sites. The videos were distributed to property management companies, SWM facility maintenance service providers, and individual building engineers and property managers.

DDOE maintained a list of qualified stormwater management facility maintenance contractors registered to do business in the District. The list is made available to all persons responsible for the maintenance of individually owned private stormwater management facilities. To ensure proper maintenance of stormwater management facilities, DDOE established inspection procedure guidelines as required by 21 DCMR § 534.1. DDOE policy requires the submission and approval of a work plan before restorative maintenance of the filter bed of any District sand filter facility can proceed.

FY 2007 Goals: The District will continue to provide educational materials to construction site operators and to enforce the inspection procedure guidelines set forth in 21 DCMR § 534.1.

Agency Cooperation Education Program

Performance Standard: District agencies work with local, regional, and federal government agencies, non-governmental agencies, and universities to prepare, promote, and distribute public educational materials.

The District conducted public education programs to address 40 CFR 122.26 topics. The District developed public education materials in coordination with other agencies.

The District continues to maintain partnership arrangements with regional and local organizations. A thorough discussion of partnerships and cooperative efforts, including public education, between the DDOE and other federal, regional, and local agencies and organizations appears in the *Nonpoint Source Management Plan II*. These partnerships help promote stormwater pollution control issues.

Regional Organizations: District agencies are currently working with the Interstate Commission on the Potomac River Basin (ICPRB), the Metropolitan Washington Council of Governments, and the Anacostia Watershed Restoration Committee (AWRC). These agencies meet regularly.

District agencies and the ICPRB have identified and developed information on toxic substances problems, and they have made plans to develop a TMDL for polychlorinated biphenyls (PCBs). DDOE continues working with the AWRC and other agencies to reduce trash and improve water quality, wetlands, forest cover, and ecological integrity of fish habitat in the Anacostia watershed. DDOE is monitoring restored wetlands for vegetation type and coverage. This data is being collected twice per year by DDOE and U.S. Geological Survey (USGS) and is analyzed by USGS. DDOE is also working with

the State of Maryland to develop a trash management plan and has issued grants to fund the project.

Local and Federal Government Agencies: EPA is providing technical and program support to the Nonpoint Source programs of the District.

Through the DC Urban Initiative, the USDA Natural Resources Conservation Service (NRCS) began a soil erosion assessment for DPR property throughout the District. NRCS has provided public outreach at various environmental fairs and training courses on stormwater management and runoff from commercial and residential activities.

Watts Branch Stream Restoration: DDOE continued to work with the USFWS on the stream restoration plans for Watts Branch. In July of 2006, the 65 percent design was completed by USFWS. DDOE applied for a Corps nationwide permit and an associated water quality certification during this reporting period. Design review by all participating and relevant stakeholders took place, and comments were incorporated into the designs. Throughout this period, DDOE led the coordination work with all of the park, agency and neighborhood stakeholders. DDOE also worked closely with WASA to ensure that sanitary sewer line repair and relocation would be conducted prior to the stream restoration work. This will result in significantly improved water quality when both elements are complete.

Pope Branch Stream Restoration: In FY 2006, a multi-agency partnership consisting of WASA, DPR and DDOE worked to get an MOU reviewed and signed by all three parties. This MOU detailed project scope, the cost-sharing breakdown and the process for agency commenting and approval. Due to the unorthodox nature of the MOU whereby WASA will handle contracting processes and DDOE and DPR will review and approve decisions, the review and signing process took up the majority of the reporting period. By the end of the period, the agreement had been signed by all parties and their fiscal representatives, and the formal scope of work was drafted. In this period, DDOE and other partners attended monthly meetings with community representatives to keep them apprised of the status of the work.

Other Agencies

DDOE works with NPS to maintain federal land holdings that border District waterways. In FY 2006, NPS continued restoration activities at the Kingman Lake Wetland, Kenilworth Marsh, Anacostia Fringe Wetlands, and Lower Anacostia Park, and continues

to work on the Fort DuPont BMP construction site and the installation of BMPs at the parking lot for the Anacostia Park.

USACE was involved in the restoration activities at the Kingman Lake Wetland, Kenilworth Marsh, Anacostia Fringe Wetlands, lower Anacostia Park Habitat Restoration, and debris removal from the Anacostia River.

USGS maintained gauging stations along Rock Creek and Watts Branch that provide data for the discharge monitoring program described in Section III.D of this report.

Universities

Universities in the District provided research and support services to the MS4 programs of the District government. These services included assessment of petroleum and hydrocarbons in groundwater, groundwater hydrology and wetlands, toxic organic compounds, educational videos and projects on nonpoint sources and pollution prevention. In addition, they provided interns for public educational and biological monitoring programs. DDOE is working with Catholic University of America to install cisterns and bioretention features on the university campus. The project will involve Catholic University students in the design and construction oversight of these features. It is hoped that by involving the students, non-structural stormwater management practices will become more accepted in the private sector as they continue to use their knowledge in future projects. DDOE is funding the project through an innovative stormwater management grant from EPA.

Nonprofit/Environmental Group Partnerships

Community Resources/DC Greenworks

Using federal grant funds, DDOE worked with Community Resources/DC Greenworks to distribute rain barrels to households, non-profit organizations, and public buildings. The majority of these buildings were in the Anacostia watershed. In FY 2006, 29 rain barrels were distributed under this program. This brings the program total to 96 rain barrels constructed and/or distributed at rain barrel workshops.

In FY 2006, Shaw EcoVillage installed a rain garden at New Community After-School and Advocacy Program on 6th Street, NW and planted more than 1500 sq. ft. of native gardens in the Shaw neighborhood. Shaw EcoVillage EcoDesign interns taught 22 students at Bancroft Elementary School about watersheds, stormwater runoff, combined

and separate sewer systems, and how LID techniques can help improve water quality in the Anacostia River. The interns also installed two rain barrels at the school. At presentations, through volunteer recruitment, and youth and adult programs, interns reached approximately 425 community residents and 35 elementary and middle school students.

National Wildlife Federation (NWF)

In partnership with NWF and using federal funds, DDOE began installing schoolyard conservation sites at schools throughout the District. Teachers at each school were trained in watershed education, LID, conservation landscaping, and procedures for effectively implementing environmental curricula. DDOE worked with NWF to install conservation sites at District schools during FY 2006. The teachers received 6 days of training and two 3-hour evening sessions. Teachers received curricula on nonpoint source pollution and its effects on the Chesapeake Bay and information on how to design and install garden habitats and utilize them for teaching purposes.

In FY 2006, schools in the District had participated in the Schoolyard Conservation Site program through a two-year 319 grant: Draper Elementary School, John Burroughs Elementary School, Aiton Elementary School, Seaton Elementary School, and Cardozo High School.

Draper Elementary School removed over 4,000 feet of impervious asphalt from school grounds. After excavation and grading, topsoil was added to the base material and graded to maintain drainage characteristics. Sod was put in, twelve native species of trees were planted, and a wooden curb was installed around the perimeter of the newly created green space. Six benches were placed in the area to create a park-like setting. In addition, to the green space area, a rain garden was established above an area that historically had erosion issues. The rain garden, which receives runoff from nearby parking lots and asphalt play areas, is planted with native shrubs and herbaceous plants.

John Burroughs Elementary School created several raised planting beds in a concrete court yard area within the school property. The raised planting beds will capture some of the rain fall in the court yard where the beds are located and will be taken up by the plants. The raised planting beds are planted with a variety of perennials, herbs, and vegetables. In addition to the raised planting beds, garden beds were established outside the school. These beds created productive loamy soils that will absorb rain water and runoff from heavily compacted soil.

Seaton Elementary School, in cooperation with Environmental Concerns, Inc., created an urban wetland around a natural depression. The urban wetland will provide a pocket of habitat for birds and insects in addition to absorbing and treating runoff from nearby athletic fields, parking lots, and asphalt basketball courts. The wetland was planted with wetland plant species such as cardinal flower and soft rush; an upland border was planted with other species including a variety of ferns, black-eyed Susan, sneezeweed and hosta. In addition, Seaton Elementary School has planted numerous new canopy and understory tree species including northern red oak, black willow, flowering dogwood, and eastern red bud from the Trees for Kids Program.

Aiton Elementary planted a diverse habit garden and increased the riparian buffer along Watts Branch, a tributary of the Anacostia that borders the school property.

Cardozo Senior High School improved the utilization of established gardens and bio-degradable materials from the school. Most notably, a large compost bin was constructed to turn garden waste and food scraps into beneficial compost for use in the existing gardens. A “dry” creek bed was established to re-direct stormwater runoff from a concrete terrace into the existing gardens where the water will be absorbed into the soil and taken up by the garden plants.

A sixth school, Backus Middle School added an additional pond and wetland plants to provide additional opportunities for hands-on aquatic education.

Anacostia Watershed Society

DDOE worked with AWS to provide extensive public outreach on LID and Anacostia River water quality in the Anacostia Gateway neighborhood.

Following a FY 2005 grant award to the AWS by DDOE to educate the Anacostia community about LIDs and install a rain garden, the plans for the rain garden have been postponed. AWS, NPS, WASA and DDOT worked together to design a rain garden at the entrance to Anacostia National Park. The installation has been delayed while DDOT realigns a road overpass in the immediate vicinity of the initial chosen location. A new location for the rain garden will be determined after the realignment is complete.

Keep Washington Beautiful

DPW worked closely with Keep Washington Beautiful, Inc. to place and maintain 40 learning terminals at select District public schools. The terminals were utilized by

teachers and students to engage in research and instructional delivery of environmental education. A listing of the terminal sites was provided in the 2004 Annual Report.

DPW participates as a member of the Board of Keep Washington Beautiful providing planning and support of major events, including the Great American Kick-off in FY 2006. Through their Helping Hands Program, DPW also acts as a year-round resource distributing kits for neighborhood groups committed to keeping their communities clean through block-party cleanup events. DPW provides packers and sweepers in support of community cleanups.

Pope Branch Citizens Group

The Pope Branch Citizens Group continued to work with District government agencies on the Pope Branch stream and sewer line restoration project. They organized monthly meetings and took an active interest in DDOE funded bioretention retrofits in the watershed. The group also agreed to maintain these facilities for DPR. The Pope Branch Citizens Group worked to improve water quality along Pope Branch by participating in cleanup events organized by other local non-profit organizations such as Earth Conservation Corps.

Mayor's Environmental Council

The Mayor's Environmental Council consists of public and private sector members who help guide the administration on specific environmental issues such as sustainable economic development, smart growth, transportation, environmental health and children, and reclamation, preservation, and protection of the Anacostia River. The Mayor's Council did not meet during FY 2006.

District-Wide Science Fair: Stormwater Awareness Award

In 2005, the MS4 Task Force established a Stormwater Awareness Award as part of an ongoing effort to educate citizens about stormwater issues facing the District. The intent of the award was to stimulate interest among students and teachers in stormwater issues. The award is given to one student each from the middle school and high school levels whose science project best demonstrates stormwater-related issues such as water quality degradation, sediment transport, and biological/ecological impacts in the District.

The 60th Annual D.C. Math, Science and Technology Fair was held on March 18-19, 2006 at McKinley Technology High School. The D.C. Science Fair showcases some of

the best works by students of public, private, parochial, and charter schools in the District. Members of the MS4 Task Force participated in judging student projects and presenting cash awards to each of the winners.

From the Junior Division, the award was presented to a student from Bridges Academy who studied the effect of motor oil and cooking oil on baby shrimp. From the Senior Division, a student from McKinley High School was selected for a study of the impacts of nutrient concentrations on water fleas (*Daphnia magna*), a standardized test organism for determination of water quality. The Junior and Senior Division award winners received cash prizes of \$100 and \$200, respectively, along with certificates of achievement.

The Stormwater Administrator was present on March 19, 2006 to award the prizes to both students. He explained to the audience why the MS4 Program is participating in the Science Fair, the importance of stormwater pollution control, and the importance of educating District students on stormwater-related issues.

Library Submittals

Performance Standard: The District places all Permit records and documents on file with the public library for use by the general public.

The Permittee has established a system to ensure that Permit records and documents are available for public review in a single location at the Martin Luther King, Jr. Public Library.

FY 2006 Activities: Submittals included:

- All annual and semi-annual reports.
- Annual Implementation Plans and the specific TMDL Implementation Plans for the Anacostia and Rock Creek Watersheds.
- Annual Discharge Monitoring Report.
- A copy of all IPM and nutrient management information on file.

An inventory conducted in the second half of FY 2006 determined that replacement copies of some annual reports were needed. DDOE re-submitted copies for the file at

Martin Luther King, Jr. Public Library along with additional copies of all IPM and nutrient management information.

FY 2007 Goals: DDOE will maintain the same level of submittals to the Martin Luther King, Jr. Public Library and ensure the replacement of all outstanding documents found during the inventory conducted in FY 2006. In addition, the documents will be available on the new MS4 Administration website to be finalized prior to the end of FY 2007.

III.G Total Maximum Daily Load Waste Load Allocation Implementation Plans

Part IX.B of the Permit requires the District to submit implementation plans to reduce discharges consistent with any applicable EPA-approved WLA component of any established TMDL.

The Permit specified that TMDL WLA Implementation Plans be submitted to EPA for the Anacostia and Rock Creek watersheds. These Plans were completed in 2005.

The Annual Implementation Plans summarize the tasks conducted by the District to control pollutants in stormwater discharged from the MS4. The 2006 Implementation Plan, which was completed in FY 2006, includes budgetary analysis and planned activities for three fiscal years: FY 2007, FY 2008, and FY 2009, which cover the period October 01, 2006 through September 30, 2009.

During FY 2006, TMDL WLA Implementation Plan activities were underway as listed below:

Street Sweeping

- DPW continued its street sweeping activities, and added five new regenerative air sweepers to the fleet.

Catch Basin Cleaning

- WASA continued ongoing activities at their current level; no new activities were planned.

Household Hazardous Waste

- DPW managed the collection and disposal of 387 55-gallon barrels of household hazardous waste and 93 tons of unwanted electronics for recycling.

Inspection and Enforcement

- DDOE continued searching for illicit discharges in the field in response to complaints, performing visual inspections of selected outfalls, and working with WASA and/or other responsible parties to ensure the correction of illicit discharges.
- DDOE continued to prevent illicit discharges by providing on-site recommendations to facilities and participating in public education and outreach events, such as the Annual Anacostia Environmental Fair and Earth Day.
- DDOE continued:
 - Incorporating updated mapping layers into the GIS,
 - Incorporating the MS4 outfall/infrastructure verification data into the GIS,
 - Combining updated industrial facility location data into the GIS (based on field verification for 60 facilities within the MS4 service area that are part of NPDES, CERCLA, and/or RCRA databases), and
 - Generating maps to support field investigations.

Constructed LIDs and BMPs

- DDOT continued to strengthen its erosion and sediment control program, and conducted training for construction staff and inspectors.
- DDOT developed plans and specifications for LIDs and BMPs to be installed in FY 2007 as part of the roadway program.
- DDOT completed construction of two new catch basins at S Street and 17th Street, SE as part of the monitoring program to assess the performance of several water quality catch basins in the efforts to select a prototype to include in DDOT Standards.
- DDOT started the Anacostia Riverwalk Trail construction project. As part of the project, DDOT will install six bioretention cells and approximately 900 feet of bioswales.

- DDOT completed 90 percent of the design for the Brine Manufacture and Truck Wash facility.
- DDOT began the design of a vegetated swale on I-295 near the Malcolm X overpass to remove roadway pollutants.
- DDOT started the procurement process for the design of the water quality stormwater management control facilities as part of the Watts Branch Bicycle Trail.

III.H Program Funding

The District's Stormwater Permit Compliance Amendment Act of 2000 established the Stormwater Permit Compliance Enterprise Fund to finance the Stormwater Administration's MS4 Permit implementation activities. To capitalize the Enterprise Fund, the Act authorized WASA to collect a stormwater fee of \$7.00 per year from single-family water and sewer customers, 1.4 percent of the water rate from multi-family residential water and sewer customers, and 2.0 percent of the water rate charged to commercial, industrial, federal, and municipal customers.

WASA began charging the stormwater fee with the billing cycle that started July 1, 2001. Annual income from the fee is approximately \$3.1 million per year. Income from the Enterprise Fund is available to any District agency for costs incurred to comply with the terms of the Permit, including administration, operations and capital projects over and above the costs incurred in April 2000. WASA has established a system to approve and reimburse eligible expenditures from the Enterprise Fund.

The 2004 Permit requires significant new activities, with its emphasis shifting from planning (in the first NPDES permit) to implementation of plans submitted by the District. The Stormwater Task Force has reviewed the 2004 Permit requirements and is developing a cost estimate for compliance activities (as part of the Activities Matrix mentioned before). It is estimated that approximately \$7.2 million per year will be required from the Enterprise Fund (above and beyond the existing stormwater management activities funded by WASA and District agencies through their general obligation budgets) to comply with the 2004 Permit. In particular, the Permit requires the District to commit to activities included in the Anacostia River and Rock Creek TMDL Implementation Plans and to demonstrate measurable progress towards compliance with the TMDLs assigned to the MS4 for these watersheds.

The Enterprise Fund budget for FY 2006 was \$6.7 million, of which approximately \$2.8 million was allocated for direct Permit compliance costs including reporting, sampling and analysis, outfall inspection and system mapping, illicit discharge screening, etc. The balance of the FY 2006 budget was for direct pollutant reduction activities such as construction of BMPs, increased inspection and enforcement, public outreach, and other citywide activities to reduce pollutant discharges from the MS4 as a whole. The current revenue from the stormwater user fee (approximately \$3.1 million per year) will not sustain these activities beyond FY 2007.

Continued permit compliance through FY 2007 and beyond is dependent on District Council action to increase the stormwater fee collected from water and sewer customers.

A cost benefit analysis of current and planned MS4 permit activities is included in the 2007 Implementation Plan submitted together with this report. The Implementation Plan explains the activities and anticipated budgets planned for FY 2008 and FY 2009. Implementation of the budgeted activities outlined in the 2007 Implementation Plan will substantively fulfill the requirements of the current Permit. The plan will continue current activities to manage stormwater pollution and encourage improved stormwater management techniques, while providing the organization, legal framework, technical evaluation, and specific data necessary to ensure progress and track improvement in the quality of stormwater discharged from the MS4. Table 20 provides a summary of the Enterprise Fund expenditures by agency for FY 2001-FY 2006 for Permit-required programs.

**Table 20. Summary of Enterprise Fund Expenditures for
 FY 2001- FY 2006 for Permit-required Programs.**

Agency	FY01	FY02	FY03	FY04	FY05	FY06	Total
DOH/ DDOE	0	0	\$27,656	\$210,331	\$748,371	\$263,643	\$1,250,001
DDOT	-	-	0	0	\$91,732	\$350,240	\$441,972
DPW	\$191,148	\$550,379	\$567,297	\$674,213	\$490,715	\$922,089	\$3,395,841
WASA	\$135,320	\$526,118	\$843,945	\$654,475	\$1,253,434	\$1,120,603	\$4,533,895
Total	\$326,468	\$1,076,497	\$1,438,898	\$1,539,019	\$2,584,252	2,656,575	\$9,621,709

III.I Assessment of Controls

Assessing the effects of the SWM program in reducing pollution and achieving the requirements of the CWA involves a variety of measurement metrics and processes. According to EPA's *Guidance Manual For The Preparation Of Part 2 Of The NPDES*

Permit Applications For Discharges From Municipal Separate Storm Sewer Systems (Attachment A-8 on the CD), there are two ways to assess the SWM program. They are:

1. Direct Measurement, which includes the number of BMPs installed, removal efficiencies, stormwater volume reduction, event mean concentration reduction, and estimated pollutant loading reduction; and
2. Indirect Measurement, which includes but is not limited to, the amount of household hazardous waste collected, number of public hearings and attendance at these hearings, number of spill cleanups, number of sewer inlet stencils, number of educational brochures distributed, and number of erosion and sediment control permits issued.

In order to help provide direct assessment of the SWM program impact on water quality, the District is continuing its long-term monitoring program. The program rotates stormwater sampling from the Potomac watershed to the Anacostia watershed to the Rock Creek watershed on an annual rotation. By focusing monitoring in one watershed during a given year, a more complete measure of pollutant loading from that watershed is obtained.

Within each watershed, DDOE has selected outfalls that are representative of the MS4 for inclusion in the discharge monitoring program. By monitoring representative outfalls, an economy of time, effort, and resources can be made in assessing the impacts of the SWM program on pollutant discharge from the MS4 as a whole. Programs such as removing illicit connections, improved erosion and sediment controls for construction sites, and refurbishment of municipal waste transfer and salt storage areas will result in immediate and predictable reductions to pollutant loading to stormwater runoff in a known sewershed. Such measures require monitoring data and runoff modeling to quantify results.

Monitoring provides measurement of the pollutant levels in a watershed so as to evaluate the removal of pollutants by structural BMPs. These BMPs may include LID techniques, catch basin filters and/or inserts, oil and grease traps and flow reduction devices incorporated by new construction and redevelopment throughout the District. These structures are placed on individual sites by residents, businesses, and federal facilities and are designed to control the water flow and pollutants from the land area of that specific site. A reduction of pollutants at a monitoring site cannot be expected until after a significant amount of the monitored watershed area is controlled by BMPs.

The pollutant removal efficiency of a BMP is typically expressed as a percentage reduction in the concentration of a particular pollutant. In order to evaluate the effect of a BMP, knowledge of the pollutant level (in the water flowing from the site) prior to BMP construction is required. After construction, monitoring data should provide a new measure of the level of the pollutant so that a percentage reduction can be estimated. Examples of this may be a 70 percent reduction of oil and grease in a BMP installed near an automotive repair shop, or 80 percent reduction of floatable trash (total suspended solids) in a BMP near a public park area.

Progress of the SWM program under the SWM plan can also be assessed indirectly utilizing statistics regarding stormwater management activities reported by District agencies. While these measures are qualitative and not quantitative, the level of effort, equipment and manpower for each SWM activity under the SWM plan help to provide indirect measurement of pollution reduction achieved. Programs such as public education and contractor and equipment operator training produce effects that are dispersed over time and location. Impacts to the pollutant levels of the MS4 are usually indirectly measured by tracking the number of persons trained or through testing of comprehension.

Some SWM plan measures, such as long-term traffic and transit planning, and programs implemented by consumers like rain leader disconnection or other small-scale residential BMP installations, require significant time in planning and implementation. Thus, effects of today's work may not be measurable within the term of the current permit, or even the following one. Such measures, while quantifiable, require extended time intervals of measurement, or estimates of future implementation rates and efficiencies.

Methodologies for assessing the effects of the SWM program in reducing pollution and achieving the requirements of the Clean Water Act will continue to be developed and refined to provide a consistent measure of progress and success in the MS4 program.

III.J How This Program Meets Requirements of the Clean Water Act

Full implementation of this program is critical with respect to the CWA. The primary method by which the CWA imposes limitations on pollutant discharges is the permit program established under Section 402 and the NPDES program. Under the NPDES program, any person responsible for the discharge of a pollutant or pollutants into any waters of the United States from any point source must apply for and obtain a permit.

The District has developed watershed-specific implementation plans for two of the District's major watersheds, Anacostia River and Rock Creek. The implementation plans discuss the level of effort needed to meet the TMDL WLA determined for the watershed. These plans are being used as management tools to both direct future stormwater efforts and estimate the anticipated costs of the activities. In this manner, the implementation plans help to meet the requirements of the CWA.

III.J.1 Electronic Mapping and GIS Modeling

The District's stormwater model provides an important management tool for the coordination and evaluation of the stormwater pollution control effort. As the model continues to develop, the geographic data coupled with the monitoring data will provide information regarding the District area of greatest need. In this manner, as a management tool, the stormwater model helps to meet the requirements of the CWA.

III.J.2 Commercial, Residential, and Federal and District Government Areas

The District is involved in a number of activities which promote stormwater control and quality in commercial, residential, federal and District government areas. These activities include the following:

- Legal and regulatory activities which encourage citizens to use stormwater BMPs on their properties.
- Routine cleaning and maintenance activities related to the property, streets, stormwater catch basins and MS4 system within the District. Focus is on maintaining a beautiful city that is both clean and capable of controlling inputs that might contribute to stormwater pollution.
- Promotion of BMPs such as functional landscaping, LIDs, and rain leader disconnects which property owners can use to further impact their stormwater runoff.

Together these activities seek to control potential pollutants before they enter the MS4 system (through sweeping and catch basin maintenance) and by promoting BMPs that reduce stormwater runoff at the point of entrance to the MS4 system.

III.J.3 Industrial Facilities

The District's management program for controlling stormwater pollution from industrial facilities seeks to encourage DC industries to control pollutants in their waste. Through routine inspections of industries with individual NPDES stormwater permits and monitoring and inspections throughout the District, the District enforces effluent restrictions to the MS4 to meet CWA requirements.

III.J.4 Construction Sites

The District seeks to control stormwater runoff from construction sites through the review of construction plans and the inspection of construction sites.

In the review process, the District is able to work with designers, promote stormwater BMPs, and encourage the use of stormwater quality controls on new and rebuild construction sites. In the long term, the accumulative effect of maintained or decreased levels of impervious land use and installation of stormwater BMPs on a large number of sites will help to decrease the peak runoff rates and pollutants discharged to the District's waterways. In the short term, the use of erosion and sedimentation controls on construction sites will decrease the levels of soils exiting a construction site. Through inspections the District is able to enforce the use of erosion and sedimentation controls so as to better ensure the water quality of runoff from construction sites and monitor the location of increases or decreases of impervious area due to construction.

III.J.5 Flood Control Projects

The District's flood control program acts to maintain existing flood controls on its waterways (Watts Branch and the Potomac River Tidal Basin) and ongoing flood impact programs with FEMA. These activities seek to minimize flooding impacts due to large storm events.

III.J.6 Control of Pollutants from Municipal Landfills or Other Municipal Waste Facilities

There are no municipal landfills within the District. District municipal waste transfer facilities are managed to minimize stormwater impacts and keep up with increasing waste and recyclable loads. By removing the waste materials handled by the facilities, the amount of stormwater runoff pollutants potentially originating from these materials is

reduced. In addition, stormwater BMPs (improved paving and drainage systems) installed in the transfer stations minimize pollutants in the runoff from the transfer facilities.

III.J.7 Pesticides, Herbicides, and Fertilizer Applications

The District's SWM program emphasizes control of specific pollutants found typically in herbicides, pesticides and fertilizers. The most effective program activity is proper application of the materials, which is taught through the IPM program. When the materials are properly applied, the levels of pollutant constituents in the stormwater runoff are reduced.

III.J.8 Deicing Activities

In implementing its deicing program, the District is reducing the amount of salt that is applied to the roadways in order to provide a safe passage for its citizens. These activities directly impact the amount of salt in melted stormwater runoff entering into the MS4 and thereby help to meet the stormwater quality requirements of the CWA.

III.J.9 Snow Removal

In implementing its snow removal program, the District provides a safe passage for its citizens while using deicing materials that provide the minimum impact practicable to the melted stormwater runoff that enters the MS4. These activities directly impact the pollutant constituents in stormwater runoff entering into the MS4 and thereby help to meet the stormwater quality requirements of the CWA.

III.J.10 Illicit Discharges

The District's stormwater pollution control management program for the detection and removal of illicit discharges acts to eliminate illicit discharges of stormwater pollutants. The reduction of stormwater pollutants to the District's waterways helps to meet the water quality standards of the CWA.

III.J.11 Public Education

In urban areas, water pollution occurs when water, moving over land, picks up pollutants such as sediment, bacteria, nutrients, and toxicants and carries them to nearby waters. A cost-effective way to reduce water pollution from this stormwater runoff is by preventing the pollution at the onset. Pollution prevention is more cost effective than remediation.

DDOE accepts the premise that most citizens would protect their environment given the correct information. DDOE considers effective environmental education a natural complement to its regulatory functions. Realizing that habits formed early in life are more enduring, the outreach program has a major youth component.

DDOE has raised awareness of point and nonpoint pollution sources in the community and pollution prevention methods through its outreach to educational and community groups. These educational efforts begin with teacher training days, community outreach, and various fairs and festivals in the District. This methodology exposes children at an early age to their impacts on stormwater surface runoff and discharges to the MS4 and District waterways. This effort seeks to develop a pollution prevention mindset and is more cost effective than developing ways of mitigating runoff.

Who to Call if You Have a Watershed or Water Quality Question:

District Agencies

District Department of the Environment (DDOE) 202-673-6700

Watershed Protection Division

 Sediment and Stormwater Technical Services Branch..... 202-535-2240

 Inspection and Enforcement..... 202-535-2240

 Non Point Source Management..... 202-535-2241

 Water Quality Division..... 202-535-2190

District Department of Public Works (DPW) 202-673-6833

 Bulk Trash Collection..... 202-727-1000

 Residential Trash Collection..... 202-727-1000

 Office of Recycling..... 202-645-7190

Natural Resources Administration..... 202-535-1660

District Department of Transportation 202-673-6813

Inter-District Agencies

Water and Sewer Authority (WASA) 202-787-2000

 Water and Sewer Emergency Hotline..... 202-612-3400

 Water Quality Division..... 202-612-3440

 Documents and Permits (for Waterlines)..... 202-787-2057

APPENDIX A

STORM WATER POLLUTION CONTROL ACTIVITIES BY DISTRICT AGENCIES NOT PARTY TO THE NPDES PERMIT

APPENDIX A STORM WATER POLLUTION CONTROL ACTIVITIES BY DISTRICT AGENCIES NOT PARTY TO THE NPDES PERMIT

A.1 INTRODUCTION

Many District and Federal agencies and regional and non-profit organizations have programs that contribute to storm water management in the District. Either as their primary focus, or as a secondary benefit, these programs reduce pollutant loading from the MS4. While not part of the MS4 program, and in many cases explicitly prohibited from being counted towards compliance with the MS4 Permit, these efforts to control storm water runoff contribute directly and indirectly to the reduction of pollutants in discharges from the MS4, and/or result in improved water quality in receiving waters.

The Storm Water Administration is currently working with District of Columbia agencies, departments, and offices that conduct activities related to storm water issues and pollutant loading to the MS4 to compile a comprehensive listing of storm water management issues and activities throughout the District. The Storm Water Administration plans to extend this effort to include Federal agencies with significant landholdings and operations within the District as part of an on-going effort to build partnerships towards coordinating the storm water management activities of these Federal agencies to be consistent with the Districts storm water management program.

The requirements of the MS4 Permit have greatly improved the storm water management of construction activities conducted by District and Federal agencies through the improved erosion and sediment control and storm water management regulations approved by DCRA, and enforced by DOH Watershed Protection Division. Additionally, a number of District and Federal agencies have implemented initiatives above and beyond current regulations. The goal of this effort is to provide the Storm Water Administration with a more complete picture of current activities, and form the basis for a unified, district-wide initiative to lead by example in promoting innovative, cost-efficient solutions to the challenging problems of managing storm water runoff and associated pollutants in a highly urbanized environment. The requirements of the new Permit encourage the expansion of the scope and direction of the Storm Water Administrations efforts to coordinate and build partnerships with District agencies, departments, and offices, and Federal agencies.

The following is an initial listing of District and Federal agencies, departments, and offices that have been identified for this effort.

A.2 LIST OF AGENCIES AND ORGANIZATIONS

In May 2004 the Storm Water Administration corresponded with the Directors of ten District agencies, departments, and offices requesting information on their activities related to storm water management and pollutant control. The results of initial contacts indicate that those groups involved in construction are working through DCRA and the one-stop permit shop to comply with erosion and sediment control and storm water management regulations. A listing and brief description of related storm water activities carried out by these ten District agencies, departments, and offices is provided in the following sections.

A.2.1 DC Department of Consumer and Regulatory Affairs

The DC Department of Consumer and Regulatory Affairs (DCRA) cooperates closely with the Department of Health to establish the legal basis, enforcement of inspection, and any subsequent enforcement actions related to storm water pollution within the District. The programs in place are currently functioning smoothly, but remain sufficiently flexible to establish new regulations and procedures as needed.

The DCRA encourages their planners and contractors to comply fully with the storm water regulations and construction erosion and sedimentation plan review process set forth by the District's DCRA and DC Department of Health.

A.2.2 DC Office of Property Management

The DC Office of Property Management (OPM) actively participates in the District's recycling program. The OPM oversees the distribution and procurement of recycling containers and has an established central collection area in most buildings for bottles, cans, paper, and toner cartridges. Two separate contractors with scheduled pick-ups were procured for the toner cartridges. The OPM purchases environmentally safe products for cleaning for all of its facilities.

The OPM is considering adopting the Leadership in Energy and Environmental Design (LEED) green building certification standards as a requirement for new and reconstruction projects within the District. The LEED program was developed by the US Green Building Council. In addition to storm water management and pollutant control issues, the LEED standards address energy efficiency, the use of renewable resources, water efficiency, and indoor environmental quality.

A.2.3 DC Department of Housing and Community Development

The DC Department of Housing and Community Development (DHCD) promotes storm water activities through education and planning sessions with the DHCD staff.

A.2.4 DC Housing Authority

The DC Housing Authority (DCHA) actively seeks to promote the storm water control through LID techniques such as landscaping and the installation of storm water control structures such as underground retention ponds and Stormceptor® devices. DCHA is pursuing future initiatives/activities using LID and storm water management techniques within upcoming redevelopment projects. With all construction, the DCHA encourages their contractors to comply fully with the storm water regulations and construction erosion and sedimentation plan review process set forth by the District's DCRA and DC Department of Health. DCHA also works with DPW in solid waste removal by performing their own waste collection and transport.

A.2.5 DC Parks and Recreation

The DC Parks and Recreation encourages their contractors to comply fully with the storm water regulations and construction erosion and sedimentation plan review process set forth by the District's DCRA and DC Department of Health.

A.2.6 DC Office of Planning

The DC Office of Planning is in the process of revising the DC Comprehensive 20-year Plan. When completed the plan will encourage and mention storm water activities and DC WASA's role in their implementation. The plan will also mention any policies and recommendations relating to land use, water quality, and development.

DC Office of Planning staff review applications with zoning implications, examining the land use and how it impacts the environment. Within the Development and Review process DC Office of Planning Zoning Commission can encourage private urban developments to incorporate LID and sustainable design into their plans, but cannot enforce such recommendations.

Within their facilities, DC Office of Planning encourages the recycling of paper in cooperation with the DPW program.

A.2.7 DC Energy Office

The DC Energy Office encourages their contractors to comply fully with the storm water regulations and construction erosion and sedimentation plan review process set forth by the District's DCRA, Department of Public Works, and DC Department of Health.

A.2.8 DC Public Schools

The DC Public Schools encourages their contractors to comply fully with the storm water regulations and construction erosion and sedimentation plan review process set forth by the District's DCRA and DC Department of Health.

A.2.9 DC Sports and Recreation Commission

The DC Sports and Recreation Commission encourages their contractors for site design and construction to comply fully with the storm water regulations and construction erosion and sedimentation plan review process set forth by the District's DCRA and DC Department of Health.

A.2.10 DC Office of Zoning

The DC Office of Zoning encourages their contractors for site design and construction to comply fully with the storm water regulations and construction erosion and sedimentation plan review process set forth by the District's DCRA and DC Department of Health.

A.2.11 Federal Agencies

Federal agencies that have been identified as conducting storm water pollution control activities as part of their operations within the District include:

- General Services Administration (GSA)
- National Park Service
- The Architect of the Capitol
- US Department of Agriculture (operates the National Arboretum)
- US Army Corps of Engineers

The GSA and DOH signed a consent agreement in FY 2000 that requires work under contracts through the GSA to comply with the same sediment and erosion control requirements as commercial, residential, and industrial operations in the District. This agreement assists the District in ensuring that federal facilities comply with the Soil Erosion and Sediment Control Act.

A.2.12 Regional and Non-Profit Organizations

Other regional and non-profit organizations involved in activities that contribute directly and indirectly to the reduction of pollutants in discharges from the MS4, and/or result in improved water quality in receiving waters include:

- Chesapeake Bay Program
- Interstate Commission on the Potomac River Basin (ICPRB)
- Metropolitan Washington Council of Governments (MWCOG)
- Anacostia Watershed Restoration Committee (AWRC)
- Anacostia River Business Coalition (ARBC)
- Anacostia Waterfront Initiative
- District of Columbia Environmental Education Consortium (DCEEC)

A.3 ADDITIONAL PROGRAMS WITHIN THE ENVIRONMENTAL HEALTH ADMINISTRATION

The DOH EHA conducts a number of additional activities that serve to reduce pollutants in receiving waters and the MS4. While not part of the MS4 program, and in many cases explicitly prohibited from being counted towards compliance with the MS4 Permit, these efforts to control storm water runoff contribute directly and indirectly to the reduction of pollutants in discharges from the MS4, and/or result in improved water quality in receiving waters.

A.3.1 Environmental Education and Outreach Programs

Through its environmental education and outreach staff, the Nonpoint Source Management Branch of the Watershed Protection Division (WPD) educates young people about the environment, while seeking to promote in them a stewardship ethic. WPD provides youth a wide range of conservation education opportunities and environmental activities to help them make informed decisions and take responsible action regarding pollution prevention and the conservation of our soil and water resources. These opportunities include:

- Environmental Education Programs
- Anacostia River Environmental Fair
- Schoolyard Conservation
- Environmental Education Camping
- District of Columbia Environmental Education Consortium (DCEEC)
- Environmental Education Resource Center

A.3.2 Voluntary Cleanup Program (VCP)

The District of Columbia Department of Health, Environmental Health Administration seeks to protect and preserve the ecological system of the District, protect and increase green spaces, and promote the safe use or development of lands that are contaminated or perceived to be contaminated by hazardous substances. To achieve this goal, the Environmental Health Administration, Bureau of Hazardous Materials and Toxic Substance established the District of Columbia Voluntary Cleanup Program (VCP). Unlike the media-specific programs that require mandatory cleanup of contaminated property, VCP oversees owner or developer initiated voluntary remediation of contaminated lands and buildings that return actual or potentially contaminated properties to productive uses.

In 1999, the Department of Health entered into an agreement with the United States Environmental Protection Agency, Region III, to establish a Clean Land Program in the District of Columbia. The purpose of the Clean Land Program is to ensure that any potential or known contaminated land in the city is carefully, but efficiently, assessed, cleaned to the city's groundwater and soil standards, and then reused for development or other productive purposes. VCP allows individuals, businesses and other entities, whom otherwise have no responsibilities for cleanup, to voluntarily clean up contaminated sites for future use.

APPENDIX B

**PHOTO LOG OF THE STORMWATER MONITORING
PROGRAM**

APPENDIX B. PHOTO LOG OF THE STORMWATER MONITORING PROGRAM



Outfall Installation for Stormwater Composite Sampling.



Stormwater Grab Sampling.



Confined Space ISCO Installation for Grab and Composite Sampling.



Confined Space ISCO Installation for Grab and Composite Sampling.



Manhole ISCO Installation for Grab and Composite Sampling.



Stormwater Composite Sampling.

APPENDIX C

RUNOFF COEFFICIENTS CALCULATED BY SEWERSHED

Appendix C. Runoff Coefficients Calculated by Sewershed

Runoff coefficients were estimated for each of the eight sewersheds contributing flow to the Rock Creek monitoring sites.

The runoff coefficients were estimated based on the impervious area within each District zoning category. The methodology used is as follows.

1. Information regarding each zoning category was obtained from the District's zoning web site, www.dcoz.dcgov.org/info/map.shtm.
2. The maximum occupancy of the lot for each zoning category was assumed to be covered by an impervious surface (from the structure(s)).
3. An additional percentage of the remaining unoccupied lot area was assumed to be covered by a driveway surface.
4. The average runoff coefficient for each zoning category was estimated using Equation 3 on page 5-16 of the "Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems", 1992. The equation is as follows:

$$Rv_i = 0.05 + 0.009 * I \quad \text{(Equation 3)}$$

Where: Rv_i = Runoff Coefficient
I = Percent imperviousness

TABLE C-1. ESTIMATED RUNOFF COEFFICIENT FOR DISTRICT LAND USE ZONING CATEGORIES.

Land Use-Zoning	Maximum Occupancy	Driveway Occupancy	Total Impervious	R_v i
C-1 Commercial				0.64
C-1-A Neighborhood Shopping	60	20	80	0.77
C-2-A Community business center-low moderate density	60	20	80	0.77
C-2-B Community business center -medium density	80	20	100	0.95
C-2-C Community business center- high density	80	20	100	0.95
C-3-A Medium bulk major business and employment	75	20	95	0.905
C-3-B Medium bulk major business and employment	100		100	0.95
C-3-C High Bulk major business and employment	100		100	0.95
C-4 Central Business district	100		100	0.95
C-5 (PAD) Pennsylvania Avenue Development	100		100	0.95
C-M-1 Low Bulk commercial and light manufacturing	100		100	0.95
C-M-2 Medium bulk commercial and light manufacturing	100		100	0.95
C-M-3 High bulk commercial and light manufacturing	100		100	0.95
CR Mixed residential, retail, offices & light industrial uses	75	20	95	0.905
M-5 Mixed residential and commercial				0.68
M-6 Mixed residential and commercial				0.64
M-7 Mixed residential and commercial				0.64
M-11 Mixed residential and commercial				0.64
M-20 Mixed residential and commercial				0.68
M General industry	100		100	0.95
P-1 Public - Federal and Institutional				0.77
P-2 Public - Federal and Institutional				0.77
P-3 Public - Federal and Institutional				0.68
P-4 Parks				0.35
R-1 Residential				0.48
R-2 Residential				0.65
R-3 Residential				0.65
R-4 Residential				0.64
R-1-A Single family detached dwellings	40	10	50	0.5
R-1-B Single family detached dwellings	40	10	50	0.5
R-2 Single family detached dwellings	40	10	50	0.5
R-3 Row dwellings & flats	60	15	75	0.725
R-4 Row dwellings & flats	60	15	75	0.725
R-5-A Low density apartments	60	20	80	0.77
R-5-B Moderate density apartment houses	60	20	80	0.77
R-5-C Medium density apartment houses	75	20	95	0.905
R-5-D Medium-High density apartment houses	75	20	95	0.905
R-5-E High density	75	20	95	0.905
SP-1 Medium density residential/limited office	80	15	95	0.905
SP-2 Medium density residential/limited office	80	15	95	0.905
W-1 Low density mixed residential-commercial	80	15	95	0.905
W-2 Medium density mixed residential-commercial	75	20	95	0.905
W-3 High density mixed residential-commercial	75	20	95	0.905

TABLE C-2. RUNOFF COEFFICIENT FOR THE MONITORED ANACOSTIA SEWERSHEDS.

Monitoring Site		Zone	R _{v_i}	Acres
Anacostia				
MS-1	Stickfoot	C2	0.68	8.92
		M23	0.73	16.30
		M5	0.68	3.34
		P1	0.77	5.02
		P2	0.77	177.74
		P4	0.35	133.00
		R2	0.65	258.75
MS-2	O St. Pump Station	C4	0.77	1.44
		M14	0.73	4.34
MS-3	Anacostia High School	P1	0.77	2.77
		C1	0.64	9.06
		C2	0.68	9.47
		I1	0.73	0.09
		P2	0.77	10.52
		P4	0.35	41.20
MS-4	Gallatin	R1	0.48	0.52
		R2	0.65	118.70
		C2	0.68	3.32
		C3	0.73	13.70
		I1	0.73	26.00
		M21	0.68	61.10
		P1	0.77	1.42
		P2	0.77	12.15
		P3	0.68	152.10
		P4	0.35	118.90
MS-5	Varnum	R1	0.48	284.83
		R2	0.65	70.90
		C1	0.64	34.03
		I1	0.73	0.37
		M10	0.7	39.60
		M2	0.48	18.50
		P2	0.77	3.49
		P3	0.68	206.50
		P4	0.35	61.93
		R1	0.48	717.56
MS-6	Nash Run	R2	0.65	36.25
		P4	0.35	9.11
		R1	0.48	12.30
		W1	1	0.21
MS-7	East Capitol	C1	0.64	1.85
		P4	0.35	4.13
		R2	0.65	54.30
MS-8.1	Ft. Lincoln (inflow)	M6	0.64	4.46

Monitoring Site		Zone	Rv _i	Acres
MS-9	Hickey Run	P4	0.35	16.60
		I1	0.73	68.50
		P4	0.35	1.21
		R1	0.48	25.90
		R3	0.65	0.61
		P2	0.77	21.12
		P3	0.68	6.74
		P4	0.35	14.63
		R1	0.48	222.30
		R2	0.65	0.14
		R3	0.65	0.87
		R4	0	31.70
R3	0.65	11.30		

TABLE C-3. WEIGHTED RUNOFF COEFFICIENT FOR THE MONITORED POTOMAC SEWERSHEDS.

Monitoring Site		Zone	Rv _i	Acres
MS-1	Battery Kemble	P4	0.35	57.90
		R1	0.48	9.66
MS-2	Foundary Branch	C1	0.64	4.41
		P2	0.77	4.57
		P3	0.68	13.30
		P4	0.35	1.01
		R1	0.48	10.40
		R2	0.65	3.81
		R3	0.65	11.30
MS-3	Dalecarlia	P4	0.35	4.02
		R1	0.48	1.69
MS-4	Oxon Run	M5	0.68	11.90
		P2	0.77	12.80
		P4	0.35	1.85
		R2	0.65	22.40
MS-5	Tidal Basin	P1	0.77	8.55
		P4	0.35	111.20
MS-6	Washington Ship Channel	C4	0.77	9.23
		P1	0.77	19.70
		P4	0.35	12.70
MS-7	C&O Canal	C1	0.64	2.20
		P3	0.68	7.96
		P4	0.35	12.00
		R1	0.48	11.80
		R2	0.65	1.78

**TABLE C-4. WEIGHTED RUNOFF COEFFICIENT FOR THE
MONITORED ROCK CREEK SEWERSHEDS.**

	Monitoring Site	Zone	R_{v_i}	Acres
MS-1	Ft. Stevens Drive	P4	0.35	5.97
		R1	0.48	15.70
		R2	0.65	3.38
MS-2	Military and Beach	P3	0.68	0.04
		P4	0.35	30.60
MS-3	Soapstone	C1	0.64	6.20
		C2	0.68	3.04
		M6	0.64	4.93
		P1	0.77	18.55
		P2	0.77	21.12
		P3	0.68	6.74
		P4	0.35	14.63
		R1	0.48	222.30
		R2	0.65	0.14
MS-4	Hazen Park	R3	0.65	0.87
		R4	0	31.70
		P1	0.77	9.81
		P2	0.77	4.24
		P3	0.68	16.80
MS-5	Klinge Valley	P4	0.35	7.48
		R1	0.48	49.80
		P3	0.68	26.50
		P4	0.35	1.36
		R1	0.48	23.70
MS-6	Normanstone Creek	R2	0.65	0.44
		R1	0.48	10.30
MS-7	Portal and 16th St	P4	0.35	0.32
		R1	0.48	5.36
MS-8	Broad Branch	C1	0.64	21.12
		P2	0.77	16.78
		P3	0.68	8.74
		P4	0.35	37.82
		R1	0.48	418.00
		R2	0.65	23.30
		R3	0.65	3.58
MS-9	Oregon	R4	0	11.62
		P3	0.68	21.00
		P4	0.35	3.02
		R1	0.48	60.40
MS-10	Glover Archbold	C1	0.64	4.41
		P2	0.77	4.57
		P3	0.68	13.30
		P4	0.35	1.01

Monitoring Site	Zone	Rv_i	Acres
	R1	0.48	10.40
	R2	0.65	3.81
	R3	0.65	11.30

APPENDIX D

PHOTO LOG OF LIDS PROJECTS

APPENDIX D. PHOTO LOG OF LIDS PROJECTS



Newly planted rain garden draining Benning Road Bridge, adjacent to Kingman Island, NE, DC



Rain garden draining a parking lot at the Navy Yard, SE, DC



Large rain garden draining a housing complex on Mississippi Avenue, SE, DC in Oxon Creek (Anacostia River)

APPENDIX E

**DISTRICT OF COLUMBIA FACILITIES LISTED UNDER
CERCLA OR HAVING AN NPDES PERMIT**

**APPENDIX E. DISTRICT OF COLUMBIA FACILITIES LISTED UNDER CERCLA
OR HAVING AN NPDES PERMIT**

Table E-1. List of D.C. Sites Subject to SARA Title III or EPCRA

CERCLIS EPA ID	SITE NAME
DCN000306144	2005 Inaugural Pre-Deployment Site
DCSFN0305431	50th and Hayes
DCN000306000	Ballou Senior High School
DC5570024443	Bolling Air Force Base
DCN000305703	Capitol Hill Anthrax Site
DCN000306094	Capitol Hill Ricin Site
DCN000306151	Cardozo High School Mercury Site
DCN000305870	Custis & Brown Barge Spill
DCN000305659	DC Deicer Spill
DCN000305704	Diamond Ordnance Fuze Lab
DCN000305710	EPA Mail Rooms
DC8210021004	Fort Leslie J McNair
DC8470090004	General Services Administration
DCN000305916	General Services Administration Building 410
DCSFN0305524	Glover Bridge Site
DCN000305625	HUD PCP Spill
DCSFN0305462	Kenilworth Park Landfill Site
DC1170023476	Naval Security Station
DCD003254273	NPS - Anacostia Park Sections E & F
DCD983967951	PEPCO Benning Generating Station
DCN000305662	Poplar Point Nursery
DC0001401637	Seafarers Yacht Club ER
DC9751305997	St. Elizabeth Hospital
DC7120507432	US DA National Arboretum
DCN000305729	US Dept Of Commerce
DC9170024310	US Washington Navy Yard
DC9470090003	USA Fort Lincoln Barrel Site
DCN000305585	Vermiculite VPC1
DC4210021156	Walter Reed Army Medical Center
DCD983971136	Washington D.C. Chemical Munitions Site (Spring Valley)
DCN000305732	Washington DC Processing and Distribution Center
DCD077797793	Washington Gas Light Company

Based on data extracted from online EPA CERCLIS database July 2005 (www.epa.gov/enviro).

Table E-2. Industrial Facilities in the District of Columbia with Individual or Site-specific Storm Water NPDES Permits

Facility Name	NPDES Permit Number	Date Issued (Expiration)	Receiving Waters
Amerada Hess Corporation Washington Terminal	DC0000051	15-Nov-00 (14-Nov-05)	Anacostia River
CMDT Naval District Washington DC	DC0000141	27-Feb-01 (26-Feb-06)	Anacostia River
CTIDC	DC0000191	3-Jun-04 (2-Jun-09)	Anacostia River
D.C. WASA (Blue Plains)	DC0021199	25-Feb-03 (24-Feb-08)	Potomac, Anacostia, & Piney Rivers
Government of the District of Columbia	DC0000221	19-Aug-04 (18-Aug-09)	Potomac River, Anacostia River & Tributaries
GSA-National Capital Region (NCR) Heating Operation and Transmission District (HOTD) (Central Heating Plant)	DC0000035	11-Sep-01 (10-Sep-06)	Rock Creek
GSA-Southeast Federal Center	DC0000299	1-Jul-03 (30-Jun-08)	Anacostia River
Hqts. Naval District Washington	DC0000159	25-Nov-92 (24-Nov-97)	Anacostia River
JFK Center for Performing Arts	DC0000248	27-Jul-01 (26-Jul-06)	Potomac River
Maryland Rock Industries, Inc.	DCR05A046	7-Apr-00 (Not reported.)	Anacostia River
Mirant Potomac River /Potomac Electric Power Co	DC0022004	20-Apr-00 (19-Apr-05)	Potomac River
National Gallery of Art	DC0000167	14-Dec-01 (13-Dec-06)	Washington Ship Channel
PEPCO-Benning Gen. Sta.	DC0000094	17-Nov-00 (16-Nov-05)	Anacostia River
Super Concrete Corporation	DC0000175	12-May-03 (11-May-08)	Anacostia River
U.S. Army Corps of Engineers Washington Aqueduct Division Dalecarlia WTP	DC0000019	15-Apr-03 (14-Apr-08)	Potomac River
WMATA-Mississippi Avenue DPS	DC0000337	20-Apr-00 (19-Apr-05)	Oxon Run

- Retrieved from online EPA Permit Compliance System (PCS) (www.epa.gov/enviro, July 2005).
- GSA Southeast Federal Center, D.C. Government, Washington Navy Yard, and WMATA hold site-specific storm water permits.

APPENDIX F

**DPW PAMPHLET: BULK TRASH AND HOUSEHOLD
HAZARDOUS WASTE**

Dear DC Resident:

The District of Columbia is an environmentally conscious community, and we are growing greener every day. As the District's primary solid waste management organization, the Department of Public Works (DPW) must do more than collect everyday trash. Special materials need special treatment. The information in this brochure tells you how to ensure that these particular household items are disposed of properly.

They include:

- **Recyclable Materials** – Newspapers, magazines, bottles and cans are collected separately from household trash every week so that they can be made into new items for you.
- **Bulk Trash** – Some refuse, such as old mattresses, don't fit easily into our trash trucks! Additionally, refrigerators, air conditioners, and other appliances contain materials that pose potential health risks if improperly handled. For those reasons, we collect bulk trash by appointment, rather than on trash day.

- **Household Hazards** – Pesticides, solvents, cleaning chemicals, and paint are collected separately twice a year because they can be dangerous when crushed, mixed with other materials, or burned.

I hope you will keep this brochure and take advantage of these special collections. Together, we can do our part to preserve our environment and keep our city clean and attractive!

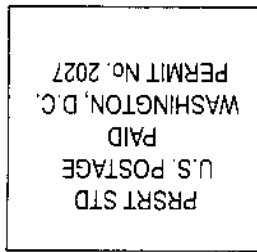
Leslie A. Hotaling, Director
Department of Public Works

Important information inside on HOUSEHOLD HAZARDOUS WASTE COLLECTION DAY: MAY 11, 2002

Department of Public Works
2000 14th Street, N.W. 6th Floor
Washington, D.C. 20009



202-727-1000
www.dpw.dc.gov



RECYCLING

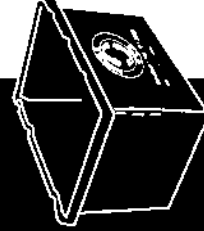
BULK TRASH

&

HOUSEHOLD HAZARDS



A Guide to DPW's Special Collections



Government of the District of Columbia
Anthony A. Williams, Mayor

Why Recycle?

Recycling is an essential element of the District's comprehensive solid waste management program. Recycling recovers valuable resources, lessens greenhouse gas emissions, and reduces our reliance on landfills and resource recovery plants. It conserves energy and our natural resources because it reduces the need for raw materials.

This morning's newspaper can be recycled into another morning's newspaper or remanufactured into paperboard. Cans and bottles can be recycled into new containers, toys, traffic cones, or art.



District of Columbia Government
Department of Public Works
Solid Waste Management Administration
Recycling Ho (202) 645-8245

Recycling is Easy!

Do put recyclables out no earlier than 6:30 pm the evening before and no later than 6:00 am on the morning of collection. Leaving recyclables out for longer periods exposes them to rain or snow and ruins them for recycling.

Do bundle newspapers, magazines, catalogs, and office paper or put them in brown paper grocery bags. This makes it easier to process them.

Do flatten and bundle corrugated cardboard boxes into sections no more than 42 inches in any direction.

DO NOT put your recyclables in plastic bags. Plastic bags are contaminants, and degrade the quality of the recyclable materials. Also, it is a violation of the sanitation code to use plastic grocery bags or other lightweight plastic bags for recycling or trash collection.

DO NOT put trash in your recycling bin. Collection crews will not empty bins contaminated with trash. Also, trash in the recycling bin may provide food for rats.

Recycling Fun Facts

By recycling one ton of paper, we save: 17 trees, 7,000 gallons of water, 380 gallons of oil, 3 cubic yards of landfill space AND enough energy to heat an average home for 6 months.

Manufacturers can make one extra-large T-shirt out of only five recycled plastic soda bottles.

Recycling aluminum cans saves 95% of the energy it takes to make aluminum cans from scratch.

Every year Americans throw away approximately 60 billion cans, 28 billion bottles, four million tons of plastic, and 40 million tons of paper that could be recycled.

Recycled glass is used to make bricks, fiberglass insulation, and asphalt (the road paving material that shimmers in sunlight).

All steel products manufactured in the United States contain approximately 25%, and sometimes up to 100%, recycled steel.

During WWII (1941-1945), many farms melted down and recycled parts from rusted equipment so that the government would have metal to make military vehicles, ships and planes.

Now that you know all these facts, don't you want to recycle more?

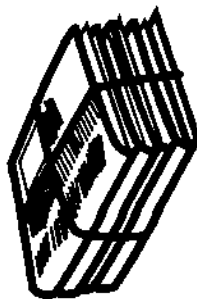
WEEKLY RESIDENTIAL RECYCLING

PLACE RECYCLING BIN OUT NO EARLIER THAN
6:30 PM THE EVENING BEFORE COLLECTION!

Paper Products – Bag or Bundle

Newspaper:

Put in paper bags or tie in bundles.
Include all inserts.

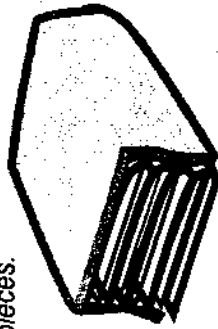


Corrugated Cardboard:

Flatten and tie into bundles that are no more than 42
inches in any direction. No Pizza Boxes!

Magazines, Catalogs, and Phone Books:

Put in paper bags or tie in bundles. Mailing labels are
okay. No paperback books or direct mail pieces.



Computer and Office Paper:

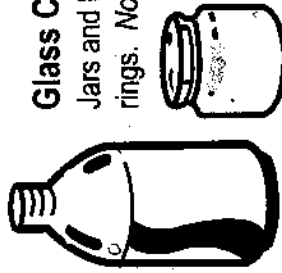
Put in paper bags or tie in bundles.

Containers – Place Directly in the Recycling Bin

Please rinse all containers. This eliminates potential food for vermin.

Glass Containers:

Jars and bottles only; rinse. Remove caps and
rings. No light bulbs, cookware, or window glass.



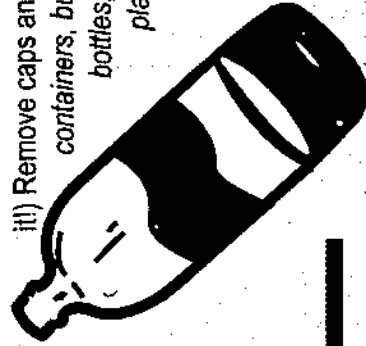
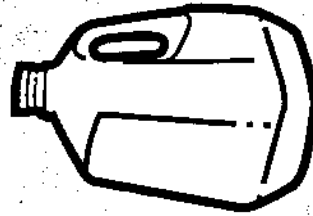
Metal Cans:

Rinse food and beverage cans. Labels are ok.
Crush cans flat, if possible.
No pie plates or foil products
can be accepted for recycling.



Plastic Bottles, Jars, and Jugs (#1 and #2 only):

Narrow-necked containers only. Crush flat (step on
it!) Remove caps and rings. No yogurt
containers, butter tubs, motor oil
bottles, peanut butter jars,
plastic bags or plastic wrap.



**CURRENTLY, WE ARE UNABLE TO ACCEPT MIXED
PAPER AND PAPERBOARD, SUCH AS SHOE BOXES
AND CEREAL BOXES, NOR CAN WE RECYCLE FOOD
CARTONS.**

SCHEDULE

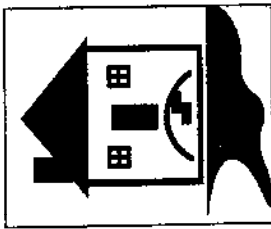
Once -a-week trash collection
Recyclables collection same day

Twice-a-week trash collection
Recyclables collection on second day

Free Household Hazardous Waste Collection Saturday, May 11, 2002 9am – 3pm 3815 Fort Drive, NW

(adjacent to Alice Deal Jr. High School,
Nebraska Avenue and Davenport Street, NW).

HAZARDS



IN THE HOME

You may not realize it... but you have hazardous materials in your home! When these products are used according to direction, they pose little threat to the environment. It's when you try to dispose of them that you may be contributing to pollution or endangering pets and people.

Instead of taking this risk, bring them to the District's special waste collection site. This biannual service is free! Check our website for future dates – www.dpw.dc.gov.

During this collection we will also be accepting computers, TVs and other audio/video equipment – except speakers – for recycling. TV screens and computer monitors must be intact (not cracked or broken).

Materials to Bring

- Acids
- Ink/Stains/Varnish
- Antifreeze/Automotive Fluids
- Furniture Stripper
- Drain Openers
- Swimming Pool Chemicals
- Chemistry Sets
- Roofing Tar
- Poisons/Pesticides
- Solvents/Thinners
- Oil-Based Paints
- Batteries (All Types)
- Caustic Household Cleaners
- Lawn and Garden Chemicals
- Computers and Electronics*

*There will be a nominal fee for disposing of TV sets and computer monitors.

BULK COLLECTION

Sometimes, residents need to get rid of items that are just too large for the regular trash. The Department of Public Works collects large, bulky items – by appointment only – from households that receive DPW trash collection service. It's a great way to start spring cleaning.

To arrange for a bulk collection appointment, call the City-Wide Call Center at (202) 727-1000. Appointments usually are scheduled within 10 days. Only five items may be collected at one time. If you have a lot of bulk trash, subsequent appointments may be necessary. Bulk items should be put at your normal point of trash collection, unless otherwise directed.

Acceptable Bulk Items:

- Household furniture
- Major appliances
- Hot water heaters
- Mattresses, box springs and bed frames
- Tires (up to 5 only)
- Rugs (MUST be rolled and tied!)
- Large toys (kiddie pools, playhouses)
- Televisions

Unacceptable Bulk Items:

- Household or gardening chemicals
- Building or renovation materials
- Hazardous and/or liquid waste
- Tree stumps